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Эфемериды Солнца и Луны

Мореходная астрономия — 2027–2035

Издание от Атлантического до Индийского океана

Часы около полудня и кульминации Луны на Гринвичском меридиане (0°)

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Порядок работы

Пример шаг за шагом: Солнце, нижний край, 12 июня 2027 г. в 10 ч 23 мин 41 с UTC, высота глаза 2,5 м, поправка индекса $i = -1{,}4'$.

Высота светила

1 **Отсчёт секстана.** Снимите отсчёт секстана (ос) и прибавьте поправку индекса i с её знаком. С искусственным горизонтом разделите результат на 2: отсчёт равен двойной высоте.

$$h' = \text{ос} + i$$ 62°14,6’ − 1,4’ = 62°13,2’

2 **Наклонение горизонта.** По видимому (морскому) горизонту прибавьте наклонение горизонта d (табл. 1, всегда отрицательное) и получите видимую высоту $h_\text{в}$. С искусственным горизонтом эта поправка не нужна.

$$h_\text{в} = h' + d$$ 62°13,2’ − 2,8’ = 62°10,4’ (e = 2,5 м)

3 **Обсервованная высота.** Прибавьте общую поправку Δh для Солнца (табл. 2) или Луны (табл. 3), выбранную по $h_\text{в}$, а для Луны ещё и по горизонтальному параллаксу p со страницы месяца. В неё уже входят рефракция, параллакс и полудиаметр: второй раз их не учитывайте.

$$h_\text{о} = h_\text{в} + \Delta h$$ 62°10,4’ + 15,4’ = 62°25,8’ (табл. 2)

Координаты светила

4 **Часовой угол.** На странице месяца выберите $t^\text{ч}_\text{гр}$ на целый час перед наблюдением, затем интерполируйте на прошедшие минуты и секунды: табл. 4, затем табл. 5 для Δ строки $t_\text{гр}$ (превышение над 15°/ч у Солнца, над 14°/ч у Луны).

$$t_\text{гр} = t^\text{ч}_\text{гр} + \text{табл. 4} + \text{табл. 5}\,(\Delta)$$ 330°02,6’ + 5°55,2’ + 0,0’ = 335°57,8’

5 **Склонение.** Выберите склонение $\delta^\text{ч}$ на целый час и прибавьте поправку за Δ строки склонения (табл. 5) с её знаком.

$$\delta = \delta^\text{ч} + \text{табл. 5}\,(\Delta)$$ 23°08,9’ + 0,1’ = 23°09,0’ (Δ = +0,2)

Таблицы рассчитаны на 10 °C и 1010 гПа; при высоте ниже 10° рефракция меняется с погодой, и наблюдения менее надёжны. Формулы: наклонение горизонта $d = -1{,}76'\sqrt{e}$ (e — высота глаза, м); рефракция по Беннету; параллакс $0{,}15'\cos h_\text{в}$ (Солнце), $\arcsin(\sin p \cos h_\text{в})$ (Луна); полудиаметр Луны $R = 0{,}2725\,p$.

Таблица 1 — Наклонение видимого горизонта

e (м)	d
0,5	−1,2
1,0	−1,8
1,5	−2,2
2,0	−2,5
2,5	−2,8
3,0	−3,0
3,5	−3,3
4,0	−3,5
4,5	−3,7
5,0	−3,9
6,0	−4,3
7,0	−4,7
8,0	−5,0
9,0	−5,3
10,0	−5,6
12,0	−6,1
14,0	−6,6
16,0	−7,0
18,0	−7,5
20,0	−7,9
25,0	−8,8
30,0	−9,6

Таблица 2 — Солнце: общая поправка

$h_в$	Октябрь–март		Апрель–сентябрь	
	Нижний край	Верхний край	Нижний край	Верхний край
5°00’	+6.4	−25.8	+6.2	−25.6
5°30’	+7.1	−25.1	+6.9	−24.9
6°00’	+7.7	−24.5	+7.5	−24.3
6°30’	+8.3	−23.9	+8.1	−23.7
7°00’	+8.8	−23.4	+8.6	−23.2
7°30’	+9.2	−23.0	+9.0	−22.8
8°00’	+9.6	−22.6	+9.4	−22.4
8°30’	+10.0	−22.2	+9.8	−22.0
9°00’	+10.3	−21.9	+10.1	−21.7
9°30’	+10.6	−21.6	+10.4	−21.4
10°00’	+10.9	−21.3	+10.7	−21.1
11°00’	+11.3	−20.9	+11.1	−20.7
12°00’	+11.7	−20.5	+11.5	−20.3
13°00’	+12.1	−20.1	+11.9	−19.9
14°00’	+12.4	−19.8	+12.2	−19.6
15°00’	+12.6	−19.6	+12.4	−19.4
16°00’	+12.8	−19.4	+12.6	−19.2
17°00’	+13.0	−19.2	+12.8	−19.0
18°00’	+13.2	−19.0	+13.0	−18.8
19°00’	+13.4	−18.8	+13.2	−18.6
20°00’	+13.5	−18.7	+13.3	−18.5
25°00’	+14.1	−18.1	+13.9	−17.9
30°00’	+14.5	−17.7	+14.3	−17.5
35°00’	+14.8	−17.4	+14.6	−17.2
40°00’	+15.0	−17.2	+14.8	−17.0
45°00’	+15.2	−17.0	+15.0	−16.8
50°00’	+15.4	−16.8	+15.2	−16.6
55°00’	+15.5	−16.7	+15.3	−16.5
60°00’	+15.6	−16.6	+15.4	−16.4
65°00’	+15.7	−16.5	+15.5	−16.3
70°00’	+15.8	−16.4	+15.6	−16.2
75°00’	+15.9	−16.3	+15.7	−16.1
80°00’	+16.0	−16.2	+15.8	−16.0
85°00’	+16.0	−16.2	+15.8	−16.0
90°00’	+16.1	−16.1	+15.9	−15.9

Рефракция, параллакс и полудиаметр (16,1’ с октября по март, 15,9’ с апреля по сентябрь). Прибавить к $h_в$.

Таблица 3 — Луна: общая поправка

Нижний край									
$h_в \setminus p$	54’	55’	56’	57’	58’	59’	60’	61’	62’
5°00’	+58.6	+59.9	+61.2	+62.4	+63.7	+65.0	+66.2	+67.5	+68.8
6°00’	+59.9	+61.2	+62.4	+63.7	+65.0	+66.2	+67.5	+68.8	+70.0
7°00’	+60.9	+62.1	+63.4	+64.7	+65.9	+67.2	+68.4	+69.7	+71.0
8°00’	+61.6	+62.8	+64.1	+65.4	+66.6	+67.9	+69.1	+70.4	+71.7
9°00’	+62.1	+63.4	+64.6	+65.9	+67.1	+68.4	+69.7	+70.9	+72.2
10°00’	+62.5	+63.8	+65.0	+66.3	+67.5	+68.8	+70.0	+71.3	+72.6
11°00’	+62.8	+64.1	+65.3	+66.6	+67.8	+69.1	+70.3	+71.6	+72.8
12°00’	+63.0	+64.3	+65.5	+66.8	+68.0	+69.3	+70.5	+71.8	+73.0
13°00’	+63.1	+64.4	+65.6	+66.9	+68.1	+69.4	+70.6	+71.9	+73.1
14°00’	+63.2	+64.5	+65.7	+66.9	+68.2	+69.4	+70.7	+71.9	+73.2
15°00’	+63.2	+64.5	+65.7	+67.0	+68.2	+69.4	+70.7	+71.9	+73.1
20°00’	+62.8	+64.0	+65.2	+66.4	+67.6	+68.8	+70.0	+71.2	+72.5
25°00’	+61.5	+62.7	+63.9	+65.1	+66.2	+67.4	+68.6	+69.8	+71.0
30°00’	+59.8	+60.9	+62.0	+63.2	+64.3	+65.5	+66.6	+67.7	+68.9
35°00’	+57.5	+58.6	+59.7	+60.8	+61.9	+63.0	+64.1	+65.2	+66.3
40°00’	+54.9	+55.9	+57.0	+58.0	+59.0	+60.1	+61.1	+62.2	+63.2
45°00’	+51.9	+52.9	+53.9	+54.8	+55.8	+56.8	+57.8	+58.8	+59.7
50°00’	+48.6	+49.5	+50.4	+51.3	+52.3	+53.2	+54.1	+55.0	+55.9
55°00’	+45.0	+45.8	+46.7	+47.5	+48.4	+49.2	+50.1	+50.9	+51.8
60°00’	+41.1	+41.9	+42.7	+43.5	+44.2	+45.0	+45.8	+46.5	+47.3
65°00’	+37.1	+37.8	+38.5	+39.2	+39.9	+40.5	+41.2	+41.9	+42.6
70°00’	+32.8	+33.4	+34.1	+34.7	+35.3	+35.9	+36.5	+37.1	+37.7
75°00’	+28.4	+29.0	+29.5	+30.0	+30.5	+31.1	+31.6	+32.1	+32.7
80°00’	+23.9	+24.4	+24.8	+25.3	+25.7	+26.1	+26.6	+27.0	+27.5
85°00’	+19.3	+19.7	+20.1	+20.4	+20.8	+21.1	+21.5	+21.9	+22.2
90°00’	+14.7	+15.0	+15.3	+15.5	+15.8	+16.1	+16.4	+16.6	+16.9

Верхний край									
$h_в \setminus p$	54’	55’	56’	57’	58’	59’	60’	61’	62’
5°00’	+29.2	+29.9	+30.6	+31.4	+32.1	+32.8	+33.5	+34.3	+35.0
6°00’	+30.5	+31.2	+31.9	+32.6	+33.4	+34.1	+34.8	+35.5	+36.3
7°00’	+31.4	+32.1	+32.9	+33.6	+34.3	+35.0	+35.7	+36.5	+37.2
8°00’	+32.1	+32.9	+33.6	+34.3	+35.0	+35.7	+36.4	+37.2	+37.9
9°00’	+32.7	+33.4	+34.1	+34.8	+35.5	+36.2	+37.0	+37.7	+38.4
10°00’	+33.1	+33.8	+34.5	+35.2	+35.9	+36.6	+37.3	+38.1	+38.8
11°00’	+33.4	+34.1	+34.8	+35.5	+36.2	+36.9	+37.6	+38.3	+39.0
12°00’	+33.6	+34.3	+35.0	+35.7	+36.4	+37.1	+37.8	+38.5	+39.2
13°00’	+33.7	+34.4	+35.1	+35.8	+36.5	+37.2	+37.9	+38.6	+39.3
14°00’	+33.8	+34.5	+35.2	+35.9	+36.6	+37.3	+38.0	+38.7	+39.4
15°00’	+33.8	+34.5	+35.2	+35.9	+36.6	+37.3	+38.0	+38.7	+39.4
20°00’	+33.3	+34.0	+34.7	+35.3	+36.0	+36.7	+37.3	+38.0	+38.7
25°00’	+32.1	+32.7	+33.4	+34.0	+34.6	+35.3	+35.9	+36.5	+37.2
30°00’	+30.3	+30.9	+31.5	+32.1	+32.7	+33.3	+33.9	+34.5	+35.1
35°00’	+28.1	+28.6	+29.2	+29.7	+30.3	+30.8	+31.4	+31.9	+32.5
40°00’	+25.5	+26.0	+26.5	+26.9	+27.4	+27.9	+28.4	+28.9	+29.4
45°00’	+22.5	+22.9	+23.3	+23.8	+24.2	+24.6	+25.1	+25.5	+25.9
50°00’	+19.2	+19.5	+19.9	+20.3	+20.6	+21.0	+21.4	+21.8	+22.1
55°00’	+15.6	+15.9	+16.2	+16.5	+16.8	+17.1	+17.4	+17.7	+18.0
60°00’	+11.7	+11.9	+12.2	+12.4	+12.6	+12.8	+13.1	+13.3	+13.5
65°00’	+7.6	+7.8	+7.9	+8.1	+8.2	+8.4	+8.5	+8.7	+8.8
70°00’	+3.4	+3.5	+3.5	+3.6	+3.7	+3.7	+3.8	+3.9	+3.9
75°00’	−1.0	−1.0	−1.0	−1.0	−1.1	−1.1	−1.1	−1.1	−1.1
80°00’	−5.5	−5.6	−5.7	−5.8	−5.9	−6.0	−6.1	−6.2	−6.3
85°00’	−10.1	−10.3	−10.5	−10.7	−10.8	−11.0	−11.2	−11.4	−11.6
90°00’	−14.7	−15.0	−15.3	−15.5	−15.8	−16.1	−16.3	−16.6	−16.9

Столбцы: горизонтальный параллакс p (страница месяца, на дату). Рефракция, параллакс и полудиаметр ($R = 0{,}2725\,p$). Прибавить к $h_в$; интерполировать между строками и столбцами.

Таблица 4 — Приращение $t_{\text{гр}}$ за минуты и секунды

мин	Солнце	Луна	мин	Солнце	Луна	с	Солнце	Луна
0	0°00.0’	0°00.0’	30	7°30.0’	7°00.0’	0	0,0’	0,0’
1	0°15.0’	0°14.0’	31	7°45.0’	7°14.0’	2	0,5’	0,5’
2	0°30.0’	0°28.0’	32	8°00.0’	7°28.0’	4	1,0’	0,9’
3	0°45.0’	0°42.0’	33	8°15.0’	7°42.0’	6	1,5’	1,4’
4	1°00.0’	0°56.0’	34	8°30.0’	7°56.0’	8	2,0’	1,9’
5	1°15.0’	1°10.0’	35	8°45.0’	8°10.0’	10	2,5’	2,3’
6	1°30.0’	1°24.0’	36	9°00.0’	8°24.0’	12	3,0’	2,8’
7	1°45.0’	1°38.0’	37	9°15.0’	8°38.0’	14	3,5’	3,3’
8	2°00.0’	1°52.0’	38	9°30.0’	8°52.0’	16	4,0’	3,7’
9	2°15.0’	2°06.0’	39	9°45.0’	9°06.0’	18	4,5’	4,2’
10	2°30.0’	2°20.0’	40	10°00.0’	9°20.0’	20	5,0’	4,7’
11	2°45.0’	2°34.0’	41	10°15.0’	9°34.0’	22	5,5’	5,1’
12	3°00.0’	2°48.0’	42	10°30.0’	9°48.0’	24	6,0’	5,6’
13	3°15.0’	3°02.0’	43	10°45.0’	10°02.0’	26	6,5’	6,1’
14	3°30.0’	3°16.0’	44	11°00.0’	10°16.0’	28	7,0’	6,5’
15	3°45.0’	3°30.0’	45	11°15.0’	10°30.0’	30	7,5’	7,0’
16	4°00.0’	3°44.0’	46	11°30.0’	10°44.0’	32	8,0’	7,5’
17	4°15.0’	3°58.0’	47	11°45.0’	10°58.0’	34	8,5’	7,9’
18	4°30.0’	4°12.0’	48	12°00.0’	11°12.0’	36	9,0’	8,4’
19	4°45.0’	4°26.0’	49	12°15.0’	11°26.0’	38	9,5’	8,9’
20	5°00.0’	4°40.0’	50	12°30.0’	11°40.0’	40	10,0’	9,3’
21	5°15.0’	4°54.0’	51	12°45.0’	11°54.0’	42	10,5’	9,8’
22	5°30.0’	5°08.0’	52	13°00.0’	12°08.0’	44	11,0’	10,3’
23	5°45.0’	5°22.0’	53	13°15.0’	12°22.0’	46	11,5’	10,7’
24	6°00.0’	5°36.0’	54	13°30.0’	12°36.0’	48	12,0’	11,2’
25	6°15.0’	5°50.0’	55	13°45.0’	12°50.0’	50	12,5’	11,7’
26	6°30.0’	6°04.0’	56	14°00.0’	13°04.0’	52	13,0’	12,1’
27	6°45.0’	6°18.0’	57	14°15.0’	13°18.0’	54	13,5’	12,6’
28	7°00.0’	6°32.0’	58	14°30.0’	13°32.0’	56	14,0’	13,1’
29	7°15.0’	6°46.0’	59	14°45.0’	13°46.0’	58	14,5’	13,5’

На страницах месяцев $t_{\text{гр}}$ дан на целые часы; между ними он растёт равномерно, на 15° в час у Солнца и на 14° у Луны. Таблица даёт приращение за минуты (слева) и секунды (справа) после целого часа: прибавьте оба к $t_{\text{гр}}$ на целый час, затем поправку за Δ (табл. 5). Пример, Солнце в 15 ч 30 мин 52 с: 7°30,0’ + 13,0’ = 7°43,0’.

Таблица 5 — Поправка за Δ

Δ’/h \ мин	5	10	15	20	25	30	35	40	45	50	55	60
0,1	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1
0,2	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2
0,3	0,0	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,3	0,3
0,5	0,0	0,1	0,1	0,2	0,2	0,2	0,3	0,3	0,4	0,4	0,5	0,5
0,7	0,1	0,1	0,2	0,2	0,3	0,3	0,4	0,5	0,5	0,6	0,6	0,7
1,0	0,1	0,2	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,8	0,9	1,0
2,0	0,2	0,3	0,5	0,7	0,8	1,0	1,2	1,3	1,5	1,7	1,8	2,0
3,0	0,2	0,5	0,8	1,0	1,2	1,5	1,8	2,0	2,2	2,5	2,8	3,0
4,0	0,3	0,7	1,0	1,3	1,7	2,0	2,3	2,7	3,0	3,3	3,7	4,0
5,0	0,4	0,8	1,2	1,7	2,1	2,5	2,9	3,3	3,8	4,2	4,6	5,0
6,0	0,5	1,0	1,5	2,0	2,5	3,0	3,5	4,0	4,5	5,0	5,5	6,0
7,0	0,6	1,2	1,8	2,3	2,9	3,5	4,1	4,7	5,2	5,8	6,4	7,0
8,0	0,7	1,3	2,0	2,7	3,3	4,0	4,7	5,3	6,0	6,7	7,3	8,0
9,0	0,8	1,5	2,2	3,0	3,8	4,5	5,2	6,0	6,8	7,5	8,2	9,0
10,0	0,8	1,7	2,5	3,3	4,2	5,0	5,8	6,7	7,5	8,3	9,2	10,0
11,0	0,9	1,8	2,8	3,7	4,6	5,5	6,4	7,3	8,2	9,2	10,1	11,0
12,0	1,0	2,0	3,0	4,0	5,0	6,0	7,0	8,0	9,0	10,0	11,0	12,0
13,0	1,1	2,2	3,2	4,3	5,4	6,5	7,6	8,7	9,8	10,8	11,9	13,0
14,0	1,2	2,3	3,5	4,7	5,8	7,0	8,2	9,3	10,5	11,7	12,8	14,0
15,0	1,2	2,5	3,8	5,0	6,2	7,5	8,8	10,0	11,2	12,5	13,8	15,0
16,0	1,3	2,7	4,0	5,3	6,7	8,0	9,3	10,7	12,0	13,3	14,7	16,0
17,0	1,4	2,8	4,2	5,7	7,1	8,5	9,9	11,3	12,8	14,2	15,6	17,0
18,0	1,5	3,0	4,5	6,0	7,5	9,0	10,5	12,0	13,5	15,0	16,5	18,0
20,0	1,7	3,3	5,0	6,7	8,3	10,0	11,7	13,3	15,0	16,7	18,3	20,0
30,0	2,5	5,0	7,5	10,0	12,5	15,0	17,5	20,0	22,5	25,0	27,5	30,0
40,0	3,3	6,7	10,0	13,3	16,7	20,0	23,3	26,7	30,0	33,3	36,7	40,0

Остаток интерполяции: $t_{\text{гр}}$ на самом деле растёт за час на Δ больше, чем на 15° (14°), а склонение меняется на Δ за час (Δ’/h на странице месяца). Таблица даёт $\Delta \times \text{мин}/60$ за минуты после целого часа; прибавьте её со знаком Δ. Для Δ, которого нет в таблице, сложите строки: Луна, Δ = 38,3’/h за 41 мин $\approx$ 30 + 8 + 0,3: 20,5 + 5,5 + 0,2 = 26,2’.

СОЛНЦЕ

Январь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	269° 10.2 -23° 01.0	284° 09.9 -23° 00.8	299° 09.6 -23° 00.6	314° 09.3 -23° 00.4	329° 09.0 -23° 00.2	344° 08.7 -23° 00.0	359° 08.4 -22° 59.8	14° 08.1 -22° 59.6	29° 07.8 -22° 59.3	44° 07.5 -22° 59.1	59° 07.2 -22° 58.9	74° 06.9 -22° 58.7	-0.3 +0.2
Сб 2	269° 03.1 -22° 55.9	284° 02.8 -22° 55.7	299° 02.5 -22° 55.5	314° 02.2 -22° 55.2	329° 01.9 -22° 55.0	344° 01.6 -22° 54.8	359° 01.3 -22° 54.6	14° 01.0 -22° 54.3	29° 00.8 -22° 54.1	44° 00.5 -22° 53.9	59° 00.2 -22° 53.7	73° 59.9 -22° 53.4	-0.3 +0.2
Вс 3	268° 56.1 -22° 50.4	283° 55.8 -22° 50.1	298° 55.5 -22° 49.9	313° 55.2 -22° 49.6	328° 55.0 -22° 49.4	343° 54.7 -22° 49.2	358° 54.4 -22° 48.9	13° 54.1 -22° 48.7	28° 53.8 -22° 48.4	43° 53.5 -22° 48.2	58° 53.2 -22° 47.9	73° 52.9 -22° 47.7	-0.3 +0.2
Пн 4	268° 49.2 -22° 44.4	283° 48.9 -22° 44.1	298° 48.6 -22° 43.9	313° 48.4 -22° 43.6	328° 48.1 -22° 43.3	343° 47.8 -22° 43.1	358° 47.5 -22° 42.8	13° 47.2 -22° 42.5	28° 46.9 -22° 42.3	43° 46.7 -22° 42.0	58° 46.4 -22° 41.7	73° 46.1 -22° 41.5	-0.3 +0.3
Вт 5	268° 42.4 -22° 37.9	283° 42.1 -22° 37.7	298° 41.9 -22° 37.4	313° 41.6 -22° 37.1	328° 41.3 -22° 36.8	343° 41.0 -22° 36.5	358° 40.7 -22° 36.3	13° 40.5 -22° 36.0	28° 40.2 -22° 35.7	43° 39.9 -22° 35.4	58° 39.6 -22° 35.1	73° 39.3 -22° 34.8	-0.3 +0.3
Ср 6	268° 35.7 -22° 31.0	283° 35.5 -22° 30.7	298° 35.2 -22° 30.4	313° 34.9 -22° 30.1	328° 34.6 -22° 29.8	343° 34.4 -22° 29.5	358° 34.1 -22° 29.2	13° 33.8 -22° 28.9	28° 33.5 -22° 28.6	43° 33.3 -22° 28.3	58° 33.0 -22° 28.0	73° 32.7 -22° 27.7	-0.3 +0.3
Чт 7	268° 29.2 -22° 23.7	283° 28.9 -22° 23.4	298° 28.6 -22° 23.1	313° 28.3 -22° 22.8	328° 28.1 -22° 22.4	343° 27.8 -22° 22.1	358° 27.5 -22° 21.8	13° 27.3 -22° 21.5	28° 27.0 -22° 21.2	43° 26.7 -22° 20.8	58° 26.5 -22° 20.5	73° 26.2 -22° 20.2	-0.3 +0.3
Пт 8	268° 22.7 -22° 15.9	283° 22.4 -22° 15.6	298° 22.2 -22° 15.3	313° 21.9 -22° 14.9	328° 21.6 -22° 14.6	343° 21.4 -22° 14.2	358° 21.1 -22° 13.9	13° 20.8 -22° 13.6	28° 20.6 -22° 13.2	43° 20.3 -22° 12.9	58° 20.0 -22° 12.6	73° 19.8 -22° 12.2	-0.3 +0.3
Сб 9	268° 16.4 -22° 07.7	283° 16.1 -22° 07.4	298° 15.9 -22° 07.0	313° 15.6 -22° 06.6	328° 15.3 -22° 06.3	343° 15.1 -22° 05.9	358° 14.8 -22° 05.6	13° 14.6 -22° 05.2	28° 14.3 -22° 04.9	43° 14.0 -22° 04.5	58° 13.8 -22° 04.2	73° 13.5 -22° 03.8	-0.3 +0.4
Вс 10	268° 10.2 -21° 59.1	283° 09.9 -21° 58.7	298° 09.7 -21° 58.3	313° 09.4 -21° 57.9	328° 09.2 -21° 57.6	343° 08.9 -21° 57.2	358° 08.7 -21° 56.8	13° 08.4 -21° 56.4	28° 08.1 -21° 56.1	43° 07.9 -21° 55.7	58° 07.6 -21° 55.3	73° 07.4 -21° 54.9	-0.3 +0.4
Пн 11	268° 04.1 -21° 50.0	283° 03.9 -21° 49.6	298° 03.6 -21° 49.2	313° 03.4 -21° 48.8	328° 03.1 -21° 48.4	343° 02.9 -21° 48.0	358° 02.6 -21° 47.6	13° 02.4 -21° 47.2	28° 02.1 -21° 46.8	43° 01.9 -21° 46.5	58° 01.6 -21° 46.1	73° 01.4 -21° 45.7	-0.2 +0.4
Вт 12	267° 58.2 -21° 40.5	282° 58.0 -21° 40.1	297° 57.7 -21° 39.7	312° 57.5 -21° 39.2	327° 57.3 -21° 38.8	342° 57.0 -21° 38.4	357° 56.8 -21° 38.0	12° 56.5 -21° 37.6	27° 56.3 -21° 37.2	42° 56.1 -21° 36.8	57° 55.8 -21° 36.4	72° 55.6 -21° 36.0	-0.2 +0.4
Ср 13	267° 52.5 -21° 30.5	282° 52.2 -21° 30.1	297° 52.0 -21° 29.7	312° 51.8 -21° 29.3	327° 51.5 -21° 28.8	342° 51.3 -21° 28.4	357° 51.1 -21° 28.0	12° 50.8 -21° 27.6	27° 50.6 -21° 27.1	42° 50.4 -21° 26.7	57° 50.1 -21° 26.3	72° 49.9 -21° 25.9	-0.2 +0.4
Чт 14	267° 46.9 -21° 20.2	282° 46.7 -21° 19.8	297° 46.4 -21° 19.3	312° 46.2 -21° 18.9	327° 46.0 -21° 18.4	342° 45.7 -21° 18.0	357° 45.5 -21° 17.5	12° 45.3 -21° 17.1	27° 45.1 -21° 16.7	42° 44.8 -21° 16.2	57° 44.6 -21° 15.8	72° 44.4 -21° 15.3	-0.2 +0.4
Пт 15	267° 41.5 -21° 09.4	282° 41.3 -21° 09.0	297° 41.0 -21° 08.5	312° 40.8 -21° 08.1	327° 40.6 -21° 07.6	342° 40.4 -21° 07.2	357° 40.1 -21° 06.7	12° 39.9 -21° 06.2	27° 39.7 -21° 05.8	42° 39.5 -21° 05.3	57° 39.3 -21° 04.8	72° 39.0 -21° 04.4	-0.2 +0.5
Сб 16	267° 36.2 -20° 58.3	282° 36.0 -20° 57.8	297° 35.8 -20° 57.3	312° 35.6 -20° 56.9	327° 35.4 -20° 56.4	342° 35.2 -20° 55.9	357° 34.9 -20° 55.4	12° 34.7 -20° 55.0	27° 34.5 -20° 54.5	42° 34.3 -20° 54.0	57° 34.1 -20° 53.5	72° 33.9 -20° 53.0	-0.2 +0.5
Вс 17	267° 31.2 -20° 46.7	282° 30.9 -20° 46.2	297° 30.7 -20° 45.8	312° 30.5 -20° 45.3	327° 30.3 -20° 44.8	342° 30.1 -20° 44.3	357° 29.9 -20° 43.8	12° 29.7 -20° 43.3	27° 29.5 -20° 42.8	42° 29.3 -20° 42.3	57° 29.1 -20° 41.8	72° 28.9 -20° 41.3	-0.2 +0.5
Пн 18	267° 26.3 -20° 34.8	282° 26.1 -20° 34.3	297° 25.9 -20° 33.8	312° 25.7 -20° 33.3	327° 25.5 -20° 32.8	342° 25.3 -20° 32.3	357° 25.1 -20° 31.7	12° 24.9 -20° 31.2	27° 24.7 -20° 30.7	42° 24.5 -20° 30.2	57° 24.3 -20° 29.7	72° 24.1 -20° 29.2	-0.2 +0.5
Вт 19	267° 21.6 -20° 22.5	282° 21.4 -20° 21.9	297° 21.2 -20° 21.4	312° 21.0 -20° 20.9	327° 20.8 -20° 20.4	342° 20.6 -20° 19.8	357° 20.4 -20° 19.3	12° 20.2 -20° 18.8	27° 20.0 -20° 18.3	42° 19.8 -20° 17.7	57° 19.6 -20° 17.2	72° 19.5 -20° 16.7	-0.2 +0.5
Ср 20	267° 17.0 -20° 09.7	282° 16.8 -20° 09.2	297° 16.7 -20° 08.7	312° 16.5 -20° 08.1	327° 16.3 -20° 07.6	342° 16.1 -20° 07.0	357° 15.9 -20° 06.5	12° 15.7 -20° 06.0	27° 15.6 -20° 05.4	42° 15.4 -20° 04.9	57° 15.2 -20° 04.3	72° 15.0 -20° 03.8	-0.2 +0.5
Чт 21	267° 12.7 -19° 56.6	282° 12.5 -19° 56.1	297° 12.3 -19° 55.5	312° 12.2 -19° 55.0	327° 12.0 -19° 54.4	342° 11.8 -19° 53.9	357° 11.6 -19° 53.3	12° 11.5 -19° 52.7	27° 11.3 -19° 52.2	42° 11.1 -19° 51.6	57° 10.9 -19° 51.1	72° 10.8 -19° 50.5	-0.2 +0.6
Пт 22	267° 08.6 -19° 43.2	282° 08.4 -19° 42.6	297° 08.2 -19° 42.0	312° 08.0 -19° 41.5	327° 07.9 -19° 40.9	342° 07.7 -19° 40.3	357° 07.5 -19° 39.7	12° 07.4 -19° 39.2	27° 07.2 -19° 38.6	42° 07.0 -19° 38.0	57° 06.9 -19° 37.4	72° 06.7 -19° 36.9	-0.2 +0.6
Сб 23	267° 04.6 -19° 29.3	282° 04.4 -19° 28.8	297° 04.3 -19° 28.2	312° 04.1 -19° 27.6	327° 04.0 -19° 27.0	342° 03.8 -19° 26.4	357° 03.6 -19° 25.8	12° 03.5 -19° 25.2	27° 03.3 -19° 24.6	42° 03.2 -19° 24.1	57° 03.0 -19° 23.5	72° 02.9 -19° 22.9	-0.2 +0.6
Вс 24	267° 00.8 -19° 15.1	282° 00.7 -19° 14.5	297° 00.5 -19° 13.9	312° 00.4 -19° 13.3	327° 00.2 -19° 12.7	342° 00.1 -19° 12.1	356° 59.9 -19° 11.5	11° 59.8 -19° 10.9	26° 59.6 -19° 10.3	41° 59.5 -19° 09.7	56° 59.3 -19° 09.1	71° 59.2 -19° 08.5	-0.2 +0.6
Пн 25	266° 57.3 -19° 00.6	281° 57.1 -19° 00.0	296° 57.0 -18° 59.4	311° 56.8 -18° 58.8	326° 56.7 -18° 58.1	341° 56.6 -18° 57.5	356° 56.4 -18° 56.9	11° 56.3 -18° 56.3	26° 56.1 -18° 55.7	41° 56.0 -18° 55.1	56° 55.9 -18° 54.4	71° 55.7 -18° 53.8	-0.1 +0.6
Вт 26	266° 53.9 -18° 45.7	281° 53.8 -18° 45.1	296° 53.6 -18° 44.4	311° 53.5 -18° 43.8	326° 53.4 -18° 43.2	341° 53.2 -18° 42.6	356° 53.1 -18° 41.9	11° 53.0 -18° 41.3	26° 52.8 -18° 40.7	41° 52.7 -18° 40.0	56° 52.6 -18° 39.4	71° 52.4 -18° 38.8	-0.1 +0.6
Ср 27	266° 50.7 -18° 30.5	281° 50.6 -18° 29.8	296° 50.5 -18° 29.2	311° 50.4 -18° 28.5	326° 50.2 -18° 27.9	341° 50.1 -18° 27.2	356° 50.0 -18° 26.6	11° 49.8 -18° 26.0	26° 49.7 -18° 25.3	41° 49.6 -18° 24.7	56° 49.5 -18° 24.0	71° 49.3 -18° 23.4	-0.1 +0.6
Чт 28	266° 47.8 -18° 14.9	281° 47.6 -18° 14.2	296° 47.5 -18° 13.6	311° 47.4 -18° 12.9	326° 47.3 -18° 12.3	341° 47.2 -18° 11.6	356° 47.0 -18° 10.9	11° 46.9 -18° 10.3	26° 46.8 -18° 09.6	41° 46.7 -18° 09.0	56° 46.6 -18° 08.3	71° 46.5 -18° 07.6	-0.1 +0.7
Пт 29	266° 45.0 -17° 59.0	281° 44.9 -17° 58.3	296° 44.8 -17° 57.6	311° 44.6 -17° 57.0	326° 44.5 -17° 56.3	341° 44.4 -17° 55.6	356° 44.3 -17° 54.9	11° 44.2 -17° 54.3	26° 44.1 -17° 53.6	41° 44.0 -17° 52.9	56° 43.9 -17° 52.2	71° 43.8 -17° 51.6	-0.1 +0.7
Сб 30	266° 42.4 -17° 42.7	281° 42.3 -17° 42.1	296° 42.2 -17° 41.4	311° 42.1 -17° 40.7	326° 42.0 -17° 40.0	341° 41.9 -17° 39.3	356° 41.8 -17° 38.6	11° 41.7 -17° 37.9	26° 41.6 -17° 37.3	41° 41.5 -17° 36.6	56° 41.4 -17° 35.9	71° 41.3 -17° 35.2	-0.1 +0.7
Вс 31	266° 40.0 -17° 26.2	281° 39.9 -17° 25.5	296° 39.8 -17° 24.8	311° 39.7 -17° 24.1	326° 39.6 -17° 23.4	341° 39.5 -17° 22.7	356° 39.5 -17° 22.0	11° 39.4 -17° 21.3	26° 39.3 -17° 20.6	41° 39.2 -17° 19.9	56° 39.1 -17° 19.2	71° 39.0 -17° 18.5	-0.1 +0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2027

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Пт 1	233° 48.8 -18° 26.2	248° 20.9 -18° 37.2	262° 52.9 -18° 48.2	277° 24.8 -18° 59.0	291° 56.7 -19° 09.8	306° 28.6 -19° 20.4	321° 00.4 -19° 31.0	335° 32.2 -19° 41.4	350° 04.0 -19° 51.8	4° 35.6 -20° 02.1	19° 07.3 -20° 12.3	+31.8 -10.6	15.1 55.2
Сб 2	248° 20.9 -18° 37.2	262° 52.9 -18° 48.2	277° 24.8 -18° 59.0	291° 56.7 -19° 09.8	306° 28.6 -19° 20.4	321° 00.4 -19° 31.0	335° 32.2 -19° 41.4	350° 04.0 -19° 51.8	4° 35.6 -20° 02.1	19° 07.3 -20° 12.3	33° 38.9 -20° 22.3	+31.8 -10.5	15.0 55.2
Вс 3	251° 27.5 -22° 41.4	265° 58.4 -22° 49.8	280° 29.2 -22° 58.1	295° 00.0 -23° 06.3	309° 30.8 -23° 14.4	324° 01.4 -23° 22.4	338° 32.1 -23° 30.3	353° 02.7 -23° 38.1	7° 33.2 -23° 45.7	22° 03.7 -23° 53.3	36° 34.2 -24° 00.7	+30.7 -7.9	14.9 54.7
Пн 4	254° 05.9 -25° 37.9	268° 35.7 -25° 43.4	283° 05.5 -25° 48.8	297° 35.2 -25° 54.1	312° 04.9 -25° 59.2	326° 34.5 -26° 04.3	341° 04.1 -26° 09.1	355° 33.7 -26° 13.9	10° 03.3 -26° 18.5	24° 32.8 -26° 23.1	39° 02.2 -26° 27.4	+29.6 -5.0	14.8 54.3
Вт 5	256° 21.4 -27° 17.6	270° 50.5 -27° 19.9	285° 19.6 -27° 22.1	299° 48.6 -27° 24.1	314° 17.7 -27° 26.0	328° 46.8 -27° 27.8	343° 15.8 -27° 29.4	357° 44.9 -27° 30.9	12° 13.9 -27° 32.2	26° 42.9 -27° 33.5	41° 11.9 -27° 34.6	+29.1 -1.7	14.7 54.0
Ср 6	258° 27.3 -27° 34.9	272° 56.4 -27° 33.8	287° 25.5 -27° 32.6	301° 54.7 -27° 31.3	316° 23.8 -27° 29.9	330° 52.9 -27° 28.3	345° 22.1 -27° 26.6	359° 51.3 -27° 24.8	14° 20.5 -27° 22.8	28° 49.8 -27° 20.7	43° 19.0 -27° 18.4	+29.2 +1.6	14.7 53.9
● Чт 7	260° 41.6 -26° 29.4	275° 11.3 -26° 25.1	289° 41.2 -26° 20.7	304° 11.0 -26° 16.2	318° 40.9 -26° 11.5	333° 10.9 -26° 06.7	347° 40.9 -26° 01.8	2° 10.9 -25° 56.8	16° 41.0 -25° 51.7	31° 11.2 -25° 46.4	45° 41.3 -25° 41.0	+30.0 +4.8	14.7 53.9
Пт 8	263° 20.1 -24° 06.5	277° 51.1 -23° 59.3	292° 22.2 -23° 52.0	306° 53.3 -23° 44.6	321° 24.5 -23° 37.0	335° 55.7 -23° 29.4	350° 27.0 -23° 21.7	4° 58.4 -23° 13.8	19° 29.8 -23° 05.9	34° 01.2 -22° 57.9	48° 32.7 -22° 49.7	+31.3 +7.7	14.7 53.9
Сб 9	266° 32.5 -20° 35.9	281° 04.9 -20° 26.3	295° 37.5 -20° 16.5	310° 10.0 -20° 06.7	324° 42.6 -19° 56.8	339° 15.3 -19° 46.8	353° 48.0 -19° 36.7	8° 20.8 -19° 26.5	22° 53.6 -19° 16.3	37° 26.5 -19° 05.9	51° 59.5 -18° 55.5	+32.7 +10.0	14.7 54.1
Вс 10	270° 20.0 -16° 10.0	284° 53.7 -15° 58.4	299° 27.5 -15° 46.7	314° 01.4 -15° 35.0	328° 35.3 -15° 23.2	343° 09.2 -15° 11.3	357° 43.2 -14° 59.4	12° 17.2 -14° 47.4	26° 51.3 -14° 35.3	41° 25.4 -14° 23.2	55° 59.6 -14° 11.0	+34.0 +11.9	14.8 54.3
Пн 11	274° 36.3 -11° 01.4	289° 11.0 -10° 48.4	303° 45.7 -10° 35.3	318° 20.5 -10° 22.1	332° 55.3 -10° 08.9	347° 30.1 -9° 55.7	2° 04.9 -9° 42.4	16° 39.7 -9° 29.1	31° 14.6 -9° 15.7	45° 49.5 -9° 02.3	60° 24.4 -8° 48.9	+34.8 +13.3	14.9 54.6
Вт 12	279° 09.9 -5° 22.6	293° 45.0 -5° 08.6	308° 20.1 -4° 54.6	322° 55.2 -4° 40.5	337° 30.3 -4° 26.4	352° 05.5 -4° 12.3	6° 40.6 -3° 58.1	21° 15.7 -3° 43.9	35° 50.8 -3° 29.8	50° 25.9 -3° 15.5	65° 00.9 -3° 01.3	+35.1 +14.1	15.0 55.1
Ср 13	283° 45.7 0° 34.5	298° 20.5 0° 49.0	312° 55.4 1° 03.5	327° 30.1 1° 18.0	342° 04.9 1° 32.5	356° 39.6 1° 47.1	11° 14.3 2° 01.6	25° 48.9 2° 16.1	40° 23.6 2° 30.7	54° 58.1 2° 45.2	69° 32.7 2° 59.8	+34.7 +14.5	15.2 55.7
Чт 14	288° 05.7 6° 37.6	302° 39.5 6° 52.0	317° 13.3 7° 06.5	331° 46.9 7° 20.9	346° 20.6 7° 35.3	0° 54.1 7° 49.7	15° 27.6 8° 04.1	30° 01.0 8° 18.5	44° 34.4 8° 32.8	59° 07.7 8° 47.1	73° 40.9 9° 01.4	+33.5 +14.4	15.4 56.4
◐ Пт 15	291° 50.1 12° 32.5	306° 22.0 12° 46.2	320° 53.8 13° 00.0	335° 25.6 13° 13.7	349° 57.2 13° 27.3	4° 28.8 13° 41.0	19° 00.3 13° 54.5	33° 31.6 14° 08.0	48° 02.9 14° 21.5	62° 34.0 14° 34.9	77° 05.1 14° 48.3	+31.5 +13.6	15.6 57.2
Сб 16	294° 37.9 18° 01.3	309° 07.2 18° 13.6	323° 36.3 18° 25.8	338° 05.4 18° 38.0	352° 34.3 18° 50.0	7° 03.0 19° 02.0	21° 31.7 19° 13.9	36° 00.2 19° 25.7	50° 28.6 19° 37.4	64° 56.9 19° 49.0	79° 25.0 20° 00.5	+28.7 +11.9	15.8 58.1
Вс 17	296° 11.3 22° 40.9	310° 37.3 22° 50.7	325° 03.2 23° 00.3	339° 28.9 23° 09.8	353° 54.5 23° 19.2	8° 20.0 23° 28.5	22° 45.3 23° 37.6	37° 10.5 23° 46.6	51° 35.6 23° 55.4	66° 00.5 24° 04.1	80° 25.3 24° 12.7	+25.4 +9.2	16.1 59.1
Пн 18	296° 21.9 26° 02.8	310° 44.7 26° 08.8	325° 07.4 26° 14.7	339° 29.9 26° 20.3	353° 52.4 26° 25.8	8° 14.7 26° 31.1	22° 37.0 26° 36.3	36° 59.1 26° 41.2	51° 21.1 26° 46.0	65° 43.0 26° 50.6	80° 04.8 26° 55.0	+22.3 +5.2	16.3 59.9
Вт 19	295° 21.8 27° 37.3	309° 42.3 27° 38.5	324° 02.8 27° 39.5	338° 23.3 27° 40.3	352° 43.7 27° 40.9	7° 04.1 27° 41.2	21° 24.4 27° 41.3	35° 44.7 27° 41.3	50° 05.0 27° 41.0	64° 25.2 27° 40.5	78° 45.4 27° 39.8	+20.3 +0.2	16.5 60.7
Ср 20	293° 47.4 27° 03.3	308° 07.6 26° 59.1	322° 27.9 26° 54.8	336° 48.2 26° 50.2	351° 08.5 26° 45.4	5° 28.9 26° 40.4	19° 49.3 26° 35.2	34° 09.7 26° 29.8	48° 30.2 26° 24.2	62° 50.8 26° 18.4	77° 11.4 26° 12.4	+20.4 -5.1	16.7 61.2
Чт 21	292° 28.9 24° 18.2	306° 50.7 24° 09.0	321° 12.6 23° 59.7	335° 34.7 23° 50.3	349° 56.8 23° 40.6	4° 19.0 23° 30.8	18° 41.3 23° 20.8	33° 03.8 23° 10.6	47° 26.3 23° 00.2	61° 48.9 22° 49.7	76° 11.7 22° 39.1	+22.3 -9.9	16.7 61.3
○ Пт 22	292° 06.4 19° 40.8	306° 31.0 19° 27.9	320° 55.7 19° 14.8	335° 20.6 19° 01.5	349° 45.5 18° 48.2	4° 10.6 18° 34.7	18° 35.7 18° 21.1	33° 01.0 18° 07.4	47° 26.4 17° 53.6	61° 52.0 17° 39.7	76° 17.6 17° 25.7	+25.1 -13.5	16.7 61.1
Сб 23	292° 56.2 13° 44.2	307° 23.7 13° 28.8	321° 51.3 13° 13.3	336° 19.0 12° 57.8	350° 46.8 12° 42.2	5° 14.6 12° 26.5	19° 42.6 12° 10.8	34° 10.7 11° 55.0	48° 38.9 11° 39.2	63° 07.2 11° 23.4	77° 35.6 11° 07.4	+27.9 -15.7	16.5 60.5
Вс 24	294° 52.7 7° 04.1	309° 22.5 6° 47.7	323° 52.4 6° 31.2	338° 22.4 6° 14.8	352° 52.4 5° 58.3	7° 22.6 5° 41.8	21° 52.7 5° 25.3	36° 23.0 5° 08.8	50° 53.4 4° 52.3	65° 23.8 4° 35.8	79° 54.2 4° 19.3	+30.2 -16.5	16.3 59.7
Пн 25	297° 38.5 0° 12.5	312° 09.9 -0° 03.9	326° 41.3 -0° 20.2	341° 12.8 -0° 36.5	355° 44.3 -0° 52.7	10° 15.8 -1° 08.9	24° 47.4 -1° 25.1	39° 19.0 -1° 41.3	53° 50.7 -1° 57.4	68° 22.4 -2° 13.5	82° 54.1 -2° 29.6	+31.6 -16.2	16.0 58.7
Вт 26	312° 09.9 -0° 03.9	326° 41.3 -0° 20.2	341° 12.8 -0° 36.5	355° 44.3 -0° 52.7	10° 15.8 -1° 08.9	24° 47.4 -1° 25.1	39° 19.0 -1° 41.3	53° 50.7 -1° 57.4	68° 22.4 -2° 13.5	82° 54.1 -2° 29.6	97° 25.9 -2° 45.6	+31.6 -16.2	16.0 58.7
Ср 27	315° 25.3 -6° 41.1	329° 57.4 -6° 56.4	344° 29.6 -7° 11.6	359° 01.7 -7° 26.8	13° 33.8 -7° 41.9	28° 06.0 -7° 57.0	42° 38.2 -8° 12.1	57° 10.3 -8° 27.0	71° 42.5 -8° 41.9	86° 14.7 -8° 56.8	100° 46.9 -9° 11.5	+32.2 -15.1	15.7 57.7
Чт 28	318° 49.3 -12° 45.1	333° 21.3 -12° 58.7	347° 53.4 -13° 12.3	2° 25.5 -13° 25.8	16° 57.5 -13° 39.2	31° 29.6 -13° 52.6	46° 01.6 -14° 05.8	60° 33.6 -14° 19.0	75° 05.6 -14° 32.1	89° 37.5 -14° 45.1	104° 09.5 -14° 58.0	+32.0 -13.3	15.5 56.7
◑ Пт 29	322° 05.7 -18° 01.4	336° 37.2 -18° 12.9	351° 08.7 -18° 24.3	5° 40.1 -18° 35.6	20° 11.6 -18° 46.8	34° 42.9 -18° 57.9	49° 14.3 -19° 08.9	63° 45.6 -19° 19.8	78° 16.9 -19° 30.6	92° 48.2 -19° 41.3	107° 19.4 -19° 51.9	+31.4 -11.0	15.2 55.8
Сб 30	325° 03.4 -22° 18.1	339° 34.0 -22° 27.0	354° 04.6 -22° 35.8	8° 35.2 -22° 44.4	23° 05.7 -22° 53.0	37° 36.2 -23° 01.4	52° 06.7 -23° 09.7	66° 37.1 -23° 17.9	81° 07.4 -23° 26.0	95° 37.8 -23° 34.0	110° 08.1 -23° 41.8	+30.5 -8.4	15.0 55.1
Вс 31	327° 38.1 -25° 25.2	342° 07.8 -25° 31.1	356° 37.5 -25° 36.9	11° 07.2 -25° 42.5	25° 36.9 -25° 48.1	40° 06.5 -25° 53.5	54° 36.0 -25° 58.8	69° 05.6 -26° 03.9	83° 35.1 -26° 08.9	98° 04.6 -26° 13.8	112° 34.1 -26° 18.6	+29.6 -5.3	14.9 54.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Новолуние: 7 20h24 — Первая четв.: 15 20h34 — Полнолуние: 22 12h17 — Последняя четв.: 29 10h55

СОЛНЦЕ

Февраль 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	266° 37.8 -17° 09.3	281° 37.8 -17° 08.6	296° 37.7 -17° 07.9	311° 37.6 -17° 07.2	326° 37.5 -17° 06.5	341° 37.4 -17° 05.8	356° 37.3 -17° 05.1	11° 37.2 -17° 04.4	26° 37.2 -17° 03.6	41° 37.1 -17° 02.9	56° 37.0 -17° 02.2	71° 36.9 -17° 01.5	-0.1 +0.7
Вт 2	266° 35.9 -16° 52.2	281° 35.8 -16° 51.4	296° 35.7 -16° 50.7	311° 35.6 -16° 50.0	326° 35.5 -16° 49.3	341° 35.5 -16° 48.6	356° 35.4 -16° 47.8	11° 35.3 -16° 47.1	26° 35.2 -16° 46.4	41° 35.2 -16° 45.7	56° 35.1 -16° 44.9	71° 35.0 -16° 44.2	-0.1 +0.7
Ср 3	266° 34.1 -16° 34.7	281° 34.0 -16° 34.0	296° 33.9 -16° 33.2	311° 33.9 -16° 32.5	326° 33.8 -16° 31.8	341° 33.7 -16° 31.0	356° 33.7 -16° 30.3	11° 33.6 -16° 29.6	26° 33.5 -16° 28.8	41° 33.5 -16° 28.1	56° 33.4 -16° 27.3	71° 33.3 -16° 26.6	-0.1 +0.7
Чт 4	266° 32.5 -16° 17.0	281° 32.4 -16° 16.2	296° 32.4 -16° 15.5	311° 32.3 -16° 14.7	326° 32.3 -16° 14.0	341° 32.2 -16° 13.2	356° 32.1 -16° 12.5	11° 32.1 -16° 11.7	26° 32.0 -16° 11.0	41° 32.0 -16° 10.2	56° 31.9 -16° 09.5	71° 31.8 -16° 08.7	-0.1 +0.7
Пт 5	266° 31.1 -15° 58.9	281° 31.1 -15° 58.2	296° 31.0 -15° 57.4	311° 31.0 -15° 56.6	326° 30.9 -15° 55.9	341° 30.9 -15° 55.1	356° 30.8 -15° 54.4	11° 30.8 -15° 53.6	26° 30.7 -15° 52.8	41° 30.7 -15° 52.1	56° 30.6 -15° 51.3	71° 30.6 -15° 50.6	-0.1 +0.8
Сб 6	266° 29.9 -15° 40.6	281° 29.9 -15° 39.8	296° 29.9 -15° 39.1	311° 29.8 -15° 38.3	326° 29.8 -15° 37.5	341° 29.7 -15° 36.8	356° 29.7 -15° 36.0	11° 29.6 -15° 35.2	26° 29.6 -15° 34.4	41° 29.6 -15° 33.7	56° 29.5 -15° 32.9	71° 29.5 -15° 32.1	-0.0 +0.8
Вс 7	266° 29.0 -15° 22.0	281° 28.9 -15° 21.3	296° 28.9 -15° 20.5	311° 28.9 -15° 19.7	326° 28.8 -15° 18.9	341° 28.8 -15° 18.1	356° 28.8 -15° 17.3	11° 28.7 -15° 16.6	26° 28.7 -15° 15.8	41° 28.6 -15° 15.0	56° 28.6 -15° 14.2	71° 28.6 -15° 13.4	-0.0 +0.8
Пн 8	266° 28.2 -15° 03.2	281° 28.2 -15° 02.4	296° 28.1 -15° 01.6	311° 28.1 -15° 00.8	326° 28.1 -15° 00.0	341° 28.0 -14° 59.2	356° 28.0 -14° 58.4	11° 28.0 -14° 57.6	26° 28.0 -14° 56.9	41° 27.9 -14° 56.1	56° 27.9 -14° 55.3	71° 27.9 -14° 54.5	-0.0 +0.8
Вт 9	266° 27.6 -14° 44.1	281° 27.6 -14° 43.3	296° 27.6 -14° 42.5	311° 27.6 -14° 41.7	326° 27.5 -14° 40.9	341° 27.5 -14° 40.1	356° 27.5 -14° 39.3	11° 27.5 -14° 38.5	26° 27.5 -14° 37.7	41° 27.4 -14° 36.9	56° 27.4 -14° 36.1	71° 27.4 -14° 35.3	-0.0 +0.8
Ср 10	266° 27.2 -14° 24.8	281° 27.2 -14° 23.9	296° 27.2 -14° 23.1	311° 27.2 -14° 22.3	326° 27.2 -14° 21.5	341° 27.2 -14° 20.7	356° 27.2 -14° 19.9	11° 27.2 -14° 19.1	26° 27.1 -14° 18.3	41° 27.1 -14° 17.4	56° 27.1 -14° 16.6	71° 27.1 -14° 15.8	-0.0 +0.8
Чт 11	266° 27.0 -14° 05.2	281° 27.0 -14° 04.4	296° 27.0 -14° 03.5	311° 27.0 -14° 02.7	326° 27.0 -14° 01.9	341° 27.0 -14° 01.1	356° 27.0 -14° 00.2	11° 27.0 -13° 59.4	26° 27.0 -13° 58.6	41° 27.0 -13° 57.8	56° 27.0 -13° 56.9	71° 27.0 -13° 56.1	-0.0 +0.8
Пт 12	266° 27.1 -13° 45.4	281° 27.1 -13° 44.5	296° 27.1 -13° 43.7	311° 27.1 -13° 42.9	326° 27.1 -13° 42.0	341° 27.1 -13° 41.2	356° 27.1 -13° 40.4	11° 27.1 -13° 39.5	26° 27.1 -13° 38.7	41° 27.1 -13° 37.9	56° 27.1 -13° 37.0	71° 27.1 -13° 36.2	+0.0 +0.8
Сб 13	266° 27.3 -13° 25.3	281° 27.3 -13° 24.5	296° 27.3 -13° 23.6	311° 27.3 -13° 22.8	326° 27.3 -13° 22.0	341° 27.3 -13° 21.1	356° 27.3 -13° 20.3	11° 27.4 -13° 19.4	26° 27.4 -13° 18.6	41° 27.4 -13° 17.8	56° 27.4 -13° 16.9	71° 27.4 -13° 16.1	+0.0 +0.8
Вс 14	266° 27.7 -13° 05.1	281° 27.7 -13° 04.2	296° 27.7 -13° 03.4	311° 27.7 -13° 02.5	326° 27.7 -13° 01.7	341° 27.8 -13° 00.8	356° 27.8 -13° 00.0	11° 27.8 -12° 59.1	26° 27.8 -12° 58.3	41° 27.9 -12° 57.4	56° 27.9 -12° 56.6	71° 27.9 -12° 55.7	+0.0 +0.9
Пн 15	266° 28.3 -12° 44.6	281° 28.3 -12° 43.7	296° 28.3 -12° 42.9	311° 28.3 -12° 42.0	326° 28.4 -12° 41.2	341° 28.4 -12° 40.3	356° 28.4 -12° 39.5	11° 28.5 -12° 38.6	26° 28.5 -12° 37.7	41° 28.5 -12° 36.9	56° 28.6 -12° 36.0	71° 28.6 -12° 35.2	+0.0 +0.9
Вт 16	266° 29.0 -12° 23.9	281° 29.1 -12° 23.1	296° 29.1 -12° 22.2	311° 29.1 -12° 21.3	326° 29.2 -12° 20.5	341° 29.2 -12° 19.6	356° 29.2 -12° 18.7	11° 29.3 -12° 17.9	26° 29.3 -12° 17.0	41° 29.4 -12° 16.1	56° 29.4 -12° 15.3	71° 29.4 -12° 14.4	+0.0 +0.9
Ср 17	266° 30.0 -12° 03.1	281° 30.0 -12° 02.2	296° 30.1 -12° 01.3	311° 30.1 -12° 00.4	326° 30.2 -11° 59.6	341° 30.2 -11° 58.7	356° 30.2 -11° 57.8	11° 30.3 -11° 56.9	26° 30.3 -11° 56.1	41° 30.4 -11° 55.2	56° 30.4 -11° 54.3	71° 30.5 -11° 53.4	+0.0 +0.9
Чт 18	266° 31.1 -11° 42.0	281° 31.2 -11° 41.1	296° 31.2 -11° 40.3	311° 31.3 -11° 39.4	326° 31.3 -11° 38.5	341° 31.4 -11° 37.6	356° 31.4 -11° 36.7	11° 31.5 -11° 35.8	26° 31.5 -11° 35.0	41° 31.6 -11° 34.1	56° 31.6 -11° 33.2	71° 31.7 -11° 32.3	+0.1 +0.9
Пт 19	266° 32.4 -11° 20.8	281° 32.5 -11° 19.9	296° 32.5 -11° 19.0	311° 32.6 -11° 18.1	326° 32.7 -11° 17.2	341° 32.7 -11° 16.3	356° 32.8 -11° 15.4	11° 32.8 -11° 14.5	26° 32.9 -11° 13.7	41° 33.0 -11° 12.8	56° 33.0 -11° 11.9	71° 33.1 -11° 11.0	+0.1 +0.9
Сб 20	266° 33.9 -10° 59.4	281° 34.0 -10° 58.5	296° 34.0 -10° 57.6	311° 34.1 -10° 56.7	326° 34.2 -10° 55.8	341° 34.2 -10° 54.9	356° 34.3 -10° 54.0	11° 34.4 -10° 53.1	26° 34.4 -10° 52.2	41° 34.5 -10° 51.3	56° 34.6 -10° 50.4	71° 34.6 -10° 49.5	+0.1 +0.9
Вс 21	266° 35.6 -10° 37.8	281° 35.6 -10° 36.9	296° 35.7 -10° 36.0	311° 35.8 -10° 35.1	326° 35.8 -10° 34.2	341° 35.9 -10° 33.3	356° 36.0 -10° 32.4	11° 36.1 -10° 31.4	26° 36.1 -10° 30.5	41° 36.2 -10° 29.6	56° 36.3 -10° 28.7	71° 36.4 -10° 27.8	+0.1 +0.9
Пн 22	266° 37.4 -10° 16.0	281° 37.4 -10° 15.1	296° 37.5 -10° 14.2	311° 37.6 -10° 13.3	326° 37.7 -10° 12.4	341° 37.8 -10° 11.5	356° 37.8 -10° 10.6	11° 37.9 -10° 09.7	26° 38.0 -10° 08.7	41° 38.1 -10° 07.8	56° 38.2 -10° 06.9	71° 38.2 -10° 06.0	+0.1 +0.9
Вт 23	266° 39.3 -9° 54.1	281° 39.4 -9° 53.2	296° 39.5 -9° 52.3	311° 39.6 -9° 51.4	326° 39.7 -9° 50.5	341° 39.7 -9° 49.5	356° 39.8 -9° 48.6	11° 39.9 -9° 47.7	26° 40.0 -9° 46.8	41° 40.1 -9° 45.9	56° 40.2 -9° 44.9	71° 40.3 -9° 44.0	+0.1 +0.9
Ср 24	266° 41.4 -9° 32.1	281° 41.5 -9° 31.1	296° 41.6 -9° 30.2	311° 41.7 -9° 29.3	326° 41.8 -9° 28.4	341° 41.9 -9° 27.4	356° 42.0 -9° 26.5	11° 42.1 -9° 25.6	26° 42.2 -9° 24.7	41° 42.3 -9° 23.7	56° 42.4 -9° 22.8	71° 42.5 -9° 21.9	+0.1 +0.9
Чт 25	266° 43.7 -9° 09.8	281° 43.8 -9° 08.9	296° 43.9 -9° 08.0	311° 44.0 -9° 07.1	326° 44.1 -9° 06.1	341° 44.2 -9° 05.2	356° 44.3 -9° 04.3	11° 44.4 -9° 03.3	26° 44.5 -9° 02.4	41° 44.6 -9° 01.5	56° 44.7 -9° 00.6	71° 44.8 -8° 59.6	+0.1 +0.9
Пт 26	266° 46.1 -8° 47.5	281° 46.2 -8° 46.6	296° 46.3 -8° 45.6	311° 46.4 -8° 44.7	326° 46.5 -8° 43.8	341° 46.6 -8° 42.8	356° 46.7 -8° 41.9	11° 46.8 -8° 41.0	26° 46.9 -8° 40.0	41° 47.0 -8° 39.1	56° 47.1 -8° 38.2	71° 47.2 -8° 37.2	+0.1 +0.9
Сб 27	266° 48.6 -8° 25.0	281° 48.7 -8° 24.1	296° 48.9 -8° 23.1	311° 49.0 -8° 22.2	326° 49.1 -8° 21.3	341° 49.2 -8° 20.3	356° 49.3 -8° 19.4	11° 49.4 -8° 18.4	26° 49.5 -8° 17.5	41° 49.6 -8° 16.6	56° 49.7 -8° 15.6	71° 49.8 -8° 14.7	+0.1 +0.9
Вс 28	266° 51.3 -8° 02.4	281° 51.4 -8° 01.5	296° 51.5 -8° 00.5	311° 51.6 -7° 59.6	326° 51.8 -7° 58.6	341° 51.9 -7° 57.7	356° 52.0 -7° 56.7	11° 52.1 -7° 55.8	26° 52.2 -7° 54.9	41° 52.3 -7° 53.9	56° 52.5 -7° 53.0	71° 52.6 -7° 52.0	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2027

Д	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	R/p
Пн 1	257° 27.4	271° 56.6	286° 25.8	300° 55.0	315° 24.1	329° 53.3	344° 22.4	358° 51.5	13° 20.7	27° 49.8	42° 18.8	+29.1	14.8
	-26° 59.2	-27° 02.5	-27° 05.7	-27° 08.8	-27° 11.7	-27° 14.5	-27° 17.2	-27° 19.8	-27° 22.2	-27° 24.5	-27° 26.6	-2.7	54.3
Вт 2	259° 34.6	274° 03.7	288° 32.7	303° 01.8	317° 30.9	332° 00.0	346° 29.1	0° 58.2	15° 27.3	29° 56.5	44° 25.6	+29.1	14.7
	-27° 42.7	-27° 42.8	-27° 42.6	-27° 42.4	-27° 42.0	-27° 41.4	-27° 40.8	-27° 40.0	-27° 39.1	-27° 38.0	-27° 36.8	+0.6	54.0
Ср 3	261° 45.6	276° 15.1	290° 44.7	305° 14.3	319° 43.9	334° 13.6	348° 43.3	3° 13.1	17° 42.8	32° 12.7	46° 42.5	+29.7	14.7
	-27° 03.2	-26° 59.9	-26° 56.5	-26° 52.9	-26° 49.3	-26° 45.5	-26° 41.6	-26° 37.6	-26° 33.4	-26° 29.1	-26° 24.7	+3.8	53.9
Чт 4	264° 15.5	278° 46.1	293° 16.7	307° 47.4	322° 18.1	336° 48.9	351° 19.7	5° 50.6	20° 21.5	34° 52.5	49° 23.5	+30.8	14.7
	-25° 04.0	-24° 57.7	-24° 51.3	-24° 44.7	-24° 38.1	-24° 31.3	-24° 24.4	-24° 17.4	-24° 10.3	-24° 03.1	-23° 55.8	+6.8	54.0
Пт 5	267° 15.3	281° 47.2	296° 19.2	310° 51.2	325° 23.2	339° 55.3	354° 27.5	8° 59.7	23° 32.0	38° 04.3	52° 36.7	+32.1	14.8
	-21° 53.3	-21° 44.4	-21° 35.3	-21° 26.1	-21° 16.9	-21° 07.5	-20° 58.1	-20° 48.6	-20° 38.9	-20° 29.2	-20° 19.4	+9.4	54.1
● Сб 6	270° 48.6	285° 21.8	299° 55.1	314° 28.4	329° 01.7	343° 35.1	358° 08.5	12° 42.0	27° 15.5	41° 49.1	56° 22.7	+33.4	14.8
	-17° 42.1	-17° 31.0	-17° 19.8	-17° 08.5	-16° 57.2	-16° 45.7	-16° 34.2	-16° 22.7	-16° 11.0	-15° 59.3	-15° 47.5	+11.5	54.3
Вс 7	274° 51.9	289° 26.2	304° 00.5	318° 34.8	333° 09.1	347° 43.5	2° 17.9	16° 52.3	31° 26.8	46° 01.3	60° 35.8	+34.4	14.9
	-12° 43.1	-12° 30.3	-12° 17.5	-12° 04.6	-11° 51.6	-11° 38.7	-11° 25.6	-11° 12.5	-10° 59.4	-10° 46.2	-10° 32.9	+13.0	54.6
Пн 8	279° 16.3	293° 51.1	308° 26.0	323° 00.9	337° 35.7	352° 10.6	6° 45.5	21° 20.4	35° 55.3	50° 30.3	65° 05.2	+34.9	15.0
	-7° 09.2	-6° 55.3	-6° 41.3	-6° 27.4	-6° 13.4	-5° 59.4	-5° 45.3	-5° 31.2	-5° 17.1	-5° 03.0	-4° 48.8	+14.0	55.0
Вт 9	283° 48.9	298° 23.8	312° 58.6	327° 33.5	342° 08.3	356° 43.1	11° 17.9	25° 52.7	40° 27.4	55° 02.2	69° 36.9	+34.8	15.1
	-1° 13.6	-0° 59.1	-0° 44.6	-0° 30.1	-0° 15.6	-0° 01.0	0° 13.5	0° 28.0	0° 42.6	0° 57.2	1° 11.7	+14.5	55.5
Ср 10	288° 14.3	302° 48.5	317° 22.7	331° 56.9	346° 31.0	1° 05.0	15° 39.0	30° 13.0	44° 46.9	59° 20.8	73° 54.6	+34.0	15.3
	4° 50.2	5° 04.7	5° 19.2	5° 33.7	5° 48.2	6° 02.7	6° 17.2	6° 31.6	6° 46.0	7° 00.5	7° 14.8	+14.5	56.0
Чт 11	292° 15.2	306° 48.0	321° 20.8	335° 53.5	350° 26.2	4° 58.8	19° 31.3	34° 03.7	48° 36.1	63° 08.4	77° 40.6	+32.5	15.4
	10° 47.8	11° 01.7	11° 15.6	11° 29.5	11° 43.3	11° 57.1	12° 10.9	12° 24.6	12° 38.2	12° 51.8	13° 05.4	+13.8	56.5
Пт 12	295° 33.3	310° 04.1	324° 34.8	339° 05.4	353° 35.9	8° 06.3	22° 36.5	37° 06.7	51° 36.8	66° 06.8	80° 36.7	+30.3	15.6
	16° 22.5	16° 35.1	16° 47.7	17° 00.2	17° 12.6	17° 25.0	17° 37.3	17° 49.5	18° 01.6	18° 13.7	18° 25.7	+12.3	57.2
Сб 13	297° 51.9	312° 20.0	326° 48.0	341° 15.9	355° 43.7	10° 11.3	24° 38.8	39° 06.3	53° 33.6	68° 00.8	82° 27.8	+27.6	15.8
	21° 14.6	21° 25.0	21° 35.4	21° 45.7	21° 55.8	22° 05.9	22° 15.8	22° 25.6	22° 35.3	22° 44.8	22° 54.3	+10.0	57.9
◐ Вс 14	299° 00.0	313° 25.2	327° 50.4	342° 15.4	356° 40.3	11° 05.1	25° 29.7	39° 54.3	54° 18.8	68° 43.2	83° 07.4	+24.7	16.0
	25° 00.5	25° 07.9	25° 15.0	25° 22.0	25° 28.9	25° 35.6	25° 42.1	25° 48.5	25° 54.7	26° 00.8	26° 06.7	+6.6	58.6
Пн 15	299° 00.0	313° 22.8	327° 45.5	342° 08.2	356° 30.8	10° 53.3	25° 15.8	39° 38.2	54° 00.5	68° 22.8	82° 45.0	+22.5	16.2
	27° 15.2	27° 18.3	27° 21.3	27° 24.0	27° 26.6	27° 29.0	27° 31.3	27° 33.3	27° 35.1	27° 36.8	27° 38.2	+2.3	59.3
Вт 16	298° 13.1	312° 34.8	326° 56.4	341° 18.1	355° 39.7	10° 01.3	24° 22.9	38° 44.6	53° 06.2	67° 27.8	81° 49.5	+21.6	16.3
	27° 36.6	27° 34.9	27° 33.0	27° 30.9	27° 28.6	27° 26.1	27° 23.4	27° 20.5	27° 17.4	27° 14.1	27° 10.6	-2.6	59.9
Ср 17	297° 17.0	311° 39.2	326° 01.4	340° 23.6	354° 45.9	9° 08.3	23° 30.7	37° 53.2	52° 15.8	66° 38.4	81° 01.1	+22.4	16.5
	25° 54.4	25° 47.8	25° 40.9	25° 33.9	25° 26.7	25° 19.4	25° 11.8	25° 04.0	24° 56.1	24° 48.0	24° 39.7	-7.5	60.4
Чт 18	296° 50.6	311° 14.5	325° 38.6	340° 02.8	354° 27.0	8° 51.3	23° 15.8	37° 40.3	52° 04.9	66° 29.6	80° 54.5	+24.4	16.5
	22° 14.8	22° 03.8	21° 52.7	21° 41.4	21° 30.0	21° 18.5	21° 06.8	20° 54.9	20° 42.9	20° 30.8	20° 18.5	-11.6	60.7
Пт 19	297° 18.2	311° 44.5	326° 11.0	340° 37.5	355° 04.2	9° 30.9	23° 57.7	38° 24.7	52° 51.7	67° 18.8	81° 46.0	+26.8	16.5
	16° 59.5	16° 45.3	16° 31.0	16° 16.6	16° 02.2	15° 47.6	15° 32.9	15° 18.1	15° 03.3	14° 48.4	14° 33.3	-14.6	60.6
○ Сб 20	298° 44.5	313° 13.1	327° 41.8	342° 10.5	356° 39.3	11° 08.2	25° 37.1	40° 06.1	54° 35.2	69° 04.4	83° 33.6	+28.9	16.4
	10° 39.2	10° 23.1	10° 07.0	9° 50.8	9° 34.5	9° 18.2	9° 01.9	8° 45.6	8° 29.2	8° 12.7	7° 56.2	-16.3	60.3
Вс 21	300° 59.8	315° 30.0	330° 00.2	344° 30.5	359° 00.9	13° 31.3	28° 01.7	42° 32.2	57° 02.7	71° 33.3	86° 03.9	+30.4	16.3
	3° 46.4	3° 29.7	3° 12.9	2° 56.2	2° 39.4	2° 22.7	2° 05.9	1° 49.2	1° 32.5	1° 15.7	0° 59.0	-16.7	59.6
Пн 22	303° 47.1	318° 18.2	332° 49.3	347° 20.5	1° 51.6	16° 22.8	30° 54.0	45° 25.2	59° 56.4	74° 27.7	88° 58.9	+31.2	16.0
	-3° 09.2	-3° 25.5	-3° 41.8	-3° 58.0	-4° 14.2	-4° 30.4	-4° 46.5	-5° 02.5	-5° 18.6	-5° 34.6	-5° 50.5	-16.1	58.8
Вт 23	306° 48.4	321° 19.7	335° 51.0	350° 22.3	4° 53.6	19° 24.9	33° 56.1	48° 27.4	62° 58.7	77° 29.9	92° 01.1	+31.3	15.8
	-9° 42.8	-9° 57.8	-10° 12.7	-10° 27.5	-10° 42.3	-10° 57.0	-11° 11.7	-11° 26.2	-11° 40.7	-11° 55.1	-12° 09.4	-14.7	57.9
Ср 24	321° 19.7	335° 51.0	350° 22.3	4° 53.6	19° 24.9	33° 56.1	48° 27.4	62° 58.7	77° 29.9	92° 01.1	106° 32.3	+31.3	15.8
	-9° 57.8	-10° 12.7	-10° 27.5	-10° 42.3	-10° 57.0	-11° 11.7	-11° 26.2	-11° 40.7	-11° 55.1	-12° 09.4	-12° 23.7	-14.6	57.9
Чт 25	324° 18.6	338° 49.5	353° 20.4	7° 51.3	22° 22.2	36° 53.0	51° 23.8	65° 54.6	80° 25.3	94° 56.0	109° 26.7	+30.8	15.5
	-15° 47.4	-16° 00.2	-16° 13.0	-16° 25.7	-16° 38.3	-16° 50.7	-17° 03.1	-17° 15.4	-17° 27.6	-17° 39.7	-17° 51.7	-12.4	56.9
Пт 26	327° 03.4	341° 33.6	356° 03.8	10° 33.9	25° 04.0	39° 34.1	54° 04.1	68° 34.1	83° 04.1	97° 34.0	112° 03.9	+30.1	15.3
	-20° 38.7	-20° 49.0	-20° 59.1	-21° 09.2	-21° 19.1	-21° 28.9	-21° 38.6	-21° 48.2	-21° 57.6	-22° 07.0	-22° 16.2	-9.7	56.1
Сб 27	329° 28.7	343° 58.1	358° 27.5	12° 56.8	27° 26.2	41° 55.5	56° 24.7	70° 54.0	85° 23.2	99° 52.4	114° 21.6	+29.3	15.1
	-24° 19.8	-24° 27.1	-24° 34.2	-24° 41.2	-24° 48.0	-24° 54.8	-25° 01.4	-25° 07.8	-25° 14.2	-25° 20.4	-25° 26.5	-6.7	55.3
◑ Вс 28	331° 36.6	346° 05.5	0° 34.3	15° 03.2	29° 32.0	44° 00.8	58° 29.6	72° 58.5	87° 27.2	101° 56.0	116° 24.8	+28.8	14.9
	-26° 41.9	-26° 45.8	-26° 49.6	-26° 53.3	-26° 56.9	-27° 00.3	-27° 03.6	-27° 06.7	-27° 09.7	-27° 12.6	-27° 15.3	-3.3	54.7

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 6 15h56 — Первая четв.: 14 07h58 — Полнолуние: 20 23h23 — Последняя четв.: 28 05h16

СОЛНЦЕ

Март 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	266° 54.1 -7° 39.7	281° 54.2 -7° 38.7	296° 54.3 -7° 37.8	311° 54.5 -7° 36.8	326° 54.6 -7° 35.9	341° 54.7 -7° 34.9	356° 54.8 -7° 34.0	11° 54.9 -7° 33.0	26° 55.1 -7° 32.1	41° 55.2 -7° 31.1	56° 55.3 -7° 30.2	71° 55.4 -7° 29.2	+0.1 +1.0
Вт 2	266° 57.0 -7° 16.9	281° 57.1 -7° 15.9	296° 57.3 -7° 14.9	311° 57.4 -7° 14.0	326° 57.5 -7° 13.0	341° 57.6 -7° 12.1	356° 57.8 -7° 11.1	11° 57.9 -7° 10.2	26° 58.0 -7° 09.2	41° 58.2 -7° 08.3	56° 58.3 -7° 07.3	71° 58.4 -7° 06.4	+0.1 +1.0
Ср 3	267° 00.1 -6° 53.9	282° 00.2 -6° 53.0	297° 00.3 -6° 52.0	312° 00.5 -6° 51.0	327° 00.6 -6° 50.1	342° 00.7 -6° 49.1	357° 00.8 -6° 48.2	12° 01.0 -6° 47.2	27° 01.1 -6° 46.2	42° 01.2 -6° 45.3	57° 01.4 -6° 44.3	72° 01.5 -6° 43.4	+0.1 +1.0
Чт 4	267° 03.2 -6° 30.9	282° 03.4 -6° 29.9	297° 03.5 -6° 28.9	312° 03.6 -6° 28.0	327° 03.8 -6° 27.0	342° 03.9 -6° 26.1	357° 04.0 -6° 25.1	12° 04.2 -6° 24.1	27° 04.3 -6° 23.2	42° 04.4 -6° 22.2	57° 04.6 -6° 21.2	72° 04.7 -6° 20.3	+0.1 +1.0
Пт 5	267° 06.5 -6° 07.7	282° 06.6 -6° 06.8	297° 06.8 -6° 05.8	312° 06.9 -6° 04.8	327° 07.0 -6° 03.9	342° 07.2 -6° 02.9	357° 07.3 -6° 01.9	12° 07.5 -6° 01.0	27° 07.6 -6° 00.0	42° 07.7 -5° 59.0	57° 07.9 -5° 58.1	72° 08.0 -5° 57.1	+0.1 +1.0
Сб 6	267° 09.9 -5° 44.5	282° 10.0 -5° 43.5	297° 10.2 -5° 42.6	312° 10.3 -5° 41.6	327° 10.4 -5° 40.6	342° 10.6 -5° 39.7	357° 10.7 -5° 38.7	12° 10.9 -5° 37.7	27° 11.0 -5° 36.8	42° 11.2 -5° 35.8	57° 11.3 -5° 34.8	72° 11.4 -5° 33.8	+0.1 +1.0
Вс 7	267° 13.3 -5° 21.2	282° 13.5 -5° 20.2	297° 13.6 -5° 19.3	312° 13.8 -5° 18.3	327° 13.9 -5° 17.3	342° 14.1 -5° 16.4	357° 14.2 -5° 15.4	12° 14.4 -5° 14.4	27° 14.5 -5° 13.4	42° 14.7 -5° 12.5	57° 14.8 -5° 11.5	72° 15.0 -5° 10.5	+0.1 +1.0
Пн 8	267° 16.9 -4° 57.8	282° 17.1 -4° 56.9	297° 17.2 -4° 55.9	312° 17.4 -4° 54.9	327° 17.5 -4° 53.9	342° 17.7 -4° 53.0	357° 17.8 -4° 52.0	12° 18.0 -4° 51.0	27° 18.1 -4° 50.0	42° 18.3 -4° 49.1	57° 18.4 -4° 48.1	72° 18.6 -4° 47.1	+0.2 +1.0
Вт 9	267° 20.6 -4° 34.4	282° 20.7 -4° 33.4	297° 20.9 -4° 32.5	312° 21.1 -4° 31.5	327° 21.2 -4° 30.5	342° 21.4 -4° 29.5	357° 21.5 -4° 28.5	12° 21.7 -4° 27.6	27° 21.8 -4° 26.6	42° 22.0 -4° 25.6	57° 22.1 -4° 24.6	72° 22.3 -4° 23.6	+0.2 +1.0
Ср 10	267° 24.4 -4° 10.9	282° 24.5 -4° 09.9	297° 24.7 -4° 09.0	312° 24.8 -4° 08.0	327° 25.0 -4° 07.0	342° 25.1 -4° 06.0	357° 25.3 -4° 05.0	12° 25.5 -4° 04.1	27° 25.6 -4° 03.1	42° 25.8 -4° 02.1	57° 25.9 -4° 01.1	72° 26.1 -4° 00.1	+0.2 +1.0
Чт 11	267° 28.2 -3° 47.4	282° 28.4 -3° 46.4	297° 28.5 -3° 45.4	312° 28.7 -3° 44.4	327° 28.8 -3° 43.4	342° 29.0 -3° 42.5	357° 29.2 -3° 41.5	12° 29.3 -3° 40.5	27° 29.5 -3° 39.5	42° 29.7 -3° 38.5	57° 29.8 -3° 37.5	72° 30.0 -3° 36.6	+0.2 +1.0
Пт 12	267° 32.1 -3° 23.8	282° 32.3 -3° 22.8	297° 32.5 -3° 21.8	312° 32.6 -3° 20.8	327° 32.8 -3° 19.8	342° 33.0 -3° 18.9	357° 33.1 -3° 17.9	12° 33.3 -3° 16.9	27° 33.5 -3° 15.9	42° 33.6 -3° 14.9	57° 33.8 -3° 13.9	72° 34.0 -3° 13.0	+0.2 +1.0
Сб 13	267° 36.1 -3° 00.2	282° 36.3 -2° 59.2	297° 36.5 -2° 58.2	312° 36.6 -2° 57.2	327° 36.8 -2° 56.2	342° 37.0 -2° 55.2	357° 37.1 -2° 54.2	12° 37.3 -2° 53.3	27° 37.5 -2° 52.3	42° 37.7 -2° 51.3	57° 37.8 -2° 50.3	72° 38.0 -2° 49.3	+0.2 +1.0
Вс 14	267° 40.2 -2° 36.5	282° 40.4 -2° 35.5	297° 40.6 -2° 34.5	312° 40.7 -2° 33.5	327° 40.9 -2° 32.5	342° 41.1 -2° 31.6	357° 41.2 -2° 30.6	12° 41.4 -2° 29.6	27° 41.6 -2° 28.6	42° 41.8 -2° 27.6	57° 41.9 -2° 26.6	72° 42.1 -2° 25.6	+0.2 +1.0
Пн 15	267° 44.4 -2° 12.8	282° 44.5 -2° 11.8	297° 44.7 -2° 10.8	312° 44.9 -2° 09.8	327° 45.1 -2° 08.9	342° 45.2 -2° 07.9	357° 45.4 -2° 06.9	12° 45.6 -2° 05.9	27° 45.8 -2° 04.9	42° 45.9 -2° 03.9	57° 46.1 -2° 02.9	72° 46.3 -2° 01.9	+0.2 +1.0
Вт 16	267° 48.6 -1° 49.1	282° 48.7 -1° 48.1	297° 48.9 -1° 47.1	312° 49.1 -1° 46.1	327° 49.3 -1° 45.2	342° 49.5 -1° 44.2	357° 49.6 -1° 43.2	12° 49.8 -1° 42.2	27° 50.0 -1° 41.2	42° 50.2 -1° 40.2	57° 50.3 -1° 39.2	72° 50.5 -1° 38.2	+0.2 +1.0
Ср 17	267° 52.8 -1° 25.4	282° 53.0 -1° 24.4	297° 53.2 -1° 23.4	312° 53.4 -1° 22.4	327° 53.6 -1° 21.4	342° 53.7 -1° 20.5	357° 53.9 -1° 19.5	12° 54.1 -1° 18.5	27° 54.3 -1° 17.5	42° 54.5 -1° 16.5	57° 54.6 -1° 15.5	72° 54.8 -1° 14.5	+0.2 +1.0
Чт 18	267° 57.2 -1° 01.7	282° 57.3 -1° 00.7	297° 57.5 -0° 59.7	312° 57.7 -0° 58.7	327° 57.9 -0° 57.7	342° 58.1 -0° 56.7	357° 58.3 -0° 55.7	12° 58.4 -0° 54.8	27° 58.6 -0° 53.8	42° 58.8 -0° 52.8	57° 59.0 -0° 51.8	72° 59.2 -0° 50.8	+0.2 +1.0
Пт 19	268° 01.5 -0° 38.0	283° 01.7 -0° 37.0	298° 01.9 -0° 36.0	313° 02.1 -0° 35.0	328° 02.3 -0° 34.0	343° 02.5 -0° 33.0	358° 02.6 -0° 32.0	13° 02.8 -0° 31.0	28° 03.0 -0° 30.0	43° 03.2 -0° 29.1	58° 03.4 -0° 28.1	73° 03.6 -0° 27.1	+0.2 +1.0
Сб 20	268° 06.0 -0° 14.2	283° 06.1 -0° 13.2	298° 06.3 -0° 12.3	313° 06.5 -0° 11.3	328° 06.7 -0° 10.3	343° 06.9 -0° 09.3	358° 07.1 -0° 08.3	13° 07.3 -0° 07.3	28° 07.4 -0° 06.3	43° 07.6 -0° 05.3	58° 07.8 -0° 04.4	73° 08.0 -0° 03.4	+0.2 +1.0
Вс 21	268° 10.4 0° 09.5	283° 10.6 0° 10.5	298° 10.8 0° 11.4	313° 11.0 0° 12.4	328° 11.2 0° 13.4	343° 11.3 0° 14.4	358° 11.5 0° 15.4	13° 11.7 0° 16.4	28° 11.9 0° 17.4	43° 12.1 0° 18.4	58° 12.3 0° 19.3	73° 12.5 0° 20.3	+0.2 +1.0
Пн 22	268° 14.9 0° 33.2	283° 15.1 0° 34.1	298° 15.3 0° 35.1	313° 15.5 0° 36.1	328° 15.6 0° 37.1	343° 15.8 0° 38.1	358° 16.0 0° 39.1	13° 16.2 0° 40.1	28° 16.4 0° 41.0	43° 16.6 0° 42.0	58° 16.8 0° 43.0	73° 17.0 0° 44.0	+0.2 +1.0
Вт 23	268° 19.4 0° 56.8	283° 19.6 0° 57.8	298° 19.8 0° 58.8	313° 20.0 0° 59.8	328° 20.1 1° 00.8	343° 20.3 1° 01.8	358° 20.5 1° 02.7	13° 20.7 1° 03.7	28° 20.9 1° 04.7	43° 21.1 1° 05.7	58° 21.3 1° 06.7	73° 21.5 1° 07.7	+0.2 +1.0
Ср 24	268° 23.9 1° 20.5	283° 24.1 1° 21.4	298° 24.3 1° 22.4	313° 24.5 1° 23.4	328° 24.7 1° 24.4	343° 24.9 1° 25.4	358° 25.0 1° 26.4	13° 25.2 1° 27.4	28° 25.4 1° 28.3	43° 25.6 1° 29.3	58° 25.8 1° 30.3	73° 26.0 1° 31.3	+0.2 +1.0
Чт 25	268° 28.5 1° 44.1	283° 28.6 1° 45.1	298° 28.8 1° 46.0	313° 29.0 1° 47.0	328° 29.2 1° 48.0	343° 29.4 1° 49.0	358° 29.6 1° 50.0	13° 29.8 1° 51.0	28° 30.0 1° 51.9	43° 30.2 1° 52.9	58° 30.3 1° 53.9	73° 30.5 1° 54.9	+0.2 +1.0
Пт 26	268° 33.0 2° 07.6	283° 33.2 2° 08.6	298° 33.4 2° 09.6	313° 33.6 2° 10.6	328° 33.7 2° 11.6	343° 33.9 2° 12.5	358° 34.1 2° 13.5	13° 34.3 2° 14.5	28° 34.5 2° 15.5	43° 34.7 2° 16.5	58° 34.9 2° 17.5	73° 35.1 2° 18.4	+0.2 +1.0
Сб 27	268° 37.5 2° 31.2	283° 37.7 2° 32.1	298° 37.9 2° 33.1	313° 38.1 2° 34.1	328° 38.3 2° 35.1	343° 38.5 2° 36.1	358° 38.7 2° 37.0	13° 38.9 2° 38.0	28° 39.0 2° 39.0	43° 39.2 2° 40.0	58° 39.4 2° 41.0	73° 39.6 2° 41.9	+0.2 +1.0
Вс 28	268° 42.1 2° 54.6	283° 42.3 2° 55.6	298° 42.4 2° 56.6	313° 42.6 2° 57.6	328° 42.8 2° 58.6	343° 43.0 2° 59.5	358° 43.2 3° 00.5	13° 43.4 3° 01.5	28° 43.6 3° 02.5	43° 43.8 3° 03.4	58° 44.0 3° 04.4	73° 44.1 3° 05.4	+0.2 +1.0
Пн 29	268° 46.6 3° 18.1	283° 46.8 3° 19.0	298° 47.0 3° 20.0	313° 47.2 3° 21.0	328° 47.3 3° 22.0	343° 47.5 3° 22.9	358° 47.7 3° 23.9	13° 47.9 3° 24.9	28° 48.1 3° 25.9	43° 48.3 3° 26.8	58° 48.5 3° 27.8	73° 48.7 3° 28.8	+0.2 +1.0
Вт 30	268° 51.1 3° 41.4	283° 51.3 3° 42.4	298° 51.5 3° 43.4	313° 51.7 3° 44.3	328° 51.9 3° 45.3	343° 52.0 3° 46.3	358° 52.2 3° 47.3	13° 52.4 3° 48.2	28° 52.6 3° 49.2	43° 52.8 3° 50.2	58° 53.0 3° 51.1	73° 53.2 3° 52.1	+0.2 +1.0
Ср 31	268° 55.6 4° 04.7	283° 55.8 4° 05.7	298° 56.0 4° 06.7	313° 56.2 4° 07.6	328° 56.3 4° 08.6	343° 56.5 4° 09.6	358° 56.7 4° 10.5	13° 56.9 4° 11.5	28° 57.1 4° 12.5	43° 57.3 4° 13.4	58° 57.5 4° 14.4	73° 57.6 4° 15.4	+0.2 +1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2027

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Пн 1	234° 17.8	248° 47.0	263° 16.2	277° 45.4	292° 14.6	306° 43.9	321° 13.2	335° 42.5	350° 11.9	4° 41.3	19° 10.8	+29.3	14.8
	-27° 29.4	-27° 27.6	-27° 25.6	-27° 23.5	-27° 21.2	-27° 18.9	-27° 16.4	-27° 13.7	-27° 11.0	-27° 08.1	-27° 05.0	+2.4	54.1
Вт 2	248° 47.0	263° 16.2	277° 45.4	292° 14.6	306° 43.9	321° 13.2	335° 42.5	350° 11.9	4° 41.3	19° 10.8	33° 40.2	+29.3	14.8
	-27° 27.6	-27° 25.6	-27° 23.5	-27° 21.2	-27° 18.9	-27° 16.4	-27° 13.7	-27° 11.0	-27° 08.1	-27° 05.0	-27° 01.9	+2.6	54.1
Ср 3	251° 07.0	265° 37.2	280° 07.3	294° 37.6	309° 07.8	323° 38.2	338° 08.5	352° 38.9	7° 09.4	21° 39.9	36° 10.5	+30.3	14.7
	-25° 59.6	-25° 54.5	-25° 49.2	-25° 43.8	-25° 38.4	-25° 32.7	-25° 27.0	-25° 21.2	-25° 15.2	-25° 09.2	-25° 03.0	+5.7	54.1
Чт 4	253° 54.9	268° 26.3	282° 57.8	297° 29.3	312° 00.8	326° 32.4	341° 04.0	355° 35.7	10° 07.5	24° 39.3	39° 11.1	+31.6	14.8
	-23° 16.8	-23° 08.9	-23° 00.8	-22° 52.7	-22° 44.4	-22° 36.1	-22° 27.7	-22° 19.1	-22° 10.5	-22° 01.7	-21° 52.9	+8.4	54.1
Пт 5	257° 15.2	271° 47.9	286° 20.6	300° 53.4	315° 26.2	329° 59.1	344° 32.0	359° 04.9	13° 37.9	28° 11.0	42° 44.1	+32.9	14.8
	-19° 29.0	-19° 18.7	-19° 08.3	-18° 57.8	-18° 47.2	-18° 36.6	-18° 25.9	-18° 15.1	-18° 04.2	-17° 53.2	-17° 42.2	+10.7	54.4
Сб 6	261° 05.6	275° 39.4	290° 13.1	304° 47.0	319° 20.8	333° 54.7	348° 28.6	3° 02.6	17° 36.6	32° 10.6	46° 44.6	+33.9	14.9
	-14° 47.5	-14° 35.3	-14° 23.0	-14° 10.7	-13° 58.3	-13° 45.8	-13° 33.3	-13° 20.7	-13° 08.1	-12° 55.4	-12° 42.6	+12.5	54.7
Вс 7	265° 18.5	279° 52.9	294° 27.3	309° 01.8	323° 36.3	338° 10.8	352° 45.3	7° 19.8	21° 54.3	36° 28.8	51° 03.4	+34.5	15.0
	-9° 24.6	-9° 11.0	-8° 57.3	-8° 43.6	-8° 29.9	-8° 16.1	-8° 02.3	-7° 48.4	-7° 34.5	-7° 20.6	-7° 06.6	+13.8	55.1
● Пн 8	269° 42.2	284° 16.8	298° 51.3	313° 25.9	328° 00.5	342° 35.0	357° 09.6	11° 44.1	26° 18.6	40° 53.1	55° 27.6	+34.5	15.2
	-3° 33.0	-3° 18.6	-3° 04.1	-2° 49.6	-2° 35.0	-2° 20.5	-2° 05.9	-1° 51.3	-1° 36.7	-1° 22.1	-1° 07.5	+14.6	55.6
Вт 9	274° 02.6	288° 36.7	303° 10.8	317° 44.9	332° 18.9	346° 52.9	1° 26.9	16° 00.8	30° 34.7	45° 08.5	59° 42.3	+34.0	15.3
	2° 33.3	2° 48.1	3° 02.8	3° 17.6	3° 32.3	3° 47.0	4° 01.8	4° 16.5	4° 31.2	4° 45.9	5° 00.6	+14.7	56.1
Ср 10	278° 03.9	292° 36.9	307° 09.9	321° 42.8	336° 15.6	350° 48.4	5° 21.1	19° 53.8	34° 26.4	48° 58.9	63° 31.3	+32.7	15.4
	8° 39.2	8° 53.6	9° 08.0	9° 22.3	9° 36.6	9° 50.9	10° 05.1	10° 19.3	10° 33.5	10° 47.6	11° 01.7	+14.2	56.6
Чт 11	281° 29.6	296° 00.8	310° 32.0	325° 03.1	339° 34.1	354° 05.0	8° 35.9	23° 06.6	37° 37.3	52° 07.8	66° 38.3	+30.9	15.6
	14° 27.3	14° 40.6	14° 53.8	15° 07.0	15° 20.1	15° 33.1	15° 46.1	15° 59.0	16° 11.8	16° 24.6	16° 37.2	+13.0	57.1
Пт 12	284° 04.3	298° 33.3	313° 02.2	327° 30.9	341° 59.6	356° 28.1	10° 56.6	25° 24.9	39° 53.2	54° 21.3	68° 49.4	+28.5	15.7
	19° 37.7	19° 49.0	20° 00.3	20° 11.4	20° 22.4	20° 33.3	20° 44.1	20° 54.8	21° 05.4	21° 15.9	21° 26.3	+10.9	57.6
Сб 13	285° 37.9	300° 04.3	314° 30.6	328° 56.8	343° 22.9	357° 49.0	12° 14.9	26° 40.7	41° 06.5	55° 32.1	69° 57.7	+26.0	15.8
	23° 47.8	23° 56.3	24° 04.5	24° 12.7	24° 20.7	24° 28.6	24° 36.3	24° 43.9	24° 51.3	24° 58.6	25° 05.7	+7.8	58.1
Вс 14	286° 10.3	300° 34.4	314° 58.6	329° 22.6	343° 46.6	358° 10.5	12° 34.3	26° 58.1	41° 21.8	55° 45.5	70° 09.1	+23.9	16.0
	26° 34.3	26° 39.0	26° 43.4	26° 47.7	26° 51.8	26° 55.7	26° 59.5	27° 03.1	27° 06.5	27° 09.7	27° 12.8	+3.8	58.5
◐ Пн 15	285° 57.2	300° 20.1	314° 43.0	329° 05.9	343° 28.8	357° 51.6	12° 14.5	26° 37.3	41° 00.1	55° 22.9	69° 45.7	+22.8	16.1
	27° 36.9	27° 37.1	27° 37.0	27° 36.8	27° 36.4	27° 35.8	27° 35.0	27° 34.0	27° 32.8	27° 31.4	27° 29.9	-0.7	59.0
Вт 16	285° 28.9	299° 51.9	314° 15.0	328° 38.1	343° 01.3	357° 24.4	11° 47.7	26° 11.0	40° 34.3	54° 57.7	69° 21.1	+23.2	16.2
	26° 44.1	26° 39.6	26° 34.8	26° 29.9	26° 24.8	26° 19.6	26° 14.1	26° 08.5	26° 02.7	25° 56.7	25° 50.5	-5.4	59.3
Ср 17	285° 19.3	299° 43.7	314° 08.2	328° 32.8	342° 57.4	357° 22.1	11° 46.9	26° 11.8	40° 36.7	55° 01.8	69° 26.9	+24.7	16.3
	23° 57.5	23° 48.6	23° 39.6	23° 30.4	23° 21.1	23° 11.6	23° 01.9	22° 52.1	22° 42.2	22° 32.1	22° 21.9	-9.6	59.6
Чт 18	285° 53.3	300° 19.7	314° 46.2	329° 12.8	343° 39.5	358° 06.3	12° 33.1	27° 00.1	41° 27.1	55° 54.2	70° 21.4	+26.8	16.3
	19° 31.7	19° 19.3	19° 06.8	18° 54.2	18° 41.4	18° 28.6	18° 15.6	18° 02.5	17° 49.4	17° 36.1	17° 22.7	-12.9	59.8
Пт 19	287° 18.9	301° 47.3	316° 15.9	330° 44.5	345° 13.1	359° 41.9	14° 10.7	28° 39.6	43° 08.5	57° 37.5	72° 06.6	+28.8	16.3
	13° 50.3	13° 35.4	13° 20.5	13° 05.5	12° 50.4	12° 35.3	12° 20.1	12° 04.8	11° 49.5	11° 34.1	11° 18.6	-15.2	59.7
Сб 20	289° 30.2	304° 00.3	318° 30.3	333° 00.4	347° 30.6	2° 00.8	16° 31.1	31° 01.4	45° 31.7	60° 02.1	74° 32.5	+30.2	16.2
	7° 20.6	7° 04.4	6° 48.2	6° 31.9	6° 15.7	5° 59.3	5° 43.0	5° 26.7	5° 10.3	4° 53.9	4° 37.5	-16.3	59.5
Вс 21	292° 13.1	306° 44.0	321° 15.0	335° 46.0	350° 17.0	4° 48.0	19° 19.0	33° 50.1	48° 21.1	62° 52.2	77° 23.3	+31.0	16.1
	0° 30.3	0° 13.8	-0° 02.7	-0° 19.1	-0° 35.5	-0° 52.0	-1° 08.4	-1° 24.8	-1° 41.1	-1° 57.5	-2° 13.8	-16.4	59.0
○ Пн 22	295° 10.6	309° 41.7	324° 12.9	338° 44.1	353° 15.2	7° 46.3	22° 17.5	36° 48.6	51° 19.7	65° 50.8	80° 21.9	+31.1	15.9
	-6° 15.0	-6° 30.7	-6° 46.5	-7° 02.1	-7° 17.8	-7° 33.3	-7° 48.8	-8° 04.3	-8° 19.7	-8° 35.1	-8° 50.4	-15.5	58.4
Вт 23	298° 06.5	312° 37.3	327° 08.1	341° 38.8	356° 09.6	10° 40.3	25° 11.0	39° 41.6	54° 12.2	68° 42.8	83° 13.4	+30.7	15.7
	-12° 32.0	-12° 46.2	-13° 00.3	-13° 14.4	-13° 28.3	-13° 42.2	-13° 56.0	-14° 09.7	-14° 23.3	-14° 36.8	-14° 50.3	-13.8	57.7
Ср 24	300° 48.2	315° 18.2	329° 48.2	344° 18.2	358° 48.2	13° 18.1	27° 47.9	42° 17.8	56° 47.6	71° 17.3	85° 47.1	+29.9	15.5
	-18° 00.7	-18° 12.6	-18° 24.4	-18° 36.1	-18° 47.7	-18° 59.2	-19° 10.5	-19° 21.8	-19° 32.9	-19° 44.0	-19° 54.9	-11.4	56.9
Чт 25	303° 08.7	317° 37.9	332° 07.0	346° 36.1	1° 05.2	15° 34.2	30° 03.2	44° 32.2	59° 01.1	73° 30.0	87° 58.9	+29.0	15.3
	-22° 24.7	-22° 33.7	-22° 42.6	-22° 51.4	-23° 00.0	-23° 08.5	-23° 16.9	-23° 25.2	-23° 33.3	-23° 41.3	-23° 49.1	-8.4	56.1
Пт 26	317° 37.9	332° 07.0	346° 36.1	1° 05.2	15° 34.2	30° 03.2	44° 32.2	59° 01.1	73° 30.0	87° 58.9	102° 27.7	+29.0	15.3
	-22° 33.7	-22° 42.6	-22° 51.4	-23° 00.0	-23° 08.5	-23° 16.9	-23° 25.2	-23° 33.3	-23° 41.3	-23° 49.1	-23° 56.9	-8.3	56.1
Сб 27	319° 37.3	334° 05.8	348° 34.2	3° 02.6	17° 31.0	31° 59.4	46° 27.8	60° 56.2	75° 24.5	89° 52.9	104° 21.2	+28.4	15.1
	-25° 37.0	-25° 42.6	-25° 48.1	-25° 53.4	-25° 58.6	-26° 03.6	-26° 08.5	-26° 13.3	-26° 17.9	-26° 22.4	-26° 26.7	-5.0	55.4
Вс 28	321° 25.6	335° 53.9	350° 22.2	4° 50.5	19° 18.8	33° 47.1	48° 15.5	62° 43.8	77° 12.2	91° 40.6	106° 09.0	+28.3	15.0
	-27° 15.1	-27° 17.2	-27° 19.2	-27° 21.0	-27° 22.7	-27° 24.2	-27° 25.6	-27° 26.9	-27° 28.0	-27° 29.0	-27° 29.9	-1.5	54.8
Пн 29	323° 17.4	337° 46.2	352° 15.0	6° 43.9	21° 12.7	35° 41.7	50° 10.6	64° 39.6	79° 08.6	93° 37.7	108° 06.8	+28.9	14.8
	-27° 26.1	-27° 24.7	-27° 23.3	-27° 21.7	-27° 19.9	-27° 18.0	-27° 16.0	-27° 13.9	-27° 11.6	-27° 09.2	-27° 06.7	+1.9	54.4
◑ Вт 30	325° 28.5	339° 58.3	354° 28.2	8° 58.1	23° 28.0	37° 58.1	52° 28.2	66° 58.3	81° 28.5	95° 58.7	110° 29.0	+30.1	14.8
	-26° 13.4	-26° 08.8	-26° 04.1	-25° 59.3	-25° 54.4	-25° 49.4	-25° 44.2	-25° 39.0	-25° 33.6	-25° 28.1	-25° 22.4	+5.1	54.2
Ср 31	328° 10.0	342° 41.1	357° 12.4	11° 43.7	26° 15.0	40° 46.4	55° 17.9	69° 49.4	84° 21.0	98° 52.6	113° 24.3	+31.4	14.8
	-23° 44.6	-23° 37.2	-23° 29.7	-23° 22.1	-23° 14.4	-23° 06.6	-22° 58.7	-22° 50.7	-22° 42.5	-22° 34.3	-22° 26.0	+7.9	54.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 8 09h29 — Первая четв.: 15 16h25 — Полнолуние: 22 10h43 — Последняя четв.: 30 00h53

СОЛНЦЕ

Апрель 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 00.1 4° 27.9	284° 00.2 4° 28.9	299° 00.4 4° 29.9	314° 00.6 4° 30.8	329° 00.8 4° 31.8	344° 01.0 4° 32.8	359° 01.2 4° 33.7	14° 01.4 4° 34.7	29° 01.5 4° 35.7	44° 01.7 4° 36.6	59° 01.9 4° 37.6	74° 02.1 4° 38.6	+0.2 +1.0
Пт 2	269° 04.5 4° 51.1	284° 04.7 4° 52.0	299° 04.9 4° 53.0	314° 05.0 4° 54.0	329° 05.2 4° 54.9	344° 05.4 4° 55.9	359° 05.6 4° 56.9	14° 05.8 4° 57.8	29° 06.0 4° 58.8	44° 06.2 4° 59.7	59° 06.3 5° 00.7	74° 06.5 5° 01.7	+0.2 +1.0
Сб 3	269° 08.9 5° 14.1	284° 09.1 5° 15.1	299° 09.3 5° 16.1	314° 09.4 5° 17.0	329° 09.6 5° 18.0	344° 09.8 5° 18.9	359° 10.0 5° 19.9	14° 10.2 5° 20.8	29° 10.4 5° 21.8	44° 10.5 5° 22.8	59° 10.7 5° 23.7	74° 10.9 5° 24.7	+0.2 +1.0
Вс 4	269° 13.3 5° 37.1	284° 13.4 5° 38.1	299° 13.6 5° 39.0	314° 13.8 5° 40.0	329° 14.0 5° 40.9	344° 14.2 5° 41.9	359° 14.3 5° 42.8	14° 14.5 5° 43.8	29° 14.7 5° 44.7	44° 14.9 5° 45.7	59° 15.1 5° 46.6	74° 15.2 5° 47.6	+0.2 +1.0
Пн 5	269° 17.6 6° 00.0	284° 17.8 6° 00.9	299° 17.9 6° 01.9	314° 18.1 6° 02.8	329° 18.3 6° 03.8	344° 18.5 6° 04.7	359° 18.7 6° 05.7	14° 18.8 6° 06.6	29° 19.0 6° 07.6	44° 19.2 6° 08.5	59° 19.4 6° 09.5	74° 19.5 6° 10.4	+0.2 +0.9
Вт 6	269° 21.9 6° 22.7	284° 22.0 6° 23.7	299° 22.2 6° 24.6	314° 22.4 6° 25.6	329° 22.6 6° 26.5	344° 22.7 6° 27.5	359° 22.9 6° 28.4	14° 23.1 6° 29.3	29° 23.3 6° 30.3	44° 23.4 6° 31.2	59° 23.6 6° 32.2	74° 23.8 6° 33.1	+0.2 +0.9
Ср 7	269° 26.1 6° 45.4	284° 26.2 6° 46.3	299° 26.4 6° 47.3	314° 26.6 6° 48.2	329° 26.8 6° 49.1	344° 26.9 6° 50.1	359° 27.1 6° 51.0	14° 27.3 6° 52.0	29° 27.5 6° 52.9	44° 27.6 6° 53.8	59° 27.8 6° 54.8	74° 28.0 6° 55.7	+0.2 +0.9
Чт 8	269° 30.2 7° 07.9	284° 30.4 7° 08.9	299° 30.6 7° 09.8	314° 30.8 7° 10.7	329° 30.9 7° 11.7	344° 31.1 7° 12.6	359° 31.3 7° 13.5	14° 31.4 7° 14.5	29° 31.6 7° 15.4	44° 31.8 7° 16.3	59° 32.0 7° 17.3	74° 32.1 7° 18.2	+0.2 +0.9
Пт 9	269° 34.4 7° 30.3	284° 34.5 7° 31.3	299° 34.7 7° 32.2	314° 34.9 7° 33.1	329° 35.0 7° 34.1	344° 35.2 7° 35.0	359° 35.4 7° 35.9	14° 35.5 7° 36.8	29° 35.7 7° 37.8	44° 35.9 7° 38.7	59° 36.0 7° 39.6	74° 36.2 7° 40.6	+0.2 +0.9
Сб 10	269° 38.4 7° 52.6	284° 38.6 7° 53.5	299° 38.7 7° 54.5	314° 38.9 7° 55.4	329° 39.1 7° 56.3	344° 39.2 7° 57.2	359° 39.4 7° 58.2	14° 39.6 7° 59.1	29° 39.7 8° 00.0	44° 39.9 8° 00.9	59° 40.1 8° 01.9	74° 40.2 8° 02.8	+0.2 +0.9
Вс 11	269° 42.4 8° 14.8	284° 42.6 8° 15.7	299° 42.7 8° 16.6	314° 42.9 8° 17.5	329° 43.0 8° 18.4	344° 43.2 8° 19.4	359° 43.4 8° 20.3	14° 43.5 8° 21.2	29° 43.7 8° 22.1	44° 43.9 8° 23.0	59° 44.0 8° 24.0	74° 44.2 8° 24.9	+0.2 +0.9
Пн 12	269° 46.3 8° 36.8	284° 46.5 8° 37.7	299° 46.6 8° 38.6	314° 46.8 8° 39.5	329° 47.0 8° 40.4	344° 47.1 8° 41.4	359° 47.3 8° 42.3	14° 47.4 8° 43.2	29° 47.6 8° 44.1	44° 47.8 8° 45.0	59° 47.9 8° 45.9	74° 48.1 8° 46.8	+0.2 +0.9
Вт 13	269° 50.2 8° 58.6	284° 50.3 8° 59.6	299° 50.5 9° 00.5	314° 50.6 9° 01.4	329° 50.8 9° 02.3	344° 50.9 9° 03.2	359° 51.1 9° 04.1	14° 51.3 9° 05.0	29° 51.4 9° 05.9	44° 51.6 9° 06.8	59° 51.7 9° 07.7	74° 51.9 9° 08.6	+0.2 +0.9
Ср 14	269° 53.9 9° 20.4	284° 54.1 9° 21.3	299° 54.2 9° 22.2	314° 54.4 9° 23.1	329° 54.5 9° 24.0	344° 54.7 9° 24.9	359° 54.9 9° 25.8	14° 55.0 9° 26.7	29° 55.2 9° 27.6	44° 55.3 9° 28.5	59° 55.5 9° 29.4	74° 55.6 9° 30.3	+0.2 +0.9
Чт 15	269° 57.6 9° 41.9	284° 57.8 9° 42.8	299° 57.9 9° 43.7	314° 58.1 9° 44.6	329° 58.2 9° 45.5	344° 58.4 9° 46.4	359° 58.5 9° 47.3	14° 58.7 9° 48.2	29° 58.8 9° 49.1	44° 59.0 9° 50.0	59° 59.1 9° 50.9	74° 59.3 9° 51.7	+0.2 +0.9
Пт 16	270° 01.2 10° 03.3	285° 01.4 10° 04.2	300° 01.5 10° 05.1	315° 01.7 10° 06.0	330° 01.8 10° 06.9	345° 02.0 10° 07.8	0° 02.1 10° 08.6	15° 02.3 10° 09.5	30° 02.4 10° 10.4	45° 02.6 10° 11.3	60° 02.7 10° 12.2	75° 02.9 10° 13.1	+0.1 +0.9
Сб 17	270° 04.8 10° 24.5	285° 04.9 10° 25.4	300° 05.0 10° 26.3	315° 05.2 10° 27.2	330° 05.3 10° 28.1	345° 05.5 10° 28.9	0° 05.6 10° 29.8	15° 05.8 10° 30.7	30° 05.9 10° 31.6	45° 06.1 10° 32.5	60° 06.2 10° 33.3	75° 06.3 10° 34.2	+0.1 +0.9
Вс 18	270° 08.2 10° 45.6	285° 08.3 10° 46.5	300° 08.5 10° 47.3	315° 08.6 10° 48.2	330° 08.8 10° 49.1	345° 08.9 10° 50.0	0° 09.0 10° 50.8	15° 09.2 10° 51.7	30° 09.3 10° 52.6	45° 09.5 10° 53.4	60° 09.6 10° 54.3	75° 09.7 10° 55.2	+0.1 +0.9
Пн 19	270° 11.5 11° 06.5	285° 11.7 11° 07.3	300° 11.8 11° 08.2	315° 11.9 11° 09.1	330° 12.1 11° 09.9	345° 12.2 11° 10.8	0° 12.3 11° 11.7	15° 12.5 11° 12.5	30° 12.6 11° 13.4	45° 12.8 11° 14.2	60° 12.9 11° 15.1	75° 13.0 11° 16.0	+0.1 +0.9
Вт 20	270° 14.8 11° 27.2	285° 14.9 11° 28.0	300° 15.0 11° 28.9	315° 15.2 11° 29.7	330° 15.3 11° 30.6	345° 15.4 11° 31.4	0° 15.6 11° 32.3	15° 15.7 11° 33.2	30° 15.8 11° 34.0	45° 16.0 11° 34.9	60° 16.1 11° 35.7	75° 16.2 11° 36.6	+0.1 +0.9
Ср 21	270° 17.9 11° 47.7	285° 18.0 11° 48.5	300° 18.2 11° 49.4	315° 18.3 11° 50.2	330° 18.4 11° 51.1	345° 18.5 11° 51.9	0° 18.7 11° 52.8	15° 18.8 11° 53.6	30° 18.9 11° 54.4	45° 19.0 11° 55.3	60° 19.2 11° 56.1	75° 19.3 11° 57.0	+0.1 +0.8
Чт 22	270° 20.9 12° 08.0	285° 21.0 12° 08.8	300° 21.2 12° 09.7	315° 21.3 12° 10.5	330° 21.4 12° 11.3	345° 21.5 12° 12.2	0° 21.7 12° 13.0	15° 21.8 12° 13.9	30° 21.9 12° 14.7	45° 22.0 12° 15.5	60° 22.2 12° 16.4	75° 22.3 12° 17.2	+0.1 +0.8
Пт 23	270° 23.8 12° 28.1	285° 24.0 12° 28.9	300° 24.1 12° 29.7	315° 24.2 12° 30.6	330° 24.3 12° 31.4	345° 24.4 12° 32.2	0° 24.5 12° 33.1	15° 24.7 12° 33.9	30° 24.8 12° 34.7	45° 24.9 12° 35.6	60° 25.0 12° 36.4	75° 25.1 12° 37.2	+0.1 +0.8
Сб 24	270° 26.6 12° 48.0	285° 26.7 12° 48.8	300° 26.9 12° 49.6	315° 27.0 12° 50.5	330° 27.1 12° 51.3	345° 27.2 12° 52.1	0° 27.3 12° 52.9	15° 27.4 12° 53.8	30° 27.5 12° 54.6	45° 27.7 12° 55.4	60° 27.8 12° 56.2	75° 27.9 12° 57.0	+0.1 +0.8
Вс 25	270° 29.3 13° 07.7	285° 29.4 13° 08.5	300° 29.5 13° 09.3	315° 29.6 13° 10.1	330° 29.7 13° 10.9	345° 29.9 13° 11.8	0° 30.0 13° 12.6	15° 30.1 13° 13.4	30° 30.2 13° 14.2	45° 30.3 13° 15.0	60° 30.4 13° 15.8	75° 30.5 13° 16.6	+0.1 +0.8
Пн 26	270° 31.9 13° 27.2	285° 32.0 13° 28.0	300° 32.1 13° 28.8	315° 32.2 13° 29.6	330° 32.3 13° 30.4	345° 32.4 13° 31.2	0° 32.5 13° 32.0	15° 32.6 13° 32.8	30° 32.7 13° 33.6	45° 32.8 13° 34.4	60° 32.9 13° 35.2	75° 33.0 13° 36.0	+0.1 +0.8
Вт 27	270° 34.3 13° 46.4	285° 34.4 13° 47.2	300° 34.5 13° 48.0	315° 34.6 13° 48.8	330° 34.7 13° 49.6	345° 34.8 13° 50.4	0° 34.9 13° 51.2	15° 35.0 13° 52.0	30° 35.1 13° 52.8	45° 35.2 13° 53.6	60° 35.3 13° 54.4	75° 35.4 13° 55.2	+0.1 +0.8
Ср 28	270° 36.6 14° 05.5	285° 36.7 14° 06.3	300° 36.8 14° 07.0	315° 36.9 14° 07.8	330° 37.0 14° 08.6	345° 37.0 14° 09.4	0° 37.1 14° 10.2	15° 37.2 14° 11.0	30° 37.3 14° 11.8	45° 37.4 14° 12.5	60° 37.5 14° 13.3	75° 37.6 14° 14.1	+0.1 +0.8
Чт 29	270° 38.8 14° 24.3	285° 38.8 14° 25.1	300° 38.9 14° 25.8	315° 39.0 14° 26.6	330° 39.1 14° 27.4	345° 39.2 14° 28.2	0° 39.3 14° 28.9	15° 39.4 14° 29.7	30° 39.4 14° 30.5	45° 39.5 14° 31.3	60° 39.6 14° 32.0	75° 39.7 14° 32.8	+0.1 +0.8
Пт 30	270° 40.8 14° 42.8	285° 40.9 14° 43.6	300° 40.9 14° 44.4	315° 41.0 14° 45.2	330° 41.1 14° 45.9	345° 41.2 14° 46.7	0° 41.3 14° 47.5	15° 41.4 14° 48.2	30° 41.4 14° 49.0	45° 41.5 14° 49.7	60° 41.6 14° 50.5	75° 41.7 14° 51.3	+0.1 +0.8

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2027

Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
Чт 1	244° 11.9	258° 44.1	273° 16.4	287° 48.8	302° 21.2	316° 53.6	331° 26.1	345° 58.6	0° 31.2	15° 03.9	29° 36.6	+32.5	14.8
	-21° 06.9	-20° 57.6	-20° 48.2	-20° 38.8	-20° 29.2	-20° 19.6	-20° 09.9	-20° 00.1	-19° 50.2	-19° 40.2	-19° 30.2	+9.7	54.3
Пт 2	247° 52.7	262° 26.1	276° 59.6	291° 33.1	306° 06.7	320° 40.3	335° 13.9	349° 47.5	4° 21.2	18° 55.0	33° 28.8	+33.6	14.9
	-16° 49.4	-16° 38.1	-16° 26.7	-16° 15.2	-16° 03.6	-15° 52.0	-15° 40.3	-15° 28.5	-15° 16.7	-15° 04.8	-14° 52.8	+11.7	54.6
Сб 3	251° 59.0	266° 33.3	281° 07.5	295° 41.8	310° 16.1	324° 50.4	339° 24.7	353° 59.1	8° 33.4	23° 07.8	37° 42.2	+34.3	15.0
	-11° 45.6	-11° 32.7	-11° 19.7	-11° 06.6	-10° 53.5	-10° 40.3	-10° 27.1	-10° 13.8	-10° 00.5	-9° 47.1	-9° 33.7	+13.2	55.0
Вс 4	256° 19.2	270° 53.7	285° 28.2	300° 02.7	314° 37.2	329° 11.7	343° 46.2	358° 20.7	12° 55.1	27° 29.6	42° 04.1	+34.5	15.1
	-6° 07.0	-5° 52.9	-5° 38.7	-5° 24.5	-5° 10.3	-4° 56.1	-4° 41.8	-4° 27.5	-4° 13.2	-3° 58.8	-3° 44.4	+14.3	55.5
Пн 5	260° 39.0	275° 13.1	289° 47.3	304° 21.4	318° 55.4	333° 29.5	348° 03.5	2° 37.5	17° 11.4	31° 45.3	46° 19.2	+34.0	15.3
	-0° 05.7	0° 09.0	0° 23.8	0° 38.5	0° 53.3	1° 08.1	1° 22.8	1° 37.6	1° 52.4	2° 07.2	2° 22.0	+14.8	56.1
● Вт 6	264° 42.2	279° 15.3	293° 48.4	308° 21.5	322° 54.4	337° 27.4	352° 00.2	6° 33.0	21° 05.8	35° 38.4	50° 11.1	+32.9	15.5
	6° 04.0	6° 18.7	6° 33.4	6° 48.1	7° 02.8	7° 17.5	7° 32.2	7° 46.8	8° 01.4	8° 16.0	8° 30.5	+14.7	56.8
Ср 7	268° 12.0	282° 43.4	297° 14.8	311° 46.1	326° 17.3	340° 48.5	355° 19.5	9° 50.5	24° 21.4	38° 52.2	53° 22.9	+31.1	15.6
	12° 05.1	12° 19.1	12° 33.1	12° 47.0	13° 00.8	13° 14.6	13° 28.4	13° 42.0	13° 55.7	14° 09.2	14° 22.8	+13.8	57.4
Чт 8	270° 52.4	285° 21.6	299° 50.7	314° 19.7	328° 48.6	343° 17.4	357° 46.1	12° 14.7	26° 43.2	41° 11.6	55° 39.9	+28.8	15.8
	17° 37.3	17° 49.6	18° 01.9	18° 14.1	18° 26.1	18° 38.1	18° 50.0	19° 01.9	19° 13.6	19° 25.2	19° 36.7	+12.0	57.9
Пт 9	272° 31.9	286° 58.6	301° 25.1	315° 51.6	330° 17.9	344° 44.2	359° 10.3	13° 36.3	28° 02.3	42° 28.1	56° 53.9	+26.2	15.9
	22° 16.4	22° 26.1	22° 35.7	22° 45.1	22° 54.4	23° 03.6	23° 12.7	23° 21.6	23° 30.4	23° 39.0	23° 47.5	+9.1	58.4
Сб 10	273° 09.1	287° 33.4	301° 57.7	316° 21.9	330° 46.0	345° 10.0	359° 33.9	13° 57.8	28° 21.7	42° 45.4	57° 09.1	+24.0	16.0
	25° 37.1	25° 43.2	25° 49.1	25° 54.8	26° 00.4	26° 05.8	26° 11.0	26° 16.1	26° 21.0	26° 25.7	26° 30.2	+5.3	58.7
Вс 11	272° 58.1	287° 21.0	301° 44.0	316° 06.8	330° 29.7	344° 52.6	359° 15.4	13° 38.2	28° 01.0	42° 23.8	56° 46.6	+22.8	16.1
	27° 17.0	27° 18.7	27° 20.2	27° 21.5	27° 22.6	27° 23.5	27° 24.2	27° 24.8	27° 25.1	27° 25.3	27° 25.3	+0.8	59.0
Пн 12	272° 28.8	286° 51.8	301° 14.8	315° 37.8	330° 00.9	344° 24.0	358° 47.1	13° 10.3	27° 33.5	41° 56.8	56° 20.1	+23.1	16.1
	27° 02.6	26° 59.6	26° 56.4	26° 53.1	26° 49.5	26° 45.8	26° 41.9	26° 37.8	26° 33.5	26° 29.0	26° 24.4	-3.8	59.1
◐ Вт 13	272° 16.9	286° 41.2	301° 05.6	315° 30.1	329° 54.6	344° 19.2	358° 44.0	13° 08.7	27° 33.6	41° 58.5	56° 23.6	+24.7	16.1
	24° 54.1	24° 46.7	24° 39.2	24° 31.5	24° 23.7	24° 15.7	24° 07.5	23° 59.2	23° 50.8	23° 42.1	23° 33.4	-8.1	59.2
Ср 14	272° 49.4	287° 15.8	301° 42.3	316° 08.9	330° 35.6	345° 02.4	359° 29.3	13° 56.2	28° 23.3	42° 50.4	57° 17.7	+26.8	16.1
	21° 04.8	20° 53.9	20° 42.8	20° 31.5	20° 20.2	20° 08.7	19° 57.1	19° 45.4	19° 33.6	19° 21.7	19° 09.7	-11.5	59.2
Чт 15	274° 16.5	288° 45.1	303° 13.8	317° 42.6	332° 11.4	346° 40.3	1° 09.3	15° 38.3	30° 07.5	44° 36.7	59° 06.0	+28.9	16.1
	15° 56.6	15° 43.0	15° 29.3	15° 15.5	15° 01.7	14° 47.7	14° 33.7	14° 19.6	14° 05.4	13° 51.1	13° 36.8	-14.0	59.1
Пт 16	276° 33.4	291° 03.8	305° 34.1	320° 04.6	334° 35.1	349° 05.6	3° 36.2	18° 06.9	32° 37.6	47° 08.3	61° 39.1	+30.6	16.1
	9° 54.3	9° 39.1	9° 23.8	9° 08.4	8° 53.0	8° 37.6	8° 22.1	8° 06.6	7° 51.0	7° 35.4	7° 19.8	-15.5	58.9
Сб 17	279° 25.9	293° 57.3	308° 28.7	323° 00.2	337° 31.7	352° 03.2	6° 34.7	21° 06.2	35° 37.8	50° 09.4	64° 41.0	+31.5	16.0
	3° 22.5	3° 06.5	2° 50.5	2° 34.6	2° 18.6	2° 02.6	1° 46.6	1° 30.6	1° 14.6	0° 58.6	0° 42.7	-16.0	58.6
Вс 18	282° 36.4	297° 08.1	311° 39.8	326° 11.6	340° 43.3	355° 15.0	9° 46.8	24° 18.5	38° 50.2	53° 21.9	67° 53.6	+31.7	15.9
	-3° 15.9	-3° 31.6	-3° 47.4	-4° 03.1	-4° 18.8	-4° 34.4	-4° 50.0	-5° 05.6	-5° 21.2	-5° 36.7	-5° 52.2	-15.6	58.2
Пн 19	285° 47.2	300° 18.6	314° 50.0	329° 21.4	343° 52.7	358° 24.0	12° 55.3	27° 26.6	41° 57.8	56° 29.0	71° 00.1	+31.3	15.7
	-9° 39.1	-9° 53.8	-10° 08.5	-10° 23.1	-10° 37.6	-10° 52.1	-11° 06.5	-11° 20.9	-11° 35.2	-11° 49.4	-12° 03.5	-14.4	57.7
○ Вт 20	288° 43.5	303° 14.1	317° 44.6	332° 15.1	346° 45.6	1° 16.0	15° 46.4	30° 16.8	44° 47.1	59° 17.3	73° 47.5	+30.4	15.6
	-15° 26.8	-15° 39.7	-15° 52.5	-16° 05.3	-16° 17.9	-16° 30.4	-16° 42.9	-16° 55.2	-17° 07.5	-17° 19.7	-17° 31.7	-12.5	57.1
Ср 21	291° 15.4	305° 44.9	320° 14.4	334° 43.8	349° 13.2	3° 42.5	18° 11.8	32° 41.1	47° 10.3	61° 39.4	76° 08.6	+29.3	15.4
	-20° 20.4	-20° 30.8	-20° 41.1	-20° 51.2	-21° 01.3	-21° 11.2	-21° 21.0	-21° 30.7	-21° 40.2	-21° 49.7	-21° 59.0	-9.9	56.5
Чт 22	293° 20.6	307° 49.2	322° 17.6	336° 46.1	351° 14.5	5° 42.9	20° 11.3	34° 39.6	49° 07.9	63° 36.2	78° 04.4	+28.4	15.2
	-24° 03.9	-24° 11.2	-24° 18.3	-24° 25.4	-24° 32.2	-24° 39.0	-24° 45.6	-24° 52.1	-24° 58.5	-25° 04.7	-25° 10.8	-6.7	55.8
Пт 23	295° 05.8	309° 33.8	324° 01.8	338° 29.8	352° 57.7	7° 25.7	21° 53.6	36° 21.6	50° 49.5	65° 17.5	79° 45.4	+28.0	15.1
	-26° 25.3	-26° 29.2	-26° 32.9	-26° 36.4	-26° 39.9	-26° 43.1	-26° 46.3	-26° 49.3	-26° 52.1	-26° 54.8	-26° 57.4	-3.2	55.3
Сб 24	296° 45.9	311° 14.0	325° 42.2	340° 10.4	354° 38.6	9° 06.9	23° 35.2	38° 03.5	52° 31.8	67° 00.2	81° 28.6	+28.3	14.9
	-27° 18.9	-27° 19.2	-27° 19.3	-27° 19.3	-27° 19.2	-27° 19.0	-27° 18.6	-27° 18.0	-27° 17.4	-27° 16.6	-27° 15.6	+0.3	54.8
Вс 25	311° 14.0	325° 42.2	340° 10.4	354° 38.6	9° 06.9	23° 35.2	38° 03.5	52° 31.8	67° 00.2	81° 28.6	95° 57.0	+28.3	14.9
	-27° 19.2	-27° 19.3	-27° 19.3	-27° 19.2	-27° 19.0	-27° 18.6	-27° 18.0	-27° 17.4	-27° 16.6	-27° 15.6	-27° 14.5	+0.5	54.8
Пн 26	313° 08.3	327° 37.4	342° 06.5	356° 35.7	11° 05.0	25° 34.3	40° 03.6	54° 33.0	69° 02.5	83° 32.0	98° 01.6	+29.3	14.8
	-26° 42.1	-26° 38.9	-26° 35.6	-26° 32.1	-26° 28.5	-26° 24.8	-26° 21.0	-26° 17.0	-26° 12.9	-26° 08.7	-26° 04.4	+3.8	54.4
Вт 27	315° 32.0	330° 02.5	344° 33.1	359° 03.7	13° 34.4	28° 05.2	42° 36.0	57° 06.9	71° 37.8	86° 08.8	100° 39.9	+30.8	14.8
	-24° 45.0	-24° 38.8	-24° 32.4	-24° 26.0	-24° 19.5	-24° 12.8	-24° 06.1	-23° 59.2	-23° 52.2	-23° 45.1	-23° 38.0	+6.7	54.2
◑ Ср 28	318° 33.3	333° 05.3	347° 37.4	2° 09.6	16° 41.8	31° 14.1	45° 46.5	60° 18.9	74° 51.3	89° 23.9	103° 56.4	+32.3	14.8
	-21° 38.1	-21° 29.3	-21° 20.5	-21° 11.5	-21° 02.5	-20° 53.4	-20° 44.2	-20° 34.9	-20° 25.5	-20° 16.0	-20° 06.5	+9.2	54.2
Чт 29	322° 11.5	336° 44.9	351° 18.4	5° 51.9	20° 25.4	34° 59.0	49° 32.7	64° 06.3	78° 40.1	93° 13.8	107° 47.6	+33.6	14.8
	-17° 33.2	-17° 22.4	-17° 11.4	-17° 00.5	-16° 49.4	-16° 38.3	-16° 27.1	-16° 15.8	-16° 04.5	-15° 53.0	-15° 41.6	+11.2	54.4
Пт 30	326° 19.2	340° 53.5	355° 27.9	10° 02.3	24° 36.7	39° 11.2	53° 45.7	68° 20.2	82° 54.7	97° 29.2	112° 03.8	+34.5	14.9
	-12° 41.7	-12° 29.2	-12° 16.7	-12° 04.1	-11° 51.5	-11° 38.8	-11° 26.0	-11° 13.2	-11° 00.3	-10° 47.4	-10° 34.5	+12.7	54.7

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 6 23h51 — Первая четв.: 13 22h56 — Полнолуние: 20 22h27 — Последняя четв.: 28 20h17

СОЛНЦЕ

Май 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	270° 42.7 15° 01.2	285° 42.8 15° 01.9	300° 42.8 15° 02.7	315° 42.9 15° 03.4	330° 43.0 15° 04.2	345° 43.1 15° 05.0	0° 43.1 15° 05.7	15° 43.2 15° 06.5	30° 43.3 15° 07.2	45° 43.4 15° 08.0	60° 43.4 15° 08.7	75° 43.5 15° 09.5	+0.1 +0.8
Вс 2	270° 44.4 15° 19.3	285° 44.5 15° 20.0	300° 44.6 15° 20.8	315° 44.6 15° 21.5	330° 44.7 15° 22.2	345° 44.8 15° 23.0	0° 44.9 15° 23.7	15° 44.9 15° 24.5	30° 45.0 15° 25.2	45° 45.1 15° 26.0	60° 45.1 15° 26.7	75° 45.2 15° 27.5	+0.1 +0.7
Пн 3	270° 46.1 15° 37.1	285° 46.1 15° 37.8	300° 46.2 15° 38.6	315° 46.2 15° 39.3	330° 46.3 15° 40.0	345° 46.4 15° 40.8	0° 46.4 15° 41.5	15° 46.5 15° 42.2	30° 46.6 15° 43.0	45° 46.6 15° 43.7	60° 46.7 15° 44.4	75° 46.7 15° 45.2	+0.1 +0.7
Вт 4	270° 47.5 15° 54.7	285° 47.6 15° 55.4	300° 47.6 15° 56.1	315° 47.7 15° 56.8	330° 47.8 15° 57.6	345° 47.8 15° 58.3	0° 47.9 15° 59.0	15° 47.9 15° 59.7	30° 48.0 16° 00.5	45° 48.0 16° 01.2	60° 48.1 16° 01.9	75° 48.2 16° 02.6	+0.1 +0.7
Ср 5	270° 48.9 16° 12.0	285° 48.9 16° 12.7	300° 49.0 16° 13.4	315° 49.0 16° 14.1	330° 49.1 16° 14.8	345° 49.1 16° 15.5	0° 49.2 16° 16.2	15° 49.2 16° 17.0	30° 49.3 16° 17.7	45° 49.3 16° 18.4	60° 49.4 16° 19.1	75° 49.4 16° 19.8	+0.1 +0.7
Чт 6	270° 50.1 16° 29.0	285° 50.1 16° 29.7	300° 50.2 16° 30.4	315° 50.2 16° 31.1	330° 50.2 16° 31.8	345° 50.3 16° 32.5	0° 50.3 16° 33.2	15° 50.4 16° 33.9	30° 50.4 16° 34.6	45° 50.5 16° 35.3	60° 50.5 16° 36.0	75° 50.6 16° 36.7	+0.0 +0.7
Пт 7	270° 51.1 16° 45.8	285° 51.2 16° 46.5	300° 51.2 16° 47.1	315° 51.2 16° 47.8	330° 51.3 16° 48.5	345° 51.3 16° 49.2	0° 51.4 16° 49.9	15° 51.4 16° 50.6	30° 51.4 16° 51.3	45° 51.5 16° 52.0	60° 51.5 16° 52.7	75° 51.6 16° 53.4	+0.0 +0.7
Сб 8	270° 52.0 17° 02.2	285° 52.1 17° 02.9	300° 52.1 17° 03.6	315° 52.1 17° 04.3	330° 52.2 17° 05.0	345° 52.2 17° 05.6	0° 52.2 17° 06.3	15° 52.3 17° 07.0	30° 52.3 17° 07.7	45° 52.3 17° 08.4	60° 52.4 17° 09.0	75° 52.4 17° 09.7	+0.0 +0.7
Вс 9	270° 52.8 17° 18.4	285° 52.8 17° 19.1	300° 52.9 17° 19.8	315° 52.9 17° 20.4	330° 52.9 17° 21.1	345° 52.9 17° 21.8	0° 53.0 17° 22.4	15° 53.0 17° 23.1	30° 53.0 17° 23.8	45° 53.1 17° 24.4	60° 53.1 17° 25.1	75° 53.1 17° 25.8	+0.0 +0.7
Пн 10	270° 53.4 17° 34.3	285° 53.5 17° 35.0	300° 53.5 17° 35.7	315° 53.5 17° 36.3	330° 53.5 17° 37.0	345° 53.6 17° 37.6	0° 53.6 17° 38.3	15° 53.6 17° 38.9	30° 53.6 17° 39.6	45° 53.6 17° 40.2	60° 53.7 17° 40.9	75° 53.7 17° 41.5	+0.0 +0.7
Вт 11	270° 53.9 17° 50.0	285° 53.9 17° 50.6	300° 54.0 17° 51.2	315° 54.0 17° 51.9	330° 54.0 17° 52.5	345° 54.0 17° 53.2	0° 54.0 17° 53.8	15° 54.0 17° 54.5	30° 54.1 17° 55.1	45° 54.1 17° 55.7	60° 54.1 17° 56.4	75° 54.1 17° 57.0	+0.0 +0.6
Ср 12	270° 54.3 18° 05.3	285° 54.3 18° 05.9	300° 54.3 18° 06.5	315° 54.3 18° 07.2	330° 54.3 18° 07.8	345° 54.3 18° 08.4	0° 54.4 18° 09.0	15° 54.4 18° 09.7	30° 54.4 18° 10.3	45° 54.4 18° 10.9	60° 54.4 18° 11.6	75° 54.4 18° 12.2	+0.0 +0.6
Чт 13	270° 54.5 18° 20.3	285° 54.5 18° 20.9	300° 54.5 18° 21.5	315° 54.5 18° 22.1	330° 54.5 18° 22.7	345° 54.5 18° 23.4	0° 54.5 18° 24.0	15° 54.5 18° 24.6	30° 54.5 18° 25.2	45° 54.6 18° 25.8	60° 54.6 18° 26.4	75° 54.6 18° 27.0	+0.0 +0.6
Пт 14	270° 54.6 18° 35.0	285° 54.6 18° 35.6	300° 54.6 18° 36.2	315° 54.6 18° 36.8	330° 54.6 18° 37.4	345° 54.6 18° 38.0	0° 54.6 18° 38.6	15° 54.6 18° 39.2	30° 54.6 18° 39.8	45° 54.6 18° 40.4	60° 54.6 18° 41.0	75° 54.6 18° 41.6	-0.0 +0.6
Сб 15	270° 54.5 18° 49.3	285° 54.5 18° 49.9	300° 54.5 18° 50.5	315° 54.5 18° 51.1	330° 54.5 18° 51.7	345° 54.5 18° 52.3	0° 54.5 18° 52.9	15° 54.5 18° 53.5	30° 54.5 18° 54.1	45° 54.5 18° 54.7	60° 54.5 18° 55.2	75° 54.5 18° 55.8	-0.0 +0.6
Вс 16	270° 54.3 19° 03.4	285° 54.3 19° 04.0	300° 54.3 19° 04.6	315° 54.3 19° 05.1	330° 54.3 19° 05.7	345° 54.3 19° 06.3	0° 54.3 19° 06.9	15° 54.3 19° 07.4	30° 54.2 19° 08.0	45° 54.2 19° 08.6	60° 54.2 19° 09.2	75° 54.2 19° 09.7	-0.0 +0.6
Пн 17	270° 54.0 19° 17.1	285° 54.0 19° 17.7	300° 54.0 19° 18.3	315° 54.0 19° 18.8	330° 53.9 19° 19.4	345° 53.9 19° 20.0	0° 53.9 19° 20.5	15° 53.9 19° 21.1	30° 53.9 19° 21.6	45° 53.8 19° 22.2	60° 53.8 19° 22.8	75° 53.8 19° 23.3	-0.0 +0.6
Вт 18	270° 53.5 19° 30.5	285° 53.5 19° 31.1	300° 53.5 19° 31.6	315° 53.5 19° 32.2	330° 53.5 19° 32.7	345° 53.4 19° 33.3	0° 53.4 19° 33.8	15° 53.4 19° 34.4	30° 53.4 19° 34.9	45° 53.3 19° 35.5	60° 53.3 19° 36.0	75° 53.3 19° 36.6	-0.0 +0.5
Ср 19	270° 52.9 19° 43.6	285° 52.9 19° 44.2	300° 52.9 19° 44.7	315° 52.9 19° 45.2	330° 52.8 19° 45.8	345° 52.8 19° 46.3	0° 52.8 19° 46.8	15° 52.7 19° 47.4	30° 52.7 19° 47.9	45° 52.7 19° 48.4	60° 52.6 19° 49.0	75° 52.6 19° 49.5	-0.0 +0.5
Чт 20	270° 52.2 19° 56.4	285° 52.2 19° 56.9	300° 52.1 19° 57.4	315° 52.1 19° 57.9	330° 52.1 19° 58.5	345° 52.0 19° 59.0	0° 52.0 19° 59.5	15° 52.0 20° 00.0	30° 51.9 20° 00.5	45° 51.9 20° 01.1	60° 51.9 20° 01.6	75° 51.8 20° 02.1	-0.0 +0.5
Пт 21	270° 51.3 20° 08.8	285° 51.3 20° 09.3	300° 51.2 20° 09.8	315° 51.2 20° 10.3	330° 51.2 20° 10.8	345° 51.1 20° 11.3	0° 51.1 20° 11.8	15° 51.0 20° 12.3	30° 51.0 20° 12.8	45° 51.0 20° 13.3	60° 50.9 20° 13.8	75° 50.9 20° 14.3	-0.0 +0.5
Сб 22	270° 50.3 20° 20.8	285° 50.3 20° 21.3	300° 50.2 20° 21.8	315° 50.2 20° 22.3	330° 50.1 20° 22.8	345° 50.1 20° 23.3	0° 50.0 20° 23.8	15° 50.0 20° 24.3	30° 50.0 20° 24.8	45° 49.9 20° 25.3	60° 49.9 20° 25.7	75° 49.8 20° 26.2	-0.0 +0.5
Вс 23	270° 49.2 20° 32.5	285° 49.1 20° 33.0	300° 49.1 20° 33.5	315° 49.0 20° 34.0	330° 49.0 20° 34.5	345° 48.9 20° 34.9	0° 48.9 20° 35.4	15° 48.8 20° 35.9	30° 48.8 20° 36.4	45° 48.7 20° 36.8	60° 48.7 20° 37.3	75° 48.6 20° 37.8	-0.1 +0.5
Пн 24	270° 47.9 20° 43.9	285° 47.9 20° 44.4	300° 47.8 20° 44.8	315° 47.7 20° 45.3	330° 47.7 20° 45.8	345° 47.6 20° 46.2	0° 47.6 20° 46.7	15° 47.5 20° 47.1	30° 47.5 20° 47.6	45° 47.4 20° 48.1	60° 47.3 20° 48.5	75° 47.3 20° 49.0	-0.1 +0.5
Вт 25	270° 46.5 20° 54.9	285° 46.4 20° 55.3	300° 46.4 20° 55.8	315° 46.3 20° 56.2	330° 46.3 20° 56.7	345° 46.2 20° 57.1	0° 46.1 20° 57.6	15° 46.1 20° 58.0	30° 46.0 20° 58.5	45° 45.9 20° 58.9	60° 45.9 20° 59.4	75° 45.8 20° 59.8	-0.1 +0.4
Ср 26	270° 45.0 21° 05.5	285° 44.9 21° 06.0	300° 44.8 21° 06.4	315° 44.8 21° 06.8	330° 44.7 21° 07.3	345° 44.6 21° 07.7	0° 44.6 21° 08.1	15° 44.5 21° 08.6	30° 44.4 21° 09.0	45° 44.4 21° 09.4	60° 44.3 21° 09.9	75° 44.2 21° 10.3	-0.1 +0.4
Чт 27	270° 43.3 21° 15.8	285° 43.3 21° 16.2	300° 43.2 21° 16.7	315° 43.1 21° 17.1	330° 43.0 21° 17.5	345° 43.0 21° 17.9	0° 42.9 21° 18.3	15° 42.8 21° 18.8	30° 42.7 21° 19.2	45° 42.7 21° 19.6	60° 42.6 21° 20.0	75° 42.5 21° 20.4	-0.1 +0.4
Пт 28	270° 41.6 21° 25.7	285° 41.5 21° 26.1	300° 41.4 21° 26.5	315° 41.3 21° 26.9	330° 41.2 21° 27.4	345° 41.2 21° 27.8	0° 41.1 21° 28.2	15° 41.0 21° 28.6	30° 40.9 21° 29.0	45° 40.9 21° 29.4	60° 40.8 21° 29.8	75° 40.7 21° 30.2	-0.1 +0.4
Сб 29	270° 39.7 21° 35.3	285° 39.6 21° 35.7	300° 39.5 21° 36.1	315° 39.4 21° 36.4	330° 39.3 21° 36.8	345° 39.2 21° 37.2	0° 39.2 21° 37.6	15° 39.1 21° 38.0	30° 39.0 21° 38.4	45° 38.9 21° 38.8	60° 38.8 21° 39.1	75° 38.7 21° 39.5	-0.1 +0.4
Вс 30	270° 37.6 21° 44.4	285° 37.6 21° 44.8	300° 37.5 21° 45.2	315° 37.4 21° 45.6	330° 37.3 21° 45.9	345° 37.2 21° 46.3	0° 37.1 21° 46.7	15° 37.0 21° 47.1	30° 36.9 21° 47.4	45° 36.9 21° 47.8	60° 36.8 21° 48.2	75° 36.7 21° 48.5	-0.1 +0.4
Пн 31	270° 35.5 21° 53.2	285° 35.4 21° 53.6	300° 35.3 21° 54.0	315° 35.2 21° 54.3	330° 35.2 21° 54.7	345° 35.1 21° 55.0	0° 35.0 21° 55.4	15° 34.9 21° 55.7	30° 34.8 21° 56.1	45° 34.7 21° 56.4	60° 34.6 21° 56.8	75° 34.5 21° 57.1	-0.1 +0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2027

Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ°/h	R/p
Сб 1	243° 15.6	257° 50.3	272° 25.0	286° 59.7	301° 34.5	316° 09.2	330° 43.9	345° 18.7	359° 53.4	14° 28.1	29° 02.9	+34.7	15.0
	-8° 35.7	-8° 22.2	-8° 08.8	-7° 55.2	-7° 41.7	-7° 28.1	-7° 14.4	-7° 00.7	-6° 47.0	-6° 33.3	-6° 19.5	+13.6	55.1
Вс 2	247° 43.3	262° 17.9	276° 52.4	291° 27.0	306° 01.5	320° 36.0	335° 10.5	349° 45.0	4° 19.4	18° 53.8	33° 28.2	+34.5	15.2
	-2° 48.5	-2° 34.2	-2° 19.8	-2° 05.5	-1° 51.1	-1° 36.7	-1° 22.3	-1° 07.9	-0° 53.4	-0° 38.9	-0° 24.4	+14.4	55.8
Пн 3	251° 59.8	266° 33.5	281° 07.3	295° 40.9	310° 14.6	324° 48.1	339° 21.7	353° 55.1	8° 28.5	23° 01.9	37° 35.2	+33.5	15.4
	3° 14.5	3° 29.2	3° 43.9	3° 58.5	4° 13.2	4° 27.9	4° 42.5	4° 57.2	5° 11.8	5° 26.5	5° 41.1	+14.7	56.5
Вт 4	255° 46.9	270° 19.1	284° 51.2	299° 23.2	313° 55.2	328° 27.1	342° 58.9	357° 30.6	12° 02.3	26° 33.8	41° 05.3	+31.8	15.6
	9° 19.1	9° 33.5	9° 47.9	10° 02.2	10° 16.5	10° 30.7	10° 45.0	10° 59.1	11° 13.3	11° 27.4	11° 41.5	+14.2	57.3
Ср 5	258° 46.1	273° 16.0	287° 45.8	302° 15.6	316° 45.2	331° 14.7	345° 44.1	0° 13.4	14° 42.6	29° 11.7	43° 40.6	+29.5	15.8
	15° 07.0	15° 20.3	15° 33.5	15° 46.6	15° 59.7	16° 12.6	16° 25.6	16° 38.4	16° 51.2	17° 03.8	17° 16.5	+12.9	58.0
● Чт 6	260° 41.7	275° 08.8	289° 35.9	304° 02.8	318° 29.6	332° 56.3	347° 22.9	1° 49.3	16° 15.7	30° 41.9	45° 08.0	+26.6	16.0
	20° 14.9	20° 26.0	20° 37.0	20° 47.9	20° 58.6	21° 09.3	21° 19.8	21° 30.2	21° 40.5	21° 50.7	22° 00.8	+10.6	58.7
Пт 7	261° 26.3	275° 50.7	290° 15.0	304° 39.1	319° 03.2	333° 27.1	347° 51.0	2° 14.8	16° 38.5	31° 02.1	45° 25.6	+23.9	16.2
	24° 15.2	24° 23.1	24° 30.7	24° 38.2	24° 45.5	24° 52.7	24° 59.7	25° 06.6	25° 13.3	25° 19.8	25° 26.1	+7.1	59.2
Сб 8	261° 08.7	275° 31.0	289° 53.3	304° 15.5	318° 37.7	332° 59.9	347° 22.0	1° 44.0	16° 06.1	30° 28.1	44° 50.0	+22.1	16.2
	26° 40.4	26° 43.9	26° 47.2	26° 50.4	26° 53.3	26° 56.0	26° 58.6	27° 01.0	27° 03.1	27° 05.1	27° 06.9	+2.6	59.6
Вс 9	260° 17.5	274° 39.3	289° 01.1	303° 23.0	317° 44.9	332° 06.8	346° 28.7	0° 50.7	15° 12.7	29° 34.7	43° 56.8	+21.9	16.3
	27° 10.2	27° 08.9	27° 07.3	27° 05.6	27° 03.7	27° 01.5	26° 59.2	26° 56.7	26° 54.0	26° 51.1	26° 48.0	-2.2	59.7
Пн 10	259° 33.9	273° 56.9	288° 19.9	302° 43.1	317° 06.3	331° 29.6	345° 52.9	0° 16.4	14° 39.9	29° 03.6	43° 27.3	+23.3	16.3
	25° 39.2	25° 33.2	25° 27.0	25° 20.6	25° 14.0	25° 07.3	25° 00.4	24° 53.3	24° 46.1	24° 38.7	24° 31.1	-6.8	59.7
Вт 11	259° 34.4	273° 59.6	288° 25.0	302° 50.4	317° 16.0	331° 41.7	346° 07.5	0° 33.3	14° 59.3	29° 25.4	43° 51.6	+25.7	16.2
	22° 18.9	22° 09.0	21° 58.8	21° 48.6	21° 38.2	21° 27.7	21° 17.0	21° 06.3	20° 55.4	20° 44.3	20° 33.2	-10.6	59.5
Ср 12	260° 36.8	275° 04.7	289° 32.6	304° 00.6	318° 28.7	332° 56.9	347° 25.2	1° 53.6	16° 22.1	30° 50.7	45° 19.4	+28.3	16.1
	17° 32.5	17° 19.6	17° 06.7	16° 53.6	16° 40.5	16° 27.2	16° 13.9	16° 00.5	15° 47.0	15° 33.5	15° 19.8	-13.3	59.2
◐ Чт 13	262° 39.9	277° 10.0	291° 40.1	306° 10.2	320° 40.5	335° 10.8	349° 41.1	4° 11.6	18° 42.1	33° 12.7	47° 43.3	+30.3	16.0
	11° 46.9	11° 32.2	11° 17.4	11° 02.7	10° 47.8	10° 32.9	10° 18.0	10° 03.0	9° 48.0	9° 33.0	9° 17.9	-14.9	58.8
Пт 14	265° 29.9	280° 01.4	294° 33.0	309° 04.6	323° 36.2	338° 07.9	352° 39.6	7° 11.4	21° 43.2	36° 15.0	50° 46.9	+31.7	15.9
	5° 27.7	5° 12.1	4° 56.6	4° 41.0	4° 25.4	4° 09.8	3° 54.2	3° 38.6	3° 23.0	3° 07.4	2° 51.7	-15.6	58.3
Сб 15	268° 47.8	283° 20.1	297° 52.3	312° 24.5	326° 56.8	341° 29.0	356° 01.3	10° 33.6	25° 05.8	39° 38.1	54° 10.4	+32.3	15.8
	-1° 02.6	-1° 18.1	-1° 33.7	-1° 49.2	-2° 04.7	-2° 20.2	-2° 35.6	-2° 51.1	-3° 06.5	-3° 21.9	-3° 37.2	-15.5	57.9
Вс 16	272° 14.1	286° 46.3	301° 18.4	315° 50.6	330° 22.7	344° 54.8	359° 26.9	13° 58.9	28° 30.9	43° 03.0	57° 34.9	+32.1	15.6
	-7° 23.9	-7° 38.7	-7° 53.5	-8° 08.2	-8° 22.9	-8° 37.5	-8° 52.1	-9° 06.6	-9° 21.1	-9° 35.5	-9° 49.8	-14.6	57.4
Пн 17	275° 31.2	290° 02.7	304° 34.2	319° 05.6	333° 36.9	348° 08.3	2° 39.6	17° 10.8	31° 42.0	46° 13.2	60° 44.3	+31.3	15.5
	-13° 18.1	-13° 31.5	-13° 44.7	-13° 57.9	-14° 11.1	-14° 24.1	-14° 37.1	-14° 50.0	-15° 02.8	-15° 15.6	-15° 28.2	-13.0	56.9
Вт 18	278° 25.7	292° 56.1	307° 26.4	321° 56.7	336° 27.0	350° 57.1	5° 27.3	19° 57.4	34° 27.4	48° 57.4	63° 27.3	+30.2	15.4
	-18° 27.7	-18° 38.9	-18° 50.0	-19° 01.0	-19° 12.0	-19° 22.8	-19° 33.5	-19° 44.1	-19° 54.6	-20° 05.0	-20° 15.3	-10.8	56.4
Ср 19	280° 50.6	295° 19.8	309° 48.9	324° 18.0	338° 47.1	353° 16.1	7° 45.0	22° 13.9	36° 42.8	51° 11.6	65° 40.4	+29.0	15.2
	-22° 36.3	-22° 44.8	-22° 53.1	-23° 01.3	-23° 09.4	-23° 17.4	-23° 25.3	-23° 33.0	-23° 40.6	-23° 48.1	-23° 55.4	-7.9	55.8
○ Чт 20	282° 48.0	297° 16.3	311° 44.5	326° 12.7	340° 40.9	355° 09.0	9° 37.2	24° 05.3	38° 33.4	53° 01.5	67° 29.6	+28.2	15.1
	-25° 29.9	-25° 35.1	-25° 40.2	-25° 45.2	-25° 50.0	-25° 54.7	-25° 59.2	-26° 03.6	-26° 07.9	-26° 12.0	-26° 16.0	-4.6	55.4
Пт 21	284° 29.5	298° 57.5	313° 25.5	327° 53.5	342° 21.5	356° 49.5	11° 17.5	25° 45.6	40° 13.6	54° 41.7	69° 09.8	+28.0	15.0
	-26° 58.9	-27° 00.6	-27° 02.2	-27° 03.7	-27° 05.0	-27° 06.1	-27° 07.2	-27° 08.0	-27° 08.8	-27° 09.4	-27° 09.8	-1.1	54.9
Сб 22	286° 13.9	300° 42.4	315° 11.0	329° 39.6	344° 08.2	358° 36.9	13° 05.6	27° 34.4	42° 03.2	56° 32.0	71° 00.9	+28.7	14.9
	-27° 00.1	-26° 58.3	-26° 56.4	-26° 54.4	-26° 52.3	-26° 50.0	-26° 47.6	-26° 45.0	-26° 42.4	-26° 39.5	-26° 36.6	+2.3	54.5
Вс 23	288° 20.5	302° 50.3	317° 20.1	331° 50.0	346° 19.9	0° 49.9	15° 19.9	29° 50.0	44° 20.2	58° 50.5	73° 20.8	+30.0	14.8
	-25° 37.3	-25° 32.3	-25° 27.3	-25° 22.1	-25° 16.8	-25° 11.4	-25° 05.9	-25° 00.2	-24° 54.5	-24° 48.6	-24° 42.6	+5.5	54.3
Пн 24	291° 03.1	305° 34.4	320° 05.8	334° 37.3	349° 08.9	3° 40.5	18° 12.2	32° 43.9	47° 15.7	61° 47.6	76° 19.5	+31.6	14.8
	-22° 59.8	-22° 52.1	-22° 44.3	-22° 36.5	-22° 28.5	-22° 20.4	-22° 12.2	-22° 04.0	-21° 55.6	-21° 47.2	-21° 38.6	+8.1	54.1
Вт 25	305° 34.4	320° 05.8	334° 37.3	349° 08.9	3° 40.5	18° 12.2	32° 43.9	47° 15.7	61° 47.6	76° 19.5	90° 51.5	+31.7	14.8
	-22° 52.1	-22° 44.3	-22° 36.5	-22° 28.5	-22° 20.4	-22° 12.2	-22° 04.0	-21° 55.6	-21° 47.2	-21° 38.6	-21° 30.0	+8.2	54.1
Ср 26	308° 59.1	323° 32.1	338° 05.2	352° 38.3	7° 11.4	21° 44.7	36° 17.9	50° 51.3	65° 24.7	79° 58.1	94° 31.6	+33.3	14.8
	-19° 10.0	-19° 00.0	-18° 49.9	-18° 39.7	-18° 29.5	-18° 19.2	-18° 08.8	-17° 58.4	-17° 47.9	-17° 37.3	-17° 26.6	+10.3	54.1
Чт 27	313° 00.0	327° 34.2	342° 08.5	356° 42.9	11° 17.3	25° 51.7	40° 26.1	55° 00.6	69° 35.1	84° 09.7	98° 44.3	+34.4	14.8
	-14° 38.4	-14° 26.6	-14° 14.9	-14° 03.0	-13° 51.1	-13° 39.2	-13° 27.1	-13° 15.1	-13° 02.9	-12° 50.8	-12° 38.5	+12.0	54.3
◑ Пт 28	317° 26.5	332° 01.5	346° 36.5	1° 11.6	15° 46.6	30° 21.7	44° 56.8	59° 31.9	74° 07.0	88° 42.1	103° 17.2	+35.1	14.9
	-9° 28.9	-9° 15.9	-9° 02.9	-8° 49.8	-8° 36.6	-8° 23.5	-8° 10.2	-7° 57.0	-7° 43.7	-7° 30.4	-7° 17.0	+13.2	54.7
Сб 29	322° 04.2	336° 39.3	351° 14.4	5° 49.5	20° 24.6	34° 59.6	49° 34.7	64° 09.7	78° 44.7	93° 19.7	107° 54.7	+35.0	15.1
	-3° 52.3	-3° 38.4	-3° 24.5	-3° 10.6	-2° 56.6	-2° 42.6	-2° 28.6	-2° 14.6	-2° 00.5	-1° 46.5	-1° 32.4	+14.0	55.2
Вс 30	326° 36.0	341° 10.5	355° 45.0	10° 19.4	24° 53.7	39° 28.0	54° 02.3	68° 36.5	83° 10.7	97° 44.8	112° 18.9	+34.3	15.3
	2° 01.0	2° 15.3	2° 29.6	2° 44.0	2° 58.3	3° 12.6	3° 27.0	3° 41.3	3° 55.7	4° 10.0	4° 24.4	+14.3	55.9
Пн 31	330° 43.0	345° 16.0	359° 49.0	14° 22.0	28° 54.8	43° 27.6	58° 00.3	72° 32.9	87° 05.5	101° 37.9	116° 10.3	+32.7	15.5
	7° 59.0	8° 13.2	8° 27.4	8° 41.6	8° 55.7	9° 09.9	9° 24.0	9° 38.1	9° 52.1	10° 06.2	10° 20.2	+14.1	56.8

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 6 10h58 — Первая четв.: 13 04h43 — Полнолуние: 20 10h59 — Последняя четв.: 28 13h57

СОЛНЦЕ

Июнь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	270° 33.3	285° 33.2	300° 33.1	315° 33.0	330° 32.9	345° 32.8	0° 32.7	15° 32.6	30° 32.5	45° 32.4	60° 32.3	75° 32.2	-0.1
	22° 01.7	22° 02.0	22° 02.3	22° 02.7	22° 03.0	22° 03.4	22° 03.7	22° 04.0	22° 04.4	22° 04.7	22° 05.0	22° 05.4	+0.3
Ср 2	270° 30.9	285° 30.8	300° 30.7	315° 30.6	330° 30.5	345° 30.4	0° 30.3	15° 30.2	30° 30.1	45° 30.0	60° 29.9	75° 29.8	-0.1
	22° 09.7	22° 10.0	22° 10.3	22° 10.7	22° 11.0	22° 11.3	22° 11.6	22° 11.9	22° 12.3	22° 12.6	22° 12.9	22° 13.2	+0.3
Чт 3	270° 28.5	285° 28.4	300° 28.3	315° 28.2	330° 28.1	345° 28.0	0° 27.9	15° 27.8	30° 27.7	45° 27.6	60° 27.5	75° 27.4	-0.1
	22° 17.3	22° 17.6	22° 17.9	22° 18.2	22° 18.6	22° 18.9	22° 19.2	22° 19.5	22° 19.8	22° 20.1	22° 20.4	22° 20.7	+0.3
Пт 4	270° 26.0	285° 25.9	300° 25.8	315° 25.7	330° 25.6	345° 25.4	0° 25.3	15° 25.2	30° 25.1	45° 25.0	60° 24.9	75° 24.8	-0.1
	22° 24.6	22° 24.9	22° 25.2	22° 25.4	22° 25.7	22° 26.0	22° 26.3	22° 26.6	22° 26.9	22° 27.2	22° 27.5	22° 27.8	+0.3
Сб 5	270° 23.4	285° 23.3	300° 23.1	315° 23.0	330° 22.9	345° 22.8	0° 22.7	15° 22.6	30° 22.5	45° 22.4	60° 22.3	75° 22.1	-0.1
	22° 31.4	22° 31.7	22° 32.0	22° 32.3	22° 32.5	22° 32.8	22° 33.1	22° 33.3	22° 33.6	22° 33.9	22° 34.2	22° 34.4	+0.3
Вс 6	270° 20.7	285° 20.6	300° 20.4	315° 20.3	330° 20.2	345° 20.1	0° 20.0	15° 19.9	30° 19.7	45° 19.6	60° 19.5	75° 19.4	-0.1
	22° 37.9	22° 38.1	22° 38.4	22° 38.7	22° 38.9	22° 39.2	22° 39.4	22° 39.7	22° 40.0	22° 40.2	22° 40.5	22° 40.7	+0.3
Пн 7	270° 17.9	285° 17.8	300° 17.7	315° 17.5	330° 17.4	345° 17.3	0° 17.2	15° 17.1	30° 17.0	45° 16.8	60° 16.7	75° 16.6	-0.1
	22° 43.9	22° 44.2	22° 44.4	22° 44.7	22° 44.9	22° 45.2	22° 45.4	22° 45.6	22° 45.9	22° 46.1	22° 46.4	22° 46.6	+0.2
Вт 8	270° 15.0	285° 14.9	300° 14.8	315° 14.7	330° 14.6	345° 14.4	0° 14.3	15° 14.2	30° 14.1	45° 14.0	60° 13.8	75° 13.7	-0.1
	22° 49.6	22° 49.8	22° 50.1	22° 50.3	22° 50.5	22° 50.7	22° 51.0	22° 51.2	22° 51.4	22° 51.6	22° 51.9	22° 52.1	+0.2
Ср 9	270° 12.1	285° 12.0	300° 11.9	315° 11.8	330° 11.7	345° 11.5	0° 11.4	15° 11.3	30° 11.2	45° 11.0	60° 10.9	75° 10.8	-0.1
	22° 54.9	22° 55.1	22° 55.3	22° 55.5	22° 55.7	22° 55.9	22° 56.1	22° 56.3	22° 56.5	22° 56.7	22° 57.0	22° 57.2	+0.2
Чт 10	270° 09.2	285° 09.1	300° 08.9	315° 08.8	330° 08.7	345° 08.6	0° 08.4	15° 08.3	30° 08.2	45° 08.1	60° 07.9	75° 07.8	-0.1
	22° 59.7	22° 59.9	23° 00.1	23° 00.3	23° 00.5	23° 00.7	23° 00.9	23° 01.1	23° 01.3	23° 01.5	23° 01.6	23° 01.8	+0.2
Пт 11	270° 06.2	285° 06.0	300° 05.9	315° 05.8	330° 05.7	345° 05.5	0° 05.4	15° 05.3	30° 05.1	45° 05.0	60° 04.9	75° 04.8	-0.1
	23° 04.2	23° 04.4	23° 04.5	23° 04.7	23° 04.9	23° 05.1	23° 05.2	23° 05.4	23° 05.6	23° 05.8	23° 05.9	23° 06.1	+0.2
Сб 12	270° 03.1	285° 03.0	300° 02.8	315° 02.7	330° 02.6	345° 02.5	0° 02.3	15° 02.2	30° 02.1	45° 01.9	60° 01.8	75° 01.7	-0.1
	23° 08.2	23° 08.4	23° 08.6	23° 08.7	23° 08.9	23° 09.0	23° 09.2	23° 09.3	23° 09.5	23° 09.7	23° 09.8	23° 10.0	+0.2
Вс 13	270° 00.0	284° 59.9	299° 59.7	314° 59.6	329° 59.5	344° 59.3	359° 59.2	14° 59.1	29° 59.0	44° 58.8	59° 58.7	74° 58.6	-0.1
	23° 11.9	23° 12.0	23° 12.2	23° 12.3	23° 12.4	23° 12.6	23° 12.7	23° 12.9	23° 13.0	23° 13.1	23° 13.3	23° 13.4	+0.1
Пн 14	269° 56.9	284° 56.7	299° 56.6	314° 56.5	329° 56.3	344° 56.2	359° 56.1	14° 55.9	29° 55.8	44° 55.7	59° 55.5	74° 55.4	-0.1
	23° 15.1	23° 15.2	23° 15.4	23° 15.5	23° 15.6	23° 15.7	23° 15.9	23° 16.0	23° 16.1	23° 16.2	23° 16.3	23° 16.5	+0.1
Вт 15	269° 53.7	284° 53.6	299° 53.4	314° 53.3	329° 53.2	344° 53.0	359° 52.9	14° 52.8	29° 52.6	44° 52.5	59° 52.4	74° 52.2	-0.1
	23° 17.9	23° 18.0	23° 18.1	23° 18.3	23° 18.4	23° 18.5	23° 18.6	23° 18.7	23° 18.8	23° 18.9	23° 19.0	23° 19.1	+0.1
Ср 16	269° 50.5	284° 50.4	299° 50.2	314° 50.1	329° 50.0	344° 49.8	359° 49.7	14° 49.6	29° 49.4	44° 49.3	59° 49.2	74° 49.0	-0.1
	23° 20.3	23° 20.4	23° 20.5	23° 20.6	23° 20.7	23° 20.8	23° 20.9	23° 21.0	23° 21.0	23° 21.1	23° 21.2	23° 21.3	+0.1
Чт 17	269° 47.3	284° 47.1	299° 47.0	314° 46.9	329° 46.7	344° 46.6	359° 46.5	14° 46.3	29° 46.2	44° 46.1	59° 45.9	74° 45.8	-0.1
	23° 22.3	23° 22.4	23° 22.5	23° 22.6	23° 22.6	23° 22.7	23° 22.8	23° 22.8	23° 22.9	23° 23.0	23° 23.0	23° 23.1	+0.1
Пт 18	269° 44.1	284° 43.9	299° 43.8	314° 43.6	329° 43.5	344° 43.4	359° 43.2	14° 43.1	29° 43.0	44° 42.8	59° 42.7	74° 42.6	-0.1
	23° 23.9	23° 24.0	23° 24.0	23° 24.1	23° 24.1	23° 24.2	23° 24.3	23° 24.3	23° 24.4	23° 24.4	23° 24.5	23° 24.5	+0.1
Сб 19	269° 40.8	284° 40.7	299° 40.5	314° 40.4	329° 40.3	344° 40.1	359° 40.0	14° 39.9	29° 39.7	44° 39.6	59° 39.5	74° 39.3	-0.1
	23° 25.1	23° 25.1	23° 25.2	23° 25.2	23° 25.3	23° 25.3	23° 25.3	23° 25.4	23° 25.4	23° 25.4	23° 25.5	23° 25.5	+0.0
Вс 20	269° 37.6	284° 37.4	299° 37.3	314° 37.2	329° 37.0	344° 36.9	359° 36.7	14° 36.6	29° 36.5	44° 36.3	59° 36.2	74° 36.1	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.1	23° 26.1	+0.0
Пн 21	269° 34.3	284° 34.2	299° 34.0	314° 33.9	329° 33.8	344° 33.6	359° 33.5	14° 33.4	29° 33.2	44° 33.1	59° 33.0	74° 32.8	-0.1
	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	+0.0
Вт 22	269° 31.1	284° 30.9	299° 30.8	314° 30.7	329° 30.5	344° 30.4	359° 30.3	14° 30.1	29° 30.0	44° 29.9	59° 29.7	74° 29.6	-0.1
	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	-0.0
Ср 23	269° 27.8	284° 27.7	299° 27.6	314° 27.4	329° 27.3	344° 27.2	359° 27.0	14° 26.9	29° 26.8	44° 26.6	59° 26.5	74° 26.4	-0.1
	23° 25.7	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.5	23° 25.5	23° 25.5	23° 25.4	23° 25.4	23° 25.3	23° 25.3	-0.0
Чт 24	269° 24.6	284° 24.5	299° 24.3	314° 24.2	329° 24.1	344° 23.9	359° 23.8	14° 23.7	29° 23.5	44° 23.4	59° 23.3	74° 23.1	-0.1
	23° 24.8	23° 24.7	23° 24.7	23° 24.6	23° 24.6	23° 24.5	23° 24.5	23° 24.4	23° 24.4	23° 24.3	23° 24.3	23° 24.2	-0.0
Пт 25	269° 21.4	284° 21.3	299° 21.1	314° 21.0	329° 20.9	344° 20.7	359° 20.6	14° 20.5	29° 20.3	44° 20.2	59° 20.1	74° 20.0	-0.1
	23° 23.5	23° 23.4	23° 23.4	23° 23.3	23° 23.2	23° 23.2	23° 23.1	23° 23.0	23° 23.0	23° 22.9	23° 22.8	23° 22.7	-0.1
Сб 26	269° 18.2	284° 18.1	299° 18.0	314° 17.8	329° 17.7	344° 17.6	359° 17.4	14° 17.3	29° 17.2	44° 17.1	59° 16.9	74° 16.8	-0.1
	23° 21.8	23° 21.7	23° 21.6	23° 21.5	23° 21.4	23° 21.4	23° 21.3	23° 21.2	23° 21.1	23° 21.0	23° 20.9	23° 20.8	-0.1
Вс 27	269° 15.1	284° 15.0	299° 14.8	314° 14.7	329° 14.6	344° 14.4	359° 14.3	14° 14.2	29° 14.1	44° 13.9	59° 13.8	74° 13.7	-0.1
	23° 19.6	23° 19.5	23° 19.4	23° 19.3	23° 19.2	23° 19.1	23° 19.0	23° 18.9	23° 18.8	23° 18.7	23° 18.6	23° 18.5	-0.1
Пн 28	269° 12.0	284° 11.9	299° 11.7	314° 11.6	329° 11.5	344° 11.3	359° 11.2	14° 11.1	29° 11.0	44° 10.8	59° 10.7	74° 10.6	-0.1
	23° 17.1	23° 17.0	23° 16.9	23° 16.8	23° 16.6	23° 16.5	23° 16.4	23° 16.3	23° 16.2	23° 16.0	23° 15.9	23° 15.8	-0.1
Вт 29	269° 08.9	284° 08.8	299° 08.7	314° 08.5	329° 08.4	344° 08.3	359° 08.2	14° 08.0	29° 07.9	44° 07.8	59° 07.7	74° 07.5	-0.1
	23° 14.2	23° 14.0	23° 13.9	23° 13.8	23° 13.6	23° 13.5	23° 13.4	23° 13.2	23° 13.1	23° 12.9	23° 12.8	23° 12.7	-0.1
Ср 30	269° 05.9	284° 05.8	299° 05.6	314° 05.5	329° 05.4	344° 05.3	359° 05.2	14° 05.0	29° 04.9	44° 04.8	59° 04.7	74° 04.5	-0.1
	23° 10.8	23° 10.7	23° 10.5	23° 10.4	23° 10.2	23° 10.1	23° 09.9	23° 09.7	23° 09.6	23° 09.4	23° 09.3	23° 09.1	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

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Д	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ°/h	R/p
Вт 1	246° 57.7	261° 29.1	276° 00.5	290° 31.8	305° 03.0	319° 34.0	334° 05.0	348° 35.9	3° 06.6	17° 37.3	32° 07.8	+31.0	15.7
	12° 24.9	12° 38.6	12° 52.2	13° 05.8	13° 19.3	13° 32.8	13° 46.3	13° 59.7	14° 13.0	14° 26.3	14° 39.6	+13.5	57.5
Ср 2	249° 32.6	264° 01.3	278° 29.9	292° 58.4	307° 26.7	321° 55.0	336° 23.1	350° 51.0	5° 18.9	19° 46.6	34° 14.2	+28.2	15.9
	17° 50.7	18° 02.9	18° 15.0	18° 27.0	18° 38.9	18° 50.7	19° 02.4	19° 14.1	19° 25.6	19° 37.1	19° 48.4	+11.8	58.4
Чт 3	250° 52.7	265° 18.2	279° 43.7	294° 08.9	308° 34.1	322° 59.1	337° 24.0	351° 48.8	6° 13.5	20° 38.0	35° 02.5	+25.0	16.1
	22° 25.7	22° 35.3	22° 44.7	22° 53.9	23° 03.1	23° 12.1	23° 20.9	23° 29.7	23° 38.2	23° 46.7	23° 55.0	+8.9	59.2
● Пт 4	250° 54.9	265° 17.5	279° 40.1	294° 02.5	308° 24.9	322° 47.1	337° 09.3	351° 31.4	5° 53.4	20° 15.3	34° 37.2	+22.2	16.3
	25° 40.4	25° 46.1	25° 51.6	25° 57.0	26° 02.1	26° 07.1	26° 11.9	26° 16.5	26° 20.9	26° 25.2	26° 29.2	+4.9	59.9
Сб 5	249° 57.2	264° 18.2	278° 39.1	293° 00.0	307° 20.9	321° 41.8	336° 02.6	350° 23.4	4° 44.3	19° 05.1	33° 25.9	+20.9	16.5
	27° 06.7	27° 07.6	27° 08.3	27° 08.8	27° 09.0	27° 09.1	27° 09.0	27° 08.7	27° 08.1	27° 07.4	27° 06.5	-0.0	60.4
Вс 6	248° 39.6	263° 00.8	277° 22.0	291° 43.2	306° 04.6	320° 25.9	334° 47.4	349° 08.9	3° 30.4	17° 52.1	32° 13.8	+21.4	16.5
	26° 27.8	26° 23.6	26° 19.2	26° 14.6	26° 09.8	26° 04.8	25° 59.6	25° 54.3	25° 48.7	25° 43.0	25° 37.0	-5.1	60.5
Пн 7	247° 48.9	262° 12.0	276° 35.2	290° 58.5	305° 21.9	319° 45.4	334° 09.0	348° 32.7	2° 56.5	17° 20.4	31° 44.4	+23.5	16.5
	23° 46.2	23° 37.4	23° 28.5	23° 19.4	23° 10.1	23° 00.7	22° 51.1	22° 41.4	22° 31.6	22° 21.5	22° 11.4	-9.5	60.5
Вт 8	247° 58.3	262° 24.2	276° 50.1	291° 16.2	305° 42.4	320° 08.7	334° 35.1	349° 01.6	3° 28.2	17° 54.9	32° 21.8	+26.3	16.4
	19° 22.5	19° 10.2	18° 57.9	18° 45.4	18° 32.8	18° 20.1	18° 07.3	17° 54.4	17° 41.4	17° 28.3	17° 15.1	-12.8	60.1
Ср 9	249° 17.4	263° 45.9	278° 14.6	292° 43.3	307° 12.1	321° 41.0	336° 10.0	350° 39.1	5° 08.3	19° 37.6	34° 06.9	+29.0	16.2
	13° 46.7	13° 32.2	13° 17.7	13° 03.1	12° 48.4	12° 33.7	12° 18.9	12° 04.0	11° 49.1	11° 34.2	11° 19.2	-14.8	59.6
Чт 10	251° 37.1	266° 07.7	280° 38.4	295° 09.2	309° 40.0	324° 10.8	338° 41.7	353° 12.7	7° 43.8	22° 14.9	36° 46.0	+30.9	16.1
	7° 29.4	7° 13.8	6° 58.2	6° 42.6	6° 27.0	6° 11.3	5° 55.7	5° 40.0	5° 24.3	5° 08.6	4° 52.9	-15.7	58.9
◐ Пт 11	254° 39.1	269° 11.0	283° 42.9	298° 14.8	312° 46.8	327° 18.7	341° 50.7	356° 22.8	10° 54.8	25° 26.9	39° 59.0	+32.0	15.9
	0° 56.8	0° 41.1	0° 25.4	0° 09.7	-0° 06.0	-0° 21.6	-0° 37.2	-0° 52.9	-1° 08.4	-1° 24.0	-1° 39.6	-15.6	58.2
Сб 12	258° 02.5	272° 34.7	287° 07.0	301° 39.3	316° 11.6	330° 43.9	345° 16.2	359° 48.5	14° 20.7	28° 53.0	43° 25.3	+32.3	15.7
	-5° 29.5	-5° 44.6	-5° 59.6	-6° 14.6	-6° 29.5	-6° 44.4	-6° 59.3	-7° 14.1	-7° 28.8	-7° 43.5	-7° 58.2	-14.9	57.6
Вс 13	261° 27.5	275° 59.4	290° 31.4	305° 03.3	319° 35.3	334° 07.1	348° 39.0	3° 10.8	17° 42.6	32° 14.4	46° 46.1	+31.9	15.5
	-11° 31.5	-11° 45.3	-11° 59.0	-12° 12.6	-12° 26.1	-12° 39.6	-12° 53.0	-13° 06.3	-13° 19.6	-13° 32.8	-13° 45.9	-13.4	56.9
Пн 14	264° 37.8	279° 08.9	293° 40.0	308° 11.0	322° 42.0	337° 13.0	351° 43.9	6° 14.8	20° 45.6	35° 16.4	49° 47.1	+30.9	15.3
	-16° 53.2	-17° 05.0	-17° 16.8	-17° 28.4	-17° 40.0	-17° 51.4	-18° 02.8	-18° 14.0	-18° 25.2	-18° 36.3	-18° 47.3	-11.4	56.3
Вт 15	267° 22.5	281° 52.5	296° 22.4	310° 52.3	325° 22.1	339° 51.9	354° 21.7	8° 51.4	23° 21.0	37° 50.6	52° 20.2	+29.8	15.2
	-21° 19.8	-21° 29.1	-21° 38.3	-21° 47.4	-21° 56.3	-22° 05.2	-22° 14.0	-22° 22.6	-22° 31.1	-22° 39.5	-22° 47.8	-8.8	55.7
Ср 16	269° 38.5	284° 07.4	298° 36.2	313° 05.0	327° 33.8	342° 02.6	356° 31.3	11° 00.0	25° 28.7	39° 57.3	54° 25.9	+28.7	15.1
	-24° 37.5	-24° 43.8	-24° 50.0	-24° 56.0	-25° 02.0	-25° 07.8	-25° 13.4	-25° 19.0	-25° 24.4	-25° 29.6	-25° 34.8	-5.7	55.3
Чт 17	271° 32.1	286° 00.4	300° 28.6	314° 56.9	329° 25.1	343° 53.4	358° 21.6	12° 49.8	27° 18.0	41° 46.3	56° 14.5	+28.2	15.0
	-26° 35.6	-26° 38.5	-26° 41.4	-26° 44.0	-26° 46.6	-26° 49.0	-26° 51.3	-26° 53.4	-26° 55.4	-26° 57.2	-26° 58.9	-2.3	54.9
Пт 18	273° 18.6	287° 47.0	302° 15.4	316° 43.9	331° 12.3	345° 40.8	0° 09.3	14° 37.8	29° 06.4	43° 35.0	58° 03.6	+28.5	14.9
	-27° 08.0	-27° 07.5	-27° 06.8	-27° 06.0	-27° 05.1	-27° 04.1	-27° 02.9	-27° 01.6	-27° 00.1	-26° 58.5	-26° 56.8	+1.1	54.5
○ Сб 19	275° 17.6	289° 46.9	304° 16.2	318° 45.6	333° 15.0	347° 44.5	2° 14.1	16° 43.7	31° 13.3	45° 43.0	60° 12.8	+29.5	14.8
	-26° 15.1	-26° 11.3	-26° 07.4	-26° 03.3	-25° 59.1	-25° 54.8	-25° 50.4	-25° 45.8	-25° 41.1	-25° 36.3	-25° 31.4	+4.4	54.2
Вс 20	277° 46.2	292° 16.9	306° 47.7	321° 18.6	335° 49.5	350° 20.5	4° 51.6	19° 22.7	33° 53.9	48° 25.1	62° 56.4	+31.0	14.7
	-24° 03.8	-23° 57.1	-23° 50.2	-23° 43.3	-23° 36.2	-23° 29.1	-23° 21.8	-23° 14.4	-23° 07.0	-22° 59.4	-22° 51.8	+7.2	54.1
Пн 21	280° 54.0	295° 26.4	309° 58.8	324° 31.3	339° 03.9	353° 36.5	8° 09.2	22° 41.9	37° 14.7	51° 47.6	66° 20.5	+32.7	14.7
	-20° 45.3	-20° 36.2	-20° 26.9	-20° 17.6	-20° 08.2	-19° 58.7	-19° 49.1	-19° 39.5	-19° 29.7	-19° 19.9	-19° 10.0	+9.5	54.0
Вт 22	284° 41.6	299° 15.5	313° 49.4	328° 23.3	342° 57.3	357° 31.4	12° 05.5	26° 39.7	41° 13.9	55° 48.1	70° 22.4	+34.1	14.7
	-16° 32.7	-16° 21.7	-16° 10.5	-15° 59.4	-15° 48.1	-15° 36.8	-15° 25.5	-15° 14.1	-15° 02.6	-14° 51.0	-14° 39.4	+11.3	54.0
Ср 23	289° 02.0	303° 37.0	318° 12.0	332° 47.0	347° 22.0	1° 57.1	16° 32.2	31° 07.3	45° 42.4	60° 17.6	74° 52.8	+35.1	14.8
	-11° 38.8	-11° 26.4	-11° 13.9	-11° 01.4	-10° 48.8	-10° 36.2	-10° 23.5	-10° 10.8	-9° 58.0	-9° 45.2	-9° 32.4	+12.6	54.2
Чт 24	303° 37.0	318° 12.0	332° 47.0	347° 22.0	1° 57.1	16° 32.2	31° 07.3	45° 42.4	60° 17.6	74° 52.8	89° 28.1	+35.1	14.8
	-11° 26.4	-11° 13.9	-11° 01.4	-10° 48.8	-10° 36.2	-10° 23.5	-10° 10.8	-9° 58.0	-9° 45.2	-9° 32.4	-9° 19.5	+12.7	54.2
Пт 25	308° 18.7	322° 54.2	337° 29.7	352° 05.2	6° 40.7	21° 16.2	35° 51.7	50° 27.2	65° 02.7	79° 38.2	94° 13.7	+35.5	14.9
	-6° 02.0	-5° 48.6	-5° 35.1	-5° 21.7	-5° 08.1	-4° 54.6	-4° 41.0	-4° 27.5	-4° 13.8	-4° 00.2	-3° 46.5	+13.6	54.6
Сб 26	313° 05.3	327° 40.6	342° 15.9	356° 51.2	11° 26.4	26° 01.6	40° 36.8	55° 12.0	69° 47.1	84° 22.3	98° 57.3	+35.2	15.0
	-0° 19.3	-0° 05.3	0° 08.6	0° 22.6	0° 36.5	0° 50.5	1° 04.5	1° 18.5	1° 32.5	1° 46.5	2° 00.6	+14.0	55.1
◑ Вс 27	317° 39.0	332° 13.4	346° 47.7	1° 22.0	15° 56.3	30° 30.5	45° 04.6	59° 38.7	74° 12.7	88° 46.6	103° 20.5	+34.2	15.2
	5° 31.0	5° 45.0	5° 59.0	6° 13.0	6° 27.0	6° 41.0	6° 54.9	7° 08.9	7° 22.8	7° 36.7	7° 50.6	+14.0	55.8
Пн 28	321° 40.4	336° 13.1	350° 45.7	5° 18.2	19° 50.7	34° 23.0	48° 55.3	63° 27.4	77° 59.5	92° 31.5	107° 03.4	+32.3	15.4
	11° 16.6	11° 30.1	11° 43.6	11° 57.0	12° 10.4	12° 23.8	12° 37.1	12° 50.4	13° 03.7	13° 16.9	13° 30.1	+13.4	56.6
Вт 29	324° 49.3	339° 19.5	353° 49.6	8° 19.5	22° 49.4	37° 19.1	51° 48.7	66° 18.2	80° 47.6	95° 16.8	109° 45.9	+29.7	15.7
	16° 41.5	16° 53.8	17° 06.0	17° 18.2	17° 30.3	17° 42.3	17° 54.2	18° 06.1	18° 17.9	18° 29.6	18° 41.2	+12.0	57.6
Ср 30	326° 47.4	341° 14.5	355° 41.4	10° 08.2	24° 34.9	39° 01.4	53° 27.8	67° 54.1	82° 20.2	96° 46.2	111° 12.1	+26.5	16.0
	21° 24.7	21° 34.8	21° 44.8	21° 54.7	22° 04.5	22° 14.1	22° 23.6	22° 33.0	22° 42.3	22° 51.5	23° 00.5	+9.6	58.6

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Новолуние: 4 19h40 — Первая четв.: 11 10h56 — Полнолуние: 19 00h44 — Последняя четв.: 27 04h54

СОЛНЦЕ

Июль 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 02.9	284° 02.8	299° 02.7	314° 02.6	329° 02.4	344° 02.3	359° 02.2	14° 02.1	29° 02.0	44° 01.8	59° 01.7	74° 01.6	-0.1
	23° 07.0	23° 06.9	23° 06.7	23° 06.5	23° 06.4	23° 06.2	23° 06.0	23° 05.9	23° 05.7	23° 05.5	23° 05.4	23° 05.2	-0.2
Пт 2	269° 00.0	283° 59.9	298° 59.8	313° 59.7	328° 59.5	343° 59.4	358° 59.3	13° 59.2	28° 59.1	43° 59.0	58° 58.8	73° 58.7	-0.1
	23° 02.9	23° 02.7	23° 02.5	23° 02.3	23° 02.1	23° 02.0	23° 01.8	23° 01.6	23° 01.4	23° 01.2	23° 01.0	23° 00.8	-0.2
Сб 3	268° 57.2	283° 57.1	298° 57.0	313° 56.8	328° 56.7	343° 56.6	358° 56.5	13° 56.4	28° 56.3	43° 56.1	58° 56.0	73° 55.9	-0.1
	22° 58.3	22° 58.1	22° 57.9	22° 57.7	22° 57.5	22° 57.3	22° 57.1	22° 56.9	22° 56.7	22° 56.5	22° 56.3	22° 56.1	-0.2
Вс 4	268° 54.4	283° 54.3	298° 54.2	313° 54.1	328° 54.0	343° 53.9	358° 53.7	13° 53.6	28° 53.5	43° 53.4	58° 53.3	73° 53.2	-0.1
	22° 53.3	22° 53.1	22° 52.9	22° 52.7	22° 52.5	22° 52.3	22° 52.0	22° 51.8	22° 51.6	22° 51.4	22° 51.1	22° 50.9	-0.2
Пн 5	268° 51.7	283° 51.6	298° 51.5	313° 51.4	328° 51.3	343° 51.2	358° 51.1	13° 51.0	28° 50.9	43° 50.7	58° 50.6	73° 50.5	-0.1
	22° 48.0	22° 47.7	22° 47.5	22° 47.3	22° 47.0	22° 46.8	22° 46.6	22° 46.3	22° 46.1	22° 45.9	22° 45.6	22° 45.4	-0.2
Вт 6	268° 49.1	283° 49.0	298° 48.9	313° 48.8	328° 48.7	343° 48.6	358° 48.5	13° 48.4	28° 48.3	43° 48.2	58° 48.1	73° 48.0	-0.1
	22° 42.2	22° 42.0	22° 41.7	22° 41.5	22° 41.2	22° 41.0	22° 40.7	22° 40.4	22° 40.2	22° 39.9	22° 39.7	22° 39.4	-0.3
Ср 7	268° 46.6	283° 46.5	298° 46.4	313° 46.3	328° 46.2	343° 46.1	358° 46.0	13° 45.9	28° 45.8	43° 45.7	58° 45.6	73° 45.5	-0.1
	22° 36.0	22° 35.8	22° 35.5	22° 35.2	22° 35.0	22° 34.7	22° 34.4	22° 34.2	22° 33.9	22° 33.6	22° 33.4	22° 33.1	-0.3
Чт 8	268° 44.2	283° 44.1	298° 44.0	313° 43.9	328° 43.8	343° 43.7	358° 43.6	13° 43.5	28° 43.4	43° 43.3	58° 43.2	73° 43.1	-0.1
	22° 29.5	22° 29.2	22° 28.9	22° 28.6	22° 28.4	22° 28.1	22° 27.8	22° 27.5	22° 27.2	22° 26.9	22° 26.6	22° 26.4	-0.3
Пт 9	268° 41.9	283° 41.8	298° 41.7	313° 41.6	328° 41.5	343° 41.4	358° 41.3	13° 41.3	28° 41.2	43° 41.1	58° 41.0	73° 40.9	-0.1
	22° 22.6	22° 22.3	22° 22.0	22° 21.7	22° 21.4	22° 21.1	22° 20.8	22° 20.5	22° 20.2	22° 19.9	22° 19.5	22° 19.2	-0.3
Сб 10	268° 39.7	283° 39.6	298° 39.5	313° 39.4	328° 39.4	343° 39.3	358° 39.2	13° 39.1	28° 39.0	43° 38.9	58° 38.8	73° 38.7	-0.1
	22° 15.2	22° 14.9	22° 14.6	22° 14.3	22° 14.0	22° 13.7	22° 13.3	22° 13.0	22° 12.7	22° 12.4	22° 12.1	22° 11.7	-0.3
Вс 11	268° 37.6	283° 37.5	298° 37.5	313° 37.4	328° 37.3	343° 37.2	358° 37.1	13° 37.0	28° 37.0	43° 36.9	58° 36.8	73° 36.7	-0.1
	22° 07.5	22° 07.2	22° 06.9	22° 06.5	22° 06.2	22° 05.9	22° 05.5	22° 05.2	22° 04.9	22° 04.5	22° 04.2	22° 03.9	-0.3
Пн 12	268° 35.7	283° 35.6	298° 35.5	313° 35.4	328° 35.3	343° 35.3	358° 35.2	13° 35.1	28° 35.0	43° 34.9	58° 34.9	73° 34.8	-0.1
	21° 59.4	21° 59.1	21° 58.7	21° 58.4	21° 58.0	21° 57.7	21° 57.4	21° 57.0	21° 56.7	21° 56.3	21° 56.0	21° 55.6	-0.3
Вт 13	268° 33.8	283° 33.7	298° 33.7	313° 33.6	328° 33.5	343° 33.4	358° 33.4	13° 33.3	28° 33.2	43° 33.1	58° 33.1	73° 33.0	-0.1
	21° 51.0	21° 50.6	21° 50.2	21° 49.9	21° 49.5	21° 49.2	21° 48.8	21° 48.4	21° 48.1	21° 47.7	21° 47.3	21° 47.0	-0.4
Ср 14	268° 32.1	283° 32.0	298° 31.9	313° 31.9	328° 31.8	343° 31.7	358° 31.7	13° 31.6	28° 31.5	43° 31.5	58° 31.4	73° 31.3	-0.1
	21° 42.1	21° 41.8	21° 41.4	21° 41.0	21° 40.6	21° 40.2	21° 39.9	21° 39.5	21° 39.1	21° 38.7	21° 38.3	21° 38.0	-0.4
Чт 15	268° 30.5	283° 30.4	298° 30.3	313° 30.3	328° 30.2	343° 30.2	358° 30.1	13° 30.0	28° 30.0	43° 29.9	58° 29.8	73° 29.8	-0.1
	21° 32.9	21° 32.5	21° 32.1	21° 31.8	21° 31.4	21° 31.0	21° 30.6	21° 30.2	21° 29.8	21° 29.4	21° 29.0	21° 28.6	-0.4
Пт 16	268° 29.0	283° 28.9	298° 28.9	313° 28.8	328° 28.8	343° 28.7	358° 28.6	13° 28.6	28° 28.5	43° 28.5	58° 28.4	73° 28.4	-0.1
	21° 23.4	21° 23.0	21° 22.5	21° 22.1	21° 21.7	21° 21.3	21° 20.9	21° 20.5	21° 20.1	21° 19.7	21° 19.3	21° 18.9	-0.4
Сб 17	268° 27.7	283° 27.6	298° 27.5	313° 27.5	328° 27.4	343° 27.4	358° 27.3	13° 27.3	28° 27.2	43° 27.2	58° 27.1	73° 27.1	-0.1
	21° 13.4	21° 13.0	21° 12.6	21° 12.2	21° 11.7	21° 11.3	21° 10.9	21° 10.5	21° 10.0	21° 09.6	21° 09.2	21° 08.8	-0.4
Вс 18	268° 26.4	283° 26.4	298° 26.3	313° 26.3	328° 26.3	343° 26.2	358° 26.2	13° 26.1	28° 26.1	43° 26.0	58° 26.0	73° 25.9	-0.0
	21° 03.1	21° 02.7	21° 02.3	21° 01.8	21° 01.4	21° 01.0	21° 00.5	21° 00.1	20° 59.6	20° 59.2	20° 58.7	20° 58.3	-0.4
Пн 19	268° 25.4	283° 25.3	298° 25.3	313° 25.2	328° 25.2	343° 25.2	358° 25.1	13° 25.1	28° 25.0	43° 25.0	58° 25.0	73° 24.9	-0.0
	20° 52.5	20° 52.0	20° 51.6	20° 51.1	20° 50.7	20° 50.2	20° 49.8	20° 49.3	20° 48.9	20° 48.4	20° 48.0	20° 47.5	-0.5
Вт 20	268° 24.4	283° 24.4	298° 24.3	313° 24.3	328° 24.3	343° 24.2	358° 24.2	13° 24.2	28° 24.1	43° 24.1	58° 24.1	73° 24.0	-0.0
	20° 41.5	20° 41.0	20° 40.6	20° 40.1	20° 39.6	20° 39.2	20° 38.7	20° 38.2	20° 37.8	20° 37.3	20° 36.8	20° 36.3	-0.5
Ср 21	268° 23.6	283° 23.6	298° 23.6	313° 23.5	328° 23.5	343° 23.5	358° 23.4	13° 23.4	28° 23.4	43° 23.4	58° 23.3	73° 23.3	-0.0
	20° 30.2	20° 29.7	20° 29.2	20° 28.7	20° 28.2	20° 27.7	20° 27.3	20° 26.8	20° 26.3	20° 25.8	20° 25.3	20° 24.8	-0.5
Чт 22	268° 23.0	283° 22.9	298° 22.9	313° 22.9	328° 22.9	343° 22.8	358° 22.8	13° 22.8	28° 22.8	43° 22.7	58° 22.7	73° 22.7	-0.0
	20° 18.5	20° 18.0	20° 17.5	20° 17.0	20° 16.5	20° 16.0	20° 15.5	20° 15.0	20° 14.5	20° 14.0	20° 13.5	20° 13.0	-0.5
Пт 23	268° 22.4	283° 22.4	298° 22.4	313° 22.4	328° 22.4	343° 22.3	358° 22.3	13° 22.3	28° 22.3	43° 22.3	58° 22.3	73° 22.2	-0.0
	20° 06.4	20° 05.9	20° 05.4	20° 04.9	20° 04.4	20° 03.9	20° 03.4	20° 02.9	20° 02.3	20° 01.8	20° 01.3	20° 00.8	-0.5
Сб 24	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 22.0	343° 22.0	358° 22.0	13° 22.0	28° 22.0	43° 21.9	58° 21.9	73° 21.9	-0.0
	19° 54.1	19° 53.5	19° 53.0	19° 52.5	19° 52.0	19° 51.4	19° 50.9	19° 50.4	19° 49.9	19° 49.3	19° 48.8	19° 48.3	-0.5
Вс 25	268° 21.8	283° 21.8	298° 21.8	313° 21.8	328° 21.8	343° 21.8	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.7	-0.0
	19° 41.4	19° 40.8	19° 40.3	19° 39.8	19° 39.2	19° 38.7	19° 38.1	19° 37.6	19° 37.1	19° 36.5	19° 36.0	19° 35.4	-0.5
Пн 26	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	+0.0
	19° 28.3	19° 27.8	19° 27.2	19° 26.7	19° 26.1	19° 25.6	19° 25.0	19° 24.5	19° 23.9	19° 23.4	19° 22.8	19° 22.3	-0.6
Вт 27	268° 21.8	283° 21.8	298° 21.8	313° 21.8	328° 21.8	343° 21.8	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.8	+0.0
	19° 15.0	19° 14.4	19° 13.9	19° 13.3	19° 12.7	19° 12.2	19° 11.6	19° 11.0	19° 10.5	19° 09.9	19° 09.3	19° 08.8	-0.6
Ср 28	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 22.0	343° 22.0	358° 22.0	13° 22.0	28° 22.1	43° 22.1	58° 22.1	73° 22.1	+0.0
	19° 01.3	19° 00.7	19° 00.2	18° 59.6	18° 59.0	18° 58.4	18° 57.8	18° 57.3	18° 56.7	18° 56.1	18° 55.5	18° 54.9	-0.6
Чт 29	268° 22.3	283° 22.3	298° 22.3	313° 22.3	328° 22.4	343° 22.4	358° 22.4	13° 22.4	28° 22.4	43° 22.5	58° 22.5	73° 22.5	+0.0
	18° 47.3	18° 46.7	18° 46.1	18° 45.6	18° 45.0	18° 44.4	18° 43.8	18° 43.2	18° 42.6	18° 42.0	18° 41.4	18° 40.8	-0.6
Пт 30	268° 22.8	283° 22.8	298° 22.8	313° 22.9	328° 22.9	343° 22.9	358° 22.9	13° 23.0	28° 23.0	43° 23.0	58° 23.0	73° 23.1	+0.0
	18° 33.0	18° 32.4	18° 31.8	18° 31.2	18° 30.6	18° 30.0	18° 29.4	18° 28.8	18° 28.2	18° 27.6	18° 27.0	18° 26.4	-0.6
Сб 31	268° 23.4	283° 23.4	298° 23.5	313° 23.5	328° 23.5	343° 23.6	358° 23.6	13° 23.6	28° 23.7	43° 23.7	58° 23.7	73° 23.8	+0.0
	18° 18.4	18° 17.8	18° 17.2	18° 16.6	18° 16.0	18° 15.3	18° 14.7	18° 14.1	18° 13.5	18° 12.9	18° 12.2	18° 11.6	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2027

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ°/h	R/p
Чт 1	255° 23.5 24° 23.4	269° 48.0 24° 30.9	284° 12.3 24° 38.3	298° 36.5 24° 45.5	313° 00.5 24° 52.5	327° 24.5 24° 59.4	341° 48.3 25° 06.2	356° 12.0 25° 12.8	10° 35.5 25° 19.2	24° 59.0 25° 25.5	39° 22.3 25° 31.5	+23.9 +6.8	16.2 59.3
Пт 2	254° 59.6 26° 42.1	269° 21.3 26° 45.4	283° 43.0 26° 48.4	298° 04.5 26° 51.3	312° 26.0 26° 53.9	326° 47.4 26° 56.4	341° 08.8 26° 58.7	355° 30.0 27° 00.7	9° 51.2 27° 02.6	24° 12.4 27° 04.3	38° 33.5 27° 05.8	+21.4 +2.4	16.4 60.2
Сб 3	253° 44.5 27° 03.4	268° 05.0 27° 01.5	282° 25.5 26° 59.5	296° 46.0 26° 57.3	311° 06.6 26° 54.8	325° 27.1 26° 52.2	339° 47.6 26° 49.3	354° 08.2 26° 46.3	8° 28.7 26° 43.0	22° 49.3 26° 39.5	37° 09.9 26° 35.8	+20.5 -2.8	16.6 60.8
● Вс 4	252° 23.1 25° 16.1	266° 44.4 25° 09.2	281° 05.8 25° 02.1	295° 27.2 24° 54.8	309° 48.8 24° 47.3	324° 10.3 24° 39.7	338° 32.0 24° 31.8	352° 53.8 24° 23.8	7° 15.6 24° 15.6	21° 37.5 24° 07.2	35° 59.5 23° 58.6	+21.6 -7.7	16.7 61.1
Пн 5	251° 40.7 21° 29.8	266° 04.3 21° 18.7	280° 28.0 21° 07.3	294° 51.7 20° 55.8	309° 15.6 20° 44.2	323° 39.6 20° 32.5	338° 03.7 20° 20.6	352° 28.0 20° 08.6	6° 52.3 19° 56.4	21° 16.7 19° 44.1	35° 41.3 19° 31.7	+24.1 -11.8	16.7 61.1
Вт 6	252° 03.1 16° 11.4	266° 29.4 15° 57.2	280° 55.9 15° 42.9	295° 22.4 15° 28.6	309° 49.1 15° 14.1	324° 15.9 14° 59.6	338° 42.7 14° 45.0	353° 09.7 14° 30.3	7° 36.8 14° 15.5	22° 04.0 14° 00.6	36° 31.3 13° 45.7	+26.8 -14.6	16.6 60.7
Ср 7	253° 32.6 9° 54.5	268° 01.4 9° 38.7	282° 30.3 9° 22.9	296° 59.3 9° 07.0	311° 28.4 8° 51.1	325° 57.5 8° 35.1	340° 26.7 8° 19.1	354° 56.1 8° 03.1	9° 25.5 7° 47.1	23° 54.9 7° 31.0	38° 24.5 7° 14.9	+29.2 -16.0	16.4 60.1
Чт 8	255° 55.9 3° 11.8	270° 26.5 2° 55.5	284° 57.1 2° 39.3	299° 27.8 2° 23.1	313° 58.6 2° 06.8	328° 29.4 1° 50.6	343° 00.2 1° 34.4	357° 31.1 1° 18.2	12° 02.0 1° 02.0	26° 33.0 0° 45.8	41° 04.0 0° 29.7	+30.8 -16.2	16.2 59.3
Пт 9	258° 53.4 -3° 29.8	273° 24.9 -3° 45.5	287° 56.4 -4° 01.2	302° 28.0 -4° 16.9	316° 59.5 -4° 32.5	331° 31.1 -4° 48.0	346° 02.7 -5° 03.6	0° 34.4 -5° 19.0	15° 06.0 -5° 34.5	29° 37.6 -5° 49.9	44° 09.3 -6° 05.2	+31.6 -15.5	15.9 58.4
◐ Сб 10	262° 04.5 -9° 48.9	276° 36.2 -10° 03.3	291° 07.8 -10° 17.7	305° 39.5 -10° 32.0	320° 11.1 -10° 46.2	334° 42.7 -11° 00.4	349° 14.3 -11° 14.5	3° 45.9 -11° 28.6	18° 17.5 -11° 42.5	32° 49.1 -11° 56.4	47° 20.6 -12° 10.2	+31.6 -14.1	15.7 57.6
Вс 11	265° 11.4 -15° 28.2	279° 42.6 -15° 40.7	294° 13.7 -15° 53.2	308° 44.8 -16° 05.5	323° 15.9 -16° 17.8	337° 47.0 -16° 30.0	352° 18.0 -16° 42.1	6° 49.0 -16° 54.1	21° 19.9 -17° 06.0	35° 50.9 -17° 17.8	50° 21.8 -17° 29.5	+31.0 -12.1	15.5 56.7
Пн 12	268° 00.7 -20° 13.3	282° 31.0 -20° 23.4	297° 01.3 -20° 33.4	311° 31.5 -20° 43.2	326° 01.6 -20° 53.0	340° 31.8 -21° 02.7	355° 01.9 -21° 12.2	9° 31.9 -21° 21.6	24° 01.9 -21° 31.0	38° 31.9 -21° 40.2	53° 01.8 -21° 49.3	+30.1 -9.6	15.3 56.0
Вт 13	270° 26.0 -23° 51.6	284° 55.3 -23° 58.8	299° 24.6 -24° 05.8	313° 53.8 -24° 12.8	328° 23.0 -24° 19.6	342° 52.2 -24° 26.3	357° 21.3 -24° 32.8	11° 50.4 -24° 39.3	26° 19.5 -24° 45.6	40° 48.5 -24° 51.7	55° 17.5 -24° 57.8	+29.2 -6.6	15.1 55.4
Ср 14	272° 29.3 -26° 12.8	286° 57.9 -26° 16.7	301° 26.5 -26° 20.5	315° 55.0 -26° 24.2	330° 23.6 -26° 27.7	344° 52.1 -26° 31.1	359° 20.7 -26° 34.4	13° 49.2 -26° 37.5	28° 17.7 -26° 40.5	42° 46.2 -26° 43.4	57° 14.6 -26° 46.1	+28.5 -3.3	15.0 54.9
Чт 15	274° 21.5 -27° 10.3	288° 50.0 -27° 10.9	303° 18.5 -27° 11.3	317° 47.0 -27° 11.5	332° 15.5 -27° 11.6	346° 44.1 -27° 11.6	1° 12.6 -27° 11.4	15° 41.2 -27° 11.1	30° 09.8 -27° 10.7	44° 38.4 -27° 10.1	59° 07.0 -27° 09.4	+28.5 +0.1	14.9 54.5
Пт 16	276° 19.6 -26° 42.9	290° 48.7 -26° 40.1	305° 17.8 -26° 37.1	319° 47.0 -26° 34.0	334° 16.2 -26° 30.8	348° 45.5 -26° 27.5	3° 14.8 -26° 24.0	17° 44.1 -26° 20.4	32° 13.5 -26° 16.7	46° 43.0 -26° 12.9	61° 12.4 -26° 08.9	+29.3 +3.4	14.8 54.2
Сб 17	278° 40.7 -24° 54.9	293° 11.0 -24° 49.1	307° 41.4 -24° 43.1	322° 11.9 -24° 37.0	336° 42.4 -24° 30.8	351° 12.9 -24° 24.5	5° 43.5 -24° 18.0	20° 14.2 -24° 11.5	34° 44.9 -24° 04.8	49° 15.7 -23° 58.1	63° 46.6 -23° 51.2	+30.6 +6.4	14.7 54.0
○ Вс 18	281° 36.9 -21° 56.0	296° 08.8 -21° 47.5	310° 40.7 -21° 39.0	325° 12.7 -21° 30.3	339° 44.8 -21° 21.6	354° 16.9 -21° 12.8	8° 49.1 -21° 03.8	23° 21.3 -20° 54.8	37° 53.6 -20° 45.7	52° 26.0 -20° 36.6	66° 58.4 -20° 27.3	+32.1 +8.9	14.7 53.9
Пн 19	285° 12.2 -17° 58.5	299° 45.6 -17° 48.0	314° 19.0 -17° 37.3	328° 52.5 -17° 26.7	343° 26.1 -17° 15.9	357° 59.7 -17° 05.1	12° 33.4 -16° 54.2	27° 07.1 -16° 43.3	41° 40.9 -16° 32.3	56° 14.7 -16° 21.2	70° 48.6 -16° 10.0	+33.6 +10.8	14.7 53.9
Вт 20	289° 22.8 -13° 15.6	303° 57.5 -13° 03.5	318° 32.2 -12° 51.4	333° 06.9 -12° 39.2	347° 41.6 -12° 27.0	2° 16.5 -12° 14.7	16° 51.3 -12° 02.4	31° 26.2 -11° 50.0	46° 01.1 -11° 37.6	60° 36.0 -11° 25.1	75° 11.0 -11° 12.6	+34.8 +12.3	14.7 54.0
Ср 21	293° 59.5 -8° 00.0	308° 34.9 -7° 46.9	323° 10.4 -7° 33.7	337° 45.8 -7° 20.5	352° 21.3 -7° 07.3	6° 56.8 -6° 54.0	21° 32.4 -6° 40.7	36° 07.9 -6° 27.4	50° 43.5 -6° 14.1	65° 19.0 -6° 00.7	79° 54.6 -5° 47.3	+35.5 +13.3	14.8 54.3
Чт 22	298° 49.1 -2° 23.6	313° 24.8 -2° 09.9	328° 00.4 -1° 56.1	342° 36.0 -1° 42.4	357° 11.7 -1° 28.6	11° 47.3 -1° 14.8	26° 22.9 -1° 01.0	40° 58.5 -0° 47.2	55° 34.1 -0° 33.4	70° 09.7 -0° 19.6	84° 45.2 -0° 05.7	+35.6 +13.8	14.9 54.6
Пт 23	313° 24.8 -2° 09.9	328° 00.4 -1° 56.1	342° 36.0 -1° 42.4	357° 11.7 -1° 28.6	11° 47.3 -1° 14.8	26° 22.9 -1° 01.0	40° 58.5 -0° 47.2	55° 34.1 -0° 33.4	70° 09.7 -0° 19.6	84° 45.2 -0° 05.7	99° 20.8 0° 08.1	+35.6 +13.8	14.9 54.6
Сб 24	318° 11.4 3° 36.2	332° 46.6 3° 50.1	347° 21.7 4° 04.0	1° 56.8 4° 17.8	16° 31.9 4° 31.7	31° 06.9 4° 45.5	45° 41.9 4° 59.4	60° 16.8 5° 13.2	74° 51.7 5° 27.0	89° 26.6 5° 40.8	104° 01.4 5° 54.6	+35.0 +13.8	15.0 55.1
Вс 25	322° 37.5 9° 19.7	337° 11.5 9° 33.2	351° 45.4 9° 46.7	6° 19.2 10° 00.1	20° 53.0 10° 13.5	35° 26.7 10° 26.9	50° 00.3 10° 40.3	64° 33.8 10° 53.6	79° 07.3 11° 06.9	93° 40.7 11° 20.2	108° 14.1 11° 33.4	+33.7 +13.4	15.1 55.7
◑ Пн 26	326° 24.5 14° 47.0	340° 56.5 14° 59.5	355° 28.4 15° 12.0	10° 00.2 15° 24.4	24° 31.9 15° 36.8	39° 03.5 15° 49.1	53° 35.0 16° 01.3	68° 06.4 16° 13.5	82° 37.8 16° 25.7	97° 09.0 16° 37.7	111° 40.1 16° 49.7	+31.6 +12.3	15.4 56.5
Вт 27	329° 13.9 19° 41.1	343° 43.2 19° 51.9	358° 12.4 20° 02.6	12° 41.5 20° 13.2	27° 10.5 20° 23.7	41° 39.4 20° 34.2	56° 08.2 20° 44.5	70° 36.8 20° 54.7	85° 05.3 21° 04.9	99° 33.7 21° 14.9	114° 01.9 21° 24.8	+28.8 +10.4	15.6 57.4
Ср 28	330° 51.1 23° 40.5	345° 17.3 23° 48.6	359° 43.5 23° 56.6	14° 09.5 24° 04.4	28° 35.4 24° 12.1	43° 01.2 24° 19.6	57° 26.9 24° 27.0	71° 52.4 24° 34.3	86° 17.8 24° 41.4	100° 43.1 24° 48.4	115° 08.3 24° 55.3	+25.7 +7.5	15.9 58.3
Чт 29	331° 12.1 26° 19.6	345° 35.5 26° 23.9	359° 58.8 26° 28.0	14° 22.0 26° 32.0	28° 45.0 26° 35.8	43° 08.0 26° 39.4	57° 30.9 26° 42.9	71° 53.8 26° 46.1	86° 16.5 26° 49.2	100° 39.1 26° 52.1	115° 01.7 26° 54.8	+22.9 +3.5	16.2 59.3
Пт 30	330° 31.3 27° 12.9	344° 52.9 27° 12.6	359° 14.3 27° 12.0	13° 35.8 27° 11.3	27° 57.2 27° 10.3	42° 18.5 27° 09.2	56° 39.9 27° 07.8	71° 01.2 27° 06.3	85° 22.5 27° 04.5	99° 43.7 27° 02.6	114° 05.0 27° 00.4	+21.4 -1.3	16.4 60.1
Сб 31	329° 23.2 26° 03.8	343° 44.6 25° 58.4	358° 05.9 25° 52.8	12° 27.3 25° 47.0	26° 48.7 25° 41.0	41° 10.2 25° 34.8	55° 31.7 25° 28.5	69° 53.2 25° 21.9	84° 14.8 25° 15.2	98° 36.4 25° 08.2	112° 58.1 25° 01.1	+21.5 -6.3	16.6 60.8

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 4 03h02 — Первая четв.: 10 18h39 — Полнолуние: 18 15h44 — Последняя четв.: 26 16h54

СОЛНЦЕ

Август 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	268° 24.2 18° 03.5	283° 24.2 18° 02.9	298° 24.3 18° 02.3	313° 24.3 18° 01.6	328° 24.3 18° 01.0	343° 24.4 18° 00.4	358° 24.4 17° 59.7	13° 24.5 17° 59.1	28° 24.5 17° 58.5	43° 24.5 17° 57.9	58° 24.6 17° 57.2	73° 24.6 17° 56.6	+0.0 -0.6
Пн 2	268° 25.1 17° 48.3	283° 25.2 17° 47.7	298° 25.2 17° 47.0	313° 25.3 17° 46.4	328° 25.3 17° 45.8	343° 25.4 17° 45.1	358° 25.4 17° 44.5	13° 25.4 17° 43.8	28° 25.5 17° 43.2	43° 25.5 17° 42.5	58° 25.6 17° 41.9	73° 25.6 17° 41.3	+0.0 -0.6
Вт 3	268° 26.2 17° 32.8	283° 26.3 17° 32.2	298° 26.3 17° 31.5	313° 26.4 17° 30.9	328° 26.4 17° 30.2	343° 26.5 17° 29.6	358° 26.5 17° 28.9	13° 26.6 17° 28.3	28° 26.6 17° 27.6	43° 26.7 17° 27.0	58° 26.7 17° 26.3	73° 26.8 17° 25.6	+0.1 -0.7
Ср 4	268° 27.5 17° 17.1	283° 27.5 17° 16.4	298° 27.6 17° 15.7	313° 27.6 17° 15.1	328° 27.7 17° 14.4	343° 27.7 17° 13.7	358° 27.8 17° 13.1	13° 27.9 17° 12.4	28° 27.9 17° 11.7	43° 28.0 17° 11.1	58° 28.0 17° 10.4	73° 28.1 17° 09.7	+0.1 -0.7
Чт 5	268° 28.9 17° 01.0	283° 28.9 17° 00.3	298° 29.0 16° 59.7	313° 29.0 16° 59.0	328° 29.1 16° 58.3	343° 29.2 16° 57.6	358° 29.2 16° 57.0	13° 29.3 16° 56.3	28° 29.4 16° 55.6	43° 29.4 16° 54.9	58° 29.5 16° 54.2	73° 29.6 16° 53.6	+0.1 -0.7
Пт 6	268° 30.4 16° 44.7	283° 30.5 16° 44.0	298° 30.5 16° 43.3	313° 30.6 16° 42.6	328° 30.7 16° 41.9	343° 30.8 16° 41.2	358° 30.8 16° 40.6	13° 30.9 16° 39.9	28° 31.0 16° 39.2	43° 31.0 16° 38.5	58° 31.1 16° 37.8	73° 31.2 16° 37.1	+0.1 -0.7
Сб 7	268° 32.1 16° 28.1	283° 32.2 16° 27.4	298° 32.3 16° 26.7	313° 32.3 16° 26.0	328° 32.4 16° 25.3	343° 32.5 16° 24.6	358° 32.6 16° 23.9	13° 32.6 16° 23.2	28° 32.7 16° 22.5	43° 32.8 16° 21.8	58° 32.9 16° 21.1	73° 32.9 16° 20.4	+0.1 -0.7
Вс 8	268° 34.0 16° 11.2	283° 34.0 16° 10.5	298° 34.1 16° 09.8	313° 34.2 16° 09.1	328° 34.3 16° 08.4	343° 34.4 16° 07.7	358° 34.4 16° 07.0	13° 34.5 16° 06.3	28° 34.6 16° 05.5	43° 34.7 16° 04.8	58° 34.8 16° 04.1	73° 34.9 16° 03.4	+0.1 -0.7
Пн 9	268° 36.0 15° 54.1	283° 36.1 15° 53.4	298° 36.1 15° 52.7	313° 36.2 15° 51.9	328° 36.3 15° 51.2	343° 36.4 15° 50.5	358° 36.5 15° 49.8	13° 36.6 15° 49.1	28° 36.7 15° 48.3	43° 36.8 15° 47.6	58° 36.8 15° 46.9	73° 36.9 15° 46.2	+0.1 -0.7
Вт 10	268° 38.1 15° 36.7	283° 38.2 15° 36.0	298° 38.3 15° 35.3	313° 38.4 15° 34.5	328° 38.5 15° 33.8	343° 38.6 15° 33.1	358° 38.7 15° 32.4	13° 38.8 15° 31.6	28° 38.9 15° 30.9	43° 39.0 15° 30.2	58° 39.1 15° 29.4	73° 39.2 15° 28.7	+0.1 -0.7
Ср 11	268° 40.4 15° 19.1	283° 40.5 15° 18.4	298° 40.6 15° 17.6	313° 40.7 15° 16.9	328° 40.8 15° 16.2	343° 40.9 15° 15.4	358° 41.0 15° 14.7	13° 41.1 15° 13.9	28° 41.2 15° 13.2	43° 41.3 15° 12.4	58° 41.4 15° 11.7	73° 41.5 15° 11.0	+0.1 -0.7
Чт 12	268° 42.9 15° 01.3	283° 43.0 15° 00.5	298° 43.1 14° 59.8	313° 43.2 14° 59.0	328° 43.3 14° 58.3	343° 43.4 14° 57.5	358° 43.5 14° 56.8	13° 43.6 14° 56.0	28° 43.7 14° 55.2	43° 43.8 14° 54.5	58° 43.9 14° 53.7	73° 44.0 14° 53.0	+0.1 -0.8
Пт 13	268° 45.5 14° 43.2	283° 45.6 14° 42.4	298° 45.7 14° 41.6	313° 45.8 14° 40.9	328° 45.9 14° 40.1	343° 46.0 14° 39.4	358° 46.1 14° 38.6	13° 46.2 14° 37.8	28° 46.4 14° 37.1	43° 46.5 14° 36.3	58° 46.6 14° 35.5	73° 46.7 14° 34.8	+0.1 -0.8
Сб 14	268° 48.2 14° 24.8	283° 48.3 14° 24.1	298° 48.4 14° 23.3	313° 48.6 14° 22.5	328° 48.7 14° 21.7	343° 48.8 14° 21.0	358° 48.9 14° 20.2	13° 49.0 14° 19.4	28° 49.1 14° 18.7	43° 49.3 14° 17.9	58° 49.4 14° 17.1	73° 49.5 14° 16.3	+0.1 -0.8
Вс 15	268° 51.1 14° 06.3	283° 51.2 14° 05.5	298° 51.3 14° 04.7	313° 51.4 14° 03.9	328° 51.6 14° 03.2	343° 51.7 14° 02.4	358° 51.8 14° 01.6	13° 51.9 14° 00.8	28° 52.1 14° 00.0	43° 52.2 13° 59.2	58° 52.3 13° 58.5	73° 52.4 13° 57.7	+0.1 -0.8
Пн 16	268° 54.1 13° 47.5	283° 54.2 13° 46.7	298° 54.3 13° 45.9	313° 54.5 13° 45.1	328° 54.6 13° 44.3	343° 54.7 13° 43.5	358° 54.8 13° 42.8	13° 55.0 13° 42.0	28° 55.1 13° 41.2	43° 55.2 13° 40.4	58° 55.4 13° 39.6	73° 55.5 13° 38.8	+0.1 -0.8
Вт 17	268° 57.2 13° 28.5	283° 57.3 13° 27.7	298° 57.5 13° 26.9	313° 57.6 13° 26.1	328° 57.7 13° 25.3	343° 57.9 13° 24.5	358° 58.0 13° 23.7	13° 58.2 13° 22.9	28° 58.3 13° 22.1	43° 58.4 13° 21.3	58° 58.6 13° 20.5	73° 58.7 13° 19.7	+0.1 -0.8
Ср 18	269° 00.5 13° 09.3	284° 00.6 13° 08.5	299° 00.8 13° 07.7	314° 00.9 13° 06.9	329° 01.0 13° 06.0	344° 01.2 13° 05.2	359° 01.3 13° 04.4	14° 01.5 13° 03.6	29° 01.6 13° 02.8	44° 01.7 13° 02.0	59° 01.9 13° 01.2	74° 02.0 13° 00.4	+0.1 -0.8
Чт 19	269° 03.9 12° 49.8	284° 04.0 12° 49.0	299° 04.2 12° 48.2	314° 04.3 12° 47.4	329° 04.4 12° 46.6	344° 04.6 12° 45.8	359° 04.7 12° 45.0	14° 04.9 12° 44.1	29° 05.0 12° 43.3	44° 05.2 12° 42.5	59° 05.3 12° 41.7	74° 05.5 12° 40.9	+0.1 -0.8
Пт 20	269° 07.4 12° 30.2	284° 07.5 12° 29.4	299° 07.7 12° 28.6	314° 07.8 12° 27.8	329° 08.0 12° 26.9	344° 08.1 12° 26.1	359° 08.3 12° 25.3	14° 08.4 12° 24.5	29° 08.6 12° 23.6	44° 08.7 12° 22.8	59° 08.9 12° 22.0	74° 09.0 12° 21.2	+0.2 -0.8
Сб 21	269° 11.0 12° 10.4	284° 11.2 12° 09.6	299° 11.3 12° 08.7	314° 11.5 12° 07.9	329° 11.6 12° 07.1	344° 11.8 12° 06.2	359° 11.9 12° 05.4	14° 12.1 12° 04.6	29° 12.2 12° 03.7	44° 12.4 12° 02.9	59° 12.6 12° 02.1	74° 12.7 12° 01.2	+0.2 -0.8
Вс 22	269° 14.8 11° 50.4	284° 14.9 11° 49.5	299° 15.1 11° 48.7	314° 15.2 11° 47.9	329° 15.4 11° 47.0	344° 15.6 11° 46.2	359° 15.7 11° 45.3	14° 15.9 11° 44.5	29° 16.0 11° 43.7	44° 16.2 11° 42.8	59° 16.3 11° 42.0	74° 16.5 11° 41.1	+0.2 -0.8
Пн 23	269° 18.6 11° 30.2	284° 18.8 11° 29.3	299° 18.9 11° 28.5	314° 19.1 11° 27.6	329° 19.3 11° 26.8	344° 19.4 11° 25.9	359° 19.6 11° 25.1	14° 19.8 11° 24.2	29° 19.9 11° 23.4	44° 20.1 11° 22.5	59° 20.2 11° 21.7	74° 20.4 11° 20.8	+0.2 -0.8
Вт 24	269° 22.6 11° 09.8	284° 22.7 11° 08.9	299° 22.9 11° 08.1	314° 23.1 11° 07.2	329° 23.2 11° 06.4	344° 23.4 11° 05.5	359° 23.6 11° 04.6	14° 23.7 11° 03.8	29° 23.9 11° 02.9	44° 24.1 11° 02.1	59° 24.2 11° 01.2	74° 24.4 11° 00.4	+0.2 -0.9
Ср 25	269° 26.6 10° 49.2	284° 26.8 10° 48.3	299° 27.0 10° 47.5	314° 27.1 10° 46.6	329° 27.3 10° 45.8	344° 27.5 10° 44.9	359° 27.7 10° 44.0	14° 27.8 10° 43.2	29° 28.0 10° 42.3	44° 28.2 10° 41.4	59° 28.4 10° 40.6	74° 28.5 10° 39.7	+0.2 -0.9
Чт 26	269° 30.8 10° 28.5	284° 31.0 10° 27.6	299° 31.1 10° 26.7	314° 31.3 10° 25.9	329° 31.5 10° 25.0	344° 31.7 10° 24.1	359° 31.8 10° 23.2	14° 32.0 10° 22.4	29° 32.2 10° 21.5	44° 32.4 10° 20.6	59° 32.6 10° 19.8	74° 32.7 10° 18.9	+0.2 -0.9
Пт 27	269° 35.0 10° 07.5	284° 35.2 10° 06.7	299° 35.4 10° 05.8	314° 35.6 10° 04.9	329° 35.8 10° 04.0	344° 35.9 10° 03.2	359° 36.1 10° 02.3	14° 36.3 10° 01.4	29° 36.5 10° 00.5	44° 36.7 9° 59.7	59° 36.8 9° 58.8	74° 37.0 9° 57.9	+0.2 -0.9
Сб 28	269° 39.4 9° 46.5	284° 39.6 9° 45.6	299° 39.8 9° 44.7	314° 39.9 9° 43.8	329° 40.1 9° 42.9	344° 40.3 9° 42.1	359° 40.5 9° 41.2	14° 40.7 9° 40.3	29° 40.9 9° 39.4	44° 41.0 9° 38.5	59° 41.2 9° 37.6	74° 41.4 9° 36.8	+0.2 -0.9
Вс 29	269° 43.8 9° 25.2	284° 44.0 9° 24.4	299° 44.2 9° 23.5	314° 44.4 9° 22.6	329° 44.6 9° 21.7	344° 44.8 9° 20.8	359° 44.9 9° 19.9	14° 45.1 9° 19.0	29° 45.3 9° 18.1	44° 45.5 9° 17.2	59° 45.7 9° 16.3	74° 45.9 9° 15.5	+0.2 -0.9
Пн 30	269° 48.3 9° 03.9	284° 48.5 9° 03.0	299° 48.7 9° 02.1	314° 48.9 9° 01.2	329° 49.1 9° 00.3	344° 49.3 8° 59.4	359° 49.5 8° 58.5	14° 49.7 8° 57.6	29° 49.9 8° 56.7	44° 50.1 8° 55.8	59° 50.2 8° 54.9	74° 50.4 8° 54.0	+0.2 -0.9
Вт 31	269° 52.9 8° 42.3	284° 53.1 8° 41.4	299° 53.3 8° 40.5	314° 53.5 8° 39.6	329° 53.7 8° 38.7	344° 53.9 8° 37.8	359° 54.1 8° 36.9	14° 54.3 8° 36.0	29° 54.5 8° 35.1	44° 54.7 8° 34.2	59° 54.9 8° 33.3	74° 55.1 8° 32.4	+0.2 -0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2027

Д	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	R/p
Вс 1	242° 15.8	256° 38.0	271° 00.4	285° 22.8	299° 45.3	314° 07.9	328° 30.6	342° 53.3	357° 16.2	11° 39.1	26° 02.1	+22.6	16.7
	23° 48.4	23° 39.4	23° 30.2	23° 20.9	23° 11.3	23° 01.7	22° 51.8	22° 41.8	22° 31.6	22° 21.2	22° 10.7	-9.8	61.1
● Пн 2	241° 57.7	256° 22.2	270° 46.7	285° 11.4	299° 36.1	314° 01.0	328° 25.9	342° 51.0	357° 16.1	11° 41.4	26° 06.7	+24.9	16.7
	19° 14.5	19° 01.6	18° 48.6	18° 35.5	18° 22.2	18° 08.8	17° 55.3	17° 41.7	17° 27.9	17° 14.1	17° 00.1	-13.4	61.3
Вт 3	242° 38.5	257° 05.4	271° 32.3	285° 59.4	300° 26.5	314° 53.8	329° 21.1	343° 48.5	358° 16.0	12° 43.5	27° 11.2	+27.3	16.7
	13° 18.7	13° 03.3	12° 47.8	12° 32.2	12° 16.5	12° 00.8	11° 45.0	11° 29.1	11° 13.2	10° 57.2	10° 41.2	-15.8	61.1
Ср 4	244° 15.6	258° 44.4	273° 13.4	287° 42.4	302° 11.4	316° 40.6	331° 09.8	345° 39.0	0° 08.3	14° 37.7	29° 07.1	+29.2	16.5
	6° 35.4	6° 18.7	6° 02.1	5° 45.4	5° 28.7	5° 12.0	4° 55.3	4° 38.5	4° 21.8	4° 05.0	3° 48.2	-16.7	60.5
Чт 5	246° 34.4	261° 04.6	275° 34.8	290° 05.0	304° 35.3	319° 05.6	333° 35.9	348° 06.3	2° 36.7	17° 07.1	31° 37.5	+30.3	16.3
	-0° 22.6	-0° 39.2	-0° 55.8	-1° 12.4	-1° 28.9	-1° 45.4	-2° 01.9	-2° 18.3	-2° 34.8	-2° 51.1	-3° 07.5	-16.5	59.7
Пт 6	249° 16.5	263° 47.2	278° 17.9	292° 48.6	307° 19.3	321° 50.0	336° 20.7	350° 51.4	5° 22.2	19° 52.9	34° 23.6	+30.7	16.0
	-7° 07.3	-7° 22.9	-7° 38.4	-7° 53.9	-8° 09.3	-8° 24.6	-8° 39.9	-8° 55.1	-9° 10.3	-9° 25.3	-9° 40.3	-15.3	58.8
Сб 7	252° 03.6	266° 34.2	281° 04.7	295° 35.3	310° 05.8	324° 36.3	339° 06.8	353° 37.2	8° 07.7	22° 38.1	37° 08.5	+30.5	15.8
	-13° 16.5	-13° 30.2	-13° 43.9	-13° 57.5	-14° 11.0	-14° 24.4	-14° 37.7	-14° 50.9	-15° 04.1	-15° 17.1	-15° 30.1	-13.4	57.8
Вс 8	254° 41.4	269° 11.4	283° 41.4	298° 11.3	312° 41.2	327° 11.0	341° 40.9	356° 10.6	10° 40.4	25° 10.1	39° 39.8	+29.8	15.5
	-18° 32.4	-18° 43.8	-18° 55.0	-19° 06.1	-19° 17.1	-19° 28.0	-19° 38.8	-19° 49.4	-20° 00.0	-20° 10.4	-20° 20.8	-10.8	56.9
◐ Пн 9	257° 01.5	271° 30.7	285° 59.9	300° 29.0	314° 58.1	329° 27.2	343° 56.3	358° 25.3	12° 54.3	27° 23.2	41° 52.1	+29.1	15.3
	-22° 41.5	-22° 50.0	-22° 58.3	-23° 06.4	-23° 14.5	-23° 22.4	-23° 30.2	-23° 37.8	-23° 45.3	-23° 52.7	-24° 00.0	-7.8	56.0
Вт 10	259° 03.1	273° 31.7	288° 00.3	302° 28.8	316° 57.3	331° 25.8	345° 54.3	0° 22.7	14° 51.2	29° 19.6	43° 48.1	+28.5	15.1
	-25° 33.4	-25° 38.5	-25° 43.6	-25° 48.5	-25° 53.2	-25° 57.8	-26° 02.3	-26° 06.6	-26° 10.9	-26° 14.9	-26° 18.9	-4.5	55.3
Ср 11	260° 53.9	275° 22.3	289° 50.7	304° 19.1	318° 47.5	333° 16.0	347° 44.4	2° 12.8	16° 41.3	31° 09.8	45° 38.3	+28.4	14.9
	-27° 01.4	-27° 03.1	-27° 04.7	-27° 06.1	-27° 07.5	-27° 08.6	-27° 09.7	-27° 10.6	-27° 11.3	-27° 12.0	-27° 12.5	-1.1	54.8
Чт 12	262° 48.0	277° 16.8	291° 45.7	306° 14.7	320° 43.6	335° 12.6	349° 41.6	4° 10.7	18° 39.8	33° 08.9	47° 38.1	+29.0	14.8
	-27° 03.6	-27° 01.9	-27° 00.1	-26° 58.2	-26° 56.2	-26° 54.0	-26° 51.6	-26° 49.2	-26° 46.6	-26° 43.9	-26° 41.1	+2.3	54.4
Пт 13	265° 01.1	279° 31.1	294° 01.0	308° 31.1	323° 01.1	337° 31.3	352° 01.5	6° 31.7	21° 02.0	35° 32.3	50° 02.8	+30.2	14.8
	-25° 43.5	-25° 38.6	-25° 33.7	-25° 28.6	-25° 23.5	-25° 18.2	-25° 12.8	-25° 07.2	-25° 01.6	-24° 55.9	-24° 50.0	+5.3	54.1
Сб 14	267° 45.9	282° 17.2	296° 48.6	311° 20.1	325° 51.6	340° 23.2	354° 54.9	9° 26.6	23° 58.4	38° 30.2	53° 02.1	+31.6	14.7
	-23° 08.9	-23° 01.4	-22° 53.7	-22° 45.9	-22° 38.0	-22° 30.1	-22° 22.0	-22° 13.8	-22° 05.5	-21° 57.2	-21° 48.7	+8.0	54.0
Вс 15	271° 07.9	285° 40.7	300° 13.6	314° 46.6	329° 19.6	343° 52.7	358° 25.9	12° 59.1	27° 32.3	42° 05.6	56° 39.0	+33.1	14.7
	-19° 31.2	-19° 21.3	-19° 11.4	-19° 01.4	-18° 51.3	-18° 41.2	-18° 30.9	-18° 20.6	-18° 10.2	-17° 59.7	-17° 49.2	+10.2	53.9
Пн 16	275° 05.6	289° 39.8	304° 14.0	318° 48.3	333° 22.6	347° 56.9	2° 31.3	17° 05.7	31° 40.2	46° 14.7	60° 49.3	+34.4	14.7
	-15° 02.8	-14° 51.2	-14° 39.5	-14° 27.8	-14° 16.0	-14° 04.2	-13° 52.3	-13° 40.3	-13° 28.3	-13° 16.3	-13° 04.2	+11.9	54.0
○ Вт 17	279° 31.9	294° 07.0	308° 42.1	323° 17.3	337° 52.5	352° 27.7	7° 02.9	21° 38.1	36° 13.4	50° 48.7	65° 24.0	+35.2	14.8
	-9° 56.6	-9° 43.7	-9° 30.9	-9° 17.9	-9° 04.9	-8° 51.9	-8° 38.9	-8° 25.8	-8° 12.7	-7° 59.5	-7° 46.3	+13.0	54.2
Ср 18	284° 15.6	298° 51.1	313° 26.6	328° 02.2	342° 37.7	357° 13.3	11° 48.8	26° 24.3	40° 59.9	55° 35.4	70° 11.0	+35.5	14.9
	-4° 25.0	-4° 11.4	-3° 57.7	-3° 44.1	-3° 30.4	-3° 16.7	-3° 03.0	-2° 49.3	-2° 35.5	-2° 21.7	-2° 08.0	+13.7	54.5
Чт 19	289° 03.1	303° 38.4	318° 13.8	332° 49.1	347° 24.4	1° 59.7	16° 35.0	31° 10.2	45° 45.4	60° 20.6	74° 55.7	+35.3	14.9
	1° 19.9	1° 33.8	1° 47.7	2° 01.6	2° 15.5	2° 29.4	2° 43.3	2° 57.1	3° 11.0	3° 24.9	3° 38.8	+13.9	54.8
Пт 20	293° 39.1	308° 13.7	322° 48.2	337° 22.7	351° 57.1	6° 31.5	21° 05.8	35° 40.1	50° 14.3	64° 48.5	79° 22.6	+34.4	15.1
	7° 05.7	7° 19.4	7° 33.0	7° 46.6	8° 00.2	8° 13.8	8° 27.4	8° 40.9	8° 54.4	9° 07.9	9° 21.4	+13.6	55.3
Сб 21	297° 47.3	312° 20.4	326° 53.4	341° 26.4	355° 59.3	10° 32.1	25° 04.8	39° 37.5	54° 10.1	68° 42.6	83° 15.0	+32.8	15.2
	12° 39.1	12° 52.0	13° 04.8	13° 17.6	13° 30.3	13° 43.0	13° 55.7	14° 08.3	14° 20.8	14° 33.3	14° 45.7	+12.7	55.8
Вс 22	312° 20.4	326° 53.4	341° 26.4	355° 59.3	10° 32.1	25° 04.8	39° 37.5	54° 10.1	68° 42.6	83° 15.0	97° 47.4	+32.7	15.2
	12° 52.0	13° 04.8	13° 17.6	13° 30.3	13° 43.0	13° 55.7	14° 08.3	14° 20.8	14° 33.3	14° 45.7	14° 58.1	+12.6	55.8
Пн 23	315° 42.2	330° 13.1	344° 43.9	359° 14.6	13° 45.3	28° 15.8	42° 46.2	57° 16.5	71° 46.8	86° 16.9	100° 46.9	+30.5	15.4
	17° 56.3	18° 07.6	18° 18.9	18° 30.0	18° 41.1	18° 52.1	19° 03.1	19° 13.9	19° 24.7	19° 35.4	19° 46.0	+11.0	56.5
Вт 24	318° 04.7	332° 33.0	347° 01.2	1° 29.3	15° 57.3	30° 25.2	44° 53.0	59° 20.7	73° 48.2	88° 15.7	102° 43.0	+27.8	15.6
	22° 13.7	22° 22.7	22° 31.7	22° 40.5	22° 49.2	22° 57.7	23° 06.2	23° 14.6	23° 22.8	23° 30.9	23° 38.9	+8.5	57.2
◑ Ср 25	319° 20.3	333° 46.0	348° 11.5	2° 37.0	17° 02.3	31° 27.6	45° 52.7	60° 17.8	74° 42.7	89° 07.6	103° 32.4	+25.2	15.8
	25° 22.9	25° 28.8	25° 34.4	25° 40.0	25° 45.3	25° 50.6	25° 55.7	26° 00.6	26° 05.3	26° 10.0	26° 14.4	+5.2	58.0
Чт 26	319° 33.9	333° 57.4	348° 20.9	2° 44.2	17° 07.6	31° 30.8	45° 54.0	60° 17.2	74° 40.2	89° 03.3	103° 26.3	+23.2	16.0
	27° 01.4	27° 03.2	27° 04.8	27° 06.2	27° 07.4	27° 08.5	27° 09.4	27° 10.0	27° 10.4	27° 10.9	27° 11.0	+1.0	58.8
Пт 27	319° 06.9	333° 29.4	347° 52.0	2° 14.5	16° 37.0	30° 59.5	45° 22.0	59° 44.5	74° 07.0	88° 29.5	102° 52.1	+22.5	16.3
	26° 50.7	26° 47.9	26° 44.8	26° 41.6	26° 38.1	26° 34.5	26° 30.7	26° 26.7	26° 22.5	26° 18.1	26° 13.6	-3.7	59.6
Сб 28	318° 32.7	332° 55.7	347° 18.7	1° 41.8	16° 04.9	30° 28.0	44° 51.3	59° 14.5	73° 37.8	88° 01.2	102° 24.7	+23.2	16.4
	24° 42.7	24° 35.1	24° 27.4	24° 19.6	24° 11.5	24° 03.3	23° 54.9	23° 46.3	23° 37.6	23° 28.6	23° 19.5	-8.3	60.3
Вс 29	318° 23.9	332° 48.4	347° 13.0	1° 37.7	16° 02.4	30° 27.2	44° 52.1	59° 17.1	73° 42.1	88° 07.2	102° 32.4	+24.8	16.6
	20° 43.9	20° 32.3	20° 20.5	20° 08.6	19° 56.6	19° 44.4	19° 32.1	19° 19.7	19° 07.1	18° 54.4	18° 41.6	-12.2	60.8
Пн 30	318° 59.8	333° 26.3	347° 52.8	2° 19.4	16° 46.1	31° 12.8	45° 39.7	60° 06.6	74° 33.5	89° 00.6	103° 27.7	+26.8	16.6
	15° 14.8	15° 00.1	14° 45.4	14° 30.5	14° 15.6	14° 00.6	13° 45.5	13° 30.3	13° 15.0	12° 59.6	12° 44.2	-15.1	61.0
● Вт 31	320° 22.8	334° 51.0	349° 19.3	3° 47.6	18° 15.9	32° 44.4	47° 12.8	61° 41.4	76° 09.9	90° 38.6	105° 07.3	+28.4	16.6
	8° 44.4	8° 28.0	8° 11.5	7° 55.0	7° 38.4	7° 21.8	7° 05.2	6° 48.5	6° 31.8	6° 15.1	5° 58.3	-16.6	60.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 2 10h05 — Первая четв.: 9 04h54 — Полнолуние: 17 07h28 — Последняя четв.: 25 02h27 — Новолуние: 31 17h41

СОЛНЦЕ

Сентябрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	269° 57.6 8° 20.7	284° 57.8 8° 19.8	299° 58.0 8° 18.8	314° 58.2 8° 17.9	329° 58.4 8° 17.0	344° 58.6 8° 16.1	359° 58.8 8° 15.2	14° 59.0 8° 14.3	29° 59.2 8° 13.4	44° 59.4 8° 12.5	59° 59.6 8° 11.6	74° 59.8 8° 10.7	+0.2 -0.9
Чт 2	270° 02.4 7° 58.9	285° 02.6 7° 57.9	300° 02.8 7° 57.0	315° 03.0 7° 56.1	330° 03.2 7° 55.2	345° 03.4 7° 54.3	0° 03.6 7° 53.4	15° 03.8 7° 52.5	30° 04.0 7° 51.6	45° 04.2 7° 50.7	60° 04.4 7° 49.7	75° 04.6 7° 48.8	+0.2 -0.9
Пт 3	270° 07.2 7° 36.9	285° 07.4 7° 36.0	300° 07.6 7° 35.1	315° 07.8 7° 34.2	330° 08.0 7° 33.3	345° 08.2 7° 32.3	0° 08.4 7° 31.4	15° 08.6 7° 30.5	30° 08.8 7° 29.6	45° 09.0 7° 28.7	60° 09.2 7° 27.8	75° 09.4 7° 26.8	+0.2 -0.9
Сб 4	270° 12.1 7° 14.9	285° 12.3 7° 14.0	300° 12.5 7° 13.0	315° 12.7 7° 12.1	330° 12.9 7° 11.2	345° 13.1 7° 10.3	0° 13.3 7° 09.4	15° 13.5 7° 08.4	30° 13.8 7° 07.5	45° 14.0 7° 06.6	60° 14.2 7° 05.7	75° 14.4 7° 04.7	+0.2 -0.9
Вс 5	270° 17.1 6° 52.7	285° 17.3 6° 51.8	300° 17.5 6° 50.9	315° 17.7 6° 49.9	330° 17.9 6° 49.0	345° 18.1 6° 48.1	0° 18.3 6° 47.2	15° 18.5 6° 46.2	30° 18.7 6° 45.3	45° 18.9 6° 44.4	60° 19.2 6° 43.4	75° 19.4 6° 42.5	+0.2 -0.9
Пн 6	270° 22.1 6° 30.4	285° 22.3 6° 29.5	300° 22.5 6° 28.6	315° 22.7 6° 27.6	330° 22.9 6° 26.7	345° 23.1 6° 25.8	0° 23.4 6° 24.9	15° 23.6 6° 23.9	30° 23.8 6° 23.0	45° 24.0 6° 22.1	60° 24.2 6° 21.1	75° 24.4 6° 20.2	+0.2 -0.9
Вт 7	270° 27.2 6° 08.1	285° 27.4 6° 07.1	300° 27.6 6° 06.2	315° 27.8 6° 05.3	330° 28.0 6° 04.3	345° 28.2 6° 03.4	0° 28.5 6° 02.5	15° 28.7 6° 01.5	30° 28.9 6° 00.6	45° 29.1 5° 59.6	60° 29.3 5° 58.7	75° 29.5 5° 57.8	+0.2 -0.9
Ср 8	270° 32.3 5° 45.6	285° 32.5 5° 44.6	300° 32.7 5° 43.7	315° 33.0 5° 42.8	330° 33.2 5° 41.8	345° 33.4 5° 40.9	0° 33.6 5° 39.9	15° 33.8 5° 39.0	30° 34.0 5° 38.1	45° 34.3 5° 37.1	60° 34.5 5° 36.2	75° 34.7 5° 35.2	+0.2 -0.9
Чт 9	270° 37.5 5° 23.0	285° 37.7 5° 22.1	300° 37.9 5° 21.1	315° 38.1 5° 20.2	330° 38.4 5° 19.2	345° 38.6 5° 18.3	0° 38.8 5° 17.3	15° 39.0 5° 16.4	30° 39.2 5° 15.5	45° 39.5 5° 14.5	60° 39.7 5° 13.6	75° 39.9 5° 12.6	+0.2 -0.9
Пт 10	270° 42.7 5° 00.3	285° 42.9 4° 59.4	300° 43.2 4° 58.5	315° 43.4 4° 57.5	330° 43.6 4° 56.6	345° 43.8 4° 55.6	0° 44.0 4° 54.7	15° 44.3 4° 53.7	30° 44.5 4° 52.8	45° 44.7 4° 51.8	60° 44.9 4° 50.9	75° 45.1 4° 49.9	+0.2 -0.9
Сб 11	270° 48.0 4° 37.6	285° 48.2 4° 36.7	300° 48.4 4° 35.7	315° 48.6 4° 34.8	330° 48.9 4° 33.8	345° 49.1 4° 32.9	0° 49.3 4° 31.9	15° 49.5 4° 31.0	30° 49.8 4° 30.0	45° 50.0 4° 29.0	60° 50.2 4° 28.1	75° 50.4 4° 27.1	+0.2 -1.0
Вс 12	270° 53.3 4° 14.8	285° 53.5 4° 13.8	300° 53.7 4° 12.9	315° 54.0 4° 11.9	330° 54.2 4° 11.0	345° 54.4 4° 10.0	0° 54.6 4° 09.1	15° 54.8 4° 08.1	30° 55.1 4° 07.2	45° 55.3 4° 06.2	60° 55.5 4° 05.2	75° 55.7 4° 04.3	+0.2 -1.0
Пн 13	270° 58.6 3° 51.9	285° 58.8 3° 50.9	300° 59.1 3° 50.0	315° 59.3 3° 49.0	330° 59.5 3° 48.1	345° 59.7 3° 47.1	0° 59.9 3° 46.1	16° 00.2 3° 45.2	31° 00.4 3° 44.2	46° 00.6 3° 43.3	61° 00.8 3° 42.3	76° 01.1 3° 41.4	+0.2 -1.0
Вт 14	271° 04.0 3° 28.9	286° 04.2 3° 28.0	301° 04.4 3° 27.0	316° 04.6 3° 26.0	331° 04.9 3° 25.1	346° 05.1 3° 24.1	1° 05.3 3° 23.2	16° 05.5 3° 22.2	31° 05.7 3° 21.2	46° 06.0 3° 20.3	61° 06.2 3° 19.3	76° 06.4 3° 18.4	+0.2 -1.0
Ср 15	271° 09.3 3° 05.9	286° 09.6 3° 04.9	301° 09.8 3° 04.0	316° 10.0 3° 03.0	331° 10.2 3° 02.0	346° 10.4 3° 01.1	1° 10.7 3° 00.1	16° 10.9 2° 59.2	31° 11.1 2° 58.2	46° 11.3 2° 57.2	61° 11.6 2° 56.3	76° 11.8 2° 55.3	+0.2 -1.0
Чт 16	271° 14.7 2° 42.8	286° 14.9 2° 41.8	301° 15.2 2° 40.9	316° 15.4 2° 39.9	331° 15.6 2° 39.0	346° 15.8 2° 38.0	1° 16.0 2° 37.0	16° 16.3 2° 36.1	31° 16.5 2° 35.1	46° 16.7 2° 34.1	61° 16.9 2° 33.2	76° 17.2 2° 32.2	+0.2 -1.0
Пт 17	271° 20.1 2° 19.7	286° 20.3 2° 18.7	301° 20.5 2° 17.7	316° 20.8 2° 16.8	331° 21.0 2° 15.8	346° 21.2 2° 14.8	1° 21.4 2° 13.9	16° 21.7 2° 12.9	31° 21.9 2° 11.9	46° 22.1 2° 11.0	61° 22.3 2° 10.0	76° 22.6 2° 09.0	+0.2 -1.0
Сб 18	271° 25.5 1° 56.5	286° 25.7 1° 55.5	301° 25.9 1° 54.6	316° 26.1 1° 53.6	331° 26.4 1° 52.6	346° 26.6 1° 51.6	1° 26.8 1° 50.7	16° 27.0 1° 49.7	31° 27.3 1° 48.7	46° 27.5 1° 47.8	61° 27.7 1° 46.8	76° 27.9 1° 45.8	+0.2 -1.0
Вс 19	271° 30.8 1° 33.3	286° 31.1 1° 32.3	301° 31.3 1° 31.3	316° 31.5 1° 30.4	331° 31.7 1° 29.4	346° 32.0 1° 28.4	1° 32.2 1° 27.4	16° 32.4 1° 26.5	31° 32.6 1° 25.5	46° 32.9 1° 24.5	61° 33.1 1° 23.6	76° 33.3 1° 22.6	+0.2 -1.0
Пн 20	271° 36.2 1° 10.0	286° 36.4 1° 09.0	301° 36.7 1° 08.1	316° 36.9 1° 07.1	331° 37.1 1° 06.1	346° 37.3 1° 05.1	1° 37.5 1° 04.2	16° 37.8 1° 03.2	31° 38.0 1° 02.2	46° 38.2 1° 01.3	61° 38.4 1° 00.3	76° 38.7 0° 59.3	+0.2 -1.0
Вт 21	271° 41.5 0° 46.7	286° 41.8 0° 45.7	301° 42.0 0° 44.8	316° 42.2 0° 43.8	331° 42.4 0° 42.8	346° 42.7 0° 41.8	1° 42.9 0° 40.9	16° 43.1 0° 39.9	31° 43.3 0° 38.9	46° 43.5 0° 38.0	61° 43.8 0° 37.0	76° 44.0 0° 36.0	+0.2 -1.0
Ср 22	271° 46.9 0° 23.4	286° 47.1 0° 22.4	301° 47.3 0° 21.4	316° 47.5 0° 20.5	331° 47.8 0° 19.5	346° 48.0 0° 18.5	1° 48.2 0° 17.5	16° 48.4 0° 16.6	31° 48.6 0° 15.6	46° 48.9 0° 14.6	61° 49.1 0° 13.7	76° 49.3 0° 12.7	+0.2 -1.0
Чт 23	271° 52.2 0° 00.0	286° 52.4 -0° 00.9	301° 52.6 -0° 01.9	316° 52.8 -0° 02.9	331° 53.0 -0° 03.9	346° 53.3 -0° 04.8	1° 53.5 -0° 05.8	16° 53.7 -0° 06.8	31° 53.9 -0° 07.8	46° 54.1 -0° 08.7	61° 54.4 -0° 09.7	76° 54.6 -0° 10.7	+0.2 -1.0
Пт 24	271° 57.4 -0° 23.3	286° 57.6 -0° 24.3	301° 57.9 -0° 25.3	316° 58.1 -0° 26.2	331° 58.3 -0° 27.2	346° 58.5 -0° 28.2	1° 58.7 -0° 29.2	16° 58.9 -0° 30.1	31° 59.2 -0° 31.1	46° 59.4 -0° 32.1	61° 59.6 -0° 33.1	76° 59.8 -0° 34.0	+0.2 -1.0
Сб 25	272° 02.6 -0° 46.7	287° 02.9 -0° 47.7	302° 03.1 -0° 48.6	317° 03.3 -0° 49.6	332° 03.5 -0° 50.6	347° 03.7 -0° 51.6	2° 03.9 -0° 52.5	17° 04.2 -0° 53.5	32° 04.4 -0° 54.5	47° 04.6 -0° 55.5	62° 04.8 -0° 56.4	77° 05.0 -0° 57.4	+0.2 -1.0
Вс 26	272° 07.8 -1° 10.1	287° 08.0 -1° 11.0	302° 08.2 -1° 12.0	317° 08.5 -1° 13.0	332° 08.7 -1° 14.0	347° 08.9 -1° 14.9	2° 09.1 -1° 15.9	17° 09.3 -1° 16.9	32° 09.5 -1° 17.9	47° 09.7 -1° 18.8	62° 10.0 -1° 19.8	77° 10.2 -1° 20.8	+0.2 -1.0
Пн 27	272° 12.9 -1° 33.4	287° 13.1 -1° 34.4	302° 13.4 -1° 35.4	317° 13.6 -1° 36.4	332° 13.8 -1° 37.3	347° 14.0 -1° 38.3	2° 14.2 -1° 39.3	17° 14.4 -1° 40.3	32° 14.6 -1° 41.2	47° 14.8 -1° 42.2	62° 15.1 -1° 43.2	77° 15.3 -1° 44.1	+0.2 -1.0
Вт 28	272° 18.0 -1° 56.8	287° 18.2 -1° 57.8	302° 18.4 -1° 58.7	317° 18.6 -1° 59.7	332° 18.8 -2° 00.7	347° 19.1 -2° 01.7	2° 19.3 -2° 02.6	17° 19.5 -2° 03.6	32° 19.7 -2° 04.6	47° 19.9 -2° 05.6	62° 20.1 -2° 06.5	77° 20.3 -2° 07.5	+0.2 -1.0
Ср 29	272° 23.0 -2° 20.1	287° 23.2 -2° 21.1	302° 23.4 -2° 22.1	317° 23.6 -2° 23.1	332° 23.8 -2° 24.0	347° 24.1 -2° 25.0	2° 24.3 -2° 26.0	17° 24.5 -2° 27.0	32° 24.7 -2° 27.9	47° 24.9 -2° 28.9	62° 25.1 -2° 29.9	77° 25.3 -2° 30.8	+0.2 -1.0
Чт 30	272° 28.0 -2° 43.5	287° 28.2 -2° 44.4	302° 28.4 -2° 45.4	317° 28.6 -2° 46.4	332° 28.8 -2° 47.4	347° 29.0 -2° 48.3	2° 29.2 -2° 49.3	17° 29.4 -2° 50.3	32° 29.6 -2° 51.2	47° 29.8 -2° 52.2	62° 30.0 -2° 53.2	77° 30.2 -2° 54.1	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2027

Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
Ср 1	249° 56.7 3° 09.6	264° 25.9 2° 52.7	278° 55.1 2° 35.8	293° 24.4 2° 18.8	307° 53.7 2° 01.9	322° 23.0 1° 44.9	336° 52.4 1° 28.0	351° 21.8 1° 11.0	5° 51.2 0° 54.1	20° 20.7 0° 37.2	34° 50.2 0° 20.3	+29.3 -16.9	16.5 60.5
Чт 2	252° 15.3 -3° 51.0	266° 45.2 -4° 07.5	281° 15.0 -4° 24.0	295° 44.8 -4° 40.4	310° 14.7 -4° 56.8	324° 44.5 -5° 13.1	339° 14.4 -5° 29.4	353° 44.3 -5° 45.6	8° 14.2 -6° 01.8	22° 44.0 -6° 18.0	37° 13.9 -6° 34.1	+29.9 -16.3	16.3 59.8
Пт 3	254° 42.0 -10° 28.2	269° 11.8 -10° 43.3	283° 41.6 -10° 58.2	298° 11.4 -11° 13.2	312° 41.2 -11° 28.0	327° 10.9 -11° 42.7	341° 40.7 -11° 57.4	356° 10.4 -12° 12.0	10° 40.1 -12° 26.5	25° 09.8 -12° 40.9	39° 39.5 -12° 55.2	+29.8 -14.7	16.1 59.0
Сб 4	257° 02.3 -16° 18.9	271° 31.7 -16° 31.7	286° 01.0 -16° 44.4	300° 30.2 -16° 56.9	314° 59.5 -17° 09.4	329° 28.7 -17° 21.8	343° 57.9 -17° 34.0	358° 27.1 -17° 46.2	12° 56.2 -17° 58.2	27° 25.3 -18° 10.1	41° 54.4 -18° 21.9	+29.2 -12.3	15.8 58.0
Вс 5	259° 07.2 -21° 04.8	273° 35.9 -21° 14.7	288° 04.5 -21° 24.5	302° 33.0 -21° 34.1	317° 01.6 -21° 43.6	331° 30.1 -21° 53.0	345° 58.6 -22° 02.2	0° 27.0 -22° 11.3	14° 55.5 -22° 20.3	29° 23.9 -22° 29.2	43° 52.2 -22° 37.9	+28.5 -9.3	15.6 57.1
Пн 6	260° 55.1 -24° 32.6	275° 23.2 -24° 39.2	289° 51.2 -24° 45.6	304° 19.2 -24° 51.9	318° 47.2 -24° 58.0	333° 15.1 -25° 04.0	347° 43.1 -25° 09.9	2° 11.0 -25° 15.6	16° 39.0 -25° 21.2	31° 06.9 -25° 26.6	45° 34.8 -25° 31.9	+28.0 -5.9	15.3 56.2
◐ Вт 7	262° 32.8 -26° 34.3	277° 00.7 -26° 37.3	291° 28.6 -26° 40.2	305° 56.4 -26° 42.9	320° 24.3 -26° 45.5	334° 52.2 -26° 47.9	349° 20.1 -26° 50.3	3° 48.1 -26° 52.4	18° 16.0 -26° 54.4	32° 43.9 -26° 56.3	47° 11.9 -26° 58.1	+27.9 -2.4	15.1 55.4
Ср 8	264° 13.7 -27° 07.3	278° 42.1 -27° 06.8	293° 10.4 -27° 06.2	307° 38.8 -27° 05.4	322° 07.3 -27° 04.5	336° 35.7 -27° 03.5	351° 04.2 -27° 02.3	5° 32.8 -27° 01.0	20° 01.3 -26° 59.6	34° 29.9 -26° 58.0	48° 58.6 -26° 56.3	+28.5 +1.1	14.9 54.8
Чт 9	266° 13.7 -26° 15.0	280° 43.0 -26° 11.2	295° 12.5 -26° 07.3	309° 42.0 -26° 03.3	324° 11.5 -25° 59.1	338° 41.1 -25° 54.9	353° 10.8 -25° 50.5	7° 40.5 -25° 46.0	22° 10.3 -25° 41.3	36° 40.1 -25° 36.6	51° 10.0 -25° 31.7	+29.6 +4.3	14.8 54.4
Пт 10	268° 45.2 -24° 05.0	283° 16.1 -23° 58.4	297° 47.0 -23° 51.6	312° 17.9 -23° 44.7	326° 49.0 -23° 37.7	341° 20.0 -23° 30.7	355° 51.2 -23° 23.5	10° 22.4 -23° 16.2	24° 53.7 -23° 08.8	39° 25.0 -23° 01.3	53° 56.4 -22° 53.7	+31.1 +7.1	14.8 54.1
Сб 11	271° 54.7 -20° 48.3	286° 27.1 -20° 39.3	300° 59.5 -20° 30.1	315° 32.0 -20° 20.8	330° 04.5 -20° 11.5	344° 37.1 -20° 02.1	359° 09.8 -19° 52.5	13° 42.5 -19° 42.9	28° 15.3 -19° 33.3	42° 48.1 -19° 23.5	57° 21.0 -19° 13.7	+32.6 +9.5	14.7 54.0
Вс 12	275° 41.0 -16° 36.9	290° 14.7 -16° 25.9	304° 48.5 -16° 14.8	319° 22.3 -16° 03.7	333° 56.2 -15° 52.4	348° 30.1 -15° 41.2	3° 04.1 -15° 29.8	17° 38.1 -15° 18.4	32° 12.2 -15° 06.9	46° 46.3 -14° 55.4	61° 20.4 -14° 43.8	+33.9 +11.3	14.7 54.1
Пн 13	279° 57.4 -11° 43.0	294° 32.1 -11° 30.5	309° 06.9 -11° 18.0	323° 41.7 -11° 05.4	338° 16.5 -10° 52.8	352° 51.4 -10° 40.2	7° 26.3 -10° 27.5	22° 01.2 -10° 14.7	36° 36.1 -10° 01.9	51° 11.1 -9° 49.1	65° 46.1 -9° 36.2	+34.9 +12.7	14.8 54.2
Вт 14	284° 33.2 -6° 18.6	299° 08.5 -6° 05.1	313° 43.8 -5° 51.7	328° 19.0 -5° 38.2	342° 54.3 -5° 24.7	357° 29.6 -5° 11.1	12° 04.9 -4° 57.5	26° 40.2 -4° 43.9	41° 15.6 -4° 30.3	55° 50.9 -4° 16.6	70° 26.2 -4° 03.0	+35.3 +13.6	14.9 54.5
○ Ср 15	289° 15.6 -0° 35.7	303° 50.8 -0° 21.8	318° 26.1 -0° 07.9	333° 01.3 0° 06.1	347° 36.4 0° 20.0	2° 11.6 0° 33.9	16° 46.8 0° 47.9	31° 21.9 1° 01.9	45° 57.0 1° 15.8	60° 32.1 1° 29.8	75° 07.2 1° 43.8	+35.2 +14.0	15.0 54.9
Чт 16	293° 50.1 5° 12.9	308° 24.7 5° 26.8	322° 59.2 5° 40.7	337° 33.8 5° 54.5	352° 08.3 6° 08.4	6° 42.7 6° 22.2	21° 17.1 6° 36.0	35° 51.5 6° 49.8	50° 25.8 7° 03.5	65° 00.0 7° 17.3	79° 34.3 7° 31.0	+34.4 +13.8	15.1 55.3
Пт 17	298° 01.5 10° 53.6	312° 34.8 11° 06.8	327° 08.1 11° 20.0	341° 41.4 11° 33.2	356° 14.5 11° 46.3	10° 47.6 11° 59.4	25° 20.7 12° 12.4	39° 53.6 12° 25.4	54° 26.5 12° 38.4	68° 59.4 12° 51.3	83° 32.1 13° 04.1	+33.1 +13.1	15.2 55.7
Сб 18	301° 34.7 16° 10.5	316° 06.2 16° 22.4	330° 37.7 16° 34.3	345° 09.0 16° 46.0	359° 40.3 16° 57.8	14° 11.5 17° 09.4	28° 42.6 17° 21.0	43° 13.7 17° 32.5	57° 44.6 17° 43.9	72° 15.5 17° 55.3	86° 46.2 18° 06.6	+31.2 +11.6	15.3 56.2
Вс 19	304° 16.7 20° 45.5	318° 46.0 20° 55.3	333° 15.1 21° 05.1	347° 44.2 21° 14.7	2° 13.2 21° 24.3	16° 42.1 21° 33.7	31° 10.9 21° 43.0	45° 39.6 21° 52.3	60° 08.2 22° 01.4	74° 36.7 22° 10.4	89° 05.1 22° 19.3	+28.8 +9.4	15.5 56.8
Пн 20	318° 46.0 20° 55.3	333° 15.1 21° 05.1	347° 44.2 21° 14.7	2° 13.2 21° 24.3	16° 42.1 21° 33.7	31° 10.9 21° 43.0	45° 39.6 21° 52.3	60° 08.2 22° 01.4	74° 36.7 22° 10.4	89° 05.1 22° 19.3	103° 33.5 22° 28.1	+28.7 +9.3	15.5 56.8
Вт 21	320° 26.7 24° 25.4	334° 53.5 24° 32.2	349° 20.2 24° 38.9	3° 46.9 24° 45.4	18° 13.4 24° 51.8	32° 39.8 24° 58.0	47° 06.2 25° 04.1	61° 32.5 25° 10.1	75° 58.7 25° 15.9	90° 24.8 25° 21.6	104° 50.8 25° 27.1	+26.4 +6.2	15.6 57.4
Ср 22	321° 11.6 26° 32.0	335° 36.4 26° 35.1	350° 01.2 26° 38.0	4° 25.9 26° 40.7	18° 50.5 26° 43.3	33° 15.1 26° 45.7	47° 39.6 26° 47.9	62° 04.1 26° 50.0	76° 28.5 26° 51.9	90° 52.9 26° 53.7	105° 17.2 26° 55.2	+24.6 +2.3	15.8 58.0
◑ Чт 23	321° 17.3 26° 58.1	335° 41.0 26° 56.9	350° 04.8 26° 55.5	4° 28.5 26° 53.9	18° 52.3 26° 52.1	33° 16.0 26° 50.2	47° 39.7 26° 48.1	62° 03.4 26° 45.8	76° 27.1 26° 43.4	90° 50.8 26° 40.8	105° 14.5 26° 38.0	+23.7 -2.0	16.0 58.6
Пт 24	321° 11.2 25° 34.6	335° 35.1 25° 29.0	349° 59.1 25° 23.2	4° 23.1 25° 17.2	18° 47.1 25° 11.1	33° 11.2 25° 04.8	47° 35.3 24° 58.3	61° 59.4 24° 51.7	76° 23.6 24° 44.9	90° 47.8 24° 37.9	105° 12.1 24° 30.7	+24.1 -6.4	16.1 59.2
Сб 25	321° 22.0 22° 24.2	335° 47.1 22° 14.6	350° 12.3 22° 04.7	4° 37.5 21° 54.8	19° 02.8 21° 44.7	33° 28.2 21° 34.4	47° 53.6 21° 24.0	62° 19.1 21° 13.4	76° 44.6 21° 02.8	91° 10.2 20° 51.9	105° 35.9 20° 41.0	+25.4 -10.3	16.3 59.7
Вс 26	322° 09.0 17° 40.9	336° 35.7 17° 27.9	351° 02.5 17° 14.8	5° 29.4 17° 01.6	19° 56.4 16° 48.3	34° 23.4 16° 34.9	48° 50.4 16° 21.4	63° 17.6 16° 07.7	77° 44.8 15° 54.0	92° 12.1 15° 40.2	106° 39.4 15° 26.3	+27.0 -13.5	16.4 60.1
Пн 27	323° 36.9 11° 46.6	338° 05.1 11° 31.3	352° 33.5 11° 15.9	7° 01.9 11° 00.5	21° 30.4 10° 45.0	35° 58.9 10° 29.5	50° 27.4 10° 13.9	64° 56.0 9° 58.2	79° 24.7 9° 42.5	93° 53.4 9° 26.7	108° 22.1 9° 10.9	+28.5 -15.6	16.4 60.3
Вт 28	325° 38.5 5° 07.8	340° 07.9 4° 51.3	354° 37.3 4° 34.8	9° 06.7 4° 18.3	23° 36.2 4° 01.8	38° 05.7 3° 45.2	52° 35.2 3° 28.6	67° 04.8 3° 12.0	81° 34.4 2° 55.4	96° 04.0 2° 38.8	110° 33.6 2° 22.1	+29.5 -16.6	16.4 60.2
Ср 29	327° 59.9 -1° 47.4	342° 29.7 -2° 04.0	356° 59.6 -2° 20.5	11° 29.4 -2° 37.0	25° 59.3 -2° 53.5	40° 29.1 -3° 10.0	54° 59.0 -3° 26.5	69° 28.8 -3° 42.9	83° 58.7 -3° 59.3	98° 28.5 -4° 15.6	112° 58.4 -4° 31.9	+29.9 -16.5	16.3 59.9
● Чт 30	330° 25.0 -8° 31.6	344° 54.6 -8° 47.2	359° 24.3 -9° 02.7	13° 53.9 -9° 18.1	28° 23.5 -9° 33.5	42° 53.1 -9° 48.8	57° 22.7 -10° 04.1	71° 52.2 -10° 19.2	86° 21.7 -10° 34.3	100° 51.2 -10° 49.4	115° 20.7 -11° 04.4	+29.6 -15.3	16.2 59.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 7 18h31 — Полнолуние: 15 23h03 — Последняя четв.: 23 10h20 — Новолуние: 30 02h36

СОЛНЦЕ

Октябрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	272° 32.9	287° 33.1	302° 33.3	317° 33.5	332° 33.7	347° 33.9	2° 34.1	17° 34.3	32° 34.5	47° 34.7	62° 34.9	77° 35.1	+0.2
	-3° 06.8	-3° 07.7	-3° 08.7	-3° 09.7	-3° 10.6	-3° 11.6	-3° 12.6	-3° 13.6	-3° 14.5	-3° 15.5	-3° 16.5	-3° 17.4	-1.0
Сб 2	272° 37.7	287° 37.9	302° 38.1	317° 38.3	332° 38.5	347° 38.7	2° 38.9	17° 39.1	32° 39.3	47° 39.5	62° 39.7	77° 39.9	+0.2
	-3° 30.0	-3° 31.0	-3° 32.0	-3° 32.9	-3° 33.9	-3° 34.9	-3° 35.8	-3° 36.8	-3° 37.8	-3° 38.7	-3° 39.7	-3° 40.7	-1.0
Вс 3	272° 42.4	287° 42.6	302° 42.8	317° 43.0	332° 43.2	347° 43.4	2° 43.6	17° 43.8	32° 44.0	47° 44.2	62° 44.4	77° 44.6	+0.2
	-3° 53.2	-3° 54.2	-3° 55.2	-3° 56.1	-3° 57.1	-3° 58.1	-3° 59.0	-4° 00.0	-4° 01.0	-4° 01.9	-4° 02.9	-4° 03.9	-1.0
Пн 4	272° 47.1	287° 47.3	302° 47.5	317° 47.6	332° 47.8	347° 48.0	2° 48.2	17° 48.4	32° 48.6	47° 48.8	62° 49.0	77° 49.2	+0.2
	-4° 16.4	-4° 17.4	-4° 18.4	-4° 19.3	-4° 20.3	-4° 21.2	-4° 22.2	-4° 23.2	-4° 24.1	-4° 25.1	-4° 26.1	-4° 27.0	-1.0
Вт 5	272° 51.7	287° 51.8	302° 52.0	317° 52.2	332° 52.4	347° 52.6	2° 52.8	17° 53.0	32° 53.2	47° 53.3	62° 53.5	77° 53.7	+0.2
	-4° 39.5	-4° 40.5	-4° 41.5	-4° 42.4	-4° 43.4	-4° 44.4	-4° 45.3	-4° 46.3	-4° 47.2	-4° 48.2	-4° 49.2	-4° 50.1	-1.0
Ср 6	272° 56.1	287° 56.3	302° 56.5	317° 56.7	332° 56.9	347° 57.1	2° 57.3	17° 57.4	32° 57.6	47° 57.8	62° 58.0	77° 58.2	+0.2
	-5° 02.6	-5° 03.6	-5° 04.5	-5° 05.5	-5° 06.4	-5° 07.4	-5° 08.4	-5° 09.3	-5° 10.3	-5° 11.2	-5° 12.2	-5° 13.2	-1.0
Чт 7	273° 00.5	288° 00.7	303° 00.9	318° 01.1	333° 01.3	348° 01.4	3° 01.6	18° 01.8	33° 02.0	48° 02.2	63° 02.3	78° 02.5	+0.2
	-5° 25.6	-5° 26.6	-5° 27.5	-5° 28.5	-5° 29.4	-5° 30.4	-5° 31.3	-5° 32.3	-5° 33.3	-5° 34.2	-5° 35.2	-5° 36.1	-1.0
Пт 8	273° 04.8	288° 05.0	303° 05.2	318° 05.4	333° 05.6	348° 05.7	3° 05.9	18° 06.1	33° 06.3	48° 06.4	63° 06.6	78° 06.8	+0.2
	-5° 48.5	-5° 49.5	-5° 50.4	-5° 51.4	-5° 52.4	-5° 53.3	-5° 54.3	-5° 55.2	-5° 56.2	-5° 57.1	-5° 58.1	-5° 59.0	-1.0
Сб 9	273° 09.0	288° 09.2	303° 09.4	318° 09.6	333° 09.7	348° 09.9	3° 10.1	18° 10.3	33° 10.4	48° 10.6	63° 10.8	78° 10.9	+0.2
	-6° 11.4	-6° 12.3	-6° 13.3	-6° 14.2	-6° 15.2	-6° 16.1	-6° 17.1	-6° 18.0	-6° 19.0	-6° 19.9	-6° 20.9	-6° 21.8	-0.9
Вс 10	273° 13.1	288° 13.3	303° 13.5	318° 13.6	333° 13.8	348° 14.0	3° 14.1	18° 14.3	33° 14.5	48° 14.7	63° 14.8	78° 15.0	+0.2
	-6° 34.2	-6° 35.1	-6° 36.0	-6° 37.0	-6° 37.9	-6° 38.9	-6° 39.8	-6° 40.8	-6° 41.7	-6° 42.7	-6° 43.6	-6° 44.6	-0.9
Пн 11	273° 17.1	288° 17.3	303° 17.5	318° 17.6	333° 17.8	348° 17.9	3° 18.1	18° 18.3	33° 18.4	48° 18.6	63° 18.8	78° 18.9	+0.2
	-6° 56.8	-6° 57.8	-6° 58.7	-6° 59.7	-7° 00.6	-7° 01.5	-7° 02.5	-7° 03.4	-7° 04.4	-7° 05.3	-7° 06.3	-7° 07.2	-0.9
Вт 12	273° 21.0	288° 21.2	303° 21.3	318° 21.5	333° 21.6	348° 21.8	3° 21.9	18° 22.1	33° 22.3	48° 22.4	63° 22.6	78° 22.7	+0.2
	-7° 19.4	-7° 20.4	-7° 21.3	-7° 22.2	-7° 23.2	-7° 24.1	-7° 25.0	-7° 26.0	-7° 26.9	-7° 27.9	-7° 28.8	-7° 29.7	-0.9
Ср 13	273° 24.7	288° 24.9	303° 25.0	318° 25.2	333° 25.3	348° 25.5	3° 25.7	18° 25.8	33° 26.0	48° 26.1	63° 26.3	78° 26.4	+0.2
	-7° 41.9	-7° 42.8	-7° 43.8	-7° 44.7	-7° 45.6	-7° 46.6	-7° 47.5	-7° 48.4	-7° 49.4	-7° 50.3	-7° 51.2	-7° 52.2	-0.9
Чт 14	273° 28.4	288° 28.5	303° 28.6	318° 28.8	333° 28.9	348° 29.1	3° 29.2	18° 29.4	33° 29.5	48° 29.7	63° 29.8	78° 30.0	+0.1
	-8° 04.3	-8° 05.2	-8° 06.1	-8° 07.1	-8° 08.0	-8° 08.9	-8° 09.9	-8° 10.8	-8° 11.7	-8° 12.6	-8° 13.6	-8° 14.5	-0.9
Пт 15	273° 31.8	288° 32.0	303° 32.1	318° 32.3	333° 32.4	348° 32.5	3° 32.7	18° 32.8	33° 33.0	48° 33.1	63° 33.2	78° 33.4	+0.1
	-8° 26.5	-8° 27.5	-8° 28.4	-8° 29.3	-8° 30.2	-8° 31.2	-8° 32.1	-8° 33.0	-8° 33.9	-8° 34.9	-8° 35.8	-8° 36.7	-0.9
Сб 16	273° 35.2	288° 35.3	303° 35.5	318° 35.6	333° 35.7	348° 35.9	3° 36.0	18° 36.1	33° 36.3	48° 36.4	63° 36.5	78° 36.7	+0.1
	-8° 48.7	-8° 49.6	-8° 50.5	-8° 51.4	-8° 52.4	-8° 53.3	-8° 54.2	-8° 55.1	-8° 56.0	-8° 57.0	-8° 57.9	-8° 58.8	-0.9
Вс 17	273° 38.4	288° 38.5	303° 38.6	318° 38.8	333° 38.9	348° 39.0	3° 39.2	18° 39.3	33° 39.4	48° 39.5	63° 39.7	78° 39.8	+0.1
	-9° 10.7	-9° 11.6	-9° 12.5	-9° 13.5	-9° 14.4	-9° 15.3	-9° 16.2	-9° 17.1	-9° 18.0	-9° 18.9	-9° 19.8	-9° 20.8	-0.9
Пн 18	273° 41.4	288° 41.6	303° 41.7	318° 41.8	333° 41.9	348° 42.0	3° 42.2	18° 42.3	33° 42.4	48° 42.5	63° 42.7	78° 42.8	+0.1
	-9° 32.6	-9° 33.5	-9° 34.4	-9° 35.3	-9° 36.2	-9° 37.1	-9° 38.1	-9° 39.0	-9° 39.9	-9° 40.8	-9° 41.7	-9° 42.6	-0.9
Вт 19	273° 44.3	288° 44.4	303° 44.6	318° 44.7	333° 44.8	348° 44.9	3° 45.0	18° 45.1	33° 45.3	48° 45.4	63° 45.5	78° 45.6	+0.1
	-9° 54.4	-9° 55.3	-9° 56.2	-9° 57.1	-9° 58.0	-9° 58.9	-9° 59.8	-10° 00.7	-10° 01.6	-10° 02.5	-10° 03.4	-10° 04.3	-0.9
Ср 20	273° 47.1	288° 47.2	303° 47.3	318° 47.4	333° 47.5	348° 47.6	3° 47.7	18° 47.8	33° 47.9	48° 48.1	63° 48.2	78° 48.3	+0.1
	-10° 16.0	-10° 16.9	-10° 17.8	-10° 18.7	-10° 19.6	-10° 20.5	-10° 21.4	-10° 22.2	-10° 23.1	-10° 24.0	-10° 24.9	-10° 25.8	-0.9
Чт 21	273° 49.6	288° 49.8	303° 49.9	318° 50.0	333° 50.1	348° 50.2	3° 50.3	18° 50.4	33° 50.5	48° 50.6	63° 50.7	78° 50.8	+0.1
	-10° 37.4	-10° 38.3	-10° 39.2	-10° 40.1	-10° 41.0	-10° 41.9	-10° 42.8	-10° 43.7	-10° 44.6	-10° 45.4	-10° 46.3	-10° 47.2	-0.9
Пт 22	273° 52.1	288° 52.2	303° 52.2	318° 52.3	333° 52.4	348° 52.5	3° 52.6	18° 52.7	33° 52.8	48° 52.9	63° 53.0	78° 53.1	+0.1
	-10° 58.7	-10° 59.6	-11° 00.5	-11° 01.4	-11° 02.3	-11° 03.2	-11° 04.1	-11° 04.9	-11° 05.8	-11° 06.7	-11° 07.6	-11° 08.5	-0.9
Сб 23	273° 54.3	288° 54.4	303° 54.5	318° 54.6	333° 54.6	348° 54.7	3° 54.8	18° 54.9	33° 55.0	48° 55.1	63° 55.2	78° 55.3	+0.1
	-11° 19.9	-11° 20.8	-11° 21.7	-11° 22.5	-11° 23.4	-11° 24.3	-11° 25.2	-11° 26.0	-11° 26.9	-11° 27.8	-11° 28.7	-11° 29.5	-0.9
Вс 24	273° 56.3	288° 56.4	303° 56.5	318° 56.6	333° 56.7	348° 56.8	3° 56.8	18° 56.9	33° 57.0	48° 57.1	63° 57.2	78° 57.2	+0.1
	-11° 40.9	-11° 41.7	-11° 42.6	-11° 43.5	-11° 44.4	-11° 45.2	-11° 46.1	-11° 47.0	-11° 47.8	-11° 48.7	-11° 49.6	-11° 50.4	-0.9
Пн 25	273° 58.2	288° 58.3	303° 58.4	318° 58.4	333° 58.5	348° 58.6	3° 58.7	18° 58.7	33° 58.8	48° 58.9	63° 59.0	78° 59.0	+0.1
	-12° 01.7	-12° 02.5	-12° 03.4	-12° 04.3	-12° 05.1	-12° 06.0	-12° 06.9	-12° 07.7	-12° 08.6	-12° 09.4	-12° 10.3	-12° 11.2	-0.9
Вт 26	273° 59.9	289° 00.0	304° 00.1	319° 00.1	334° 00.2	349° 00.2	4° 00.3	19° 00.4	34° 00.4	49° 00.5	64° 00.6	79° 00.6	+0.1
	-12° 22.3	-12° 23.2	-12° 24.0	-12° 24.9	-12° 25.7	-12° 26.6	-12° 27.4	-12° 28.3	-12° 29.1	-12° 30.0	-12° 30.8	-12° 31.7	-0.9
Ср 27	274° 01.4	289° 01.5	304° 01.5	319° 01.6	334° 01.7	349° 01.7	4° 01.8	19° 01.8	34° 01.9	49° 01.9	64° 02.0	79° 02.1	+0.1
	-12° 42.7	-12° 43.6	-12° 44.4	-12° 45.3	-12° 46.1	-12° 47.0	-12° 47.8	-12° 48.7	-12° 49.5	-12° 50.3	-12° 51.2	-12° 52.0	-0.8
Чт 28	274° 02.8	289° 02.8	304° 02.9	319° 02.9	334° 03.0	349° 03.0	4° 03.1	19° 03.1	34° 03.1	49° 03.2	64° 03.2	79° 03.3	+0.0
	-13° 03.0	-13° 03.8	-13° 04.6	-13° 05.5	-13° 06.3	-13° 07.2	-13° 08.0	-13° 08.8	-13° 09.7	-13° 10.5	-13° 11.3	-13° 12.2	-0.8
Пт 29	274° 03.9	289° 03.9	304° 04.0	319° 04.0	334° 04.1	349° 04.1	4° 04.1	19° 04.2	34° 04.2	49° 04.3	64° 04.3	79° 04.3	+0.0
	-13° 23.0	-13° 23.8	-13° 24.7	-13° 25.5	-13° 26.3	-13° 27.1	-13° 28.0	-13° 28.8	-13° 29.6	-13° 30.5	-13° 31.3	-13° 32.1	-0.8
Сб 30	274° 04.8	289° 04.9	304° 04.9	319° 04.9	334° 05.0	349° 05.0	4° 05.0	19° 05.1	34° 05.1	49° 05.1	64° 05.2	79° 05.2	+0.0
	-13° 42.8	-13° 43.6	-13° 44.5	-13° 45.3	-13° 46.1	-13° 46.9	-13° 47.7	-13° 48.6	-13° 49.4	-13° 50.2	-13° 51.0	-13° 51.8	-0.8
Вс 31	274° 05.6	289° 05.6	304° 05.6	319° 05.6	334° 05.7	349° 05.7	4° 05.7	19° 05.7	34° 05.8	49° 05.8	64° 05.8	79° 05.8	+0.0
	-14° 02.4	-14° 03.2	-14° 04.0	-14° 04.9	-14° 05.7	-14° 06.5	-14° 07.3	-14° 08.1	-14° 08.9	-14° 09.7	-14° 10.5	-14° 11.3	-0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2027

Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
Пт 1	245° 44.8	260° 14.0	274° 43.1	289° 12.3	303° 41.4	318° 10.4	332° 39.5	347° 08.5	1° 37.4	16° 06.4	30° 35.3	+29.1	16.0
	-13° 15.5	-13° 29.7	-13° 43.7	-13° 57.7	-14° 11.6	-14° 25.4	-14° 39.1	-14° 52.7	-15° 06.2	-15° 19.6	-15° 33.0	-13.7	58.8
Сб 2	247° 44.6	262° 13.0	276° 41.3	291° 09.5	305° 37.7	320° 05.9	334° 34.1	349° 02.2	3° 30.3	17° 58.4	32° 26.4	+28.2	15.8
	-18° 40.0	-18° 51.6	-19° 03.0	-19° 14.4	-19° 25.6	-19° 36.7	-19° 47.7	-19° 58.5	-20° 09.2	-20° 19.8	-20° 30.3	-11.0	58.0
Вс 3	249° 22.8	263° 50.3	278° 17.8	292° 45.2	307° 12.7	321° 40.1	336° 07.5	350° 34.9	5° 02.3	19° 29.6	33° 56.9	+27.4	15.6
	-22° 51.7	-23° 00.0	-23° 08.2	-23° 16.3	-23° 24.2	-23° 32.0	-23° 39.6	-23° 47.1	-23° 54.5	-24° 01.7	-24° 08.8	-7.7	57.1
Пн 4	250° 45.0	265° 12.1	279° 39.2	294° 06.4	308° 33.5	323° 00.6	337° 27.8	351° 54.9	6° 22.0	20° 49.2	35° 16.3	+27.1	15.3
	-25° 37.5	-25° 42.2	-25° 46.8	-25° 51.3	-25° 55.6	-25° 59.7	-26° 03.7	-26° 07.6	-26° 11.3	-26° 14.8	-26° 18.2	-4.1	56.3
Вт 5	252° 05.4	266° 32.8	281° 00.3	295° 27.8	309° 55.3	324° 22.9	338° 50.5	353° 18.1	7° 45.7	22° 13.4	36° 41.2	+27.6	15.1
	-26° 51.6	-26° 52.6	-26° 53.5	-26° 54.3	-26° 54.9	-26° 55.4	-26° 55.7	-26° 55.9	-26° 56.0	-26° 55.9	-26° 55.6	-0.4	55.5
Ср 6	253° 42.3	268° 10.7	282° 39.2	297° 07.8	311° 36.4	326° 05.1	340° 33.8	355° 02.6	9° 31.5	24° 00.4	38° 29.3	+28.7	15.0
	-26° 35.4	-26° 32.9	-26° 30.4	-26° 27.6	-26° 24.8	-26° 21.9	-26° 18.8	-26° 15.5	-26° 12.2	-26° 08.7	-26° 05.1	+3.0	54.9
◐ Чт 7	255° 51.3	270° 21.3	284° 51.4	299° 21.5	313° 51.7	328° 21.9	342° 52.3	357° 22.6	11° 53.1	26° 23.6	40° 54.2	+30.3	14.9
	-24° 56.4	-24° 50.8	-24° 45.2	-24° 39.5	-24° 33.6	-24° 27.6	-24° 21.5	-24° 15.3	-24° 09.0	-24° 02.6	-23° 56.1	+6.0	54.5
Пт 8	258° 41.3	273° 13.0	287° 44.7	302° 16.5	316° 48.4	331° 20.4	345° 52.4	0° 24.5	14° 56.6	29° 28.8	44° 01.1	+32.0	14.8
	-22° 06.0	-21° 57.8	-21° 49.6	-21° 41.3	-21° 32.9	-21° 24.4	-21° 15.8	-21° 07.1	-20° 58.4	-20° 49.5	-20° 40.6	+8.5	54.2
Сб 9	262° 12.5	276° 45.7	291° 19.0	305° 52.4	320° 25.8	334° 59.2	349° 32.7	4° 06.3	18° 39.9	33° 13.5	47° 47.3	+33.5	14.8
	-18° 16.7	-18° 06.5	-17° 56.2	-17° 45.8	-17° 35.4	-17° 24.9	-17° 14.3	-17° 03.6	-16° 52.9	-16° 42.1	-16° 31.3	+10.5	54.1
Вс 10	266° 18.5	280° 52.9	295° 27.3	310° 01.8	324° 36.4	339° 10.9	353° 45.5	8° 20.1	22° 54.8	37° 29.5	52° 04.2	+34.6	14.8
	-13° 40.9	-13° 29.0	-13° 17.1	-13° 05.2	-12° 53.2	-12° 41.1	-12° 29.0	-12° 16.9	-12° 04.7	-11° 52.4	-11° 40.1	+12.1	54.2
Пн 11	270° 48.2	285° 23.3	299° 58.4	314° 33.6	329° 08.7	343° 43.9	358° 19.0	12° 54.2	27° 29.4	42° 04.6	56° 39.8	+35.2	14.9
	-8° 30.0	-8° 17.0	-8° 04.0	-7° 50.9	-7° 37.8	-7° 24.6	-7° 11.5	-6° 58.2	-6° 45.0	-6° 31.7	-6° 18.4	+13.2	54.5
Вт 12	275° 28.3	290° 03.5	304° 38.7	319° 13.9	333° 49.0	348° 24.2	2° 59.4	17° 34.5	32° 09.6	46° 44.7	61° 19.8	+35.2	15.0
	-2° 55.3	-2° 41.6	-2° 27.8	-2° 14.1	-2° 00.3	-1° 46.5	-1° 32.7	-1° 18.8	-1° 05.0	-0° 51.1	-0° 37.3	+13.8	54.9
Ср 13	280° 03.6	294° 38.3	309° 13.0	323° 47.6	338° 22.2	352° 56.8	7° 31.3	22° 05.7	36° 40.2	51° 14.6	65° 48.9	+34.5	15.1
	2° 51.7	3° 05.7	3° 19.7	3° 33.6	3° 47.6	4° 01.5	4° 15.5	4° 29.4	4° 43.3	4° 57.2	5° 11.2	+13.9	55.3
Чт 14	284° 18.6	298° 52.2	313° 25.6	327° 59.1	342° 32.5	357° 05.8	11° 39.0	26° 12.2	40° 45.3	55° 18.4	69° 51.4	+33.3	15.2
	8° 38.0	8° 51.6	9° 05.2	9° 18.8	9° 32.4	9° 45.9	9° 59.4	10° 12.8	10° 26.2	10° 39.6	10° 52.9	+13.5	55.9
○ Пт 15	287° 57.6	302° 29.4	317° 01.1	331° 32.8	346° 04.3	0° 35.8	15° 07.2	29° 38.5	44° 09.8	58° 40.9	73° 11.9	+31.4	15.4
	14° 08.0	14° 20.6	14° 33.2	14° 45.7	14° 58.1	15° 10.5	15° 22.8	15° 35.0	15° 47.2	15° 59.3	16° 11.4	+12.3	56.4
Сб 16	290° 46.9	305° 16.5	319° 46.0	334° 15.4	348° 44.7	3° 13.9	17° 43.0	32° 12.0	46° 41.0	61° 09.8	75° 38.5	+29.2	15.5
	19° 03.1	19° 13.9	19° 24.6	19° 35.2	19° 45.7	19° 56.2	20° 06.5	20° 16.7	20° 26.8	20° 36.8	20° 46.8	+10.4	56.9
Вс 17	292° 37.9	307° 05.1	321° 32.2	335° 59.3	350° 26.2	4° 53.0	19° 19.8	33° 46.4	48° 13.0	62° 39.5	77° 05.9	+26.8	15.7
	23° 02.2	23° 10.3	23° 18.3	23° 26.1	23° 33.8	23° 41.4	23° 48.8	23° 56.1	24° 03.3	24° 10.3	24° 17.2	+7.5	57.4
Пн 18	293° 32.1	307° 57.2	322° 22.3	336° 47.3	351° 12.3	5° 37.2	20° 02.0	34° 26.8	48° 51.5	63° 16.1	77° 40.7	+24.9	15.8
	25° 43.3	25° 47.9	25° 52.2	25° 56.5	26° 00.5	26° 04.4	26° 08.2	26° 11.7	26° 15.2	26° 18.4	26° 21.5	+3.8	57.9
Вт 19	293° 44.6	308° 08.5	322° 32.5	336° 56.5	351° 20.4	5° 44.3	20° 08.2	34° 32.1	48° 56.0	63° 19.9	77° 43.8	+23.9	15.9
	26° 47.7	26° 48.0	26° 48.2	26° 48.3	26° 48.1	26° 47.8	26° 47.3	26° 46.6	26° 45.8	26° 44.8	26° 43.6	-0.4	58.3
Ср 20	308° 08.5	322° 32.5	336° 56.5	351° 20.4	5° 44.3	20° 08.2	34° 32.1	48° 56.0	63° 19.9	77° 43.8	92° 07.6	+23.9	15.9
	26° 48.0	26° 48.2	26° 48.3	26° 48.1	26° 47.8	26° 47.3	26° 46.6	26° 45.8	26° 44.8	26° 43.6	26° 42.2	-0.6	58.3
Чт 21	308° 06.7	322° 30.8	336° 54.9	351° 19.1	5° 43.3	20° 07.5	34° 31.8	48° 56.1	63° 20.4	77° 44.8	92° 09.2	+24.2	16.0
	26° 00.8	25° 56.7	25° 52.4	25° 47.9	25° 43.2	25° 38.4	25° 33.4	25° 28.3	25° 22.9	25° 17.5	25° 11.8	-4.9	58.7
◑ Пт 22	308° 21.7	322° 47.0	337° 12.4	351° 37.8	6° 03.3	20° 28.8	34° 54.5	49° 20.1	63° 45.9	78° 11.7	92° 37.6	+25.6	16.1
	23° 27.8	23° 19.6	23° 11.3	23° 02.8	22° 54.2	22° 45.5	22° 36.5	22° 27.5	22° 18.3	22° 09.0	21° 59.5	-8.8	59.0
Сб 23	309° 14.5	323° 41.5	338° 08.6	352° 35.8	7° 03.0	21° 30.3	35° 57.7	50° 25.2	64° 52.7	79° 20.3	93° 48.0	+27.4	16.2
	19° 21.6	19° 10.1	18° 58.4	18° 46.7	18° 34.8	18° 22.8	18° 10.7	17° 58.5	17° 46.2	17° 33.8	17° 21.3	-12.0	59.2
Вс 24	310° 51.3	325° 20.0	339° 48.8	354° 17.7	8° 46.6	23° 15.5	37° 44.6	52° 13.6	66° 42.8	81° 12.0	95° 41.2	+29.0	16.2
	14° 01.9	13° 47.9	13° 33.9	13° 19.7	13° 05.5	12° 51.2	12° 36.8	12° 22.4	12° 07.9	11° 53.3	11° 38.6	-14.3	59.4
Пн 25	313° 05.8	327° 35.7	342° 05.8	356° 35.8	11° 05.9	25° 36.0	40° 06.2	54° 36.4	69° 06.6	83° 36.8	98° 07.1	+30.1	16.2
	7° 51.8	7° 36.3	7° 20.8	7° 05.2	6° 49.5	6° 33.9	6° 18.1	6° 02.4	5° 46.6	5° 30.8	5° 15.0	-15.7	59.4
Вт 26	315° 43.8	330° 14.3	344° 44.9	359° 15.5	13° 46.1	28° 16.7	42° 47.3	57° 17.9	71° 48.5	86° 19.1	100° 49.7	+30.6	16.2
	1° 15.1	0° 59.1	0° 43.0	0° 26.9	0° 10.8	-0° 05.3	-0° 21.4	-0° 37.4	-0° 53.5	-1° 09.6	-1° 25.6	-16.1	59.3
Ср 27	318° 28.2	332° 58.6	347° 29.1	1° 59.5	16° 29.9	31° 00.3	45° 30.7	60° 01.0	74° 31.3	89° 01.6	103° 31.9	+30.4	16.1
	-5° 24.2	-5° 39.9	-5° 55.6	-6° 11.2	-6° 26.8	-6° 42.4	-6° 57.9	-7° 13.3	-7° 28.7	-7° 44.1	-7° 59.4	-15.5	59.1
Чт 28	321° 02.4	335° 32.1	350° 01.8	4° 31.5	19° 01.2	33° 30.8	48° 00.3	62° 29.8	76° 59.3	91° 28.8	105° 58.1	+29.6	16.0
	-11° 42.6	-11° 57.0	-12° 11.3	-12° 25.5	-12° 39.6	-12° 53.7	-13° 07.7	-13° 21.6	-13° 35.4	-13° 49.2	-14° 02.9	-14.0	58.6
● Пт 29	323° 13.6	337° 42.3	352° 10.9	6° 39.5	21° 08.0	35° 36.5	50° 04.9	64° 33.3	79° 01.6	93° 29.9	107° 58.1	+28.4	15.8
	-17° 16.9	-17° 29.1	-17° 41.1	-17° 53.1	-18° 04.9	-18° 16.6	-18° 28.2	-18° 39.7	-18° 51.1	-19° 02.4	-19° 13.5	-11.7	58.1
Сб 30	324° 56.2	339° 23.7	353° 51.2	8° 18.7	22° 46.1	37° 13.5	51° 40.8	66° 08.1	80° 35.4	95° 02.6	109° 29.8	+27.4	15.7
	-21° 46.3	-21° 55.5	-22° 04.5	-22° 13.4	-22° 22.2	-22° 30.8	-22° 39.3	-22° 47.6	-22° 55.9	-23° 03.9	-23° 11.9	-8.6	57.4
Вс 31	326° 14.4	340° 41.2	355° 08.0	9° 34.7	24° 01.5	38° 28.2	52° 54.9	67° 21.7	81° 48.4	96° 15.1	110° 41.8	+26.7	15.5
	-24° 53.9	-24° 59.5	-25° 05.0	-25° 10.4	-25° 15.6	-25° 20.6	-25° 25.5	-25° 30.2	-25° 34.8	-25° 39.3	-25° 43.5	-5.0	56.7

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 7 11h47 — Полнолуние: 15 13h47 — Последняя четв.: 22 17h29 — Новолуние: 29 13h36

СОЛНЦЕ

Ноябрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	274° 06.1	289° 06.1	304° 06.2	319° 06.2	334° 06.2	349° 06.2	4° 06.2	19° 06.2	34° 06.3	49° 06.3	64° 06.3	79° 06.3	+0.0
	-14° 21.8	-14° 22.6	-14° 23.4	-14° 24.2	-14° 25.0	-14° 25.8	-14° 26.6	-14° 27.4	-14° 28.2	-14° 29.0	-14° 29.8	-14° 30.6	-0.8
Вт 2	274° 06.5	289° 06.5	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.5	19° 06.5	34° 06.5	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 40.9	-14° 41.7	-14° 42.5	-14° 43.3	-14° 44.1	-14° 44.9	-14° 45.7	-14° 46.5	-14° 47.3	-14° 48.1	-14° 48.9	-14° 49.6	-0.8
Ср 3	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.6	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 59.9	-15° 00.6	-15° 01.4	-15° 02.2	-15° 03.0	-15° 03.8	-15° 04.5	-15° 05.3	-15° 06.1	-15° 06.9	-15° 07.7	-15° 08.4	-0.8
Чт 4	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.5	4° 06.5	19° 06.5	34° 06.5	49° 06.5	64° 06.5	79° 06.5	-0.0
	-15° 18.5	-15° 19.3	-15° 20.1	-15° 20.8	-15° 21.6	-15° 22.4	-15° 23.1	-15° 23.9	-15° 24.7	-15° 25.5	-15° 26.2	-15° 27.0	-0.8
Пт 5	274° 06.3	289° 06.3	304° 06.3	319° 06.3	334° 06.3	349° 06.3	4° 06.2	19° 06.2	34° 06.2	49° 06.2	64° 06.2	79° 06.2	-0.0
	-15° 36.9	-15° 37.7	-15° 38.5	-15° 39.2	-15° 40.0	-15° 40.7	-15° 41.5	-15° 42.3	-15° 43.0	-15° 43.8	-15° 44.5	-15° 45.3	-0.8
Сб 6	274° 05.9	289° 05.9	304° 05.8	319° 05.8	334° 05.8	349° 05.8	4° 05.7	19° 05.7	34° 05.7	49° 05.7	64° 05.6	79° 05.6	-0.0
	-15° 55.1	-15° 55.8	-15° 56.6	-15° 57.3	-15° 58.1	-15° 58.8	-15° 59.6	-16° 00.3	-16° 01.1	-16° 01.8	-16° 02.6	-16° 03.3	-0.7
Вс 7	274° 05.2	289° 05.2	304° 05.2	319° 05.1	334° 05.1	349° 05.1	4° 05.0	19° 05.0	34° 05.0	49° 04.9	64° 04.9	79° 04.9	-0.0
	-16° 13.0	-16° 13.7	-16° 14.4	-16° 15.2	-16° 15.9	-16° 16.7	-16° 17.4	-16° 18.1	-16° 18.9	-16° 19.6	-16° 20.3	-16° 21.1	-0.7
Пн 8	274° 04.4	289° 04.3	304° 04.3	319° 04.3	334° 04.2	349° 04.2	4° 04.1	19° 04.1	34° 04.1	49° 04.0	64° 04.0	79° 03.9	-0.0
	-16° 30.6	-16° 31.3	-16° 32.0	-16° 32.8	-16° 33.5	-16° 34.2	-16° 34.9	-16° 35.7	-16° 36.4	-16° 37.1	-16° 37.8	-16° 38.6	-0.7
Вт 9	274° 03.3	289° 03.3	304° 03.2	319° 03.2	334° 03.1	349° 03.1	4° 03.0	19° 03.0	34° 02.9	49° 02.9	64° 02.8	79° 02.8	-0.1
	-16° 47.9	-16° 48.6	-16° 49.3	-16° 50.1	-16° 50.8	-16° 51.5	-16° 52.2	-16° 52.9	-16° 53.6	-16° 54.3	-16° 55.1	-16° 55.8	-0.7
Ср 10	274° 02.0	289° 02.0	304° 01.9	319° 01.9	334° 01.8	349° 01.8	4° 01.7	19° 01.6	34° 01.6	49° 01.5	64° 01.5	79° 01.4	-0.1
	-17° 05.0	-17° 05.7	-17° 06.4	-17° 07.1	-17° 07.8	-17° 08.5	-17° 09.2	-17° 09.9	-17° 10.6	-17° 11.3	-17° 12.0	-17° 12.7	-0.7
Чт 11	274° 00.6	289° 00.5	304° 00.4	319° 00.4	334° 00.3	349° 00.2	4° 00.2	19° 00.1	34° 00.0	49° 00.0	63° 59.9	78° 59.8	-0.1
	-17° 21.7	-17° 22.4	-17° 23.1	-17° 23.8	-17° 24.5	-17° 25.2	-17° 25.9	-17° 26.6	-17° 27.2	-17° 27.9	-17° 28.6	-17° 29.3	-0.7
Пт 12	273° 58.9	288° 58.8	303° 58.7	318° 58.7	333° 58.6	348° 58.5	3° 58.4	18° 58.3	33° 58.3	48° 58.2	63° 58.1	78° 58.0	-0.1
	-17° 38.2	-17° 38.9	-17° 39.5	-17° 40.2	-17° 40.9	-17° 41.6	-17° 42.2	-17° 42.9	-17° 43.6	-17° 44.3	-17° 44.9	-17° 45.6	-0.7
Сб 13	273° 57.0	288° 56.9	303° 56.8	318° 56.7	333° 56.6	348° 56.6	3° 56.5	18° 56.4	33° 56.3	48° 56.2	63° 56.1	78° 56.0	-0.1
	-17° 54.3	-17° 55.0	-17° 55.7	-17° 56.3	-17° 57.0	-17° 57.7	-17° 58.3	-17° 59.0	-17° 59.6	-18° 00.3	-18° 01.0	-18° 01.6	-0.7
Вс 14	273° 54.9	288° 54.8	303° 54.7	318° 54.6	333° 54.5	348° 54.4	3° 54.3	18° 54.2	33° 54.1	48° 54.0	63° 53.9	78° 53.8	-0.1
	-18° 10.2	-18° 10.8	-18° 11.5	-18° 12.1	-18° 12.8	-18° 13.4	-18° 14.1	-18° 14.7	-18° 15.4	-18° 16.0	-18° 16.7	-18° 17.3	-0.7
Пн 15	273° 52.6	288° 52.5	303° 52.3	318° 52.2	333° 52.1	348° 52.0	3° 51.9	18° 51.8	33° 51.7	48° 51.6	63° 51.5	78° 51.4	-0.1
	-18° 25.7	-18° 26.3	-18° 27.0	-18° 27.6	-18° 28.3	-18° 28.9	-18° 29.5	-18° 30.2	-18° 30.8	-18° 31.4	-18° 32.1	-18° 32.7	-0.6
Вт 16	273° 50.0	288° 49.9	303° 49.8	318° 49.7	333° 49.6	348° 49.5	3° 49.4	18° 49.2	33° 49.1	48° 49.0	63° 48.9	78° 48.8	-0.1
	-18° 40.9	-18° 41.5	-18° 42.2	-18° 42.8	-18° 43.4	-18° 44.0	-18° 44.7	-18° 45.3	-18° 45.9	-18° 46.5	-18° 47.1	-18° 47.8	-0.6
Ср 17	273° 47.3	288° 47.2	303° 47.0	318° 46.9	333° 46.8	348° 46.7	3° 46.6	18° 46.4	33° 46.3	48° 46.2	63° 46.1	78° 45.9	-0.1
	-18° 55.8	-18° 56.4	-18° 57.0	-18° 57.6	-18° 58.2	-18° 58.8	-18° 59.5	-19° 00.1	-19° 00.7	-19° 01.3	-19° 01.9	-19° 02.5	-0.6
Чт 18	273° 44.3	288° 44.2	303° 44.1	318° 43.9	333° 43.8	348° 43.7	3° 43.5	18° 43.4	33° 43.3	48° 43.2	63° 43.0	78° 42.9	-0.1
	-19° 10.3	-19° 10.9	-19° 11.5	-19° 12.1	-19° 12.7	-19° 13.3	-19° 13.9	-19° 14.5	-19° 15.1	-19° 15.7	-19° 16.3	-19° 16.9	-0.6
Пт 19	273° 41.1	288° 41.0	303° 40.9	318° 40.7	333° 40.6	348° 40.5	3° 40.3	18° 40.2	33° 40.0	48° 39.9	63° 39.8	78° 39.6	-0.1
	-19° 24.5	-19° 25.1	-19° 25.7	-19° 26.3	-19° 26.9	-19° 27.4	-19° 28.0	-19° 28.6	-19° 29.2	-19° 29.8	-19° 30.3	-19° 30.9	-0.6
Сб 20	273° 37.8	288° 37.6	303° 37.5	318° 37.3	333° 37.2	348° 37.0	3° 36.9	18° 36.7	33° 36.6	48° 36.4	63° 36.3	78° 36.1	-0.1
	-19° 38.4	-19° 38.9	-19° 39.5	-19° 40.1	-19° 40.7	-19° 41.2	-19° 41.8	-19° 42.4	-19° 42.9	-19° 43.5	-19° 44.0	-19° 44.6	-0.6
Вс 21	273° 34.2	288° 34.0	303° 33.9	318° 33.7	333° 33.6	348° 33.4	3° 33.2	18° 33.1	33° 32.9	48° 32.8	63° 32.6	78° 32.5	-0.2
	-19° 51.9	-19° 52.4	-19° 53.0	-19° 53.5	-19° 54.1	-19° 54.6	-19° 55.2	-19° 55.7	-19° 56.3	-19° 56.8	-19° 57.4	-19° 57.9	-0.6
Пн 22	273° 30.4	288° 30.2	303° 30.1	318° 29.9	333° 29.7	348° 29.6	3° 29.4	18° 29.2	33° 29.1	48° 28.9	63° 28.7	78° 28.6	-0.2
	-20° 05.0	-20° 05.6	-20° 06.1	-20° 06.6	-20° 07.2	-20° 07.7	-20° 08.2	-20° 08.8	-20° 09.3	-20° 09.8	-20° 10.4	-20° 10.9	-0.5
Вт 23	273° 26.4	288° 26.2	303° 26.0	318° 25.9	333° 25.7	348° 25.5	3° 25.3	18° 25.2	33° 25.0	48° 24.8	63° 24.6	78° 24.5	-0.2
	-20° 17.8	-20° 18.3	-20° 18.8	-20° 19.3	-20° 19.9	-20° 20.4	-20° 20.9	-20° 21.4	-20° 22.0	-20° 22.5	-20° 23.0	-20° 23.5	-0.5
Ср 24	273° 22.2	288° 22.0	303° 21.8	318° 21.6	333° 21.5	348° 21.3	3° 21.1	18° 20.9	33° 20.7	48° 20.5	63° 20.4	78° 20.2	-0.2
	-20° 30.2	-20° 30.7	-20° 31.2	-20° 31.7	-20° 32.2	-20° 32.7	-20° 33.2	-20° 33.7	-20° 34.2	-20° 34.7	-20° 35.2	-20° 35.7	-0.5
Чт 25	273° 17.8	288° 17.6	303° 17.4	318° 17.2	333° 17.0	348° 16.8	3° 16.6	18° 16.5	33° 16.3	48° 16.1	63° 15.9	78° 15.7	-0.2
	-20° 42.2	-20° 42.7	-20° 43.2	-20° 43.7	-20° 44.2	-20° 44.6	-20° 45.1	-20° 45.6	-20° 46.1	-20° 46.6	-20° 47.1	-20° 47.6	-0.5
Пт 26	273° 13.2	288° 13.0	303° 12.8	318° 12.6	333° 12.4	348° 12.2	3° 12.0	18° 11.8	33° 11.6	48° 11.4	63° 11.2	78° 11.0	-0.2
	-20° 53.8	-20° 54.3	-20° 54.8	-20° 55.2	-20° 55.7	-20° 56.2	-20° 56.7	-20° 57.1	-20° 57.6	-20° 58.1	-20° 58.6	-20° 59.0	-0.5
Сб 27	273° 08.4	288° 08.2	303° 08.0	318° 07.8	333° 07.6	348° 07.4	3° 07.2	18° 07.0	33° 06.8	48° 06.6	63° 06.4	78° 06.1	-0.2
	-21° 05.1	-21° 05.5	-21° 06.0	-21° 06.4	-21° 06.9	-21° 07.4	-21° 07.8	-21° 08.3	-21° 08.7	-21° 09.2	-21° 09.6	-21° 10.1	-0.5
Вс 28	273° 03.4	288° 03.2	303° 03.0	318° 02.8	333° 02.6	348° 02.4	3° 02.2	18° 02.0	33° 01.7	48° 01.5	63° 01.3	78° 01.1	-0.2
	-21° 15.9	-21° 16.3	-21° 16.8	-21° 17.2	-21° 17.7	-21° 18.1	-21° 18.6	-21° 19.0	-21° 19.4	-21° 19.9	-21° 20.3	-21° 20.7	-0.4
Пн 29	272° 58.3	287° 58.1	302° 57.9	317° 57.6	332° 57.4	347° 57.2	2° 57.0	17° 56.8	32° 56.5	47° 56.3	62° 56.1	77° 55.9	-0.2
	-21° 26.3	-21° 26.8	-21° 27.2	-21° 27.6	-21° 28.0	-21° 28.5	-21° 28.9	-21° 29.3	-21° 29.7	-21° 30.2	-21° 30.6	-21° 31.0	-0.4
Вт 30	272° 53.0	287° 52.8	302° 52.5	317° 52.3	332° 52.1	347° 51.9	2° 51.6	17° 51.4	32° 51.2	47° 50.9	62° 50.7	77° 50.5	-0.2
	-21° 36.4	-21° 36.8	-21° 37.2	-21° 37.6	-21° 38.0	-21° 38.4	-21° 38.8	-21° 39.2	-21° 39.6	-21° 40.0	-21° 40.4	-21° 40.8	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	R/p
Пн 1	255° 08.9	269° 35.7	284° 02.4	298° 29.2	312° 56.0	327° 22.8	341° 49.6	356° 16.4	10° 43.3	25° 10.2	39° 37.1	+26.8	15.3
	-26° 18.2	-26° 20.8	-26° 23.3	-26° 25.6	-26° 27.8	-26° 29.8	-26° 31.7	-26° 33.4	-26° 35.0	-26° 36.5	-26° 37.7	-2.0	56.1
Вт 2	256° 24.6	270° 52.0	285° 19.6	299° 47.1	314° 14.8	328° 42.4	343° 10.2	357° 37.9	12° 05.8	26° 33.6	41° 01.6	+27.7	15.1
	-26° 39.3	-26° 38.3	-26° 37.1	-26° 35.7	-26° 34.3	-26° 32.6	-26° 30.9	-26° 29.0	-26° 27.0	-26° 24.8	-26° 22.5	+1.7	55.5
Ср 3	258° 07.9	272° 36.9	287° 05.9	301° 34.9	316° 04.1	330° 33.3	345° 02.6	359° 32.0	14° 01.4	28° 30.9	43° 00.5	+29.3	15.0
	-25° 32.0	-25° 27.6	-25° 23.1	-25° 18.5	-25° 13.8	-25° 08.9	-25° 03.9	-24° 58.8	-24° 53.5	-24° 48.2	-24° 42.7	+4.9	54.9
Чт 4	260° 33.2	275° 04.0	289° 34.8	304° 05.7	318° 36.7	333° 07.8	347° 39.0	2° 10.2	16° 41.5	31° 12.9	45° 44.3	+31.1	14.9
	-23° 07.5	-23° 00.3	-22° 53.0	-22° 45.6	-22° 38.1	-22° 30.5	-22° 22.8	-22° 15.0	-22° 07.1	-21° 59.1	-21° 51.0	+7.6	54.5
Пт 5	263° 44.7	278° 17.3	292° 50.0	307° 22.7	321° 55.5	336° 28.3	351° 01.2	5° 34.2	20° 07.3	34° 40.4	49° 13.5	+32.9	14.8
	-19° 39.3	-19° 29.9	-19° 20.3	-19° 10.7	-19° 01.1	-18° 51.3	-18° 41.5	-18° 31.6	-18° 21.6	-18° 11.5	-18° 01.4	+9.8	54.2
◐ Сб 6	267° 38.0	282° 12.1	296° 46.2	311° 20.4	325° 54.6	340° 28.9	355° 03.2	9° 37.5	24° 11.9	38° 46.4	53° 20.8	+34.3	14.8
	-15° 21.3	-15° 10.1	-14° 58.9	-14° 47.6	-14° 36.2	-14° 24.8	-14° 13.3	-14° 01.8	-13° 50.2	-13° 38.6	-13° 26.9	+11.4	54.2
Вс 7	272° 02.6	286° 37.6	301° 12.7	315° 47.8	330° 22.9	344° 58.0	359° 33.2	14° 08.3	28° 43.6	43° 18.8	57° 54.0	+35.2	14.8
	-10° 25.6	-10° 13.1	-10° 00.6	-9° 48.1	-9° 35.5	-9° 22.9	-9° 10.2	-8° 57.5	-8° 44.8	-8° 32.0	-8° 19.2	+12.6	54.3
Пн 8	276° 44.2	291° 19.6	305° 55.0	320° 30.4	335° 05.8	349° 41.2	4° 16.6	18° 52.0	33° 27.4	48° 02.8	62° 38.1	+35.4	14.9
	-5° 03.0	-4° 49.7	-4° 36.3	-4° 22.9	-4° 09.5	-3° 56.1	-3° 42.7	-3° 29.2	-3° 15.7	-3° 02.2	-2° 48.7	+13.4	54.6
Вт 9	281° 27.1	296° 02.2	310° 37.2	325° 12.3	339° 47.3	354° 22.3	8° 57.2	23° 32.2	38° 07.1	52° 41.9	67° 16.8	+35.0	15.0
	0° 36.1	0° 49.9	1° 03.7	1° 17.4	1° 31.2	1° 45.0	1° 58.8	2° 12.6	2° 26.4	2° 40.2	2° 54.0	+13.8	55.1
Ср 10	285° 54.1	300° 28.2	315° 02.3	329° 36.3	344° 10.2	358° 44.1	13° 18.0	27° 51.7	42° 25.4	56° 59.1	71° 32.6	+33.9	15.2
	6° 20.6	6° 34.3	6° 48.0	7° 01.7	7° 15.4	7° 29.0	7° 42.7	7° 56.3	8° 09.9	8° 23.4	8° 37.0	+13.6	55.7
Чт 11	289° 48.0	304° 20.5	318° 52.8	333° 25.1	347° 57.2	2° 29.3	17° 01.3	31° 33.3	46° 05.1	60° 36.9	75° 08.5	+32.1	15.4
	11° 57.0	12° 10.1	12° 23.1	12° 36.1	12° 49.0	13° 01.9	13° 14.7	13° 27.5	13° 40.3	13° 53.0	14° 05.6	+12.9	56.4
Пт 12	292° 52.2	307° 22.4	321° 52.4	336° 22.3	350° 52.2	5° 21.9	19° 51.5	34° 21.0	48° 50.5	63° 19.8	77° 49.0	+29.7	15.6
	17° 08.2	17° 19.9	17° 31.4	17° 42.9	17° 54.3	18° 05.7	18° 16.9	18° 28.1	18° 39.2	18° 50.1	19° 01.1	+11.3	57.1
Сб 13	294° 54.2	309° 21.7	323° 49.1	338° 16.4	352° 43.6	7° 10.7	21° 37.6	36° 04.5	50° 31.2	64° 57.9	79° 24.4	+27.0	15.7
	21° 33.1	21° 42.3	21° 51.5	22° 00.6	22° 09.5	22° 18.3	22° 27.0	22° 35.6	22° 44.1	22° 52.4	23° 00.6	+8.8	57.7
○ Вс 14	295° 50.8	310° 15.8	324° 40.7	339° 05.5	353° 30.3	7° 55.0	22° 19.6	36° 44.1	51° 08.5	65° 32.9	79° 57.1	+24.6	15.9
	24° 47.2	24° 53.2	24° 59.0	25° 04.6	25° 10.1	25° 15.5	25° 20.7	25° 25.7	25° 30.5	25° 35.2	25° 39.8	+5.3	58.3
Пн 15	295° 53.8	310° 17.2	324° 40.5	339° 03.8	353° 27.0	7° 50.2	22° 13.4	36° 36.6	50° 59.7	65° 22.9	79° 46.0	+23.2	16.0
	26° 27.7	26° 29.5	26° 31.1	26° 32.6	26° 33.9	26° 35.0	26° 35.9	26° 36.6	26° 37.2	26° 37.5	26° 37.7	+1.0	58.8
Вт 16	295° 31.6	309° 54.7	324° 17.8	338° 40.9	353° 04.1	7° 27.3	21° 50.5	36° 13.8	50° 37.1	65° 00.4	79° 23.8	+23.2	16.1
	26° 18.9	26° 16.2	26° 13.3	26° 10.2	26° 07.0	26° 03.6	26° 00.0	25° 56.2	25° 52.2	25° 48.1	25° 43.8	-3.5	59.1
Ср 17	295° 20.1	309° 44.3	324° 08.6	338° 33.0	352° 57.4	7° 21.9	21° 46.5	36° 11.1	50° 35.8	65° 00.6	79° 25.5	+24.5	16.2
	24° 18.6	24° 11.6	24° 04.4	23° 57.1	23° 49.6	23° 42.0	23° 34.2	23° 26.3	23° 18.2	23° 09.9	23° 01.5	-7.7	59.3
Чт 18	309° 44.3	324° 08.6	338° 33.0	352° 57.4	7° 21.9	21° 46.5	36° 11.1	50° 35.8	65° 00.6	79° 25.5	93° 50.5	+24.6	16.2
	24° 11.6	24° 04.4	23° 57.1	23° 49.6	23° 42.0	23° 34.2	23° 26.3	23° 18.2	23° 09.9	23° 01.5	22° 53.0	-7.9	59.3
Пт 19	310° 14.6	324° 40.8	339° 07.2	353° 33.7	8° 00.2	22° 26.8	36° 53.6	51° 20.4	65° 47.2	80° 14.2	94° 41.3	+26.7	16.2
	20° 28.0	20° 17.3	20° 06.5	19° 55.5	19° 44.4	19° 33.2	19° 21.9	19° 10.5	18° 58.9	18° 47.3	18° 35.5	-11.3	59.3
Сб 20	311° 37.3	326° 05.7	340° 34.2	355° 02.7	9° 31.3	24° 00.0	38° 28.8	52° 57.7	67° 26.6	81° 55.6	96° 24.6	+28.7	16.2
	15° 26.9	15° 13.6	15° 00.2	14° 46.7	14° 33.1	14° 19.5	14° 05.8	13° 52.0	13° 38.1	13° 24.2	13° 10.2	-13.7	59.2
◑ Вс 21	313° 48.5	328° 18.6	342° 48.7	357° 18.9	11° 49.2	26° 19.4	40° 49.8	55° 20.2	69° 50.6	84° 21.1	98° 51.6	+30.3	16.1
	9° 32.7	9° 17.8	9° 02.8	8° 47.8	8° 32.7	8° 17.6	8° 02.5	7° 47.3	7° 32.1	7° 16.9	7° 01.6	-15.1	59.1
Пн 22	316° 34.0	331° 05.1	345° 36.2	0° 07.3	14° 38.4	29° 09.6	43° 40.8	58° 12.0	72° 43.2	87° 14.4	101° 45.7	+31.2	16.0
	3° 09.4	2° 53.8	2° 38.2	2° 22.6	2° 06.9	1° 51.3	1° 35.6	1° 20.0	1° 04.3	0° 48.7	0° 33.0	-15.6	58.8
Вт 23	319° 35.3	334° 06.6	348° 37.9	3° 09.2	17° 40.5	32° 11.8	46° 43.0	61° 14.3	75° 45.5	90° 16.8	104° 48.0	+31.3	16.0
	-3° 20.7	-3° 36.2	-3° 51.6	-4° 07.0	-4° 22.4	-4° 37.7	-4° 53.0	-5° 08.3	-5° 23.6	-5° 38.8	-5° 54.0	-15.3	58.5
Ср 24	322° 33.7	337° 04.5	351° 35.3	6° 06.1	20° 36.8	35° 07.5	49° 38.2	64° 08.8	78° 39.4	93° 09.9	107° 40.5	+30.7	15.9
	-9° 37.0	-9° 51.4	-10° 05.8	-10° 20.2	-10° 34.5	-10° 48.8	-11° 02.9	-11° 17.1	-11° 31.1	-11° 45.1	-11° 59.0	-14.2	58.2
Чт 25	325° 13.0	339° 42.8	354° 12.5	8° 42.2	23° 11.9	37° 41.5	52° 11.0	66° 40.5	81° 10.0	95° 39.4	110° 08.7	+29.6	15.7
	-15° 19.1	-15° 31.8	-15° 44.4	-15° 56.9	-16° 09.4	-16° 21.7	-16° 34.0	-16° 46.1	-16° 58.2	-17° 10.1	-17° 22.0	-12.3	57.7
Пт 26	327° 22.5	341° 51.0	356° 19.5	10° 47.9	25° 16.2	39° 44.5	54° 12.7	68° 40.9	83° 09.1	97° 37.2	112° 05.2	+28.3	15.6
	-20° 07.5	-20° 17.7	-20° 27.7	-20° 37.7	-20° 47.5	-20° 57.2	-21° 06.7	-21° 16.2	-21° 25.5	-21° 34.7	-21° 43.8	-9.6	57.3
Сб 27	329° 00.4	343° 27.7	357° 55.0	12° 22.3	26° 49.6	41° 16.8	55° 43.9	70° 11.1	84° 38.2	99° 05.3	113° 32.4	+27.2	15.5
	-23° 44.3	-23° 51.3	-23° 58.1	-24° 04.8	-24° 11.4	-24° 17.8	-24° 24.0	-24° 30.2	-24° 36.1	-24° 42.0	-24° 47.7	-6.3	56.7
● Вс 28	330° 15.8	344° 42.7	359° 09.4	13° 36.2	28° 03.0	42° 29.8	56° 56.6	71° 23.4	85° 50.2	100° 17.0	114° 43.9	+26.8	15.3
	-25° 55.7	-25° 59.0	-26° 02.2	-26° 05.3	-26° 08.2	-26° 10.9	-26° 13.6	-26° 16.0	-26° 18.3	-26° 20.5	-26° 22.5	-2.7	56.2
Пн 29	331° 28.1	345° 55.3	0° 22.5	14° 49.7	29° 17.0	43° 44.3	58° 11.6	72° 39.0	87° 06.4	101° 33.9	116° 01.4	+27.3	15.2
	-26° 34.9	-26° 34.5	-26° 34.0	-26° 33.4	-26° 32.6	-26° 31.7	-26° 30.6	-26° 29.4	-26° 28.0	-26° 26.5	-26° 24.9	+1.0	55.6
Вт 30	333° 00.3	347° 28.7	1° 57.1	16° 25.6	30° 54.2	45° 22.9	59° 51.6	74° 20.4	88° 49.2	103° 18.1	117° 47.1	+28.7	15.0
	-25° 43.8	-25° 40.0	-25° 36.1	-25° 32.0	-25° 27.8	-25° 23.5	-25° 19.1	-25° 14.5	-25° 09.8	-25° 05.0	-25° 00.1	+4.4	55.1

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 6 08h00 — Полнолуние: 14 03h25 — Последняя четв.: 21 00h48 — Новолуние: 28 03h24

СОЛНЦЕ

Декабрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	272° 47.5	287° 47.3	302° 47.0	317° 46.8	332° 46.6	347° 46.3	2° 46.1	17° 45.9	32° 45.6	47° 45.4	62° 45.2	77° 44.9	-0.2
	-21° 46.0	-21° 46.4	-21° 46.8	-21° 47.2	-21° 47.6	-21° 48.0	-21° 48.3	-21° 48.7	-21° 49.1	-21° 49.5	-21° 49.9	-21° 50.3	-0.4
Чт 2	272° 41.9	287° 41.6	302° 41.4	317° 41.2	332° 40.9	347° 40.7	2° 40.4	17° 40.2	32° 40.0	47° 39.7	62° 39.5	77° 39.2	-0.2
	-21° 55.2	-21° 55.6	-21° 56.0	-21° 56.3	-21° 56.7	-21° 57.1	-21° 57.5	-21° 57.8	-21° 58.2	-21° 58.6	-21° 58.9	-21° 59.3	-0.4
Пт 3	272° 36.1	287° 35.8	302° 35.6	317° 35.3	332° 35.1	347° 34.8	2° 34.6	17° 34.4	32° 34.1	47° 33.9	62° 33.6	77° 33.4	-0.2
	-22° 04.0	-22° 04.4	-22° 04.7	-22° 05.1	-22° 05.4	-22° 05.8	-22° 06.1	-22° 06.5	-22° 06.8	-22° 07.2	-22° 07.5	-22° 07.9	-0.4
Сб 4	272° 30.1	287° 29.9	302° 29.6	317° 29.4	332° 29.1	347° 28.9	2° 28.6	17° 28.4	32° 28.1	47° 27.9	62° 27.6	77° 27.4	-0.3
	-22° 12.4	-22° 12.7	-22° 13.0	-22° 13.4	-22° 13.7	-22° 14.0	-22° 14.4	-22° 14.7	-22° 15.1	-22° 15.4	-22° 15.7	-22° 16.0	-0.3
Вс 5	272° 24.1	287° 23.8	302° 23.5	317° 23.3	332° 23.0	347° 22.8	2° 22.5	17° 22.3	32° 22.0	47° 21.7	62° 21.5	77° 21.2	-0.3
	-22° 20.3	-22° 20.6	-22° 20.9	-22° 21.3	-22° 21.6	-22° 21.9	-22° 22.2	-22° 22.5	-22° 22.8	-22° 23.2	-22° 23.5	-22° 23.8	-0.3
Пн 6	272° 17.8	287° 17.6	302° 17.3	317° 17.1	332° 16.8	347° 16.5	2° 16.3	17° 16.0	32° 15.7	47° 15.5	62° 15.2	77° 14.9	-0.3
	-22° 27.8	-22° 28.1	-22° 28.4	-22° 28.7	-22° 29.0	-22° 29.3	-22° 29.6	-22° 29.9	-22° 30.2	-22° 30.5	-22° 30.8	-22° 31.1	-0.3
Вт 7	272° 11.5	287° 11.2	302° 11.0	317° 10.7	332° 10.4	347° 10.2	2° 09.9	17° 09.6	32° 09.3	47° 09.1	62° 08.8	77° 08.5	-0.3
	-22° 34.8	-22° 35.1	-22° 35.4	-22° 35.7	-22° 36.0	-22° 36.3	-22° 36.5	-22° 36.8	-22° 37.1	-22° 37.4	-22° 37.7	-22° 37.9	-0.3
Ср 8	272° 05.0	287° 04.8	302° 04.5	317° 04.2	332° 03.9	347° 03.7	2° 03.4	17° 03.1	32° 02.8	47° 02.6	62° 02.3	77° 02.0	-0.3
	-22° 41.5	-22° 41.7	-22° 42.0	-22° 42.3	-22° 42.5	-22° 42.8	-22° 43.0	-22° 43.3	-22° 43.6	-22° 43.8	-22° 44.1	-22° 44.3	-0.3
Чт 9	271° 58.4	286° 58.2	301° 57.9	316° 57.6	331° 57.3	346° 57.1	1° 56.8	16° 56.5	31° 56.2	46° 55.9	61° 55.7	76° 55.4	-0.3
	-22° 47.6	-22° 47.9	-22° 48.1	-22° 48.4	-22° 48.6	-22° 48.9	-22° 49.1	-22° 49.3	-22° 49.6	-22° 49.8	-22° 50.1	-22° 50.3	-0.2
Пт 10	271° 51.8	286° 51.5	301° 51.2	316° 50.9	331° 50.6	346° 50.3	1° 50.1	16° 49.8	31° 49.5	46° 49.2	61° 48.9	76° 48.7	-0.3
	-22° 53.4	-22° 53.6	-22° 53.8	-22° 54.0	-22° 54.3	-22° 54.5	-22° 54.7	-22° 54.9	-22° 55.2	-22° 55.4	-22° 55.6	-22° 55.8	-0.2
Сб 11	271° 45.0	286° 44.7	301° 44.4	316° 44.1	331° 43.8	346° 43.5	1° 43.2	16° 43.0	31° 42.7	46° 42.4	61° 42.1	76° 41.8	-0.3
	-22° 58.6	-22° 58.8	-22° 59.0	-22° 59.3	-22° 59.5	-22° 59.7	-22° 59.9	-23° 00.1	-23° 00.3	-23° 00.5	-23° 00.7	-23° 00.9	-0.2
Вс 12	271° 38.1	286° 37.8	301° 37.5	316° 37.2	331° 36.9	346° 36.6	1° 36.3	16° 36.0	31° 35.8	46° 35.5	61° 35.2	76° 34.9	-0.3
	-23° 03.4	-23° 03.6	-23° 03.8	-23° 04.0	-23° 04.2	-23° 04.4	-23° 04.6	-23° 04.8	-23° 05.0	-23° 05.1	-23° 05.3	-23° 05.5	-0.2
Пн 13	271° 31.1	286° 30.8	301° 30.5	316° 30.2	331° 29.9	346° 29.6	1° 29.3	16° 29.0	31° 28.8	46° 28.5	61° 28.2	76° 27.9	-0.3
	-23° 07.8	-23° 08.0	-23° 08.2	-23° 08.3	-23° 08.5	-23° 08.7	-23° 08.8	-23° 09.0	-23° 09.2	-23° 09.3	-23° 09.5	-23° 09.7	-0.2
Вт 14	271° 24.0	286° 23.7	301° 23.4	316° 23.1	331° 22.9	346° 22.6	1° 22.3	16° 22.0	31° 21.7	46° 21.4	61° 21.1	76° 20.8	-0.3
	-23° 11.7	-23° 11.9	-23° 12.0	-23° 12.2	-23° 12.3	-23° 12.5	-23° 12.6	-23° 12.8	-23° 12.9	-23° 13.1	-23° 13.2	-23° 13.4	-0.1
Ср 15	271° 16.9	286° 16.6	301° 16.3	316° 16.0	331° 15.7	346° 15.4	1° 15.1	16° 14.8	31° 14.5	46° 14.2	61° 13.9	76° 13.6	-0.3
	-23° 15.2	-23° 15.3	-23° 15.4	-23° 15.6	-23° 15.7	-23° 15.8	-23° 16.0	-23° 16.1	-23° 16.2	-23° 16.3	-23° 16.5	-23° 16.6	-0.1
Чт 16	271° 09.7	286° 09.4	301° 09.1	316° 08.8	331° 08.5	346° 08.2	1° 07.9	16° 07.6	31° 07.3	46° 07.0	61° 06.7	76° 06.4	-0.3
	-23° 18.1	-23° 18.3	-23° 18.4	-23° 18.5	-23° 18.6	-23° 18.7	-23° 18.8	-23° 18.9	-23° 19.0	-23° 19.1	-23° 19.3	-23° 19.4	-0.1
Пт 17	271° 02.4	286° 02.1	301° 01.8	316° 01.5	331° 01.2	346° 00.9	1° 00.6	16° 00.3	31° 00.0	45° 59.7	60° 59.4	75° 59.1	-0.3
	-23° 20.7	-23° 20.8	-23° 20.9	-23° 20.9	-23° 21.0	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.5	-23° 21.6	-23° 21.7	-0.1
Сб 18	270° 55.1	285° 54.8	300° 54.5	315° 54.2	330° 53.9	345° 53.6	0° 53.3	15° 53.0	30° 52.7	45° 52.4	60° 52.1	75° 51.7	-0.3
	-23° 22.7	-23° 22.8	-23° 22.9	-23° 22.9	-23° 23.0	-23° 23.1	-23° 23.2	-23° 23.2	-23° 23.3	-23° 23.4	-23° 23.4	-23° 23.5	-0.1
Вс 19	270° 47.8	285° 47.4	300° 47.1	315° 46.8	330° 46.5	345° 46.2	0° 45.9	15° 45.6	30° 45.3	45° 45.0	60° 44.7	75° 44.4	-0.3
	-23° 24.3	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-23° 24.7	-23° 24.7	-23° 24.8	-23° 24.8	-23° 24.9	-0.1
Пн 20	270° 40.3	285° 40.0	300° 39.7	315° 39.4	330° 39.1	345° 38.8	0° 38.5	15° 38.2	30° 37.9	45° 37.6	60° 37.3	75° 36.9	-0.3
	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.8	-0.0
Вт 21	270° 32.9	285° 32.6	300° 32.3	315° 32.0	330° 31.7	345° 31.4	0° 31.0	15° 30.7	30° 30.4	45° 30.1	60° 29.8	75° 29.5	-0.3
	-23° 26.0	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-0.0
Ср 22	270° 25.5	285° 25.1	300° 24.8	315° 24.5	330° 24.2	345° 23.9	0° 23.6	15° 23.3	30° 23.0	45° 22.7	60° 22.3	75° 22.0	-0.3
	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.1	+0.0
Чт 23	270° 18.0	285° 17.7	300° 17.4	315° 17.0	330° 16.7	345° 16.4	0° 16.1	15° 15.8	30° 15.5	45° 15.2	60° 14.9	75° 14.6	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.6	+0.0
Пт 24	270° 10.5	285° 10.2	300° 09.9	315° 09.6	330° 09.3	345° 08.9	0° 08.6	15° 08.3	30° 08.0	45° 07.7	60° 07.4	75° 07.1	-0.3
	-23° 25.1	-23° 25.1	-23° 25.1	-23° 25.0	-23° 25.0	-23° 24.9	-23° 24.9	-23° 24.8	-23° 24.8	-23° 24.7	-23° 24.7	-23° 24.6	+0.0
Сб 25	270° 03.0	285° 02.7	300° 02.4	315° 02.1	330° 01.8	345° 01.5	0° 01.2	15° 00.9	30° 00.6	45° 00.2	59° 59.9	74° 59.6	-0.3
	-23° 23.9	-23° 23.8	-23° 23.8	-23° 23.7	-23° 23.6	-23° 23.6	-23° 23.5	-23° 23.5	-23° 23.4	-23° 23.3	-23° 23.2	-23° 23.2	+0.1
Вс 26	269° 55.6	284° 55.3	299° 55.0	314° 54.7	329° 54.3	344° 54.0	359° 53.7	14° 53.4	29° 53.1	44° 52.8	59° 52.5	74° 52.2	-0.3
	-23° 22.2	-23° 22.1	-23° 22.0	-23° 21.9	-23° 21.9	-23° 21.8	-23° 21.7	-23° 21.6	-23° 21.5	-23° 21.4	-23° 21.3	-23° 21.2	+0.1
Пн 27	269° 48.2	284° 47.8	299° 47.5	314° 47.2	329° 46.9	344° 46.6	359° 46.3	14° 46.0	29° 45.7	44° 45.4	59° 45.1	74° 44.8	-0.3
	-23° 20.0	-23° 19.9	-23° 19.8	-23° 19.7	-23° 19.6	-23° 19.5	-23° 19.4	-23° 19.3	-23° 19.2	-23° 19.1	-23° 19.0	-23° 18.8	+0.1
Вт 28	269° 40.8	284° 40.5	299° 40.1	314° 39.8	329° 39.5	344° 39.2	359° 38.9	14° 38.6	29° 38.3	44° 38.0	59° 37.7	74° 37.4	-0.3
	-23° 17.4	-23° 17.2	-23° 17.1	-23° 17.0	-23° 16.9	-23° 16.7	-23° 16.6	-23° 16.5	-23° 16.4	-23° 16.2	-23° 16.1	-23° 16.0	+0.1
Ср 29	269° 33.4	284° 33.1	299° 32.8	314° 32.5	329° 32.2	344° 31.9	359° 31.6	14° 31.3	29° 31.0	44° 30.7	59° 30.4	74° 30.1	-0.3
	-23° 14.2	-23° 14.1	-23° 13.9	-23° 13.8	-23° 13.7	-23° 13.5	-23° 13.4	-23° 13.2	-23° 13.1	-23° 12.9	-23° 12.8	-23° 12.6	+0.1
Чт 30	269° 26.1	284° 25.8	299° 25.5	314° 25.2	329° 24.9	344° 24.6	359° 24.3	14° 24.0	29° 23.7	44° 23.4	59° 23.1	74° 22.8	-0.3
	-23° 10.6	-23° 10.5	-23° 10.3	-23° 10.2	-23° 10.0	-23° 09.8	-23° 09.7	-23° 09.5	-23° 09.3	-23° 09.2	-23° 09.0	-23° 08.8	+0.2
Пт 31	269° 18.9	284° 18.6	299° 18.3	314° 18.0	329° 17.7	344° 17.4	359° 17.1	14° 16.8	29° 16.5	44° 16.2	59° 15.9	74° 15.6	-0.3
	-23° 06.6	-23° 06.4	-23° 06.2	-23° 06.1	-23° 05.9	-23° 05.7	-23° 05.5	-23° 05.3	-23° 05.1	-23° 05.0	-23° 04.8	-23° 04.6	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Декабрь 2027

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	R/p
Ср 1	248° 11.3 -24° 10.3	262° 41.1 -24° 04.2	277° 10.9 -23° 58.0	291° 40.7 -23° 51.7	306° 10.7 -23° 45.3	320° 40.7 -23° 38.7	335° 10.8 -23° 32.1	349° 41.0 -23° 25.3	4° 11.3 -23° 18.5	18° 41.6 -23° 11.5	33° 12.0 -23° 04.4	+30.1 +6.6	14.9 54.7
Чт 2	250° 57.6 -21° 06.5	265° 29.3 -20° 57.9	280° 01.0 -20° 49.2	294° 32.8 -20° 40.4	309° 04.7 -20° 31.5	323° 36.7 -20° 22.6	338° 08.7 -20° 13.6	352° 40.8 -20° 04.4	7° 13.0 -19° 55.2	21° 45.3 -19° 46.0	36° 17.6 -19° 36.6	+32.0 +9.0	14.8 54.4
Пт 3	254° 31.0 -17° 07.2	269° 04.4 -16° 56.7	283° 37.9 -16° 46.1	298° 11.5 -16° 35.5	312° 45.1 -16° 24.8	327° 18.8 -16° 14.0	341° 52.5 -16° 03.2	356° 26.3 -15° 52.3	11° 00.2 -15° 41.3	25° 34.1 -15° 30.3	40° 08.1 -15° 19.2	+33.7 +10.8	14.8 54.2
Сб 4	258° 44.0 -12° 26.6	273° 18.8 -12° 14.7	287° 53.6 -12° 02.7	302° 28.5 -11° 50.7	317° 03.4 -11° 38.7	331° 38.3 -11° 26.6	346° 13.3 -11° 14.4	0° 48.3 -11° 02.3	15° 23.4 -10° 50.1	29° 58.5 -10° 37.8	44° 33.6 -10° 25.5	+35.0 +12.1	14.8 54.1
Вс 5	263° 24.0 -7° 16.7	277° 59.6 -7° 03.8	292° 35.1 -6° 50.9	307° 10.7 -6° 38.0	321° 46.3 -6° 25.1	336° 21.9 -6° 12.1	350° 57.5 -5° 59.1	5° 33.2 -5° 46.1	20° 08.8 -5° 33.1	34° 44.5 -5° 20.0	49° 20.2 -5° 06.9	+35.6 +13.0	14.8 54.3
◐ Пн 6	268° 15.5 -1° 48.0	282° 51.2 -1° 34.6	297° 26.8 -1° 21.2	312° 02.5 -1° 07.8	326° 38.1 -0° 54.3	341° 13.7 -0° 40.9	355° 49.3 -0° 27.4	10° 24.9 -0° 14.0	25° 00.5 -0° 00.5	39° 36.0 0° 13.0	54° 11.5 0° 26.5	+35.6 +13.5	14.9 54.6
Вт 7	273° 01.4 3° 49.5	287° 36.4 4° 03.0	302° 11.4 4° 16.6	316° 46.4 4° 30.1	331° 21.4 4° 43.6	345° 56.3 4° 57.1	0° 31.1 5° 10.6	15° 05.9 5° 24.2	29° 40.7 5° 37.6	44° 15.4 5° 51.1	58° 50.1 6° 04.6	+34.9 +13.5	15.0 55.1
Ср 8	277° 23.3 9° 25.0	291° 57.0 9° 38.2	306° 30.7 9° 51.3	321° 04.3 10° 04.5	335° 37.8 10° 17.6	350° 11.2 10° 30.7	4° 44.5 10° 43.8	19° 17.8 10° 56.8	33° 51.0 11° 09.8	48° 24.2 11° 22.8	62° 57.2 11° 35.7	+33.4 +13.1	15.2 55.8
Чт 9	281° 02.7 14° 44.9	295° 34.3 14° 57.1	310° 05.9 15° 09.3	324° 37.3 15° 21.4	339° 08.6 15° 33.5	353° 39.9 15° 45.5	8° 11.0 15° 57.5	22° 42.1 16° 09.4	37° 13.0 16° 21.2	51° 43.8 16° 33.0	66° 14.5 16° 44.7	+31.2 +12.0	15.4 56.6
Пт 10	283° 42.2 19° 31.4	298° 11.2 19° 41.9	312° 40.0 19° 52.2	327° 08.7 20° 02.5	341° 37.3 20° 12.7	356° 05.8 20° 22.8	10° 34.1 20° 32.8	25° 02.4 20° 42.7	39° 30.5 20° 52.5	53° 58.5 21° 02.2	68° 26.3 21° 11.7	+28.4 +10.0	15.7 57.4
Сб 11	285° 10.3 23° 21.9	299° 36.3 23° 29.5	314° 02.2 23° 37.1	328° 27.9 23° 44.5	342° 53.6 23° 51.8	357° 19.1 23° 59.0	11° 44.6 24° 06.0	26° 09.9 24° 12.8	40° 35.1 24° 19.5	55° 00.2 24° 26.1	69° 25.2 24° 32.6	+25.5 +7.1	15.9 58.3
Вс 12	285° 28.0 25° 50.4	299° 51.4 25° 54.3	314° 14.8 25° 58.0	328° 38.1 26° 01.6	343° 01.3 26° 05.0	357° 24.4 26° 08.1	11° 47.5 26° 11.2	26° 10.5 26° 14.0	40° 33.4 26° 16.7	54° 56.3 26° 19.2	69° 19.1 26° 21.5	+23.1 +3.1	16.1 59.1
○ Пн 13	284° 55.1 26° 34.0	299° 17.2 26° 33.3	313° 39.3 26° 32.4	328° 01.4 26° 31.4	342° 23.4 26° 30.1	356° 45.5 26° 28.7	11° 07.5 26° 27.1	25° 29.6 26° 25.3	39° 51.6 26° 23.3	54° 13.7 26° 21.1	68° 35.7 26° 18.7	+22.1 -1.5	16.3 59.7
Вт 14	284° 08.5 25° 20.2	298° 30.9 25° 14.8	312° 53.4 25° 09.3	327° 15.9 25° 03.5	341° 38.5 24° 57.6	356° 01.2 24° 51.5	10° 23.9 24° 45.2	24° 46.6 24° 38.7	39° 09.4 24° 32.1	53° 32.3 24° 25.3	67° 55.2 24° 18.3	+22.7 -6.2	16.4 60.0
Ср 15	283° 47.9 22° 13.6	298° 12.1 22° 04.1	312° 36.3 21° 54.3	327° 00.7 21° 44.5	341° 25.1 21° 34.5	355° 49.6 21° 24.3	10° 14.2 21° 14.0	24° 38.9 21° 03.6	39° 03.7 20° 53.0	53° 28.6 20° 42.3	67° 53.5 20° 31.5	+24.6 -10.2	16.4 60.2
Чт 16	284° 19.6 17° 33.9	298° 46.1 17° 21.1	313° 12.7 17° 08.3	327° 39.4 16° 55.3	342° 06.2 16° 42.3	356° 33.1 16° 29.2	11° 00.0 16° 15.9	25° 27.1 16° 02.6	39° 54.3 15° 49.2	54° 21.5 15° 35.6	68° 48.9 15° 22.0	+26.9 -13.2	16.4 60.1
Пт 17	285° 49.6 11° 48.7	300° 18.3 11° 33.9	314° 47.1 11° 19.1	329° 16.0 11° 04.3	343° 45.0 10° 49.3	358° 14.0 10° 34.4	12° 43.1 10° 19.3	27° 12.3 10° 04.3	41° 41.5 9° 49.2	56° 10.8 9° 34.0	70° 40.2 9° 18.8	+29.1 -15.0	16.3 59.8
Сб 18	300° 18.3 11° 33.9	314° 47.1 11° 19.1	329° 16.0 11° 04.3	343° 45.0 10° 49.3	358° 14.0 10° 34.4	12° 43.1 10° 19.3	27° 12.3 10° 04.3	41° 41.5 9° 49.2	56° 10.8 9° 34.0	70° 40.2 9° 18.8	85° 09.7 9° 03.5	+29.1 -15.0	16.3 59.7
Вс 19	302° 38.9 5° 11.0	317° 09.3 4° 55.3	331° 39.7 4° 39.6	346° 10.2 4° 23.9	0° 40.7 4° 08.1	15° 11.3 3° 52.4	29° 41.9 3° 36.6	44° 12.6 3° 20.9	58° 43.3 3° 05.1	73° 14.0 2° 49.4	87° 44.8 2° 33.6	+30.6 -15.7	16.2 59.3
◑ Пн 20	305° 30.1 -1° 22.3	320° 01.3 -1° 38.0	334° 32.5 -1° 53.6	349° 03.7 -2° 09.1	3° 35.0 -2° 24.7	18° 06.2 -2° 40.2	32° 37.5 -2° 55.8	47° 08.8 -3° 11.2	61° 40.1 -3° 26.7	76° 11.4 -3° 42.1	90° 42.7 -3° 57.5	+31.3 -15.5	16.0 58.7
Вт 21	308° 32.1 -7° 44.1	323° 03.4 -7° 58.9	337° 34.6 -8° 13.6	352° 05.8 -8° 28.2	6° 37.0 -8° 42.8	21° 08.2 -8° 57.4	35° 39.3 -9° 11.9	50° 10.5 -9° 26.3	64° 41.6 -9° 40.7	79° 12.7 -9° 55.0	93° 43.8 -10° 09.2	+31.2 -14.5	15.9 58.2
Ср 22	311° 26.7 -13° 35.3	325° 57.3 -13° 48.4	340° 27.9 -14° 01.5	354° 58.4 -14° 14.5	9° 28.9 -14° 27.4	23° 59.3 -14° 40.2	38° 29.8 -14° 53.0	53° 00.1 -15° 05.7	67° 30.5 -15° 18.3	82° 00.8 -15° 30.8	96° 31.0 -15° 43.2	+30.4 -12.8	15.7 57.6
Чт 23	313° 59.5 -18° 38.3	328° 29.0 -18° 49.2	342° 58.5 -19° 00.0	357° 27.9 -19° 10.6	11° 57.3 -19° 21.2	26° 26.7 -19° 31.7	40° 55.9 -19° 42.0	55° 25.2 -19° 52.3	69° 54.4 -20° 02.4	84° 23.5 -20° 12.4	98° 52.6 -20° 22.3	+29.3 -10.4	15.6 57.0
Пт 24	316° 03.2 -22° 37.0	330° 31.5 -22° 45.0	344° 59.8 -22° 52.9	359° 28.1 -23° 00.7	13° 56.3 -23° 08.3	28° 24.5 -23° 15.8	42° 52.6 -23° 23.2	57° 20.7 -23° 30.4	71° 48.7 -23° 37.5	86° 16.7 -23° 44.5	100° 44.7 -23° 51.3	+28.1 -7.4	15.4 56.5
Сб 25	317° 40.1 -25° 17.7	332° 07.6 -25° 22.3	346° 35.0 -25° 26.8	1° 02.4 -25° 31.2	15° 29.8 -25° 35.4	29° 57.2 -25° 39.5	44° 24.6 -25° 43.4	58° 51.9 -25° 47.2	73° 19.3 -25° 50.9	87° 46.6 -25° 54.4	102° 13.9 -25° 57.8	+27.4 -4.0	15.3 56.0
Вс 26	319° 03.1 -26° 30.9	333° 30.4 -26° 32.0	347° 57.7 -26° 32.9	2° 25.0 -26° 33.7	16° 52.4 -26° 34.3	31° 19.7 -26° 34.8	45° 47.1 -26° 35.3	60° 14.5 -26° 35.3	74° 41.9 -26° 35.3	89° 09.4 -26° 35.0	103° 36.8 -26° 35.0	+27.4 -0.4	15.1 55.5
● Пн 27	320° 32.5 -26° 14.5	335° 00.5 -26° 12.0	349° 28.6 -26° 09.4	3° 56.7 -26° 06.7	18° 24.8 -26° 03.8	32° 53.1 -26° 00.8	47° 21.3 -25° 57.6	61° 49.6 -25° 54.4	76° 18.0 -25° 51.0	90° 46.4 -25° 47.4	105° 14.9 -25° 43.8	+28.2 +3.1	15.0 55.1
Вт 28	322° 29.1 -24° 33.7	336° 58.6 -24° 28.0	351° 28.1 -24° 22.3	5° 57.7 -24° 16.4	20° 27.4 -24° 10.4	34° 57.1 -24° 04.3	49° 26.9 -23° 58.1	63° 56.8 -23° 51.8	78° 26.7 -23° 45.4	92° 56.8 -23° 38.8	107° 26.9 -23° 32.2	+29.8 +6.2	14.9 54.7
Ср 29	325° 07.2 -21° 39.9	339° 38.4 -21° 31.7	354° 09.8 -21° 23.3	8° 41.2 -21° 14.9	23° 12.7 -21° 06.3	37° 44.3 -20° 57.7	52° 16.0 -20° 49.0	66° 47.7 -20° 40.2	81° 19.5 -20° 31.3	95° 51.4 -20° 22.3	110° 23.3 -20° 13.3	+31.6 +8.7	14.8 54.4
Чт 30	328° 31.2 -17° 47.8	343° 04.3 -17° 37.6	357° 37.5 -17° 27.2	12° 10.7 -17° 16.8	26° 44.0 -17° 06.3	41° 17.3 -16° 55.7	55° 50.7 -16° 45.1	70° 24.2 -16° 34.4	84° 57.8 -16° 23.7	99° 31.4 -16° 12.9	114° 05.0 -16° 02.0	+33.4 +10.6	14.8 54.1
Пт 31	332° 37.1 -13° 12.2	347° 11.7 -13° 00.4	1° 46.3 -12° 48.7	16° 21.0 -12° 36.8	30° 55.7 -12° 25.0	45° 30.4 -12° 13.0	60° 05.3 -12° 01.1	74° 40.1 -11° 49.1	89° 15.0 -11° 37.0	103° 50.0 -11° 24.9	118° 25.0 -11° 12.8	+34.8 +11.9	14.7 54.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Первая четв.: 6 05h22 — Полнолуние: 13 16h08 — Последняя четв.: 20 09h10 — Новолуние: 27 20h12

СОЛНЦЕ

Январь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 11.7	284° 11.4	299° 11.1	314° 10.8	329° 10.5	344° 10.2	359° 09.9	14° 09.6	29° 09.3	44° 09.0	59° 08.7	74° 08.5	-0.3
	-23° 02.1	-23° 01.9	-23° 01.7	-23° 01.5	-23° 01.3	-23° 01.1	-23° 00.9	-23° 00.7	-23° 00.5	-23° 00.3	-23° 00.1	-22° 59.9	+0.2
Вс 2	269° 04.6	284° 04.3	299° 04.0	314° 03.7	329° 03.5	344° 03.2	359° 02.9	14° 02.6	29° 02.3	44° 02.0	59° 01.7	74° 01.4	-0.3
	-22° 57.1	-22° 56.9	-22° 56.7	-22° 56.5	-22° 56.2	-22° 56.0	-22° 55.8	-22° 55.6	-22° 55.3	-22° 55.1	-22° 54.9	-22° 54.7	+0.2
Пн 3	268° 57.6	283° 57.3	298° 57.0	313° 56.8	328° 56.5	343° 56.2	358° 55.9	13° 55.6	28° 55.3	43° 55.0	58° 54.7	73° 54.4	-0.3
	-22° 51.7	-22° 51.4	-22° 51.2	-22° 51.0	-22° 50.7	-22° 50.5	-22° 50.3	-22° 50.0	-22° 49.8	-22° 49.5	-22° 49.3	-22° 49.0	+0.2
Вт 4	268° 50.7	283° 50.4	298° 50.2	313° 49.9	328° 49.6	343° 49.3	358° 49.0	13° 48.7	28° 48.4	43° 48.2	58° 47.9	73° 47.6	-0.3
	-22° 45.8	-22° 45.5	-22° 45.3	-22° 45.0	-22° 44.8	-22° 44.5	-22° 44.3	-22° 44.0	-22° 43.7	-22° 43.5	-22° 43.2	-22° 42.9	+0.3
Ср 5	268° 43.9	283° 43.6	298° 43.4	313° 43.1	328° 42.8	343° 42.5	358° 42.2	13° 42.0	28° 41.7	43° 41.4	58° 41.1	73° 40.8	-0.3
	-22° 39.5	-22° 39.2	-22° 38.9	-22° 38.6	-22° 38.4	-22° 38.1	-22° 37.8	-22° 37.5	-22° 37.2	-22° 37.0	-22° 36.7	-22° 36.4	+0.3
Чт 6	268° 37.2	283° 37.0	298° 36.7	313° 36.4	328° 36.1	343° 35.9	358° 35.6	13° 35.3	28° 35.0	43° 34.8	58° 34.5	73° 34.2	-0.3
	-22° 32.7	-22° 32.4	-22° 32.1	-22° 31.8	-22° 31.5	-22° 31.2	-22° 30.9	-22° 30.6	-22° 30.3	-22° 30.0	-22° 29.7	-22° 29.4	+0.3
Пт 7	268° 30.7	283° 30.4	298° 30.1	313° 29.8	328° 29.6	343° 29.3	358° 29.0	13° 28.8	28° 28.5	43° 28.2	58° 28.0	73° 27.7	-0.3
	-22° 25.4	-22° 25.1	-22° 24.8	-22° 24.5	-22° 24.2	-22° 23.9	-22° 23.6	-22° 23.3	-22° 22.9	-22° 22.6	-22° 22.3	-22° 22.0	+0.3
Сб 8	268° 24.2	283° 23.9	298° 23.7	313° 23.4	328° 23.1	343° 22.9	358° 22.6	13° 22.4	28° 22.1	43° 21.8	58° 21.6	73° 21.3	-0.3
	-22° 17.8	-22° 17.5	-22° 17.1	-22° 16.8	-22° 16.5	-22° 16.1	-22° 15.8	-22° 15.5	-22° 15.1	-22° 14.8	-22° 14.5	-22° 14.1	+0.3
Вс 9	268° 17.9	283° 17.6	298° 17.4	313° 17.1	328° 16.9	343° 16.6	358° 16.3	13° 16.1	28° 15.8	43° 15.6	58° 15.3	73° 15.0	-0.3
	-22° 09.7	-22° 09.3	-22° 09.0	-22° 08.6	-22° 08.3	-22° 07.9	-22° 07.6	-22° 07.2	-22° 06.9	-22° 06.5	-22° 06.2	-22° 05.8	+0.4
Пн 10	268° 11.7	283° 11.5	298° 11.2	313° 10.9	328° 10.7	343° 10.4	358° 10.2	13° 09.9	28° 09.7	43° 09.4	58° 09.2	73° 08.9	-0.3
	-22° 01.1	-22° 00.8	-22° 00.4	-22° 00.0	-21° 59.7	-21° 59.3	-21° 58.9	-21° 58.6	-21° 58.2	-21° 57.8	-21° 57.5	-21° 57.1	+0.4
Вт 11	268° 05.7	283° 05.4	298° 05.2	313° 04.9	328° 04.7	343° 04.4	358° 04.2	13° 03.9	28° 03.7	43° 03.4	58° 03.2	73° 02.9	-0.2
	-21° 52.2	-21° 51.8	-21° 51.4	-21° 51.0	-21° 50.6	-21° 50.2	-21° 49.9	-21° 49.5	-21° 49.1	-21° 48.7	-21° 48.3	-21° 47.9	+0.4
Ср 12	267° 59.8	282° 59.5	297° 59.3	312° 59.0	327° 58.8	342° 58.6	357° 58.3	12° 58.1	27° 57.8	42° 57.6	57° 57.4	72° 57.1	-0.2
	-21° 42.8	-21° 42.4	-21° 42.0	-21° 41.6	-21° 41.2	-21° 40.8	-21° 40.4	-21° 40.0	-21° 39.6	-21° 39.1	-21° 38.7	-21° 38.3	+0.4
Чт 13	267° 54.0	282° 53.8	297° 53.6	312° 53.3	327° 53.1	342° 52.9	357° 52.6	12° 52.4	27° 52.1	42° 51.9	57° 51.7	72° 51.4	-0.2
	-21° 33.0	-21° 32.5	-21° 32.1	-21° 31.7	-21° 31.3	-21° 30.9	-21° 30.4	-21° 30.0	-21° 29.6	-21° 29.2	-21° 28.8	-21° 28.3	+0.4
Пт 14	267° 48.4	282° 48.2	297° 48.0	312° 47.7	327° 47.5	342° 47.3	357° 47.1	12° 46.8	27° 46.6	42° 46.4	57° 46.2	72° 45.9	-0.2
	-21° 22.7	-21° 22.3	-21° 21.9	-21° 21.4	-21° 21.0	-21° 20.6	-21° 20.1	-21° 19.7	-21° 19.2	-21° 18.8	-21° 18.3	-21° 17.9	+0.4
Сб 15	267° 43.0	282° 42.8	297° 42.6	312° 42.3	327° 42.1	342° 41.9	357° 41.7	12° 41.4	27° 41.2	42° 41.0	57° 40.8	72° 40.6	-0.2
	-21° 12.1	-21° 11.6	-21° 11.2	-21° 10.7	-21° 10.3	-21° 09.8	-21° 09.4	-21° 08.9	-21° 08.5	-21° 08.0	-21° 07.5	-21° 07.1	+0.5
Вс 16	267° 37.7	282° 37.5	297° 37.3	312° 37.1	327° 36.9	342° 36.6	357° 36.4	12° 36.2	27° 36.0	42° 35.8	57° 35.6	72° 35.4	-0.2
	-21° 01.0	-21° 00.6	-21° 00.1	-20° 59.6	-20° 59.2	-20° 58.7	-20° 58.2	-20° 57.7	-20° 57.3	-20° 56.8	-20° 56.3	-20° 55.8	+0.5
Пн 17	267° 32.6	282° 32.4	297° 32.2	312° 32.0	327° 31.8	342° 31.6	357° 31.4	12° 31.2	27° 31.0	42° 30.7	57° 30.5	72° 30.3	-0.2
	-20° 49.6	-20° 49.1	-20° 48.6	-20° 48.1	-20° 47.6	-20° 47.2	-20° 46.7	-20° 46.2	-20° 45.7	-20° 45.2	-20° 44.7	-20° 44.2	+0.5
Вт 18	267° 27.7	282° 27.5	297° 27.3	312° 27.1	327° 26.9	342° 26.7	357° 26.5	12° 26.3	27° 26.1	42° 25.9	57° 25.7	72° 25.5	-0.2
	-20° 37.7	-20° 37.2	-20° 36.7	-20° 36.2	-20° 35.7	-20° 35.2	-20° 34.7	-20° 34.2	-20° 33.7	-20° 33.2	-20° 32.7	-20° 32.2	+0.5
Ср 19	267° 22.9	282° 22.7	297° 22.5	312° 22.3	327° 22.1	342° 21.9	357° 21.7	12° 21.6	27° 21.4	42° 21.2	57° 21.0	72° 20.8	-0.2
	-20° 25.5	-20° 25.0	-20° 24.5	-20° 23.9	-20° 23.4	-20° 22.9	-20° 22.4	-20° 21.8	-20° 21.3	-20° 20.8	-20° 20.3	-20° 19.8	+0.5
Чт 20	267° 18.3	282° 18.1	297° 17.9	312° 17.8	327° 17.6	342° 17.4	357° 17.2	12° 17.0	27° 16.8	42° 16.6	57° 16.5	72° 16.3	-0.2
	-20° 12.9	-20° 12.3	-20° 11.8	-20° 11.3	-20° 10.7	-20° 10.2	-20° 09.6	-20° 09.1	-20° 08.6	-20° 08.0	-20° 07.5	-20° 06.9	+0.5
Пт 21	267° 13.9	282° 13.7	297° 13.6	312° 13.4	327° 13.2	342° 13.0	357° 12.8	12° 12.7	27° 12.5	42° 12.3	57° 12.1	72° 12.0	-0.2
	-19° 59.8	-19° 59.3	-19° 58.7	-19° 58.2	-19° 57.6	-19° 57.1	-19° 56.5	-19° 56.0	-19° 55.4	-19° 54.9	-19° 54.3	-19° 53.8	+0.6
Сб 22	267° 09.7	282° 09.5	297° 09.3	312° 09.2	327° 09.0	342° 08.8	357° 08.7	12° 08.5	27° 08.3	42° 08.2	57° 08.0	72° 07.8	-0.2
	-19° 46.5	-19° 45.9	-19° 45.3	-19° 44.8	-19° 44.2	-19° 43.6	-19° 43.1	-19° 42.5	-19° 41.9	-19° 41.3	-19° 40.8	-19° 40.2	+0.6
Вс 23	267° 05.6	282° 05.5	297° 05.3	312° 05.2	327° 05.0	342° 04.8	357° 04.7	12° 04.5	27° 04.3	42° 04.2	57° 04.0	72° 03.9	-0.2
	-19° 32.7	-19° 32.1	-19° 31.5	-19° 31.0	-19° 30.4	-19° 29.8	-19° 29.2	-19° 28.6	-19° 28.0	-19° 27.4	-19° 26.9	-19° 26.3	+0.6
Пн 24	267° 01.8	282° 01.6	297° 01.5	312° 01.3	327° 01.2	342° 01.0	357° 00.9	12° 00.7	27° 00.6	42° 00.4	57° 00.3	72° 00.1	-0.2
	-19° 18.6	-19° 18.0	-19° 17.4	-19° 16.8	-19° 16.2	-19° 15.6	-19° 15.0	-19° 14.4	-19° 13.8	-19° 13.2	-19° 12.6	-19° 12.0	+0.6
Вт 25	266° 58.1	281° 58.0	296° 57.9	311° 57.7	326° 57.6	341° 57.4	356° 57.3	11° 57.1	26° 57.0	41° 56.8	56° 56.7	71° 56.5	-0.1
	-19° 04.1	-19° 03.5	-19° 02.9	-19° 02.3	-19° 01.7	-19° 01.0	-19° 00.4	-18° 59.8	-18° 59.2	-18° 58.6	-18° 58.0	-18° 57.4	+0.6
Ср 26	266° 54.7	281° 54.6	296° 54.4	311° 54.3	326° 54.1	341° 54.0	356° 53.9	11° 53.7	26° 53.6	41° 53.4	56° 53.3	71° 53.2	-0.1
	-18° 49.3	-18° 48.7	-18° 48.0	-18° 47.4	-18° 46.8	-18° 46.1	-18° 45.5	-18° 44.9	-18° 44.3	-18° 43.6	-18° 43.0	-18° 42.4	+0.6
Чт 27	266° 51.4	281° 51.3	296° 51.2	311° 51.0	326° 50.9	341° 50.8	356° 50.7	11° 50.5	26° 50.4	41° 50.3	56° 50.1	71° 50.0	-0.1
	-18° 34.1	-18° 33.5	-18° 32.8	-18° 32.2	-18° 31.5	-18° 30.9	-18° 30.3	-18° 29.6	-18° 29.0	-18° 28.3	-18° 27.7	-18° 27.0	+0.6
Пт 28	266° 48.4	281° 48.3	296° 48.1	311° 48.0	326° 47.9	341° 47.8	356° 47.6	11° 47.5	26° 47.4	41° 47.3	56° 47.2	71° 47.0	-0.1
	-18° 18.6	-18° 17.9	-18° 17.3	-18° 16.6	-18° 16.0	-18° 15.3	-18° 14.7	-18° 14.0	-18° 13.4	-18° 12.7	-18° 12.0	-18° 11.4	+0.7
Сб 29	266° 45.5	281° 45.4	296° 45.3	311° 45.2	326° 45.1	341° 45.0	356° 44.8	11° 44.7	26° 44.6	41° 44.5	56° 44.4	71° 44.3	-0.1
	-18° 02.8	-18° 02.1	-18° 01.4	-18° 00.8	-18° 00.1	-17° 59.4	-17° 58.8	-17° 58.1	-17° 57.4	-17° 56.7	-17° 56.1	-17° 55.4	+0.7
Вс 30	266° 42.9	281° 42.8	296° 42.7	311° 42.6	326° 42.5	341° 42.4	356° 42.3	11° 42.1	26° 42.0	41° 41.9	56° 41.8	71° 41.7	-0.1
	-17° 46.6	-17° 45.9	-17° 45.2	-17° 44.6	-17° 43.9	-17° 43.2	-17° 42.5	-17° 41.8	-17° 41.1	-17° 40.5	-17° 39.8	-17° 39.1	+0.7
Пн 31	266° 40.4	281° 40.3	296° 40.2	311° 40.2	326° 40.1	341° 40.0	356° 39.9	11° 39.8	26° 39.7	41° 39.6	56° 39.5	71° 39.4	-0.1
	-17° 30.1	-17° 29.4	-17° 28.7	-17° 28.0	-17° 27.3	-17° 26.7	-17° 26.0	-17° 25.3	-17° 24.6	-17° 23.9	-17° 23.2	-17° 22.5	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2028

Д	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	R/p
Сб 1	249° 41.7 -9° 21.9	264° 17.0 -9° 09.4	278° 52.4 -8° 56.8	293° 27.9 -8° 44.2	308° 03.4 -8° 31.6	322° 38.9 -8° 19.0	337° 14.4 -8° 06.4	351° 49.9 -7° 53.7	6° 25.5 -7° 40.9	21° 01.1 -7° 28.2	35° 36.8 -7° 15.4	+35.5 +12.6	14.7 54.0
Вс 2	254° 33.7 -4° 00.9	269° 09.6 -3° 47.8	283° 45.5 -3° 34.7	298° 21.4 -3° 21.5	312° 57.4 -3° 08.3	327° 33.3 -2° 55.2	342° 09.2 -2° 42.0	356° 45.2 -2° 28.7	11° 21.1 -2° 15.5	25° 57.0 -2° 02.3	40° 33.0 -1° 49.0	+35.9 +13.2	14.8 54.1
Пн 3	259° 31.3 1° 30.6	274° 07.1 1° 44.0	288° 42.8 1° 57.3	303° 18.6 2° 10.6	317° 54.3 2° 24.0	332° 30.0 2° 37.3	347° 05.7 2° 50.7	1° 41.3 3° 04.0	16° 16.9 3° 17.3	30° 52.5 3° 30.7	45° 28.1 3° 44.0	+35.7 +13.3	14.8 54.4
Вт 4	264° 17.4 7° 02.7	278° 52.4 7° 15.8	293° 27.3 7° 29.0	308° 02.1 7° 42.1	322° 37.0 7° 55.2	337° 11.7 8° 08.2	351° 46.4 8° 21.3	6° 21.1 8° 34.3	20° 55.6 8° 47.3	35° 30.2 9° 00.3	50° 04.7 9° 13.3	+34.7 +13.1	15.0 54.9
Ср 5	268° 34.0 12° 24.2	283° 07.4 12° 36.7	297° 40.7 12° 49.1	312° 13.9 13° 01.5	326° 47.1 13° 13.8	341° 20.2 13° 26.1	355° 53.1 13° 38.4	10° 26.1 13° 50.6	24° 58.9 14° 02.7	39° 31.6 14° 14.8	54° 04.2 14° 26.9	+33.0 +12.3	15.2 55.6
Чт 6	272° 02.7 17° 21.4	286° 33.8 17° 32.5	301° 04.8 17° 43.6	315° 35.7 17° 54.6	330° 06.5 18° 05.6	344° 37.2 18° 16.4	359° 07.7 18° 27.2	13° 38.2 18° 37.9	28° 08.5 18° 48.6	42° 38.8 18° 59.1	57° 08.9 19° 09.6	+30.6 +10.8	15.4 56.4
Пт 7	274° 27.1 21° 36.3	288° 55.3 21° 45.4	303° 23.5 21° 54.3	317° 51.5 22° 03.1	332° 19.4 22° 11.8	346° 47.2 22° 20.3	1° 14.9 22° 28.8	15° 42.4 22° 37.2	30° 09.8 22° 45.4	44° 37.1 22° 53.6	59° 04.3 23° 01.6	+27.7 +8.5	15.6 57.4
Сб 8	275° 37.7 24° 46.5	290° 03.0 24° 52.4	304° 28.2 24° 58.2	318° 53.2 25° 03.8	333° 18.2 25° 09.3	347° 43.0 25° 14.6	2° 07.8 25° 19.8	16° 32.4 25° 24.8	30° 56.9 25° 29.6	45° 21.4 25° 34.3	59° 45.7 25° 38.9	+24.8 +5.2	15.9 58.4
Вс 9	275° 39.2 26° 27.1	290° 02.1 26° 28.9	304° 24.9 26° 30.5	318° 47.7 26° 32.0	333° 10.3 26° 33.3	347° 33.0 26° 34.4	1° 55.5 26° 35.3	16° 18.0 26° 36.1	30° 40.5 26° 36.6	45° 02.8 26° 37.0	59° 25.2 26° 37.1	+22.6 +1.0	16.2 59.3
Пн 10	274° 55.5 26° 16.9	289° 17.4 26° 14.0	303° 39.2 26° 10.9	318° 01.0 26° 07.6	332° 22.8 26° 04.2	346° 44.7 26° 00.5	1° 06.5 25° 56.7	15° 28.3 25° 52.6	29° 50.1 25° 48.4	44° 12.0 25° 43.9	58° 33.9 25° 39.3	+21.8 -3.8	16.4 60.1
Вт 11	274° 05.2 24° 07.3	288° 27.6 23° 59.7	302° 50.1 23° 51.9	317° 12.6 23° 43.9	331° 35.2 23° 35.8	345° 57.8 23° 27.5	0° 20.5 23° 19.0	14° 43.3 23° 10.3	29° 06.1 23° 01.5	43° 29.0 22° 52.5	57° 52.0 22° 43.3	+22.7 -8.4	16.6 60.7
Ср 12	273° 45.6 20° 06.8	288° 09.8 19° 55.2	302° 34.2 19° 43.5	316° 58.6 19° 31.6	331° 23.1 19° 19.5	345° 47.6 19° 07.4	0° 12.3 18° 55.1	14° 37.1 18° 42.7	29° 01.9 18° 30.1	43° 26.9 18° 17.5	57° 51.9 18° 04.7	+24.6 -12.2	16.6 61.0
Чт 13	274° 18.3 14° 39.5	288° 44.8 14° 25.1	303° 11.4 14° 10.5	317° 38.0 13° 55.9	332° 04.8 13° 41.2	346° 31.6 13° 26.4	0° 58.5 13° 11.5	15° 25.5 12° 56.5	29° 52.6 12° 41.5	44° 19.8 12° 26.4	58° 47.0 12° 11.2	+26.9 -14.8	16.6 60.9
Пт 14	275° 45.3 8° 16.8	290° 13.7 8° 00.7	304° 42.3 7° 44.7	319° 10.9 7° 28.6	333° 39.6 7° 12.5	348° 08.3 6° 56.4	2° 37.1 6° 40.2	17° 06.0 6° 24.0	31° 34.9 6° 07.8	46° 03.9 5° 51.6	60° 32.9 5° 35.3	+28.8 -16.1	16.5 60.6
Сб 15	277° 54.8 1° 30.3	292° 24.7 1° 14.0	306° 54.5 0° 57.7	321° 24.4 0° 41.3	335° 54.4 0° 25.0	350° 24.3 0° 08.7	4° 54.3 -0° 07.5	19° 24.4 -0° 23.8	33° 54.4 -0° 40.0	48° 24.5 -0° 56.2	62° 54.7 -1° 12.4	+30.0 -16.3	16.3 59.9
Вс 16	280° 29.2 -5° 11.8	294° 59.6 -5° 27.4	309° 30.0 -5° 43.0	324° 00.5 -5° 58.6	338° 30.9 -6° 14.1	353° 01.4 -6° 29.6	7° 31.8 -6° 45.0	22° 02.3 -7° 00.3	36° 32.7 -7° 15.6	51° 03.2 -7° 30.9	65° 33.6 -7° 46.1	+30.5 -15.4	16.1 59.2
Пн 17	294° 59.6 -5° 27.4	309° 30.0 -5° 43.0	324° 00.5 -5° 58.6	338° 30.9 -6° 14.1	353° 01.4 -6° 29.6	7° 31.8 -6° 45.0	22° 02.3 -7° 00.3	36° 32.7 -7° 15.6	51° 03.2 -7° 30.9	65° 33.6 -7° 46.1	80° 04.1 -8° 01.2	+30.5 -15.4	16.1 59.2
Вт 18	297° 40.1 -11° 40.5	312° 10.4 -11° 54.5	326° 40.6 -12° 08.5	341° 10.9 -12° 22.4	355° 41.1 -12° 36.2	10° 11.4 -12° 50.0	24° 41.6 -13° 03.6	39° 11.7 -13° 17.2	53° 41.9 -13° 30.7	68° 12.0 -13° 44.1	82° 42.1 -13° 57.4	+30.2 -13.7	15.9 58.3
Ср 19	300° 10.4 -17° 06.3	314° 40.0 -17° 18.1	329° 09.6 -17° 29.8	343° 39.2 -17° 41.4	358° 08.7 -17° 52.9	12° 38.2 -18° 04.3	27° 07.7 -18° 15.6	41° 37.1 -18° 26.8	56° 06.5 -18° 37.9	70° 35.9 -18° 48.9	85° 05.2 -18° 59.7	+29.5 -11.3	15.7 57.5
Чт 20	302° 20.6 -21° 29.0	316° 49.3 -21° 38.1	331° 18.0 -21° 46.9	345° 46.7 -21° 55.7	0° 15.3 -22° 04.3	14° 43.9 -22° 12.9	29° 12.4 -22° 21.2	43° 40.9 -22° 29.5	58° 09.4 -22° 37.6	72° 37.8 -22° 45.7	87° 06.2 -22° 53.5	+28.6 -8.5	15.5 56.8
Пт 21	304° 08.7 -24° 36.1	318° 36.6 -24° 41.8	333° 04.5 -24° 47.5	347° 32.4 -24° 53.0	2° 00.3 -24° 58.3	16° 28.1 -25° 03.5	30° 55.9 -25° 08.6	45° 23.8 -25° 13.6	59° 51.5 -25° 18.4	74° 19.3 -25° 23.0	88° 47.1 -25° 27.5	+27.8 -5.1	15.3 56.1
Сб 22	305° 42.2 -26° 18.5	320° 09.8 -26° 20.8	334° 37.4 -26° 22.9	349° 05.1 -26° 24.9	3° 32.7 -26° 26.7	18° 00.4 -26° 28.4	32° 28.0 -26° 30.0	46° 55.7 -26° 31.4	61° 23.4 -26° 32.7	75° 51.1 -26° 33.8	90° 18.8 -26° 34.8	+27.7 -1.6	15.1 55.5
Вс 23	307° 16.5 -26° 32.9	321° 44.6 -26° 31.6	336° 12.7 -26° 30.2	350° 40.8 -26° 28.7	5° 09.0 -26° 27.1	19° 37.2 -26° 25.3	34° 05.4 -26° 23.4	48° 33.7 -26° 21.3	63° 02.0 -26° 19.1	77° 30.3 -26° 16.8	91° 58.7 -26° 14.4	+28.2 +1.9	15.0 55.0
Пн 24	309° 10.3 -25° 22.0	323° 39.4 -25° 17.5	338° 08.7 -25° 12.9	352° 38.0 -25° 08.1	7° 07.4 -25° 03.3	21° 36.8 -24° 58.3	36° 06.2 -24° 53.2	50° 35.8 -24° 48.0	65° 05.4 -24° 42.6	79° 35.0 -24° 37.2	94° 04.8 -24° 31.6	+29.4 +5.0	14.9 54.6
Вт 25	311° 38.4 -22° 54.7	326° 09.2 -22° 47.4	340° 40.1 -22° 40.0	355° 11.0 -22° 32.5	9° 42.0 -22° 24.9	24° 13.0 -22° 17.1	38° 44.1 -22° 09.3	53° 15.3 -22° 01.4	67° 46.6 -21° 53.4	82° 17.9 -21° 45.3	96° 49.3 -21° 37.1	+31.1 +7.8	14.8 54.3
Ср 26	314° 48.7 -19° 23.6	329° 21.2 -19° 14.1	343° 53.7 -19° 04.4	358° 26.4 -18° 54.7	12° 59.1 -18° 44.9	27° 31.8 -18° 35.0	42° 04.6 -18° 25.1	56° 37.5 -18° 15.1	71° 10.5 -18° 05.0	85° 43.5 -17° 54.8	100° 16.6 -17° 44.5	+32.8 +9.9	14.7 54.1
Чт 27	318° 40.3 -15° 03.0	333° 14.4 -14° 51.8	347° 48.5 -14° 40.5	2° 22.6 -14° 29.1	16° 56.8 -14° 17.7	31° 31.1 -14° 06.2	46° 05.4 -13° 54.7	60° 39.8 -13° 43.1	75° 14.2 -13° 31.5	89° 48.7 -13° 19.8	104° 23.2 -13° 08.1	+34.3 +11.5	14.7 53.9
Пт 28	323° 06.4 -10° 06.9	337° 41.6 -9° 54.5	352° 16.9 -9° 42.0	6° 52.1 -9° 29.5	21° 27.5 -9° 17.0	36° 02.8 -9° 04.5	50° 38.2 -8° 51.9	65° 13.6 -8° 39.3	79° 49.1 -8° 26.7	94° 24.5 -8° 14.0	109° 00.1 -8° 01.3	+35.4 +12.6	14.7 53.9
Сб 29	327° 55.7 -4° 47.9	342° 31.6 -4° 34.8	357° 07.4 -4° 21.8	11° 43.3 -4° 08.7	26° 19.2 -3° 55.5	40° 55.2 -3° 42.4	55° 31.1 -3° 29.3	70° 07.0 -3° 16.1	84° 43.0 -3° 02.9	99° 18.9 -2° 49.8	113° 54.9 -2° 36.6	+35.9 +13.1	14.7 54.0
Вс 30	332° 54.5 0° 42.2	347° 30.5 0° 55.5	2° 06.4 1° 08.8	16° 42.3 1° 22.1	31° 18.3 1° 35.4	45° 54.2 1° 48.7	60° 30.0 2° 01.9	75° 05.9 2° 15.2	89° 41.8 2° 28.5	104° 17.6 2° 41.7	118° 53.4 2° 55.0	+35.9 +13.3	14.8 54.1
Пн 31	337° 47.9 6° 12.7	352° 23.3 6° 25.8	6° 58.6 6° 38.8	21° 34.0 6° 51.9	36° 09.2 7° 04.9	50° 44.5 7° 17.9	65° 19.7 7° 30.9	79° 54.8 7° 43.8	94° 30.0 7° 56.8	109° 05.0 8° 09.7	123° 40.1 8° 22.5	+35.2 +13.0	14.8 54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 5 01h40 — Полнолуние: 12 04h03 — Последняя четв.: 18 19h25 — Новолуние: 26 15h12

СОЛНЦЕ

Февраль 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	266° 38.2 -17° 13.3	281° 38.1 -17° 12.6	296° 38.0 -17° 11.9	311° 37.9 -17° 11.2	326° 37.9 -17° 10.5	341° 37.8 -17° 09.8	356° 37.7 -17° 09.1	11° 37.6 -17° 08.4	26° 37.5 -17° 07.7	41° 37.4 -17° 07.0	56° 37.3 -17° 06.3	71° 37.3 -17° 05.5	-0.1 +0.7
Ср 2	266° 36.2 -16° 56.2	281° 36.1 -16° 55.5	296° 36.0 -16° 54.8	311° 35.9 -16° 54.1	326° 35.9 -16° 53.4	341° 35.8 -16° 52.6	356° 35.7 -16° 51.9	11° 35.6 -16° 51.2	26° 35.6 -16° 50.5	41° 35.5 -16° 49.8	56° 35.4 -16° 49.0	71° 35.3 -16° 48.3	-0.1 +0.7
Чт 3	266° 34.4 -16° 38.9	281° 34.3 -16° 38.1	296° 34.2 -16° 37.4	311° 34.2 -16° 36.7	326° 34.1 -16° 35.9	341° 34.0 -16° 35.2	356° 33.9 -16° 34.5	11° 33.9 -16° 33.7	26° 33.8 -16° 33.0	41° 33.7 -16° 32.3	56° 33.7 -16° 31.5	71° 33.6 -16° 30.8	-0.1 +0.7
Пт 4	266° 32.8 -16° 21.2	281° 32.7 -16° 20.4	296° 32.6 -16° 19.7	311° 32.6 -16° 19.0	326° 32.5 -16° 18.2	341° 32.5 -16° 17.5	356° 32.4 -16° 16.7	11° 32.3 -16° 16.0	26° 32.3 -16° 15.2	41° 32.2 -16° 14.5	56° 32.2 -16° 13.7	71° 32.1 -16° 13.0	-0.1 +0.7
Сб 5	266° 31.4 -16° 03.2	281° 31.3 -16° 02.5	296° 31.3 -16° 01.7	311° 31.2 -16° 01.0	326° 31.1 -16° 00.2	341° 31.1 -15° 59.5	356° 31.0 -15° 58.7	11° 31.0 -15° 57.9	26° 30.9 -15° 57.2	41° 30.9 -15° 56.4	56° 30.8 -15° 55.7	71° 30.8 -15° 54.9	-0.1 +0.8
Вс 6	266° 30.2 -15° 45.0	281° 30.1 -15° 44.2	296° 30.1 -15° 43.5	311° 30.0 -15° 42.7	326° 30.0 -15° 41.9	341° 29.9 -15° 41.2	356° 29.9 -15° 40.4	11° 29.9 -15° 39.6	26° 29.8 -15° 38.9	41° 29.8 -15° 38.1	56° 29.7 -15° 37.3	71° 29.7 -15° 36.6	-0.0 +0.8
Пн 7	266° 29.2 -15° 26.5	281° 29.1 -15° 25.7	296° 29.1 -15° 24.9	311° 29.1 -15° 24.2	326° 29.0 -15° 23.4	341° 29.0 -15° 22.6	356° 29.0 -15° 21.8	11° 28.9 -15° 21.1	26° 28.9 -15° 20.3	41° 28.9 -15° 19.5	56° 28.8 -15° 18.7	71° 28.8 -15° 17.9	-0.0 +0.8
Вт 8	266° 28.4 -15° 07.7	281° 28.4 -15° 07.0	296° 28.3 -15° 06.2	311° 28.3 -15° 05.4	326° 28.3 -15° 04.6	341° 28.3 -15° 03.8	356° 28.2 -15° 03.0	11° 28.2 -15° 02.2	26° 28.2 -15° 01.4	41° 28.1 -15° 00.6	56° 28.1 -14° 59.8	71° 28.1 -14° 59.1	-0.0 +0.8
Ср 9	266° 27.8 -14° 48.7	281° 27.8 -14° 47.9	296° 27.8 -14° 47.1	311° 27.7 -14° 46.3	326° 27.7 -14° 45.5	341° 27.7 -14° 44.7	356° 27.7 -14° 43.9	11° 27.7 -14° 43.1	26° 27.7 -14° 42.3	41° 27.6 -14° 41.5	56° 27.6 -14° 40.7	71° 27.6 -14° 39.9	-0.0 +0.8
Чт 10	266° 27.4 -14° 29.5	281° 27.4 -14° 28.7	296° 27.4 -14° 27.8	311° 27.4 -14° 27.0	326° 27.4 -14° 26.2	341° 27.4 -14° 25.4	356° 27.4 -14° 24.6	11° 27.3 -14° 23.8	26° 27.3 -14° 23.0	41° 27.3 -14° 22.2	56° 27.3 -14° 21.4	71° 27.3 -14° 20.6	-0.0 +0.8
Пт 11	266° 27.2 -14° 10.0	281° 27.2 -14° 09.1	296° 27.2 -14° 08.3	311° 27.2 -14° 07.5	326° 27.2 -14° 06.7	341° 27.2 -14° 05.9	356° 27.2 -14° 05.0	11° 27.2 -14° 04.2	26° 27.2 -14° 03.4	41° 27.2 -14° 02.6	56° 27.2 -14° 01.8	71° 27.2 -14° 00.9	-0.0 +0.8
Сб 12	266° 27.2 -13° 50.2	281° 27.2 -13° 49.4	296° 27.2 -13° 48.6	311° 27.2 -13° 47.7	326° 27.2 -13° 46.9	341° 27.3 -13° 46.1	356° 27.3 -13° 45.2	11° 27.3 -13° 44.4	26° 27.3 -13° 43.6	41° 27.3 -13° 42.8	56° 27.3 -13° 41.9	71° 27.3 -13° 41.1	+0.0 +0.8
Вс 13	266° 27.4 -13° 30.2	281° 27.4 -13° 29.4	296° 27.4 -13° 28.6	311° 27.5 -13° 27.7	326° 27.5 -13° 26.9	341° 27.5 -13° 26.1	356° 27.5 -13° 25.2	11° 27.5 -13° 24.4	26° 27.5 -13° 23.5	41° 27.5 -13° 22.7	56° 27.5 -13° 21.9	71° 27.6 -13° 21.0	+0.0 +0.8
Пн 14	266° 27.8 -13° 10.1	281° 27.8 -13° 09.2	296° 27.8 -13° 08.4	311° 27.8 -13° 07.5	326° 27.9 -13° 06.7	341° 27.9 -13° 05.8	356° 27.9 -13° 05.0	11° 27.9 -13° 04.1	26° 28.0 -13° 03.3	41° 28.0 -13° 02.4	56° 28.0 -13° 01.6	71° 28.0 -13° 00.7	+0.0 +0.8
Вт 15	266° 28.3 -12° 49.6	281° 28.4 -12° 48.8	296° 28.4 -12° 47.9	311° 28.4 -12° 47.1	326° 28.5 -12° 46.2	341° 28.5 -12° 45.4	356° 28.5 -12° 44.5	11° 28.5 -12° 43.7	26° 28.6 -12° 42.8	41° 28.6 -12° 41.9	56° 28.6 -12° 41.1	71° 28.7 -12° 40.2	+0.0 +0.9
Ср 16	266° 29.1 -12° 29.0	281° 29.1 -12° 28.2	296° 29.1 -12° 27.3	311° 29.2 -12° 26.4	326° 29.2 -12° 25.6	341° 29.2 -12° 24.7	356° 29.3 -12° 23.8	11° 29.3 -12° 23.0	26° 29.4 -12° 22.1	41° 29.4 -12° 21.2	56° 29.4 -12° 20.4	71° 29.5 -12° 19.5	+0.0 +0.9
Чт 17	266° 30.0 -12° 08.2	281° 30.0 -12° 07.3	296° 30.1 -12° 06.5	311° 30.1 -12° 05.6	326° 30.1 -12° 04.7	341° 30.2 -12° 03.8	356° 30.2 -12° 03.0	11° 30.3 -12° 02.1	26° 30.3 -12° 01.2	41° 30.4 -12° 00.3	56° 30.4 -11° 59.5	71° 30.5 -11° 58.6	+0.0 +0.9
Пт 18	266° 31.1 -11° 47.2	281° 31.1 -11° 46.3	296° 31.2 -11° 45.4	311° 31.2 -11° 44.5	326° 31.3 -11° 43.7	341° 31.3 -11° 42.8	356° 31.4 -11° 41.9	11° 31.4 -11° 41.0	26° 31.5 -11° 40.1	41° 31.5 -11° 39.3	56° 31.6 -11° 38.4	71° 31.6 -11° 37.5	+0.1 +0.9
Сб 19	266° 32.3 -11° 26.0	281° 32.4 -11° 25.1	296° 32.4 -11° 24.2	311° 32.5 -11° 23.3	326° 32.5 -11° 22.4	341° 32.6 -11° 21.5	356° 32.6 -11° 20.7	11° 32.7 -11° 19.8	26° 32.8 -11° 18.9	41° 32.8 -11° 18.0	56° 32.9 -11° 17.1	71° 32.9 -11° 16.2	+0.1 +0.9
Вс 20	266° 33.7 -11° 04.6	281° 33.8 -11° 03.7	296° 33.8 -11° 02.8	311° 33.9 -11° 01.9	326° 34.0 -11° 01.0	341° 34.0 -11° 00.1	356° 34.1 -10° 59.2	11° 34.2 -10° 58.3	26° 34.2 -10° 57.4	41° 34.3 -10° 56.5	56° 34.3 -10° 55.6	71° 34.4 -10° 54.7	+0.1 +0.9
Пн 21	266° 35.3 -10° 43.0	281° 35.4 -10° 42.1	296° 35.4 -10° 41.2	311° 35.5 -10° 40.3	326° 35.6 -10° 39.4	341° 35.6 -10° 38.5	356° 35.7 -10° 37.6	11° 35.8 -10° 36.7	26° 35.8 -10° 35.8	41° 35.9 -10° 34.9	56° 36.0 -10° 34.0	71° 36.1 -10° 33.1	+0.1 +0.9
Вт 22	266° 37.0 -10° 21.3	281° 37.1 -10° 20.4	296° 37.2 -10° 19.5	311° 37.2 -10° 18.6	326° 37.3 -10° 17.7	341° 37.4 -10° 16.8	356° 37.5 -10° 15.8	11° 37.5 -10° 14.9	26° 37.6 -10° 14.0	41° 37.7 -10° 13.1	56° 37.8 -10° 12.2	71° 37.9 -10° 11.3	+0.1 +0.9
Ср 23	266° 38.9 -9° 59.4	281° 39.0 -9° 58.5	296° 39.1 -9° 57.6	311° 39.1 -9° 56.7	326° 39.2 -9° 55.7	341° 39.3 -9° 54.8	356° 39.4 -9° 53.9	11° 39.5 -9° 53.0	26° 39.6 -9° 52.1	41° 39.6 -9° 51.2	56° 39.7 -9° 50.2	71° 39.8 -9° 49.3	+0.1 +0.9
Чт 24	266° 40.9 -9° 37.4	281° 41.0 -9° 36.4	296° 41.1 -9° 35.5	311° 41.2 -9° 34.6	326° 41.3 -9° 33.7	341° 41.4 -9° 32.8	356° 41.5 -9° 31.8	11° 41.6 -9° 30.9	26° 41.7 -9° 30.0	41° 41.7 -9° 29.1	56° 41.8 -9° 28.1	71° 41.9 -9° 27.2	+0.1 +0.9
Пт 25	266° 43.1 -9° 15.2	281° 43.2 -9° 14.3	296° 43.3 -9° 13.3	311° 43.4 -9° 12.4	326° 43.5 -9° 11.5	341° 43.6 -9° 10.5	356° 43.7 -9° 09.6	11° 43.8 -9° 08.7	26° 43.9 -9° 07.8	41° 44.0 -9° 06.8	56° 44.1 -9° 05.9	71° 44.2 -9° 05.0	+0.1 +0.9
Сб 26	266° 45.5 -8° 52.9	281° 45.6 -8° 51.9	296° 45.7 -8° 51.0	311° 45.8 -8° 50.1	326° 45.9 -8° 49.1	341° 46.0 -8° 48.2	356° 46.1 -8° 47.3	11° 46.2 -8° 46.3	26° 46.3 -8° 45.4	41° 46.4 -8° 44.4	56° 46.5 -8° 43.5	71° 46.6 -8° 42.6	+0.1 +0.9
Вс 27	266° 47.9 -8° 30.4	281° 48.1 -8° 29.5	296° 48.2 -8° 28.5	311° 48.3 -8° 27.6	326° 48.4 -8° 26.6	341° 48.5 -8° 25.7	356° 48.6 -8° 24.8	11° 48.7 -8° 23.8	26° 48.8 -8° 22.9	41° 48.9 -8° 21.9	56° 49.0 -8° 21.0	71° 49.1 -8° 20.1	+0.1 +0.9
Пн 28	266° 50.6 -8° 07.8	281° 50.7 -8° 06.9	296° 50.8 -8° 05.9	311° 50.9 -8° 05.0	326° 51.0 -8° 04.0	341° 51.1 -8° 03.1	356° 51.2 -8° 02.1	11° 51.4 -8° 01.2	26° 51.5 -8° 00.3	41° 51.6 -7° 59.3	56° 51.7 -7° 58.4	71° 51.8 -7° 57.4	+0.1 +0.9
Вт 29	266° 53.3 -7° 45.1	281° 53.4 -7° 44.2	296° 53.6 -7° 43.2	311° 53.7 -7° 42.3	326° 53.8 -7° 41.3	341° 53.9 -7° 40.4	356° 54.0 -7° 39.4	11° 54.1 -7° 38.5	26° 54.3 -7° 37.5	41° 54.4 -7° 36.6	56° 54.5 -7° 35.6	71° 54.6 -7° 34.7	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2028

Д	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ°/h	R/p
Вт 1	254° 53.2	269° 27.8	284° 02.2	298° 36.7	313° 11.0	327° 45.3	342° 19.6	356° 53.7	11° 27.9	26° 01.9	40° 35.9	+34.3	14.9
	10° 17.3	10° 29.9	10° 42.5	10° 55.0	11° 07.5	11° 20.0	11° 32.4	11° 44.8	11° 57.1	12° 09.5	12° 21.7	+12.4	54.8
Ср 2	258° 57.4	273° 30.2	288° 02.9	302° 35.6	317° 08.2	331° 40.6	346° 13.0	0° 45.4	15° 17.6	29° 49.7	44° 21.8	+32.4	15.1
	15° 20.5	15° 32.0	15° 43.5	15° 54.9	16° 06.2	16° 17.5	16° 28.8	16° 39.9	16° 51.0	17° 02.1	17° 13.0	+11.3	55.4
◐ Чт 3	262° 11.3	276° 41.8	291° 12.2	305° 42.5	320° 12.7	334° 42.8	349° 12.8	3° 42.7	18° 12.5	32° 42.2	47° 11.7	+30.0	15.3
	19° 49.2	19° 59.0	20° 08.7	20° 18.3	20° 27.8	20° 37.3	20° 46.6	20° 55.9	21° 05.0	21° 14.1	21° 23.1	+9.4	56.1
Пт 4	264° 22.3	278° 50.1	293° 17.8	307° 45.4	322° 12.9	336° 40.3	351° 07.6	5° 34.7	20° 01.8	34° 28.8	48° 55.6	+27.3	15.6
	23° 25.5	23° 32.7	23° 39.9	23° 46.9	23° 53.8	24° 00.6	24° 07.3	24° 13.8	24° 20.2	24° 26.5	24° 32.7	+6.7	57.0
Сб 5	265° 25.8	279° 51.0	294° 16.1	308° 41.1	323° 06.1	337° 30.9	351° 55.7	6° 20.3	20° 44.9	35° 09.4	49° 33.8	+24.8	15.8
	25° 48.5	25° 52.3	25° 56.1	25° 59.6	26° 03.1	26° 06.3	26° 09.4	26° 12.4	26° 15.2	26° 17.8	26° 20.3	+3.2	58.0
Вс 6	265° 31.1	279° 54.5	294° 17.7	308° 40.9	323° 04.1	337° 27.2	351° 50.3	6° 13.3	20° 36.3	34° 59.3	49° 22.2	+23.1	16.1
	26° 36.9	26° 36.6	26° 36.1	26° 35.5	26° 34.6	26° 33.6	26° 32.4	26° 31.0	26° 29.5	26° 27.7	26° 25.8	-1.1	59.0
Пн 7	265° 03.4	279° 26.0	293° 48.7	308° 11.4	322° 34.1	336° 56.8	351° 19.5	5° 42.2	20° 05.0	34° 27.7	48° 50.5	+22.7	16.4
	25° 34.7	25° 29.8	25° 24.7	25° 19.5	25° 14.0	25° 08.4	25° 02.6	24° 56.6	24° 50.4	24° 44.0	24° 37.5	-5.7	60.0
Вт 8	264° 36.1	278° 59.5	293° 22.9	307° 46.4	322° 09.9	336° 33.5	350° 57.1	5° 20.8	19° 44.6	34° 08.4	48° 32.2	+23.6	16.6
	22° 38.0	22° 28.6	22° 19.1	22° 09.4	21° 59.6	21° 49.6	21° 39.4	21° 29.1	21° 18.6	21° 08.0	20° 57.2	-10.1	60.8
Ср 9	264° 38.1	279° 03.1	293° 28.1	307° 53.2	322° 18.3	336° 43.6	351° 08.9	5° 34.2	19° 59.7	34° 25.2	48° 50.8	+25.3	16.7
	17° 57.9	17° 44.9	17° 31.7	17° 18.4	17° 05.0	16° 51.5	16° 37.8	16° 24.0	16° 10.2	15° 56.2	15° 42.1	-13.6	61.3
○ Чт 10	265° 23.3	279° 50.0	294° 16.8	308° 43.6	323° 10.5	337° 37.5	352° 04.6	6° 31.7	20° 58.8	35° 26.1	49° 53.4	+27.0	16.7
	11° 58.8	11° 43.2	11° 27.6	11° 11.9	10° 56.1	10° 40.2	10° 24.3	10° 08.3	9° 52.3	9° 36.2	9° 20.0	-15.9	61.4
Пт 11	266° 49.6	281° 17.8	295° 46.0	310° 14.2	324° 42.5	339° 10.9	353° 39.3	8° 07.7	22° 36.1	37° 04.6	51° 33.2	+28.4	16.7
	5° 12.3	4° 55.5	4° 38.7	4° 21.9	4° 05.1	3° 48.3	3° 31.4	3° 14.5	2° 57.7	2° 40.8	2° 23.9	-16.9	61.2
Сб 12	268° 45.1	283° 14.1	297° 43.1	312° 12.1	326° 41.2	341° 10.3	355° 39.3	10° 08.4	24° 37.6	39° 06.7	53° 35.8	+29.1	16.5
	-1° 48.6	-2° 05.3	-2° 22.0	-2° 38.6	-2° 55.2	-3° 11.8	-3° 28.3	-3° 44.8	-4° 01.3	-4° 17.7	-4° 34.1	-16.6	60.6
Вс 13	270° 53.5	285° 22.7	299° 51.9	314° 21.0	328° 50.2	343° 19.4	357° 48.5	12° 17.6	26° 46.8	41° 15.9	55° 45.0	+29.1	16.3
	-8° 33.8	-8° 49.3	-9° 04.7	-9° 20.1	-9° 35.4	-9° 50.6	-10° 05.7	-10° 20.8	-10° 35.8	-10° 50.7	-11° 05.5	-15.2	59.8
Пн 14	272° 59.6	287° 28.4	301° 57.2	316° 26.0	330° 54.8	345° 23.5	359° 52.2	14° 20.9	28° 49.5	43° 18.2	57° 46.8	+28.7	16.0
	-14° 37.7	-14° 51.1	-15° 04.4	-15° 17.6	-15° 30.7	-15° 43.6	-15° 56.5	-16° 09.3	-16° 22.0	-16° 34.5	-16° 47.0	-12.9	58.9
Вт 15	274° 52.6	289° 20.7	303° 48.9	318° 17.0	332° 45.1	347° 13.1	1° 41.2	16° 09.1	30° 37.1	45° 05.1	59° 33.0	+28.0	15.8
	-19° 40.1	-19° 50.6	-20° 01.1	-20° 11.4	-20° 21.6	-20° 31.7	-20° 41.7	-20° 51.5	-21° 01.2	-21° 10.8	-21° 20.2	-10.0	57.9
Ср 16	289° 20.7	303° 48.9	318° 17.0	332° 45.1	347° 13.1	1° 41.2	16° 09.1	30° 37.1	45° 05.1	59° 33.0	74° 00.9	+28.0	15.8
	-19° 50.6	-20° 01.1	-20° 11.4	-20° 21.6	-20° 31.7	-20° 41.7	-20° 51.5	-21° 01.2	-21° 10.8	-21° 20.2	-21° 29.5	-9.9	57.8
◑ Чт 17	290° 56.3	305° 23.9	319° 51.4	334° 18.9	348° 46.3	3° 13.8	17° 41.2	32° 08.7	46° 36.1	61° 03.5	75° 30.9	+27.4	15.5
	-23° 33.1	-23° 40.2	-23° 47.2	-23° 54.1	-24° 00.8	-24° 07.4	-24° 13.8	-24° 20.1	-24° 26.3	-24° 32.3	-24° 38.2	-6.5	56.9
Пт 18	292° 20.8	306° 48.1	321° 15.5	335° 42.8	350° 10.1	4° 37.4	19° 04.8	33° 32.1	47° 59.5	62° 26.9	76° 54.3	+27.3	15.3
	-25° 49.0	-25° 52.5	-25° 56.0	-25° 59.2	-26° 02.4	-26° 05.3	-26° 08.2	-26° 10.9	-26° 13.4	-26° 15.8	-26° 18.1	-2.9	56.1
Сб 19	293° 47.4	308° 15.2	322° 42.9	337° 10.7	351° 38.6	6° 06.5	20° 34.4	35° 02.3	49° 30.3	63° 58.3	78° 26.4	+27.9	15.1
	-26° 34.8	-26° 34.8	-26° 34.7	-26° 34.4	-26° 33.9	-26° 33.3	-26° 32.6	-26° 31.8	-26° 30.8	-26° 29.7	-26° 28.4	+0.6	55.4
Вс 20	295° 32.8	310° 01.6	324° 30.5	338° 59.4	353° 28.4	7° 57.5	22° 26.6	36° 55.7	51° 25.0	65° 54.2	80° 23.6	+29.1	14.9
	-25° 53.4	-25° 50.0	-25° 46.5	-25° 42.9	-25° 39.2	-25° 35.3	-25° 31.3	-25° 27.2	-25° 22.9	-25° 18.6	-25° 14.1	+3.9	54.8
Пн 21	297° 51.2	312° 21.6	326° 52.0	341° 22.5	355° 53.1	10° 23.7	24° 54.4	39° 25.2	53° 56.0	68° 26.9	82° 57.9	+30.7	14.8
	-23° 52.8	-23° 46.5	-23° 40.1	-23° 33.5	-23° 26.9	-23° 20.2	-23° 13.3	-23° 06.4	-22° 59.3	-22° 52.2	-22° 44.9	+6.8	54.4
Вт 22	300° 50.6	315° 22.6	329° 54.7	344° 26.9	358° 59.2	13° 31.5	28° 03.9	42° 36.3	57° 08.8	71° 41.4	86° 14.0	+32.4	14.8
	-20° 44.7	-20° 36.0	-20° 27.2	-20° 18.2	-20° 09.2	-20° 00.2	-19° 51.0	-19° 41.8	-19° 32.4	-19° 23.0	-19° 13.6	+9.1	54.1
Ср 23	304° 31.1	319° 04.7	333° 38.4	348° 12.1	2° 45.9	17° 19.7	31° 53.6	46° 27.6	61° 01.6	75° 35.6	90° 09.7	+33.9	14.7
	-16° 42.5	-16° 31.8	-16° 21.1	-16° 10.4	-15° 59.6	-15° 48.7	-15° 37.8	-15° 26.8	-15° 15.7	-15° 04.6	-14° 53.4	+10.9	53.9
Чт 24	308° 47.1	323° 21.9	337° 56.8	352° 31.7	7° 06.7	21° 41.7	36° 16.7	50° 51.8	65° 26.9	80° 02.0	94° 37.2	+35.0	14.7
	-11° 59.4	-11° 47.4	-11° 35.4	-11° 23.3	-11° 11.2	-10° 59.0	-10° 46.8	-10° 34.6	-10° 22.3	-10° 10.0	-9° 57.6	+12.2	53.9
● Пт 25	313° 28.5	328° 04.1	342° 39.7	357° 15.4	11° 51.1	26° 26.7	41° 02.5	55° 38.2	70° 13.9	84° 49.7	99° 25.5	+35.7	14.7
	-6° 48.3	-6° 35.4	-6° 22.6	-6° 09.6	-5° 56.7	-5° 43.8	-5° 30.8	-5° 17.8	-5° 04.8	-4° 51.8	-4° 38.7	+13.0	53.9
Сб 26	318° 23.1	332° 59.0	347° 34.8	2° 10.7	16° 46.6	31° 22.4	45° 58.3	60° 34.1	75° 10.0	89° 45.8	104° 21.7	+35.9	14.7
	-1° 21.1	-1° 07.9	-0° 54.6	-0° 41.3	-0° 28.1	-0° 14.8	-0° 01.5	0° 11.8	0° 25.1	0° 38.4	0° 51.6	+13.3	54.0
Вс 27	323° 17.4	337° 53.0	352° 28.5	7° 04.1	21° 39.5	36° 15.0	50° 50.4	65° 25.8	80° 01.2	94° 36.6	109° 11.9	+35.4	14.8
	4° 10.5	4° 23.7	4° 36.9	4° 50.0	5° 03.2	5° 16.3	5° 29.5	5° 42.6	5° 55.7	6° 08.7	6° 21.8	+13.1	54.2
Пн 28	327° 57.2	342° 31.9	357° 06.5	11° 41.1	26° 15.6	40° 50.1	55° 24.5	69° 58.9	84° 33.2	99° 07.5	113° 41.7	+34.5	14.9
	9° 34.9	9° 47.5	10° 00.1	10° 12.7	10° 25.3	10° 37.8	10° 50.2	11° 02.7	11° 15.1	11° 27.5	11° 39.8	+12.5	54.6
Вт 29	332° 07.9	346° 41.1	1° 14.2	15° 47.3	30° 20.3	44° 53.3	59° 26.1	73° 58.9	88° 31.7	103° 04.3	117° 36.9	+32.9	15.0
	14° 39.3	14° 50.9	15° 02.4	15° 13.9	15° 25.3	15° 36.6	15° 47.9	15° 59.2	16° 10.3	16° 21.4	16° 32.5	+11.3	55.0

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Первая четв.: 3 19h10 — Полнолуние: 10 15h03 — Последняя четв.: 17 08h08 — Новолуние: 25 10h37

СОЛНЦЕ

Март 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	266° 56.2	281° 56.3	296° 56.4	311° 56.6	326° 56.7	341° 56.8	356° 56.9	11° 57.1	26° 57.2	41° 57.3	56° 57.4	71° 57.6	+0.1
	-7° 22.3	-7° 21.3	-7° 20.4	-7° 19.4	-7° 18.5	-7° 17.5	-7° 16.6	-7° 15.6	-7° 14.7	-7° 13.7	-7° 12.8	-7° 11.8	+1.0
Чт 2	266° 59.2	281° 59.3	296° 59.5	311° 59.6	326° 59.7	341° 59.9	357° 00.0	12° 00.1	27° 00.2	42° 00.4	57° 00.5	72° 00.6	+0.1
	-6° 59.4	-6° 58.4	-6° 57.5	-6° 56.5	-6° 55.6	-6° 54.6	-6° 53.6	-6° 52.7	-6° 51.7	-6° 50.8	-6° 49.8	-6° 48.8	+1.0
Пт 3	267° 02.3	282° 02.5	297° 02.6	312° 02.7	327° 02.9	342° 03.0	357° 03.1	12° 03.3	27° 03.4	42° 03.6	57° 03.7	72° 03.8	+0.1
	-6° 36.4	-6° 35.4	-6° 34.4	-6° 33.5	-6° 32.5	-6° 31.6	-6° 30.6	-6° 29.6	-6° 28.7	-6° 27.7	-6° 26.8	-6° 25.8	+1.0
Сб 4	267° 05.6	282° 05.7	297° 05.9	312° 06.0	327° 06.2	342° 06.3	357° 06.4	12° 06.6	27° 06.7	42° 06.8	57° 07.0	72° 07.1	+0.1
	-6° 13.3	-6° 12.3	-6° 11.3	-6° 10.4	-6° 09.4	-6° 08.4	-6° 07.5	-6° 06.5	-6° 05.5	-6° 04.6	-6° 03.6	-6° 02.6	+1.0
Вс 5	267° 09.0	282° 09.1	297° 09.3	312° 09.4	327° 09.5	342° 09.7	357° 09.8	12° 10.0	27° 10.1	42° 10.3	57° 10.4	72° 10.5	+0.1
	-5° 50.1	-5° 49.1	-5° 48.1	-5° 47.2	-5° 46.2	-5° 45.2	-5° 44.3	-5° 43.3	-5° 42.3	-5° 41.4	-5° 40.4	-5° 39.4	+1.0
Пн 6	267° 12.4	282° 12.6	297° 12.7	312° 12.9	327° 13.0	342° 13.2	357° 13.3	12° 13.5	27° 13.6	42° 13.8	57° 13.9	72° 14.1	+0.1
	-5° 26.8	-5° 25.8	-5° 24.9	-5° 23.9	-5° 22.9	-5° 22.0	-5° 21.0	-5° 20.0	-5° 19.0	-5° 18.1	-5° 17.1	-5° 16.1	+1.0
Вт 7	267° 16.0	282° 16.2	297° 16.3	312° 16.5	327° 16.6	342° 16.8	357° 16.9	12° 17.1	27° 17.2	42° 17.4	57° 17.6	72° 17.7	+0.2
	-5° 03.5	-5° 02.5	-5° 01.5	-5° 00.6	-4° 59.6	-4° 58.6	-4° 57.6	-4° 56.7	-4° 55.7	-4° 54.7	-4° 53.7	-4° 52.8	+1.0
Ср 8	267° 19.7	282° 19.9	297° 20.0	312° 20.2	327° 20.3	342° 20.5	357° 20.6	12° 20.8	27° 21.0	42° 21.1	57° 21.3	72° 21.4	+0.2
	-4° 40.1	-4° 39.1	-4° 38.1	-4° 37.1	-4° 36.2	-4° 35.2	-4° 34.2	-4° 33.2	-4° 32.3	-4° 31.3	-4° 30.3	-4° 29.3	+1.0
Чт 9	267° 23.5	282° 23.6	297° 23.8	312° 24.0	327° 24.1	342° 24.3	357° 24.4	12° 24.6	27° 24.8	42° 24.9	57° 25.1	72° 25.3	+0.2
	-4° 16.6	-4° 15.6	-4° 14.7	-4° 13.7	-4° 12.7	-4° 11.7	-4° 10.7	-4° 09.8	-4° 08.8	-4° 07.8	-4° 06.8	-4° 05.8	+1.0
Пт 10	267° 27.4	282° 27.5	297° 27.7	312° 27.8	327° 28.0	342° 28.2	357° 28.3	12° 28.5	27° 28.7	42° 28.8	57° 29.0	72° 29.2	+0.2
	-3° 53.1	-3° 52.1	-3° 51.1	-3° 50.2	-3° 49.2	-3° 48.2	-3° 47.2	-3° 46.2	-3° 45.3	-3° 44.3	-3° 43.3	-3° 42.3	+1.0
Сб 11	267° 31.3	282° 31.5	297° 31.6	312° 31.8	327° 32.0	342° 32.1	357° 32.3	12° 32.5	27° 32.6	42° 32.8	57° 33.0	72° 33.1	+0.2
	-3° 29.5	-3° 28.6	-3° 27.6	-3° 26.6	-3° 25.6	-3° 24.6	-3° 23.6	-3° 22.7	-3° 21.7	-3° 20.7	-3° 19.7	-3° 18.7	+1.0
Вс 12	267° 35.3	282° 35.5	297° 35.7	312° 35.8	327° 36.0	342° 36.2	357° 36.3	12° 36.5	27° 36.7	42° 36.9	57° 37.0	72° 37.2	+0.2
	-3° 05.9	-3° 05.0	-3° 04.0	-3° 03.0	-3° 02.0	-3° 01.0	-3° 00.0	-2° 59.1	-2° 58.1	-2° 57.1	-2° 56.1	-2° 55.1	+1.0
Пн 13	267° 39.4	282° 39.6	297° 39.8	312° 39.9	327° 40.1	342° 40.3	357° 40.5	12° 40.6	27° 40.8	42° 41.0	57° 41.1	72° 41.3	+0.2
	-2° 42.3	-2° 41.3	-2° 40.3	-2° 39.3	-2° 38.4	-2° 37.4	-2° 36.4	-2° 35.4	-2° 34.4	-2° 33.4	-2° 32.4	-2° 31.5	+1.0
Вт 14	267° 43.6	282° 43.7	297° 43.9	312° 44.1	327° 44.3	342° 44.4	357° 44.6	12° 44.8	27° 45.0	42° 45.1	57° 45.3	72° 45.5	+0.2
	-2° 18.6	-2° 17.7	-2° 16.7	-2° 15.7	-2° 14.7	-2° 13.7	-2° 12.7	-2° 11.7	-2° 10.7	-2° 09.8	-2° 08.8	-2° 07.8	+1.0
Ср 15	267° 47.8	282° 48.0	297° 48.1	312° 48.3	327° 48.5	342° 48.7	357° 48.8	12° 49.0	27° 49.2	42° 49.4	57° 49.6	72° 49.7	+0.2
	-1° 54.9	-1° 54.0	-1° 53.0	-1° 52.0	-1° 51.0	-1° 50.0	-1° 49.0	-1° 48.0	-1° 47.0	-1° 46.1	-1° 45.1	-1° 44.1	+1.0
Чт 16	267° 52.1	282° 52.2	297° 52.4	312° 52.6	327° 52.8	342° 52.9	357° 53.1	12° 53.3	27° 53.5	42° 53.7	57° 53.8	72° 54.0	+0.2
	-1° 31.2	-1° 30.2	-1° 29.3	-1° 28.3	-1° 27.3	-1° 26.3	-1° 25.3	-1° 24.3	-1° 23.3	-1° 22.3	-1° 21.4	-1° 20.4	+1.0
Пт 17	267° 56.4	282° 56.5	297° 56.7	312° 56.9	327° 57.1	342° 57.3	357° 57.4	12° 57.6	27° 57.8	42° 58.0	57° 58.2	72° 58.4	+0.2
	-1° 07.5	-1° 06.5	-1° 05.5	-1° 04.5	-1° 03.6	-1° 02.6	-1° 01.6	-1° 00.6	-0° 59.6	-0° 58.6	-0° 57.6	-0° 56.6	+1.0
Сб 18	268° 00.7	283° 00.9	298° 01.1	313° 01.3	328° 01.4	343° 01.6	358° 01.8	13° 02.0	28° 02.2	43° 02.4	58° 02.5	73° 02.7	+0.2
	-0° 43.8	-0° 42.8	-0° 41.8	-0° 40.8	-0° 39.8	-0° 38.8	-0° 37.8	-0° 36.9	-0° 35.9	-0° 34.9	-0° 33.9	-0° 32.9	+1.0
Вс 19	268° 05.1	283° 05.3	298° 05.5	313° 05.7	328° 05.8	343° 06.0	358° 06.2	13° 06.4	28° 06.6	43° 06.8	58° 06.9	73° 07.1	+0.2
	-0° 20.1	-0° 19.1	-0° 18.1	-0° 17.1	-0° 16.1	-0° 15.1	-0° 14.1	-0° 13.1	-0° 12.1	-0° 11.2	-0° 10.2	-0° 09.2	+1.0
Пн 20	268° 09.5	283° 09.7	298° 09.9	313° 10.1	328° 10.3	343° 10.4	358° 10.6	13° 10.8	28° 11.0	43° 11.2	58° 11.4	73° 11.6	+0.2
	0° 03.7	0° 04.7	0° 05.6	0° 06.6	0° 07.6	0° 08.6	0° 09.6	0° 10.6	0° 11.6	0° 12.6	0° 13.6	0° 14.5	+1.0
Вт 21	268° 14.0	283° 14.1	298° 14.3	313° 14.5	328° 14.7	343° 14.9	358° 15.1	13° 15.3	28° 15.5	43° 15.6	58° 15.8	73° 16.0	+0.2
	0° 27.4	0° 28.4	0° 29.4	0° 30.3	0° 31.3	0° 32.3	0° 33.3	0° 34.3	0° 35.3	0° 36.3	0° 37.3	0° 38.2	+1.0
Ср 22	268° 18.4	283° 18.6	298° 18.8	313° 19.0	328° 19.2	343° 19.4	358° 19.6	13° 19.7	28° 19.9	43° 20.1	58° 20.3	73° 20.5	+0.2
	0° 51.1	0° 52.1	0° 53.0	0° 54.0	0° 55.0	0° 56.0	0° 57.0	0° 58.0	0° 59.0	1° 00.0	1° 00.9	1° 01.9	+1.0
Чт 23	268° 22.9	283° 23.1	298° 23.3	313° 23.5	328° 23.7	343° 23.9	358° 24.0	13° 24.2	28° 24.4	43° 24.6	58° 24.8	73° 25.0	+0.2
	1° 14.7	1° 15.7	1° 16.7	1° 17.7	1° 18.7	1° 19.7	1° 20.6	1° 21.6	1° 22.6	1° 23.6	1° 24.6	1° 25.6	+1.0
Пт 24	268° 27.4	283° 27.6	298° 27.8	313° 28.0	328° 28.2	343° 28.3	358° 28.5	13° 28.7	28° 28.9	43° 29.1	58° 29.3	73° 29.5	+0.2
	1° 38.4	1° 39.4	1° 40.3	1° 41.3	1° 42.3	1° 43.3	1° 44.3	1° 45.3	1° 46.2	1° 47.2	1° 48.2	1° 49.2	+1.0
Сб 25	268° 31.9	283° 32.1	298° 32.3	313° 32.5	328° 32.7	343° 32.9	358° 33.0	13° 33.2	28° 33.4	43° 33.6	58° 33.8	73° 34.0	+0.2
	2° 02.0	2° 02.9	2° 03.9	2° 04.9	2° 05.9	2° 06.9	2° 07.9	2° 08.8	2° 09.8	2° 10.8	2° 11.8	2° 12.8	+1.0
Вс 26	268° 36.4	283° 36.6	298° 36.8	313° 37.0	328° 37.2	343° 37.4	358° 37.5	13° 37.7	28° 37.9	43° 38.1	58° 38.3	73° 38.5	+0.2
	2° 25.5	2° 26.5	2° 27.5	2° 28.5	2° 29.4	2° 30.4	2° 31.4	2° 32.4	2° 33.4	2° 34.3	2° 35.3	2° 36.3	+1.0
Пн 27	268° 40.9	283° 41.1	298° 41.3	313° 41.5	328° 41.7	343° 41.9	358° 42.1	13° 42.2	28° 42.4	43° 42.6	58° 42.8	73° 43.0	+0.2
	2° 49.0	2° 50.0	2° 51.0	2° 52.0	2° 52.9	2° 53.9	2° 54.9	2° 55.9	2° 56.8	2° 57.8	2° 58.8	2° 59.8	+1.0
Вт 28	268° 45.4	283° 45.6	298° 45.8	313° 46.0	328° 46.2	343° 46.4	358° 46.6	13° 46.7	28° 46.9	43° 47.1	58° 47.3	73° 47.5	+0.2
	3° 12.5	3° 13.4	3° 14.4	3° 15.4	3° 16.4	3° 17.3	3° 18.3	3° 19.3	3° 20.3	3° 21.2	3° 22.2	3° 23.2	+1.0
Ср 29	268° 49.9	283° 50.1	298° 50.3	313° 50.5	328° 50.7	343° 50.9	358° 51.0	13° 51.2	28° 51.4	43° 51.6	58° 51.8	73° 52.0	+0.2
	3° 35.8	3° 36.8	3° 37.8	3° 38.8	3° 39.7	3° 40.7	3° 41.7	3° 42.7	3° 43.6	3° 44.6	3° 45.6	3° 46.5	+1.0
Чт 30	268° 54.4	283° 54.6	298° 54.8	313° 55.0	328° 55.2	343° 55.3	358° 55.5	13° 55.7	28° 55.9	43° 56.1	58° 56.3	73° 56.5	+0.2
	3° 59.2	4° 00.1	4° 01.1	4° 02.1	4° 03.0	4° 04.0	4° 05.0	4° 05.9	4° 06.9	4° 07.9	4° 08.8	4° 09.8	+1.0
Пт 31	268° 58.9	283° 59.1	298° 59.2	313° 59.4	328° 59.6	343° 59.8	359° 00.0	14° 00.2	29° 00.4	44° 00.5	59° 00.7	74° 00.9	+0.2
	4° 22.4	4° 23.4	4° 24.3	4° 25.3	4° 26.3	4° 27.2	4° 28.2	4° 29.2	4° 30.1	4° 31.1	4° 32.1	4° 33.0	+1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2028

Д	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	R/p
Ср 1	248° 26.5 18° 08.8	262° 58.2 18° 19.2	277° 29.9 18° 29.5	292° 01.5 18° 39.7	306° 33.1 18° 49.8	321° 04.5 18° 59.8	335° 35.8 19° 09.8	350° 07.1 19° 19.7	4° 38.3 19° 29.5	19° 09.4 19° 39.2	33° 40.4 19° 48.9	+31.4 +10.0	15.1 55.4
Чт 2	251° 14.6 22° 02.7	265° 44.1 22° 10.8	280° 13.6 22° 18.9	294° 42.9 22° 26.8	309° 12.2 22° 34.6	323° 41.4 22° 42.4	338° 10.4 22° 50.0	352° 39.4 22° 57.5	7° 08.3 23° 04.9	21° 37.1 23° 12.2	36° 05.8 23° 19.3	+29.1 +7.7	15.3 56.0
Пт 3	253° 05.3 24° 52.6	267° 32.5 24° 57.8	281° 59.7 25° 02.9	296° 26.7 25° 07.8	310° 53.7 25° 12.7	325° 20.6 25° 17.3	339° 47.4 25° 21.9	354° 14.1 25° 26.2	8° 40.8 25° 30.5	23° 07.3 25° 34.6	37° 33.8 25° 38.6	+26.9 +4.6	15.5 56.8
Сб 4	254° 02.0 26° 20.4	268° 27.3 26° 22.0	282° 52.6 26° 23.4	297° 17.8 26° 24.7	311° 42.9 26° 25.8	326° 08.0 26° 26.7	340° 33.0 26° 27.5	354° 58.0 26° 28.1	9° 22.9 26° 28.5	23° 47.8 26° 28.8	38° 12.6 26° 28.9	+25.1 +0.8	15.7 57.6
Вс 5	254° 20.2 26° 10.6	268° 44.4 26° 08.0	283° 08.7 26° 05.3	297° 32.9 26° 02.4	311° 57.1 25° 59.3	326° 21.3 25° 56.0	340° 45.4 25° 52.6	355° 09.6 25° 49.0	9° 33.7 25° 45.2	23° 57.9 25° 41.2	38° 22.0 25° 37.1	+24.2 -3.3	16.0 58.6
Пн 6	254° 24.5 24° 14.7	268° 48.7 24° 07.9	283° 13.0 24° 00.8	297° 37.3 23° 53.7	312° 01.6 23° 46.3	326° 26.0 23° 38.8	340° 50.4 23° 31.1	355° 14.8 23° 23.3	9° 39.2 23° 15.3	24° 03.7 23° 07.1	38° 28.2 22° 58.8	+24.4 -7.6	16.2 59.5
Вт 7	254° 40.1 20° 35.2	269° 05.3 20° 24.4	283° 30.5 20° 13.5	297° 55.7 20° 02.4	312° 21.0 19° 51.2	326° 46.3 19° 39.9	341° 11.7 19° 28.4	355° 37.1 19° 16.7	10° 02.6 19° 05.0	24° 28.2 18° 53.1	38° 53.7 18° 41.1	+25.4 -11.4	16.4 60.3
Ср 8	255° 23.8 15° 25.8	269° 50.2 15° 11.8	284° 16.7 14° 57.8	298° 43.2 14° 43.6	313° 09.8 14° 29.4	327° 36.4 14° 15.0	342° 03.1 14° 00.6	356° 29.8 13° 46.0	10° 56.6 13° 31.4	25° 23.4 13° 16.6	39° 50.3 13° 01.8	+26.7 -14.4	16.6 60.9
Чт 9	256° 39.1 9° 09.6	271° 06.7 8° 53.6	285° 34.3 8° 37.5	300° 02.0 8° 21.3	314° 29.7 8° 05.1	328° 57.5 7° 48.9	343° 25.3 7° 32.5	357° 53.1 7° 16.2	12° 20.9 6° 59.8	26° 48.8 6° 43.3	41° 16.8 6° 26.8	+27.8 -16.3	16.7 61.2
Пт 10	258° 19.0 2° 15.6	272° 47.3 1° 58.7	287° 15.7 1° 41.8	301° 44.0 1° 24.9	316° 12.4 1° 07.9	330° 40.8 0° 51.0	345° 09.2 0° 34.1	359° 37.6 0° 17.1	14° 06.1 0° 00.2	28° 34.5 -0° 16.7	43° 03.0 -0° 33.6	+28.4 -16.9	16.7 61.2
Сб 11	260° 10.2 -4° 45.0	274° 38.7 -5° 01.6	289° 07.2 -5° 18.0	303° 35.6 -5° 34.5	318° 04.1 -5° 50.9	332° 32.5 -6° 07.2	347° 01.0 -6° 23.5	1° 29.4 -6° 39.8	15° 57.8 -6° 56.0	30° 26.2 -7° 12.1	44° 54.6 -7° 28.2	+28.4 -16.3	16.6 60.8
Вс 12	261° 58.3 -11° 21.8	276° 26.4 -11° 36.7	290° 54.4 -11° 51.6	305° 22.5 -12° 06.4	319° 50.5 -12° 21.1	334° 18.4 -12° 35.7	348° 46.4 -12° 50.3	3° 14.3 -13° 04.7	17° 42.2 -13° 19.1	32° 10.1 -13° 33.3	46° 37.9 -13° 47.5	+28.0 -14.6	16.4 60.2
Пн 13	263° 31.8 -17° 07.3	277° 59.2 -17° 19.8	292° 26.5 -17° 32.1	306° 53.8 -17° 44.3	321° 21.0 -17° 56.3	335° 48.2 -18° 08.3	350° 15.4 -18° 20.1	4° 42.6 -18° 31.8	19° 09.7 -18° 43.4	33° 36.8 -18° 54.8	48° 03.8 -19° 06.1	+27.2 -11.9	16.2 59.3
Вт 14	264° 46.2 -21° 39.9	279° 12.9 -21° 49.0	293° 39.4 -21° 58.0	308° 06.0 -22° 06.9	322° 32.6 -22° 15.6	336° 59.1 -22° 24.2	351° 25.6 -22° 32.6	5° 52.1 -22° 40.9	20° 18.5 -22° 49.0	34° 45.0 -22° 57.0	49° 11.4 -23° 04.8	+26.5 -8.5	15.9 58.3
Ср 15	265° 46.4 -24° 44.5	280° 12.7 -24° 49.9	294° 39.0 -24° 55.2	309° 05.3 -25° 00.3	323° 31.6 -25° 05.3	337° 57.9 -25° 10.1	352° 24.1 -25° 14.7	6° 50.4 -25° 19.2	21° 16.8 -25° 23.6	35° 43.1 -25° 27.8	50° 09.4 -25° 31.8	+26.3 -4.7	15.6 57.3
Чт 16	266° 46.3 -26° 14.2	281° 12.9 -26° 15.8	295° 39.6 -26° 17.3	310° 06.3 -26° 18.6	324° 33.0 -26° 19.8	338° 59.8 -26° 20.8	353° 26.6 -26° 21.6	7° 53.5 -26° 22.4	22° 20.3 -26° 22.9	36° 47.3 -26° 23.4	51° 14.2 -26° 23.6	+26.8 -0.9	15.4 56.3
Пт 17	281° 12.9 -26° 15.8	295° 39.6 -26° 17.3	310° 06.3 -26° 18.6	324° 33.0 -26° 19.8	338° 59.8 -26° 20.8	353° 26.6 -26° 21.6	7° 53.5 -26° 22.4	22° 20.3 -26° 22.9	36° 47.3 -26° 23.4	51° 14.2 -26° 23.6	65° 41.2 -26° 23.8	+26.8 -0.8	15.4 56.3
Сб 18	282° 32.1 -26° 08.6	296° 59.9 -26° 06.4	311° 27.8 -26° 04.2	325° 55.7 -26° 01.8	340° 23.7 -25° 59.3	354° 51.8 -25° 56.6	9° 19.9 -25° 53.8	23° 48.0 -25° 50.9	38° 16.3 -25° 47.8	52° 44.6 -25° 44.6	67° 13.0 -25° 41.3	+28.1 +2.7	15.1 55.5
Вс 19	284° 26.7 -24° 36.6	298° 56.2 -24° 31.3	313° 25.8 -24° 25.9	327° 55.4 -24° 20.4	342° 25.1 -24° 14.8	356° 54.9 -24° 09.1	11° 24.8 -24° 03.2	25° 54.7 -23° 57.3	40° 24.7 -23° 51.2	54° 54.8 -23° 45.1	69° 24.9 -23° 38.8	+29.8 +5.8	15.0 54.9
Пн 20	287° 06.2 -21° 52.4	301° 37.5 -21° 44.5	316° 09.0 -21° 36.5	330° 40.5 -21° 28.5	345° 12.0 -21° 20.3	359° 43.7 -21° 12.1	14° 15.4 -21° 03.8	28° 47.2 -20° 55.4	43° 19.0 -20° 46.9	57° 51.0 -20° 38.3	72° 23.0 -20° 29.6	+31.7 +8.3	14.8 54.4
Вт 21	290° 31.2 -18° 09.9	305° 04.3 -18° 00.0	319° 37.4 -17° 50.0	334° 10.7 -17° 39.9	348° 43.9 -17° 29.8	3° 17.3 -17° 19.6	17° 50.6 -17° 09.3	32° 24.1 -16° 59.0	46° 57.6 -16° 48.6	61° 31.2 -16° 38.1	76° 04.8 -16° 27.6	+33.4 +10.2	14.8 54.1
Ср 22	294° 35.7 -13° 42.6	309° 10.2 -13° 31.1	323° 44.7 -13° 19.7	338° 19.3 -13° 08.1	352° 53.9 -12° 56.5	7° 28.5 -12° 44.9	22° 03.2 -12° 33.2	36° 37.9 -12° 21.4	51° 12.7 -12° 09.7	65° 47.5 -11° 57.8	80° 22.4 -11° 46.0	+34.7 +11.7	14.7 54.0
Чт 23	299° 09.4 -8° 42.9	313° 44.8 -8° 30.4	328° 20.2 -8° 17.9	342° 55.6 -8° 05.4	357° 31.0 -7° 52.8	12° 06.5 -7° 40.1	26° 42.0 -7° 27.5	41° 17.5 -7° 14.8	55° 53.1 -7° 02.1	70° 28.6 -6° 49.4	85° 04.2 -6° 36.6	+35.5 +12.6	14.7 54.0
Пт 24	303° 59.5 -3° 22.4	318° 35.3 -3° 09.3	333° 11.0 -2° 56.2	347° 46.8 -2° 43.1	2° 22.5 -2° 30.0	16° 58.3 -2° 16.8	31° 34.1 -2° 03.7	46° 09.8 -1° 50.5	60° 45.6 -1° 37.3	75° 21.3 -1° 24.1	89° 57.1 -1° 10.9	+35.8 +13.2	14.7 54.1
Сб 25	308° 52.4 2° 07.7	323° 28.0 2° 20.9	338° 03.5 2° 34.2	352° 39.0 2° 47.4	7° 14.6 3° 00.6	21° 50.1 3° 13.8	36° 25.5 3° 27.0	51° 01.0 3° 40.3	65° 36.4 3° 53.5	80° 11.8 4° 06.6	94° 47.2 4° 19.8	+35.5 +13.2	14.8 54.3
Вс 26	313° 34.0 7° 35.7	328° 08.8 7° 48.6	342° 43.6 8° 01.5	357° 18.3 8° 14.4	11° 53.0 8° 27.2	26° 27.7 8° 40.0	41° 02.3 8° 52.8	55° 36.9 9° 05.5	70° 11.4 9° 18.2	84° 45.8 9° 30.9	99° 20.3 9° 43.5	+34.6 +12.8	14.9 54.6
Пн 27	317° 50.3 12° 48.9	332° 23.8 13° 00.9	346° 57.3 13° 12.9	1° 30.7 13° 24.8	16° 04.1 13° 36.7	30° 37.3 13° 48.5	45° 10.6 14° 00.3	59° 43.7 14° 12.0	74° 16.8 14° 23.7	88° 49.8 14° 35.3	103° 22.8 14° 46.9	+33.3 +11.8	15.0 54.9
Вт 28	321° 28.5 17° 32.8	336° 00.3 17° 43.4	350° 32.0 17° 53.8	5° 03.6 18° 04.2	19° 35.1 18° 14.5	34° 06.6 18° 24.7	48° 38.0 18° 34.8	63° 09.3 18° 44.9	77° 40.5 18° 54.9	92° 11.6 19° 04.8	106° 42.7 19° 14.6	+31.4 +10.2	15.1 55.4
Ср 29	324° 18.6 21° 31.2	338° 48.4 21° 39.5	353° 18.0 21° 47.8	7° 47.5 21° 55.9	22° 17.0 22° 03.9	36° 46.4 22° 11.9	51° 15.7 22° 19.7	65° 44.9 22° 27.4	80° 14.1 22° 35.0	94° 43.1 22° 42.5	109° 12.1 22° 49.9	+29.3 +7.9	15.2 55.9
Чт 30	326° 16.7 24° 26.5	340° 44.4 24° 31.9	355° 12.0 24° 37.3	9° 39.5 24° 42.5	24° 07.0 24° 47.5	38° 34.4 24° 52.4	53° 01.7 24° 57.2	67° 28.9 25° 01.9	81° 56.1 25° 06.4	96° 23.2 25° 10.8	110° 50.2 25° 15.1	+27.3 +4.9	15.4 56.4
Пт 31	327° 27.9 26° 01.8	341° 54.0 26° 03.7	356° 20.0 26° 05.5	10° 45.9 26° 07.1	25° 11.8 26° 08.6	39° 37.7 26° 09.9	54° 03.5 26° 11.1	68° 29.3 26° 12.1	82° 55.1 26° 13.0	97° 20.8 26° 13.7	111° 46.4 26° 14.3	+25.8 +1.3	15.6 57.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 4 09h02 — Полнолуние: 11 01h06 — Последняя четв.: 17 23h22 — Новолуние: 26 04h31

СОЛНЦЕ

Апрель 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 03.3	284° 03.5	299° 03.7	314° 03.9	329° 04.0	344° 04.2	359° 04.4	14° 04.6	29° 04.8	44° 05.0	59° 05.2	74° 05.3	+0.2
	4° 45.5	4° 46.5	4° 47.5	4° 48.4	4° 49.4	4° 50.4	4° 51.3	4° 52.3	4° 53.2	4° 54.2	4° 55.2	4° 56.1	+1.0
Вс 2	269° 07.7	284° 07.9	299° 08.1	314° 08.3	329° 08.5	344° 08.6	359° 08.8	14° 09.0	29° 09.2	44° 09.4	59° 09.6	74° 09.7	+0.2
	5° 08.6	5° 09.6	5° 10.5	5° 11.5	5° 12.5	5° 13.4	5° 14.4	5° 15.3	5° 16.3	5° 17.2	5° 18.2	5° 19.2	+1.0
Пн 3	269° 12.1	284° 12.3	299° 12.5	314° 12.7	329° 12.8	344° 13.0	359° 13.2	14° 13.4	29° 13.6	44° 13.8	59° 13.9	74° 14.1	+0.2
	5° 31.6	5° 32.5	5° 33.5	5° 34.5	5° 35.4	5° 36.4	5° 37.3	5° 38.3	5° 39.2	5° 40.2	5° 41.1	5° 42.1	+1.0
Вт 4	269° 16.5	284° 16.6	299° 16.8	314° 17.0	329° 17.2	344° 17.4	359° 17.5	14° 17.7	29° 17.9	44° 18.1	59° 18.3	74° 18.4	+0.2
	5° 54.5	5° 55.4	5° 56.4	5° 57.3	5° 58.3	5° 59.2	6° 00.2	6° 01.1	6° 02.1	6° 03.0	6° 04.0	6° 04.9	+0.9
Ср 5	269° 20.8	284° 21.0	299° 21.1	314° 21.3	329° 21.5	344° 21.7	359° 21.9	14° 22.0	29° 22.2	44° 22.4	59° 22.6	74° 22.7	+0.2
	6° 17.2	6° 18.2	6° 19.1	6° 20.1	6° 21.0	6° 22.0	6° 22.9	6° 23.9	6° 24.8	6° 25.8	6° 26.7	6° 27.6	+0.9
Чт 6	269° 25.1	284° 25.2	299° 25.4	314° 25.6	329° 25.8	344° 25.9	359° 26.1	14° 26.3	29° 26.5	44° 26.6	59° 26.8	74° 27.0	+0.2
	6° 39.9	6° 40.8	6° 41.8	6° 42.7	6° 43.7	6° 44.6	6° 45.6	6° 46.5	6° 47.4	6° 48.4	6° 49.3	6° 50.3	+0.9
Пт 7	269° 29.3	284° 29.4	299° 29.6	314° 29.8	329° 30.0	344° 30.1	359° 30.3	14° 30.5	29° 30.7	44° 30.8	59° 31.0	74° 31.2	+0.2
	7° 02.4	7° 03.4	7° 04.3	7° 05.3	7° 06.2	7° 07.1	7° 08.1	7° 09.0	7° 09.9	7° 10.9	7° 11.8	7° 12.7	+0.9
Сб 8	269° 33.4	284° 33.6	299° 33.8	314° 34.0	329° 34.1	344° 34.3	359° 34.5	14° 34.6	29° 34.8	44° 35.0	59° 35.2	74° 35.3	+0.2
	7° 24.9	7° 25.8	7° 26.7	7° 27.7	7° 28.6	7° 29.5	7° 30.5	7° 31.4	7° 32.3	7° 33.3	7° 34.2	7° 35.1	+0.9
Вс 9	269° 37.5	284° 37.7	299° 37.9	314° 38.0	329° 38.2	344° 38.4	359° 38.6	14° 38.7	29° 38.9	44° 39.1	59° 39.2	74° 39.4	+0.2
	7° 47.2	7° 48.1	7° 49.0	7° 50.0	7° 50.9	7° 51.8	7° 52.7	7° 53.7	7° 54.6	7° 55.5	7° 56.4	7° 57.4	+0.9
Пн 10	269° 41.6	284° 41.7	299° 41.9	314° 42.1	329° 42.2	344° 42.4	359° 42.6	14° 42.7	29° 42.9	44° 43.1	59° 43.2	74° 43.4	+0.2
	8° 09.3	8° 10.3	8° 11.2	8° 12.1	8° 13.0	8° 13.9	8° 14.9	8° 15.8	8° 16.7	8° 17.6	8° 18.5	8° 19.5	+0.9
Вт 11	269° 45.5	284° 45.7	299° 45.9	314° 46.0	329° 46.2	344° 46.4	359° 46.5	14° 46.7	29° 46.9	44° 47.0	59° 47.2	74° 47.3	+0.2
	8° 31.4	8° 32.3	8° 33.2	8° 34.1	8° 35.0	8° 35.9	8° 36.9	8° 37.8	8° 38.7	8° 39.6	8° 40.5	8° 41.4	+0.9
Ср 12	269° 49.4	284° 49.6	299° 49.8	314° 49.9	329° 50.1	344° 50.2	359° 50.4	14° 50.6	29° 50.7	44° 50.9	59° 51.0	74° 51.2	+0.2
	8° 53.3	8° 54.2	8° 55.1	8° 56.0	8° 56.9	8° 57.8	8° 58.7	8° 59.6	9° 00.5	9° 01.4	9° 02.3	9° 03.3	+0.9
Чт 13	269° 53.3	284° 53.4	299° 53.6	314° 53.7	329° 53.9	344° 54.0	359° 54.2	14° 54.3	29° 54.5	44° 54.7	59° 54.8	74° 55.0	+0.2
	9° 15.0	9° 15.9	9° 16.8	9° 17.7	9° 18.6	9° 19.5	9° 20.4	9° 21.3	9° 22.2	9° 23.1	9° 24.0	9° 24.9	+0.9
Пт 14	269° 57.0	284° 57.1	299° 57.3	314° 57.4	329° 57.6	344° 57.7	359° 57.9	14° 58.0	29° 58.2	44° 58.4	59° 58.5	74° 58.7	+0.2
	9° 36.6	9° 37.5	9° 38.4	9° 39.3	9° 40.2	9° 41.1	9° 42.0	9° 42.9	9° 43.8	9° 44.7	9° 45.6	9° 46.5	+0.9
Сб 15	270° 00.6	285° 00.8	300° 00.9	315° 01.1	330° 01.2	345° 01.4	0° 01.5	15° 01.7	30° 01.8	45° 02.0	60° 02.1	75° 02.2	+0.1
	9° 58.0	9° 58.9	9° 59.8	10° 00.7	10° 01.6	10° 02.5	10° 03.4	10° 04.3	10° 05.2	10° 06.0	10° 06.9	10° 07.8	+0.9
Вс 16	270° 04.2	285° 04.3	300° 04.4	315° 04.6	330° 04.7	345° 04.9	0° 05.0	15° 05.2	30° 05.3	45° 05.5	60° 05.6	75° 05.7	+0.1
	10° 19.3	10° 20.2	10° 21.1	10° 22.0	10° 22.8	10° 23.7	10° 24.6	10° 25.5	10° 26.4	10° 27.3	10° 28.1	10° 29.0	+0.9
Пн 17	270° 07.6	285° 07.7	300° 07.9	315° 08.0	330° 08.2	345° 08.3	0° 08.4	15° 08.6	30° 08.7	45° 08.9	60° 09.0	75° 09.1	+0.1
	10° 40.4	10° 41.3	10° 42.2	10° 43.1	10° 43.9	10° 44.8	10° 45.7	10° 46.5	10° 47.4	10° 48.3	10° 49.2	10° 50.0	+0.9
Вт 18	270° 10.9	285° 11.1	300° 11.2	315° 11.4	330° 11.5	345° 11.6	0° 11.8	15° 11.9	30° 12.0	45° 12.2	60° 12.3	75° 12.4	+0.1
	11° 01.4	11° 02.2	11° 03.1	11° 04.0	11° 04.8	11° 05.7	11° 06.6	11° 07.4	11° 08.3	11° 09.2	11° 10.0	11° 10.9	+0.9
Ср 19	270° 14.2	285° 14.3	300° 14.4	315° 14.6	330° 14.7	345° 14.8	0° 15.0	15° 15.1	30° 15.2	45° 15.4	60° 15.5	75° 15.6	+0.1
	11° 22.1	11° 23.0	11° 23.8	11° 24.7	11° 25.5	11° 26.4	11° 27.3	11° 28.1	11° 29.0	11° 29.8	11° 30.7	11° 31.6	+0.9
Чт 20	270° 17.3	285° 17.4	300° 17.6	315° 17.7	330° 17.8	345° 17.9	0° 18.1	15° 18.2	30° 18.3	45° 18.4	60° 18.6	75° 18.7	+0.1
	11° 42.7	11° 43.5	11° 44.4	11° 45.2	11° 46.1	11° 46.9	11° 47.8	11° 48.6	11° 49.5	11° 50.3	11° 51.2	11° 52.0	+0.9
Пт 21	270° 20.3	285° 20.4	300° 20.6	315° 20.7	330° 20.8	345° 20.9	0° 21.1	15° 21.2	30° 21.3	45° 21.4	60° 21.5	75° 21.7	+0.1
	12° 03.0	12° 03.9	12° 04.7	12° 05.6	12° 06.4	12° 07.3	12° 08.1	12° 08.9	12° 09.8	12° 10.6	12° 11.5	12° 12.3	+0.8
Сб 22	270° 23.2	285° 23.3	300° 23.5	315° 23.6	330° 23.7	345° 23.8	0° 23.9	15° 24.0	30° 24.2	45° 24.3	60° 24.4	75° 24.5	+0.1
	12° 23.2	12° 24.0	12° 24.9	12° 25.7	12° 26.6	12° 27.4	12° 28.2	12° 29.1	12° 29.9	12° 30.7	12° 31.6	12° 32.4	+0.8
Вс 23	270° 26.0	285° 26.1	300° 26.2	315° 26.4	330° 26.5	345° 26.6	0° 26.7	15° 26.8	30° 26.9	45° 27.0	60° 27.1	75° 27.2	+0.1
	12° 43.2	12° 44.0	12° 44.8	12° 45.7	12° 46.5	12° 47.3	12° 48.1	12° 49.0	12° 49.8	12° 50.6	12° 51.4	12° 52.3	+0.8
Пн 24	270° 28.7	285° 28.8	300° 28.9	315° 29.0	330° 29.1	345° 29.2	0° 29.3	15° 29.4	30° 29.5	45° 29.6	60° 29.8	75° 29.9	+0.1
	13° 02.9	13° 03.8	13° 04.6	13° 05.4	13° 06.2	13° 07.0	13° 07.8	13° 08.7	13° 09.5	13° 10.3	13° 11.1	13° 11.9	+0.8
Вт 25	270° 31.2	285° 31.3	300° 31.4	315° 31.5	330° 31.6	345° 31.7	0° 31.8	15° 31.9	30° 32.1	45° 32.2	60° 32.3	75° 32.4	+0.1
	13° 22.5	13° 23.3	13° 24.1	13° 24.9	13° 25.7	13° 26.5	13° 27.3	13° 28.1	13° 28.9	13° 29.8	13° 30.6	13° 31.4	+0.8
Ср 26	270° 33.7	285° 33.8	300° 33.9	315° 33.9	330° 34.0	345° 34.1	0° 34.2	15° 34.3	30° 34.4	45° 34.5	60° 34.6	75° 34.7	+0.1
	13° 41.8	13° 42.6	13° 43.4	13° 44.2	13° 45.0	13° 45.8	13° 46.6	13° 47.4	13° 48.2	13° 49.0	13° 49.8	13° 50.6	+0.8
Чт 27	270° 36.0	285° 36.0	300° 36.1	315° 36.2	330° 36.3	345° 36.4	0° 36.5	15° 36.6	30° 36.7	45° 36.8	60° 36.9	75° 37.0	+0.1
	14° 00.9	14° 01.7	14° 02.5	14° 03.3	14° 04.1	14° 04.9	14° 05.6	14° 06.4	14° 07.2	14° 08.0	14° 08.8	14° 09.6	+0.8
Пт 28	270° 38.1	285° 38.2	300° 38.3	315° 38.4	330° 38.5	345° 38.6	0° 38.7	15° 38.7	30° 38.8	45° 38.9	60° 39.0	75° 39.1	+0.1
	14° 19.8	14° 20.5	14° 21.3	14° 22.1	14° 22.9	14° 23.7	14° 24.4	14° 25.2	14° 26.0	14° 26.8	14° 27.6	14° 28.3	+0.8
Сб 29	270° 40.2	285° 40.3	300° 40.3	315° 40.4	330° 40.5	345° 40.6	0° 40.7	15° 40.8	30° 40.8	45° 40.9	60° 41.0	75° 41.1	+0.1
	14° 38.4	14° 39.2	14° 39.9	14° 40.7	14° 41.5	14° 42.2	14° 43.0	14° 43.8	14° 44.6	14° 45.3	14° 46.1	14° 46.9	+0.8
Вс 30	270° 42.1	285° 42.2	300° 42.3	315° 42.3	330° 42.4	345° 42.5	0° 42.6	15° 42.6	30° 42.7	45° 42.8	60° 42.9	75° 42.9	+0.1
	14° 56.8	14° 57.5	14° 58.3	14° 59.1	14° 59.8	15° 00.6	15° 01.3	15° 02.1	15° 02.9	15° 03.6	15° 04.4	15° 05.1	+0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2028

Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
Сб 1	256° 01.2	270° 26.6	284° 51.9	299° 17.2	313° 42.5	328° 07.7	342° 33.0	356° 58.2	11° 23.4	25° 48.7	40° 13.9	+25.3	15.7
	26° 11.2	26° 10.0	26° 08.7	26° 07.2	26° 05.5	26° 03.7	26° 01.7	25° 59.6	25° 57.3	25° 54.8	25° 52.2	-1.9	57.6
◐ Вс 2	256° 32.1	270° 57.4	285° 22.7	299° 48.0	314° 13.4	328° 38.7	343° 04.1	357° 29.5	11° 54.9	26° 20.4	40° 45.9	+25.4	15.9
	24° 53.4	24° 48.3	24° 42.9	24° 37.4	24° 31.7	24° 25.9	24° 19.9	24° 13.8	24° 07.5	24° 01.1	23° 54.5	-5.9	58.3
Пн 3	257° 12.0	271° 38.0	286° 04.1	300° 30.2	314° 56.4	329° 22.6	343° 48.8	358° 15.1	12° 41.4	27° 07.8	41° 34.2	+26.2	16.1
	21° 57.4	21° 48.4	21° 39.3	21° 30.0	21° 20.6	21° 11.1	21° 01.4	20° 51.6	20° 41.6	20° 31.6	20° 21.3	-9.6	59.0
Вт 4	258° 16.2	272° 43.4	287° 10.6	301° 37.9	316° 05.2	330° 32.6	345° 00.0	359° 27.4	13° 54.9	28° 22.5	42° 50.1	+27.4	16.3
	17° 32.8	17° 20.6	17° 08.2	16° 55.8	16° 43.3	16° 30.6	16° 17.9	16° 05.0	15° 52.0	15° 39.0	15° 25.8	-12.7	59.6
Ср 5	259° 49.1	274° 17.3	288° 45.6	303° 13.9	317° 42.3	332° 10.7	346° 39.1	1° 07.5	15° 36.0	30° 04.6	44° 33.1	+28.4	16.4
	11° 56.7	11° 42.1	11° 27.4	11° 12.6	10° 57.8	10° 42.8	10° 27.8	10° 12.8	9° 57.6	9° 42.4	9° 27.1	-15.0	60.2
Чт 6	261° 44.4	276° 13.3	290° 42.2	305° 11.1	319° 40.1	334° 09.1	348° 38.0	3° 07.0	17° 36.0	32° 05.0	46° 34.0	+29.0	16.5
	5° 31.4	5° 15.3	4° 59.2	4° 43.1	4° 26.9	4° 10.7	3° 54.4	3° 38.2	3° 21.9	3° 05.5	2° 49.2	-16.2	60.5
Пт 7	263° 49.3	278° 18.3	292° 47.3	307° 16.2	321° 45.2	336° 14.1	350° 43.0	5° 11.9	19° 40.8	34° 09.7	48° 38.5	+28.9	16.5
	-1° 17.4	-1° 33.9	-1° 50.3	-2° 06.7	-2° 23.2	-2° 39.6	-2° 56.0	-3° 12.3	-3° 28.7	-3° 45.0	-4° 01.3	-16.4	60.6
Сб 8	265° 48.6	280° 17.1	294° 45.5	309° 13.9	323° 42.2	338° 10.5	352° 38.8	7° 07.0	21° 35.2	36° 03.4	50° 31.5	+28.3	16.5
	-8° 01.9	-8° 17.6	-8° 33.2	-8° 48.8	-9° 04.3	-9° 19.8	-9° 35.2	-9° 50.5	-10° 05.8	-10° 21.0	-10° 36.1	-15.4	60.4
○ Вс 9	267° 28.6	281° 56.0	296° 23.4	310° 50.8	325° 18.1	339° 45.4	354° 12.6	8° 39.8	23° 06.9	37° 34.0	52° 01.0	+27.2	16.3
	-14° 13.7	-14° 27.5	-14° 41.2	-14° 54.8	-15° 08.3	-15° 21.7	-15° 35.0	-15° 48.2	-16° 01.3	-16° 14.3	-16° 27.1	-13.3	59.9
Пн 10	268° 41.2	283° 07.5	297° 33.8	312° 00.1	326° 26.3	340° 52.4	355° 18.5	9° 44.6	24° 10.7	38° 36.7	53° 02.6	+26.1	16.1
	-19° 26.0	-19° 36.9	-19° 47.7	-19° 58.4	-20° 08.9	-20° 19.3	-20° 29.5	-20° 39.6	-20° 49.6	-20° 59.4	-21° 09.1	-10.3	59.2
Вт 11	269° 28.4	283° 53.9	298° 19.4	312° 44.9	327° 10.3	341° 35.8	356° 01.2	10° 26.6	24° 52.0	39° 17.4	53° 42.8	+25.4	15.9
	-23° 16.8	-23° 24.1	-23° 31.3	-23° 38.3	-23° 45.1	-23° 51.8	-23° 58.4	-24° 04.7	-24° 10.9	-24° 17.0	-24° 22.9	-6.6	58.3
Ср 12	270° 03.5	284° 29.0	298° 54.5	313° 19.9	327° 45.4	342° 11.0	356° 36.5	11° 02.1	25° 27.7	39° 53.3	54° 19.0	+25.5	15.7
	-25° 32.3	-25° 35.6	-25° 38.8	-25° 41.8	-25° 44.7	-25° 47.4	-25° 49.9	-25° 52.3	-25° 54.5	-25° 56.6	-25° 58.5	-2.6	57.4
Чт 13	270° 48.5	285° 14.8	299° 41.2	314° 07.6	328° 34.1	343° 00.7	357° 27.3	11° 54.0	26° 20.7	40° 47.5	55° 14.4	+26.6	15.4
	-26° 08.5	-26° 07.9	-26° 07.2	-26° 06.3	-26° 05.3	-26° 04.2	-26° 02.9	-26° 01.4	-25° 59.9	-25° 58.1	-25° 56.2	+1.2	56.5
Пт 14	272° 05.7	286° 33.7	301° 01.8	315° 30.0	329° 58.2	344° 26.5	358° 54.9	13° 23.4	27° 52.0	42° 20.7	56° 49.4	+28.4	15.2
	-25° 11.5	-25° 07.5	-25° 03.3	-24° 59.0	-24° 54.5	-24° 50.0	-24° 45.3	-24° 40.5	-24° 35.6	-24° 30.5	-24° 25.4	+4.6	55.7
Сб 15	286° 33.7	301° 01.8	315° 30.0	329° 58.2	344° 26.5	358° 54.9	13° 23.4	27° 52.0	42° 20.7	56° 49.4	71° 18.2	+28.5	15.2
	-25° 07.5	-25° 03.3	-24° 59.0	-24° 54.5	-24° 50.0	-24° 45.3	-24° 40.5	-24° 35.6	-24° 30.5	-24° 25.4	-24° 20.1	+4.7	55.7
◑ Вс 16	288° 40.6	303° 10.8	317° 41.0	332° 11.4	346° 41.8	1° 12.3	15° 42.9	30° 13.6	44° 44.3	59° 15.2	73° 46.1	+30.6	15.0
	-22° 47.3	-22° 40.3	-22° 33.1	-22° 25.9	-22° 18.5	-22° 11.1	-22° 03.6	-21° 55.9	-21° 48.2	-21° 40.4	-21° 32.5	+7.5	55.0
Пн 17	291° 39.7	306° 12.0	320° 44.2	335° 16.6	349° 49.0	4° 21.5	18° 54.1	33° 26.8	47° 59.5	62° 32.3	77° 05.1	+32.5	14.9
	-19° 23.2	-19° 13.9	-19° 04.6	-18° 55.1	-18° 45.6	-18° 36.1	-18° 26.4	-18° 16.7	-18° 06.9	-17° 57.0	-17° 47.1	+9.6	54.5
Вт 18	295° 26.1	310° 00.0	324° 34.0	339° 08.0	353° 42.0	8° 16.2	22° 50.3	37° 24.6	51° 58.8	66° 33.2	81° 07.6	+34.1	14.8
	-15° 10.3	-14° 59.4	-14° 48.4	-14° 37.3	-14° 26.2	-14° 15.1	-14° 03.9	-13° 52.6	-13° 41.3	-13° 29.9	-13° 18.5	+11.2	54.2
Ср 19	299° 48.8	314° 23.9	328° 59.0	343° 34.2	358° 09.3	12° 44.6	27° 19.8	41° 55.1	56° 30.4	71° 05.7	85° 41.1	+35.2	14.7
	-10° 22.0	-10° 09.9	-9° 57.7	-9° 45.6	-9° 33.4	-9° 21.1	-9° 08.8	-8° 56.5	-8° 44.2	-8° 31.8	-8° 19.4	+12.3	54.1
Чт 20	304° 34.1	319° 09.8	333° 45.5	348° 21.2	2° 56.9	17° 32.6	32° 08.3	46° 44.0	61° 19.8	75° 55.5	90° 31.2	+35.7	14.8
	-5° 09.9	-4° 57.0	-4° 44.2	-4° 31.3	-4° 18.4	-4° 05.5	-3° 52.6	-3° 39.6	-3° 26.7	-3° 13.7	-3° 00.7	+12.9	54.1
Пт 21	309° 27.0	324° 02.7	338° 38.3	353° 13.9	7° 49.6	22° 25.2	37° 00.7	51° 36.3	66° 11.8	80° 47.4	95° 22.9	+35.6	14.8
	0° 15.5	0° 28.7	0° 41.8	0° 55.0	1° 08.1	1° 21.3	1° 34.4	1° 47.6	2° 00.7	2° 13.9	2° 27.0	+13.2	54.3
Сб 22	314° 12.2	328° 47.2	343° 22.2	357° 57.1	12° 32.1	27° 06.9	41° 41.8	56° 16.5	70° 51.3	85° 26.0	100° 00.7	+34.9	14.9
	5° 43.5	5° 56.5	6° 09.5	6° 22.5	6° 35.5	6° 48.4	7° 01.3	7° 14.2	7° 27.1	7° 40.0	7° 52.8	+12.9	54.6
Вс 23	318° 34.4	333° 08.3	347° 42.0	2° 15.7	16° 49.3	31° 22.9	45° 56.4	60° 29.8	75° 03.2	89° 36.5	104° 09.7	+33.5	15.0
	11° 02.2	11° 14.5	11° 26.9	11° 39.2	11° 51.4	12° 03.6	12° 15.8	12° 27.9	12° 40.0	12° 52.0	13° 04.0	+12.2	55.0
● Пн 24	322° 19.7	336° 51.8	351° 23.8	5° 55.7	20° 27.5	34° 59.3	49° 31.0	64° 02.6	78° 34.1	93° 05.5	107° 36.8	+31.7	15.1
	15° 57.6	16° 08.7	16° 19.7	16° 30.7	16° 41.6	16° 52.4	17° 03.2	17° 13.9	17° 24.5	17° 35.1	17° 45.6	+10.8	55.5
Вт 25	325° 16.8	339° 46.8	354° 16.6	8° 46.4	23° 16.2	37° 45.8	52° 15.3	66° 44.8	81° 14.1	95° 43.4	110° 12.6	+29.6	15.3
	20° 13.2	20° 22.3	20° 31.3	20° 40.3	20° 49.1	20° 57.9	21° 06.5	21° 15.1	21° 23.6	21° 31.9	21° 40.1	+8.7	56.0
Ср 26	327° 20.2	341° 48.0	356° 15.8	10° 43.5	25° 11.1	39° 38.6	54° 06.1	68° 33.4	83° 00.7	97° 28.0	111° 55.1	+27.5	15.4
	23° 30.5	23° 36.9	23° 43.2	23° 49.4	23° 55.4	24° 01.3	24° 07.1	24° 12.7	24° 18.3	24° 23.6	24° 28.9	+5.8	56.5
Чт 27	328° 34.3	343° 00.4	357° 26.4	11° 52.5	26° 18.4	40° 44.3	55° 10.2	69° 36.0	84° 01.8	98° 27.6	112° 53.2	+25.9	15.5
	25° 31.1	25° 34.1	25° 37.0	25° 39.7	25° 42.2	25° 44.6	25° 46.9	25° 49.0	25° 50.9	25° 52.7	25° 54.3	+2.3	57.0
Пт 28	329° 14.8	343° 40.0	358° 05.3	12° 30.5	26° 55.7	41° 20.9	55° 46.1	70° 11.3	84° 36.5	99° 01.7	113° 26.9	+25.2	15.7
	26° 00.2	25° 59.3	25° 58.3	25° 57.1	25° 55.7	25° 54.2	25° 52.6	25° 50.7	25° 48.7	25° 46.6	25° 44.3	-1.6	57.5
Сб 29	329° 45.9	344° 11.3	358° 36.8	13° 02.2	27° 27.7	41° 53.3	56° 18.8	70° 44.4	85° 10.1	99° 35.7	114° 01.4	+25.5	15.8
	24° 50.5	24° 45.6	24° 40.6	24° 35.5	24° 30.2	24° 24.7	24° 19.1	24° 13.3	24° 07.4	24° 01.3	23° 55.1	-5.5	58.0
Вс 30	330° 32.0	344° 58.4	359° 24.9	13° 51.4	28° 18.0	42° 44.6	57° 11.3	71° 38.0	86° 04.8	100° 31.6	114° 58.5	+26.7	16.0
	22° 04.3	21° 55.8	21° 47.2	21° 38.4	21° 29.5	21° 20.4	21° 11.2	21° 01.9	20° 52.5	20° 42.9	20° 33.2	-9.1	58.5

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 2 19h15 — Полнолуние: 9 10h26 — Последняя четв.: 16 16h36 — Новолуние: 24 19h46

СОЛНЦЕ

Май 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	270° 43.9 15° 14.9	285° 44.0 15° 15.7	300° 44.0 15° 16.4	315° 44.1 15° 17.2	330° 44.2 15° 17.9	345° 44.3 15° 18.7	0° 44.3 15° 19.4	15° 44.4 15° 20.2	30° 44.5 15° 20.9	45° 44.5 15° 21.7	60° 44.6 15° 22.4	75° 44.7 15° 23.1	+0.1 +0.7
Вт 2	270° 45.6 15° 32.8	285° 45.6 15° 33.5	300° 45.7 15° 34.3	315° 45.8 15° 35.0	330° 45.8 15° 35.8	345° 45.9 15° 36.5	0° 46.0 15° 37.2	15° 46.0 15° 38.0	30° 46.1 15° 38.7	45° 46.2 15° 39.4	60° 46.2 15° 40.2	75° 46.3 15° 40.9	+0.1 +0.7
Ср 3	270° 47.1 15° 50.4	285° 47.2 15° 51.1	300° 47.2 15° 51.9	315° 47.3 15° 52.6	330° 47.3 15° 53.3	345° 47.4 15° 54.1	0° 47.5 15° 54.8	15° 47.5 15° 55.5	30° 47.6 15° 56.2	45° 47.6 15° 57.0	60° 47.7 15° 57.7	75° 47.8 15° 58.4	+0.1 +0.7
Чт 4	270° 48.5 16° 07.8	285° 48.6 16° 08.5	300° 48.6 16° 09.2	315° 48.7 16° 09.9	330° 48.7 16° 10.6	345° 48.8 16° 11.4	0° 48.8 16° 12.1	15° 48.9 16° 12.8	30° 48.9 16° 13.5	45° 49.0 16° 14.2	60° 49.0 16° 14.9	75° 49.1 16° 15.6	+0.1 +0.7
Пт 5	270° 49.8 16° 24.9	285° 49.8 16° 25.6	300° 49.9 16° 26.3	315° 49.9 16° 27.0	330° 50.0 16° 27.7	345° 50.0 16° 28.4	0° 50.1 16° 29.1	15° 50.1 16° 29.8	30° 50.2 16° 30.5	45° 50.2 16° 31.2	60° 50.3 16° 31.9	75° 50.3 16° 32.6	+0.0 +0.7
Сб 6	270° 50.9 16° 41.7	285° 50.9 16° 42.4	300° 51.0 16° 43.1	315° 51.0 16° 43.8	330° 51.1 16° 44.5	345° 51.1 16° 45.2	0° 51.2 16° 45.8	15° 51.2 16° 46.5	30° 51.2 16° 47.2	45° 51.3 16° 47.9	60° 51.3 16° 48.6	75° 51.4 16° 49.3	+0.0 +0.7
Вс 7	270° 51.9 16° 58.2	285° 51.9 16° 58.9	300° 52.0 16° 59.6	315° 52.0 17° 00.3	330° 52.0 17° 00.9	345° 52.1 17° 01.6	0° 52.1 17° 02.3	15° 52.2 17° 03.0	30° 52.2 17° 03.7	45° 52.2 17° 04.3	60° 52.3 17° 05.0	75° 52.3 17° 05.7	+0.0 +0.7
Пн 8	270° 52.7 17° 14.5	285° 52.8 17° 15.1	300° 52.8 17° 15.8	315° 52.8 17° 16.5	330° 52.9 17° 17.2	345° 52.9 17° 17.8	0° 52.9 17° 18.5	15° 53.0 17° 19.2	30° 53.0 17° 19.8	45° 53.0 17° 20.5	60° 53.1 17° 21.2	75° 53.1 17° 21.8	+0.0 +0.7
Вт 9	270° 53.5 17° 30.4	285° 53.5 17° 31.1	300° 53.5 17° 31.8	315° 53.5 17° 32.4	330° 53.6 17° 33.1	345° 53.6 17° 33.7	0° 53.6 17° 34.4	15° 53.6 17° 35.0	30° 53.7 17° 35.7	45° 53.7 17° 36.4	60° 53.7 17° 37.0	75° 53.7 17° 37.7	+0.0 +0.7
Ср 10	270° 54.0 17° 46.1	285° 54.0 17° 46.8	300° 54.1 17° 47.4	315° 54.1 17° 48.1	330° 54.1 17° 48.7	345° 54.1 17° 49.3	0° 54.1 17° 50.0	15° 54.2 17° 50.6	30° 54.2 17° 51.3	45° 54.2 17° 51.9	60° 54.2 17° 52.6	75° 54.2 17° 53.2	+0.0 +0.6
Чт 11	270° 54.4 18° 01.5	285° 54.5 18° 02.1	300° 54.5 18° 02.8	315° 54.5 18° 03.4	330° 54.5 18° 04.0	345° 54.5 18° 04.7	0° 54.5 18° 05.3	15° 54.5 18° 05.9	30° 54.6 18° 06.5	45° 54.6 18° 07.2	60° 54.6 18° 07.8	75° 54.6 18° 08.4	+0.0 +0.6
Пт 12	270° 54.7 18° 16.6	285° 54.7 18° 17.2	300° 54.7 18° 17.8	315° 54.7 18° 18.4	330° 54.8 18° 19.0	345° 54.8 18° 19.7	0° 54.8 18° 20.3	15° 54.8 18° 20.9	30° 54.8 18° 21.5	45° 54.8 18° 22.1	60° 54.8 18° 22.8	75° 54.8 18° 23.4	+0.0 +0.6
Сб 13	270° 54.9 18° 31.3	285° 54.9 18° 31.9	300° 54.9 18° 32.6	315° 54.9 18° 33.2	330° 54.9 18° 33.8	345° 54.9 18° 34.4	0° 54.9 18° 35.0	15° 54.9 18° 35.6	30° 54.9 18° 36.2	45° 54.9 18° 36.8	60° 54.9 18° 37.4	75° 54.9 18° 38.0	+0.0 +0.6
Вс 14	270° 54.8 18° 45.8	285° 54.8 18° 46.4	300° 54.8 18° 47.0	315° 54.8 18° 47.6	330° 54.8 18° 48.2	345° 54.8 18° 48.8	0° 54.8 18° 49.4	15° 54.8 18° 50.0	30° 54.8 18° 50.5	45° 54.8 18° 51.1	60° 54.8 18° 51.7	75° 54.8 18° 52.3	-0.0 +0.6
Пн 15	270° 54.7 18° 59.9	285° 54.7 19° 00.5	300° 54.7 19° 01.1	315° 54.7 19° 01.7	330° 54.6 19° 02.3	345° 54.6 19° 02.8	0° 54.6 19° 03.4	15° 54.6 19° 04.0	30° 54.6 19° 04.6	45° 54.6 19° 05.2	60° 54.6 19° 05.7	75° 54.6 19° 06.3	-0.0 +0.6
Вт 16	270° 54.4 19° 13.8	285° 54.4 19° 14.3	300° 54.3 19° 14.9	315° 54.3 19° 15.5	330° 54.3 19° 16.0	345° 54.3 19° 16.6	0° 54.3 19° 17.2	15° 54.3 19° 17.7	30° 54.2 19° 18.3	45° 54.2 19° 18.9	60° 54.2 19° 19.4	75° 54.2 19° 20.0	-0.0 +0.6
Ср 17	270° 53.9 19° 27.3	285° 53.9 19° 27.8	300° 53.9 19° 28.4	315° 53.9 19° 28.9	330° 53.8 19° 29.5	345° 53.8 19° 30.0	0° 53.8 19° 30.6	15° 53.8 19° 31.1	30° 53.7 19° 31.7	45° 53.7 19° 32.2	60° 53.7 19° 32.8	75° 53.7 19° 33.3	-0.0 +0.6
Чт 18	270° 53.3 19° 40.4	285° 53.3 19° 41.0	300° 53.3 19° 41.5	315° 53.3 19° 42.0	330° 53.2 19° 42.6	345° 53.2 19° 43.1	0° 53.2 19° 43.7	15° 53.1 19° 44.2	30° 53.1 19° 44.7	45° 53.1 19° 45.3	60° 53.0 19° 45.8	75° 53.0 19° 46.3	-0.0 +0.5
Пт 19	270° 52.6 19° 53.3	285° 52.6 19° 53.8	300° 52.5 19° 54.3	315° 52.5 19° 54.8	330° 52.5 19° 55.4	345° 52.4 19° 55.9	0° 52.4 19° 56.4	15° 52.4 19° 56.9	30° 52.3 19° 57.5	45° 52.3 19° 58.0	60° 52.3 19° 58.5	75° 52.2 19° 59.0	-0.0 +0.5
Сб 20	270° 51.7 20° 05.7	285° 51.7 20° 06.3	300° 51.6 20° 06.8	315° 51.6 20° 07.3	330° 51.6 20° 07.8	345° 51.5 20° 08.3	0° 51.5 20° 08.8	15° 51.4 20° 09.3	30° 51.4 20° 09.8	45° 51.4 20° 10.3	60° 51.3 20° 10.8	75° 51.3 20° 11.4	-0.0 +0.5
Вс 21	270° 50.7 20° 17.9	285° 50.7 20° 18.4	300° 50.6 20° 18.9	315° 50.6 20° 19.4	330° 50.5 20° 19.9	345° 50.5 20° 20.4	0° 50.4 20° 20.9	15° 50.4 20° 21.4	30° 50.3 20° 21.9	45° 50.3 20° 22.4	60° 50.2 20° 22.9	75° 50.2 20° 23.3	-0.0 +0.5
Пн 22	270° 49.6 20° 29.7	285° 49.5 20° 30.2	300° 49.5 20° 30.7	315° 49.4 20° 31.1	330° 49.4 20° 31.6	345° 49.3 20° 32.1	0° 49.3 20° 32.6	15° 49.2 20° 33.1	30° 49.2 20° 33.5	45° 49.1 20° 34.0	60° 49.0 20° 34.5	75° 49.0 20° 35.0	-0.1 +0.5
Вт 23	270° 48.3 20° 41.1	285° 48.2 20° 41.6	300° 48.2 20° 42.1	315° 48.1 20° 42.5	330° 48.1 20° 43.0	345° 48.0 20° 43.5	0° 47.9 20° 43.9	15° 47.9 20° 44.4	30° 47.8 20° 44.9	45° 47.8 20° 45.3	60° 47.7 20° 45.8	75° 47.7 20° 46.3	-0.1 +0.5
Ср 24	270° 46.9 20° 52.2	285° 46.8 20° 52.7	300° 46.8 20° 53.1	315° 46.7 20° 53.6	330° 46.6 20° 54.0	345° 46.6 20° 54.5	0° 46.5 20° 55.0	15° 46.4 20° 55.4	30° 46.4 20° 55.9	45° 46.3 20° 56.3	60° 46.3 20° 56.8	75° 46.2 20° 57.2	-0.1 +0.5
Чт 25	270° 45.3 21° 03.0	285° 45.3 21° 03.4	300° 45.2 21° 03.8	315° 45.1 21° 04.3	330° 45.1 21° 04.7	345° 45.0 21° 05.2	0° 44.9 21° 05.6	15° 44.9 21° 06.0	30° 44.8 21° 06.5	45° 44.7 21° 06.9	60° 44.7 21° 07.3	75° 44.6 21° 07.8	-0.1 +0.4
Пт 26	270° 43.7 21° 13.3	285° 43.6 21° 13.8	300° 43.5 21° 14.2	315° 43.5 21° 14.6	330° 43.4 21° 15.0	345° 43.3 21° 15.5	0° 43.3 21° 15.9	15° 43.2 21° 16.3	30° 43.1 21° 16.7	45° 43.0 21° 17.1	60° 43.0 21° 17.6	75° 42.9 21° 18.0	-0.1 +0.4
Сб 27	270° 41.9 21° 23.3	285° 41.8 21° 23.7	300° 41.8 21° 24.2	315° 41.7 21° 24.6	330° 41.6 21° 25.0	345° 41.5 21° 25.4	0° 41.5 21° 25.8	15° 41.4 21° 26.2	30° 41.3 21° 26.6	45° 41.2 21° 27.0	60° 41.1 21° 27.4	75° 41.1 21° 27.8	-0.1 +0.4
Вс 28	270° 40.0 21° 33.0	285° 40.0 21° 33.4	300° 39.9 21° 33.8	315° 39.8 21° 34.1	330° 39.7 21° 34.5	345° 39.6 21° 34.9	0° 39.5 21° 35.3	15° 39.5 21° 35.7	30° 39.4 21° 36.1	45° 39.3 21° 36.5	60° 39.2 21° 36.9	75° 39.1 21° 37.3	-0.1 +0.4
Пн 29	270° 38.0 21° 42.2	285° 38.0 21° 42.6	300° 37.9 21° 43.0	315° 37.8 21° 43.4	330° 37.7 21° 43.7	345° 37.6 21° 44.1	0° 37.5 21° 44.5	15° 37.4 21° 44.9	30° 37.4 21° 45.2	45° 37.3 21° 45.6	60° 37.2 21° 46.0	75° 37.1 21° 46.3	-0.1 +0.4
Вт 30	270° 35.9 21° 51.1	285° 35.9 21° 51.5	300° 35.8 21° 51.8	315° 35.7 21° 52.2	330° 35.6 21° 52.6	345° 35.5 21° 52.9	0° 35.4 21° 53.3	15° 35.3 21° 53.6	30° 35.2 21° 54.0	45° 35.1 21° 54.3	60° 35.0 21° 54.7	75° 35.0 21° 55.1	-0.1 +0.4
Ср 31	270° 33.8 21° 59.6	285° 33.7 22° 00.0	300° 33.6 22° 00.3	315° 33.5 22° 00.6	330° 33.4 22° 01.0	345° 33.3 22° 01.3	0° 33.2 22° 01.7	15° 33.1 22° 02.0	30° 33.0 22° 02.4	45° 32.9 22° 02.7	60° 32.8 22° 03.0	75° 32.7 22° 03.4	-0.1 +0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2028

	Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
	Пн 1	245° 03.1 19° 00.3	259° 30.6 18° 49.4	273° 58.1 18° 38.4	288° 25.7 18° 27.2	302° 53.3 18° 16.0	317° 21.0 18° 04.6	331° 48.7 17° 53.1	346° 16.5 17° 41.6	0° 44.3 17° 29.9	15° 12.2 17° 18.1	29° 40.2 17° 06.2	+27.7 -11.4	16.0 58.8
◐	Вт 2	246° 46.0 13° 55.8	261° 14.7 13° 42.4	275° 43.6 13° 28.9	290° 12.5 13° 15.4	304° 41.4 13° 01.7	319° 10.4 12° 48.0	333° 39.4 12° 34.2	348° 08.4 12° 20.3	2° 37.5 12° 06.3	17° 06.7 11° 52.3	31° 35.8 11° 38.2	+29.0 -13.8	16.1 59.2
	Ср 3	248° 57.9 7° 59.0	263° 27.7 7° 43.9	277° 57.4 7° 28.8	292° 27.2 7° 13.6	306° 57.0 6° 58.4	321° 26.8 6° 43.2	335° 56.6 6° 27.9	350° 26.5 6° 12.6	4° 56.4 5° 57.2	19° 26.3 5° 41.8	33° 56.2 5° 26.4	+29.8 -15.3	16.2 59.5
	Чт 4	251° 26.2 1° 31.5	265° 56.2 1° 15.7	280° 26.2 0° 59.9	294° 56.3 0° 44.1	309° 26.3 0° 28.2	323° 56.3 0° 12.4	338° 26.3 -0° 03.5	352° 56.3 -0° 19.3	7° 26.3 -0° 35.2	21° 56.3 -0° 51.0	36° 26.3 -1° 06.9	+30.0 -15.8	16.3 59.7
	Пт 5	253° 54.0 -5° 03.3	268° 23.7 -5° 18.9	282° 53.3 -5° 34.5	297° 22.9 -5° 50.1	311° 52.5 -6° 05.6	326° 22.1 -6° 21.0	340° 51.6 -6° 36.5	355° 21.0 -6° 51.9	9° 50.5 -7° 07.3	24° 19.9 -7° 22.6	38° 49.3 -7° 37.9	+29.5 -15.5	16.3 59.7
	Сб 6	256° 04.9 -11° 21.1	270° 33.6 -11° 35.5	285° 02.2 -11° 49.8	299° 30.8 -12° 04.1	313° 59.3 -12° 18.3	328° 27.8 -12° 32.4	342° 56.2 -12° 46.4	357° 24.6 -13° 00.4	11° 52.9 -13° 14.3	26° 21.1 -13° 28.1	40° 49.3 -13° 41.8	+28.4 -14.1	16.2 59.6
	Вс 7	257° 45.7 -16° 56.6	272° 13.0 -17° 08.8	286° 40.3 -17° 20.9	301° 07.5 -17° 32.9	315° 34.6 -17° 44.7	330° 01.7 -17° 56.5	344° 28.7 -18° 08.1	358° 55.6 -18° 19.6	13° 22.5 -18° 31.0	27° 49.4 -18° 42.3	42° 16.2 -18° 53.5	+27.0 -11.7	16.1 59.2
○	Пн 8	258° 51.5 -21° 25.6	273° 17.4 -21° 34.7	287° 43.3 -21° 43.6	302° 09.2 -21° 52.4	316° 35.0 -22° 01.1	331° 00.8 -22° 09.6	345° 26.5 -22° 17.9	359° 52.2 -22° 26.2	14° 17.9 -22° 34.2	28° 43.5 -22° 42.1	43° 09.0 -22° 49.9	+25.8 -8.4	16.0 58.7
	Вт 9	259° 29.0 -24° 28.2	273° 54.1 -24° 33.5	288° 19.3 -24° 38.6	302° 44.4 -24° 43.6	317° 09.5 -24° 48.5	331° 34.6 -24° 53.1	345° 59.7 -24° 57.6	0° 24.8 -25° 02.0	14° 49.9 -25° 06.2	29° 15.0 -25° 10.2	43° 40.1 -25° 14.0	+25.1 -4.6	15.8 58.0
	Ср 10	259° 57.6 -25° 52.6	274° 23.0 -25° 53.9	288° 48.3 -25° 55.1	303° 13.7 -25° 56.0	317° 39.1 -25° 56.8	332° 04.6 -25° 57.5	346° 30.1 -25° 58.0	0° 55.6 -25° 58.3	15° 21.2 -25° 58.5	29° 46.8 -25° 58.5	44° 12.5 -25° 58.4	+25.5 -0.6	15.6 57.2
	Чт 11	260° 43.6 -25° 38.2	275° 10.2 -25° 35.7	289° 36.8 -25° 33.0	304° 03.5 -25° 30.2	318° 30.3 -25° 27.3	332° 57.1 -25° 24.2	347° 24.0 -25° 20.9	1° 51.0 -25° 17.6	16° 18.1 -25° 14.1	30° 45.2 -25° 10.4	45° 12.4 -25° 06.6	+26.9 +3.2	15.4 56.5
	Пт 12	262° 10.4 -23° 54.4	276° 38.9 -23° 48.6	291° 07.6 -23° 42.6	305° 36.3 -23° 36.6	320° 05.1 -23° 30.4	334° 34.0 -23° 24.2	349° 03.0 -23° 17.8	3° 32.0 -23° 11.3	18° 01.2 -23° 04.7	32° 30.5 -22° 58.0	46° 59.8 -22° 51.2	+28.9 +6.3	15.2 55.7
	Сб 13	264° 30.8 -20° 56.7	279° 01.5 -20° 48.3	293° 32.4 -20° 39.8	308° 03.4 -20° 31.2	322° 34.4 -20° 22.6	337° 05.5 -20° 13.8	351° 36.7 -20° 05.0	6° 08.0 -19° 56.1	20° 39.4 -19° 47.1	35° 10.9 -19° 38.0	49° 42.4 -19° 28.8	+31.2 +8.8	15.0 55.1
	Вс 14	267° 45.5 -17° 02.4	282° 18.4 -16° 52.1	296° 51.3 -16° 41.7	311° 24.2 -16° 31.3	325° 57.3 -16° 20.8	340° 30.4 -16° 10.2	355° 03.6 -15° 59.6	9° 36.9 -15° 48.9	24° 10.2 -15° 38.2	38° 43.6 -15° 27.3	53° 17.0 -15° 16.5	+33.2 +10.6	14.9 54.6
	Пн 15	282° 18.4 -16° 52.1	296° 51.3 -16° 41.7	311° 24.2 -16° 31.3	325° 57.3 -16° 20.8	340° 30.4 -16° 10.2	355° 03.6 -15° 59.6	9° 36.9 -15° 48.9	24° 10.2 -15° 38.2	38° 43.6 -15° 27.3	53° 17.0 -15° 16.5	67° 50.6 -15° 05.6	+33.2 +10.7	14.9 54.6
◑	Вт 16	286° 20.9 -12° 15.7	300° 55.4 -12° 04.0	315° 29.9 -11° 52.3	330° 04.5 -11° 40.5	344° 39.1 -11° 28.7	359° 13.8 -11° 16.8	13° 48.5 -11° 04.9	28° 23.3 -10° 53.0	42° 58.1 -10° 41.0	57° 32.9 -10° 29.0	72° 07.8 -10° 16.9	+34.7 +11.9	14.8 54.3
	Ср 17	290° 55.7 -7° 12.2	305° 31.2 -6° 59.7	320° 06.7 -6° 47.1	334° 42.2 -6° 34.5	349° 17.7 -6° 21.9	3° 53.2 -6° 09.3	18° 28.8 -5° 56.6	33° 04.4 -5° 44.0	47° 40.0 -5° 31.3	62° 15.6 -5° 18.5	76° 51.2 -5° 05.8	+35.6 +12.6	14.8 54.2
	Чт 18	295° 47.2 -1° 52.7	310° 23.0 -1° 39.7	324° 58.7 -1° 26.8	339° 34.5 -1° 13.8	354° 10.3 -1° 00.8	8° 46.0 -0° 47.8	23° 21.8 -0° 34.8	37° 57.5 -0° 21.7	52° 33.3 -0° 08.7	67° 09.0 0° 04.3	81° 44.8 0° 17.3	+35.8 +13.0	14.8 54.3
	Пт 19	300° 38.8 3° 32.9	315° 14.2 3° 45.9	329° 49.7 3° 58.9	344° 25.0 4° 11.9	359° 00.4 4° 24.8	13° 35.7 4° 37.8	28° 11.0 4° 50.8	42° 46.2 5° 03.7	57° 21.5 5° 16.7	71° 56.6 5° 29.6	86° 31.8 5° 42.5	+35.3 +13.0	14.9 54.5
	Сб 20	305° 14.0 8° 54.1	319° 48.4 9° 06.7	334° 22.8 9° 19.2	348° 57.1 9° 31.8	3° 31.4 9° 44.3	18° 05.6 9° 56.8	32° 39.8 10° 09.2	47° 13.8 10° 21.6	61° 47.9 10° 34.0	76° 21.9 10° 46.4	90° 55.8 10° 58.7	+34.2 +12.5	15.0 54.9
	Вс 21	309° 16.5 13° 58.8	323° 49.3 14° 10.4	338° 22.0 14° 22.0	352° 54.7 14° 33.6	7° 27.3 14° 45.1	21° 59.8 14° 56.5	36° 32.2 15° 07.9	51° 04.5 15° 19.2	65° 36.8 15° 30.5	80° 08.9 15° 41.7	94° 41.0 15° 52.8	+32.5 +11.4	15.1 55.4
	Пн 22	312° 32.0 18° 32.0	327° 02.6 18° 42.0	341° 33.2 18° 52.0	356° 03.7 19° 01.8	10° 34.1 19° 11.6	25° 04.4 19° 21.3	39° 34.6 19° 30.9	54° 04.7 19° 40.4	68° 34.8 19° 49.9	83° 04.7 19° 59.2	97° 34.5 20° 08.5	+30.3 +9.7	15.3 56.0
	Вт 23	314° 50.5 22° 15.5	329° 18.8 22° 23.1	343° 47.1 22° 30.6	358° 15.2 22° 38.0	12° 43.2 22° 45.3	27° 11.1 22° 52.5	41° 39.0 22° 59.5	56° 06.7 23° 06.4	70° 34.4 23° 13.3	85° 02.0 23° 19.9	99° 29.4 23° 26.5	+27.9 +7.1	15.4 56.6
●	Ср 24	316° 11.4 24° 49.2	330° 37.5 24° 53.6	345° 03.6 24° 57.9	359° 29.6 25° 02.0	13° 55.6 25° 06.0	28° 21.5 25° 09.9	42° 47.3 25° 13.6	57° 13.0 25° 17.1	71° 38.7 25° 20.5	86° 04.3 25° 23.7	100° 29.8 25° 26.8	+25.8 +3.8	15.6 57.2
	Чт 25	316° 46.6 25° 54.6	331° 11.4 25° 55.1	345° 36.2 25° 55.5	0° 00.9 25° 55.8	14° 25.6 25° 55.9	28° 50.2 25° 55.8	43° 14.9 25° 55.5	57° 39.5 25° 55.1	72° 04.1 25° 54.6	86° 28.6 25° 53.8	100° 53.2 25° 52.9	+24.6 -0.2	15.8 57.8
	Пт 26	317° 00.9 25° 19.5	331° 25.5 25° 16.0	345° 50.0 25° 12.3	0° 14.6 25° 08.4	14° 39.2 25° 04.4	29° 03.9 25° 00.2	43° 28.5 24° 55.8	57° 53.2 24° 51.3	72° 17.9 24° 46.6	86° 42.7 24° 41.8	101° 07.4 24° 36.8	+24.6 -4.3	15.9 58.3
	Сб 27	317° 23.7 23° 03.1	331° 49.1 22° 55.6	346° 14.7 22° 48.0	0° 40.2 22° 40.2	15° 05.8 22° 32.3	29° 31.5 22° 24.3	43° 57.3 22° 16.1	58° 23.1 22° 07.8	72° 48.9 21° 59.4	87° 14.8 21° 50.8	101° 40.8 21° 42.0	+25.7 -8.1	16.0 58.7
	Вс 28	318° 18.1 19° 15.4	332° 45.1 19° 04.6	347° 12.2 18° 53.7	1° 39.3 18° 42.7	16° 06.6 18° 31.6	30° 33.9 18° 20.4	45° 01.2 18° 09.1	59° 28.6 17° 57.6	73° 56.1 17° 46.1	88° 23.7 17° 34.4	102° 51.3 17° 22.7	+27.3 -11.3	16.1 59.0
	Пн 29	319° 53.6 14° 14.8	334° 22.3 14° 01.5	348° 51.0 13° 48.2	3° 19.8 13° 34.8	17° 48.7 13° 21.4	32° 17.6 13° 07.8	46° 46.5 12° 54.2	61° 15.5 12° 40.5	75° 44.6 12° 26.8	90° 13.7 12° 12.9	104° 42.9 11° 59.0	+28.9 -13.6	16.1 59.1
	Вт 30	322° 06.5 8° 23.3	336° 36.4 8° 08.5	351° 06.4 7° 53.6	5° 36.4 7° 38.7	20° 06.5 7° 23.8	34° 36.5 7° 08.9	49° 06.6 6° 53.9	63° 36.8 6° 38.8	78° 07.0 6° 23.7	92° 37.2 6° 08.6	107° 07.4 5° 53.5	+30.1 -15.0	16.1 59.2
◐	Ср 31	324° 43.8 2° 03.4	339° 14.3 1° 47.9	353° 44.9 1° 32.4	8° 15.5 1° 17.0	22° 46.1 1° 01.5	37° 16.7 0° 46.0	51° 47.3 0° 30.5	66° 17.9 0° 15.0	80° 48.5 -0° 00.5	95° 19.1 -0° 16.0	109° 49.7 -0° 31.5	+30.6 -15.5	16.1 59.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 2 02h25 — Полнолуние: 8 19h48 — Последняя четв.: 16 10h43 — Новолуние: 24 08h16 — Первая четв.: 31 07h36

СОЛНЦЕ

Июнь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	270° 31.5	285° 31.4	300° 31.3	315° 31.2	330° 31.1	345° 31.0	0° 30.9	15° 30.8	30° 30.7	45° 30.6	60° 30.5	75° 30.4	-0.1
	22° 07.7	22° 08.1	22° 08.4	22° 08.7	22° 09.0	22° 09.4	22° 09.7	22° 10.0	22° 10.3	22° 10.7	22° 11.0	22° 11.3	+0.3
Пт 2	270° 29.1	285° 29.0	300° 28.9	315° 28.8	330° 28.7	345° 28.6	0° 28.5	15° 28.4	30° 28.3	45° 28.2	60° 28.1	75° 28.0	-0.1
	22° 15.4	22° 15.8	22° 16.1	22° 16.4	22° 16.7	22° 17.0	22° 17.3	22° 17.6	22° 17.9	22° 18.2	22° 18.6	22° 18.9	+0.3
Сб 3	270° 26.6	285° 26.5	300° 26.4	315° 26.3	330° 26.2	345° 26.1	0° 26.0	15° 25.9	30° 25.8	45° 25.7	60° 25.6	75° 25.5	-0.1
	22° 22.8	22° 23.1	22° 23.4	22° 23.7	22° 24.0	22° 24.3	22° 24.6	22° 24.9	22° 25.1	22° 25.4	22° 25.7	22° 26.0	+0.3
Вс 4	270° 24.1	285° 24.0	300° 23.9	315° 23.7	330° 23.6	345° 23.5	0° 23.4	15° 23.3	30° 23.2	45° 23.1	60° 23.0	75° 22.9	-0.1
	22° 29.7	22° 30.0	22° 30.3	22° 30.6	22° 30.9	22° 31.1	22° 31.4	22° 31.7	22° 32.0	22° 32.2	22° 32.5	22° 32.8	+0.3
Пн 5	270° 21.4	285° 21.3	300° 21.2	315° 21.1	330° 21.0	345° 20.9	0° 20.8	15° 20.7	30° 20.5	45° 20.4	60° 20.3	75° 20.2	-0.1
	22° 36.3	22° 36.6	22° 36.8	22° 37.1	22° 37.3	22° 37.6	22° 37.9	22° 38.1	22° 38.4	22° 38.6	22° 38.9	22° 39.2	+0.3
Вт 6	270° 18.7	285° 18.6	300° 18.5	315° 18.4	330° 18.3	345° 18.2	0° 18.0	15° 17.9	30° 17.8	45° 17.7	60° 17.6	75° 17.5	-0.1
	22° 42.4	22° 42.7	22° 42.9	22° 43.2	22° 43.4	22° 43.7	22° 43.9	22° 44.2	22° 44.4	22° 44.7	22° 44.9	22° 45.1	+0.2
Ср 7	270° 15.9	285° 15.8	300° 15.7	315° 15.6	330° 15.5	345° 15.4	0° 15.2	15° 15.1	30° 15.0	45° 14.9	60° 14.8	75° 14.7	-0.1
	22° 48.2	22° 48.4	22° 48.7	22° 48.9	22° 49.1	22° 49.4	22° 49.6	22° 49.8	22° 50.0	22° 50.3	22° 50.5	22° 50.7	+0.2
Чт 8	270° 13.1	285° 13.0	300° 12.9	315° 12.7	330° 12.6	345° 12.5	0° 12.4	15° 12.3	30° 12.1	45° 12.0	60° 11.9	75° 11.8	-0.1
	22° 53.6	22° 53.8	22° 54.0	22° 54.2	22° 54.4	22° 54.6	22° 54.8	22° 55.1	22° 55.3	22° 55.5	22° 55.7	22° 55.9	+0.2
Пт 9	270° 10.2	285° 10.1	300° 09.9	315° 09.8	330° 09.7	345° 09.6	0° 09.4	15° 09.3	30° 09.2	45° 09.1	60° 09.0	75° 08.8	-0.1
	22° 58.5	22° 58.7	22° 58.9	22° 59.1	22° 59.3	22° 59.5	22° 59.7	22° 59.9	23° 00.1	23° 00.3	23° 00.5	23° 00.7	+0.2
Сб 10	270° 07.2	285° 07.1	300° 07.0	315° 06.8	330° 06.7	345° 06.6	0° 06.5	15° 06.3	30° 06.2	45° 06.1	60° 06.0	75° 05.8	-0.1
	23° 03.1	23° 03.3	23° 03.4	23° 03.6	23° 03.8	23° 04.0	23° 04.2	23° 04.3	23° 04.5	23° 04.7	23° 04.9	23° 05.0	+0.2
Вс 11	270° 04.2	285° 04.1	300° 03.9	315° 03.8	330° 03.7	345° 03.5	0° 03.4	15° 03.3	30° 03.2	45° 03.0	60° 02.9	75° 02.8	-0.1
	23° 07.2	23° 07.4	23° 07.6	23° 07.7	23° 07.9	23° 08.0	23° 08.2	23° 08.4	23° 08.5	23° 08.7	23° 08.8	23° 09.0	+0.2
Пн 12	270° 01.1	285° 01.0	300° 00.8	315° 00.7	330° 00.6	345° 00.5	0° 00.3	15° 00.2	30° 00.1	44° 59.9	59° 59.8	74° 59.7	-0.1
	23° 11.0	23° 11.1	23° 11.3	23° 11.4	23° 11.6	23° 11.7	23° 11.9	23° 12.0	23° 12.1	23° 12.3	23° 12.4	23° 12.6	+0.1
Вт 13	269° 58.0	284° 57.8	299° 57.7	314° 57.6	329° 57.4	344° 57.3	359° 57.2	14° 57.1	29° 56.9	44° 56.8	59° 56.7	74° 56.5	-0.1
	23° 14.3	23° 14.4	23° 14.6	23° 14.7	23° 14.8	23° 15.0	23° 15.1	23° 15.2	23° 15.3	23° 15.5	23° 15.6	23° 15.7	+0.1
Ср 14	269° 54.8	284° 54.7	299° 54.5	314° 54.4	329° 54.3	344° 54.1	359° 54.0	14° 53.9	29° 53.7	44° 53.6	59° 53.5	74° 53.3	-0.1
	23° 17.2	23° 17.4	23° 17.5	23° 17.6	23° 17.7	23° 17.8	23° 17.9	23° 18.0	23° 18.1	23° 18.2	23° 18.3	23° 18.4	+0.1
Чт 15	269° 51.6	284° 51.5	299° 51.3	314° 51.2	329° 51.1	344° 50.9	359° 50.8	14° 50.7	29° 50.5	44° 50.4	59° 50.3	74° 50.1	-0.1
	23° 19.8	23° 19.8	23° 19.9	23° 20.0	23° 20.1	23° 20.2	23° 20.3	23° 20.4	23° 20.5	23° 20.6	23° 20.7	23° 20.8	+0.1
Пт 16	269° 48.4	284° 48.2	299° 48.1	314° 48.0	329° 47.8	344° 47.7	359° 47.6	14° 47.4	29° 47.3	44° 47.2	59° 47.0	74° 46.9	-0.1
	23° 21.9	23° 21.9	23° 22.0	23° 22.1	23° 22.2	23° 22.2	23° 22.3	23° 22.4	23° 22.5	23° 22.5	23° 22.6	23° 22.7	+0.1
Сб 17	269° 45.1	284° 45.0	299° 44.8	314° 44.7	329° 44.6	344° 44.4	359° 44.3	14° 44.2	29° 44.0	44° 43.9	59° 43.8	74° 43.6	-0.1
	23° 23.5	23° 23.6	23° 23.7	23° 23.7	23° 23.8	23° 23.8	23° 23.9	23° 24.0	23° 24.0	23° 24.1	23° 24.1	23° 24.2	+0.1
Вс 18	269° 41.8	284° 41.7	299° 41.6	314° 41.4	329° 41.3	344° 41.2	359° 41.0	14° 40.9	29° 40.8	44° 40.6	59° 40.5	74° 40.3	-0.1
	23° 24.8	23° 24.9	23° 24.9	23° 24.9	23° 25.0	23° 25.0	23° 25.1	23° 25.1	23° 25.1	23° 25.2	23° 25.2	23° 25.3	+0.0
Пн 19	269° 38.6	284° 38.4	299° 38.3	314° 38.1	329° 38.0	344° 37.9	359° 37.7	14° 37.6	29° 37.5	44° 37.3	59° 37.2	74° 37.1	-0.1
	23° 25.7	23° 25.7	23° 25.7	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.9	23° 25.9	23° 25.9	+0.0
Вт 20	269° 35.3	284° 35.1	299° 35.0	314° 34.9	329° 34.7	344° 34.6	359° 34.4	14° 34.3	29° 34.2	44° 34.0	59° 33.9	74° 33.8	-0.1
	23° 26.1	23° 26.1	23° 26.1	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	23° 26.2	+0.0
Ср 21	269° 32.0	284° 31.8	299° 31.7	314° 31.6	329° 31.4	344° 31.3	359° 31.2	14° 31.0	29° 30.9	44° 30.8	59° 30.6	74° 30.5	-0.1
	23° 26.2	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.0	23° 26.0	-0.0
Чт 22	269° 28.7	284° 28.6	299° 28.4	314° 28.3	329° 28.2	344° 28.0	359° 27.9	14° 27.7	29° 27.6	44° 27.5	59° 27.3	74° 27.2	-0.1
	23° 25.8	23° 25.8	23° 25.7	23° 25.7	23° 25.7	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.5	23° 25.5	23° 25.5	-0.0
Пт 23	269° 25.4	284° 25.3	299° 25.2	314° 25.0	329° 24.9	344° 24.8	359° 24.6	14° 24.5	29° 24.4	44° 24.2	59° 24.1	74° 24.0	-0.1
	23° 25.0	23° 24.9	23° 24.9	23° 24.9	23° 24.8	23° 24.8	23° 24.7	23° 24.7	23° 24.6	23° 24.6	23° 24.5	23° 24.5	-0.0
Сб 24	269° 22.2	284° 22.1	299° 21.9	314° 21.8	329° 21.7	344° 21.5	359° 21.4	14° 21.3	29° 21.1	44° 21.0	59° 20.9	74° 20.7	-0.1
	23° 23.8	23° 23.7	23° 23.7	23° 23.6	23° 23.5	23° 23.5	23° 23.4	23° 23.3	23° 23.3	23° 23.2	23° 23.2	23° 23.1	-0.1
Вс 25	269° 19.0	284° 18.9	299° 18.7	314° 18.6	329° 18.5	344° 18.3	359° 18.2	14° 18.1	29° 17.9	44° 17.8	59° 17.7	74° 17.5	-0.1
	23° 22.2	23° 22.1	23° 22.0	23° 21.9	23° 21.8	23° 21.8	23° 21.7	23° 21.6	23° 21.5	23° 21.4	23° 21.4	23° 21.3	-0.1
Пн 26	269° 15.8	284° 15.7	299° 15.6	314° 15.4	329° 15.3	344° 15.2	359° 15.0	14° 14.9	29° 14.8	44° 14.6	59° 14.5	74° 14.4	-0.1
	23° 20.1	23° 20.0	23° 19.9	23° 19.8	23° 19.7	23° 19.7	23° 19.6	23° 19.5	23° 19.4	23° 19.3	23° 19.2	23° 19.1	-0.1
Вт 27	269° 12.7	284° 12.6	299° 12.4	314° 12.3	329° 12.2	344° 12.0	359° 11.9	14° 11.8	29° 11.7	44° 11.5	59° 11.4	74° 11.3	-0.1
	23° 17.7	23° 17.6	23° 17.5	23° 17.4	23° 17.2	23° 17.1	23° 17.0	23° 16.9	23° 16.8	23° 16.7	23° 16.5	23° 16.4	-0.1
Ср 28	269° 09.6	284° 09.5	299° 09.4	314° 09.2	329° 09.1	344° 09.0	359° 08.8	14° 08.7	29° 08.6	44° 08.5	59° 08.3	74° 08.2	-0.1
	23° 14.8	23° 14.7	23° 14.6	23° 14.5	23° 14.3	23° 14.2	23° 14.1	23° 13.9	23° 13.8	23° 13.7	23° 13.5	23° 13.4	-0.1
Чт 29	269° 06.6	284° 06.5	299° 06.3	314° 06.2	329° 06.1	344° 06.0	359° 05.8	14° 05.7	29° 05.6	44° 05.5	59° 05.3	74° 05.2	-0.1
	23° 11.6	23° 11.4	23° 11.3	23° 11.1	23° 11.0	23° 10.9	23° 10.7	23° 10.6	23° 10.4	23° 10.3	23° 10.1	23° 10.0	-0.1
Пт 30	269° 03.6	284° 03.5	299° 03.4	314° 03.3	329° 03.1	344° 03.0	359° 02.9	14° 02.8	29° 02.7	44° 02.5	59° 02.4	74° 02.3	-0.1
	23° 07.9	23° 07.8	23° 07.6	23° 07.4	23° 07.3	23° 07.1	23° 06.9	23° 06.8	23° 06.6	23° 06.4	23° 06.3	23° 06.1	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июнь 2028

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Чт 1	254° 55.5 -3° 06.1	269° 26.1 -3° 21.5	283° 56.6 -3° 36.9	298° 27.1 -3° 52.2	312° 57.6 -4° 07.5	327° 28.1 -4° 22.8	341° 58.5 -4° 38.1	356° 29.0 -4° 53.3	10° 59.4 -5° 08.5	25° 29.8 -5° 23.7	40° 00.2 -5° 38.9	+30.5 -15.3	16.1 59.1
Пт 2	257° 32.5 -9° 21.7	272° 02.3 -9° 36.2	286° 32.2 -9° 50.6	301° 02.0 -10° 05.0	315° 31.7 -10° 19.3	330° 01.5 -10° 33.6	344° 31.1 -10° 47.8	359° 00.8 -11° 01.9	13° 30.3 -11° 16.0	27° 59.9 -11° 30.0	42° 29.4 -11° 43.9	+29.7 -14.2	16.1 59.0
Сб 3	259° 45.8 -15° 04.3	274° 14.4 -15° 17.1	288° 43.0 -15° 29.7	303° 11.6 -15° 42.2	317° 40.1 -15° 54.6	332° 08.5 -16° 07.0	346° 36.9 -16° 19.2	1° 05.2 -16° 31.4	15° 33.5 -16° 43.4	30° 01.7 -16° 55.4	44° 29.8 -17° 07.3	+28.4 -12.3	16.0 58.7
Вс 4	261° 24.9 -19° 52.2	275° 52.1 -20° 02.3	290° 19.2 -20° 12.2	304° 46.3 -20° 22.1	319° 13.3 -20° 31.8	333° 40.3 -20° 41.4	348° 07.2 -20° 50.8	2° 34.1 -21° 00.1	17° 00.9 -21° 09.3	31° 27.6 -21° 18.4	45° 54.3 -21° 27.4	+26.9 -9.5	15.9 58.3
Пн 5	262° 28.9 -23° 25.0	276° 54.8 -23° 31.7	291° 20.7 -23° 38.3	305° 46.6 -23° 44.7	320° 12.5 -23° 51.0	334° 38.3 -23° 57.1	349° 04.1 -24° 03.1	3° 29.8 -24° 08.9	17° 55.5 -24° 14.6	32° 21.2 -24° 20.1	46° 46.9 -24° 25.5	+25.8 -6.0	15.8 57.9
Вт 6	263° 09.6 -25° 27.4	277° 35.1 -25° 30.3	292° 00.5 -25° 33.0	306° 26.0 -25° 35.6	320° 51.4 -25° 38.0	335° 16.9 -25° 40.2	349° 42.3 -25° 42.3	4° 07.8 -25° 44.3	18° 33.3 -25° 46.0	32° 58.8 -25° 47.7	47° 24.3 -25° 49.1	+25.5 -2.2	15.6 57.3
○ Ср 7	263° 50.0 -25° 52.4	278° 16.0 -25° 51.4	292° 42.0 -25° 50.2	307° 08.1 -25° 48.9	321° 34.2 -25° 47.4	336° 00.4 -25° 45.8	350° 26.6 -25° 44.0	4° 52.9 -25° 42.1	19° 19.2 -25° 40.1	33° 45.6 -25° 37.9	48° 12.0 -25° 35.5	+26.2 +1.7	15.5 56.7
Чт 8	264° 56.1 -24° 43.4	279° 23.6 -24° 38.8	293° 51.2 -24° 34.1	308° 18.9 -24° 29.3	322° 46.6 -24° 24.3	337° 14.4 -24° 19.2	351° 42.3 -24° 14.0	6° 10.3 -24° 08.7	20° 38.3 -24° 03.3	35° 06.5 -23° 57.7	49° 34.7 -23° 52.0	+27.9 +5.1	15.3 56.1
Пт 9	266° 48.1 -22° 12.6	281° 17.7 -22° 05.1	295° 47.3 -21° 57.5	310° 17.1 -21° 49.8	324° 47.0 -21° 42.0	339° 16.9 -21° 34.1	353° 46.9 -21° 26.1	8° 17.1 -21° 18.0	22° 47.3 -21° 09.8	37° 17.6 -21° 01.5	51° 48.0 -20° 53.2	+30.0 +8.0	15.1 55.5
Сб 10	269° 34.1 -18° 37.0	284° 05.9 -18° 27.3	298° 37.7 -18° 17.5	313° 09.6 -18° 07.6	327° 41.7 -17° 57.7	342° 13.7 -17° 47.7	356° 45.9 -17° 37.6	11° 18.1 -17° 27.4	25° 50.5 -17° 17.2	40° 22.9 -17° 06.9	54° 55.3 -16° 56.6	+32.1 +10.0	15.0 54.9
Вс 11	273° 11.4 -14° 13.9	287° 45.0 -14° 02.7	302° 18.7 -13° 51.3	316° 52.5 -13° 39.9	331° 26.3 -13° 28.5	346° 00.2 -13° 17.0	0° 34.1 -13° 05.5	15° 08.1 -12° 53.9	29° 42.2 -12° 42.3	44° 16.3 -12° 30.7	58° 50.5 -12° 19.0	+33.9 +11.5	14.9 54.5
Пн 12	277° 29.5 -9° 18.8	292° 04.5 -9° 06.5	306° 39.5 -8° 54.2	321° 14.6 -8° 41.8	335° 49.7 -8° 29.5	350° 24.8 -8° 17.1	5° 00.0 -8° 04.6	19° 35.2 -7° 52.2	34° 10.4 -7° 39.7	48° 45.7 -7° 27.2	63° 21.0 -7° 14.7	+35.2 +12.4	14.8 54.3
Вт 13	292° 04.5 -9° 06.5	306° 39.5 -8° 54.2	321° 14.6 -8° 41.8	335° 49.7 -8° 29.5	350° 24.8 -8° 17.1	5° 00.0 -8° 04.6	19° 35.2 -7° 52.2	34° 10.4 -7° 39.7	48° 45.7 -7° 27.2	63° 21.0 -7° 14.7	77° 56.4 -7° 02.1	+35.2 +12.4	14.8 54.3
Ср 14	296° 49.8 -3° 51.5	311° 25.5 -3° 38.6	326° 01.2 -3° 25.8	340° 37.0 -3° 12.9	355° 12.8 -3° 00.1	9° 48.5 -2° 47.2	24° 24.3 -2° 34.3	39° 00.1 -2° 21.4	53° 35.9 -2° 08.5	68° 11.7 -1° 55.6	82° 47.5 -1° 42.6	+35.8 +12.9	14.8 54.2
◑ Чт 15	301° 44.7 1° 31.7	316° 20.5 1° 44.7	330° 56.2 1° 57.7	345° 32.0 2° 10.6	0° 07.7 2° 23.6	14° 43.4 2° 36.5	29° 19.1 2° 49.4	43° 54.8 3° 02.4	58° 30.4 3° 15.3	73° 06.0 3° 28.2	87° 41.7 3° 41.1	+35.7 +12.9	14.8 54.3
Пт 16	306° 32.5 6° 53.3	321° 07.6 7° 06.0	335° 42.7 7° 18.7	350° 17.7 7° 31.3	4° 52.7 7° 43.9	19° 27.7 7° 56.6	34° 02.6 8° 09.1	48° 37.4 8° 21.7	63° 12.2 8° 34.2	77° 47.0 8° 46.7	92° 21.7 8° 59.2	+34.9 +12.6	14.9 54.6
Сб 17	310° 55.9 12° 02.8	325° 29.7 12° 14.7	340° 03.5 12° 26.6	354° 37.1 12° 38.5	9° 10.7 12° 50.3	23° 44.2 13° 02.1	38° 17.7 13° 13.9	52° 51.1 13° 25.6	67° 24.4 13° 37.2	81° 57.6 13° 48.8	96° 30.8 14° 00.4	+33.5 +11.8	15.0 55.0
Вс 18	314° 38.6 16° 47.4	329° 10.5 16° 58.1	343° 42.2 17° 08.7	358° 13.9 17° 19.2	12° 45.5 17° 29.7	27° 17.0 17° 40.1	41° 48.4 17° 50.4	56° 19.7 18° 00.6	70° 50.9 18° 10.8	85° 22.0 18° 20.9	99° 53.0 18° 30.9	+31.4 +10.4	15.2 55.7
Пн 19	317° 26.6 20° 51.5	331° 56.1 21° 00.2	346° 25.4 21° 08.7	0° 54.7 21° 17.2	15° 23.8 21° 25.5	29° 52.8 21° 33.8	44° 21.8 21° 42.0	58° 50.6 21° 50.0	73° 19.3 21° 58.0	87° 48.0 22° 05.8	102° 16.5 22° 13.5	+29.0 +8.2	15.4 56.4
Вт 20	319° 12.3 23° 55.8	333° 39.3 24° 01.6	348° 06.1 24° 07.3	2° 32.9 24° 12.9	16° 59.5 24° 18.3	31° 26.1 24° 23.6	45° 52.5 24° 28.8	60° 18.9 24° 33.8	74° 45.2 24° 38.7	89° 11.4 24° 43.5	103° 37.5 24° 48.1	+26.5 +5.2	15.6 57.1
Ср 21	319° 59.6 25° 39.7	334° 24.5 25° 41.9	348° 49.3 25° 43.9	3° 14.1 25° 45.8	17° 38.8 25° 47.6	32° 03.4 25° 49.1	46° 28.0 25° 50.6	60° 52.6 25° 51.8	75° 17.1 25° 52.9	89° 41.5 25° 53.8	104° 05.9 25° 54.6	+24.6 +1.5	15.8 57.9
● Чт 22	320° 07.2 25° 45.8	334° 31.1 25° 43.9	348° 55.0 25° 41.7	3° 18.8 25° 39.5	17° 42.7 25° 37.0	32° 06.5 25° 34.4	46° 30.4 25° 31.6	60° 54.2 25° 28.6	75° 18.0 25° 25.4	89° 41.9 25° 22.1	104° 05.7 25° 18.6	+23.8 -2.7	16.0 58.6
Пт 23	320° 05.2 24° 06.0	334° 29.4 23° 59.9	348° 53.6 23° 53.5	3° 17.8 23° 47.0	17° 42.1 23° 40.4	32° 06.5 23° 33.6	46° 30.8 23° 26.6	60° 55.2 23° 19.5	75° 19.7 23° 12.2	89° 44.2 23° 04.7	104° 08.8 22° 57.1	+24.4 -6.9	16.1 59.2
Сб 24	320° 24.0 20° 45.2	334° 49.5 20° 35.3	349° 15.0 20° 25.2	3° 40.7 20° 15.0	18° 06.4 20° 04.7	32° 32.2 19° 54.2	46° 58.0 19° 43.6	61° 23.9 19° 32.9	75° 49.9 19° 22.1	90° 16.0 19° 11.1	104° 42.1 19° 00.0	+25.8 -10.5	16.2 59.6
Вс 25	321° 22.7 16° 00.1	335° 50.0 15° 47.2	350° 17.4 15° 34.3	4° 44.8 15° 21.3	19° 12.3 15° 08.1	33° 39.8 14° 54.9	48° 07.5 14° 41.6	62° 35.2 14° 28.3	77° 03.0 14° 14.8	91° 30.8 14° 01.2	105° 58.7 13° 47.6	+27.6 -13.3	16.3 59.7
Пн 26	323° 05.2 10° 14.4	337° 34.1 9° 59.7	352° 03.1 9° 44.9	6° 32.1 9° 30.1	21° 01.2 9° 15.3	35° 30.3 9° 00.3	49° 59.5 8° 45.4	64° 28.7 8° 30.4	78° 58.0 8° 15.3	93° 27.4 8° 00.2	107° 56.7 7° 45.1	+29.2 -14.9	16.3 59.7
Вт 27	325° 22.7 3° 54.2	339° 52.7 3° 38.6	354° 22.7 3° 23.0	8° 52.8 3° 07.4	23° 22.9 2° 51.8	37° 53.0 2° 36.2	52° 23.2 2° 20.5	66° 53.4 2° 04.9	81° 23.6 1° 49.3	95° 53.8 1° 33.6	110° 24.0 1° 18.0	+30.1 -15.6	16.2 59.6
Ср 28	327° 59.4 -2° 36.0	342° 29.9 -2° 51.5	357° 00.3 -3° 06.9	11° 30.7 -3° 22.4	26° 01.1 -3° 37.8	40° 31.5 -3° 53.2	55° 01.9 -4° 08.5	69° 32.4 -4° 23.9	84° 02.8 -4° 39.2	98° 33.2 -4° 54.4	113° 03.5 -5° 09.7	+30.4 -15.4	16.2 59.3
◐ Чт 29	330° 37.6 -8° 53.3	345° 07.7 -9° 07.8	359° 37.8 -9° 22.3	14° 07.8 -9° 36.7	28° 37.9 -9° 51.0	43° 07.8 -10° 05.3	57° 37.8 -10° 19.6	72° 07.8 -10° 33.7	86° 37.7 -10° 47.8	101° 07.5 -11° 01.9	115° 37.4 -11° 15.8	+30.0 -14.3	16.1 58.9
Пт 30	333° 00.4 -14° 36.7	347° 29.6 -14° 49.4	1° 58.7 -15° 02.1	16° 27.8 -15° 14.7	30° 56.9 -15° 27.1	45° 25.9 -15° 39.5	59° 54.9 -15° 51.8	74° 23.8 -16° 04.0	88° 52.6 -16° 16.2	103° 21.5 -16° 28.2	117° 50.2 -16° 40.1	+29.0 -12.3	15.9 58.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 7 06h08 — Последняя четв.: 15 04h27 — Новолуние: 22 18h27 — Первая четв.: 29 12h10

СОЛНЦЕ

Июль 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 00.7	284° 00.6	299° 00.5	314° 00.4	329° 00.3	344° 00.1	359° 00.0	13° 59.9	28° 59.8	43° 59.7	58° 59.6	73° 59.4	-0.1
	23° 03.9	23° 03.7	23° 03.5	23° 03.3	23° 03.1	23° 03.0	23° 02.8	23° 02.6	23° 02.4	23° 02.2	23° 02.0	23° 01.9	-0.2
Вс 2	268° 57.9	283° 57.8	298° 57.7	313° 57.6	328° 57.5	343° 57.3	358° 57.2	13° 57.1	28° 57.0	43° 56.9	58° 56.8	73° 56.7	-0.1
	22° 59.4	22° 59.2	22° 59.0	22° 58.8	22° 58.6	22° 58.4	22° 58.2	22° 58.0	22° 57.8	22° 57.6	22° 57.4	22° 57.2	-0.2
Пн 3	268° 55.2	283° 55.1	298° 55.0	313° 54.8	328° 54.7	343° 54.6	358° 54.5	13° 54.4	28° 54.3	43° 54.2	58° 54.1	73° 53.9	-0.1
	22° 54.5	22° 54.3	22° 54.1	22° 53.9	22° 53.7	22° 53.5	22° 53.2	22° 53.0	22° 52.8	22° 52.6	22° 52.4	22° 52.2	-0.2
Вт 4	268° 52.5	283° 52.4	298° 52.3	313° 52.2	328° 52.1	343° 52.0	358° 51.9	13° 51.8	28° 51.7	43° 51.5	58° 51.4	73° 51.3	-0.1
	22° 49.3	22° 49.0	22° 48.8	22° 48.6	22° 48.3	22° 48.1	22° 47.9	22° 47.6	22° 47.4	22° 47.2	22° 46.9	22° 46.7	-0.2
Ср 5	268° 49.9	283° 49.8	298° 49.7	313° 49.6	328° 49.5	343° 49.4	358° 49.3	13° 49.2	28° 49.1	43° 49.0	58° 48.9	73° 48.8	-0.1
	22° 43.6	22° 43.3	22° 43.1	22° 42.9	22° 42.6	22° 42.4	22° 42.1	22° 41.9	22° 41.6	22° 41.4	22° 41.1	22° 40.9	-0.2
Чт 6	268° 47.5	283° 47.4	298° 47.3	313° 47.2	328° 47.1	343° 47.0	358° 46.8	13° 46.7	28° 46.6	43° 46.5	58° 46.4	73° 46.3	-0.1
	22° 37.5	22° 37.3	22° 37.0	22° 36.8	22° 36.5	22° 36.2	22° 36.0	22° 35.7	22° 35.4	22° 35.2	22° 34.9	22° 34.6	-0.3
Пт 7	268° 45.1	283° 45.0	298° 44.9	313° 44.8	328° 44.7	343° 44.6	358° 44.5	13° 44.4	28° 44.3	43° 44.2	58° 44.1	73° 44.0	-0.1
	22° 31.1	22° 30.8	22° 30.5	22° 30.3	22° 30.0	22° 29.7	22° 29.4	22° 29.1	22° 28.9	22° 28.6	22° 28.3	22° 28.0	-0.3
Сб 8	268° 42.8	283° 42.7	298° 42.6	313° 42.5	328° 42.4	343° 42.3	358° 42.2	13° 42.1	28° 42.0	43° 41.9	58° 41.8	73° 41.7	-0.1
	22° 24.3	22° 24.0	22° 23.7	22° 23.4	22° 23.1	22° 22.8	22° 22.5	22° 22.2	22° 21.9	22° 21.6	22° 21.3	22° 21.0	-0.3
Вс 9	268° 40.6	283° 40.5	298° 40.4	313° 40.3	328° 40.2	343° 40.1	358° 40.0	13° 39.9	28° 39.9	43° 39.8	58° 39.7	73° 39.6	-0.1
	22° 17.0	22° 16.7	22° 16.4	22° 16.1	22° 15.8	22° 15.5	22° 15.2	22° 14.9	22° 14.5	22° 14.2	22° 13.9	22° 13.6	-0.3
Пн 10	268° 38.5	283° 38.4	298° 38.3	313° 38.2	328° 38.1	343° 38.1	358° 38.0	13° 37.9	28° 37.8	43° 37.7	58° 37.6	73° 37.6	-0.1
	22° 09.4	22° 09.1	22° 08.8	22° 08.5	22° 08.1	22° 07.8	22° 07.5	22° 07.1	22° 06.8	22° 06.5	22° 06.1	22° 05.8	-0.3
Вт 11	268° 36.5	283° 36.4	298° 36.3	313° 36.3	328° 36.2	343° 36.1	358° 36.0	13° 35.9	28° 35.9	43° 35.8	58° 35.7	73° 35.6	-0.1
	22° 01.4	22° 01.1	22° 00.8	22° 00.4	22° 00.1	21° 59.7	21° 59.4	21° 59.0	21° 58.7	21° 58.3	21° 58.0	21° 57.7	-0.3
Ср 12	268° 34.6	283° 34.5	298° 34.5	313° 34.4	328° 34.3	343° 34.2	358° 34.2	13° 34.1	28° 34.0	43° 33.9	58° 33.9	73° 33.8	-0.1
	21° 53.1	21° 52.7	21° 52.4	21° 52.0	21° 51.6	21° 51.3	21° 50.9	21° 50.6	21° 50.2	21° 49.8	21° 49.5	21° 49.1	-0.4
Чт 13	268° 32.9	283° 32.8	298° 32.7	313° 32.6	328° 32.6	343° 32.5	358° 32.4	13° 32.4	28° 32.3	43° 32.2	58° 32.2	73° 32.1	-0.1
	21° 44.3	21° 44.0	21° 43.6	21° 43.2	21° 42.8	21° 42.5	21° 42.1	21° 41.7	21° 41.3	21° 41.0	21° 40.6	21° 40.2	-0.4
Пт 14	268° 31.2	283° 31.1	298° 31.1	313° 31.0	328° 30.9	343° 30.9	358° 30.8	13° 30.8	28° 30.7	43° 30.6	58° 30.6	73° 30.5	-0.1
	21° 35.2	21° 34.8	21° 34.4	21° 34.1	21° 33.7	21° 33.3	21° 32.9	21° 32.5	21° 32.1	21° 31.7	21° 31.3	21° 30.9	-0.4
Сб 15	268° 29.7	283° 29.6	298° 29.6	313° 29.5	328° 29.4	343° 29.4	358° 29.3	13° 29.3	28° 29.2	43° 29.1	58° 29.1	73° 29.0	-0.1
	21° 25.7	21° 25.3	21° 24.9	21° 24.5	21° 24.1	21° 23.7	21° 23.3	21° 22.9	21° 22.5	21° 22.1	21° 21.7	21° 21.3	-0.4
Вс 16	268° 28.3	283° 28.2	298° 28.2	313° 28.1	328° 28.1	343° 28.0	358° 28.0	13° 27.9	28° 27.8	43° 27.8	58° 27.7	73° 27.7	-0.1
	21° 15.9	21° 15.5	21° 15.0	21° 14.6	21° 14.2	21° 13.8	21° 13.4	21° 12.9	21° 12.5	21° 12.1	21° 11.7	21° 11.3	-0.4
Пн 17	268° 27.0	283° 27.0	298° 26.9	313° 26.9	328° 26.8	343° 26.8	358° 26.7	13° 26.7	28° 26.6	43° 26.6	58° 26.5	73° 26.5	-0.0
	21° 05.7	21° 05.2	21° 04.8	21° 04.4	21° 03.9	21° 03.5	21° 03.1	21° 02.6	21° 02.2	21° 01.8	21° 01.3	21° 00.9	-0.4
Вт 18	268° 25.9	283° 25.8	298° 25.8	313° 25.7	328° 25.7	343° 25.6	358° 25.6	13° 25.6	28° 25.5	43° 25.5	58° 25.4	73° 25.4	-0.0
	20° 55.1	20° 54.7	20° 54.2	20° 53.8	20° 53.3	20° 52.9	20° 52.4	20° 52.0	20° 51.5	20° 51.1	20° 50.6	20° 50.1	-0.5
Ср 19	268° 24.8	283° 24.8	298° 24.8	313° 24.7	328° 24.7	343° 24.7	358° 24.6	13° 24.6	28° 24.5	43° 24.5	58° 24.5	73° 24.4	-0.0
	20° 44.2	20° 43.7	20° 43.3	20° 42.8	20° 42.3	20° 41.9	20° 41.4	20° 40.9	20° 40.5	20° 40.0	20° 39.5	20° 39.1	-0.5
Чт 20	268° 24.0	283° 23.9	298° 23.9	313° 23.9	328° 23.8	343° 23.8	358° 23.8	13° 23.7	28° 23.7	43° 23.7	58° 23.6	73° 23.6	-0.0
	20° 32.9	20° 32.4	20° 32.0	20° 31.5	20° 31.0	20° 30.5	20° 30.0	20° 29.6	20° 29.1	20° 28.6	20° 28.1	20° 27.6	-0.5
Пт 21	268° 23.2	283° 23.2	298° 23.2	313° 23.1	328° 23.1	343° 23.1	358° 23.1	13° 23.0	28° 23.0	43° 23.0	58° 23.0	73° 22.9	-0.0
	20° 21.3	20° 20.8	20° 20.3	20° 19.8	20° 19.3	20° 18.8	20° 18.3	20° 17.8	20° 17.3	20° 16.8	20° 16.3	20° 15.9	-0.5
Сб 22	268° 22.6	283° 22.6	298° 22.6	313° 22.6	328° 22.5	343° 22.5	358° 22.5	13° 22.5	28° 22.5	43° 22.4	58° 22.4	73° 22.4	-0.0
	20° 09.3	20° 08.8	20° 08.3	20° 07.8	20° 07.3	20° 06.8	20° 06.3	20° 05.8	20° 05.3	20° 04.8	20° 04.2	20° 03.7	-0.5
Вс 23	268° 22.2	283° 22.2	298° 22.1	313° 22.1	328° 22.1	343° 22.1	358° 22.1	13° 22.1	28° 22.1	43° 22.0	58° 22.0	73° 22.0	-0.0
	19° 57.0	19° 56.5	19° 56.0	19° 55.5	19° 55.0	19° 54.4	19° 53.9	19° 53.4	19° 52.9	19° 52.3	19° 51.8	19° 51.3	-0.5
Пн 24	268° 21.9	283° 21.9	298° 21.9	313° 21.8	328° 21.8	343° 21.8	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.8	-0.0
	19° 44.4	19° 43.9	19° 43.3	19° 42.8	19° 42.3	19° 41.7	19° 41.2	19° 40.7	19° 40.1	19° 39.6	19° 39.0	19° 38.5	-0.5
Вт 25	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	-0.0
	19° 31.5	19° 30.9	19° 30.4	19° 29.8	19° 29.3	19° 28.7	19° 28.2	19° 27.6	19° 27.1	19° 26.5	19° 26.0	19° 25.4	-0.5
Ср 26	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.8	58° 21.8	73° 21.8	+0.0
	19° 18.2	19° 17.6	19° 17.1	19° 16.5	19° 15.9	19° 15.4	19° 14.8	19° 14.2	19° 13.7	19° 13.1	19° 12.5	19° 12.0	-0.6
Чт 27	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.9	358° 21.9	13° 21.9	28° 22.0	43° 22.0	58° 22.0	73° 22.0	+0.0
	19° 04.6	19° 04.0	19° 03.4	19° 02.9	19° 02.3	19° 01.7	19° 01.1	19° 00.6	19° 00.0	18° 59.4	18° 58.8	18° 58.2	-0.6
Пт 28	268° 22.2	283° 22.2	298° 22.2	313° 22.2	328° 22.2	343° 22.3	358° 22.3	13° 22.3	28° 22.3	43° 22.3	58° 22.4	73° 22.4	+0.0
	18° 50.7	18° 50.1	18° 49.5	18° 48.9	18° 48.3	18° 47.7	18° 47.1	18° 46.5	18° 46.0	18° 45.4	18° 44.8	18° 44.2	-0.6
Сб 29	268° 22.6	283° 22.7	298° 22.7	313° 22.7	328° 22.7	343° 22.8	358° 22.8	13° 22.8	28° 22.8	43° 22.9	58° 22.9	73° 22.9	+0.0
	18° 36.4	18° 35.8	18° 35.2	18° 34.6	18° 34.0	18° 33.4	18° 32.8	18° 32.2	18° 31.6	18° 31.0	18° 30.4	18° 29.8	-0.6
Вс 30	268° 23.3	283° 23.3	298° 23.3	313° 23.4	328° 23.4	343° 23.4	358° 23.4	13° 23.5	28° 23.5	43° 23.5	58° 23.6	73° 23.6	+0.0
	18° 21.9	18° 21.3	18° 20.7	18° 20.1	18° 19.5	18° 18.9	18° 18.2	18° 17.6	18° 17.0	18° 16.4	18° 15.8	18° 15.2	-0.6
Пн 31	268° 24.0	283° 24.1	298° 24.1	313° 24.1	328° 24.2	343° 24.2	358° 24.3	13° 24.3	28° 24.3	43° 24.4	58° 24.4	73° 24.5	+0.0
	18° 07.1	18° 06.5	18° 05.9	18° 05.2	18° 04.6	18° 04.0	18° 03.4	18° 02.7	18° 02.1	18° 01.5	18° 00.8	18° 00.2	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2028

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Сб 1	248° 06.9 -18° 22.8	262° 35.1 -18° 33.7	277° 03.4 -18° 44.5	291° 31.5 -18° 55.1	305° 59.6 -19° 05.7	320° 27.7 -19° 16.1	334° 55.7 -19° 26.5	349° 23.6 -19° 36.7	3° 51.5 -19° 46.8	18° 19.4 -19° 56.8	32° 47.2 -20° 06.6	+28.0 -10.4	15.8 58.1
Вс 2	249° 38.1 -22° 19.7	264° 05.1 -22° 27.6	278° 32.1 -22° 35.3	292° 59.0 -22° 42.9	307° 25.9 -22° 50.3	321° 52.7 -22° 57.6	336° 19.5 -23° 04.8	350° 46.3 -23° 11.8	5° 13.0 -23° 18.7	19° 39.7 -23° 25.4	34° 06.4 -23° 32.0	+26.8 -7.2	15.7 57.6
Пн 3	250° 42.3 -24° 53.9	265° 08.4 -24° 58.1	279° 34.6 -25° 02.3	294° 00.8 -25° 06.3	308° 26.9 -25° 10.1	322° 53.1 -25° 13.8	337° 19.2 -25° 17.3	351° 45.3 -25° 20.7	6° 11.4 -25° 23.9	20° 37.5 -25° 27.0	35° 03.5 -25° 29.9	+26.1 -3.6	15.6 57.1
Вт 4	251° 35.1 -25° 55.6	266° 01.3 -25° 56.1	280° 27.5 -25° 56.4	294° 53.7 -25° 56.6	309° 20.0 -25° 56.7	323° 46.3 -25° 56.6	338° 12.6 -25° 56.3	352° 38.9 -25° 55.9	7° 05.3 -25° 55.4	21° 31.7 -25° 54.7	35° 58.1 -25° 53.8	+26.3 +0.2	15.4 56.5
Ср 5	252° 39.6 -25° 23.7	267° 06.7 -25° 20.6	281° 33.9 -25° 17.3	296° 01.2 -25° 13.9	310° 28.5 -25° 10.3	324° 55.9 -25° 06.6	339° 23.3 -25° 02.8	353° 50.8 -24° 58.8	8° 18.4 -24° 54.7	22° 46.0 -24° 50.5	37° 13.7 -24° 46.2	+27.4 +3.8	15.3 56.0
○ Чт 6	254° 17.6 -23° 25.7	268° 46.4 -23° 19.4	283° 15.4 -23° 12.9	297° 44.4 -23° 06.4	312° 13.5 -22° 59.7	326° 42.6 -22° 52.9	341° 11.9 -22° 46.0	355° 41.2 -22° 39.0	10° 10.6 -22° 31.9	24° 40.1 -22° 24.7	39° 09.6 -22° 17.4	+29.2 +6.8	15.1 55.5
Пт 7	256° 42.9 -20° 15.6	271° 13.8 -20° 06.7	285° 44.7 -19° 57.8	300° 15.8 -19° 48.7	314° 46.9 -19° 39.6	329° 18.1 -19° 30.4	343° 49.4 -19° 21.1	358° 20.7 -19° 11.7	12° 52.2 -19° 02.2	27° 23.7 -18° 52.7	41° 55.3 -18° 43.1	+31.2 +9.3	15.0 55.1
Сб 8	259° 58.6 -16° 10.1	274° 31.4 -15° 59.4	289° 04.3 -15° 48.6	303° 37.2 -15° 37.7	318° 10.3 -15° 26.8	332° 43.4 -15° 15.8	347° 16.5 -15° 04.8	1° 49.8 -14° 53.7	16° 23.1 -14° 42.6	30° 56.4 -14° 31.4	45° 29.9 -14° 20.1	+33.1 +11.0	14.9 54.7
Вс 9	263° 58.8 -11° 25.7	278° 33.2 -11° 13.7	293° 07.6 -11° 01.7	307° 42.1 -10° 49.6	322° 16.6 -10° 37.6	336° 51.2 -10° 25.4	351° 25.8 -10° 13.3	6° 00.5 -10° 01.1	20° 35.3 -9° 48.9	35° 10.0 -9° 36.6	49° 44.9 -9° 24.3	+34.6 +12.1	14.8 54.3
Пн 10	268° 32.1 -6° 16.8	283° 07.5 -6° 04.2	297° 43.0 -5° 51.5	312° 18.5 -5° 38.7	326° 54.0 -5° 26.0	341° 29.5 -5° 13.3	356° 05.1 -5° 00.5	10° 40.7 -4° 47.7	25° 16.3 -4° 34.9	39° 51.9 -4° 22.1	54° 27.6 -4° 09.3	+35.6 +12.8	14.8 54.1
Вт 11	273° 24.3 -0° 55.9	288° 00.2 -0° 42.9	302° 36.1 -0° 30.0	317° 11.9 -0° 17.0	331° 47.8 -0° 04.1	346° 23.7 0° 08.8	0° 59.6 0° 21.8	15° 35.4 0° 34.7	30° 11.3 0° 47.7	44° 47.2 1° 00.6	59° 23.1 1° 13.5	+35.9 +12.9	14.8 54.1
Ср 12	278° 19.9 4° 26.6	292° 55.6 4° 39.4	307° 31.2 4° 52.2	322° 06.8 5° 04.9	336° 42.4 5° 17.7	351° 18.0 5° 30.4	5° 53.5 5° 43.1	20° 29.1 5° 55.8	35° 04.6 6° 08.5	49° 40.0 6° 21.1	64° 15.4 6° 33.8	+35.6 +12.7	14.8 54.2
Чт 13	292° 55.6 4° 39.4	307° 31.2 4° 52.2	322° 06.8 5° 04.9	336° 42.4 5° 17.7	351° 18.0 5° 30.4	5° 53.5 5° 43.1	20° 29.1 5° 55.8	35° 04.6 6° 08.5	49° 40.0 6° 21.1	64° 15.4 6° 33.8	78° 50.8 6° 46.4	+35.5 +12.7	14.8 54.2
◑ Пт 14	297° 37.4 9° 52.7	312° 12.2 10° 04.9	326° 46.9 10° 17.0	341° 21.5 10° 29.2	355° 56.1 10° 41.3	10° 30.7 10° 53.3	25° 05.2 11° 05.4	39° 39.6 11° 17.3	54° 14.0 11° 29.3	68° 48.4 11° 41.2	83° 22.7 11° 53.1	+34.5 +12.0	14.9 54.5
Сб 15	301° 49.3 14° 46.0	316° 22.6 14° 57.2	330° 55.7 15° 08.3	345° 28.8 15° 19.3	0° 01.8 15° 30.3	14° 34.7 15° 41.2	29° 07.6 15° 52.1	43° 40.4 16° 02.9	58° 13.0 16° 13.6	72° 45.7 16° 24.3	87° 18.2 16° 35.0	+32.9 +10.9	15.0 55.0
Вс 16	305° 15.9 19° 06.4	319° 47.1 19° 15.9	334° 18.1 19° 25.3	348° 49.0 19° 34.7	3° 19.9 19° 44.0	17° 50.6 19° 53.2	32° 21.3 20° 02.3	46° 51.9 20° 11.3	61° 22.3 20° 20.2	75° 52.7 20° 29.1	90° 23.0 20° 37.8	+30.7 +9.1	15.2 55.7
Пн 17	307° 45.1 22° 37.7	322° 13.7 22° 44.9	336° 42.3 22° 51.9	351° 10.8 22° 58.9	5° 39.1 23° 05.7	20° 07.4 23° 12.4	34° 35.6 23° 19.0	49° 03.6 23° 25.5	63° 31.6 23° 31.9	77° 59.5 23° 38.2	92° 27.2 23° 44.3	+28.2 +6.7	15.4 56.4
Вт 18	309° 12.1 25° 01.0	323° 38.4 25° 05.0	338° 04.6 25° 08.9	352° 30.6 25° 12.7	6° 56.6 25° 16.3	21° 22.5 25° 19.8	35° 48.4 25° 23.1	50° 14.1 25° 26.3	64° 39.8 25° 29.3	79° 05.3 25° 32.2	93° 30.8 25° 34.9	+25.9 +3.4	15.6 57.3
Ср 19	309° 44.9 25° 57.0	324° 09.3 25° 57.2	338° 33.7 25° 57.2	352° 58.1 25° 57.1	7° 22.4 25° 56.8	21° 46.6 25° 56.3	36° 10.8 25° 55.6	50° 35.0 25° 54.8	64° 59.1 25° 53.8	79° 23.2 25° 52.7	93° 47.2 25° 51.4	+24.2 -0.6	15.9 58.2
Чт 20	309° 45.0 25° 10.9	324° 08.7 25° 06.8	338° 32.5 25° 02.6	352° 56.2 24° 58.1	7° 20.0 24° 53.5	21° 43.7 24° 48.8	36° 07.5 24° 43.8	50° 31.2 24° 38.7	64° 55.0 24° 33.4	79° 18.8 24° 28.0	93° 42.6 24° 22.4	+23.8 -4.9	16.1 59.1
Пт 21	309° 42.5 22° 38.0	324° 06.8 22° 29.8	338° 31.1 22° 21.4	352° 55.4 22° 12.8	7° 19.8 22° 04.1	21° 44.3 21° 55.2	36° 08.8 21° 46.2	50° 33.3 21° 37.0	64° 57.9 21° 27.7	79° 22.5 21° 18.2	93° 47.2 21° 08.5	+24.5 -9.0	16.3 59.8
● Сб 22	310° 04.4 18° 27.2	324° 30.0 18° 15.4	338° 55.7 18° 03.5	353° 21.5 17° 51.4	7° 47.3 17° 39.2	22° 13.2 17° 26.9	36° 39.1 17° 14.5	51° 05.2 17° 02.0	65° 31.2 16° 49.3	79° 57.4 16° 36.6	94° 23.6 16° 23.7	+25.9 -12.4	16.5 60.3
Вс 23	311° 04.7 12° 58.7	325° 32.0 12° 44.4	339° 59.3 12° 29.9	354° 26.7 12° 15.4	8° 54.1 12° 00.7	23° 21.6 11° 46.0	37° 49.2 11° 31.3	52° 16.8 11° 16.5	66° 44.5 11° 01.6	81° 12.2 10° 46.6	95° 40.0 10° 31.6	+27.5 -14.7	16.5 60.6
Пн 24	312° 43.3 6° 39.7	327° 12.0 6° 23.9	341° 40.6 6° 08.1	356° 09.3 5° 52.2	10° 38.0 5° 36.3	25° 06.8 5° 20.4	39° 35.7 5° 04.4	54° 04.5 4° 48.4	68° 33.4 4° 32.4	83° 02.3 4° 16.4	97° 31.3 4° 00.4	+28.8 -15.9	16.5 60.5
Вт 25	314° 49.5 -0° 01.1	329° 18.9 -0° 17.2	343° 48.3 -0° 33.2	358° 17.7 -0° 49.3	12° 47.2 -1° 05.3	27° 16.6 -1° 21.4	41° 46.1 -1° 37.4	56° 15.6 -1° 53.4	70° 45.1 -2° 09.4	85° 14.6 -2° 25.3	99° 44.1 -2° 41.2	+29.5 -16.0	16.4 60.2
Ср 26	317° 07.3 -6° 36.2	331° 36.9 -6° 51.6	346° 06.4 -7° 06.8	0° 35.9 -7° 22.1	15° 05.4 -7° 37.3	29° 34.9 -7° 52.4	44° 04.3 -8° 07.5	58° 33.8 -8° 22.5	73° 03.2 -8° 37.4	87° 32.7 -8° 52.3	102° 02.1 -9° 07.2	+29.5 -15.1	16.3 59.7
Чт 27	319° 20.7 -12° 41.4	333° 49.8 -12° 55.1	348° 18.8 -13° 08.6	2° 47.7 -13° 22.2	17° 16.7 -13° 35.6	31° 45.6 -13° 48.9	46° 14.5 -14° 02.1	60° 43.3 -14° 15.3	75° 12.2 -14° 28.4	89° 40.9 -14° 41.3	104° 09.7 -14° 54.2	+28.9 -13.3	16.1 59.0
◐ Пт 28	321° 16.5 -17° 55.3	335° 44.7 -18° 06.6	350° 12.8 -18° 17.7	4° 40.8 -18° 28.7	19° 08.9 -18° 39.6	33° 36.8 -18° 50.4	48° 04.8 -19° 01.0	62° 32.7 -19° 11.6	77° 00.5 -19° 22.0	91° 28.4 -19° 32.3	105° 56.2 -19° 42.5	+28.0 -10.7	15.9 58.3
Сб 29	322° 48.2 -22° 00.2	337° 15.4 -22° 08.4	351° 42.5 -22° 16.4	6° 09.6 -22° 24.3	20° 36.7 -22° 32.0	35° 03.7 -22° 39.6	49° 30.7 -22° 47.1	63° 57.7 -22° 54.4	78° 24.6 -23° 01.6	92° 51.5 -23° 08.7	107° 18.4 -23° 15.6	+27.0 -7.5	15.7 57.6
Вс 30	323° 58.6 -24° 42.3	338° 25.2 -24° 46.9	352° 51.7 -24° 51.4	7° 18.2 -24° 55.7	21° 44.7 -24° 59.9	36° 11.2 -25° 03.9	50° 37.6 -25° 07.8	65° 04.1 -25° 11.5	79° 30.6 -25° 15.1	93° 57.0 -25° 18.5	108° 23.5 -25° 21.8	+26.5 -4.0	15.5 57.0
Пн 31	325° 00.7 -25° 53.3	339° 27.3 -25° 54.2	353° 53.9 -25° 55.0	8° 20.5 -25° 55.6	22° 47.1 -25° 56.1	37° 13.8 -25° 56.4	51° 40.4 -25° 56.6	66° 07.2 -25° 56.6	80° 33.9 -25° 56.5	95° 00.7 -25° 56.2	109° 27.4 -25° 55.8	+26.7 -0.2	15.4 56.4

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Полнолуние: 6 18h10 — Последняя четв.: 14 20h56 — Новолуние: 22 03h01 — Первая четв.: 28 17h40

СОЛНЦЕ

Август 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	268° 25.0	283° 25.0	298° 25.1	313° 25.1	328° 25.1	343° 25.2	358° 25.2	13° 25.3	28° 25.3	43° 25.4	58° 25.4	73° 25.5	+0.0
	17° 52.0	17° 51.4	17° 50.7	17° 50.1	17° 49.4	17° 48.8	17° 48.2	17° 47.5	17° 46.9	17° 46.2	17° 45.6	17° 45.0	-0.6
Ср 2	268° 26.1	283° 26.1	298° 26.2	313° 26.2	328° 26.3	343° 26.3	358° 26.4	13° 26.4	28° 26.5	43° 26.5	58° 26.6	73° 26.6	+0.1
	17° 36.6	17° 35.9	17° 35.3	17° 34.6	17° 34.0	17° 33.3	17° 32.7	17° 32.0	17° 31.4	17° 30.7	17° 30.1	17° 29.4	-0.7
Чт 3	268° 27.3	283° 27.4	298° 27.4	313° 27.5	328° 27.5	343° 27.6	358° 27.6	13° 27.7	28° 27.8	43° 27.8	58° 27.9	73° 27.9	+0.1
	17° 20.9	17° 20.2	17° 19.6	17° 18.9	17° 18.3	17° 17.6	17° 16.9	17° 16.3	17° 15.6	17° 14.9	17° 14.3	17° 13.6	-0.7
Пт 4	268° 28.7	283° 28.8	298° 28.8	313° 28.9	328° 29.0	343° 29.0	358° 29.1	13° 29.1	28° 29.2	43° 29.3	58° 29.3	73° 29.4	+0.1
	17° 04.9	17° 04.3	17° 03.6	17° 02.9	17° 02.2	17° 01.6	17° 00.9	17° 00.2	16° 59.5	16° 58.9	16° 58.2	16° 57.5	-0.7
Сб 5	268° 30.2	283° 30.3	298° 30.4	313° 30.5	328° 30.5	343° 30.6	358° 30.7	13° 30.7	28° 30.8	43° 30.9	58° 30.9	73° 31.0	+0.1
	16° 48.7	16° 48.0	16° 47.3	16° 46.6	16° 45.9	16° 45.3	16° 44.6	16° 43.9	16° 43.2	16° 42.5	16° 41.8	16° 41.1	-0.7
Вс 6	268° 31.9	283° 32.0	298° 32.1	313° 32.2	328° 32.2	343° 32.3	358° 32.4	13° 32.5	28° 32.5	43° 32.6	58° 32.7	73° 32.8	+0.1
	16° 32.2	16° 31.5	16° 30.8	16° 30.1	16° 29.4	16° 28.7	16° 28.0	16° 27.3	16° 26.6	16° 25.9	16° 25.2	16° 24.5	-0.7
Пн 7	268° 33.8	283° 33.9	298° 33.9	313° 34.0	328° 34.1	343° 34.2	358° 34.3	13° 34.4	28° 34.4	43° 34.5	58° 34.6	73° 34.7	+0.1
	16° 15.4	16° 14.7	16° 14.0	16° 13.3	16° 12.6	16° 11.9	16° 11.1	16° 10.4	16° 09.7	16° 09.0	16° 08.3	16° 07.6	-0.7
Вт 8	268° 35.8	283° 35.9	298° 35.9	313° 36.0	328° 36.1	343° 36.2	358° 36.3	13° 36.4	28° 36.5	43° 36.6	58° 36.6	73° 36.7	+0.1
	15° 58.3	15° 57.6	15° 56.9	15° 56.2	15° 55.5	15° 54.8	15° 54.0	15° 53.3	15° 52.6	15° 51.9	15° 51.2	15° 50.4	-0.7
Ср 9	268° 37.9	283° 38.0	298° 38.1	313° 38.2	328° 38.3	343° 38.4	358° 38.5	13° 38.6	28° 38.7	43° 38.7	58° 38.8	73° 38.9	+0.1
	15° 41.0	15° 40.3	15° 39.6	15° 38.9	15° 38.1	15° 37.4	15° 36.7	15° 35.9	15° 35.2	15° 34.5	15° 33.8	15° 33.0	-0.7
Чт 10	268° 40.2	283° 40.3	298° 40.4	313° 40.5	328° 40.6	343° 40.7	358° 40.8	13° 40.9	28° 41.0	43° 41.1	58° 41.2	73° 41.3	+0.1
	15° 23.5	15° 22.7	15° 22.0	15° 21.3	15° 20.5	15° 19.8	15° 19.1	15° 18.3	15° 17.6	15° 16.8	15° 16.1	15° 15.4	-0.7
Пт 11	268° 42.6	283° 42.7	298° 42.8	313° 42.9	328° 43.0	343° 43.1	358° 43.2	13° 43.3	28° 43.4	43° 43.5	58° 43.6	73° 43.8	+0.1
	15° 05.7	15° 04.9	15° 04.2	15° 03.4	15° 02.7	15° 01.9	15° 01.2	15° 00.4	14° 59.7	14° 58.9	14° 58.2	14° 57.4	-0.7
Сб 12	268° 45.1	283° 45.3	298° 45.4	313° 45.5	328° 45.6	343° 45.7	358° 45.8	13° 45.9	28° 46.0	43° 46.1	58° 46.3	73° 46.4	+0.1
	14° 47.6	14° 46.9	14° 46.1	14° 45.4	14° 44.6	14° 43.8	14° 43.1	14° 42.3	14° 41.6	14° 40.8	14° 40.0	14° 39.3	-0.8
Вс 13	268° 47.8	283° 47.9	298° 48.1	313° 48.2	328° 48.3	343° 48.4	358° 48.5	13° 48.6	28° 48.8	43° 48.9	58° 49.0	73° 49.1	+0.1
	14° 29.4	14° 28.6	14° 27.8	14° 27.1	14° 26.3	14° 25.5	14° 24.7	14° 24.0	14° 23.2	14° 22.4	14° 21.7	14° 20.9	-0.8
Пн 14	268° 50.6	283° 50.8	298° 50.9	313° 51.0	328° 51.1	343° 51.3	358° 51.4	13° 51.5	28° 51.6	43° 51.7	58° 51.9	73° 52.0	+0.1
	14° 10.8	14° 10.1	14° 09.3	14° 08.5	14° 07.7	14° 07.0	14° 06.2	14° 05.4	14° 04.6	14° 03.8	14° 03.1	14° 02.3	-0.8
Вт 15	268° 53.6	283° 53.7	298° 53.8	313° 54.0	328° 54.1	343° 54.2	358° 54.4	13° 54.5	28° 54.6	43° 54.7	58° 54.9	73° 55.0	+0.1
	13° 52.1	13° 51.3	13° 50.5	13° 49.7	13° 49.0	13° 48.2	13° 47.4	13° 46.6	13° 45.8	13° 45.0	13° 44.2	13° 43.4	-0.8
Ср 16	268° 56.7	283° 56.8	298° 56.9	313° 57.1	328° 57.2	343° 57.3	358° 57.5	13° 57.6	28° 57.7	43° 57.9	58° 58.0	73° 58.1	+0.1
	13° 33.1	13° 32.3	13° 31.5	13° 30.8	13° 30.0	13° 29.2	13° 28.4	13° 27.6	13° 26.8	13° 26.0	13° 25.2	13° 24.4	-0.8
Чт 17	268° 59.9	284° 00.0	299° 00.1	314° 00.3	329° 00.4	344° 00.5	359° 00.7	14° 00.8	29° 01.0	44° 01.1	59° 01.2	74° 01.4	+0.1
	13° 14.0	13° 13.2	13° 12.3	13° 11.5	13° 10.7	13° 09.9	13° 09.1	13° 08.3	13° 07.5	13° 06.7	13° 05.9	13° 05.1	-0.8
Пт 18	269° 03.2	284° 03.3	299° 03.5	314° 03.6	329° 03.8	344° 03.9	359° 04.0	14° 04.2	29° 04.3	44° 04.5	59° 04.6	74° 04.7	+0.1
	12° 54.6	12° 53.8	12° 52.9	12° 52.1	12° 51.3	12° 50.5	12° 49.7	12° 48.9	12° 48.1	12° 47.2	12° 46.4	12° 45.6	-0.8
Сб 19	269° 06.6	284° 06.8	299° 06.9	314° 07.1	329° 07.2	344° 07.4	359° 07.5	14° 07.7	29° 07.8	44° 08.0	59° 08.1	74° 08.2	+0.1
	12° 35.0	12° 34.1	12° 33.3	12° 32.5	12° 31.7	12° 30.9	12° 30.0	12° 29.2	12° 28.4	12° 27.6	12° 26.7	12° 25.9	-0.8
Вс 20	269° 10.2	284° 10.3	299° 10.5	314° 10.6	329° 10.8	344° 10.9	359° 11.1	14° 11.3	29° 11.4	44° 11.6	59° 11.7	74° 11.9	+0.2
	12° 15.2	12° 14.3	12° 13.5	12° 12.7	12° 11.9	12° 11.0	12° 10.2	12° 09.4	12° 08.5	12° 07.7	12° 06.9	12° 06.0	-0.8
Пн 21	269° 13.9	284° 14.0	299° 14.2	314° 14.3	329° 14.5	344° 14.6	359° 14.8	14° 15.0	29° 15.1	44° 15.3	59° 15.4	74° 15.6	+0.2
	11° 55.2	11° 54.4	11° 53.5	11° 52.7	11° 51.8	11° 51.0	11° 50.2	11° 49.3	11° 48.5	11° 47.6	11° 46.8	11° 46.0	-0.8
Вт 22	269° 17.7	284° 17.8	299° 18.0	314° 18.1	329° 18.3	344° 18.5	359° 18.6	14° 18.8	29° 19.0	44° 19.1	59° 19.3	74° 19.4	+0.2
	11° 35.0	11° 34.2	11° 33.3	11° 32.5	11° 31.6	11° 30.8	11° 29.9	11° 29.1	11° 28.2	11° 27.4	11° 26.6	11° 25.7	-0.8
Ср 23	269° 21.6	284° 21.7	299° 21.9	314° 22.1	329° 22.2	344° 22.4	359° 22.6	14° 22.7	29° 22.9	44° 23.1	59° 23.2	74° 23.4	+0.2
	11° 14.7	11° 13.8	11° 12.9	11° 12.1	11° 11.2	11° 10.4	11° 09.5	11° 08.7	11° 07.8	11° 07.0	11° 06.1	11° 05.3	-0.9
Чт 24	269° 25.6	284° 25.8	299° 25.9	314° 26.1	329° 26.3	344° 26.4	359° 26.6	14° 26.8	29° 26.9	44° 27.1	59° 27.3	74° 27.5	+0.2
	10° 54.1	10° 53.3	10° 52.4	10° 51.5	10° 50.7	10° 49.8	10° 49.0	10° 48.1	10° 47.2	10° 46.4	10° 45.5	10° 44.7	-0.9
Пт 25	269° 29.7	284° 29.9	299° 30.1	314° 30.2	329° 30.4	344° 30.6	359° 30.8	14° 30.9	29° 31.1	44° 31.3	59° 31.5	74° 31.6	+0.2
	10° 33.4	10° 32.5	10° 31.7	10° 30.8	10° 29.9	10° 29.1	10° 28.2	10° 27.3	10° 26.5	10° 25.6	10° 24.7	10° 23.9	-0.9
Сб 26	269° 33.9	284° 34.1	299° 34.3	314° 34.5	329° 34.7	344° 34.8	359° 35.0	14° 35.2	29° 35.4	44° 35.5	59° 35.7	74° 35.9	+0.2
	10° 12.5	10° 11.7	10° 10.8	10° 09.9	10° 09.0	10° 08.2	10° 07.3	10° 06.4	10° 05.6	10° 04.7	10° 03.8	10° 02.9	-0.9
Вс 27	269° 38.3	284° 38.4	299° 38.6	314° 38.8	329° 39.0	344° 39.2	359° 39.4	14° 39.5	29° 39.7	44° 39.9	59° 40.1	74° 40.3	+0.2
	9° 51.5	9° 50.6	9° 49.8	9° 48.9	9° 48.0	9° 47.1	9° 46.2	9° 45.3	9° 44.5	9° 43.6	9° 42.7	9° 41.8	-0.9
Пн 28	269° 42.7	284° 42.9	299° 43.1	314° 43.3	329° 43.4	344° 43.6	359° 43.8	14° 44.0	29° 44.2	44° 44.4	59° 44.6	74° 44.8	+0.2
	9° 30.3	9° 29.4	9° 28.6	9° 27.7	9° 26.8	9° 25.9	9° 25.0	9° 24.1	9° 23.2	9° 22.3	9° 21.5	9° 20.6	-0.9
Вт 29	269° 47.2	284° 47.4	299° 47.6	314° 47.8	329° 48.0	344° 48.2	359° 48.4	14° 48.5	29° 48.7	44° 48.9	59° 49.1	74° 49.3	+0.2
	9° 09.0	9° 08.1	9° 07.2	9° 06.3	9° 05.4	9° 04.5	9° 03.6	9° 02.7	9° 01.9	9° 01.0	9° 00.1	8° 59.2	-0.9
Ср 30	269° 51.8	284° 52.0	299° 52.2	314° 52.4	329° 52.6	344° 52.8	359° 53.0	14° 53.2	29° 53.4	44° 53.6	59° 53.8	74° 54.0	+0.2
	8° 47.5	8° 46.6	8° 45.7	8° 44.8	8° 43.9	8° 43.0	8° 42.1	8° 41.2	8° 40.3	8° 39.4	8° 38.5	8° 37.6	-0.9
Чт 31	269° 56.5	284° 56.7	299° 56.9	314° 57.1	329° 57.3	344° 57.5	359° 57.7	14° 57.9	29° 58.1	44° 58.3	59° 58.5	74° 58.7	+0.2
	8° 25.9	8° 25.0	8° 24.1	8° 23.2	8° 22.3	8° 21.4	8° 20.5	8° 19.6	8° 18.7	8° 17.8	8° 16.9	8° 15.9	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

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Д	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	R/p
Вт 1	253° 57.3	268° 24.5	282° 51.8	297° 19.0	311° 46.4	326° 13.8	340° 41.2	355° 08.7	9° 36.3	24° 03.9	38° 31.5	+27.4	15.2
	-25° 43.8	-25° 41.9	-25° 39.7	-25° 37.5	-25° 35.1	-25° 32.6	-25° 29.9	-25° 27.1	-25° 24.1	-25° 21.1	-25° 17.8	+2.6	55.9
Ср 2	255° 33.3	270° 02.0	284° 30.7	298° 59.4	313° 28.3	327° 57.2	342° 26.2	356° 55.2	11° 24.3	25° 53.5	40° 22.8	+28.9	15.1
	-24° 14.1	-24° 08.8	-24° 03.4	-23° 57.9	-23° 52.3	-23° 46.6	-23° 40.7	-23° 34.8	-23° 28.7	-23° 22.5	-23° 16.2	+5.8	55.4
Чт 3	257° 50.7	272° 21.2	286° 51.7	301° 22.3	315° 53.0	330° 23.8	344° 54.6	359° 25.5	13° 56.5	28° 27.6	42° 58.7	+30.8	15.0
	-21° 28.7	-21° 20.7	-21° 12.6	-21° 04.4	-20° 56.2	-20° 47.8	-20° 39.3	-20° 30.8	-20° 22.2	-20° 13.4	-20° 04.6	+8.4	55.0
Пт 4	260° 54.9	275° 27.2	289° 59.6	304° 32.1	319° 04.6	333° 37.3	348° 09.9	2° 42.7	17° 15.5	31° 48.4	46° 21.3	+32.6	14.9
	-17° 42.6	-17° 32.5	-17° 22.4	-17° 12.2	-17° 01.9	-16° 51.5	-16° 41.1	-16° 30.6	-16° 20.1	-16° 09.4	-15° 58.8	+10.4	54.6
○ Сб 5	264° 43.2	279° 17.1	293° 51.1	308° 25.1	322° 59.2	337° 33.4	352° 07.6	6° 41.9	21° 16.2	35° 50.6	50° 25.0	+34.2	14.8
	-13° 11.7	-13° 00.1	-12° 48.5	-12° 36.9	-12° 25.2	-12° 13.5	-12° 01.7	-11° 49.9	-11° 38.0	-11° 26.1	-11° 14.2	+11.8	54.3
Вс 6	269° 06.7	283° 41.8	298° 17.0	312° 52.1	327° 27.4	342° 02.6	356° 37.9	11° 13.2	25° 48.6	40° 23.9	54° 59.3	+35.3	14.8
	-8° 10.8	-7° 58.4	-7° 45.9	-7° 33.4	-7° 20.8	-7° 08.3	-6° 55.7	-6° 43.1	-6° 30.4	-6° 17.8	-6° 05.1	+12.6	54.1
Пн 7	273° 53.4	288° 29.1	303° 04.9	317° 40.7	332° 16.5	346° 52.3	1° 28.1	16° 04.0	30° 39.8	45° 15.6	59° 51.5	+35.8	14.7
	-2° 53.3	-2° 40.4	-2° 27.5	-2° 14.6	-2° 01.7	-1° 48.8	-1° 35.9	-1° 23.0	-1° 10.1	-0° 57.1	-0° 44.2	+12.9	54.0
Вт 8	278° 49.5	293° 25.3	308° 01.1	322° 37.0	337° 12.8	351° 48.6	6° 24.3	21° 00.1	35° 35.9	50° 11.6	64° 47.3	+35.8	14.7
	2° 29.3	2° 42.1	2° 55.0	3° 07.8	3° 20.6	3° 33.4	3° 46.2	3° 59.0	4° 11.8	4° 24.5	4° 37.3	+12.8	54.0
Ср 9	283° 40.5	298° 15.8	312° 51.1	327° 26.3	342° 01.5	356° 36.7	11° 11.9	25° 47.0	40° 22.1	54° 57.1	69° 32.1	+35.2	14.8
	7° 46.0	7° 58.4	8° 10.8	8° 23.1	8° 35.4	8° 47.7	9° 00.0	9° 12.2	9° 24.4	9° 36.6	9° 48.7	+12.3	54.1
Чт 10	288° 11.5	302° 45.7	317° 19.9	331° 54.0	346° 28.0	1° 02.0	15° 35.9	30° 09.8	44° 43.6	59° 17.4	73° 51.0	+34.0	14.8
	12° 46.2	12° 57.7	13° 09.1	13° 20.5	13° 31.9	13° 43.2	13° 54.5	14° 05.7	14° 16.8	14° 27.9	14° 39.0	+11.3	54.4
Пт 11	302° 45.7	317° 19.9	331° 54.0	346° 28.0	1° 02.0	15° 35.9	30° 09.8	44° 43.6	59° 17.4	73° 51.0	88° 24.7	+33.9	14.8
	12° 57.7	13° 09.1	13° 20.5	13° 31.9	13° 43.2	13° 54.5	14° 05.7	14° 16.8	14° 27.9	14° 39.0	14° 50.0	+11.2	54.4
Сб 12	306° 40.7	321° 13.2	335° 45.6	350° 17.9	4° 50.2	19° 22.3	33° 54.4	48° 26.4	62° 58.4	77° 30.2	92° 02.0	+32.1	15.0
	17° 28.1	17° 38.2	17° 48.1	17° 58.0	18° 07.9	18° 17.6	18° 27.3	18° 36.9	18° 46.4	18° 55.9	19° 05.3	+9.7	54.9
◑ Вс 13	309° 48.2	324° 18.6	338° 48.9	353° 19.1	7° 49.2	22° 19.2	36° 49.1	51° 18.9	65° 48.7	80° 18.3	94° 47.9	+30.0	15.1
	21° 16.2	21° 24.2	21° 32.1	21° 40.0	21° 47.7	21° 55.3	22° 02.9	22° 10.3	22° 17.6	22° 24.9	22° 32.0	+7.6	55.5
Пн 14	312° 00.3	326° 28.4	340° 56.4	355° 24.3	9° 52.1	24° 19.9	38° 47.5	53° 15.1	67° 42.6	82° 10.0	96° 37.3	+27.7	15.4
	24° 05.9	24° 11.2	24° 16.4	24° 21.5	24° 26.5	24° 31.3	24° 36.0	24° 40.6	24° 45.1	24° 49.4	24° 53.6	+4.8	56.3
Вт 15	313° 17.3	327° 43.3	342° 09.3	356° 35.3	11° 01.1	25° 26.9	39° 52.6	54° 18.3	68° 43.9	83° 09.4	97° 34.9	+25.8	15.6
	25° 40.0	25° 41.9	25° 43.7	25° 45.4	25° 46.9	25° 48.2	25° 49.4	25° 50.5	25° 51.4	25° 52.1	25° 52.7	+1.3	57.3
Ср 16	313° 51.1	328° 15.8	342° 40.5	357° 05.2	11° 29.9	25° 54.5	40° 19.1	54° 43.7	69° 08.2	83° 32.7	97° 57.2	+24.6	15.9
	25° 42.5	25° 40.5	25° 38.3	25° 36.0	25° 33.6	25° 30.9	25° 28.1	25° 25.1	25° 22.0	25° 18.7	25° 15.2	-2.7	58.2
Чт 17	314° 03.7	328° 28.2	342° 52.6	357° 17.1	11° 41.5	26° 06.0	40° 30.5	54° 55.0	69° 19.5	83° 44.1	98° 08.6	+24.5	16.1
	24° 03.2	23° 57.0	23° 50.7	23° 44.3	23° 37.7	23° 30.9	23° 23.9	23° 16.8	23° 09.5	23° 02.1	22° 54.5	-6.9	59.2
Пт 18	314° 20.4	328° 45.5	343° 10.6	357° 35.7	12° 00.9	26° 26.1	40° 51.4	55° 16.7	69° 42.1	84° 07.4	98° 32.9	+25.2	16.4
	20° 41.9	20° 31.9	20° 21.7	20° 11.3	20° 00.9	19° 50.2	19° 39.5	19° 28.6	19° 17.6	19° 06.4	18° 55.1	-10.7	60.1
Сб 19	315° 00.2	329° 26.4	343° 52.6	358° 18.9	12° 45.3	27° 11.7	41° 38.2	56° 04.7	70° 31.2	84° 57.8	99° 24.5	+26.4	16.6
	15° 50.2	15° 37.0	15° 23.6	15° 10.1	14° 56.5	14° 42.8	14° 29.0	14° 15.1	14° 01.1	13° 47.0	13° 32.8	-13.7	60.7
● Вс 20	316° 10.0	330° 37.4	345° 04.8	359° 32.3	13° 59.8	28° 27.3	42° 54.9	57° 22.5	71° 50.2	86° 17.9	100° 45.6	+27.6	16.7
	9° 49.7	9° 34.3	9° 18.7	9° 03.1	8° 47.5	8° 31.8	8° 16.0	8° 00.2	7° 44.3	7° 28.4	7° 12.4	-15.7	61.1
Пн 21	317° 45.5	332° 13.7	346° 41.9	1° 10.2	15° 38.4	30° 06.7	44° 35.0	59° 03.3	73° 31.7	88° 00.0	102° 28.4	+28.3	16.7
	3° 08.5	2° 52.0	2° 35.6	2° 19.1	2° 02.6	1° 46.0	1° 29.5	1° 13.0	0° 56.5	0° 40.0	0° 23.4	-16.5	61.1
Вт 22	319° 34.9	334° 03.4	348° 31.8	3° 00.3	17° 28.7	31° 57.2	46° 25.6	60° 54.1	75° 22.5	89° 50.9	104° 19.4	+28.4	16.6
	-3° 42.9	-3° 59.2	-4° 15.4	-4° 31.6	-4° 47.7	-5° 03.8	-5° 19.9	-5° 35.9	-5° 51.8	-6° 07.8	-6° 23.6	-16.1	60.8
Ср 23	321° 23.9	335° 52.1	350° 20.2	4° 48.3	19° 16.4	33° 44.5	48° 12.6	62° 40.6	77° 08.6	91° 36.5	106° 04.5	+28.1	16.4
	-10° 14.9	-10° 29.8	-10° 44.6	-10° 59.3	-11° 14.0	-11° 28.6	-11° 43.0	-11° 57.5	-12° 11.8	-12° 26.0	-12° 40.2	-14.5	60.2
Чт 24	323° 00.0	337° 27.5	351° 54.9	6° 22.3	20° 49.7	35° 17.0	49° 44.3	64° 11.5	78° 38.7	93° 05.9	107° 33.1	+27.3	16.2
	-16° 00.9	-16° 13.4	-16° 25.9	-16° 38.2	-16° 50.4	-17° 02.5	-17° 14.5	-17° 26.4	-17° 38.2	-17° 49.8	-18° 01.3	-12.0	59.4
Пт 25	324° 16.4	338° 43.1	353° 09.7	7° 36.3	22° 02.8	36° 29.4	50° 55.9	65° 22.3	79° 48.8	94° 15.2	108° 41.6	+26.5	16.0
	-20° 39.0	-20° 48.4	-20° 57.8	-21° 07.0	-21° 16.0	-21° 24.9	-21° 33.7	-21° 42.3	-21° 50.8	-21° 59.2	-22° 07.4	-8.8	58.6
Сб 26	325° 15.1	339° 41.2	354° 07.3	8° 33.4	22° 59.5	37° 25.6	51° 51.7	66° 17.7	80° 43.8	95° 09.9	109° 35.9	+26.1	15.7
	-23° 53.2	-23° 59.0	-24° 04.8	-24° 10.3	-24° 15.8	-24° 21.0	-24° 26.1	-24° 31.1	-24° 35.9	-24° 40.6	-24° 45.1	-5.2	57.7
◐ Вс 27	326° 07.6	340° 33.8	355° 00.1	9° 26.3	23° 52.6	38° 18.9	52° 45.2	67° 11.6	81° 38.0	96° 04.4	110° 30.8	+26.3	15.5
	-25° 34.5	-25° 36.6	-25° 38.5	-25° 40.3	-25° 41.9	-25° 43.4	-25° 44.7	-25° 45.9	-25° 46.9	-25° 47.8	-25° 48.6	-1.4	56.8
Пн 28	327° 12.0	341° 39.1	356° 06.3	10° 33.5	25° 00.7	39° 28.0	53° 55.4	68° 22.8	82° 50.3	97° 17.8	111° 45.4	+27.3	15.3
	-25° 41.9	-25° 40.4	-25° 38.6	-25° 36.8	-25° 34.8	-25° 32.6	-25° 30.3	-25° 27.9	-25° 25.4	-25° 22.7	-25° 19.8	+2.2	56.1
Вт 29	328° 46.7	343° 15.3	357° 44.0	12° 12.8	26° 41.6	41° 10.5	55° 39.5	70° 08.5	84° 37.7	99° 06.9	113° 36.1	+28.9	15.1
	-24° 21.8	-24° 17.0	-24° 12.0	-24° 06.9	-24° 01.6	-23° 56.3	-23° 50.8	-23° 45.2	-23° 39.5	-23° 33.7	-23° 27.8	+5.4	55.5
Ср 30	331° 04.2	345° 34.7	0° 05.3	14° 35.9	29° 06.6	43° 37.4	58° 08.2	72° 39.2	87° 10.2	101° 41.3	116° 12.4	+30.8	15.0
	-21° 46.0	-21° 38.4	-21° 30.7	-21° 22.9	-21° 15.0	-21° 07.1	-20° 59.0	-20° 50.8	-20° 42.5	-20° 34.2	-20° 25.8	+8.0	54.9
Чт 31	334° 08.7	348° 41.0	3° 13.4	17° 45.8	32° 18.4	46° 51.0	61° 23.6	75° 56.4	90° 29.2	105° 02.0	119° 35.0	+32.6	14.9
	-18° 09.1	-17° 59.4	-17° 49.6	-17° 39.7	-17° 29.8	-17° 19.7	-17° 09.7	-16° 59.5	-16° 49.3	-16° 39.0	-16° 28.6	+10.1	54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 5 08h09 — Последняя четв.: 13 11h45 — Новолуние: 20 10h43 — Первая четв.: 27 01h35

СОЛНЦЕ

Сентябрь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	270° 01.3 8° 04.1	285° 01.5 8° 03.2	300° 01.7 8° 02.3	315° 01.9 8° 01.4	330° 02.1 8° 00.5	345° 02.3 7° 59.6	0° 02.5 7° 58.7	15° 02.7 7° 57.8	30° 02.9 7° 56.9	45° 03.1 7° 56.0	60° 03.3 7° 55.0	75° 03.5 7° 54.1	+0.2 -0.9
Сб 2	270° 06.1 7° 42.3	285° 06.3 7° 41.4	300° 06.5 7° 40.4	315° 06.7 7° 39.5	330° 06.9 7° 38.6	345° 07.1 7° 37.7	0° 07.4 7° 36.8	15° 07.6 7° 35.9	30° 07.8 7° 34.9	45° 08.0 7° 34.0	60° 08.2 7° 33.1	75° 08.4 7° 32.2	+0.2 -0.9
Вс 3	270° 11.0 7° 20.3	285° 11.3 7° 19.3	300° 11.5 7° 18.4	315° 11.7 7° 17.5	330° 11.9 7° 16.6	345° 12.1 7° 15.7	0° 12.3 7° 14.7	15° 12.5 7° 13.8	30° 12.7 7° 12.9	45° 12.9 7° 12.0	60° 13.1 7° 11.1	75° 13.3 7° 10.1	+0.2 -0.9
Пн 4	270° 16.0 6° 58.1	285° 16.2 6° 57.2	300° 16.4 6° 56.3	315° 16.6 6° 55.4	330° 16.9 6° 54.4	345° 17.1 6° 53.5	0° 17.3 6° 52.6	15° 17.5 6° 51.7	30° 17.7 6° 50.7	45° 17.9 6° 49.8	60° 18.1 6° 48.9	75° 18.3 6° 48.0	+0.2 -0.9
Вт 5	270° 21.1 6° 35.9	285° 21.3 6° 35.0	300° 21.5 6° 34.1	315° 21.7 6° 33.1	330° 21.9 6° 32.2	345° 22.1 6° 31.3	0° 22.3 6° 30.3	15° 22.5 6° 29.4	30° 22.8 6° 28.5	45° 23.0 6° 27.5	60° 23.2 6° 26.6	75° 23.4 6° 25.7	+0.2 -0.9
Ср 6	270° 26.2 6° 13.6	285° 26.4 6° 12.6	300° 26.6 6° 11.7	315° 26.8 6° 10.8	330° 27.0 6° 09.8	345° 27.2 6° 08.9	0° 27.4 6° 08.0	15° 27.6 6° 07.0	30° 27.9 6° 06.1	45° 28.1 6° 05.2	60° 28.3 6° 04.2	75° 28.5 6° 03.3	+0.2 -0.9
Чт 7	270° 31.3 5° 51.1	285° 31.5 5° 50.2	300° 31.7 5° 49.2	315° 31.9 5° 48.3	330° 32.2 5° 47.4	345° 32.4 5° 46.4	0° 32.6 5° 45.5	15° 32.8 5° 44.6	30° 33.0 5° 43.6	45° 33.2 5° 42.7	60° 33.4 5° 41.7	75° 33.7 5° 40.8	+0.2 -0.9
Пт 8	270° 36.5 5° 28.6	285° 36.7 5° 27.6	300° 36.9 5° 26.7	315° 37.1 5° 25.7	330° 37.3 5° 24.8	345° 37.6 5° 23.9	0° 37.8 5° 22.9	15° 38.0 5° 22.0	30° 38.2 5° 21.0	45° 38.4 5° 20.1	60° 38.6 5° 19.1	75° 38.9 5° 18.2	+0.2 -0.9
Сб 9	270° 41.7 5° 05.9	285° 41.9 5° 05.0	300° 42.1 5° 04.0	315° 42.3 5° 03.1	330° 42.6 5° 02.1	345° 42.8 5° 01.2	0° 43.0 5° 00.3	15° 43.2 4° 59.3	30° 43.4 4° 58.4	45° 43.7 4° 57.4	60° 43.9 4° 56.5	75° 44.1 4° 55.5	+0.2 -0.9
Вс 10	270° 46.9 4° 43.2	285° 47.2 4° 42.3	300° 47.4 4° 41.3	315° 47.6 4° 40.4	330° 47.8 4° 39.4	345° 48.0 4° 38.5	0° 48.3 4° 37.5	15° 48.5 4° 36.6	30° 48.7 4° 35.6	45° 48.9 4° 34.7	60° 49.1 4° 33.7	75° 49.4 4° 32.8	+0.2 -0.9
Пн 11	270° 52.2 4° 20.4	285° 52.4 4° 19.4	300° 52.7 4° 18.5	315° 52.9 4° 17.5	330° 53.1 4° 16.6	345° 53.3 4° 15.6	0° 53.6 4° 14.7	15° 53.8 4° 13.7	30° 54.0 4° 12.8	45° 54.2 4° 11.8	60° 54.4 4° 10.9	75° 54.7 4° 09.9	+0.2 -1.0
Вт 12	270° 57.5 3° 57.5	285° 57.8 3° 56.5	300° 58.0 3° 55.6	315° 58.2 3° 54.6	330° 58.4 3° 53.7	345° 58.6 3° 52.7	0° 58.9 3° 51.8	15° 59.1 3° 50.8	30° 59.3 3° 49.9	45° 59.5 3° 48.9	60° 59.7 3° 47.9	76° 00.0 3° 47.0	+0.2 -1.0
Ср 13	271° 02.8 3° 34.5	286° 03.1 3° 33.6	301° 03.3 3° 32.6	316° 03.5 3° 31.7	331° 03.7 3° 30.7	346° 04.0 3° 29.7	1° 04.2 3° 28.8	16° 04.4 3° 27.8	31° 04.6 3° 26.9	46° 04.8 3° 25.9	61° 05.1 3° 24.9	76° 05.3 3° 24.0	+0.2 -1.0
Чт 14	271° 08.2 3° 11.5	286° 08.4 3° 10.5	301° 08.6 3° 09.6	316° 08.8 3° 08.6	331° 09.1 3° 07.7	346° 09.3 3° 06.7	1° 09.5 3° 05.7	16° 09.7 3° 04.8	31° 10.0 3° 03.8	46° 10.2 3° 02.9	61° 10.4 3° 01.9	76° 10.6 3° 00.9	+0.2 -1.0
Пт 15	271° 13.5 2° 48.4	286° 13.7 2° 47.5	301° 14.0 2° 46.5	316° 14.2 2° 45.5	331° 14.4 2° 44.6	346° 14.6 2° 43.6	1° 14.9 2° 42.6	16° 15.1 2° 41.7	31° 15.3 2° 40.7	46° 15.5 2° 39.7	61° 15.7 2° 38.8	76° 16.0 2° 37.8	+0.2 -1.0
Сб 16	271° 18.9 2° 25.3	286° 19.1 2° 24.3	301° 19.3 2° 23.3	316° 19.5 2° 22.4	331° 19.8 2° 21.4	346° 20.0 2° 20.4	1° 20.2 2° 19.5	16° 20.4 2° 18.5	31° 20.6 2° 17.5	46° 20.9 2° 16.6	61° 21.1 2° 15.6	76° 21.3 2° 14.6	+0.2 -1.0
Вс 17	271° 24.2 2° 02.1	286° 24.4 2° 01.1	301° 24.6 2° 00.1	316° 24.9 1° 59.2	331° 25.1 1° 58.2	346° 25.3 1° 57.2	1° 25.5 1° 56.3	16° 25.8 1° 55.3	31° 26.0 1° 54.3	46° 26.2 1° 53.4	61° 26.4 1° 52.4	76° 26.6 1° 51.4	+0.2 -1.0
Пн 18	271° 29.5 1° 38.8	286° 29.8 1° 37.9	301° 30.0 1° 36.9	316° 30.2 1° 35.9	331° 30.4 1° 35.0	346° 30.6 1° 34.0	1° 30.9 1° 33.0	16° 31.1 1° 32.1	31° 31.3 1° 31.1	46° 31.5 1° 30.1	61° 31.8 1° 29.1	76° 32.0 1° 28.2	+0.2 -1.0
Вт 19	271° 34.9 1° 15.6	286° 35.1 1° 14.6	301° 35.3 1° 13.6	316° 35.5 1° 12.7	331° 35.7 1° 11.7	346° 36.0 1° 10.7	1° 36.2 1° 09.7	16° 36.4 1° 08.8	31° 36.6 1° 07.8	46° 36.9 1° 06.8	61° 37.1 1° 05.9	76° 37.3 1° 04.9	+0.2 -1.0
Ср 20	271° 40.2 0° 52.3	286° 40.4 0° 51.3	301° 40.6 0° 50.3	316° 40.8 0° 49.4	331° 41.1 0° 48.4	346° 41.3 0° 47.4	1° 41.5 0° 46.4	16° 41.7 0° 45.5	31° 41.9 0° 44.5	46° 42.2 0° 43.5	61° 42.4 0° 42.5	76° 42.6 0° 41.6	+0.2 -1.0
Чт 21	271° 45.5 0° 28.9	286° 45.7 0° 28.0	301° 45.9 0° 27.0	316° 46.1 0° 26.0	331° 46.4 0° 25.0	346° 46.6 0° 24.1	1° 46.8 0° 23.1	16° 47.0 0° 22.1	31° 47.2 0° 21.2	46° 47.5 0° 20.2	61° 47.7 0° 19.2	76° 47.9 0° 18.2	+0.2 -1.0
Пт 22	271° 50.7 0° 05.6	286° 51.0 0° 04.6	301° 51.2 0° 03.6	316° 51.4 0° 02.7	331° 51.6 0° 01.7	346° 51.8 0° 00.7	1° 52.1 -0° 00.2	16° 52.3 -0° 01.2	31° 52.5 -0° 02.2	46° 52.7 -0° 03.2	61° 52.9 -0° 04.1	76° 53.2 -0° 05.1	+0.2 -1.0
Сб 23	271° 56.0 -0° 17.8	286° 56.2 -0° 18.7	301° 56.4 -0° 19.7	316° 56.6 -0° 20.7	331° 56.9 -0° 21.7	346° 57.1 -0° 22.6	1° 57.3 -0° 23.6	16° 57.5 -0° 24.6	31° 57.7 -0° 25.6	46° 58.0 -0° 26.5	61° 58.2 -0° 27.5	76° 58.4 -0° 28.5	+0.2 -1.0
Вс 24	272° 01.2 -0° 41.1	287° 01.4 -0° 42.1	302° 01.6 -0° 43.1	317° 01.9 -0° 44.1	332° 02.1 -0° 45.0	347° 02.3 -0° 46.0	2° 02.5 -0° 47.0	17° 02.7 -0° 47.9	32° 02.9 -0° 48.9	47° 03.2 -0° 49.9	62° 03.4 -0° 50.9	77° 03.6 -0° 51.8	+0.2 -1.0
Пн 25	272° 06.4 -1° 04.5	287° 06.6 -1° 05.5	302° 06.8 -1° 06.4	317° 07.0 -1° 07.4	332° 07.3 -1° 08.4	347° 07.5 -1° 09.4	2° 07.7 -1° 10.3	17° 07.9 -1° 11.3	32° 08.1 -1° 12.3	47° 08.3 -1° 13.3	62° 08.5 -1° 14.2	77° 08.8 -1° 15.2	+0.2 -1.0
Вт 26	272° 11.5 -1° 27.9	287° 11.8 -1° 28.8	302° 12.0 -1° 29.8	317° 12.2 -1° 30.8	332° 12.4 -1° 31.8	347° 12.6 -1° 32.7	2° 12.8 -1° 33.7	17° 13.0 -1° 34.7	32° 13.2 -1° 35.6	47° 13.5 -1° 36.6	62° 13.7 -1° 37.6	77° 13.9 -1° 38.6	+0.2 -1.0
Ср 27	272° 16.6 -1° 51.2	287° 16.9 -1° 52.2	302° 17.1 -1° 53.2	317° 17.3 -1° 54.1	332° 17.5 -1° 55.1	347° 17.7 -1° 56.1	2° 17.9 -1° 57.0	17° 18.1 -1° 58.0	32° 18.3 -1° 59.0	47° 18.5 -2° 00.0	62° 18.8 -2° 00.9	77° 19.0 -2° 01.9	+0.2 -1.0
Чт 28	272° 21.7 -2° 14.5	287° 21.9 -2° 15.5	302° 22.1 -2° 16.5	317° 22.3 -2° 17.5	332° 22.5 -2° 18.4	347° 22.7 -2° 19.4	2° 22.9 -2° 20.4	17° 23.2 -2° 21.4	32° 23.4 -2° 22.3	47° 23.6 -2° 23.3	62° 23.8 -2° 24.3	77° 24.0 -2° 25.2	+0.2 -1.0
Пт 29	272° 26.7 -2° 37.9	287° 26.9 -2° 38.8	302° 27.1 -2° 39.8	317° 27.3 -2° 40.8	332° 27.5 -2° 41.7	347° 27.7 -2° 42.7	2° 27.9 -2° 43.7	17° 28.1 -2° 44.7	32° 28.3 -2° 45.6	47° 28.5 -2° 46.6	62° 28.7 -2° 47.6	77° 29.0 -2° 48.5	+0.2 -1.0
Сб 30	272° 31.6 -3° 01.1	287° 31.8 -3° 02.1	302° 32.0 -3° 03.1	317° 32.2 -3° 04.1	332° 32.4 -3° 05.0	347° 32.6 -3° 06.0	2° 32.8 -3° 07.0	17° 33.0 -3° 07.9	32° 33.2 -3° 08.9	47° 33.4 -3° 09.9	62° 33.7 -3° 10.8	77° 33.9 -3° 11.8	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2028

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Пт 1	250° 34.2 -14° 52.7	265° 07.7 -14° 41.7	279° 41.4 -14° 30.7	294° 15.0 -14° 19.7	308° 48.8 -14° 08.5	323° 22.5 -13° 57.4	337° 56.4 -13° 46.1	352° 30.3 -13° 34.9	7° 04.2 -13° 23.6	21° 38.2 -13° 12.2	36° 12.3 -13° 00.8	+33.8 +11.2	14.8 54.3
Сб 2	254° 49.1 -10° 04.2	269° 23.9 -9° 52.2	283° 58.7 -9° 40.0	298° 33.6 -9° 27.9	313° 08.5 -9° 15.7	327° 43.5 -9° 03.5	342° 18.5 -8° 51.3	356° 53.6 -8° 39.0	11° 28.6 -8° 26.7	26° 03.8 -8° 14.4	40° 38.9 -8° 02.0	+35.0 +12.2	14.7 54.1
○ Вс 3	259° 29.6 -4° 53.8	274° 05.2 -4° 41.1	288° 40.8 -4° 28.4	303° 16.4 -4° 15.7	317° 52.1 -4° 02.9	332° 27.7 -3° 50.2	347° 03.4 -3° 37.4	1° 39.1 -3° 24.6	16° 14.8 -3° 11.8	30° 50.5 -2° 59.0	45° 26.2 -2° 46.2	+35.7 +12.8	14.7 53.9
Пн 4	264° 23.2 0° 26.5	278° 59.0 0° 39.4	293° 34.8 0° 52.2	308° 10.6 1° 05.1	322° 46.4 1° 17.9	337° 22.2 1° 30.8	351° 58.0 1° 43.6	6° 33.8 1° 56.4	21° 09.6 2° 09.3	35° 45.4 2° 22.1	50° 21.2 2° 34.9	+35.8 +12.8	14.7 53.9
Вт 5	269° 16.2 5° 45.4	283° 51.8 5° 57.9	298° 27.3 6° 10.5	313° 02.7 6° 23.0	327° 38.2 6° 35.5	342° 13.6 6° 48.0	356° 49.0 7° 00.4	11° 24.4 7° 12.9	25° 59.7 7° 25.3	40° 35.0 7° 37.6	55° 10.3 7° 50.0	+35.4 +12.5	14.7 54.0
Ср 6	273° 55.4 10° 51.5	288° 30.1 11° 03.3	303° 04.8 11° 15.1	317° 39.4 11° 26.8	332° 13.9 11° 38.5	346° 48.4 11° 50.2	1° 22.9 12° 01.8	15° 57.3 12° 13.4	30° 31.7 12° 24.9	45° 06.0 12° 36.3	59° 40.3 12° 47.8	+34.5 +11.6	14.8 54.1
Чт 7	278° 07.8 15° 33.1	292° 41.2 15° 43.7	307° 14.5 15° 54.2	321° 47.7 16° 04.7	336° 20.9 16° 15.1	350° 54.0 16° 25.4	5° 27.0 16° 35.7	20° 00.0 16° 45.9	34° 32.9 16° 56.0	49° 05.8 17° 06.1	63° 38.6 17° 16.1	+33.1 +10.3	14.8 54.4
Пт 8	281° 41.9 19° 37.5	296° 13.5 19° 46.3	310° 45.1 19° 55.0	325° 16.6 20° 03.6	339° 48.0 20° 12.2	354° 19.3 20° 20.6	8° 50.6 20° 29.0	23° 21.7 20° 37.3	37° 52.8 20° 45.5	52° 23.9 20° 53.6	66° 54.8 21° 01.6	+31.3 +8.4	15.0 54.9
Сб 9	284° 29.6 22° 50.4	298° 59.2 22° 56.8	313° 28.9 23° 03.1	327° 58.4 23° 09.4	342° 27.8 23° 15.5	356° 57.2 23° 21.5	11° 26.5 23° 27.4	25° 55.7 23° 33.1	40° 24.8 23° 38.8	54° 53.9 23° 44.4	69° 22.9 23° 49.8	+29.3 +5.9	15.1 55.4
Вс 10	298° 59.2 22° 56.8	313° 28.9 23° 03.1	327° 58.4 23° 09.4	342° 27.8 23° 15.5	356° 57.2 23° 21.5	11° 26.5 23° 27.4	25° 55.7 23° 33.1	40° 24.8 23° 38.8	54° 53.9 23° 44.4	69° 22.9 23° 49.8	83° 51.8 23° 55.1	+29.3 +5.8	15.1 55.4
Пн 11	300° 56.5 25° 00.3	315° 24.2 25° 03.7	329° 51.9 25° 06.9	344° 19.5 25° 09.9	358° 47.0 25° 12.9	13° 14.5 25° 15.7	27° 41.9 25° 18.3	42° 09.3 25° 20.9	56° 36.6 25° 23.3	71° 03.8 25° 25.5	85° 30.9 25° 27.7	+27.4 +2.7	15.3 56.2
◑ Вт 12	302° 11.8 25° 42.5	316° 38.1 25° 42.3	331° 04.4 25° 42.0	345° 30.6 25° 41.5	359° 56.9 25° 40.9	14° 23.0 25° 40.1	28° 49.2 25° 39.2	43° 15.3 25° 38.1	57° 41.3 25° 36.8	72° 07.3 25° 35.5	86° 33.3 25° 33.9	+26.2 -0.9	15.5 57.0
Ср 13	303° 00.3 24° 52.4	317° 26.0 24° 48.4	331° 51.6 24° 44.3	346° 17.3 24° 39.9	0° 42.9 24° 35.5	15° 08.5 24° 30.8	29° 34.1 24° 26.1	43° 59.8 24° 21.1	58° 25.4 24° 16.0	72° 51.0 24° 10.8	87° 16.6 24° 05.4	+25.6 -4.7	15.8 57.9
Чт 14	303° 41.7 22° 25.9	318° 07.5 22° 18.1	332° 33.3 22° 10.1	346° 59.1 22° 01.9	1° 24.9 21° 53.7	15° 50.8 21° 45.2	30° 16.7 21° 36.7	44° 42.6 21° 27.9	59° 08.5 21° 19.1	73° 34.4 21° 10.1	88° 00.4 21° 00.9	+25.9 -8.5	16.1 58.9
Пт 15	304° 33.4 18° 27.2	318° 59.8 18° 15.9	333° 26.3 18° 04.4	347° 52.8 17° 52.9	2° 19.3 17° 41.2	16° 45.9 17° 29.4	31° 12.5 17° 17.4	45° 39.2 17° 05.4	60° 05.8 16° 53.2	74° 32.6 16° 40.9	88° 59.3 16° 28.5	+26.6 -11.9	16.3 59.8
Сб 16	305° 44.5 13° 09.4	320° 11.7 12° 55.3	334° 39.1 12° 41.1	349° 06.4 12° 26.8	3° 33.7 12° 12.5	18° 01.1 11° 58.0	32° 28.6 11° 43.5	46° 56.0 11° 28.9	61° 23.5 11° 14.2	75° 51.0 10° 59.4	90° 18.5 10° 44.6	+27.4 -14.5	16.5 60.6
Вс 17	307° 14.4 6° 53.3	321° 42.3 6° 37.4	336° 10.2 6° 21.5	350° 38.1 6° 05.5	5° 06.0 5° 49.5	19° 33.9 5° 33.4	34° 01.9 5° 17.3	48° 29.9 5° 01.1	62° 57.9 4° 44.9	77° 25.8 4° 28.7	91° 53.8 4° 12.4	+27.9 -16.1	16.7 61.1
● Пн 18	308° 54.4 0° 05.7	323° 22.4 -0° 10.8	337° 50.5 -0° 27.4	352° 18.5 -0° 43.9	6° 46.5 -1° 00.4	21° 14.5 -1° 17.0	35° 42.5 -1° 33.5	50° 10.5 -1° 50.0	64° 38.5 -2° 06.5	79° 06.5 -2° 23.0	93° 34.4 -2° 39.5	+28.0 -16.5	16.7 61.3
Вт 19	310° 31.7 -6° 43.4	324° 59.4 -6° 59.3	339° 27.0 -7° 15.2	353° 54.6 -7° 31.1	8° 22.2 -7° 46.9	22° 49.7 -8° 02.6	37° 17.2 -8° 18.3	51° 44.7 -8° 33.9	66° 12.2 -8° 49.5	80° 39.6 -9° 05.0	95° 07.0 -9° 20.4	+27.5 -15.7	16.7 61.2
Ср 20	311° 53.7 -13° 03.0	326° 20.6 -13° 17.2	340° 47.3 -13° 31.3	355° 14.1 -13° 45.2	9° 40.8 -13° 59.1	24° 07.5 -14° 12.9	38° 34.1 -14° 26.5	53° 00.7 -14° 40.1	67° 27.2 -14° 53.5	81° 53.7 -15° 06.9	96° 20.2 -15° 20.1	+26.6 -13.7	16.5 60.7
Чт 21	312° 52.4 -18° 24.8	327° 18.2 -18° 36.1	341° 44.0 -18° 47.3	356° 09.8 -18° 58.3	10° 35.5 -19° 09.2	25° 01.2 -19° 20.0	39° 26.9 -19° 30.6	53° 52.5 -19° 41.1	68° 18.1 -19° 51.5	82° 43.6 -20° 01.7	97° 09.2 -20° 11.8	+25.7 -10.7	16.3 59.9
Пт 22	313° 28.6 -22° 25.6	327° 53.7 -22° 33.3	342° 18.8 -22° 40.8	356° 43.9 -22° 48.2	11° 09.0 -22° 55.5	25° 34.0 -23° 02.6	39° 59.0 -23° 09.5	54° 24.1 -23° 16.3	68° 49.1 -23° 22.9	83° 14.1 -23° 29.4	97° 39.1 -23° 35.7	+25.0 -7.0	16.1 59.0
Сб 23	313° 54.1 -24° 51.0	328° 19.2 -24° 54.7	342° 44.2 -24° 58.3	357° 09.4 -25° 01.7	11° 34.5 -25° 05.0	25° 59.6 -25° 08.1	40° 24.8 -25° 11.0	54° 50.0 -25° 13.8	69° 15.2 -25° 16.4	83° 40.4 -25° 18.8	98° 05.7 -25° 21.1	+25.2 -3.0	15.8 58.0
Вс 24	314° 29.1 -25° 36.7	328° 55.0 -25° 36.5	343° 20.9 -25° 36.2	357° 47.0 -25° 35.7	12° 13.0 -25° 35.0	26° 39.2 -25° 34.2	41° 05.3 -25° 33.3	55° 31.6 -25° 32.2	69° 57.9 -25° 31.0	84° 24.2 -25° 29.6	98° 50.7 -25° 28.0	+26.2 +0.9	15.5 57.0
◐ Пн 25	315° 35.1 -24° 48.3	330° 02.6 -24° 44.5	344° 30.2 -24° 40.7	358° 57.9 -24° 36.7	13° 25.7 -24° 32.5	27° 53.5 -24° 28.3	42° 21.5 -24° 23.9	56° 49.5 -24° 19.4	71° 17.6 -24° 14.8	85° 45.7 -24° 10.0	100° 14.0 -24° 05.2	+27.9 +4.3	15.3 56.1
Вт 26	317° 27.6 -22° 38.2	331° 57.2 -22° 31.5	346° 26.9 -22° 24.7	0° 56.6 -22° 17.8	15° 26.4 -22° 10.8	29° 56.4 -22° 03.7	44° 26.4 -21° 56.5	58° 56.4 -21° 49.2	73° 26.6 -21° 41.8	87° 56.9 -21° 34.3	102° 27.2 -21° 26.7	+30.0 +7.1	15.1 55.4
Ср 27	320° 12.2 -19° 22.1	334° 43.8 -19° 13.1	349° 15.6 -19° 04.0	3° 47.4 -18° 54.9	18° 19.2 -18° 45.6	32° 51.2 -18° 36.3	47° 23.2 -18° 27.0	61° 55.3 -18° 17.5	76° 27.5 -18° 08.0	90° 59.8 -17° 58.4	105° 32.1 -17° 48.7	+32.0 +9.3	14.9 54.8
Чт 28	323° 45.4 -15° 15.8	338° 18.9 -15° 05.1	352° 52.3 -14° 54.4	7° 25.9 -14° 43.6	21° 59.5 -14° 32.7	36° 33.2 -14° 21.8	51° 06.9 -14° 10.9	65° 40.7 -13° 59.8	80° 14.5 -13° 48.8	94° 48.4 -13° 37.7	109° 22.4 -13° 26.5	+33.7 +10.9	14.8 54.4
Пт 29	327° 57.9 -10° 33.7	342° 32.6 -10° 21.9	357° 07.4 -10° 10.0	11° 42.2 -9° 58.1	26° 17.1 -9° 46.1	40° 52.0 -9° 34.1	55° 27.0 -9° 22.1	70° 01.9 -9° 10.1	84° 37.0 -8° 58.0	99° 12.0 -8° 45.9	113° 47.1 -8° 33.8	+34.9 +12.0	14.8 54.1
Сб 30	332° 37.1 -5° 28.5	347° 12.6 -5° 16.0	1° 48.2 -5° 03.5	16° 23.8 -4° 50.9	30° 59.4 -4° 38.3	45° 35.0 -4° 25.7	60° 10.6 -4° 13.1	74° 46.3 -4° 00.5	89° 21.9 -3° 47.9	103° 57.6 -3° 35.2	118° 33.3 -3° 22.6	+35.6 +12.6	14.7 54.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 3 23h47 — Последняя четв.: 12 00h45 — Новолуние: 18 18h23 — Первая четв.: 25 13h10

СОЛНЦЕ

Октябрь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	272° 36.5	287° 36.7	302° 36.9	317° 37.1	332° 37.3	347° 37.5	2° 37.7	17° 37.9	32° 38.1	47° 38.3	62° 38.5	77° 38.7	+0.2
	-3° 24.4	-3° 25.4	-3° 26.3	-3° 27.3	-3° 28.3	-3° 29.2	-3° 30.2	-3° 31.2	-3° 32.1	-3° 33.1	-3° 34.1	-3° 35.0	-1.0
Пн 2	272° 41.3	287° 41.5	302° 41.7	317° 41.9	332° 42.1	347° 42.3	2° 42.5	17° 42.7	32° 42.9	47° 43.1	62° 43.2	77° 43.4	+0.2
	-3° 47.6	-3° 48.6	-3° 49.6	-3° 50.5	-3° 51.5	-3° 52.4	-3° 53.4	-3° 54.4	-3° 55.3	-3° 56.3	-3° 57.3	-3° 58.2	-1.0
Вт 3	272° 46.0	287° 46.2	302° 46.4	317° 46.6	332° 46.8	347° 47.0	2° 47.2	17° 47.3	32° 47.5	47° 47.7	62° 47.9	77° 48.1	+0.2
	-4° 10.8	-4° 11.8	-4° 12.7	-4° 13.7	-4° 14.6	-4° 15.6	-4° 16.6	-4° 17.5	-4° 18.5	-4° 19.5	-4° 20.4	-4° 21.4	-1.0
Ср 4	272° 50.6	287° 50.8	302° 51.0	317° 51.2	332° 51.4	347° 51.6	2° 51.8	17° 51.9	32° 52.1	47° 52.3	62° 52.5	77° 52.7	+0.2
	-4° 33.9	-4° 34.9	-4° 35.8	-4° 36.8	-4° 37.8	-4° 38.7	-4° 39.7	-4° 40.6	-4° 41.6	-4° 42.6	-4° 43.5	-4° 44.5	-1.0
Чт 5	272° 55.2	287° 55.3	302° 55.5	317° 55.7	332° 55.9	347° 56.1	2° 56.3	17° 56.5	32° 56.6	47° 56.8	62° 57.0	77° 57.2	+0.2
	-4° 57.0	-4° 57.9	-4° 58.9	-4° 59.9	-5° 00.8	-5° 01.8	-5° 02.7	-5° 03.7	-5° 04.7	-5° 05.6	-5° 06.6	-5° 07.5	-1.0
Пт 6	272° 59.6	287° 59.8	303° 00.0	318° 00.1	333° 00.3	348° 00.5	3° 00.7	18° 00.9	33° 01.1	48° 01.2	63° 01.4	78° 01.6	+0.2
	-5° 20.0	-5° 20.9	-5° 21.9	-5° 22.9	-5° 23.8	-5° 24.8	-5° 25.7	-5° 26.7	-5° 27.6	-5° 28.6	-5° 29.6	-5° 30.5	-1.0
Сб 7	273° 03.9	288° 04.1	303° 04.3	318° 04.5	333° 04.7	348° 04.8	3° 05.0	18° 05.2	33° 05.4	48° 05.5	63° 05.7	78° 05.9	+0.2
	-5° 42.9	-5° 43.9	-5° 44.8	-5° 45.8	-5° 46.7	-5° 47.7	-5° 48.7	-5° 49.6	-5° 50.6	-5° 51.5	-5° 52.5	-5° 53.4	-1.0
Вс 8	273° 08.2	288° 08.3	303° 08.5	318° 08.7	333° 08.9	348° 09.0	3° 09.2	18° 09.4	33° 09.6	48° 09.7	63° 09.9	78° 10.1	+0.2
	-6° 05.8	-6° 06.7	-6° 07.7	-6° 08.7	-6° 09.6	-6° 10.6	-6° 11.5	-6° 12.5	-6° 13.4	-6° 14.4	-6° 15.3	-6° 16.3	-1.0
Пн 9	273° 12.3	288° 12.5	303° 12.6	318° 12.8	333° 13.0	348° 13.1	3° 13.3	18° 13.5	33° 13.6	48° 13.8	63° 14.0	78° 14.1	+0.2
	-6° 28.6	-6° 29.5	-6° 30.5	-6° 31.4	-6° 32.4	-6° 33.3	-6° 34.3	-6° 35.2	-6° 36.2	-6° 37.1	-6° 38.1	-6° 39.0	-0.9
Вт 10	273° 16.3	288° 16.5	303° 16.6	318° 16.8	333° 17.0	348° 17.1	3° 17.3	18° 17.4	33° 17.6	48° 17.8	63° 17.9	78° 18.1	+0.2
	-6° 51.3	-6° 52.2	-6° 53.2	-6° 54.1	-6° 55.1	-6° 56.0	-6° 57.0	-6° 57.9	-6° 58.8	-6° 59.8	-7° 00.7	-7° 01.7	-0.9
Ср 11	273° 20.2	288° 20.3	303° 20.5	318° 20.7	333° 20.8	348° 21.0	3° 21.1	18° 21.3	33° 21.4	48° 21.6	63° 21.8	78° 21.9	+0.2
	-7° 13.9	-7° 14.9	-7° 15.8	-7° 16.7	-7° 17.7	-7° 18.6	-7° 19.6	-7° 20.5	-7° 21.4	-7° 22.4	-7° 23.3	-7° 24.3	-0.9
Чт 12	273° 23.9	288° 24.1	303° 24.2	318° 24.4	333° 24.5	348° 24.7	3° 24.8	18° 25.0	33° 25.1	48° 25.3	63° 25.5	78° 25.6	+0.2
	-7° 36.4	-7° 37.4	-7° 38.3	-7° 39.2	-7° 40.2	-7° 41.1	-7° 42.1	-7° 43.0	-7° 43.9	-7° 44.9	-7° 45.8	-7° 46.7	-0.9
Пт 13	273° 27.5	288° 27.7	303° 27.8	318° 28.0	333° 28.1	348° 28.3	3° 28.4	18° 28.6	33° 28.7	48° 28.9	63° 29.0	78° 29.2	+0.1
	-7° 58.9	-7° 59.8	-8° 00.7	-8° 01.7	-8° 02.6	-8° 03.5	-8° 04.4	-8° 05.4	-8° 06.3	-8° 07.2	-8° 08.2	-8° 09.1	-0.9
Сб 14	273° 31.0	288° 31.2	303° 31.3	318° 31.5	333° 31.6	348° 31.7	3° 31.9	18° 32.0	33° 32.2	48° 32.3	63° 32.4	78° 32.6	+0.1
	-8° 21.2	-8° 22.1	-8° 23.0	-8° 23.9	-8° 24.9	-8° 25.8	-8° 26.7	-8° 27.7	-8° 28.6	-8° 29.5	-8° 30.4	-8° 31.4	-0.9
Вс 15	273° 34.4	288° 34.5	303° 34.6	318° 34.8	333° 34.9	348° 35.0	3° 35.2	18° 35.3	33° 35.4	48° 35.6	63° 35.7	78° 35.8	+0.1
	-8° 43.4	-8° 44.3	-8° 45.2	-8° 46.1	-8° 47.0	-8° 48.0	-8° 48.9	-8° 49.8	-8° 50.7	-8° 51.6	-8° 52.6	-8° 53.5	-0.9
Пн 16	273° 37.6	288° 37.7	303° 37.8	318° 37.9	333° 38.1	348° 38.2	3° 38.3	18° 38.5	33° 38.6	48° 38.7	63° 38.8	78° 39.0	+0.1
	-9° 05.4	-9° 06.3	-9° 07.3	-9° 08.2	-9° 09.1	-9° 10.0	-9° 10.9	-9° 11.8	-9° 12.8	-9° 13.7	-9° 14.6	-9° 15.5	-0.9
Вт 17	273° 40.6	288° 40.7	303° 40.8	318° 41.0	333° 41.1	348° 41.2	3° 41.3	18° 41.5	33° 41.6	48° 41.7	63° 41.8	78° 41.9	+0.1
	-9° 27.4	-9° 28.3	-9° 29.2	-9° 30.1	-9° 31.0	-9° 31.9	-9° 32.8	-9° 33.7	-9° 34.7	-9° 35.6	-9° 36.5	-9° 37.4	-0.9
Ср 18	273° 43.5	288° 43.6	303° 43.7	318° 43.8	333° 44.0	348° 44.1	3° 44.2	18° 44.3	33° 44.4	48° 44.5	63° 44.7	78° 44.8	+0.1
	-9° 49.2	-9° 50.1	-9° 51.0	-9° 51.9	-9° 52.8	-9° 53.7	-9° 54.6	-9° 55.5	-9° 56.4	-9° 57.3	-9° 58.2	-9° 59.1	-0.9
Чт 19	273° 46.2	288° 46.3	303° 46.4	318° 46.6	333° 46.7	348° 46.8	3° 46.9	18° 47.0	33° 47.1	48° 47.2	63° 47.3	78° 47.4	+0.1
	-10° 10.8	-10° 11.7	-10° 12.6	-10° 13.5	-10° 14.4	-10° 15.3	-10° 16.2	-10° 17.1	-10° 18.0	-10° 18.9	-10° 19.8	-10° 20.7	-0.9
Пт 20	273° 48.8	288° 48.9	303° 49.0	318° 49.1	333° 49.2	348° 49.3	3° 49.4	18° 49.5	33° 49.6	48° 49.7	63° 49.8	78° 49.9	+0.1
	-10° 32.3	-10° 33.2	-10° 34.1	-10° 35.0	-10° 35.9	-10° 36.8	-10° 37.7	-10° 38.6	-10° 39.5	-10° 40.4	-10° 41.3	-10° 42.2	-0.9
Сб 21	273° 51.2	288° 51.3	303° 51.4	318° 51.5	333° 51.6	348° 51.7	3° 51.8	18° 51.9	33° 52.0	48° 52.1	63° 52.2	78° 52.3	+0.1
	-10° 53.7	-10° 54.6	-10° 55.5	-10° 56.4	-10° 57.2	-10° 58.1	-10° 59.0	-10° 59.9	-11° 00.8	-11° 01.7	-11° 02.5	-11° 03.4	-0.9
Вс 22	273° 53.5	288° 53.6	303° 53.7	318° 53.7	333° 53.8	348° 53.9	3° 54.0	18° 54.1	33° 54.2	48° 54.3	63° 54.4	78° 54.5	+0.1
	-11° 14.9	-11° 15.8	-11° 16.6	-11° 17.5	-11° 18.4	-11° 19.3	-11° 20.2	-11° 21.0	-11° 21.9	-11° 22.8	-11° 23.7	-11° 24.5	-0.9
Пн 23	273° 55.6	288° 55.6	303° 55.7	318° 55.8	333° 55.9	348° 56.0	3° 56.1	18° 56.1	33° 56.2	48° 56.3	63° 56.4	78° 56.5	+0.1
	-11° 35.9	-11° 36.8	-11° 37.7	-11° 38.5	-11° 39.4	-11° 40.3	-11° 41.1	-11° 42.0	-11° 42.9	-11° 43.7	-11° 44.6	-11° 45.5	-0.9
Вт 24	273° 57.5	288° 57.6	303° 57.6	318° 57.7	333° 57.8	348° 57.9	3° 57.9	18° 58.0	33° 58.1	48° 58.2	63° 58.2	78° 58.3	+0.1
	-11° 56.8	-11° 57.6	-11° 58.5	-11° 59.3	-12° 00.2	-12° 01.1	-12° 01.9	-12° 02.8	-12° 03.7	-12° 04.5	-12° 05.4	-12° 06.2	-0.9
Ср 25	273° 59.2	288° 59.3	303° 59.4	318° 59.4	333° 59.5	348° 59.6	3° 59.6	18° 59.7	33° 59.8	48° 59.8	63° 59.9	79° 00.0	+0.1
	-12° 17.4	-12° 18.3	-12° 19.1	-12° 20.0	-12° 20.8	-12° 21.7	-12° 22.5	-12° 23.4	-12° 24.3	-12° 25.1	-12° 26.0	-12° 26.8	-0.9
Чт 26	274° 00.8	289° 00.9	304° 00.9	319° 01.0	334° 01.0	349° 01.1	4° 01.2	19° 01.2	34° 01.3	49° 01.3	64° 01.4	79° 01.5	+0.1
	-12° 37.9	-12° 38.7	-12° 39.6	-12° 40.4	-12° 41.3	-12° 42.1	-12° 43.0	-12° 43.8	-12° 44.7	-12° 45.5	-12° 46.3	-12° 47.2	-0.8
Пт 27	274° 02.2	289° 02.2	304° 02.3	319° 02.3	334° 02.4	349° 02.4	4° 02.5	19° 02.5	34° 02.6	49° 02.7	64° 02.7	79° 02.8	+0.1
	-12° 58.1	-12° 59.0	-12° 59.8	-13° 00.7	-13° 01.5	-13° 02.3	-13° 03.2	-13° 04.0	-13° 04.9	-13° 05.7	-13° 06.5	-13° 07.4	-0.8
Сб 28	274° 03.4	289° 03.4	304° 03.5	319° 03.5	334° 03.6	349° 03.6	4° 03.7	19° 03.7	34° 03.7	49° 03.8	64° 03.8	79° 03.9	+0.0
	-13° 18.2	-13° 19.0	-13° 19.9	-13° 20.7	-13° 21.5	-13° 22.4	-13° 23.2	-13° 24.0	-13° 24.9	-13° 25.7	-13° 26.5	-13° 27.3	-0.8
Вс 29	274° 04.4	289° 04.4	304° 04.5	319° 04.5	334° 04.6	349° 04.6	4° 04.6	19° 04.7	34° 04.7	49° 04.7	64° 04.8	79° 04.8	+0.0
	-13° 38.1	-13° 38.9	-13° 39.7	-13° 40.5	-13° 41.4	-13° 42.2	-13° 43.0	-13° 43.8	-13° 44.6	-13° 45.5	-13° 46.3	-13° 47.1	-0.8
Пн 30	274° 05.2	289° 05.3	304° 05.3	319° 05.3	334° 05.3	349° 05.4	4° 05.4	19° 05.4	34° 05.5	49° 05.5	64° 05.5	79° 05.5	+0.0
	-13° 57.7	-13° 58.5	-13° 59.3	-14° 00.2	-14° 01.0	-14° 01.8	-14° 02.6	-14° 03.4	-14° 04.2	-14° 05.0	-14° 05.8	-14° 06.6	-0.8
Вт 31	274° 05.9	289° 05.9	304° 05.9	319° 05.9	334° 05.9	349° 06.0	4° 06.0	19° 06.0	34° 06.0	49° 06.0	64° 06.1	79° 06.1	+0.0
	-14° 17.1	-14° 17.9	-14° 18.7	-14° 19.6	-14° 20.4	-14° 21.2	-14° 22.0	-14° 22.8	-14° 23.6	-14° 24.4	-14° 25.2	-14° 26.0	-0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2028

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Вс 1	249° 54.9	264° 30.7	279° 06.4	293° 42.2	308° 18.0	322° 53.8	337° 29.6	352° 05.3	6° 41.1	21° 16.9	35° 52.7	+35.8	14.7
	-1° 28.2	-1° 15.5	-1° 02.7	-0° 50.0	-0° 37.2	-0° 24.5	-0° 11.7	0° 01.0	0° 13.8	0° 26.6	0° 39.3	+12.8	53.9
Пн 2	254° 48.2	269° 23.8	283° 59.4	298° 34.9	313° 10.5	327° 46.0	342° 21.5	356° 57.0	11° 32.4	26° 07.8	40° 43.2	+35.5	14.7
	3° 50.1	4° 02.7	4° 15.3	4° 27.9	4° 40.5	4° 53.1	5° 05.7	5° 18.2	5° 30.8	5° 43.3	5° 55.8	+12.6	54.0
○ Вт 3	259° 30.7	274° 05.6	288° 40.5	303° 15.3	317° 50.1	332° 24.8	346° 59.5	1° 34.2	16° 08.8	30° 43.4	45° 17.9	+34.7	14.8
	9° 00.4	9° 12.5	9° 24.5	9° 36.5	9° 48.5	10° 00.5	10° 12.4	10° 24.3	10° 36.1	10° 47.9	10° 59.7	+11.9	54.1
Ср 4	263° 49.9	278° 23.6	292° 57.3	307° 30.9	322° 04.4	336° 37.9	351° 11.3	5° 44.7	20° 18.0	34° 51.3	49° 24.4	+33.5	14.8
	13° 50.9	14° 01.9	14° 12.9	14° 23.8	14° 34.7	14° 45.5	14° 56.2	15° 06.9	15° 17.6	15° 28.1	15° 38.6	+10.8	54.3
Чт 5	267° 34.7	282° 06.8	296° 38.9	311° 10.9	325° 42.9	340° 14.7	354° 46.5	9° 18.3	23° 49.9	38° 21.5	52° 53.1	+31.8	14.9
	18° 08.5	18° 17.9	18° 27.3	18° 36.6	18° 45.7	18° 54.9	19° 03.9	19° 12.8	19° 21.7	19° 30.5	19° 39.2	+9.1	54.6
Пт 6	270° 37.4	285° 07.8	299° 38.1	314° 08.3	328° 38.5	343° 08.6	357° 38.6	12° 08.6	26° 38.5	41° 08.3	55° 38.0	+30.1	15.0
	21° 39.1	21° 46.3	21° 53.5	22° 00.5	22° 07.4	22° 14.3	22° 21.0	22° 27.6	22° 34.2	22° 40.6	22° 46.9	+6.8	55.0
Сб 7	272° 56.1	287° 24.7	301° 53.4	316° 21.9	330° 50.4	345° 18.8	359° 47.2	14° 15.5	28° 43.8	43° 12.0	57° 40.1	+28.4	15.1
	24° 08.0	24° 12.5	24° 16.8	24° 21.1	24° 25.2	24° 29.2	24° 33.0	24° 36.7	24° 40.3	24° 43.8	24° 47.2	+3.9	55.5
Вс 8	274° 36.1	289° 03.5	303° 30.8	317° 58.1	332° 25.4	346° 52.6	1° 19.7	15° 46.9	30° 14.0	44° 41.1	59° 08.1	+27.2	15.3
	25° 21.6	25° 22.9	25° 23.9	25° 24.9	25° 25.7	25° 26.3	25° 26.9	25° 27.2	25° 27.5	25° 27.6	25° 27.5	+0.6	56.1
Пн 9	275° 50.8	290° 17.5	304° 44.2	319° 10.9	333° 37.5	348° 04.2	2° 30.9	16° 57.5	31° 24.2	45° 50.8	60° 17.4	+26.7	15.5
	25° 09.7	25° 07.3	25° 04.8	25° 02.2	24° 59.4	24° 56.5	24° 53.4	24° 50.2	24° 46.8	24° 43.3	24° 39.6	-3.0	56.8
Вт 10	290° 17.5	304° 44.2	319° 10.9	333° 37.5	348° 04.2	2° 30.9	16° 57.5	31° 24.2	45° 50.8	60° 17.4	74° 44.1	+26.7	15.5
	25° 07.3	25° 04.8	25° 02.2	24° 59.4	24° 56.5	24° 53.4	24° 50.2	24° 46.8	24° 43.3	24° 39.6	24° 35.8	-3.1	56.9
◑ Ср 11	291° 24.3	305° 51.1	320° 17.9	334° 44.7	349° 11.5	3° 38.3	18° 05.2	32° 32.1	46° 59.0	61° 25.9	75° 52.8	+26.8	15.7
	23° 21.4	23° 15.3	23° 09.1	23° 02.7	22° 56.1	22° 49.5	22° 42.7	22° 35.7	22° 28.6	22° 21.4	22° 14.0	-6.7	57.7
Чт 12	292° 39.9	307° 07.2	321° 34.6	336° 02.0	350° 29.5	4° 57.0	19° 24.5	33° 52.0	48° 19.6	62° 47.2	77° 14.8	+27.5	15.9
	20° 07.5	19° 58.1	19° 48.5	19° 38.7	19° 28.9	19° 18.9	19° 08.8	18° 58.6	18° 48.3	18° 37.8	18° 27.2	-10.0	58.5
Пт 13	294° 13.0	308° 41.1	323° 09.3	337° 37.5	352° 05.7	6° 33.9	21° 02.2	35° 30.4	49° 58.8	64° 27.1	78° 55.5	+28.2	16.2
	15° 34.9	15° 22.5	15° 10.1	14° 57.5	14° 44.9	14° 32.1	14° 19.3	14° 06.3	13° 53.3	13° 40.1	13° 26.9	-12.8	59.3
Сб 14	296° 03.6	310° 32.3	325° 01.0	339° 29.7	353° 58.4	8° 27.2	22° 55.9	37° 24.7	51° 53.5	66° 22.3	80° 51.1	+28.8	16.4
	9° 58.3	9° 43.8	9° 29.2	9° 14.5	8° 59.8	8° 45.0	8° 30.1	8° 15.2	8° 00.2	7° 45.2	7° 30.1	-14.8	60.1
Вс 15	298° 03.4	312° 32.2	327° 01.0	341° 29.8	355° 58.6	10° 27.4	24° 56.2	39° 24.9	53° 53.7	68° 22.4	82° 51.1	+28.8	16.5
	3° 37.7	3° 21.8	3° 06.0	2° 50.1	2° 34.2	2° 18.3	2° 02.3	1° 46.4	1° 30.4	1° 14.4	0° 58.3	-15.9	60.6
Пн 16	299° 59.4	314° 27.8	328° 56.1	343° 24.4	357° 52.6	12° 20.8	26° 49.0	41° 17.2	55° 45.3	70° 13.4	84° 41.4	+28.2	16.6
	-3° 02.9	-3° 19.0	-3° 35.0	-3° 51.1	-4° 07.1	-4° 23.1	-4° 39.0	-4° 55.0	-5° 10.9	-5° 26.8	-5° 42.6	-16.0	61.0
Вт 17	301° 36.9	316° 04.3	330° 31.5	344° 58.8	359° 25.9	13° 53.1	28° 20.1	42° 47.2	57° 14.1	71° 41.0	86° 07.9	+27.1	16.6
	-9° 35.6	-9° 50.8	-10° 05.8	-10° 20.8	-10° 35.7	-10° 50.6	-11° 05.4	-11° 20.1	-11° 34.8	-11° 49.3	-12° 03.8	-14.8	61.0
● Ср 18	302° 44.1	317° 10.1	331° 36.0	346° 01.8	0° 27.6	14° 53.4	29° 19.0	43° 44.7	58° 10.2	72° 35.7	87° 01.2	+25.7	16.5
	-15° 30.5	-15° 43.5	-15° 56.4	-16° 09.2	-16° 21.8	-16° 34.4	-16° 46.8	-16° 59.1	-17° 11.3	-17° 23.4	-17° 35.3	-12.5	60.7
Чт 19	303° 16.9	317° 41.5	332° 06.2	346° 30.7	0° 55.3	15° 19.8	29° 44.2	44° 08.6	58° 33.0	72° 57.4	87° 21.7	+24.5	16.4
	-20° 18.8	-20° 28.6	-20° 38.2	-20° 47.7	-20° 57.0	-21° 06.2	-21° 15.3	-21° 24.2	-21° 32.9	-21° 41.5	-21° 49.9	-9.1	60.0
Пт 20	303° 23.3	317° 47.3	332° 11.3	346° 35.2	0° 59.2	15° 23.2	29° 47.1	44° 11.1	58° 35.0	72° 59.0	87° 22.9	+24.0	16.1
	-23° 37.2	-23° 43.1	-23° 48.8	-23° 54.3	-23° 59.6	-24° 04.8	-24° 09.8	-24° 14.6	-24° 19.3	-24° 23.8	-24° 28.2	-5.1	59.2
Сб 21	303° 24.5	317° 48.8	332° 13.2	346° 37.6	1° 02.0	15° 26.5	29° 51.0	44° 15.6	58° 40.2	73° 04.9	87° 29.6	+24.5	15.9
	-25° 13.0	-25° 14.7	-25° 16.1	-25° 17.5	-25° 18.6	-25° 19.6	-25° 20.4	-25° 21.1	-25° 21.6	-25° 21.9	-25° 22.1	-0.9	58.2
Вс 22	303° 47.7	318° 13.5	332° 39.3	347° 05.2	1° 31.2	15° 57.3	30° 23.4	44° 49.6	59° 16.0	73° 42.3	88° 08.8	+26.1	15.6
	-25° 06.0	-25° 03.7	-25° 01.2	-24° 58.6	-24° 55.9	-24° 53.0	-24° 50.0	-24° 46.8	-24° 43.5	-24° 40.1	-24° 36.5	+2.9	57.3
Пн 23	304° 56.6	319° 24.6	333° 52.6	348° 20.7	2° 48.9	17° 17.2	31° 45.6	46° 14.1	60° 42.7	75° 11.4	89° 40.2	+28.4	15.4
	-23° 27.0	-23° 21.3	-23° 15.6	-23° 09.7	-23° 03.7	-22° 57.6	-22° 51.4	-22° 45.0	-22° 38.6	-22° 32.0	-22° 25.4	+6.2	56.3
Вт 24	307° 03.4	321° 33.7	336° 04.1	350° 34.6	5° 05.2	19° 35.8	34° 06.6	48° 37.4	63° 08.4	77° 39.4	92° 10.6	+30.7	15.1
	-20° 33.1	-20° 24.9	-20° 16.6	-20° 08.1	-19° 59.6	-19° 51.0	-19° 42.3	-19° 33.6	-19° 24.7	-19° 15.8	-19° 06.8	+8.6	55.5
◐ Ср 25	310° 07.7	324° 40.2	339° 12.7	353° 45.4	8° 18.1	22° 50.8	37° 23.7	51° 56.6	66° 29.6	81° 02.7	95° 35.8	+32.8	15.0
	-16° 42.8	-16° 32.6	-16° 22.4	-16° 12.2	-16° 01.8	-15° 51.4	-15° 41.0	-15° 30.5	-15° 19.9	-15° 09.3	-14° 58.6	+10.4	54.9
Чт 26	314° 00.8	328° 34.9	343° 09.2	357° 43.4	12° 17.7	26° 52.1	41° 26.5	56° 01.0	70° 35.5	85° 10.1	99° 44.7	+34.4	14.8
	-12° 12.4	-12° 01.0	-11° 49.5	-11° 38.0	-11° 26.4	-11° 14.8	-11° 03.1	-10° 51.5	-10° 39.7	-10° 28.0	-10° 16.2	+11.6	54.4
Пт 27	318° 29.1	333° 04.3	347° 39.6	2° 14.9	16° 50.3	31° 25.7	46° 01.1	60° 36.5	75° 11.9	89° 47.4	104° 22.9	+35.4	14.8
	-7° 15.7	-7° 03.5	-6° 51.2	-6° 38.9	-6° 26.6	-6° 14.3	-6° 01.9	-5° 49.6	-5° 37.2	-5° 24.8	-5° 12.3	+12.3	54.1
Сб 28	323° 17.5	337° 53.3	352° 29.0	7° 04.8	21° 40.5	36° 16.3	50° 52.0	65° 27.8	80° 03.6	94° 39.3	109° 15.1	+35.8	14.7
	-2° 04.3	-1° 51.7	-1° 39.1	-1° 26.5	-1° 13.8	-1° 01.2	-0° 48.6	-0° 35.9	-0° 23.3	-0° 10.6	0° 02.0	+12.6	54.0
Вс 29	328° 10.8	342° 46.4	357° 22.0	11° 57.6	26° 33.1	41° 08.7	55° 44.2	70° 19.7	84° 55.2	99° 30.6	114° 06.1	+35.5	14.7
	3° 11.4	3° 24.0	3° 36.6	3° 49.1	4° 01.6	4° 14.2	4° 26.7	4° 39.2	4° 51.7	5° 04.2	5° 16.6	+12.5	54.0
Пн 30	332° 54.0	347° 28.9	2° 03.8	16° 38.7	31° 13.5	45° 48.2	60° 22.9	74° 57.6	89° 32.3	104° 06.8	118° 41.4	+34.7	14.8
	8° 21.1	8° 33.2	8° 45.3	8° 57.3	9° 09.3	9° 21.3	9° 33.3	9° 45.2	9° 57.1	10° 08.9	10° 20.7	+12.0	54.2
Вт 31	337° 13.5	351° 47.2	6° 20.8	20° 54.4	35° 27.9	50° 01.4	64° 34.8	79° 08.2	93° 41.4	108° 14.7	122° 47.8	+33.4	14.8
	13° 13.3	13° 24.4	13° 35.5	13° 46.5	13° 57.5	14° 08.5	14° 19.4	14° 30.2	14° 41.0	14° 51.7	15° 02.4	+10.9	54.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 3 16h24 — Последняя четв.: 11 11h56 — Новолуние: 18 02h56 — Первая четв.: 25 04h53

СОЛНЦЕ

Ноябрь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ’/h
Ср 1	274° 06.3	289° 06.3	304° 06.3	319° 06.3	334° 06.4	349° 06.4	4° 06.4	19° 06.4	34° 06.4	49° 06.4	64° 06.4	79° 06.4	+0.0
	-14° 36.3	-14° 37.1	-14° 37.9	-14° 38.7	-14° 39.5	-14° 40.3	-14° 41.1	-14° 41.9	-14° 42.7	-14° 43.5	-14° 44.3	-14° 45.0	-0.8
Чт 2	274° 06.5	289° 06.5	304° 06.5	319° 06.6	334° 06.6	349° 06.6	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 55.3	-14° 56.1	-14° 56.9	-14° 57.6	-14° 58.4	-14° 59.2	-15° 00.0	-15° 00.8	-15° 01.6	-15° 02.3	-15° 03.1	-15° 03.9	-0.8
Пт 3	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.6	4° 06.5	19° 06.5	34° 06.5	49° 06.5	64° 06.5	79° 06.5	-0.0
	-15° 14.0	-15° 14.8	-15° 15.5	-15° 16.3	-15° 17.1	-15° 17.9	-15° 18.6	-15° 19.4	-15° 20.2	-15° 21.0	-15° 21.7	-15° 22.5	-0.8
Сб 4	274° 06.4	289° 06.4	304° 06.4	319° 06.4	334° 06.4	349° 06.3	4° 06.3	19° 06.3	34° 06.3	49° 06.3	64° 06.3	79° 06.3	-0.0
	-15° 32.5	-15° 33.2	-15° 34.0	-15° 34.8	-15° 35.5	-15° 36.3	-15° 37.0	-15° 37.8	-15° 38.6	-15° 39.3	-15° 40.1	-15° 40.8	-0.8
Вс 5	274° 06.0	289° 06.0	304° 06.0	319° 06.0	334° 05.9	349° 05.9	4° 05.9	19° 05.9	34° 05.9	49° 05.8	64° 05.8	79° 05.8	-0.0
	-15° 50.7	-15° 51.4	-15° 52.2	-15° 52.9	-15° 53.7	-15° 54.4	-15° 55.2	-15° 55.9	-15° 56.7	-15° 57.4	-15° 58.2	-15° 58.9	-0.8
Пн 6	274° 05.4	289° 05.4	304° 05.4	319° 05.3	334° 05.3	349° 05.3	4° 05.3	19° 05.2	34° 05.2	49° 05.2	64° 05.1	79° 05.1	-0.0
	-16° 08.6	-16° 09.4	-16° 10.1	-16° 10.9	-16° 11.6	-16° 12.3	-16° 13.1	-16° 13.8	-16° 14.5	-16° 15.3	-16° 16.0	-16° 16.8	-0.7
Вт 7	274° 04.6	289° 04.6	304° 04.6	319° 04.5	334° 04.5	349° 04.4	4° 04.4	19° 04.4	34° 04.3	49° 04.3	64° 04.2	79° 04.2	-0.0
	-16° 26.3	-16° 27.0	-16° 27.8	-16° 28.5	-16° 29.2	-16° 30.0	-16° 30.7	-16° 31.4	-16° 32.1	-16° 32.9	-16° 33.6	-16° 34.3	-0.7
Ср 8	274° 03.6	289° 03.6	304° 03.5	319° 03.5	334° 03.4	349° 03.4	4° 03.3	19° 03.3	34° 03.2	49° 03.2	64° 03.1	79° 03.1	-0.0
	-16° 43.7	-16° 44.4	-16° 45.2	-16° 45.9	-16° 46.6	-16° 47.3	-16° 48.0	-16° 48.7	-16° 49.5	-16° 50.2	-16° 50.9	-16° 51.6	-0.7
Чт 9	274° 02.4	289° 02.3	304° 02.3	319° 02.2	334° 02.2	349° 02.1	4° 02.0	19° 02.0	34° 01.9	49° 01.9	64° 01.8	79° 01.8	-0.1
	-17° 00.8	-17° 01.5	-17° 02.3	-17° 03.0	-17° 03.7	-17° 04.4	-17° 05.1	-17° 05.8	-17° 06.5	-17° 07.2	-17° 07.9	-17° 08.6	-0.7
Пт 10	274° 00.9	289° 00.9	304° 00.8	319° 00.7	334° 00.7	349° 00.6	4° 00.5	19° 00.5	34° 00.4	49° 00.3	64° 00.3	79° 00.2	-0.1
	-17° 17.7	-17° 18.4	-17° 19.1	-17° 19.8	-17° 20.5	-17° 21.1	-17° 21.8	-17° 22.5	-17° 23.2	-17° 23.9	-17° 24.6	-17° 25.3	-0.7
Сб 11	273° 59.3	288° 59.2	303° 59.1	318° 59.1	333° 59.0	348° 58.9	3° 58.8	18° 58.7	33° 58.7	48° 58.6	63° 58.5	78° 58.4	-0.1
	-17° 34.2	-17° 34.9	-17° 35.6	-17° 36.3	-17° 36.9	-17° 37.6	-17° 38.3	-17° 39.0	-17° 39.7	-17° 40.3	-17° 41.0	-17° 41.7	-0.7
Вс 12	273° 57.4	288° 57.3	303° 57.2	318° 57.1	333° 57.1	348° 57.0	3° 56.9	18° 56.8	33° 56.7	48° 56.6	63° 56.5	78° 56.5	-0.1
	-17° 50.5	-17° 51.1	-17° 51.8	-17° 52.5	-17° 53.1	-17° 53.8	-17° 54.5	-17° 55.1	-17° 55.8	-17° 56.5	-17° 57.1	-17° 57.8	-0.7
Пн 13	273° 55.3	288° 55.2	303° 55.1	318° 55.0	333° 54.9	348° 54.8	3° 54.7	18° 54.6	33° 54.5	48° 54.4	63° 54.4	78° 54.3	-0.1
	-18° 06.4	-18° 07.0	-18° 07.7	-18° 08.4	-18° 09.0	-18° 09.7	-18° 10.3	-18° 11.0	-18° 11.6	-18° 12.3	-18° 12.9	-18° 13.6	-0.7
Вт 14	273° 53.0	288° 52.9	303° 52.8	318° 52.7	333° 52.6	348° 52.5	3° 52.4	18° 52.3	33° 52.2	48° 52.0	63° 51.9	78° 51.8	-0.1
	-18° 22.0	-18° 22.6	-18° 23.3	-18° 23.9	-18° 24.6	-18° 25.2	-18° 25.9	-18° 26.5	-18° 27.1	-18° 27.8	-18° 28.4	-18° 29.1	-0.6
Ср 15	273° 50.4	288° 50.3	303° 50.2	318° 50.1	333° 50.0	348° 49.9	3° 49.8	18° 49.7	33° 49.6	48° 49.4	63° 49.3	78° 49.2	-0.1
	-18° 37.3	-18° 37.9	-18° 38.6	-18° 39.2	-18° 39.8	-18° 40.4	-18° 41.1	-18° 41.7	-18° 42.3	-18° 42.9	-18° 43.6	-18° 44.2	-0.6
Чт 16	273° 47.7	288° 47.6	303° 47.5	318° 47.3	333° 47.2	348° 47.1	3° 47.0	18° 46.9	33° 46.7	48° 46.6	63° 46.5	78° 46.4	-0.1
	-18° 52.3	-18° 52.9	-18° 53.5	-18° 54.1	-18° 54.7	-18° 55.3	-18° 55.9	-18° 56.6	-18° 57.2	-18° 57.8	-18° 58.4	-18° 59.0	-0.6
Пт 17	273° 44.7	288° 44.6	303° 44.5	318° 44.4	333° 44.2	348° 44.1	3° 44.0	18° 43.8	33° 43.7	48° 43.6	63° 43.5	78° 43.3	-0.1
	-19° 06.9	-19° 07.5	-19° 08.1	-19° 08.7	-19° 09.3	-19° 09.9	-19° 10.5	-19° 11.1	-19° 11.7	-19° 12.3	-19° 12.9	-19° 13.5	-0.6
Сб 18	273° 41.6	288° 41.4	303° 41.3	318° 41.2	333° 41.0	348° 40.9	3° 40.8	18° 40.6	33° 40.5	48° 40.3	63° 40.2	78° 40.1	-0.1
	-19° 21.2	-19° 21.8	-19° 22.3	-19° 22.9	-19° 23.5	-19° 24.1	-19° 24.7	-19° 25.3	-19° 25.9	-19° 26.4	-19° 27.0	-19° 27.6	-0.6
Вс 19	273° 38.2	288° 38.1	303° 37.9	318° 37.8	333° 37.6	348° 37.5	3° 37.3	18° 37.2	33° 37.1	48° 36.9	63° 36.8	78° 36.6	-0.1
	-19° 35.1	-19° 35.7	-19° 36.2	-19° 36.8	-19° 37.4	-19° 38.0	-19° 38.5	-19° 39.1	-19° 39.7	-19° 40.2	-19° 40.8	-19° 41.4	-0.6
Пн 20	273° 34.7	288° 34.5	303° 34.3	318° 34.2	333° 34.0	348° 33.9	3° 33.7	18° 33.6	33° 33.4	48° 33.3	63° 33.1	78° 33.0	-0.2
	-19° 48.7	-19° 49.2	-19° 49.8	-19° 50.4	-19° 50.9	-19° 51.5	-19° 52.0	-19° 52.6	-19° 53.1	-19° 53.7	-19° 54.2	-19° 54.8	-0.6
Вт 21	273° 30.9	288° 30.7	303° 30.6	318° 30.4	333° 30.2	348° 30.1	3° 29.9	18° 29.8	33° 29.6	48° 29.4	63° 29.3	78° 29.1	-0.2
	-20° 01.9	-20° 02.4	-20° 03.0	-20° 03.5	-20° 04.1	-20° 04.6	-20° 05.2	-20° 05.7	-20° 06.2	-20° 06.8	-20° 07.3	-20° 07.8	-0.5
Ср 22	273° 26.9	288° 26.8	303° 26.6	318° 26.4	333° 26.2	348° 26.1	3° 25.9	18° 25.7	33° 25.6	48° 25.4	63° 25.2	78° 25.0	-0.2
	-20° 14.8	-20° 15.3	-20° 15.8	-20° 16.3	-20° 16.9	-20° 17.4	-20° 17.9	-20° 18.4	-20° 19.0	-20° 19.5	-20° 20.0	-20° 20.5	-0.5
Чт 23	273° 22.8	288° 22.6	303° 22.4	318° 22.2	333° 22.1	348° 21.9	3° 21.7	18° 21.5	33° 21.3	48° 21.2	63° 21.0	78° 20.8	-0.2
	-20° 27.2	-20° 27.7	-20° 28.3	-20° 28.8	-20° 29.3	-20° 29.8	-20° 30.3	-20° 30.8	-20° 31.3	-20° 31.8	-20° 32.3	-20° 32.8	-0.5
Пт 24	273° 18.4	288° 18.2	303° 18.1	318° 17.9	333° 17.7	348° 17.5	3° 17.3	18° 17.1	33° 16.9	48° 16.8	63° 16.6	78° 16.4	-0.2
	-20° 39.3	-20° 39.8	-20° 40.3	-20° 40.8	-20° 41.3	-20° 41.8	-20° 42.3	-20° 42.8	-20° 43.3	-20° 43.8	-20° 44.3	-20° 44.8	-0.5
Сб 25	273° 13.9	288° 13.7	303° 13.5	318° 13.3	333° 13.1	348° 12.9	3° 12.7	18° 12.6	33° 12.4	48° 12.2	63° 12.0	78° 11.8	-0.2
	-20° 51.1	-20° 51.5	-20° 52.0	-20° 52.5	-20° 53.0	-20° 53.4	-20° 53.9	-20° 54.4	-20° 54.9	-20° 55.3	-20° 55.8	-20° 56.3	-0.5
Вс 26	273° 09.2	288° 09.0	303° 08.8	318° 08.6	333° 08.4	348° 08.2	3° 08.0	18° 07.8	33° 07.6	48° 07.4	63° 07.2	78° 07.0	-0.2
	-21° 02.4	-21° 02.8	-21° 03.3	-21° 03.8	-21° 04.2	-21° 04.7	-21° 05.2	-21° 05.6	-21° 06.1	-21° 06.5	-21° 07.0	-21° 07.4	-0.5
Пн 27	273° 04.3	288° 04.1	303° 03.9	318° 03.7	333° 03.5	348° 03.3	3° 03.1	18° 02.9	33° 02.6	48° 02.4	63° 02.2	78° 02.0	-0.2
	-21° 13.3	-21° 13.8	-21° 14.2	-21° 14.7	-21° 15.1	-21° 15.5	-21° 16.0	-21° 16.4	-21° 16.9	-21° 17.3	-21° 17.8	-21° 18.2	-0.4
Вт 28	272° 59.3	287° 59.0	302° 58.8	317° 58.6	332° 58.4	347° 58.2	2° 58.0	17° 57.7	32° 57.5	47° 57.3	62° 57.1	77° 56.9	-0.2
	-21° 23.8	-21° 24.3	-21° 24.7	-21° 25.1	-21° 25.6	-21° 26.0	-21° 26.4	-21° 26.8	-21° 27.3	-21° 27.7	-21° 28.1	-21° 28.5	-0.4
Ср 29	272° 54.0	287° 53.8	302° 53.6	317° 53.4	332° 53.1	347° 52.9	2° 52.7	17° 52.5	32° 52.2	47° 52.0	62° 51.8	77° 51.6	-0.2
	-21° 34.0	-21° 34.4	-21° 34.8	-21° 35.2	-21° 35.6	-21° 36.0	-21° 36.4	-21° 36.8	-21° 37.3	-21° 37.7	-21° 38.1	-21° 38.5	-0.4
Чт 30	272° 48.6	287° 48.4	302° 48.2	317° 47.9	332° 47.7	347° 47.5	2° 47.2	17° 47.0	32° 46.8	47° 46.6	62° 46.3	77° 46.1	-0.2
	-21° 43.7	-21° 44.1	-21° 44.5	-21° 44.9	-21° 45.3	-21° 45.7	-21° 46.1	-21° 46.4	-21° 46.8	-21° 47.2	-21° 47.6	-21° 48.0	-0.4

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ’/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ’/h = изменение δ за час
Полудиаметр R: 16.2’

ЛУНА

Ноябрь 2028

	Д	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	R/p
	Ср 1	253° 43.3 16° 35.7	268° 15.8 16° 45.7	282° 48.3 16° 55.7	297° 20.6 17° 05.6	311° 52.9 17° 15.4	326° 25.1 17° 25.2	340° 57.3 17° 34.9	355° 29.4 17° 44.5	10° 01.4 17° 54.1	24° 33.3 18° 03.6	39° 05.2 18° 13.0	+32.2 +9.7	14.9 54.7
○	Чт 2	256° 54.4 20° 24.3	271° 25.1 20° 32.4	285° 55.7 20° 40.3	300° 26.3 20° 48.2	314° 56.7 20° 56.0	329° 27.1 21° 03.7	343° 57.4 21° 11.3	358° 27.7 21° 18.8	12° 57.9 21° 26.2	27° 28.0 21° 33.5	41° 58.0 21° 40.7	+30.4 +7.6	15.0 55.1
	Пт 3	259° 19.8 23° 15.8	273° 48.7 23° 21.3	288° 17.6 23° 26.6	302° 46.4 23° 31.9	317° 15.1 23° 37.0	331° 43.7 23° 41.9	346° 12.3 23° 46.8	0° 40.8 23° 51.5	15° 09.3 23° 56.2	29° 37.6 24° 00.7	44° 06.0 24° 05.0	+28.6 +4.9	15.1 55.5
	Сб 4	261° 04.4 24° 55.3	275° 31.9 24° 57.6	289° 59.3 24° 59.8	304° 26.7 25° 01.8	318° 54.1 25° 03.7	333° 21.4 25° 05.5	347° 48.7 25° 07.1	2° 16.0 25° 08.6	16° 43.2 25° 09.9	31° 10.4 25° 11.1	45° 37.5 25° 12.2	+27.3 +1.7	15.3 56.0
	Вс 5	262° 21.6 25° 11.2	276° 48.4 25° 10.0	291° 15.1 25° 08.6	305° 41.9 25° 07.2	320° 08.7 25° 05.5	334° 35.4 25° 03.7	349° 02.2 25° 01.8	3° 28.9 24° 59.7	17° 55.6 24° 57.5	32° 22.4 24° 55.2	46° 49.1 24° 52.7	+26.7 -1.9	15.4 56.5
	Пн 6	263° 30.9 23° 58.0	277° 57.7 23° 53.2	292° 24.7 23° 48.3	306° 51.6 23° 43.2	321° 18.5 23° 38.0	335° 45.5 23° 32.7	350° 12.5 23° 27.2	4° 39.5 23° 21.6	19° 06.6 23° 15.8	33° 33.6 23° 09.9	48° 00.7 23° 03.9	+27.0 -5.4	15.6 57.1
	Вт 7	264° 50.9 21° 17.6	279° 18.6 21° 09.5	293° 46.2 21° 01.3	308° 13.9 20° 52.9	322° 41.7 20° 44.4	337° 09.4 20° 35.8	351° 37.3 20° 27.0	6° 05.1 20° 18.2	20° 33.0 20° 09.2	35° 01.0 20° 00.1	49° 28.9 19° 50.9	+27.8 -8.7	15.7 57.7
	Ср 8	266° 33.6 17° 19.1	281° 02.2 17° 08.1	295° 30.9 16° 57.0	309° 59.6 16° 45.8	324° 28.3 16° 34.5	338° 57.1 16° 23.1	353° 26.0 16° 11.6	7° 54.8 16° 00.0	22° 23.7 15° 48.3	36° 52.7 15° 36.6	51° 21.7 15° 24.7	+28.8 -11.4	15.9 58.3
◑	Чт 9	281° 02.2 17° 08.1	295° 30.9 16° 57.0	309° 59.6 16° 45.8	324° 28.3 16° 34.5	338° 57.1 16° 23.1	353° 26.0 16° 11.6	7° 54.8 16° 00.0	22° 23.7 15° 48.3	36° 52.7 15° 36.6	51° 21.7 15° 24.7	65° 50.7 15° 12.7	+28.9 -11.5	15.9 58.3
	Пт 10	283° 10.2 12° 02.8	297° 39.7 11° 49.5	312° 09.3 11° 36.2	326° 38.9 11° 22.7	341° 08.5 11° 09.2	355° 38.1 10° 55.6	10° 07.8 10° 41.9	24° 37.5 10° 28.2	39° 07.2 10° 14.4	53° 37.0 10° 00.6	68° 06.7 9° 46.6	+29.7 -13.6	16.1 58.9
	Сб 11	285° 35.0 6° 10.9	300° 05.0 5° 56.1	314° 35.0 5° 41.3	329° 04.9 5° 26.5	343° 34.9 5° 11.6	358° 04.9 4° 56.6	12° 34.9 4° 41.6	27° 04.9 4° 26.6	41° 34.8 4° 11.6	56° 04.8 3° 56.5	70° 34.8 3° 41.4	+30.0 -15.0	16.2 59.4
	Вс 12	288° 03.3 -0° 08.2	302° 33.0 -0° 23.6	317° 02.8 -0° 39.1	331° 32.5 -0° 54.5	346° 02.2 -1° 09.9	0° 31.9 -1° 25.4	15° 01.5 -1° 40.8	29° 31.2 -1° 56.3	44° 00.8 -2° 11.7	58° 30.3 -2° 27.2	72° 59.9 -2° 42.6	+29.7 -15.4	16.3 59.9
	Пн 13	290° 18.5 -6° 32.4	304° 47.4 -6° 47.6	319° 16.2 -7° 02.7	333° 45.0 -7° 17.7	348° 13.8 -7° 32.7	2° 42.5 -7° 47.7	17° 11.1 -8° 02.7	31° 39.7 -8° 17.6	46° 08.3 -8° 32.5	60° 36.8 -8° 47.3	75° 05.2 -9° 02.1	+28.7 -15.0	16.4 60.2
	Вт 14	292° 04.6 -12° 36.8	306° 32.1 -12° 50.6	320° 59.5 -13° 04.3	335° 26.8 -13° 18.0	349° 54.1 -13° 31.5	4° 21.3 -13° 45.0	18° 48.4 -13° 58.4	33° 15.4 -14° 11.7	47° 42.4 -14° 24.9	62° 09.3 -14° 38.0	76° 36.2 -14° 51.0	+27.2 -13.4	16.4 60.2
	Ср 15	293° 10.5 -17° 54.4	307° 36.2 -18° 05.7	322° 01.9 -18° 16.9	336° 27.5 -18° 28.0	350° 53.0 -18° 39.0	5° 18.5 -18° 49.9	19° 43.9 -19° 00.6	34° 09.2 -19° 11.2	48° 34.5 -19° 21.7	62° 59.7 -19° 32.0	77° 24.9 -19° 42.2	+25.4 -10.8	16.4 60.1
●	Чт 16	293° 35.0 -21° 58.5	307° 59.2 -22° 06.4	322° 23.4 -22° 14.1	336° 47.6 -22° 21.7	351° 11.7 -22° 29.2	5° 35.8 -22° 36.5	19° 59.9 -22° 43.6	34° 23.9 -22° 50.6	48° 47.8 -22° 57.4	63° 11.8 -23° 04.0	77° 35.7 -23° 10.5	+24.1 -7.2	16.3 59.6
	Пт 17	293° 31.5 -24° 28.1	307° 55.1 -24° 31.9	322° 18.7 -24° 35.5	336° 42.3 -24° 39.0	351° 06.0 -24° 42.3	5° 29.6 -24° 45.5	19° 53.2 -24° 48.5	34° 16.9 -24° 51.3	48° 40.6 -24° 53.9	63° 04.3 -24° 56.4	77° 27.9 -24° 58.7	+23.6 -3.1	16.1 59.0
	Сб 18	293° 26.8 -25° 12.8	307° 51.0 -25° 12.4	322° 15.3 -25° 11.9	336° 39.7 -25° 11.2	351° 04.1 -25° 10.3	5° 28.5 -25° 09.3	19° 53.0 -25° 08.1	34° 17.6 -25° 06.7	48° 42.2 -25° 05.2	63° 06.9 -25° 03.5	77° 31.7 -25° 01.7	+24.5 +1.1	15.9 58.2
	Вс 19	293° 52.0 -24° 16.1	308° 18.0 -24° 11.9	322° 44.1 -24° 07.5	337° 10.3 -24° 03.0	351° 36.6 -23° 58.4	6° 02.9 -23° 53.7	20° 29.4 -23° 48.8	34° 55.9 -23° 43.8	49° 22.6 -23° 38.6	63° 49.3 -23° 33.3	78° 16.1 -23° 27.9	+26.4 +4.8	15.6 57.3
	Пн 20	295° 10.4 -21° 52.2	309° 38.9 -21° 44.9	324° 07.4 -21° 37.5	338° 36.0 -21° 30.0	353° 04.7 -21° 22.4	7° 33.6 -21° 14.7	22° 02.5 -21° 06.8	36° 31.5 -20° 58.9	51° 00.7 -20° 50.9	65° 29.9 -20° 42.8	79° 59.2 -20° 34.6	+28.9 +7.8	15.4 56.5
	Вт 21	297° 31.2 -18° 20.9	312° 02.1 -18° 11.3	326° 33.1 -18° 01.7	341° 04.2 -17° 51.9	355° 35.4 -17° 42.2	10° 06.6 -17° 32.3	24° 38.0 -17° 22.4	39° 09.5 -17° 12.4	53° 41.0 -17° 02.3	68° 12.7 -16° 52.2	82° 44.4 -16° 42.0	+31.3 +9.9	15.2 55.7
	Ср 22	300° 50.4 -14° 01.8	315° 23.4 -13° 50.7	329° 56.5 -13° 39.5	344° 29.7 -13° 28.3	359° 03.0 -13° 17.1	13° 36.3 -13° 05.8	28° 09.7 -12° 54.5	42° 43.2 -12° 43.1	57° 16.7 -12° 31.7	71° 50.3 -12° 20.2	86° 24.0 -12° 08.7	+33.4 +11.3	15.0 55.0
	Чт 23	304° 56.2 -9° 11.7	319° 30.8 -8° 59.7	334° 05.4 -8° 47.6	348° 40.1 -8° 35.5	3° 14.8 -8° 23.4	17° 49.6 -8° 11.2	32° 24.4 -7° 59.0	46° 59.3 -7° 46.8	61° 34.2 -7° 34.6	76° 09.2 -7° 22.4	90° 44.1 -7° 10.1	+34.8 +12.2	14.9 54.5
◐	Пт 24	309° 33.1 -4° 04.0	324° 08.6 -3° 51.5	338° 44.1 -3° 38.9	353° 19.6 -3° 26.4	7° 55.2 -3° 13.9	22° 30.7 -3° 01.3	37° 06.3 -2° 48.7	51° 41.9 -2° 36.2	66° 17.5 -2° 23.6	80° 53.2 -2° 11.0	95° 28.8 -1° 58.4	+35.6 +12.6	14.8 54.2
	Сб 25	314° 24.5 1° 10.5	329° 00.2 1° 23.1	343° 35.9 1° 35.7	358° 11.6 1° 48.2	12° 47.3 2° 00.8	27° 23.0 2° 13.4	41° 58.7 2° 25.9	56° 34.4 2° 38.5	71° 10.1 2° 51.0	85° 45.7 3° 03.5	100° 21.4 3° 16.0	+35.7 +12.6	14.8 54.1
	Вс 26	319° 13.9 6° 22.0	333° 49.2 6° 34.3	348° 24.5 6° 46.5	2° 59.8 6° 58.7	17° 35.0 7° 10.9	32° 10.2 7° 23.1	46° 45.3 7° 35.2	61° 20.4 7° 47.4	75° 55.5 7° 59.5	90° 30.6 8° 11.5	105° 05.6 8° 23.6	+35.2 +12.2	14.8 54.2
	Пн 27	323° 45.7 11° 20.5	338° 19.9 11° 32.0	352° 54.2 11° 43.4	7° 28.4 11° 54.9	22° 02.5 12° 06.3	36° 36.6 12° 17.6	51° 10.6 12° 28.9	65° 44.6 12° 40.2	80° 18.5 12° 51.4	94° 52.3 13° 02.6	109° 26.1 13° 13.7	+34.0 +11.3	14.8 54.4
	Вт 28	327° 45.3 15° 54.4	342° 18.0 16° 04.6	356° 50.7 16° 14.8	11° 23.3 16° 25.0	25° 55.8 16° 35.0	40° 28.3 16° 45.0	55° 00.6 16° 55.0	69° 32.9 17° 04.8	84° 05.2 17° 14.7	98° 37.3 17° 24.4	113° 09.4 17° 34.1	+32.4 +10.0	14.9 54.8
	Ср 29	331° 01.2 19° 50.0	345° 32.1 19° 58.4	0° 02.8 20° 06.7	14° 33.5 20° 15.0	29° 04.0 20° 23.1	43° 34.5 20° 31.2	58° 04.9 20° 39.1	72° 35.3 20° 47.0	87° 05.5 20° 54.8	101° 35.7 21° 02.5	116° 05.8 21° 10.0	+30.5 +8.0	15.1 55.2
	Чт 30	333° 27.5 22° 51.6	347° 56.3 22° 57.5	2° 25.1 23° 03.2	16° 53.7 23° 08.9	31° 22.3 23° 14.5	45° 50.9 23° 19.9	60° 19.3 23° 25.2	74° 47.7 23° 30.4	89° 16.0 23° 35.5	103° 44.2 23° 40.5	118° 12.4 23° 45.3	+28.5 +5.4	15.2 55.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 2 09h17 — Последняя четв.: 9 21h25 — Новолуние: 16 13h18 — Первая четв.: 24 00h14

СОЛНЦЕ

Декабрь 2028

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	272° 43.1	287° 42.8	302° 42.6	317° 42.4	332° 42.1	347° 41.9	2° 41.6	17° 41.4	32° 41.2	47° 40.9	62° 40.7	77° 40.5	-0.2
	-21° 53.0	-21° 53.4	-21° 53.8	-21° 54.1	-21° 54.5	-21° 54.9	-21° 55.3	-21° 55.6	-21° 56.0	-21° 56.4	-21° 56.7	-21° 57.1	-0.4
Сб 2	272° 37.3	287° 37.1	302° 36.9	317° 36.6	332° 36.4	347° 36.1	2° 35.9	17° 35.6	32° 35.4	47° 35.2	62° 34.9	77° 34.7	-0.2
	-22° 01.9	-22° 02.2	-22° 02.6	-22° 03.0	-22° 03.3	-22° 03.7	-22° 04.0	-22° 04.4	-22° 04.7	-22° 05.1	-22° 05.5	-22° 05.8	-0.4
Вс 3	272° 31.5	287° 31.2	302° 31.0	317° 30.7	332° 30.5	347° 30.2	2° 30.0	17° 29.7	32° 29.5	47° 29.2	62° 29.0	77° 28.7	-0.2
	-22° 10.3	-22° 10.7	-22° 11.0	-22° 11.4	-22° 11.7	-22° 12.0	-22° 12.4	-22° 12.7	-22° 13.1	-22° 13.4	-22° 13.7	-22° 14.1	-0.3
Пн 4	272° 25.5	287° 25.2	302° 24.9	317° 24.7	332° 24.4	347° 24.2	2° 23.9	17° 23.7	32° 23.4	47° 23.2	62° 22.9	77° 22.7	-0.3
	-22° 18.4	-22° 18.7	-22° 19.0	-22° 19.3	-22° 19.7	-22° 20.0	-22° 20.3	-22° 20.6	-22° 21.0	-22° 21.3	-22° 21.6	-22° 21.9	-0.3
Вт 5	272° 19.3	287° 19.0	302° 18.8	317° 18.5	332° 18.3	347° 18.0	2° 17.7	17° 17.5	32° 17.2	47° 16.9	62° 16.7	77° 16.4	-0.3
	-22° 26.0	-22° 26.3	-22° 26.6	-22° 26.9	-22° 27.2	-22° 27.5	-22° 27.8	-22° 28.1	-22° 28.4	-22° 28.7	-22° 29.0	-22° 29.3	-0.3
Ср 6	272° 13.0	287° 12.7	302° 12.5	317° 12.2	332° 11.9	347° 11.7	2° 11.4	17° 11.1	32° 10.9	47° 10.6	62° 10.3	77° 10.1	-0.3
	-22° 33.1	-22° 33.4	-22° 33.7	-22° 34.0	-22° 34.3	-22° 34.6	-22° 34.9	-22° 35.2	-22° 35.4	-22° 35.7	-22° 36.0	-22° 36.3	-0.3
Чт 7	272° 06.6	287° 06.3	302° 06.0	317° 05.7	332° 05.5	347° 05.2	2° 04.9	17° 04.7	32° 04.4	47° 04.1	62° 03.8	77° 03.6	-0.3
	-22° 39.9	-22° 40.1	-22° 40.4	-22° 40.7	-22° 40.9	-22° 41.2	-22° 41.5	-22° 41.7	-22° 42.0	-22° 42.3	-22° 42.5	-22° 42.8	-0.3
Пт 8	272° 00.0	286° 59.7	301° 59.5	316° 59.2	331° 58.9	346° 58.6	1° 58.3	16° 58.1	31° 57.8	46° 57.5	61° 57.2	76° 57.0	-0.3
	-22° 46.2	-22° 46.4	-22° 46.7	-22° 46.9	-22° 47.2	-22° 47.4	-22° 47.7	-22° 47.9	-22° 48.1	-22° 48.4	-22° 48.6	-22° 48.9	-0.2
Сб 9	271° 53.3	286° 53.0	301° 52.8	316° 52.5	331° 52.2	346° 51.9	1° 51.6	16° 51.4	31° 51.1	46° 50.8	61° 50.5	76° 50.2	-0.3
	-22° 52.0	-22° 52.2	-22° 52.5	-22° 52.7	-22° 52.9	-22° 53.1	-22° 53.4	-22° 53.6	-22° 53.8	-22° 54.1	-22° 54.3	-22° 54.5	-0.2
Вс 10	271° 46.5	286° 46.2	301° 46.0	316° 45.7	331° 45.4	346° 45.1	1° 44.8	16° 44.5	31° 44.2	46° 44.0	61° 43.7	76° 43.4	-0.3
	-22° 57.4	-22° 57.6	-22° 57.8	-22° 58.0	-22° 58.2	-22° 58.4	-22° 58.6	-22° 58.9	-22° 59.1	-22° 59.3	-22° 59.5	-22° 59.7	-0.2
Пн 11	271° 39.6	286° 39.3	301° 39.1	316° 38.8	331° 38.5	346° 38.2	1° 37.9	16° 37.6	31° 37.3	46° 37.0	61° 36.7	76° 36.4	-0.3
	-23° 02.3	-23° 02.5	-23° 02.7	-23° 02.9	-23° 03.1	-23° 03.3	-23° 03.5	-23° 03.7	-23° 03.8	-23° 04.0	-23° 04.2	-23° 04.4	-0.2
Вт 12	271° 32.6	286° 32.3	301° 32.1	316° 31.8	331° 31.5	346° 31.2	1° 30.9	16° 30.6	31° 30.3	46° 30.0	61° 29.7	76° 29.4	-0.3
	-23° 06.8	-23° 07.0	-23° 07.1	-23° 07.3	-23° 07.5	-23° 07.6	-23° 07.8	-23° 08.0	-23° 08.2	-23° 08.3	-23° 08.5	-23° 08.7	-0.2
Ср 13	271° 25.6	286° 25.3	301° 25.0	316° 24.7	331° 24.4	346° 24.1	1° 23.8	16° 23.5	31° 23.2	46° 22.9	61° 22.6	76° 22.3	-0.3
	-23° 10.8	-23° 10.9	-23° 11.1	-23° 11.3	-23° 11.4	-23° 11.6	-23° 11.7	-23° 11.9	-23° 12.0	-23° 12.2	-23° 12.3	-23° 12.5	-0.2
Чт 14	271° 18.4	286° 18.1	301° 17.8	316° 17.5	331° 17.2	346° 16.9	1° 16.6	16° 16.3	31° 16.0	46° 15.7	61° 15.4	76° 15.1	-0.3
	-23° 14.3	-23° 14.5	-23° 14.6	-23° 14.8	-23° 14.9	-23° 15.0	-23° 15.2	-23° 15.3	-23° 15.4	-23° 15.6	-23° 15.7	-23° 15.8	-0.1
Пт 15	271° 11.2	286° 10.9	301° 10.5	316° 10.2	331° 09.9	346° 09.6	1° 09.3	16° 09.0	31° 08.7	46° 08.4	61° 08.1	76° 07.8	-0.3
	-23° 17.4	-23° 17.5	-23° 17.7	-23° 17.8	-23° 17.9	-23° 18.0	-23° 18.1	-23° 18.2	-23° 18.4	-23° 18.5	-23° 18.6	-23° 18.7	-0.1
Сб 16	271° 03.9	286° 03.6	301° 03.2	316° 02.9	331° 02.6	346° 02.3	1° 02.0	16° 01.7	31° 01.4	46° 01.1	61° 00.8	76° 00.5	-0.3
	-23° 20.1	-23° 20.2	-23° 20.3	-23° 20.3	-23° 20.4	-23° 20.5	-23° 20.6	-23° 20.7	-23° 20.8	-23° 20.9	-23° 21.0	-23° 21.1	-0.1
Вс 17	270° 56.5	285° 56.2	300° 55.9	315° 55.6	330° 55.3	345° 55.0	0° 54.7	15° 54.4	30° 54.0	45° 53.7	60° 53.4	75° 53.1	-0.3
	-23° 22.2	-23° 22.3	-23° 22.4	-23° 22.4	-23° 22.5	-23° 22.6	-23° 22.7	-23° 22.8	-23° 22.8	-23° 22.9	-23° 23.0	-23° 23.0	-0.1
Пн 18	270° 49.1	285° 48.8	300° 48.5	315° 48.2	330° 47.9	345° 47.6	0° 47.3	15° 47.0	30° 46.6	45° 46.3	60° 46.0	75° 45.7	-0.3
	-23° 23.9	-23° 24.0	-23° 24.0	-23° 24.1	-23° 24.1	-23° 24.2	-23° 24.2	-23° 24.3	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-0.1
Вт 19	270° 41.7	285° 41.4	300° 41.1	315° 40.8	330° 40.5	345° 40.1	0° 39.8	15° 39.5	30° 39.2	45° 38.9	60° 38.6	75° 38.3	-0.3
	-23° 25.1	-23° 25.2	-23° 25.2	-23° 25.2	-23° 25.3	-23° 25.3	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-23° 25.5	-0.0
Ср 20	270° 34.2	285° 33.9	300° 33.6	315° 33.3	330° 33.0	345° 32.7	0° 32.4	15° 32.1	30° 31.8	45° 31.4	60° 31.1	75° 30.8	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.1	-0.0
Чт 21	270° 26.8	285° 26.5	300° 26.2	315° 25.8	330° 25.5	345° 25.2	0° 24.9	15° 24.6	30° 24.3	45° 24.0	60° 23.7	75° 23.4	-0.3
	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.2	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	-23° 26.1	+0.0
Пт 22	270° 19.3	285° 19.0	300° 18.7	315° 18.4	330° 18.1	345° 17.8	0° 17.4	15° 17.1	30° 16.8	45° 16.5	60° 16.2	75° 15.9	-0.3
	-23° 26.0	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.7	-23° 25.7	+0.0
Сб 23	270° 11.9	285° 11.5	300° 11.2	315° 10.9	330° 10.6	345° 10.3	0° 10.0	15° 09.7	30° 09.4	45° 09.1	60° 08.7	75° 08.4	-0.3
	-23° 25.3	-23° 25.3	-23° 25.2	-23° 25.2	-23° 25.1	-23° 25.1	-23° 25.1	-23° 25.0	-23° 25.0	-23° 24.9	-23° 24.9	-23° 24.8	+0.0
Вс 24	270° 04.4	285° 04.1	300° 03.8	315° 03.5	330° 03.2	345° 02.9	0° 02.5	15° 02.2	30° 01.9	45° 01.6	60° 01.3	75° 01.0	-0.3
	-23° 24.2	-23° 24.1	-23° 24.1	-23° 24.0	-23° 23.9	-23° 23.9	-23° 23.8	-23° 23.7	-23° 23.7	-23° 23.6	-23° 23.6	-23° 23.5	+0.1
Пн 25	269° 57.0	284° 56.7	299° 56.4	314° 56.0	329° 55.7	344° 55.4	359° 55.1	14° 54.8	29° 54.5	44° 54.2	59° 53.9	74° 53.6	-0.3
	-23° 22.6	-23° 22.5	-23° 22.4	-23° 22.3	-23° 22.3	-23° 22.2	-23° 22.1	-23° 22.0	-23° 21.9	-23° 21.8	-23° 21.8	-23° 21.7	+0.1
Вт 26	269° 49.6	284° 49.3	299° 49.0	314° 48.6	329° 48.3	344° 48.0	359° 47.7	14° 47.4	29° 47.1	44° 46.8	59° 46.5	74° 46.2	-0.3
	-23° 20.5	-23° 20.4	-23° 20.3	-23° 20.2	-23° 20.1	-23° 20.0	-23° 19.9	-23° 19.8	-23° 19.7	-23° 19.6	-23° 19.5	-23° 19.4	+0.1
Ср 27	269° 42.2	284° 41.9	299° 41.6	314° 41.3	329° 41.0	344° 40.7	359° 40.4	14° 40.1	29° 39.8	44° 39.5	59° 39.1	74° 38.8	-0.3
	-23° 18.0	-23° 17.8	-23° 17.7	-23° 17.6	-23° 17.5	-23° 17.4	-23° 17.2	-23° 17.1	-23° 17.0	-23° 16.9	-23° 16.8	-23° 16.6	+0.1
Чт 28	269° 34.9	284° 34.6	299° 34.3	314° 34.0	329° 33.7	344° 33.4	359° 33.1	14° 32.8	29° 32.5	44° 32.2	59° 31.9	74° 31.5	-0.3
	-23° 14.9	-23° 14.8	-23° 14.7	-23° 14.5	-23° 14.4	-23° 14.3	-23° 14.1	-23° 14.0	-23° 13.8	-23° 13.7	-23° 13.6	-23° 13.4	+0.1
Пт 29	269° 27.6	284° 27.3	299° 27.0	314° 26.7	329° 26.4	344° 26.1	359° 25.8	14° 25.5	29° 25.2	44° 24.9	59° 24.6	74° 24.3	-0.3
	-23° 11.5	-23° 11.3	-23° 11.2	-23° 11.0	-23° 10.9	-23° 10.7	-23° 10.5	-23° 10.4	-23° 10.2	-23° 10.1	-23° 09.9	-23° 09.7	+0.2
Сб 30	269° 20.4	284° 20.1	299° 19.8	314° 19.5	329° 19.2	344° 18.9	359° 18.6	14° 18.3	29° 18.0	44° 17.7	59° 17.4	74° 17.1	-0.3
	-23° 07.5	-23° 07.4	-23° 07.2	-23° 07.0	-23° 06.8	-23° 06.7	-23° 06.5	-23° 06.3	-23° 06.1	-23° 05.9	-23° 05.8	-23° 05.6	+0.2
Вс 31	269° 13.3	284° 13.0	299° 12.7	314° 12.4	329° 12.1	344° 11.8	359° 11.5	14° 11.2	29° 10.9	44° 10.6	59° 10.3	74° 10.0	-0.3
	-23° 03.1	-23° 03.0	-23° 02.8	-23° 02.6	-23° 02.4	-23° 02.2	-23° 02.0	-23° 01.8	-23° 01.6	-23° 01.4	-23° 01.2	-23° 01.0	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Декабрь 2028

	Д	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	R/p
	Пт 1	248° 22.7	262° 50.2	277° 17.7	291° 45.0	306° 12.3	320° 39.6	335° 06.8	349° 34.0	4° 01.1	18° 28.1	32° 55.1	+27.2	15.3
		24° 23.3	24° 26.8	24° 30.3	24° 33.6	24° 36.7	24° 39.8	24° 42.7	24° 45.5	24° 48.1	24° 50.6	24° 52.9	+3.0	56.2
○	Сб 2	249° 34.7	264° 01.1	278° 27.4	292° 53.7	307° 20.0	321° 46.3	336° 12.5	350° 38.7	5° 04.9	19° 31.1	33° 57.3	+26.3	15.5
		25° 11.4	25° 11.5	25° 11.4	25° 11.2	25° 10.8	25° 10.3	25° 09.6	25° 08.8	25° 07.9	25° 06.8	25° 05.5	-0.6	56.7
	Вс 3	250° 29.2	264° 55.4	279° 21.5	293° 47.7	308° 13.9	322° 40.1	337° 06.3	351° 32.6	5° 58.8	20° 25.1	34° 51.4	+26.2	15.6
		24° 29.0	24° 25.3	24° 21.6	24° 17.6	24° 13.6	24° 09.4	24° 05.0	24° 00.5	23° 55.9	23° 51.1	23° 46.1	-4.3	57.3
	Пн 4	251° 29.5	265° 56.3	280° 23.2	294° 50.1	309° 17.0	323° 44.0	338° 11.1	352° 38.1	7° 05.3	21° 32.4	35° 59.6	+27.0	15.7
		22° 15.2	22° 08.1	22° 00.8	21° 53.3	21° 45.8	21° 38.1	21° 30.3	21° 22.3	21° 14.3	21° 06.1	20° 57.7	-7.8	57.7
	Вт 5	252° 53.8	267° 21.8	281° 49.9	296° 18.0	310° 46.2	325° 14.5	339° 42.7	354° 11.1	8° 39.5	23° 07.9	37° 36.4	+28.3	15.9
		18° 38.4	18° 28.2	18° 17.8	18° 07.4	17° 56.9	17° 46.2	17° 35.5	17° 24.7	17° 13.7	17° 02.7	16° 51.5	-10.7	58.2
	Ср 6	254° 49.8	269° 19.1	283° 48.4	298° 17.8	312° 47.2	327° 16.7	341° 46.2	356° 15.7	10° 45.3	25° 15.0	39° 44.6	+29.5	16.0
		13° 53.2	13° 40.7	13° 28.0	13° 15.3	13° 02.5	12° 49.6	12° 36.6	12° 23.6	12° 10.5	11° 57.4	11° 44.1	-12.9	58.5
	Чт 7	257° 14.1	271° 44.3	286° 14.6	300° 44.8	315° 15.1	329° 45.4	344° 15.8	358° 46.1	13° 16.5	27° 46.9	42° 17.3	+30.3	16.0
		8° 18.2	8° 04.0	7° 49.8	7° 35.6	7° 21.3	7° 06.9	6° 52.6	6° 38.1	6° 23.7	6° 09.2	5° 54.6	-14.4	58.8
	Пт 8	259° 55.1	274° 25.7	288° 56.2	303° 26.8	317° 57.4	332° 27.9	346° 58.5	1° 29.0	15° 59.6	30° 30.1	45° 00.7	+30.6	16.1
		2° 13.0	1° 58.1	1° 43.1	1° 28.1	1° 13.1	0° 58.1	0° 43.1	0° 28.1	0° 13.1	-0° 01.9	-0° 17.0	-15.0	59.1
◑	Сб 9	274° 25.7	288° 56.2	303° 26.8	317° 57.4	332° 27.9	346° 58.5	1° 29.0	15° 59.6	30° 30.1	45° 00.7	59° 31.2	+30.6	16.1
		1° 58.1	1° 43.1	1° 28.1	1° 13.1	0° 58.1	0° 43.1	0° 28.1	0° 13.1	-0° 01.9	-0° 17.0	-0° 32.0	-15.0	59.1
	Вс 10	277° 06.9	291° 37.1	306° 07.3	320° 37.5	335° 07.6	349° 37.6	4° 07.7	18° 37.7	33° 07.7	47° 37.6	62° 07.5	+30.1	16.2
		-4° 17.0	-4° 31.9	-4° 46.7	-5° 01.6	-5° 16.4	-5° 31.2	-5° 46.0	-6° 00.8	-6° 15.5	-6° 30.2	-6° 44.8	-14.8	59.3
	Пн 11	279° 30.7	293° 59.8	308° 28.9	322° 58.0	337° 26.9	351° 55.9	6° 24.7	20° 53.5	35° 22.3	49° 51.0	64° 19.6	+28.9	16.2
		-10° 19.9	-10° 33.9	-10° 47.8	-11° 01.6	-11° 15.4	-11° 29.1	-11° 42.8	-11° 56.4	-12° 09.9	-12° 23.3	-12° 36.7	-13.7	59.4
	Вт 12	281° 21.4	295° 49.0	310° 16.5	324° 44.0	339° 11.3	353° 38.7	8° 05.9	22° 33.1	37° 00.2	51° 27.2	65° 54.1	+27.3	16.2
		-15° 48.3	-16° 00.4	-16° 12.4	-16° 24.3	-16° 36.0	-16° 47.7	-16° 59.3	-17° 10.8	-17° 22.2	-17° 33.5	-17° 44.7	-11.6	59.3
	Ср 13	282° 30.2	296° 56.1	311° 21.9	325° 47.6	340° 13.3	354° 38.9	9° 04.4	23° 29.9	37° 55.3	52° 20.7	66° 46.0	+25.6	16.1
		-20° 18.6	-20° 27.9	-20° 37.0	-20° 46.1	-20° 55.0	-21° 03.7	-21° 12.3	-21° 20.8	-21° 29.1	-21° 37.4	-21° 45.4	-8.7	59.1
	Чт 14	282° 59.4	297° 23.9	311° 48.4	326° 12.9	340° 37.3	355° 01.7	9° 26.1	23° 50.4	38° 14.7	52° 39.0	67° 03.3	+24.4	16.0
		-23° 28.9	-23° 34.5	-23° 40.1	-23° 45.4	-23° 50.7	-23° 55.7	-24° 00.6	-24° 05.3	-24° 09.9	-24° 14.3	-24° 18.6	-5.0	58.8
	Пт 15	283° 05.9	297° 30.0	311° 54.2	326° 18.4	340° 42.6	355° 06.8	9° 31.0	23° 55.3	38° 19.6	52° 43.9	67° 08.2	+24.2	15.9
		-25° 02.8	-25° 04.4	-25° 05.9	-25° 07.2	-25° 08.3	-25° 09.3	-25° 10.1	-25° 10.7	-25° 11.2	-25° 11.5	-25° 11.7	-0.9	58.3
●	Сб 16	283° 17.8	297° 42.8	312° 07.9	326° 33.0	340° 58.2	355° 23.5	9° 48.8	24° 14.2	38° 39.7	53° 05.2	67° 30.9	+25.3	15.7
		-24° 54.7	-24° 52.3	-24° 49.7	-24° 47.0	-24° 44.2	-24° 41.2	-24° 38.0	-24° 34.7	-24° 31.3	-24° 27.7	-24° 23.9	+3.1	57.7
	Вс 17	284° 04.3	298° 31.2	312° 58.2	327° 25.3	341° 52.5	356° 19.8	10° 47.1	25° 14.6	39° 42.1	54° 09.8	68° 37.5	+27.3	15.5
		-23° 11.0	-23° 05.1	-22° 59.0	-22° 52.9	-22° 46.6	-22° 40.1	-22° 33.6	-22° 26.9	-22° 20.2	-22° 13.3	-22° 06.2	+6.5	57.0
	Пн 18	285° 45.1	300° 14.4	314° 43.7	329° 13.2	343° 42.8	358° 12.5	12° 42.2	27° 12.1	41° 42.1	56° 12.1	70° 42.3	+29.7	15.4
		-20° 08.0	-19° 59.3	-19° 50.5	-19° 41.7	-19° 32.7	-19° 23.6	-19° 14.5	-19° 05.3	-18° 56.0	-18° 46.6	-18° 37.1	+9.1	56.3
	Вт 19	288° 25.6	302° 57.2	317° 28.9	332° 00.7	346° 32.6	1° 04.5	15° 36.6	30° 08.7	44° 40.9	59° 13.2	73° 45.6	+32.0	15.2
		-16° 05.8	-15° 55.1	-15° 44.5	-15° 33.7	-15° 22.9	-15° 12.0	-15° 01.1	-14° 50.1	-14° 39.0	-14° 27.9	-14° 16.8	+10.9	55.6
	Ср 20	292° 00.1	306° 33.6	321° 07.2	335° 40.9	350° 14.6	4° 48.4	19° 22.2	33° 56.2	48° 30.1	63° 04.2	77° 38.2	+33.8	15.0
		-11° 23.9	-11° 12.0	-11° 00.1	-10° 48.2	-10° 36.2	-10° 24.2	-10° 12.2	-10° 00.2	-9° 48.1	-9° 35.9	-9° 23.8	+12.0	55.0
	Чт 21	296° 15.8	310° 50.6	325° 25.5	340° 00.5	354° 35.5	9° 10.5	23° 45.5	38° 20.6	52° 55.8	67° 30.9	82° 06.1	+35.0	14.9
		-6° 18.7	-6° 06.2	-5° 53.7	-5° 41.2	-5° 28.7	-5° 16.1	-5° 03.6	-4° 51.0	-4° 38.4	-4° 25.8	-4° 13.2	+12.6	54.6
	Пт 22	300° 57.0	315° 32.6	330° 08.1	344° 43.7	359° 19.3	13° 54.9	28° 30.5	43° 06.1	57° 41.8	72° 17.4	86° 53.0	+35.6	14.8
		-1° 03.5	-0° 50.9	-0° 38.2	-0° 25.6	-0° 12.9	-0° 00.3	0° 12.4	0° 25.0	0° 37.6	0° 50.3	1° 02.9	+12.6	54.3
◐	Сб 23	305° 47.4	320° 23.0	334° 58.6	349° 34.1	4° 09.6	18° 45.1	33° 20.6	47° 56.1	62° 31.6	77° 07.0	91° 42.4	+35.5	14.8
		4° 11.0	4° 23.4	4° 35.8	4° 48.2	5° 00.6	5° 13.0	5° 25.3	5° 37.6	5° 49.9	6° 02.2	6° 14.5	+12.3	54.2
	Вс 24	310° 30.5	325° 05.4	339° 40.4	354° 15.2	8° 50.0	23° 24.8	37° 59.6	52° 34.3	67° 08.9	81° 43.5	96° 18.1	+34.8	14.8
		9° 15.2	9° 27.0	9° 38.8	9° 50.6	10° 02.3	10° 14.0	10° 25.6	10° 37.2	10° 48.8	11° 00.4	11° 11.9	+11.7	54.2
	Пн 25	314° 50.5	329° 24.2	343° 57.8	358° 31.4	13° 04.9	27° 38.4	42° 11.8	56° 45.1	71° 18.4	85° 51.6	100° 24.7	+33.4	14.9
		13° 59.2	14° 10.0	14° 20.7	14° 31.4	14° 42.0	14° 52.6	15° 03.1	15° 13.6	15° 24.0	15° 34.3	15° 44.6	+10.5	54.3
	Вт 26	318° 33.0	333° 05.0	347° 36.9	2° 08.6	16° 40.4	31° 12.0	45° 43.6	60° 15.0	74° 46.4	89° 17.7	103° 49.0	+31.6	15.0
		18° 11.4	18° 20.6	18° 29.8	18° 38.8	18° 47.9	18° 56.8	19° 05.6	19° 14.4	19° 23.1	19° 31.7	19° 40.3	+8.9	54.9
	Ср 27	321° 27.4	335° 57.2	350° 27.0	4° 56.7	19° 26.4	33° 55.9	48° 25.4	62° 54.7	77° 24.0	91° 53.2	106° 22.3	+29.5	15.1
		21° 37.8	21° 44.9	21° 51.9	21° 58.8	22° 05.5	22° 12.2	22° 18.8	22° 25.3	22° 31.6	22° 37.9	22° 44.0	+6.6	55.5
	Чт 28	323° 29.2	337° 57.1	352° 24.8	6° 52.5	21° 20.1	35° 47.6	50° 15.1	64° 42.5	79° 09.8	93° 37.0	108° 04.2	+27.5	15.3
		24° 02.6	24° 06.8	24° 11.0	24° 15.0	24° 18.9	24° 22.7	24° 26.3	24° 29.8	24° 33.2	24° 36.4	24° 39.5	+3.7	56.2
	Пт 29	324° 44.5	339° 10.8	353° 37.0	8° 03.1	22° 29.3	36° 55.3	51° 21.4	65° 47.4	80° 13.3	94° 39.2	109° 05.1	+26.1	15.5
		25° 09.5	25° 10.4	25° 11.1	25° 11.7	25° 12.1	25° 12.4	25° 12.5	25° 12.5	25° 12.3	25° 12.0	25° 11.5	+0.2	56.9
	Сб 30	325° 30.3	339° 55.9	354° 21.4	8° 47.0	23° 12.5	37° 38.0	52° 03.6	66° 29.1	80° 54.6	95° 20.2	109° 45.7	+25.5	15.7
		24° 46.1	24° 43.2	24° 40.2	24° 36.9	24° 33.6	24° 30.0	24° 26.4	24° 22.5	24° 18.5	24° 14.4	24° 10.1	-3.6	57.6
○	Вс 31	326° 10.8	340° 36.6	355° 02.5	9° 28.4	23° 54.4	38° 20.4	52° 46.4	67° 12.4	81° 38.5	96° 04.7	110° 30.8	+26.0	15.9
		22° 47.7	22° 41.0	22° 34.2	22° 27.2	22° 20.1	22° 12.8	22° 05.5	21° 57.9	21° 50.3	21° 42.5	21° 34.5	-7.3	58.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 2 01h40 — Последняя четв.: 9 05h38 — Новолуние: 16 02h06 — Первая четв.: 23 21h44 — Полнолуние: 31 16h48

СОЛНЦЕ

Январь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	269° 06.2	284° 05.9	299° 05.6	314° 05.3	329° 05.0	344° 04.7	359° 04.5	14° 04.2	29° 03.9	44° 03.6	59° 03.3	74° 03.0	-0.3
	-22° 58.3	-22° 58.1	-22° 57.9	-22° 57.7	-22° 57.4	-22° 57.2	-22° 57.0	-22° 56.8	-22° 56.6	-22° 56.4	-22° 56.1	-22° 55.9	+0.2
Вт 2	268° 59.2	283° 58.9	298° 58.6	313° 58.4	328° 58.1	343° 57.8	358° 57.5	13° 57.2	28° 56.9	43° 56.6	58° 56.3	73° 56.1	-0.3
	-22° 53.0	-22° 52.7	-22° 52.5	-22° 52.3	-22° 52.1	-22° 51.8	-22° 51.6	-22° 51.3	-22° 51.1	-22° 50.9	-22° 50.6	-22° 50.4	+0.2
Ср 3	268° 52.3	283° 52.0	298° 51.8	313° 51.5	328° 51.2	343° 50.9	358° 50.6	13° 50.3	28° 50.0	43° 49.8	58° 49.5	73° 49.2	-0.3
	-22° 47.2	-22° 47.0	-22° 46.7	-22° 46.5	-22° 46.2	-22° 46.0	-22° 45.7	-22° 45.4	-22° 45.2	-22° 44.9	-22° 44.7	-22° 44.4	+0.3
Чт 4	268° 45.5	283° 45.2	298° 45.0	313° 44.7	328° 44.4	343° 44.1	358° 43.8	13° 43.6	28° 43.3	43° 43.0	58° 42.7	73° 42.4	-0.3
	-22° 41.0	-22° 40.7	-22° 40.5	-22° 40.2	-22° 39.9	-22° 39.6	-22° 39.4	-22° 39.1	-22° 38.8	-22° 38.5	-22° 38.3	-22° 38.0	+0.3
Пт 5	268° 38.8	283° 38.5	298° 38.3	313° 38.0	328° 37.7	343° 37.4	358° 37.2	13° 36.9	28° 36.6	43° 36.3	58° 36.1	73° 35.8	-0.3
	-22° 34.3	-22° 34.0	-22° 33.7	-22° 33.5	-22° 33.2	-22° 32.9	-22° 32.6	-22° 32.3	-22° 32.0	-22° 31.7	-22° 31.4	-22° 31.1	+0.3
Сб 6	268° 32.2	283° 32.0	298° 31.7	313° 31.4	328° 31.1	343° 30.9	358° 30.6	13° 30.3	28° 30.1	43° 29.8	58° 29.5	73° 29.2	-0.3
	-22° 27.2	-22° 26.9	-22° 26.6	-22° 26.3	-22° 26.0	-22° 25.7	-22° 25.4	-22° 25.0	-22° 24.7	-22° 24.4	-22° 24.1	-22° 23.8	+0.3
Вс 7	268° 25.7	283° 25.5	298° 25.2	313° 24.9	328° 24.7	343° 24.4	358° 24.1	13° 23.9	28° 23.6	43° 23.3	58° 23.1	73° 22.8	-0.3
	-22° 19.6	-22° 19.3	-22° 19.0	-22° 18.7	-22° 18.3	-22° 18.0	-22° 17.7	-22° 17.3	-22° 17.0	-22° 16.7	-22° 16.4	-22° 16.0	+0.3
Пн 8	268° 19.4	283° 19.1	298° 18.9	313° 18.6	328° 18.3	343° 18.1	358° 17.8	13° 17.5	28° 17.3	43° 17.0	58° 16.8	73° 16.5	-0.3
	-22° 11.6	-22° 11.3	-22° 10.9	-22° 10.6	-22° 10.3	-22° 09.9	-22° 09.6	-22° 09.2	-22° 08.9	-22° 08.5	-22° 08.2	-22° 07.8	+0.3
Вт 9	268° 13.1	283° 12.9	298° 12.6	313° 12.4	328° 12.1	343° 11.9	358° 11.6	13° 11.3	28° 11.1	43° 10.8	58° 10.6	73° 10.3	-0.3
	-22° 03.2	-22° 02.8	-22° 02.5	-22° 02.1	-22° 01.7	-22° 01.4	-22° 01.0	-22° 00.7	-22° 00.3	-21° 59.9	-21° 59.5	-21° 59.2	+0.4
Ср 10	268° 07.0	283° 06.8	298° 06.5	313° 06.3	328° 06.0	343° 05.8	358° 05.5	13° 05.3	28° 05.0	43° 04.8	58° 04.5	73° 04.3	-0.3
	-21° 54.3	-21° 53.9	-21° 53.6	-21° 53.2	-21° 52.8	-21° 52.4	-21° 52.0	-21° 51.7	-21° 51.3	-21° 50.9	-21° 50.5	-21° 50.1	+0.4
Чт 11	268° 01.1	283° 00.8	298° 00.6	313° 00.3	328° 00.1	342° 59.8	357° 59.6	12° 59.3	27° 59.1	42° 58.9	57° 58.6	72° 58.4	-0.2
	-21° 45.0	-21° 44.6	-21° 44.2	-21° 43.8	-21° 43.4	-21° 43.0	-21° 42.6	-21° 42.2	-21° 41.8	-21° 41.4	-21° 41.0	-21° 40.6	+0.4
Пт 12	267° 55.2	282° 55.0	297° 54.8	312° 54.5	327° 54.3	342° 54.0	357° 53.8	12° 53.6	27° 53.3	42° 53.1	57° 52.9	72° 52.6	-0.2
	-21° 35.3	-21° 34.9	-21° 34.5	-21° 34.1	-21° 33.6	-21° 33.2	-21° 32.8	-21° 32.4	-21° 32.0	-21° 31.5	-21° 31.1	-21° 30.7	+0.4
Сб 13	267° 49.6	282° 49.3	297° 49.1	312° 48.9	327° 48.6	342° 48.4	357° 48.2	12° 47.9	27° 47.7	42° 47.5	57° 47.2	72° 47.0	-0.2
	-21° 25.2	-21° 24.7	-21° 24.3	-21° 23.9	-21° 23.4	-21° 23.0	-21° 22.6	-21° 22.1	-21° 21.7	-21° 21.2	-21° 20.8	-21° 20.4	+0.4
Вс 14	267° 44.0	282° 43.8	297° 43.6	312° 43.4	327° 43.1	342° 42.9	357° 42.7	12° 42.5	27° 42.2	42° 42.0	57° 41.8	72° 41.6	-0.2
	-21° 14.6	-21° 14.1	-21° 13.7	-21° 13.2	-21° 12.8	-21° 12.3	-21° 11.9	-21° 11.4	-21° 11.0	-21° 10.5	-21° 10.1	-21° 09.6	+0.5
Пн 15	267° 38.7	282° 38.5	297° 38.3	312° 38.0	327° 37.8	342° 37.6	357° 37.4	12° 37.2	27° 37.0	42° 36.7	57° 36.5	72° 36.3	-0.2
	-21° 03.6	-21° 03.2	-21° 02.7	-21° 02.2	-21° 01.8	-21° 01.3	-21° 00.8	-21° 00.4	-20° 59.9	-20° 59.4	-20° 58.9	-20° 58.5	+0.5
Вт 16	267° 33.5	282° 33.3	297° 33.1	312° 32.9	327° 32.7	342° 32.5	357° 32.2	12° 32.0	27° 31.8	42° 31.6	57° 31.4	72° 31.2	-0.2
	-20° 52.3	-20° 51.8	-20° 51.3	-20° 50.8	-20° 50.3	-20° 49.8	-20° 49.4	-20° 48.9	-20° 48.4	-20° 47.9	-20° 47.4	-20° 46.9	+0.5
Ср 17	267° 28.5	282° 28.3	297° 28.1	312° 27.9	327° 27.7	342° 27.5	357° 27.3	12° 27.1	27° 26.9	42° 26.7	57° 26.5	72° 26.3	-0.2
	-20° 40.5	-20° 40.0	-20° 39.5	-20° 39.0	-20° 38.5	-20° 38.0	-20° 37.5	-20° 37.0	-20° 36.5	-20° 36.0	-20° 35.5	-20° 35.0	+0.5
Чт 18	267° 23.7	282° 23.5	297° 23.3	312° 23.1	327° 22.9	342° 22.7	357° 22.5	12° 22.3	27° 22.1	42° 21.9	57° 21.7	72° 21.5	-0.2
	-20° 28.3	-20° 27.8	-20° 27.3	-20° 26.8	-20° 26.3	-20° 25.8	-20° 25.2	-20° 24.7	-20° 24.2	-20° 23.7	-20° 23.2	-20° 22.6	+0.5
Пт 19	267° 19.0	282° 18.9	297° 18.7	312° 18.5	327° 18.3	342° 18.1	357° 17.9	12° 17.7	27° 17.5	42° 17.3	57° 17.2	72° 17.0	-0.2
	-20° 15.8	-20° 15.3	-20° 14.7	-20° 14.2	-20° 13.7	-20° 13.1	-20° 12.6	-20° 12.1	-20° 11.5	-20° 11.0	-20° 10.5	-20° 09.9	+0.5
Сб 20	267° 14.6	282° 14.4	297° 14.2	312° 14.0	327° 13.9	342° 13.7	357° 13.5	12° 13.3	27° 13.1	42° 13.0	57° 12.8	72° 12.6	-0.2
	-20° 02.9	-20° 02.3	-20° 01.8	-20° 01.2	-20° 00.7	-20° 00.1	-19° 59.6	-19° 59.0	-19° 58.5	-19° 57.9	-19° 57.4	-19° 56.8	+0.6
Вс 21	267° 10.3	282° 10.2	297° 10.0	312° 09.8	327° 09.6	342° 09.5	357° 09.3	12° 09.1	27° 08.9	42° 08.8	57° 08.6	72° 08.4	-0.2
	-19° 49.6	-19° 49.0	-19° 48.5	-19° 47.9	-19° 47.3	-19° 46.8	-19° 46.2	-19° 45.6	-19° 45.1	-19° 44.5	-19° 43.9	-19° 43.4	+0.6
Пн 22	267° 06.3	282° 06.1	297° 05.9	312° 05.8	327° 05.6	342° 05.4	357° 05.3	12° 05.1	27° 04.9	42° 04.8	57° 04.6	72° 04.5	-0.2
	-19° 35.9	-19° 35.3	-19° 34.8	-19° 34.2	-19° 33.6	-19° 33.0	-19° 32.4	-19° 31.9	-19° 31.3	-19° 30.7	-19° 30.1	-19° 29.5	+0.6
Вт 23	267° 02.4	282° 02.2	297° 02.1	312° 01.9	327° 01.8	342° 01.6	357° 01.4	12° 01.3	27° 01.1	42° 01.0	57° 00.8	72° 00.7	-0.2
	-19° 21.9	-19° 21.3	-19° 20.7	-19° 20.1	-19° 19.5	-19° 18.9	-19° 18.3	-19° 17.7	-19° 17.1	-19° 16.5	-19° 15.9	-19° 15.3	+0.6
Ср 24	266° 58.7	281° 58.6	296° 58.4	311° 58.3	326° 58.1	341° 58.0	356° 57.8	11° 57.7	26° 57.5	41° 57.4	56° 57.2	71° 57.1	-0.1
	-19° 07.5	-19° 06.9	-19° 06.3	-19° 05.7	-19° 05.1	-19° 04.5	-19° 03.9	-19° 03.2	-19° 02.6	-19° 02.0	-19° 01.4	-19° 00.8	+0.6
Чт 25	266° 55.2	281° 55.1	296° 55.0	311° 54.8	326° 54.7	341° 54.5	356° 54.4	11° 54.3	26° 54.1	41° 54.0	56° 53.9	71° 53.7	-0.1
	-18° 52.8	-18° 52.2	-18° 51.5	-18° 50.9	-18° 50.3	-18° 49.7	-18° 49.0	-18° 48.4	-18° 47.8	-18° 47.2	-18° 46.5	-18° 45.9	+0.6
Пт 26	266° 52.0	281° 51.8	296° 51.7	311° 51.6	326° 51.5	341° 51.3	356° 51.2	11° 51.1	26° 50.9	41° 50.8	56° 50.7	71° 50.6	-0.1
	-18° 37.7	-18° 37.1	-18° 36.4	-18° 35.8	-18° 35.2	-18° 34.5	-18° 33.9	-18° 33.2	-18° 32.6	-18° 32.0	-18° 31.3	-18° 30.7	+0.6
Сб 27	266° 48.9	281° 48.8	296° 48.7	311° 48.6	326° 48.4	341° 48.3	356° 48.2	11° 48.1	26° 47.9	41° 47.8	56° 47.7	71° 47.6	-0.1
	-18° 22.3	-18° 21.6	-18° 21.0	-18° 20.3	-18° 19.7	-18° 19.0	-18° 18.4	-18° 17.7	-18° 17.1	-18° 16.4	-18° 15.8	-18° 15.1	+0.7
Вс 28	266° 46.1	281° 45.9	296° 45.8	311° 45.7	326° 45.6	341° 45.5	356° 45.4	11° 45.3	26° 45.2	41° 45.0	56° 44.9	71° 44.8	-0.1
	-18° 06.5	-18° 05.9	-18° 05.2	-18° 04.6	-18° 03.9	-18° 03.2	-18° 02.6	-18° 01.9	-18° 01.2	-18° 00.6	-17° 59.9	-17° 59.2	+0.7
Пн 29	266° 43.4	281° 43.3	296° 43.2	311° 43.1	326° 43.0	341° 42.9	356° 42.8	11° 42.7	26° 42.6	41° 42.5	56° 42.4	71° 42.3	-0.1
	-17° 50.5	-17° 49.8	-17° 49.1	-17° 48.4	-17° 47.8	-17° 47.1	-17° 46.4	-17° 45.7	-17° 45.0	-17° 44.4	-17° 43.7	-17° 43.0	+0.7
Вт 30	266° 41.0	281° 40.9	296° 40.8	311° 40.7	326° 40.6	341° 40.5	356° 40.4	11° 40.3	26° 40.2	41° 40.1	56° 40.0	71° 39.9	-0.1
	-17° 34.1	-17° 33.4	-17° 32.7	-17° 32.0	-17° 31.3	-17° 30.6	-17° 29.9	-17° 29.2	-17° 28.6	-17° 27.9	-17° 27.2	-17° 26.5	+0.7
Ср 31	266° 38.7	281° 38.6	296° 38.5	311° 38.5	326° 38.4	341° 38.3	356° 38.2	11° 38.1	26° 38.0	41° 37.9	56° 37.8	71° 37.8	-0.1
	-17° 17.4	-17° 16.7	-17° 16.0	-17° 15.3	-17° 14.6	-17° 13.9	-17° 13.2	-17° 12.5	-17° 11.8	-17° 11.0	-17° 10.3	-17° 09.6	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2029

Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
Пн 1	240° 28.3	254° 54.9	269° 21.5	283° 48.2	298° 15.0	312° 41.8	327° 08.7	341° 35.6	356° 02.5	10° 29.6	24° 56.6	+26.8	16.0
	20° 17.0	20° 07.7	19° 58.3	19° 48.8	19° 39.1	19° 29.4	19° 19.5	19° 09.5	18° 59.3	18° 49.1	18° 38.7	-9.8	58.7
Вт 2	241° 49.0	256° 17.0	270° 45.0	285° 13.0	299° 41.1	314° 09.2	328° 37.4	343° 05.7	357° 34.0	12° 02.3	26° 30.8	+28.2	16.1
	15° 50.0	15° 37.9	15° 25.8	15° 13.5	15° 01.2	14° 48.7	14° 36.2	14° 23.6	14° 10.9	13° 58.1	13° 45.2	-12.5	59.0
Ср 3	243° 42.9	258° 12.0	272° 41.3	287° 10.5	301° 39.8	316° 09.2	330° 38.6	345° 08.0	359° 37.4	14° 06.9	28° 36.5	+29.4	16.2
	10° 23.2	10° 09.2	9° 55.1	9° 41.0	9° 26.8	9° 12.6	8° 58.3	8° 44.0	8° 29.6	8° 15.2	8° 00.7	-14.3	59.3
Чт 4	246° 03.4	260° 33.4	275° 03.4	289° 33.4	304° 03.5	318° 33.6	333° 03.7	347° 33.8	2° 03.9	16° 34.1	31° 04.2	+30.1	16.2
	4° 19.0	4° 04.0	3° 49.0	3° 33.9	3° 18.9	3° 03.8	2° 48.7	2° 33.5	2° 18.4	2° 03.3	1° 48.1	-15.1	59.4
Пт 5	248° 37.3	263° 07.5	277° 37.7	292° 07.9	306° 38.1	321° 08.3	335° 38.5	350° 08.6	4° 38.8	19° 08.9	33° 39.0	+30.2	16.2
	-1° 59.4	-2° 14.5	-2° 29.6	-2° 44.7	-2° 59.8	-3° 14.8	-3° 29.9	-3° 44.9	-3° 59.9	-4° 14.8	-4° 29.8	-15.0	59.3
Сб 6	251° 08.4	265° 38.1	280° 07.8	294° 37.5	309° 07.2	323° 36.8	338° 06.4	352° 35.9	7° 05.4	21° 34.9	36° 04.3	+29.6	16.1
	-8° 09.8	-8° 24.2	-8° 38.5	-8° 52.7	-9° 06.9	-9° 21.0	-9° 35.1	-9° 49.2	-10° 03.1	-10° 17.0	-10° 30.9	-14.1	59.2
◑ Вс 7	253° 20.5	267° 49.2	282° 17.9	296° 46.5	311° 15.0	325° 43.5	340° 11.9	354° 40.3	9° 08.7	23° 36.9	38° 05.2	+28.5	16.1
	-13° 50.6	-14° 03.4	-14° 16.0	-14° 28.5	-14° 41.0	-14° 53.4	-15° 05.7	-15° 17.9	-15° 30.0	-15° 42.0	-15° 53.9	-12.3	59.0
Пн 8	267° 49.2	282° 17.9	296° 46.5	311° 15.0	325° 43.5	340° 11.9	354° 40.3	9° 08.7	23° 36.9	38° 05.2	52° 33.3	+28.4	16.1
	-14° 03.4	-14° 16.0	-14° 28.5	-14° 41.0	-14° 53.4	-15° 05.7	-15° 17.9	-15° 30.0	-15° 42.0	-15° 53.9	-16° 05.8	-12.2	58.9
Вт 9	269° 28.9	283° 56.1	298° 23.3	312° 50.5	327° 17.5	341° 44.5	356° 11.5	10° 38.4	25° 05.2	39° 32.0	53° 58.7	+27.0	16.0
	-18° 51.2	-19° 01.3	-19° 11.4	-19° 21.3	-19° 31.1	-19° 40.8	-19° 50.3	-19° 59.8	-20° 09.1	-20° 18.3	-20° 27.4	-9.6	58.7
Ср 10	270° 33.2	284° 59.1	299° 24.9	313° 50.7	328° 16.5	342° 42.2	357° 07.9	11° 33.6	25° 59.2	40° 24.7	54° 50.3	+25.7	15.9
	-22° 28.0	-22° 34.9	-22° 41.7	-22° 48.4	-22° 54.9	-23° 01.3	-23° 07.6	-23° 13.6	-23° 19.6	-23° 25.4	-23° 31.1	-6.3	58.3
Чт 11	271° 09.7	285° 34.9	300° 00.0	314° 25.1	328° 50.2	343° 15.2	357° 40.3	12° 05.4	26° 30.5	40° 55.5	55° 20.6	+25.1	15.8
	-24° 37.8	-24° 41.0	-24° 44.1	-24° 47.0	-24° 49.8	-24° 52.4	-24° 54.8	-24° 57.1	-24° 59.2	-25° 01.2	-25° 03.0	-2.5	57.9
Пт 12	271° 37.9	286° 03.2	300° 28.6	314° 53.9	329° 19.4	343° 44.8	358° 10.3	12° 35.8	27° 01.3	41° 26.9	55° 52.6	+25.5	15.7
	-25° 11.5	-25° 10.8	-25° 10.0	-25° 09.0	-25° 07.8	-25° 06.5	-25° 05.1	-25° 03.5	-25° 01.7	-24° 59.9	-24° 57.8	+1.4	57.4
Сб 13	272° 23.2	286° 49.8	301° 16.3	315° 43.0	330° 09.7	344° 36.5	359° 03.3	13° 30.3	27° 57.3	42° 24.3	56° 51.5	+26.8	15.5
	-24° 09.5	-24° 05.2	-24° 00.7	-23° 56.1	-23° 51.3	-23° 46.4	-23° 41.4	-23° 36.2	-23° 31.0	-23° 25.5	-23° 20.0	+5.0	56.9
● Вс 14	273° 48.0	288° 16.5	302° 45.0	317° 13.6	331° 42.2	346° 11.0	0° 39.9	15° 08.8	29° 37.8	44° 06.9	58° 36.1	+28.8	15.4
	-21° 42.1	-21° 34.7	-21° 27.1	-21° 19.4	-21° 11.7	-21° 03.8	-20° 55.8	-20° 47.7	-20° 39.5	-20° 31.2	-20° 22.8	+7.9	56.4
Пн 15	276° 04.5	290° 35.1	305° 05.7	319° 36.5	334° 07.3	348° 38.2	3° 09.2	17° 40.3	32° 11.5	46° 42.7	61° 14.1	+31.0	15.2
	-18° 05.9	-17° 56.1	-17° 46.2	-17° 36.2	-17° 26.2	-17° 16.1	-17° 05.9	-16° 55.6	-16° 45.3	-16° 34.9	-16° 24.4	+10.2	55.8
Вт 16	279° 13.4	293° 46.0	308° 18.6	322° 51.3	337° 24.1	351° 57.0	6° 29.9	21° 02.9	35° 35.9	50° 09.0	64° 42.2	+32.9	15.1
	-13° 39.8	-13° 28.4	-13° 17.0	-13° 05.4	-12° 53.9	-12° 42.3	-12° 30.6	-12° 18.9	-12° 07.2	-11° 55.4	-11° 43.6	+11.6	55.3
Ср 17	283° 07.2	297° 41.3	312° 15.5	326° 49.7	341° 24.0	355° 58.3	10° 32.7	25° 07.1	39° 41.5	54° 16.0	68° 50.6	+34.3	14.9
	-8° 42.0	-8° 29.6	-8° 17.2	-8° 04.9	-7° 52.4	-7° 40.0	-7° 27.5	-7° 15.0	-7° 02.5	-6° 50.0	-6° 37.5	+12.5	54.8
Чт 18	287° 33.4	302° 08.5	316° 43.7	331° 18.8	345° 54.0	0° 29.3	15° 04.5	29° 39.8	44° 15.1	58° 50.4	73° 25.7	+35.2	14.8
	-3° 27.7	-3° 15.0	-3° 02.3	-2° 49.6	-2° 36.8	-2° 24.1	-2° 11.4	-1° 58.6	-1° 45.9	-1° 33.2	-1° 20.4	+12.7	54.4
Пт 19	292° 17.5	306° 53.0	321° 28.5	336° 04.0	350° 39.5	5° 15.1	19° 50.6	34° 26.1	49° 01.7	63° 37.2	78° 12.7	+35.5	14.8
	1° 50.0	2° 02.6	2° 15.2	2° 27.8	2° 40.4	2° 53.0	3° 05.6	3° 18.1	3° 30.6	3° 43.1	3° 55.6	+12.6	54.2
Сб 20	297° 04.2	311° 39.5	326° 14.8	340° 50.1	355° 25.3	10° 00.6	24° 35.8	39° 10.9	53° 46.1	68° 21.2	82° 56.3	+35.2	14.8
	7° 00.4	7° 12.6	7° 24.7	7° 36.7	7° 48.8	8° 00.8	8° 12.7	8° 24.7	8° 36.6	8° 48.5	9° 00.3	+12.0	54.1
Вс 21	301° 38.6	316° 13.1	330° 47.6	345° 22.0	359° 56.4	14° 30.7	29° 05.0	43° 39.2	58° 13.4	72° 47.6	87° 21.6	+34.3	14.8
	11° 53.6	12° 04.8	12° 16.0	12° 27.1	12° 38.2	12° 49.2	13° 00.2	13° 11.1	13° 22.0	13° 32.9	13° 43.7	+11.0	54.2
◐ Пн 22	305° 46.3	320° 19.4	334° 52.5	349° 25.5	3° 58.5	18° 31.4	33° 04.2	47° 37.0	62° 09.7	76° 42.3	91° 14.9	+32.9	14.8
	16° 19.1	16° 29.0	16° 38.8	16° 48.5	16° 58.2	17° 07.9	17° 17.4	17° 26.9	17° 36.4	17° 45.7	17° 55.0	+9.6	54.4
Вт 23	309° 14.6	323° 45.9	338° 17.2	352° 48.4	7° 19.6	21° 50.6	36° 21.6	50° 52.5	65° 23.3	79° 54.1	94° 24.7	+31.0	15.0
	20° 05.4	20° 13.4	20° 21.4	20° 29.3	20° 37.1	20° 44.8	20° 52.4	20° 59.9	21° 07.4	21° 14.7	21° 22.0	+7.7	54.9
Ср 24	311° 54.8	326° 24.2	340° 53.5	355° 22.7	9° 51.8	24° 20.8	38° 49.8	53° 18.7	67° 47.5	82° 16.2	96° 44.8	+29.0	15.1
	22° 59.0	23° 04.6	23° 10.1	23° 15.5	23° 20.8	23° 26.0	23° 31.1	23° 36.1	23° 40.9	23° 45.7	23° 50.3	+5.1	55.5
Чт 25	313° 45.4	328° 12.9	342° 40.3	357° 07.6	11° 34.9	26° 02.1	40° 29.2	54° 56.3	69° 23.3	83° 50.3	98° 17.2	+27.2	15.4
	24° 44.9	24° 47.5	24° 50.0	24° 52.3	24° 54.5	24° 56.6	24° 58.6	25° 00.4	25° 02.0	25° 03.6	25° 05.0	+2.0	56.3
Пт 26	314° 54.2	329° 20.3	343° 46.4	358° 12.4	12° 38.4	27° 04.3	41° 30.3	55° 56.2	70° 22.0	84° 47.9	99° 13.7	+25.9	15.6
	25° 08.7	25° 07.8	25° 06.8	25° 05.5	25° 04.2	25° 02.7	25° 01.0	24° 59.2	24° 57.2	24° 55.1	24° 52.8	-1.6	57.2
Сб 27	315° 38.6	330° 04.2	344° 29.8	358° 55.4	13° 21.0	27° 46.5	42° 12.1	56° 37.7	71° 03.3	85° 28.9	99° 54.6	+25.6	15.8
	24° 00.3	23° 55.6	23° 50.7	23° 45.7	23° 40.5	23° 35.2	23° 29.7	23° 24.1	23° 18.3	23° 12.4	23° 06.3	-5.4	58.1
Вс 28	316° 20.8	330° 46.7	345° 12.7	359° 38.7	14° 04.7	28° 30.7	42° 56.8	57° 22.9	71° 49.1	86° 15.3	100° 41.5	+26.1	16.1
	21° 17.3	21° 08.8	21° 00.3	20° 51.6	20° 42.7	20° 33.8	20° 24.7	20° 15.4	20° 06.0	19° 56.5	19° 46.9	-9.0	58.9
Пн 29	317° 19.5	331° 46.3	346° 13.2	0° 40.2	15° 07.2	29° 34.2	44° 01.3	58° 28.4	72° 55.6	87° 22.8	101° 50.1	+27.1	16.2
	17° 07.0	16° 55.4	16° 43.7	16° 31.9	16° 19.9	16° 07.9	15° 55.7	15° 43.5	15° 31.1	15° 18.6	15° 06.0	-12.1	59.6
○ Вт 30	318° 44.1	333° 12.1	347° 40.1	2° 08.1	16° 36.1	31° 04.2	45° 32.4	60° 00.6	74° 28.8	88° 57.0	103° 25.3	+28.1	16.4
	11° 46.4	11° 32.4	11° 18.4	11° 04.2	10° 50.0	10° 35.8	10° 21.4	10° 07.0	9° 52.6	9° 38.0	9° 23.4	-14.3	60.1
Ср 31	320° 33.6	335° 02.4	349° 31.2	4° 00.0	18° 28.8	32° 57.7	47° 26.6	61° 55.5	76° 24.5	90° 53.4	105° 22.4	+28.9	16.4
	5° 38.4	5° 23.0	5° 07.6	4° 52.2	4° 36.8	4° 21.3	4° 05.9	3° 50.4	3° 34.8	3° 19.3	3° 03.7	-15.5	60.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 7 13h26 — Новолуние: 14 17h24 — Первая четв.: 22 19h23 — Полнолуние: 30 06h03

СОЛНЦЕ

Февраль 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	266° 36.7 -17° 00.4	281° 36.6 -16° 59.7	296° 36.5 -16° 59.0	311° 36.4 -16° 58.2	326° 36.4 -16° 57.5	341° 36.3 -16° 56.8	356° 36.2 -16° 56.1	11° 36.1 -16° 55.4	26° 36.0 -16° 54.6	41° 36.0 -16° 53.9	56° 35.9 -16° 53.2	71° 35.8 -16° 52.5	-0.1 +0.7
Пт 2	266° 34.8 -16° 43.1	281° 34.8 -16° 42.4	296° 34.7 -16° 41.6	311° 34.6 -16° 40.9	326° 34.6 -16° 40.2	341° 34.5 -16° 39.4	356° 34.4 -16° 38.7	11° 34.3 -16° 38.0	26° 34.3 -16° 37.2	41° 34.2 -16° 36.5	56° 34.1 -16° 35.8	71° 34.1 -16° 35.1	-0.1 +0.7
Сб 3	266° 33.2 -16° 25.5	281° 33.1 -16° 24.7	296° 33.1 -16° 24.0	311° 33.0 -16° 23.3	326° 33.0 -16° 22.5	341° 32.9 -16° 21.8	356° 32.8 -16° 21.0	11° 32.8 -16° 20.3	26° 32.7 -16° 19.6	41° 32.6 -16° 18.8	56° 32.6 -16° 18.1	71° 32.5 -16° 17.3	-0.1 +0.7
Вс 4	266° 31.8 -16° 07.6	281° 31.7 -16° 06.8	296° 31.7 -16° 06.1	311° 31.6 -16° 05.3	326° 31.5 -16° 04.6	341° 31.5 -16° 03.8	356° 31.4 -16° 03.1	11° 31.4 -16° 02.3	26° 31.3 -16° 01.6	41° 31.3 -16° 00.8	56° 31.2 -16° 00.1	71° 31.2 -15° 59.3	-0.1 +0.8
Пн 5	266° 30.5 -15° 49.4	281° 30.5 -15° 48.7	296° 30.4 -15° 47.9	311° 30.4 -15° 47.1	326° 30.3 -15° 46.4	341° 30.3 -15° 45.6	356° 30.2 -15° 44.8	11° 30.2 -15° 44.1	26° 30.2 -15° 43.3	41° 30.1 -15° 42.5	56° 30.1 -15° 41.8	71° 30.0 -15° 41.0	-0.0 +0.8
Вт 6	266° 29.5 -15° 31.0	281° 29.4 -15° 30.2	296° 29.4 -15° 29.4	311° 29.4 -15° 28.7	326° 29.3 -15° 27.9	341° 29.3 -15° 27.1	356° 29.2 -15° 26.3	11° 29.2 -15° 25.6	26° 29.2 -15° 24.8	41° 29.1 -15° 24.0	56° 29.1 -15° 23.2	71° 29.1 -15° 22.5	-0.0 +0.8
Ср 7	266° 28.6 -15° 12.3	281° 28.6 -15° 11.5	296° 28.6 -15° 10.7	311° 28.5 -15° 09.9	326° 28.5 -15° 09.1	341° 28.5 -15° 08.4	356° 28.4 -15° 07.6	11° 28.4 -15° 06.8	26° 28.4 -15° 06.0	41° 28.4 -15° 05.2	56° 28.3 -15° 04.4	71° 28.3 -15° 03.6	-0.0 +0.8
Чт 8	266° 28.0 -14° 53.3	281° 27.9 -14° 52.5	296° 27.9 -14° 51.7	311° 27.9 -14° 50.9	326° 27.9 -14° 50.1	341° 27.9 -14° 49.3	356° 27.8 -14° 48.5	11° 27.8 -14° 47.7	26° 27.8 -14° 46.9	41° 27.8 -14° 46.1	56° 27.8 -14° 45.3	71° 27.7 -14° 44.5	-0.0 +0.8
Пт 9	266° 27.5 -14° 34.1	281° 27.5 -14° 33.3	296° 27.5 -14° 32.5	311° 27.5 -14° 31.7	326° 27.4 -14° 30.9	341° 27.4 -14° 30.1	356° 27.4 -14° 29.3	11° 27.4 -14° 28.4	26° 27.4 -14° 27.6	41° 27.4 -14° 26.8	56° 27.4 -14° 26.0	71° 27.4 -14° 25.2	-0.0 +0.8
Сб 10	266° 27.2 -14° 14.6	281° 27.2 -14° 13.8	296° 27.2 -14° 13.0	311° 27.2 -14° 12.2	326° 27.2 -14° 11.4	341° 27.2 -14° 10.6	356° 27.2 -14° 09.7	11° 27.2 -14° 08.9	26° 27.2 -14° 08.1	41° 27.2 -14° 07.3	56° 27.2 -14° 06.5	71° 27.2 -14° 05.6	-0.0 +0.8
Вс 11	266° 27.1 -13° 54.9	281° 27.2 -13° 54.1	296° 27.2 -13° 53.3	311° 27.2 -13° 52.5	326° 27.2 -13° 51.6	341° 27.2 -13° 50.8	356° 27.2 -13° 50.0	11° 27.2 -13° 49.1	26° 27.2 -13° 48.3	41° 27.2 -13° 47.5	56° 27.2 -13° 46.7	71° 27.2 -13° 45.8	+0.0 +0.8
Пн 12	266° 27.3 -13° 35.0	281° 27.3 -13° 34.2	296° 27.3 -13° 33.3	311° 27.3 -13° 32.5	326° 27.3 -13° 31.7	341° 27.3 -13° 30.8	356° 27.3 -13° 30.0	11° 27.3 -13° 29.2	26° 27.3 -13° 28.3	41° 27.3 -13° 27.5	56° 27.4 -13° 26.6	71° 27.4 -13° 25.8	+0.0 +0.8
Вт 13	266° 27.5 -13° 14.9	281° 27.6 -13° 14.0	296° 27.6 -13° 13.2	311° 27.6 -13° 12.3	326° 27.6 -13° 11.5	341° 27.6 -13° 10.6	356° 27.7 -13° 09.8	11° 27.7 -13° 08.9	26° 27.7 -13° 08.1	41° 27.7 -13° 07.2	56° 27.7 -13° 06.4	71° 27.7 -13° 05.5	+0.0 +0.8
Ср 14	266° 28.0 -12° 54.5	281° 28.1 -12° 53.6	296° 28.1 -12° 52.8	311° 28.1 -12° 51.9	326° 28.1 -12° 51.1	341° 28.2 -12° 50.2	356° 28.2 -12° 49.4	11° 28.2 -12° 48.5	26° 28.2 -12° 47.6	41° 28.3 -12° 46.8	56° 28.3 -12° 45.9	71° 28.3 -12° 45.1	+0.0 +0.9
Чт 15	266° 28.7 -12° 33.9	281° 28.7 -12° 33.0	296° 28.8 -12° 32.2	311° 28.8 -12° 31.3	326° 28.8 -12° 30.5	341° 28.9 -12° 29.6	356° 28.9 -12° 28.7	11° 28.9 -12° 27.9	26° 29.0 -12° 27.0	41° 29.0 -12° 26.1	56° 29.0 -12° 25.3	71° 29.1 -12° 24.4	+0.0 +0.9
Пт 16	266° 29.5 -12° 13.1	281° 29.6 -12° 12.3	296° 29.6 -12° 11.4	311° 29.7 -12° 10.5	326° 29.7 -12° 09.6	341° 29.7 -12° 08.8	356° 29.8 -12° 07.9	11° 29.8 -12° 07.0	26° 29.9 -12° 06.2	41° 29.9 -12° 05.3	56° 29.9 -12° 04.4	71° 30.0 -12° 03.5	+0.0 +0.9
Сб 17	266° 30.6 -11° 52.2	281° 30.6 -11° 51.3	296° 30.6 -11° 50.4	311° 30.7 -11° 49.5	326° 30.7 -11° 48.6	341° 30.8 -11° 47.8	356° 30.8 -11° 46.9	11° 30.9 -11° 46.0	26° 30.9 -11° 45.1	41° 31.0 -11° 44.2	56° 31.0 -11° 43.4	71° 31.1 -11° 42.5	+0.0 +0.9
Вс 18	266° 31.8 -11° 31.0	281° 31.8 -11° 30.1	296° 31.9 -11° 29.2	311° 31.9 -11° 28.3	326° 32.0 -11° 27.4	341° 32.0 -11° 26.6	356° 32.1 -11° 25.7	11° 32.1 -11° 24.8	26° 32.2 -11° 23.9	41° 32.2 -11° 23.0	56° 32.3 -11° 22.1	71° 32.4 -11° 21.2	+0.1 +0.9
Пн 19	266° 33.1 -11° 09.6	281° 33.2 -11° 08.8	296° 33.2 -11° 07.9	311° 33.3 -11° 07.0	326° 33.4 -11° 06.1	341° 33.4 -11° 05.2	356° 33.5 -11° 04.3	11° 33.6 -11° 03.4	26° 33.6 -11° 02.5	41° 33.7 -11° 01.6	56° 33.7 -11° 00.7	71° 33.8 -10° 59.8	+0.1 +0.9
Вт 20	266° 34.7 -10° 48.1	281° 34.7 -10° 47.2	296° 34.8 -10° 46.3	311° 34.9 -10° 45.4	326° 34.9 -10° 44.5	341° 35.0 -10° 43.6	356° 35.1 -10° 42.7	11° 35.1 -10° 41.8	26° 35.2 -10° 40.9	41° 35.3 -10° 40.0	56° 35.4 -10° 39.1	71° 35.4 -10° 38.2	+0.1 +0.9
Ср 21	266° 36.4 -10° 26.5	281° 36.5 -10° 25.5	296° 36.5 -10° 24.6	311° 36.6 -10° 23.7	326° 36.7 -10° 22.8	341° 36.8 -10° 21.9	356° 36.8 -10° 21.0	11° 36.9 -10° 20.1	26° 37.0 -10° 19.2	41° 37.1 -10° 18.3	56° 37.1 -10° 17.4	71° 37.2 -10° 16.5	+0.1 +0.9
Чт 22	266° 38.2 -10° 04.6	281° 38.3 -10° 03.7	296° 38.4 -10° 02.8	311° 38.5 -10° 01.9	326° 38.6 -10° 01.0	341° 38.7 -10° 00.0	356° 38.7 -9° 59.1	11° 38.8 -9° 58.2	26° 38.9 -9° 57.3	41° 39.0 -9° 56.4	56° 39.1 -9° 55.5	71° 39.2 -9° 54.6	+0.1 +0.9
Пт 23	266° 40.3 -9° 42.6	281° 40.4 -9° 41.7	296° 40.5 -9° 40.8	311° 40.5 -9° 39.9	326° 40.6 -9° 38.9	341° 40.7 -9° 38.0	356° 40.8 -9° 37.1	11° 40.9 -9° 36.2	26° 41.0 -9° 35.3	41° 41.1 -9° 34.3	56° 41.2 -9° 33.4	71° 41.3 -9° 32.5	+0.1 +0.9
Сб 24	266° 42.5 -9° 20.5	281° 42.6 -9° 19.6	296° 42.7 -9° 18.6	311° 42.8 -9° 17.7	326° 42.8 -9° 16.8	341° 42.9 -9° 15.9	356° 43.0 -9° 14.9	11° 43.1 -9° 14.0	26° 43.2 -9° 13.1	41° 43.3 -9° 12.1	56° 43.4 -9° 11.2	71° 43.5 -9° 10.3	+0.1 +0.9
Вс 25	266° 44.8 -8° 58.2	281° 44.9 -8° 57.3	296° 45.0 -8° 56.3	311° 45.1 -8° 55.4	326° 45.2 -8° 54.5	341° 45.3 -8° 53.6	356° 45.4 -8° 52.6	11° 45.5 -8° 51.7	26° 45.6 -8° 50.8	41° 45.7 -8° 49.8	56° 45.8 -8° 48.9	71° 45.9 -8° 48.0	+0.1 +0.9
Пн 26	266° 47.3 -8° 35.8	281° 47.4 -8° 34.9	296° 47.5 -8° 33.9	311° 47.6 -8° 33.0	326° 47.7 -8° 32.1	341° 47.8 -8° 31.1	356° 47.9 -8° 30.2	11° 48.0 -8° 29.2	26° 48.1 -8° 28.3	41° 48.3 -8° 27.4	56° 48.4 -8° 26.4	71° 48.5 -8° 25.5	+0.1 +0.9
Вт 27	266° 49.9 -8° 13.3	281° 50.0 -8° 12.3	296° 50.1 -8° 11.4	311° 50.3 -8° 10.4	326° 50.4 -8° 09.5	341° 50.5 -8° 08.6	356° 50.6 -8° 07.6	11° 50.7 -8° 06.7	26° 50.8 -8° 05.7	41° 50.9 -8° 04.8	56° 51.0 -8° 03.8	71° 51.2 -8° 02.9	+0.1 +0.9
Ср 28	266° 52.7 -7° 50.6	281° 52.8 -7° 49.7	296° 52.9 -7° 48.7	311° 53.0 -7° 47.8	326° 53.2 -7° 46.8	341° 53.3 -7° 45.9	356° 53.4 -7° 44.9	11° 53.5 -7° 44.0	26° 53.6 -7° 43.0	41° 53.7 -7° 42.1	56° 53.9 -7° 41.1	71° 54.0 -7° 40.2	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2029

Д	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	R/p
	250° 12.9	264° 42.0	279° 11.1	293° 40.2	308° 09.3	322° 38.4	337° 07.6	351° 36.7	6° 05.8	20° 35.0	35° 04.1	+29.1	16.4
Чт 1	0° 27.3	0° 11.7	-0° 04.0	-0° 19.6	-0° 35.3	-0° 50.9	-1° 06.6	-1° 22.2	-1° 37.8	-1° 53.4	-2° 09.0	-15.6	60.3
	252° 20.3	266° 49.3	281° 18.3	295° 47.2	310° 16.2	324° 45.1	339° 14.0	353° 42.9	8° 11.7	22° 40.5	37° 09.4	+28.9	16.4
Пт 2	-5° 59.9	-6° 15.0	-6° 30.1	-6° 45.1	-7° 00.1	-7° 15.1	-7° 30.0	-7° 44.8	-7° 59.6	-8° 14.4	-8° 29.0	-14.9	60.0
	254° 18.2	268° 46.5	283° 14.8	297° 43.1	312° 11.3	326° 39.5	341° 07.6	355° 35.7	10° 03.8	24° 31.8	38° 59.8	+28.2	16.3
Сб 3	-12° 01.7	-12° 15.3	-12° 28.8	-12° 42.3	-12° 55.7	-13° 08.9	-13° 22.1	-13° 35.2	-13° 48.3	-14° 01.2	-14° 14.0	-13.2	59.6
	255° 54.8	270° 22.1	284° 49.3	299° 16.6	313° 43.8	328° 10.9	342° 38.0	357° 05.0	11° 32.0	25° 59.0	40° 25.9	+27.1	16.1
Вс 4	-17° 14.9	-17° 26.1	-17° 37.2	-17° 48.2	-17° 59.1	-18° 09.8	-18° 20.5	-18° 31.0	-18° 41.4	-18° 51.7	-19° 01.9	-10.7	59.1
◑	257° 04.7	271° 31.0	285° 57.2	300° 23.4	314° 49.6	329° 15.7	343° 41.8	358° 07.8	12° 33.8	26° 59.8	41° 25.8	+26.1	16.0
Пн 5	-21° 19.3	-21° 27.4	-21° 35.4	-21° 43.2	-21° 50.9	-21° 58.5	-22° 05.9	-22° 13.2	-22° 20.3	-22° 27.3	-22° 34.2	-7.5	58.5
	271° 31.0	285° 57.2	300° 23.4	314° 49.6	329° 15.7	343° 41.8	358° 07.8	12° 33.8	26° 59.8	41° 25.8	55° 51.7	+26.1	15.9
Вт 6	-21° 27.4	-21° 35.4	-21° 43.2	-21° 50.9	-21° 58.5	-22° 05.9	-22° 13.2	-22° 20.3	-22° 27.3	-22° 34.2	-22° 40.9	-7.3	58.5
	272° 17.8	286° 43.3	301° 08.9	315° 34.5	330° 00.1	344° 25.6	358° 51.1	13° 16.7	27° 42.2	42° 07.8	56° 33.3	+25.5	15.8
Ср 7	-24° 04.0	-24° 08.4	-24° 12.6	-24° 16.6	-24° 20.5	-24° 24.2	-24° 27.8	-24° 31.3	-24° 34.6	-24° 37.7	-24° 40.7	-3.7	57.9
	272° 57.1	287° 22.8	301° 48.5	316° 14.3	330° 40.0	345° 05.8	359° 31.7	13° 57.5	28° 23.4	42° 49.4	57° 15.3	+25.8	15.6
Чт 8	-25° 07.1	-25° 07.6	-25° 08.0	-25° 08.3	-25° 08.4	-25° 08.3	-25° 08.1	-25° 07.7	-25° 07.2	-25° 06.6	-25° 05.8	+0.1	57.3
	273° 49.7	288° 16.4	302° 43.1	317° 09.9	331° 36.8	346° 03.7	0° 30.7	14° 57.7	29° 24.8	43° 51.9	58° 19.1	+26.9	15.5
Пт 9	-24° 36.2	-24° 33.1	-24° 29.9	-24° 26.5	-24° 23.0	-24° 19.3	-24° 15.5	-24° 11.6	-24° 07.5	-24° 03.3	-23° 59.0	+3.7	56.7
	275° 15.5	289° 43.8	304° 12.2	318° 40.7	333° 09.3	347° 37.9	2° 06.6	16° 35.4	31° 04.2	45° 33.2	60° 02.2	+28.7	15.3
Сб 10	-22° 39.0	-22° 32.7	-22° 26.3	-22° 19.8	-22° 13.2	-22° 06.4	-21° 59.5	-21° 52.6	-21° 45.5	-21° 38.3	-21° 31.0	+6.8	56.2
	277° 06.8	291° 57.1	306° 27.4	320° 57.9	335° 28.4	349° 59.0	4° 29.6	19° 00.4	33° 31.2	48° 02.1	62° 33.1	+30.6	15.2
Вс 11	-19° 29.4	-19° 20.5	-19° 11.6	-19° 02.5	-18° 53.4	-18° 44.2	-18° 34.9	-18° 25.5	-18° 16.1	-18° 06.5	-17° 56.9	+9.2	55.7
	280° 26.6	294° 58.8	309° 31.0	324° 03.3	338° 35.6	353° 08.0	7° 40.5	22° 13.1	36° 45.7	51° 18.4	65° 51.2	+32.5	15.1
Пн 12	-15° 23.9	-15° 13.2	-15° 02.4	-14° 51.6	-14° 40.6	-14° 29.7	-14° 18.6	-14° 07.6	-13° 56.4	-13° 45.2	-13° 34.0	+11.0	55.2
●	284° 09.9	298° 43.6	313° 17.3	327° 51.1	342° 25.0	356° 58.9	11° 32.9	26° 06.9	40° 40.9	55° 15.0	69° 49.2	+33.9	14.9
Вт 13	-10° 39.7	-10° 27.8	-10° 15.8	-10° 03.8	-9° 51.7	-9° 39.6	-9° 27.5	-9° 15.4	-9° 03.2	-8° 51.0	-8° 38.7	+12.1	54.8
	288° 26.6	303° 01.3	317° 36.2	332° 11.0	346° 45.9	1° 20.8	15° 55.8	30° 30.8	45° 05.8	59° 40.8	74° 15.9	+34.9	14.9
Ср 14	-5° 32.4	-5° 19.8	-5° 07.2	-4° 54.6	-4° 42.0	-4° 29.4	-4° 16.7	-4° 04.1	-3° 51.4	-3° 38.8	-3° 26.1	+12.6	54.5
	293° 04.3	307° 39.6	322° 15.0	336° 50.4	351° 25.8	6° 01.2	20° 36.6	35° 12.0	49° 47.4	64° 22.8	78° 58.2	+35.4	14.8
Чт 15	-0° 15.7	-0° 03.0	0° 09.7	0° 22.3	0° 35.0	0° 47.7	1° 00.3	1° 13.0	1° 25.6	1° 38.2	1° 50.8	+12.7	54.2
	297° 49.6	312° 25.0	327° 00.4	341° 35.8	356° 11.1	10° 46.4	25° 21.8	39° 57.1	54° 32.4	69° 07.7	83° 42.9	+35.3	14.7
Пт 16	4° 58.1	5° 10.5	5° 22.8	5° 35.1	5° 47.4	5° 59.6	6° 11.8	6° 24.0	6° 36.2	6° 48.3	7° 00.4	+12.2	54.0
	302° 29.3	317° 04.1	331° 39.0	346° 13.8	0° 48.6	15° 23.4	29° 58.1	44° 32.8	59° 07.4	73° 42.0	88° 16.6	+34.7	14.7
Сб 17	9° 58.1	10° 09.7	10° 21.2	10° 32.7	10° 44.1	10° 55.5	11° 06.9	11° 18.2	11° 29.5	11° 40.7	11° 51.9	+11.4	54.0
	306° 50.3	321° 24.2	335° 58.0	350° 31.8	5° 05.5	19° 39.2	34° 12.8	48° 46.4	63° 19.9	77° 53.4	92° 26.8	+33.7	14.7
Вс 18	14° 33.7	14° 44.0	14° 54.3	15° 04.6	15° 14.7	15° 24.9	15° 34.9	15° 44.9	15° 54.9	16° 04.8	16° 14.6	+10.1	54.1
	310° 41.1	325° 13.5	339° 45.9	354° 18.3	8° 50.5	23° 22.7	37° 54.9	52° 26.9	66° 59.0	81° 30.9	96° 02.8	+32.2	14.8
Пн 19	18° 33.8	18° 42.5	18° 51.1	18° 59.6	19° 08.1	19° 16.5	19° 24.8	19° 33.1	19° 41.2	19° 49.3	19° 57.3	+8.4	54.3
	313° 52.7	328° 23.4	342° 54.1	357° 24.8	11° 55.3	26° 25.8	40° 56.2	55° 26.6	69° 56.8	84° 27.0	98° 57.2	+30.4	14.9
Вт 20	21° 46.6	21° 53.2	21° 59.6	22° 06.0	22° 12.2	22° 18.4	22° 24.5	22° 30.4	22° 36.3	22° 42.0	22° 47.7	+6.1	54.8
◐	316° 20.8	330° 49.8	345° 18.8	359° 47.7	14° 16.5	28° 45.3	43° 14.0	57° 42.6	72° 11.2	86° 39.7	101° 08.1	+28.7	15.1
Ср 21	23° 59.5	24° 03.4	24° 07.1	24° 10.8	24° 14.3	24° 17.7	24° 21.0	24° 24.2	24° 27.2	24° 30.1	24° 32.9	+3.3	55.4
	318° 07.9	332° 35.4	347° 02.9	1° 30.4	15° 57.8	30° 25.2	44° 52.5	59° 19.8	73° 47.0	88° 14.2	102° 41.3	+27.3	15.3
Чт 22	24° 59.5	25° 00.3	25° 00.9	25° 01.3	25° 01.6	25° 01.8	25° 01.8	25° 01.7	25° 01.5	25° 01.1	25° 00.6	+0.1	56.2
	319° 24.2	333° 50.8	348° 17.4	2° 44.0	17° 10.6	31° 37.1	46° 03.6	60° 30.2	74° 56.6	89° 23.1	103° 49.6	+26.5	15.6
Пт 23	24° 35.9	24° 33.1	24° 30.2	24° 27.1	24° 23.9	24° 20.5	24° 17.0	24° 13.3	24° 09.5	24° 05.5	24° 01.4	-3.5	57.1
	320° 25.6	334° 52.0	349° 18.4	3° 44.8	18° 11.2	32° 37.6	47° 04.0	61° 30.4	75° 56.8	90° 23.3	104° 49.8	+26.4	15.8
Сб 24	22° 42.3	22° 35.9	22° 29.3	22° 22.6	22° 15.7	22° 08.7	22° 01.5	21° 54.3	21° 46.8	21° 39.3	21° 31.5	-7.1	58.1
	321° 28.5	335° 55.2	350° 21.9	4° 48.7	19° 15.5	33° 42.3	48° 09.2	62° 36.1	77° 03.0	91° 29.9	105° 56.8	+26.8	16.1
Вс 25	19° 19.5	19° 09.6	18° 59.6	18° 49.5	18° 39.2	18° 28.8	18° 18.3	18° 07.7	17° 56.9	17° 46.1	17° 35.1	-10.4	59.1
	322° 44.2	337° 11.6	351° 39.0	6° 06.4	20° 33.8	35° 01.3	49° 28.8	63° 56.3	78° 23.9	92° 51.4	107° 19.0	+27.5	16.4
Пн 26	14° 36.4	14° 23.7	14° 10.8	13° 57.8	13° 44.7	13° 31.6	13° 18.3	13° 04.9	12° 51.5	12° 38.0	12° 24.3	-13.2	60.0
	324° 15.8	338° 43.8	353° 11.7	7° 39.7	22° 07.7	36° 35.7	51° 03.7	65° 31.8	79° 59.8	94° 27.9	108° 56.0	+28.0	16.5
Вт 27	8° 50.2	8° 35.3	8° 20.4	8° 05.4	7° 50.4	7° 35.3	7° 20.2	7° 05.0	6° 49.7	6° 34.4	6° 19.0	-15.1	60.6
○	325° 58.3	340° 26.5	354° 54.6	9° 22.8	23° 51.0	38° 19.2	52° 47.4	67° 15.5	81° 43.7	96° 11.9	110° 40.0	+28.2	16.6
Ср 28	2° 24.1	2° 08.2	1° 52.3	1° 36.4	1° 20.4	1° 04.5	0° 48.5	0° 32.6	0° 16.6	0° 00.6	-0° 15.4	-16.0	61.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Последняя четв.: 5 21h52 — Новолуние: 13 10h31 — Первая четв.: 21 15h09 — Полнолуние: 28 17h10

СОЛНЦЕ

Март 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	266° 55.6	281° 55.7	296° 55.8	311° 55.9	326° 56.1	341° 56.2	356° 56.3	11° 56.4	26° 56.6	41° 56.7	56° 56.8	71° 56.9	+0.1
	-7° 27.8	-7° 26.9	-7° 25.9	-7° 25.0	-7° 24.0	-7° 23.1	-7° 22.1	-7° 21.2	-7° 20.2	-7° 19.3	-7° 18.3	-7° 17.4	+1.0
Пт 2	266° 58.6	281° 58.7	296° 58.8	311° 59.0	326° 59.1	341° 59.2	356° 59.4	11° 59.5	26° 59.6	41° 59.7	56° 59.9	72° 00.0	+0.1
	-7° 05.0	-7° 04.0	-7° 03.1	-7° 02.1	-7° 01.1	-7° 00.2	-6° 59.2	-6° 58.3	-6° 57.3	-6° 56.4	-6° 55.4	-6° 54.5	+1.0
Сб 3	267° 01.7	282° 01.9	297° 02.0	312° 02.1	327° 02.3	342° 02.4	357° 02.5	12° 02.7	27° 02.8	42° 02.9	57° 03.1	72° 03.2	+0.1
	-6° 42.0	-6° 41.0	-6° 40.1	-6° 39.1	-6° 38.2	-6° 37.2	-6° 36.2	-6° 35.3	-6° 34.3	-6° 33.4	-6° 32.4	-6° 31.4	+1.0
Вс 4	267° 05.0	282° 05.1	297° 05.2	312° 05.4	327° 05.5	342° 05.7	357° 05.8	12° 05.9	27° 06.1	42° 06.2	57° 06.4	72° 06.5	+0.1
	-6° 18.9	-6° 18.0	-6° 17.0	-6° 16.0	-6° 15.1	-6° 14.1	-6° 13.1	-6° 12.2	-6° 11.2	-6° 10.2	-6° 09.3	-6° 08.3	+1.0
Пн 5	267° 08.3	282° 08.5	297° 08.6	312° 08.8	327° 08.9	342° 09.0	357° 09.2	12° 09.3	27° 09.5	42° 09.6	57° 09.8	72° 09.9	+0.1
	-5° 55.8	-5° 54.8	-5° 53.8	-5° 52.9	-5° 51.9	-5° 50.9	-5° 50.0	-5° 49.0	-5° 48.0	-5° 47.1	-5° 46.1	-5° 45.1	+1.0
Вт 6	267° 11.8	282° 11.9	297° 12.1	312° 12.2	327° 12.4	342° 12.5	357° 12.7	12° 12.8	27° 13.0	42° 13.1	57° 13.3	72° 13.4	+0.1
	-5° 32.5	-5° 31.5	-5° 30.6	-5° 29.6	-5° 28.6	-5° 27.7	-5° 26.7	-5° 25.7	-5° 24.7	-5° 23.8	-5° 22.8	-5° 21.8	+1.0
Ср 7	267° 15.3	282° 15.5	297° 15.6	312° 15.8	327° 15.9	342° 16.1	357° 16.2	12° 16.4	27° 16.6	42° 16.7	57° 16.9	72° 17.0	+0.2
	-5° 09.2	-5° 08.2	-5° 07.2	-5° 06.3	-5° 05.3	-5° 04.3	-5° 03.3	-5° 02.4	-5° 01.4	-5° 00.4	-4° 59.4	-4° 58.5	+1.0
Чт 8	267° 19.0	282° 19.1	297° 19.3	312° 19.5	327° 19.6	342° 19.8	357° 19.9	12° 20.1	27° 20.2	42° 20.4	57° 20.5	72° 20.7	+0.2
	-4° 45.8	-4° 44.8	-4° 43.8	-4° 42.9	-4° 41.9	-4° 40.9	-4° 39.9	-4° 39.0	-4° 38.0	-4° 37.0	-4° 36.0	-4° 35.1	+1.0
Пт 9	267° 22.7	282° 22.9	297° 23.0	312° 23.2	327° 23.4	342° 23.5	357° 23.7	12° 23.8	27° 24.0	42° 24.2	57° 24.3	72° 24.5	+0.2
	-4° 22.3	-4° 21.4	-4° 20.4	-4° 19.4	-4° 18.4	-4° 17.4	-4° 16.5	-4° 15.5	-4° 14.5	-4° 13.5	-4° 12.5	-4° 11.6	+1.0
Сб 10	267° 26.5	282° 26.7	297° 26.9	312° 27.0	327° 27.2	342° 27.4	357° 27.5	12° 27.7	27° 27.8	42° 28.0	57° 28.2	72° 28.3	+0.2
	-3° 58.8	-3° 57.8	-3° 56.9	-3° 55.9	-3° 54.9	-3° 53.9	-3° 52.9	-3° 52.0	-3° 51.0	-3° 50.0	-3° 49.0	-3° 48.0	+1.0
Вс 11	267° 30.4	282° 30.6	297° 30.8	312° 30.9	327° 31.1	342° 31.3	357° 31.4	12° 31.6	27° 31.8	42° 31.9	57° 32.1	72° 32.3	+0.2
	-3° 35.3	-3° 34.3	-3° 33.3	-3° 32.3	-3° 31.3	-3° 30.3	-3° 29.4	-3° 28.4	-3° 27.4	-3° 26.4	-3° 25.4	-3° 24.4	+1.0
Пн 12	267° 34.4	282° 34.6	297° 34.7	312° 34.9	327° 35.1	342° 35.3	357° 35.4	12° 35.6	27° 35.8	42° 35.9	57° 36.1	72° 36.3	+0.2
	-3° 11.6	-3° 10.7	-3° 09.7	-3° 08.7	-3° 07.7	-3° 06.7	-3° 05.7	-3° 04.8	-3° 03.8	-3° 02.8	-3° 01.8	-3° 00.8	+1.0
Вт 13	267° 38.5	282° 38.6	297° 38.8	312° 39.0	327° 39.1	342° 39.3	357° 39.5	12° 39.6	27° 39.8	42° 40.0	57° 40.2	72° 40.3	+0.2
	-2° 48.0	-2° 47.0	-2° 46.0	-2° 45.0	-2° 44.1	-2° 43.1	-2° 42.1	-2° 41.1	-2° 40.1	-2° 39.1	-2° 38.1	-2° 37.2	+1.0
Ср 14	267° 42.6	282° 42.7	297° 42.9	312° 43.1	327° 43.3	342° 43.4	357° 43.6	12° 43.8	27° 43.9	42° 44.1	57° 44.3	72° 44.5	+0.2
	-2° 24.3	-2° 23.3	-2° 22.4	-2° 21.4	-2° 20.4	-2° 19.4	-2° 18.4	-2° 17.4	-2° 16.4	-2° 15.4	-2° 14.5	-2° 13.5	+1.0
Чт 15	267° 46.7	282° 46.9	297° 47.1	312° 47.3	327° 47.4	342° 47.6	357° 47.8	12° 48.0	27° 48.1	42° 48.3	57° 48.5	72° 48.7	+0.2
	-2° 00.6	-1° 59.6	-1° 58.7	-1° 57.7	-1° 56.7	-1° 55.7	-1° 54.7	-1° 53.7	-1° 52.7	-1° 51.7	-1° 50.7	-1° 49.8	+1.0
Пт 16	267° 51.0	282° 51.1	297° 51.3	312° 51.5	327° 51.7	342° 51.8	357° 52.0	12° 52.2	27° 52.4	42° 52.6	57° 52.7	72° 52.9	+0.2
	-1° 36.9	-1° 35.9	-1° 34.9	-1° 33.9	-1° 33.0	-1° 32.0	-1° 31.0	-1° 30.0	-1° 29.0	-1° 28.0	-1° 27.0	-1° 26.0	+1.0
Сб 17	267° 55.2	282° 55.4	297° 55.6	312° 55.8	327° 55.9	342° 56.1	357° 56.3	12° 56.5	27° 56.7	42° 56.8	57° 57.0	72° 57.2	+0.2
	-1° 13.2	-1° 12.2	-1° 11.2	-1° 10.2	-1° 09.2	-1° 08.2	-1° 07.3	-1° 06.3	-1° 05.3	-1° 04.3	-1° 03.3	-1° 02.3	+1.0
Вс 18	267° 59.6	282° 59.7	297° 59.9	313° 00.1	328° 00.3	343° 00.5	358° 00.6	13° 00.8	28° 01.0	43° 01.2	58° 01.4	73° 01.5	+0.2
	-0° 49.5	-0° 48.5	-0° 47.5	-0° 46.5	-0° 45.5	-0° 44.5	-0° 43.5	-0° 42.5	-0° 41.5	-0° 40.6	-0° 39.6	-0° 38.6	+1.0
Пн 19	268° 03.9	283° 04.1	298° 04.3	313° 04.5	328° 04.7	343° 04.8	358° 05.0	13° 05.2	28° 05.4	43° 05.6	58° 05.7	73° 05.9	+0.2
	-0° 25.7	-0° 24.7	-0° 23.7	-0° 22.8	-0° 21.8	-0° 20.8	-0° 19.8	-0° 18.8	-0° 17.8	-0° 16.8	-0° 15.8	-0° 14.8	+1.0
Вт 20	268° 08.3	283° 08.5	298° 08.7	313° 08.9	328° 09.1	343° 09.2	358° 09.4	13° 09.6	28° 09.8	43° 10.0	58° 10.2	73° 10.4	+0.2
	-0° 02.0	-0° 01.0	-0° 00.0	0° 01.0	0° 02.0	0° 02.9	0° 03.9	0° 04.9	0° 05.9	0° 06.9	0° 07.9	0° 08.9	+1.0
Ср 21	268° 12.8	283° 12.9	298° 13.1	313° 13.3	328° 13.5	343° 13.7	358° 13.9	13° 14.1	28° 14.3	43° 14.4	58° 14.6	73° 14.8	+0.2
	0° 21.7	0° 22.7	0° 23.7	0° 24.7	0° 25.7	0° 26.6	0° 27.6	0° 28.6	0° 29.6	0° 30.6	0° 31.6	0° 32.6	+1.0
Чт 22	268° 17.2	283° 17.4	298° 17.6	313° 17.8	328° 18.0	343° 18.2	358° 18.4	13° 18.5	28° 18.7	43° 18.9	58° 19.1	73° 19.3	+0.2
	0° 45.4	0° 46.4	0° 47.4	0° 48.4	0° 49.3	0° 50.3	0° 51.3	0° 52.3	0° 53.3	0° 54.3	0° 55.3	0° 56.2	+1.0
Пт 23	268° 21.7	283° 21.9	298° 22.1	313° 22.3	328° 22.5	343° 22.7	358° 22.9	13° 23.0	28° 23.2	43° 23.4	58° 23.6	73° 23.8	+0.2
	1° 09.1	1° 10.0	1° 11.0	1° 12.0	1° 13.0	1° 14.0	1° 15.0	1° 16.0	1° 16.9	1° 17.9	1° 18.9	1° 19.9	+1.0
Сб 24	268° 26.2	283° 26.4	298° 26.6	313° 26.8	328° 27.0	343° 27.2	358° 27.4	13° 27.6	28° 27.8	43° 27.9	58° 28.1	73° 28.3	+0.2
	1° 32.7	1° 33.7	1° 34.7	1° 35.6	1° 36.6	1° 37.6	1° 38.6	1° 39.6	1° 40.6	1° 41.5	1° 42.5	1° 43.5	+1.0
Вс 25	268° 30.8	283° 31.0	298° 31.2	313° 31.3	328° 31.5	343° 31.7	358° 31.9	13° 32.1	28° 32.3	43° 32.5	58° 32.7	73° 32.9	+0.2
	1° 56.3	1° 57.3	1° 58.2	1° 59.2	2° 00.2	2° 01.2	2° 02.2	2° 03.1	2° 04.1	2° 05.1	2° 06.1	2° 07.1	+1.0
Пн 26	268° 35.3	283° 35.5	298° 35.7	313° 35.9	328° 36.1	343° 36.3	358° 36.5	13° 36.6	28° 36.8	43° 37.0	58° 37.2	73° 37.4	+0.2
	2° 19.8	2° 20.8	2° 21.8	2° 22.8	2° 23.7	2° 24.7	2° 25.7	2° 26.7	2° 27.7	2° 28.6	2° 29.6	2° 30.6	+1.0
Вт 27	268° 39.9	283° 40.0	298° 40.2	313° 40.4	328° 40.6	343° 40.8	358° 41.0	13° 41.2	28° 41.4	43° 41.6	58° 41.8	73° 41.9	+0.2
	2° 43.3	2° 44.3	2° 45.3	2° 46.2	2° 47.2	2° 48.2	2° 49.2	2° 50.2	2° 51.1	2° 52.1	2° 53.1	2° 54.1	+1.0
Ср 28	268° 44.4	283° 44.6	298° 44.8	313° 45.0	328° 45.2	343° 45.4	358° 45.5	13° 45.7	28° 45.9	43° 46.1	58° 46.3	73° 46.5	+0.2
	3° 06.8	3° 07.7	3° 08.7	3° 09.7	3° 10.7	3° 11.6	3° 12.6	3° 13.6	3° 14.6	3° 15.5	3° 16.5	3° 17.5	+1.0
Чт 29	268° 48.9	283° 49.1	298° 49.3	313° 49.5	328° 49.7	343° 49.9	358° 50.1	13° 50.3	28° 50.5	43° 50.6	58° 50.8	73° 51.0	+0.2
	3° 30.1	3° 31.1	3° 32.1	3° 33.0	3° 34.0	3° 35.0	3° 36.0	3° 36.9	3° 37.9	3° 38.9	3° 39.9	3° 40.8	+1.0
Пт 30	268° 53.5	283° 53.7	298° 53.8	313° 54.0	328° 54.2	343° 54.4	358° 54.6	13° 54.8	28° 55.0	43° 55.2	58° 55.3	73° 55.5	+0.2
	3° 53.4	3° 54.4	3° 55.4	3° 56.4	3° 57.3	3° 58.3	3° 59.3	4° 00.2	4° 01.2	4° 02.2	4° 03.1	4° 04.1	+1.0
Сб 31	268° 58.0	283° 58.2	298° 58.3	313° 58.5	328° 58.7	343° 58.9	358° 59.1	13° 59.3	28° 59.5	43° 59.7	58° 59.8	74° 00.0	+0.2
	4° 16.7	4° 17.6	4° 18.6	4° 19.6	4° 20.5	4° 21.5	4° 22.5	4° 23.4	4° 24.4	4° 25.4	4° 26.3	4° 27.3	+1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2029

Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
Чт 1	240° 53.0	255° 21.1	269° 49.1	284° 17.1	298° 45.1	313° 13.1	327° 41.1	342° 09.0	356° 36.9	11° 04.8	25° 32.7	+28.0	16.7
	-2° 39.0	-2° 54.9	-3° 10.8	-3° 26.7	-3° 42.5	-3° 58.3	-4° 14.1	-4° 29.9	-4° 45.6	-5° 01.3	-5° 17.0	-15.8	61.1
Пт 2	242° 27.8	256° 55.2	271° 22.6	285° 50.0	300° 17.3	314° 44.6	329° 11.9	343° 39.1	358° 06.3	12° 33.5	27° 00.6	+27.3	16.6
	-9° 06.8	-9° 21.7	-9° 36.5	-9° 51.2	-10° 05.9	-10° 20.5	-10° 35.1	-10° 49.5	-11° 03.9	-11° 18.2	-11° 32.5	-14.6	60.9
Сб 3	243° 42.6	258° 09.1	272° 35.6	287° 02.0	301° 28.3	315° 54.6	330° 20.9	344° 47.1	359° 13.3	13° 39.4	28° 05.5	+26.3	16.5
	-14° 55.4	-15° 08.2	-15° 20.8	-15° 33.4	-15° 45.8	-15° 58.1	-16° 10.3	-16° 22.4	-16° 34.4	-16° 46.2	-16° 58.0	-12.3	60.4
Вс 4	244° 32.3	258° 57.8	273° 23.2	287° 48.7	302° 14.0	316° 39.4	331° 04.7	345° 30.0	359° 55.3	14° 20.5	28° 45.7	+25.3	16.3
	-19° 39.2	-19° 48.9	-19° 58.4	-20° 07.9	-20° 17.1	-20° 26.3	-20° 35.3	-20° 44.1	-20° 52.9	-21° 01.4	-21° 09.8	-9.1	59.7
Пн 5	245° 00.8	259° 25.7	273° 50.6	288° 15.4	302° 40.3	317° 05.1	331° 30.0	345° 54.8	0° 19.6	14° 44.4	29° 09.3	+24.8	16.0
	-22° 58.3	-23° 04.3	-23° 10.2	-23° 15.9	-23° 21.4	-23° 26.8	-23° 32.0	-23° 37.1	-23° 42.0	-23° 46.8	-23° 51.4	-5.3	58.8
Вт 6	245° 22.6	259° 47.6	274° 12.6	288° 37.7	303° 02.8	317° 27.9	331° 53.1	346° 18.3	0° 43.5	15° 08.7	29° 34.0	+25.1	15.8
	-24° 41.4	-24° 43.4	-24° 45.4	-24° 47.1	-24° 48.7	-24° 50.1	-24° 51.4	-24° 52.6	-24° 53.5	-24° 54.4	-24° 55.0	-1.4	58.0
◑ Ср 7	245° 58.5	260° 24.6	274° 50.7	289° 16.8	303° 43.0	318° 09.3	332° 35.6	347° 02.0	1° 28.5	15° 55.0	30° 21.6	+26.3	15.6
	-24° 46.8	-24° 45.1	-24° 43.2	-24° 41.1	-24° 39.0	-24° 36.7	-24° 34.2	-24° 31.6	-24° 28.9	-24° 26.0	-24° 23.0	+2.4	57.2
Чт 8	260° 24.6	274° 50.7	289° 16.8	303° 43.0	318° 09.3	332° 35.6	347° 02.0	1° 28.5	15° 55.0	30° 21.6	44° 48.3	+26.4	15.6
	-24° 45.1	-24° 43.2	-24° 41.1	-24° 39.0	-24° 36.7	-24° 34.2	-24° 31.6	-24° 28.9	-24° 26.0	-24° 23.0	-24° 19.9	+2.5	57.1
Пт 9	261° 36.7	276° 04.5	290° 32.4	305° 00.4	319° 28.5	333° 56.6	348° 24.9	2° 53.2	17° 21.6	31° 50.0	46° 18.6	+28.2	15.4
	-23° 16.9	-23° 11.7	-23° 06.3	-23° 00.9	-22° 55.3	-22° 49.6	-22° 43.8	-22° 37.9	-22° 31.8	-22° 25.7	-22° 19.4	+5.7	56.4
Сб 10	263° 36.6	278° 06.5	292° 36.5	307° 06.5	321° 36.6	336° 06.8	350° 37.1	5° 07.4	19° 37.8	34° 08.4	48° 39.0	+30.2	15.2
	-20° 32.7	-20° 24.8	-20° 16.8	-20° 08.7	-20° 00.5	-19° 52.2	-19° 43.8	-19° 35.4	-19° 26.8	-19° 18.2	-19° 09.4	+8.3	55.7
Вс 11	266° 27.3	280° 59.1	295° 31.0	310° 03.0	324° 35.0	339° 07.1	353° 39.3	8° 11.6	22° 43.9	37° 16.3	51° 48.7	+32.2	15.1
	-16° 49.0	-16° 39.0	-16° 29.0	-16° 18.9	-16° 08.8	-15° 58.5	-15° 48.3	-15° 37.9	-15° 27.5	-15° 17.0	-15° 06.5	+10.3	55.2
Пн 12	270° 03.4	284° 36.9	299° 10.4	313° 44.0	328° 17.6	342° 51.3	357° 25.0	11° 58.8	26° 32.6	41° 06.5	55° 40.5	+33.7	14.9
	-12° 22.0	-12° 10.6	-11° 59.2	-11° 47.8	-11° 36.3	-11° 24.8	-11° 13.2	-11° 01.6	-10° 49.9	-10° 38.2	-10° 26.5	+11.6	54.8
Вт 13	274° 15.1	288° 49.7	303° 24.4	317° 59.1	332° 33.8	347° 08.6	1° 43.4	16° 18.3	30° 53.1	45° 28.0	60° 03.0	+34.8	14.8
	-7° 26.8	-7° 14.6	-7° 02.3	-6° 50.1	-6° 37.8	-6° 25.5	-6° 13.2	-6° 00.9	-5° 48.6	-5° 36.2	-5° 23.8	+12.3	54.4
Ср 14	278° 50.0	293° 25.3	308° 00.6	322° 35.9	337° 11.2	351° 46.6	6° 21.9	20° 57.3	35° 32.7	50° 08.1	64° 43.5	+35.4	14.8
	-2° 16.7	-2° 04.2	-1° 51.6	-1° 39.1	-1° 26.6	-1° 14.0	-1° 01.5	-0° 48.9	-0° 36.4	-0° 23.8	-0° 11.3	+12.5	54.1
● Чт 15	283° 35.1	298° 10.5	312° 45.9	327° 21.4	341° 56.8	356° 32.2	11° 07.6	25° 43.0	40° 18.4	54° 53.7	69° 29.1	+35.4	14.7
	2° 56.0	3° 08.4	3° 20.8	3° 33.1	3° 45.5	3° 57.8	4° 10.2	4° 22.5	4° 34.7	4° 47.0	4° 59.2	+12.3	54.0
Пт 16	288° 17.7	302° 52.7	317° 27.8	332° 02.8	346° 37.8	1° 12.8	15° 47.8	30° 22.7	44° 57.6	59° 32.4	74° 07.3	+35.0	14.7
	7° 59.9	8° 11.7	8° 23.5	8° 35.3	8° 47.0	8° 58.7	9° 10.3	9° 21.9	9° 33.5	9° 45.1	9° 56.6	+11.7	53.9
Сб 17	292° 45.8	307° 20.0	321° 54.3	336° 28.4	351° 02.6	5° 36.7	20° 10.7	34° 44.7	49° 18.7	63° 52.6	78° 26.5	+34.1	14.7
	12° 43.9	12° 54.7	13° 05.5	13° 16.1	13° 26.8	13° 37.4	13° 47.9	13° 58.4	14° 08.8	14° 19.1	14° 29.4	+10.6	53.9
Вс 18	296° 48.8	311° 21.9	325° 54.9	340° 27.9	355° 00.8	9° 33.7	24° 06.5	38° 39.2	53° 11.9	67° 44.5	82° 17.1	+32.8	14.7
	16° 56.7	17° 06.0	17° 15.2	17° 24.4	17° 33.4	17° 42.5	17° 51.4	18° 00.3	18° 09.1	18° 17.8	18° 26.4	+9.0	54.0
Пн 19	300° 18.8	314° 50.4	329° 22.0	343° 53.5	358° 25.0	12° 56.3	27° 27.7	41° 58.9	56° 30.2	71° 01.3	85° 32.4	+31.4	14.8
	20° 26.4	20° 33.8	20° 41.0	20° 48.2	20° 55.2	21° 02.2	21° 09.1	21° 15.8	21° 22.5	21° 29.1	21° 35.6	+6.9	54.3
Вт 20	303° 11.5	317° 41.6	332° 11.7	346° 41.7	1° 11.7	15° 41.6	30° 11.4	44° 41.2	59° 11.0	73° 40.7	88° 10.3	+29.9	14.9
	23° 01.2	23° 06.1	23° 10.9	23° 15.6	23° 20.1	23° 24.6	23° 28.9	23° 33.1	23° 37.3	23° 41.3	23° 45.2	+4.4	54.7
Ср 21	305° 28.4	319° 57.2	334° 26.0	348° 54.7	3° 23.4	17° 52.0	32° 20.6	46° 49.2	61° 17.7	75° 46.1	90° 14.6	+28.6	15.1
	24° 29.5	24° 31.6	24° 33.4	24° 35.2	24° 36.8	24° 38.3	24° 39.7	24° 41.0	24° 42.1	24° 43.1	24° 44.0	+1.4	55.3
Чт 22	307° 16.9	321° 44.8	336° 12.7	350° 40.5	5° 08.3	19° 36.2	34° 04.0	48° 31.7	62° 59.5	77° 27.2	91° 54.9	+27.8	15.3
	24° 41.5	24° 40.3	24° 39.0	24° 37.5	24° 35.9	24° 34.1	24° 32.3	24° 30.3	24° 28.1	24° 25.8	24° 23.4	-1.8	56.0
◐ Пт 23	308° 49.1	323° 16.6	337° 44.2	352° 11.7	6° 39.2	21° 06.8	35° 34.3	50° 01.8	64° 29.4	78° 56.9	93° 24.4	+27.5	15.5
	23° 30.8	23° 26.2	23° 21.5	23° 16.7	23° 11.7	23° 06.5	23° 01.3	22° 55.9	22° 50.3	22° 44.7	22° 38.9	-5.2	56.8
Сб 24	310° 18.2	324° 45.9	339° 13.5	353° 41.2	8° 08.9	22° 36.6	37° 04.3	51° 32.1	65° 59.8	80° 27.6	94° 55.4	+27.7	15.8
	20° 55.9	20° 48.0	20° 40.0	20° 31.8	20° 23.5	20° 15.1	20° 06.6	19° 57.9	19° 49.1	19° 40.2	19° 31.2	-8.5	57.8
Вс 25	311° 54.0	326° 22.0	340° 50.1	355° 18.2	9° 46.3	24° 14.4	38° 42.5	53° 10.6	67° 38.8	82° 07.0	96° 35.2	+28.1	16.0
	17° 01.2	16° 50.3	16° 39.2	16° 28.1	16° 16.8	16° 05.5	15° 54.0	15° 42.4	15° 30.7	15° 18.9	15° 07.1	-11.4	58.8
Пн 26	313° 39.7	328° 08.1	342° 36.5	357° 04.9	11° 33.4	26° 01.8	40° 30.2	54° 58.7	69° 27.2	83° 55.6	98° 24.1	+28.4	16.3
	11° 56.9	11° 43.5	11° 30.0	11° 16.5	11° 02.8	10° 49.1	10° 35.3	10° 21.4	10° 07.4	9° 53.3	9° 39.2	-13.8	59.8
Вт 27	315° 31.4	329° 59.9	344° 28.3	358° 56.8	13° 25.2	27° 53.7	42° 22.1	56° 50.5	71° 18.9	85° 47.3	100° 15.7	+28.4	16.5
	5° 59.4	5° 44.3	5° 29.1	5° 13.9	4° 58.7	4° 43.4	4° 28.0	4° 12.6	3° 57.2	3° 41.8	3° 26.2	-15.3	60.6
Ср 28	317° 19.4	331° 47.5	346° 15.5	0° 43.5	15° 11.5	29° 39.5	44° 07.4	58° 35.3	73° 03.1	87° 31.0	101° 58.8	+27.9	16.7
	-0° 29.4	-0° 45.2	-1° 01.1	-1° 16.9	-1° 32.8	-1° 48.6	-2° 04.5	-2° 20.3	-2° 36.1	-2° 52.0	-3° 07.8	-15.8	61.2
Чт 29	318° 51.1	333° 18.3	347° 45.4	2° 12.5	16° 39.5	31° 06.4	45° 33.4	60° 00.2	74° 27.0	88° 53.8	103° 20.5	+26.9	16.7
	-7° 02.5	-7° 17.9	-7° 33.2	-7° 48.5	-8° 03.8	-8° 19.0	-8° 34.1	-8° 49.2	-9° 04.3	-9° 19.3	-9° 34.2	-15.2	61.4
○ Пт 30	319° 54.9	334° 20.7	348° 46.5	3° 12.3	17° 38.0	32° 03.6	46° 29.2	60° 54.7	75° 20.1	89° 45.5	104° 10.9	+25.6	16.7
	-13° 09.5	-13° 23.2	-13° 36.8	-13° 50.3	-14° 03.7	-14° 17.0	-14° 30.2	-14° 43.3	-14° 56.3	-15° 09.2	-15° 22.0	-13.3	61.3
Сб 31	320° 24.6	334° 49.1	349° 13.5	3° 37.9	18° 02.3	32° 26.6	46° 50.9	61° 15.1	75° 39.3	90° 03.4	104° 27.5	+24.3	16.6
	-18° 19.7	-18° 30.5	-18° 41.2	-18° 51.7	-19° 02.2	-19° 12.4	-19° 22.6	-19° 32.6	-19° 42.4	-19° 52.1	-20° 01.7	-10.2	60.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 7 07h51 — Новолуние: 15 04h19 — Первая четв.: 23 07h33 — Полнолуние: 30 02h26

СОЛНЦЕ

Апрель 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 02.5 4° 39.8	284° 02.6 4° 40.8	299° 02.8 4° 41.8	314° 03.0 4° 42.7	329° 03.2 4° 43.7	344° 03.4 4° 44.7	359° 03.6 4° 45.6	14° 03.8 4° 46.6	29° 03.9 4° 47.5	44° 04.1 4° 48.5	59° 04.3 4° 49.5	74° 04.5 4° 50.4	+0.2 +1.0
Пн 2	269° 06.9 5° 02.9	284° 07.1 5° 03.9	299° 07.3 5° 04.8	314° 07.5 5° 05.8	329° 07.6 5° 06.8	344° 07.8 5° 07.7	359° 08.0 5° 08.7	14° 08.2 5° 09.6	29° 08.4 5° 10.6	44° 08.6 5° 11.6	59° 08.7 5° 12.5	74° 08.9 5° 13.5	+0.2 +1.0
Вт 3	269° 11.3 5° 25.9	284° 11.5 5° 26.9	299° 11.7 5° 27.8	314° 11.9 5° 28.8	329° 12.0 5° 29.7	344° 12.2 5° 30.7	359° 12.4 5° 31.7	14° 12.6 5° 32.6	29° 12.8 5° 33.6	44° 13.0 5° 34.5	59° 13.1 5° 35.5	74° 13.3 5° 36.4	+0.2 +1.0
Ср 4	269° 15.7 5° 48.8	284° 15.9 5° 49.8	299° 16.0 5° 50.7	314° 16.2 5° 51.7	329° 16.4 5° 52.6	344° 16.6 5° 53.6	359° 16.8 5° 54.5	14° 17.0 5° 55.5	29° 17.1 5° 56.4	44° 17.3 5° 57.4	59° 17.5 5° 58.3	74° 17.7 5° 59.3	+0.2 +1.0
Чт 5	269° 20.0 6° 11.6	284° 20.2 6° 12.6	299° 20.4 6° 13.5	314° 20.5 6° 14.5	329° 20.7 6° 15.4	344° 20.9 6° 16.4	359° 21.1 6° 17.3	14° 21.3 6° 18.3	29° 21.4 6° 19.2	44° 21.6 6° 20.1	59° 21.8 6° 21.1	74° 22.0 6° 22.0	+0.2 +0.9
Пт 6	269° 24.3 6° 34.3	284° 24.5 6° 35.3	299° 24.6 6° 36.2	314° 24.8 6° 37.2	329° 25.0 6° 38.1	344° 25.2 6° 39.0	359° 25.3 6° 40.0	14° 25.5 6° 40.9	29° 25.7 6° 41.9	44° 25.9 6° 42.8	59° 26.0 6° 43.7	74° 26.2 6° 44.7	+0.2 +0.9
Сб 7	269° 28.5 6° 56.9	284° 28.7 6° 57.8	299° 28.8 6° 58.8	314° 29.0 6° 59.7	329° 29.2 7° 00.7	344° 29.4 7° 01.6	359° 29.5 7° 02.5	14° 29.7 7° 03.5	29° 29.9 7° 04.4	44° 30.1 7° 05.3	59° 30.2 7° 06.3	74° 30.4 7° 07.2	+0.2 +0.9
Вс 8	269° 32.7 7° 19.4	284° 32.8 7° 20.3	299° 33.0 7° 21.2	314° 33.2 7° 22.2	329° 33.3 7° 23.1	344° 33.5 7° 24.0	359° 33.7 7° 25.0	14° 33.9 7° 25.9	29° 34.0 7° 26.8	44° 34.2 7° 27.8	59° 34.4 7° 28.7	74° 34.5 7° 29.6	+0.2 +0.9
Пн 9	269° 36.7 7° 41.7	284° 36.9 7° 42.6	299° 37.1 7° 43.6	314° 37.2 7° 44.5	329° 37.4 7° 45.4	344° 37.6 7° 46.4	359° 37.8 7° 47.3	14° 37.9 7° 48.2	29° 38.1 7° 49.1	44° 38.3 7° 50.1	59° 38.4 7° 51.0	74° 38.6 7° 51.9	+0.2 +0.9
Вт 10	269° 40.8 8° 03.9	284° 40.9 8° 04.9	299° 41.1 8° 05.8	314° 41.3 8° 06.7	329° 41.4 8° 07.6	344° 41.6 8° 08.5	359° 41.8 8° 09.5	14° 41.9 8° 10.4	29° 42.1 8° 11.3	44° 42.3 8° 12.2	59° 42.4 8° 13.2	74° 42.6 8° 14.1	+0.2 +0.9
Ср 11	269° 44.7 8° 26.0	284° 44.9 8° 26.9	299° 45.0 8° 27.9	314° 45.2 8° 28.8	329° 45.4 8° 29.7	344° 45.5 8° 30.6	359° 45.7 8° 31.5	14° 45.9 8° 32.4	29° 46.0 8° 33.3	44° 46.2 8° 34.3	59° 46.3 8° 35.2	74° 46.5 8° 36.1	+0.2 +0.9
Чт 12	269° 48.6 8° 48.0	284° 48.7 8° 48.9	299° 48.9 8° 49.8	314° 49.1 8° 50.7	329° 49.2 8° 51.6	344° 49.4 8° 52.5	359° 49.5 8° 53.4	14° 49.7 8° 54.3	29° 49.9 8° 55.2	44° 50.0 8° 56.1	59° 50.2 8° 57.1	74° 50.3 8° 58.0	+0.2 +0.9
Пт 13	269° 52.4 9° 09.8	284° 52.5 9° 10.7	299° 52.7 9° 11.6	314° 52.9 9° 12.5	329° 53.0 9° 13.4	344° 53.2 9° 14.3	359° 53.3 9° 15.2	14° 53.5 9° 16.1	29° 53.6 9° 17.0	44° 53.8 9° 17.9	59° 53.9 9° 18.8	74° 54.1 9° 19.7	+0.2 +0.9
Сб 14	269° 56.1 9° 31.4	284° 56.2 9° 32.3	299° 56.4 9° 33.2	314° 56.6 9° 34.1	329° 56.7 9° 35.0	344° 56.9 9° 35.9	359° 57.0 9° 36.8	14° 57.2 9° 37.7	29° 57.3 9° 38.6	44° 57.5 9° 39.5	59° 57.6 9° 40.4	74° 57.8 9° 41.3	+0.2 +0.9
Вс 15	269° 59.7 9° 52.9	284° 59.9 9° 53.8	300° 00.0 9° 54.7	315° 00.2 9° 55.5	330° 00.3 9° 56.4	345° 00.5 9° 57.3	0° 00.6 9° 58.2	15° 00.8 9° 59.1	30° 00.9 10° 00.0	45° 01.1 10° 00.9	60° 01.2 10° 01.8	75° 01.4 10° 02.7	+0.1 +0.9
Пн 16	270° 03.3 10° 14.2	285° 03.4 10° 15.1	300° 03.6 10° 16.0	315° 03.7 10° 16.8	330° 03.8 10° 17.7	345° 04.0 10° 18.6	0° 04.1 10° 19.5	15° 04.3 10° 20.4	30° 04.4 10° 21.3	45° 04.6 10° 22.1	60° 04.7 10° 23.0	75° 04.9 10° 23.9	+0.1 +0.9
Вт 17	270° 06.7 10° 35.3	285° 06.9 10° 36.2	300° 07.0 10° 37.1	315° 07.1 10° 38.0	330° 07.3 10° 38.8	345° 07.4 10° 39.7	0° 07.6 10° 40.6	15° 07.7 10° 41.5	30° 07.8 10° 42.4	45° 08.0 10° 43.2	60° 08.1 10° 44.1	75° 08.3 10° 45.0	+0.1 +0.9
Ср 18	270° 10.1 10° 56.3	285° 10.2 10° 57.2	300° 10.3 10° 58.1	315° 10.5 10° 58.9	330° 10.6 10° 59.8	345° 10.7 11° 00.7	0° 10.9 11° 01.5	15° 11.0 11° 02.4	30° 11.2 11° 03.3	45° 11.3 11° 04.1	60° 11.4 11° 05.0	75° 11.6 11° 05.9	+0.1 +0.9
Чт 19	270° 13.3 11° 17.1	285° 13.5 11° 18.0	300° 13.6 11° 18.8	315° 13.7 11° 19.7	330° 13.9 11° 20.6	345° 14.0 11° 21.4	0° 14.1 11° 22.3	15° 14.2 11° 23.1	30° 14.4 11° 24.0	45° 14.5 11° 24.9	60° 14.6 11° 25.7	75° 14.8 11° 26.6	+0.1 +0.9
Пт 20	270° 16.5 11° 37.7	285° 16.6 11° 38.6	300° 16.7 11° 39.4	315° 16.9 11° 40.3	330° 17.0 11° 41.1	345° 17.1 11° 42.0	0° 17.2 11° 42.8	15° 17.4 11° 43.7	30° 17.5 11° 44.5	45° 17.6 11° 45.4	60° 17.8 11° 46.2	75° 17.9 11° 47.1	+0.1 +0.9
Сб 21	270° 19.5 11° 58.1	285° 19.7 11° 59.0	300° 19.8 11° 59.8	315° 19.9 12° 00.7	330° 20.0 12° 01.5	345° 20.1 12° 02.3	0° 20.3 12° 03.2	15° 20.4 12° 04.0	30° 20.5 12° 04.9	45° 20.6 12° 05.7	60° 20.8 12° 06.6	75° 20.9 12° 07.4	+0.1 +0.8
Вс 22	270° 22.5 12° 18.3	285° 22.6 12° 19.2	300° 22.7 12° 20.0	315° 22.8 12° 20.8	330° 23.0 12° 21.7	345° 23.1 12° 22.5	0° 23.2 12° 23.3	15° 23.3 12° 24.2	30° 23.4 12° 25.0	45° 23.6 12° 25.9	60° 23.7 12° 26.7	75° 23.8 12° 27.5	+0.1 +0.8
Пн 23	270° 25.3 12° 38.3	285° 25.4 12° 39.2	300° 25.5 12° 40.0	315° 25.7 12° 40.8	330° 25.8 12° 41.7	345° 25.9 12° 42.5	0° 26.0 12° 43.3	15° 26.1 12° 44.1	30° 26.2 12° 45.0	45° 26.4 12° 45.8	60° 26.5 12° 46.6	75° 26.6 12° 47.4	+0.1 +0.8
Вт 24	270° 28.0 12° 58.1	285° 28.2 12° 59.0	300° 28.3 12° 59.8	315° 28.4 13° 00.6	330° 28.5 13° 01.4	345° 28.6 13° 02.2	0° 28.7 13° 03.0	15° 28.8 13° 03.9	30° 28.9 13° 04.7	45° 29.0 13° 05.5	60° 29.1 13° 06.3	75° 29.3 13° 07.1	+0.1 +0.8
Ср 25	270° 30.7 13° 17.7	285° 30.8 13° 18.5	300° 30.9 13° 19.3	315° 31.0 13° 20.1	330° 31.1 13° 21.0	345° 31.2 13° 21.8	0° 31.3 13° 22.6	15° 31.4 13° 23.4	30° 31.5 13° 24.2	45° 31.6 13° 25.0	60° 31.7 13° 25.8	75° 31.8 13° 26.6	+0.1 +0.8
Чт 26	270° 33.2 13° 37.1	285° 33.3 13° 37.9	300° 33.4 13° 38.7	315° 33.5 13° 39.5	330° 33.6 13° 40.3	345° 33.7 13° 41.1	0° 33.8 13° 41.9	15° 33.9 13° 42.7	30° 34.0 13° 43.5	45° 34.1 13° 44.3	60° 34.2 13° 45.1	75° 34.3 13° 45.9	+0.1 +0.8
Пт 27	270° 35.5 13° 56.2	285° 35.6 13° 57.0	300° 35.7 13° 57.8	315° 35.8 13° 58.6	330° 35.9 13° 59.4	345° 36.0 14° 00.2	0° 36.1 14° 01.0	15° 36.2 14° 01.8	30° 36.3 14° 02.5	45° 36.4 14° 03.3	60° 36.5 14° 04.1	75° 36.6 14° 04.9	+0.1 +0.8
Сб 28	270° 37.8 14° 15.1	285° 37.9 14° 15.9	300° 38.0 14° 16.7	315° 38.1 14° 17.5	330° 38.1 14° 18.3	345° 38.2 14° 19.0	0° 38.3 14° 19.8	15° 38.4 14° 20.6	30° 38.5 14° 21.4	45° 38.6 14° 22.2	60° 38.7 14° 22.9	75° 38.8 14° 23.7	+0.1 +0.8
Вс 29	270° 39.9 14° 33.8	285° 40.0 14° 34.6	300° 40.1 14° 35.3	315° 40.2 14° 36.1	330° 40.2 14° 36.9	345° 40.3 14° 37.7	0° 40.4 14° 38.4	15° 40.5 14° 39.2	30° 40.6 14° 40.0	45° 40.7 14° 40.7	60° 40.7 14° 41.5	75° 40.8 14° 42.3	+0.1 +0.8
Пн 30	270° 41.9 14° 52.2	285° 42.0 14° 53.0	300° 42.1 14° 53.8	315° 42.1 14° 54.5	330° 42.2 14° 55.3	345° 42.3 14° 56.0	0° 42.4 14° 56.8	15° 42.4 14° 57.6	30° 42.5 14° 58.3	45° 42.6 14° 59.1	60° 42.7 14° 59.8	75° 42.8 15° 00.6	+0.1 +0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2029

Д	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	R/p
Вс 1	234° 02.7	248° 26.5	262° 50.2	277° 13.9	291° 37.5	306° 01.2	320° 24.8	334° 48.4	349° 12.0	3° 35.5	17° 59.1	+23.6	16.4
	-21° 20.9	-21° 29.0	-21° 36.8	-21° 44.6	-21° 52.1	-21° 59.5	-22° 06.8	-22° 13.8	-22° 20.8	-22° 27.5	-22° 34.1	-7.3	60.2
Пн 2	233° 51.5	248° 15.0	262° 38.5	277° 02.1	291° 25.7	305° 49.2	320° 12.9	334° 36.5	349° 00.1	3° 23.8	17° 47.5	+23.6	16.2
	-23° 52.9	-23° 56.8	-24° 00.6	-24° 04.1	-24° 07.5	-24° 10.8	-24° 13.8	-24° 16.7	-24° 19.5	-24° 22.0	-24° 24.4	-3.1	59.4
Вт 3	233° 47.7	248° 12.1	262° 36.5	277° 01.0	291° 25.6	305° 50.2	320° 14.9	334° 39.7	349° 04.5	3° 29.4	17° 54.3	+24.7	15.9
	-24° 40.4	-24° 40.2	-24° 39.8	-24° 39.2	-24° 38.5	-24° 37.6	-24° 36.6	-24° 35.4	-24° 34.1	-24° 32.6	-24° 30.9	+0.9	58.4
Ср 4	234° 17.8	248° 44.0	263° 10.3	277° 36.7	292° 03.2	306° 29.7	320° 56.4	335° 23.1	349° 50.0	4° 16.9	18° 43.9	+26.6	15.7
	-23° 48.6	-23° 44.6	-23° 40.5	-23° 36.3	-23° 32.0	-23° 27.5	-23° 22.9	-23° 18.1	-23° 13.2	-23° 08.2	-23° 03.1	+4.6	57.4
◑ Чт 5	235° 40.5	250° 09.0	264° 37.6	279° 06.4	293° 35.2	308° 04.1	322° 33.1	337° 02.2	351° 31.4	6° 00.7	20° 30.1	+29.0	15.4
	-21° 31.9	-21° 24.9	-21° 17.9	-21° 10.7	-21° 03.4	-20° 56.0	-20° 48.5	-20° 40.9	-20° 33.3	-20° 25.5	-20° 17.6	+7.4	56.5
Пт 6	238° 02.0	252° 32.9	267° 03.8	281° 34.9	296° 06.0	310° 37.2	325° 08.5	339° 39.8	354° 11.3	8° 42.8	23° 14.4	+31.2	15.2
	-18° 08.8	-17° 59.6	-17° 50.3	-17° 40.9	-17° 31.4	-17° 21.9	-17° 12.3	-17° 02.6	-16° 52.9	-16° 43.1	-16° 33.2	+9.6	55.7
Сб 7	252° 32.9	267° 03.8	281° 34.9	296° 06.0	310° 37.2	325° 08.5	339° 39.8	354° 11.3	8° 42.8	23° 14.4	37° 46.1	+31.3	15.2
	-17° 59.6	-17° 50.3	-17° 40.9	-17° 31.4	-17° 21.9	-17° 12.3	-17° 02.6	-16° 52.9	-16° 43.1	-16° 33.2	-16° 23.2	+9.6	55.7
Вс 8	255° 50.9	270° 23.8	284° 56.8	299° 29.8	314° 02.9	328° 36.1	343° 09.3	357° 42.6	12° 16.0	26° 49.4	41° 22.9	+33.2	15.0
	-13° 46.8	-13° 35.9	-13° 25.0	-13° 14.1	-13° 03.1	-12° 52.0	-12° 40.9	-12° 29.7	-12° 18.6	-12° 07.3	-11° 56.0	+11.1	55.0
Пн 9	259° 52.0	274° 26.3	289° 00.7	303° 35.1	318° 09.6	332° 44.1	347° 18.7	1° 53.3	16° 28.0	31° 02.7	45° 37.4	+34.5	14.9
	-9° 02.4	-8° 50.6	-8° 38.7	-8° 26.9	-8° 14.9	-8° 03.0	-7° 51.0	-7° 39.0	-7° 27.0	-7° 15.0	-7° 02.9	+12.0	54.6
Вт 10	264° 22.2	278° 57.4	293° 32.7	308° 07.9	322° 43.2	337° 18.5	351° 53.8	6° 29.1	21° 04.5	35° 39.9	50° 15.2	+35.3	14.8
	-4° 00.0	-3° 47.6	-3° 35.3	-3° 23.0	-3° 10.7	-2° 58.3	-2° 46.0	-2° 33.6	-2° 21.3	-2° 08.9	-1° 56.5	+12.3	54.2
Ср 11	269° 07.2	283° 42.8	298° 18.3	312° 53.8	327° 29.3	342° 04.8	356° 40.3	11° 15.8	25° 51.3	40° 26.8	55° 02.3	+35.5	14.7
	1° 09.0	1° 21.3	1° 33.6	1° 45.9	1° 58.3	2° 10.6	2° 22.9	2° 35.1	2° 47.4	2° 59.7	3° 11.9	+12.3	54.0
Чт 12	273° 53.2	288° 28.5	303° 03.7	317° 38.9	332° 14.1	346° 49.3	1° 24.5	15° 59.6	30° 34.7	45° 09.8	59° 44.9	+35.2	14.7
	6° 13.5	6° 25.4	6° 37.3	6° 49.2	7° 01.1	7° 12.9	7° 24.7	7° 36.5	7° 48.2	8° 00.0	8° 11.6	+11.8	53.9
● Пт 13	278° 27.2	293° 01.8	307° 36.3	322° 10.8	336° 45.2	351° 19.6	5° 54.0	20° 28.3	35° 02.5	49° 36.8	64° 11.0	+34.4	14.7
	11° 02.8	11° 13.9	11° 25.0	11° 36.0	11° 46.9	11° 57.9	12° 08.7	12° 19.6	12° 30.4	12° 41.1	12° 51.8	+10.9	53.9
Сб 14	282° 38.3	297° 11.7	311° 45.1	326° 18.4	340° 51.7	355° 24.9	9° 58.1	24° 31.2	39° 04.3	53° 37.3	68° 10.3	+33.2	14.7
	15° 25.6	15° 35.4	15° 45.2	15° 54.8	16° 04.4	16° 14.0	16° 23.5	16° 32.9	16° 42.2	16° 51.5	17° 00.7	+9.5	54.0
Вс 15	286° 17.9	300° 50.0	315° 22.0	329° 53.9	344° 25.8	358° 57.6	13° 29.4	28° 01.1	42° 32.7	57° 04.3	71° 35.8	+31.8	14.8
	19° 10.0	19° 18.0	19° 25.9	19° 33.7	19° 41.5	19° 49.2	19° 56.7	20° 04.2	20° 11.6	20° 18.9	20° 26.2	+7.6	54.2
Пн 16	289° 21.9	303° 52.5	318° 23.0	332° 53.5	347° 24.0	1° 54.4	16° 24.7	30° 55.0	45° 25.2	59° 55.4	74° 25.5	+30.4	14.8
	22° 03.5	22° 09.2	22° 14.8	22° 20.3	22° 25.7	22° 31.0	22° 36.2	22° 41.3	22° 46.3	22° 51.1	22° 55.9	+5.2	54.4
Вт 17	291° 51.5	306° 20.8	320° 50.1	335° 19.4	349° 48.6	4° 17.8	18° 47.0	33° 16.1	47° 45.2	62° 14.2	76° 43.2	+29.2	14.9
	23° 54.2	23° 57.2	24° 00.0	24° 02.8	24° 05.4	24° 07.9	24° 10.3	24° 12.6	24° 14.7	24° 16.7	24° 18.6	+2.4	54.8
Ср 18	293° 54.3	308° 22.8	322° 51.3	337° 19.8	351° 48.2	6° 16.7	20° 45.1	35° 13.5	49° 41.9	64° 10.3	78° 38.6	+28.4	15.1
	24° 32.3	24° 32.2	24° 32.0	24° 31.7	24° 31.2	24° 30.6	24° 29.9	24° 29.0	24° 28.1	24° 26.9	24° 25.7	-0.7	55.3
Чт 19	295° 42.7	310° 10.9	324° 39.2	339° 07.4	353° 35.6	8° 03.9	22° 32.1	37° 00.4	51° 28.6	65° 56.9	80° 25.1	+28.2	15.3
	23° 51.6	23° 48.3	23° 44.9	23° 41.3	23° 37.6	23° 33.8	23° 29.8	23° 25.8	23° 21.6	23° 17.2	23° 12.8	-3.9	55.9
Пт 20	297° 30.2	311° 58.6	326° 27.1	340° 55.6	355° 24.1	9° 52.6	24° 21.1	38° 49.6	53° 18.2	67° 46.8	82° 15.4	+28.5	15.5
	21° 50.6	21° 44.2	21° 37.6	21° 30.9	21° 24.0	21° 17.1	21° 10.0	21° 02.8	20° 55.5	20° 48.0	20° 40.4	-7.0	56.7
◐ Сб 21	299° 26.9	313° 55.8	328° 24.7	342° 53.7	357° 22.7	11° 51.7	26° 20.8	40° 49.8	55° 18.9	69° 48.0	84° 17.2	+29.0	15.7
	18° 33.1	18° 23.7	18° 14.2	18° 04.6	17° 54.9	17° 45.1	17° 35.2	17° 25.1	17° 15.0	17° 04.7	16° 54.4	-9.9	57.5
Вс 22	301° 36.3	316° 05.8	330° 35.2	345° 04.6	359° 34.1	14° 03.6	28° 33.1	43° 02.6	57° 32.1	72° 01.6	86° 31.1	+29.5	15.9
	14° 07.3	13° 55.4	13° 43.5	13° 31.4	13° 19.2	13° 07.0	12° 54.7	12° 42.2	12° 29.7	12° 17.2	12° 04.5	-12.3	58.4
Пн 23	303° 55.0	318° 24.6	332° 54.2	347° 23.8	1° 53.4	16° 23.0	30° 52.6	45° 22.2	59° 51.8	74° 21.4	88° 51.0	+29.6	16.2
	8° 45.5	8° 31.7	8° 17.8	8° 03.9	7° 49.9	7° 35.8	7° 21.7	7° 07.5	6° 53.2	6° 39.0	6° 24.6	-14.1	59.3
Вт 24	306° 12.9	320° 42.3	335° 11.5	349° 40.8	4° 10.0	18° 39.3	33° 08.4	47° 37.6	62° 06.7	76° 35.8	91° 04.9	+29.2	16.4
	2° 43.9	2° 28.9	2° 13.8	1° 58.7	1° 43.6	1° 28.5	1° 13.3	0° 58.1	0° 42.9	0° 27.7	0° 12.5	-15.1	60.1
Ср 25	308° 16.3	322° 44.7	337° 13.1	351° 41.4	6° 09.7	20° 37.9	35° 06.1	49° 34.2	64° 02.2	78° 30.2	92° 58.2	+28.2	16.6
	-3° 37.2	-3° 52.5	-4° 07.8	-4° 23.0	-4° 38.3	-4° 53.6	-5° 08.8	-5° 24.0	-5° 39.2	-5° 54.4	-6° 09.5	-15.2	60.7
Чт 26	309° 50.1	324° 17.0	338° 43.9	353° 10.7	7° 37.5	22° 04.1	36° 30.7	50° 57.3	65° 23.7	79° 50.1	94° 16.4	+26.6	16.7
	-9° 52.4	-10° 06.9	-10° 21.3	-10° 35.7	-10° 50.0	-11° 04.2	-11° 18.4	-11° 32.5	-11° 46.5	-12° 00.5	-12° 14.4	-14.2	61.1
Пт 27	310° 42.3	325° 07.4	339° 32.5	353° 57.5	8° 22.4	22° 47.2	37° 12.0	51° 36.7	66° 01.3	80° 25.9	94° 50.4	+24.8	16.7
	-15° 32.5	-15° 45.0	-15° 57.3	-16° 09.5	-16° 21.7	-16° 33.6	-16° 45.5	-16° 57.3	-17° 09.0	-17° 20.5	-17° 31.9	-11.9	61.2
○ Сб 28	310° 49.6	325° 13.1	339° 36.5	353° 59.9	8° 23.2	22° 46.4	37° 09.6	51° 32.8	65° 55.9	80° 18.9	94° 41.9	+23.2	16.6
	-20° 07.2	-20° 16.4	-20° 25.5	-20° 34.4	-20° 43.2	-20° 51.8	-21° 00.2	-21° 08.6	-21° 16.7	-21° 24.7	-21° 32.5	-8.5	60.9
Вс 29	310° 23.1	324° 45.6	339° 08.2	353° 30.7	7° 53.3	22° 15.8	36° 38.3	51° 00.8	65° 23.4	79° 45.9	94° 08.4	+22.5	16.4
	-23° 10.2	-23° 15.3	-23° 20.3	-23° 25.1	-23° 29.8	-23° 34.2	-23° 38.5	-23° 42.6	-23° 46.5	-23° 50.3	-23° 53.9	-4.4	60.3
Пн 30	309° 48.6	324° 11.6	338° 34.5	352° 57.6	7° 20.6	21° 43.7	36° 06.9	50° 30.1	64° 53.4	79° 16.7	93° 40.1	+23.1	16.2
	-24° 26.5	-24° 27.2	-24° 27.9	-24° 28.3	-24° 28.6	-24° 28.6	-24° 28.6	-24° 28.3	-24° 27.9	-24° 27.3	-24° 26.6	-0.0	59.4

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 5 19h51 — Новолуние: 13 21h40 — Первая четв.: 21 19h50 — Полнолуние: 28 10h36

СОЛНЦЕ

Май 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	270° 43.7 15° 10.4	285° 43.8 15° 11.2	300° 43.9 15° 11.9	315° 44.0 15° 12.7	330° 44.0 15° 13.4	345° 44.1 15° 14.2	0° 44.2 15° 14.9	15° 44.3 15° 15.7	30° 44.3 15° 16.4	45° 44.4 15° 17.2	60° 44.5 15° 17.9	75° 44.6 15° 18.7	+0.1 +0.8
Ср 2	270° 45.5 15° 28.4	285° 45.5 15° 29.1	300° 45.6 15° 29.9	315° 45.7 15° 30.6	330° 45.7 15° 31.3	345° 45.8 15° 32.1	0° 45.9 15° 32.8	15° 45.9 15° 33.6	30° 46.0 15° 34.3	45° 46.1 15° 35.0	60° 46.1 15° 35.8	75° 46.2 15° 36.5	+0.1 +0.7
Чт 3	270° 47.0 15° 46.1	285° 47.1 15° 46.8	300° 47.2 15° 47.5	315° 47.2 15° 48.3	330° 47.3 15° 49.0	345° 47.4 15° 49.7	0° 47.4 15° 50.4	15° 47.5 15° 51.2	30° 47.5 15° 51.9	45° 47.6 15° 52.6	60° 47.7 15° 53.4	75° 47.7 15° 54.1	+0.1 +0.7
Пт 4	270° 48.5 16° 03.5	285° 48.5 16° 04.2	300° 48.6 16° 04.9	315° 48.7 16° 05.6	330° 48.7 16° 06.4	345° 48.8 16° 07.1	0° 48.8 16° 07.8	15° 48.9 16° 08.5	30° 48.9 16° 09.2	45° 49.0 16° 10.0	60° 49.0 16° 10.7	75° 49.1 16° 11.4	+0.1 +0.7
Сб 5	270° 49.8 16° 20.6	285° 49.8 16° 21.4	300° 49.9 16° 22.1	315° 49.9 16° 22.8	330° 50.0 16° 23.5	345° 50.0 16° 24.2	0° 50.1 16° 24.9	15° 50.1 16° 25.6	30° 50.2 16° 26.3	45° 50.2 16° 27.0	60° 50.3 16° 27.7	75° 50.3 16° 28.4	+0.0 +0.7
Вс 6	270° 50.9 16° 37.5	285° 51.0 16° 38.2	300° 51.0 16° 38.9	315° 51.1 16° 39.6	330° 51.1 16° 40.3	345° 51.1 16° 41.0	0° 51.2 16° 41.7	15° 51.2 16° 42.4	30° 51.3 16° 43.1	45° 51.3 16° 43.8	60° 51.4 16° 44.5	75° 51.4 16° 45.2	+0.0 +0.7
Пн 7	270° 51.9 16° 54.2	285° 52.0 16° 54.8	300° 52.0 16° 55.5	315° 52.0 16° 56.2	330° 52.1 16° 56.9	345° 52.1 16° 57.6	0° 52.2 16° 58.3	15° 52.2 16° 58.9	30° 52.2 16° 59.6	45° 52.3 17° 00.3	60° 52.3 17° 01.0	75° 52.3 17° 01.7	+0.0 +0.7
Вт 8	270° 52.8 17° 10.5	285° 52.8 17° 11.2	300° 52.8 17° 11.8	315° 52.9 17° 12.5	330° 52.9 17° 13.2	345° 52.9 17° 13.9	0° 53.0 17° 14.5	15° 53.0 17° 15.2	30° 53.0 17° 15.9	45° 53.1 17° 16.5	60° 53.1 17° 17.2	75° 53.1 17° 17.9	+0.0 +0.7
Ср 9	270° 53.5 17° 26.5	285° 53.5 17° 27.2	300° 53.5 17° 27.9	315° 53.6 17° 28.5	330° 53.6 17° 29.2	345° 53.6 17° 29.8	0° 53.6 17° 30.5	15° 53.7 17° 31.2	30° 53.7 17° 31.8	45° 53.7 17° 32.5	60° 53.7 17° 33.1	75° 53.8 17° 33.8	+0.0 +0.7
Чт 10	270° 54.1 17° 42.3	285° 54.1 17° 42.9	300° 54.1 17° 43.6	315° 54.1 17° 44.2	330° 54.1 17° 44.9	345° 54.1 17° 45.5	0° 54.2 17° 46.2	15° 54.2 17° 46.8	30° 54.2 17° 47.5	45° 54.2 17° 48.1	60° 54.2 17° 48.8	75° 54.3 17° 49.4	+0.0 +0.6
Пт 11	270° 54.5 17° 57.7	285° 54.5 17° 58.4	300° 54.5 17° 59.0	315° 54.5 17° 59.7	330° 54.5 18° 00.3	345° 54.5 18° 00.9	0° 54.5 18° 01.6	15° 54.6 18° 02.2	30° 54.6 18° 02.8	45° 54.6 18° 03.5	60° 54.6 18° 04.1	75° 54.6 18° 04.7	+0.0 +0.6
Сб 12	270° 54.7 18° 12.9	285° 54.7 18° 13.5	300° 54.8 18° 14.2	315° 54.8 18° 14.8	330° 54.8 18° 15.4	345° 54.8 18° 16.0	0° 54.8 18° 16.6	15° 54.8 18° 17.3	30° 54.8 18° 17.9	45° 54.8 18° 18.5	60° 54.8 18° 19.1	75° 54.8 18° 19.7	+0.0 +0.6
Вс 13	270° 54.9 18° 27.8	285° 54.9 18° 28.4	300° 54.9 18° 29.0	315° 54.9 18° 29.6	330° 54.9 18° 30.2	345° 54.9 18° 30.8	0° 54.9 18° 31.4	15° 54.9 18° 32.0	30° 54.9 18° 32.6	45° 54.9 18° 33.2	60° 54.9 18° 33.8	75° 54.9 18° 34.5	+0.0 +0.6
Пн 14	270° 54.9 18° 42.3	285° 54.8 18° 42.9	300° 54.8 18° 43.5	315° 54.8 18° 44.1	330° 54.8 18° 44.7	345° 54.8 18° 45.3	0° 54.8 18° 45.9	15° 54.8 18° 46.5	30° 54.8 18° 47.1	45° 54.8 18° 47.7	60° 54.8 18° 48.3	75° 54.8 18° 48.8	-0.0 +0.6
Вт 15	270° 54.7 18° 56.5	285° 54.7 18° 57.1	300° 54.7 18° 57.7	315° 54.7 18° 58.3	330° 54.7 18° 58.8	345° 54.6 18° 59.4	0° 54.6 19° 00.0	15° 54.6 19° 00.6	30° 54.6 19° 01.2	45° 54.6 19° 01.8	60° 54.6 19° 02.3	75° 54.6 19° 02.9	-0.0 +0.6
Ср 16	270° 54.4 19° 10.4	285° 54.4 19° 11.0	300° 54.4 19° 11.6	315° 54.3 19° 12.1	330° 54.3 19° 12.7	345° 54.3 19° 13.3	0° 54.3 19° 13.8	15° 54.3 19° 14.4	30° 54.3 19° 15.0	45° 54.2 19° 15.5	60° 54.2 19° 16.1	75° 54.2 19° 16.7	-0.0 +0.6
Чт 17	270° 54.0 19° 24.0	285° 53.9 19° 24.5	300° 53.9 19° 25.1	315° 53.9 19° 25.7	330° 53.9 19° 26.2	345° 53.9 19° 26.8	0° 53.8 19° 27.3	15° 53.8 19° 27.9	30° 53.8 19° 28.4	45° 53.8 19° 29.0	60° 53.7 19° 29.5	75° 53.7 19° 30.1	-0.0 +0.6
Пт 18	270° 53.4 19° 37.2	285° 53.4 19° 37.8	300° 53.3 19° 38.3	315° 53.3 19° 38.9	330° 53.3 19° 39.4	345° 53.3 19° 39.9	0° 53.2 19° 40.5	15° 53.2 19° 41.0	30° 53.2 19° 41.6	45° 53.1 19° 42.1	60° 53.1 19° 42.7	75° 53.1 19° 43.2	-0.0 +0.5
Сб 19	270° 52.7 19° 50.1	285° 52.7 19° 50.7	300° 52.6 19° 51.2	315° 52.6 19° 51.7	330° 52.6 19° 52.3	345° 52.5 19° 52.8	0° 52.5 19° 53.3	15° 52.5 19° 53.8	30° 52.4 19° 54.4	45° 52.4 19° 54.9	60° 52.4 19° 55.4	75° 52.3 19° 55.9	-0.0 +0.5
Вс 20	270° 51.8 20° 02.7	285° 51.8 20° 03.2	300° 51.8 20° 03.7	315° 51.7 20° 04.3	330° 51.7 20° 04.8	345° 51.7 20° 05.3	0° 51.6 20° 05.8	15° 51.6 20° 06.3	30° 51.5 20° 06.8	45° 51.5 20° 07.3	60° 51.5 20° 07.8	75° 51.4 20° 08.4	-0.0 +0.5
Пн 21	270° 50.9 20° 14.9	285° 50.8 20° 15.4	300° 50.8 20° 15.9	315° 50.8 20° 16.4	330° 50.7 20° 16.9	345° 50.7 20° 17.4	0° 50.6 20° 17.9	15° 50.6 20° 18.4	30° 50.5 20° 18.9	45° 50.5 20° 19.4	60° 50.4 20° 19.9	75° 50.4 20° 20.4	-0.0 +0.5
Вт 22	270° 49.8 20° 26.8	285° 49.7 20° 27.3	300° 49.7 20° 27.8	315° 49.6 20° 28.3	330° 49.6 20° 28.8	345° 49.5 20° 29.2	0° 49.5 20° 29.7	15° 49.4 20° 30.2	30° 49.4 20° 30.7	45° 49.3 20° 31.2	60° 49.3 20° 31.7	75° 49.2 20° 32.1	-0.0 +0.5
Ср 23	270° 48.6 20° 38.3	285° 48.5 20° 38.8	300° 48.5 20° 39.3	315° 48.4 20° 39.8	330° 48.4 20° 40.2	345° 48.3 20° 40.7	0° 48.2 20° 41.2	15° 48.2 20° 41.6	30° 48.1 20° 42.1	45° 48.1 20° 42.6	60° 48.0 20° 43.0	75° 48.0 20° 43.5	-0.1 +0.5
Чт 24	270° 47.2 20° 49.5	285° 47.2 20° 50.0	300° 47.1 20° 50.4	315° 47.1 20° 50.9	330° 47.0 20° 51.3	345° 46.9 20° 51.8	0° 46.9 20° 52.3	15° 46.8 20° 52.7	30° 46.8 20° 53.2	45° 46.7 20° 53.6	60° 46.6 20° 54.1	75° 46.6 20° 54.5	-0.1 +0.5
Пт 25	270° 45.8 21° 00.3	285° 45.7 21° 00.8	300° 45.6 21° 01.2	315° 45.6 21° 01.7	330° 45.5 21° 02.1	345° 45.5 21° 02.5	0° 45.4 21° 03.0	15° 45.3 21° 03.4	30° 45.3 21° 03.9	45° 45.2 21° 04.3	60° 45.1 21° 04.7	75° 45.1 21° 05.2	-0.1 +0.4
Сб 26	270° 44.2 21° 10.8	285° 44.1 21° 11.2	300° 44.1 21° 11.6	315° 44.0 21° 12.1	330° 43.9 21° 12.5	345° 43.8 21° 12.9	0° 43.8 21° 13.3	15° 43.7 21° 13.8	30° 43.6 21° 14.2	45° 43.6 21° 14.6	60° 43.5 21° 15.0	75° 43.4 21° 15.5	-0.1 +0.4
Вс 27	270° 42.5 21° 20.9	285° 42.4 21° 21.3	300° 42.3 21° 21.7	315° 42.3 21° 22.1	330° 42.2 21° 22.5	345° 42.1 21° 22.9	0° 42.1 21° 23.3	15° 42.0 21° 23.7	30° 41.9 21° 24.2	45° 41.8 21° 24.6	60° 41.8 21° 25.0	75° 41.7 21° 25.4	-0.1 +0.4
Пн 28	270° 40.7 21° 30.6	285° 40.6 21° 31.0	300° 40.5 21° 31.4	315° 40.4 21° 31.8	330° 40.4 21° 32.2	345° 40.3 21° 32.6	0° 40.2 21° 33.0	15° 40.1 21° 33.4	30° 40.1 21° 33.7	45° 40.0 21° 34.1	60° 39.9 21° 34.5	75° 39.8 21° 34.9	-0.1 +0.4
Вт 29	270° 38.8 21° 39.9	285° 38.7 21° 40.3	300° 38.6 21° 40.7	315° 38.5 21° 41.1	330° 38.4 21° 41.5	345° 38.3 21° 41.8	0° 38.3 21° 42.2	15° 38.2 21° 42.6	30° 38.1 21° 43.0	45° 38.0 21° 43.3	60° 37.9 21° 43.7	75° 37.8 21° 44.1	-0.1 +0.4
Ср 30	270° 36.7 21° 48.9	285° 36.6 21° 49.3	300° 36.5 21° 49.6	315° 36.5 21° 50.0	330° 36.4 21° 50.4	345° 36.3 21° 50.7	0° 36.2 21° 51.1	15° 36.1 21° 51.5	30° 36.0 21° 51.8	45° 35.9 21° 52.2	60° 35.8 21° 52.5	75° 35.7 21° 52.9	-0.1 +0.4
Чт 31	270° 34.6 21° 57.5	285° 34.5 21° 57.9	300° 34.4 21° 58.2	315° 34.3 21° 58.6	330° 34.2 21° 58.9	345° 34.1 21° 59.2	0° 34.0 21° 59.6	15° 33.9 21° 59.9	30° 33.8 22° 00.3	45° 33.7 22° 00.6	60° 33.6 22° 01.0	75° 33.6 22° 01.3	-0.1 +0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2029

Д	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	R/p
Вт 1	237° 37.8	252° 01.9	266° 26.2	280° 50.5	295° 14.9	309° 39.4	324° 04.0	338° 28.7	352° 53.4	7° 18.3	21° 43.2	+24.5	16.0
	-24° 10.1	-24° 07.5	-24° 04.9	-24° 02.0	-23° 59.0	-23° 55.9	-23° 52.6	-23° 49.2	-23° 45.6	-23° 41.8	-23° 38.0	+3.2	58.7
Ср 2	238° 08.9	252° 35.4	267° 02.0	281° 28.8	295° 55.6	310° 22.5	324° 49.6	339° 16.7	353° 44.0	8° 11.4	22° 38.8	+27.0	15.7
	-22° 23.1	-22° 17.1	-22° 10.9	-22° 04.6	-21° 58.2	-21° 51.7	-21° 45.1	-21° 38.3	-21° 31.4	-21° 24.5	-21° 17.4	+6.6	57.7
Чт 3	239° 43.7	254° 12.9	268° 42.1	283° 11.5	297° 41.0	312° 10.6	326° 40.3	341° 10.1	355° 39.9	10° 09.9	24° 40.0	+29.6	15.5
	-19° 18.6	-19° 09.9	-19° 01.2	-18° 52.3	-18° 43.4	-18° 34.3	-18° 25.2	-18° 16.0	-18° 06.8	-17° 57.4	-17° 48.0	+9.1	56.7
Пт 4	242° 22.9	256° 54.5	271° 26.2	285° 57.9	300° 29.8	315° 01.7	329° 33.8	344° 05.9	358° 38.1	13° 10.3	27° 42.7	+32.0	15.2
	-15° 18.1	-15° 07.6	-14° 57.1	-14° 46.5	-14° 35.8	-14° 25.1	-14° 14.3	-14° 03.5	-13° 52.6	-13° 41.7	-13° 30.7	+10.7	55.8
◑ Сб 5	245° 56.9	260° 30.4	275° 03.9	289° 37.5	304° 11.2	318° 45.0	333° 18.8	347° 52.6	2° 26.6	17° 00.5	31° 34.6	+33.8	15.0
	-10° 40.9	-10° 29.2	-10° 17.6	-10° 05.9	-9° 54.2	-9° 42.4	-9° 30.6	-9° 18.8	-9° 07.0	-8° 55.1	-8° 43.2	+11.8	55.1
Вс 6	260° 30.4	275° 03.9	289° 37.5	304° 11.2	318° 45.0	333° 18.8	347° 52.6	2° 26.6	17° 00.5	31° 34.6	46° 08.6	+33.8	15.0
	-10° 29.2	-10° 17.6	-10° 05.9	-9° 54.2	-9° 42.4	-9° 30.6	-9° 18.8	-9° 07.0	-8° 55.1	-8° 43.2	-8° 31.3	+11.8	55.1
Пн 7	264° 45.7	279° 20.5	293° 55.3	308° 30.2	323° 05.1	337° 40.0	352° 15.0	6° 50.0	21° 25.1	36° 00.1	50° 35.2	+35.0	14.9
	-5° 30.1	-5° 17.9	-5° 05.7	-4° 53.5	-4° 41.2	-4° 29.0	-4° 16.7	-4° 04.4	-3° 52.1	-3° 39.8	-3° 27.6	+12.3	54.6
Вт 8	269° 24.3	283° 59.7	298° 35.1	313° 10.5	327° 45.9	342° 21.4	356° 56.8	11° 32.3	26° 07.7	40° 43.2	55° 18.7	+35.4	14.8
	-0° 22.7	-0° 10.4	0° 01.9	0° 14.2	0° 26.5	0° 38.8	0° 51.1	1° 03.4	1° 15.7	1° 27.9	1° 40.2	+12.3	54.2
Ср 9	274° 10.4	288° 45.8	303° 21.1	317° 56.5	332° 31.8	347° 07.2	1° 42.5	16° 17.8	30° 53.1	45° 28.3	60° 03.6	+35.3	14.7
	4° 42.5	4° 54.5	5° 06.5	5° 18.5	5° 30.5	5° 42.4	5° 54.3	6° 06.2	6° 18.1	6° 29.9	6° 41.8	+11.9	54.0
Чт 10	278° 49.3	293° 24.1	307° 58.9	322° 33.7	337° 08.4	351° 43.1	6° 17.7	20° 52.3	35° 26.9	50° 01.4	64° 35.9	+34.7	14.7
	9° 35.5	9° 46.9	9° 58.2	10° 09.4	10° 20.6	10° 31.8	10° 42.9	10° 54.0	11° 05.1	11° 16.1	11° 27.0	+11.2	53.9
Пт 11	283° 08.1	297° 41.9	312° 15.6	326° 49.3	341° 22.9	355° 56.5	10° 30.0	25° 03.4	39° 36.8	54° 10.2	68° 43.5	+33.5	14.7
	14° 06.0	14° 16.2	14° 26.3	14° 36.4	14° 46.4	14° 56.3	15° 06.2	15° 16.1	15° 25.9	15° 35.6	15° 45.3	+9.9	54.0
Сб 12	286° 56.3	301° 28.7	316° 01.0	330° 33.3	345° 05.5	359° 37.6	14° 09.7	28° 41.8	43° 13.7	57° 45.6	72° 17.5	+32.1	14.8
	18° 02.3	18° 10.8	18° 19.3	18° 27.8	18° 36.1	18° 44.4	18° 52.5	19° 00.6	19° 08.7	19° 16.6	19° 24.5	+8.2	54.2
● Вс 13	290° 07.7	304° 38.6	319° 09.4	333° 40.1	348° 10.8	2° 41.4	17° 12.0	31° 42.5	46° 12.9	60° 43.3	75° 13.6	+30.6	14.9
	21° 12.0	21° 18.4	21° 24.7	21° 31.0	21° 37.1	21° 43.2	21° 49.1	21° 55.0	22° 00.7	22° 06.3	22° 11.9	+6.0	54.5
Пн 14	292° 42.0	307° 11.4	321° 40.9	336° 10.2	350° 39.6	5° 08.8	19° 38.1	34° 07.3	48° 36.4	63° 05.5	77° 34.6	+29.3	14.9
	23° 22.3	23° 26.1	23° 29.8	23° 33.4	23° 36.8	23° 40.2	23° 43.4	23° 46.5	23° 49.5	23° 52.4	23° 55.2	+3.3	54.8
Вт 15	294° 46.0	309° 14.5	323° 43.0	338° 11.5	352° 39.9	7° 08.3	21° 36.7	36° 05.1	50° 33.4	65° 01.7	79° 30.0	+28.4	15.1
	24° 22.0	24° 22.8	24° 23.5	24° 24.0	24° 24.5	24° 24.8	24° 24.9	24° 25.0	24° 24.9	24° 24.6	24° 24.3	+0.2	55.2
Ср 16	296° 33.2	311° 01.3	325° 29.5	339° 57.7	354° 25.8	8° 54.0	23° 22.2	37° 50.3	52° 18.5	66° 46.7	81° 14.9	+28.2	15.2
	24° 03.7	24° 01.2	23° 58.7	23° 56.0	23° 53.2	23° 50.3	23° 47.3	23° 44.1	23° 40.8	23° 37.3	23° 33.8	-3.0	55.7
Чт 17	298° 19.3	312° 47.7	327° 16.2	341° 44.6	356° 13.1	10° 41.7	25° 10.2	39° 38.8	54° 07.4	68° 36.0	83° 04.6	+28.5	15.3
	22° 25.0	22° 19.5	22° 13.8	22° 07.9	22° 02.0	21° 55.9	21° 49.7	21° 43.4	21° 37.0	21° 30.5	21° 23.8	-6.1	56.2
Пт 18	300° 17.7	314° 46.8	329° 15.9	343° 45.1	358° 14.3	12° 43.5	27° 12.8	41° 42.1	56° 11.4	70° 40.8	85° 10.2	+29.3	15.5
	19° 30.0	19° 21.5	19° 12.9	19° 04.2	18° 55.4	18° 46.5	18° 37.4	18° 28.3	18° 19.1	18° 09.8	18° 00.3	-9.0	56.9
Сб 19	302° 34.8	317° 04.7	331° 34.6	346° 04.6	0° 34.5	15° 04.5	29° 34.5	44° 04.6	58° 34.7	73° 04.7	87° 34.9	+30.0	15.7
	15° 27.1	15° 16.2	15° 05.1	14° 54.0	14° 42.8	14° 31.5	14° 20.1	14° 08.6	13° 57.0	13° 45.4	13° 33.7	-11.3	57.5
Вс 20	305° 09.2	319° 39.6	334° 10.0	348° 40.5	3° 11.0	17° 41.4	32° 11.9	46° 42.4	61° 12.9	75° 43.4	90° 14.0	+30.5	15.9
	10° 28.8	10° 15.9	10° 03.0	9° 50.0	9° 36.9	9° 23.7	9° 10.5	8° 57.3	8° 44.0	8° 30.6	8° 17.2	-13.2	58.2
◐ Пн 21	307° 51.9	322° 22.4	336° 52.9	351° 23.4	5° 53.9	20° 24.3	34° 54.8	49° 25.2	63° 55.6	78° 26.0	92° 56.4	+30.5	16.1
	4° 49.7	4° 35.5	4° 21.3	4° 07.0	3° 52.7	3° 38.4	3° 24.1	3° 09.7	2° 55.3	2° 40.8	2° 26.3	-14.3	58.9
Вт 22	310° 29.3	324° 59.2	339° 29.1	353° 59.0	8° 28.9	22° 58.7	37° 28.4	51° 58.1	66° 27.8	80° 57.5	95° 27.0	+29.8	16.2
	-1° 13.2	-1° 27.9	-1° 42.7	-1° 57.4	-2° 12.2	-2° 26.9	-2° 41.7	-2° 56.4	-3° 11.2	-3° 25.9	-3° 40.6	-14.8	59.5
Ср 23	312° 44.8	327° 13.5	341° 42.2	356° 10.8	10° 39.4	25° 07.9	39° 36.3	54° 04.6	68° 32.9	83° 01.1	97° 29.2	+28.4	16.4
	-7° 19.8	-7° 34.3	-7° 48.7	-8° 03.0	-8° 17.3	-8° 31.6	-8° 45.8	-9° 00.0	-9° 14.2	-9° 28.3	-9° 42.4	-14.3	60.1
Чт 24	314° 22.6	328° 49.5	343° 16.4	357° 43.2	12° 09.9	26° 36.5	41° 03.0	55° 29.5	69° 55.9	84° 22.2	98° 48.4	+26.6	16.5
	-13° 06.5	-13° 19.6	-13° 32.6	-13° 45.6	-13° 58.4	-14° 11.2	-14° 23.8	-14° 36.4	-14° 48.9	-15° 01.3	-15° 13.7	-12.7	60.5
Пт 25	315° 11.6	329° 36.5	344° 01.3	358° 26.0	12° 50.7	27° 15.3	41° 39.8	56° 04.2	70° 28.6	84° 52.8	99° 17.0	+24.5	16.5
	-18° 06.3	-18° 16.9	-18° 27.4	-18° 37.8	-18° 48.0	-18° 58.1	-19° 08.1	-19° 18.0	-19° 27.7	-19° 37.3	-19° 46.7	-10.1	60.6
Сб 26	315° 11.9	329° 35.0	343° 58.1	358° 21.2	12° 44.2	27° 07.2	41° 30.1	55° 53.0	70° 15.8	84° 38.6	99° 01.4	+22.9	16.5
	-21° 51.4	-21° 58.5	-22° 05.4	-22° 12.2	-22° 18.8	-22° 25.3	-22° 31.6	-22° 37.7	-22° 43.7	-22° 49.5	-22° 55.1	-6.4	60.4
○ Вс 27	314° 39.6	329° 02.1	343° 24.5	357° 47.0	12° 09.4	26° 31.9	40° 54.3	55° 16.8	69° 39.3	84° 01.8	98° 24.3	+22.5	16.4
	-23° 59.1	-24° 02.0	-24° 04.7	-24° 07.3	-24° 09.6	-24° 11.8	-24° 13.8	-24° 15.6	-24° 17.3	-24° 18.8	-24° 20.1	-2.1	60.0
Пн 28	314° 05.9	328° 29.1	342° 52.2	357° 15.5	11° 38.8	26° 02.2	40° 25.6	54° 49.1	69° 12.7	83° 36.3	98° 00.0	+23.4	16.2
	-24° 18.7	-24° 17.2	-24° 15.6	-24° 13.8	-24° 11.9	-24° 09.8	-24° 07.5	-24° 05.0	-24° 02.4	-23° 59.6	-23° 56.7	+2.2	59.3
Вт 29	314° 05.5	328° 30.6	342° 55.7	357° 21.0	11° 46.4	26° 11.9	40° 37.4	55° 03.1	69° 28.9	83° 54.8	98° 20.7	+25.5	15.9
	-22° 54.4	-22° 49.1	-22° 43.6	-22° 38.1	-22° 32.3	-22° 26.5	-22° 20.5	-22° 14.3	-22° 08.1	-22° 01.7	-21° 55.2	+5.9	58.5
Ср 30	328° 30.6	342° 55.7	357° 21.0	11° 46.4	26° 11.9	40° 37.4	55° 03.1	69° 28.9	83° 54.8	98° 20.7	112° 46.8	+25.6	15.9
	-22° 49.1	-22° 43.6	-22° 38.1	-22° 32.3	-22° 26.5	-22° 20.5	-22° 14.3	-22° 08.1	-22° 01.7	-21° 55.2	-21° 48.5	+6.1	58.4
Чт 31	329° 30.9	343° 58.7	358° 26.6	12° 54.6	27° 22.7	41° 51.0	56° 19.3	70° 47.8	85° 16.3	99° 45.0	114° 13.8	+28.3	15.7
	-19° 55.0	-19° 46.5	-19° 38.0	-19° 29.4	-19° 20.6	-19° 11.8	-19° 02.9	-18° 53.9	-18° 44.8	-18° 35.6	-18° 26.3	+8.9	57.5

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Последняя четв.: 5 09h48 — Новолуние: 13 13h42 — Первая четв.: 21 04h16 — Полнолуние: 27 18h37

СОЛНЦЕ

Июнь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	270° 32.3	285° 32.2	300° 32.1	315° 32.0	330° 31.9	345° 31.8	0° 31.7	15° 31.6	30° 31.5	45° 31.4	60° 31.4	75° 31.3	-0.1
	22° 05.7	22° 06.0	22° 06.4	22° 06.7	22° 07.0	22° 07.4	22° 07.7	22° 08.0	22° 08.4	22° 08.7	22° 09.0	22° 09.4	+0.3
Сб 2	270° 30.0	285° 29.9	300° 29.8	315° 29.7	330° 29.6	345° 29.5	0° 29.4	15° 29.3	30° 29.2	45° 29.1	60° 29.0	75° 28.9	-0.1
	22° 13.5	22° 13.9	22° 14.2	22° 14.5	22° 14.8	22° 15.1	22° 15.4	22° 15.8	22° 16.1	22° 16.4	22° 16.7	22° 17.0	+0.3
Вс 3	270° 27.5	285° 27.4	300° 27.3	315° 27.2	330° 27.1	345° 27.0	0° 26.9	15° 26.8	30° 26.7	45° 26.6	60° 26.5	75° 26.4	-0.1
	22° 21.0	22° 21.3	22° 21.6	22° 21.9	22° 22.2	22° 22.5	22° 22.8	22° 23.1	22° 23.4	22° 23.7	22° 24.0	22° 24.3	+0.3
Пн 4	270° 25.0	285° 24.9	300° 24.8	315° 24.6	330° 24.5	345° 24.4	0° 24.3	15° 24.2	30° 24.1	45° 24.0	60° 23.9	75° 23.8	-0.1
	22° 28.0	22° 28.3	22° 28.6	22° 28.9	22° 29.2	22° 29.4	22° 29.7	22° 30.0	22° 30.3	22° 30.6	22° 30.8	22° 31.1	+0.3
Вт 5	270° 22.3	285° 22.2	300° 22.1	315° 22.0	330° 21.9	345° 21.8	0° 21.7	15° 21.5	30° 21.4	45° 21.3	60° 21.2	75° 21.1	-0.1
	22° 34.7	22° 35.0	22° 35.2	22° 35.5	22° 35.8	22° 36.0	22° 36.3	22° 36.5	22° 36.8	22° 37.1	22° 37.3	22° 37.6	+0.3
Ср 6	270° 19.6	285° 19.5	300° 19.4	315° 19.3	330° 19.2	345° 19.0	0° 18.9	15° 18.8	30° 18.7	45° 18.6	60° 18.5	75° 18.3	-0.1
	22° 40.9	22° 41.2	22° 41.4	22° 41.7	22° 41.9	22° 42.2	22° 42.4	22° 42.7	22° 42.9	22° 43.2	22° 43.4	22° 43.7	+0.2
Чт 7	270° 16.8	285° 16.7	300° 16.6	315° 16.5	330° 16.3	345° 16.2	0° 16.1	15° 16.0	30° 15.9	45° 15.7	60° 15.6	75° 15.5	-0.1
	22° 46.8	22° 47.0	22° 47.3	22° 47.5	22° 47.7	22° 48.0	22° 48.2	22° 48.4	22° 48.7	22° 48.9	22° 49.1	22° 49.4	+0.2
Пт 8	270° 13.9	285° 13.8	300° 13.7	315° 13.6	330° 13.5	345° 13.3	0° 13.2	15° 13.1	30° 13.0	45° 12.8	60° 12.7	75° 12.6	-0.1
	22° 52.3	22° 52.5	22° 52.7	22° 52.9	22° 53.1	22° 53.3	22° 53.6	22° 53.8	22° 54.0	22° 54.2	22° 54.4	22° 54.6	+0.2
Сб 9	270° 11.0	285° 10.9	300° 10.8	315° 10.6	330° 10.5	345° 10.4	0° 10.3	15° 10.1	30° 10.0	45° 09.9	60° 09.8	75° 09.6	-0.1
	22° 57.3	22° 57.5	22° 57.7	22° 57.9	22° 58.1	22° 58.3	22° 58.5	22° 58.7	22° 58.9	22° 59.1	22° 59.3	22° 59.5	+0.2
Вс 10	270° 08.0	285° 07.9	300° 07.7	315° 07.6	330° 07.5	345° 07.4	0° 07.2	15° 07.1	30° 07.0	45° 06.9	60° 06.7	75° 06.6	-0.1
	23° 02.0	23° 02.2	23° 02.3	23° 02.5	23° 02.7	23° 02.9	23° 03.1	23° 03.2	23° 03.4	23° 03.6	23° 03.8	23° 04.0	+0.2
Пн 11	270° 04.9	285° 04.8	300° 04.7	315° 04.5	330° 04.4	345° 04.3	0° 04.2	15° 04.0	30° 03.9	45° 03.8	60° 03.6	75° 03.5	-0.1
	23° 06.2	23° 06.4	23° 06.5	23° 06.7	23° 06.9	23° 07.0	23° 07.2	23° 07.4	23° 07.5	23° 07.7	23° 07.9	23° 08.0	+0.2
Вт 12	270° 01.8	285° 01.7	300° 01.6	315° 01.4	330° 01.3	345° 01.2	0° 01.0	15° 00.9	30° 00.8	45° 00.6	60° 00.5	75° 00.4	-0.1
	23° 10.1	23° 10.2	23° 10.4	23° 10.5	23° 10.7	23° 10.8	23° 10.9	23° 11.1	23° 11.2	23° 11.4	23° 11.5	23° 11.7	+0.1
Ср 13	269° 58.7	284° 58.5	299° 58.4	314° 58.3	329° 58.1	344° 58.0	359° 57.9	14° 57.7	29° 57.6	44° 57.5	59° 57.3	74° 57.2	-0.1
	23° 13.5	23° 13.6	23° 13.8	23° 13.9	23° 14.0	23° 14.1	23° 14.3	23° 14.4	23° 14.5	23° 14.7	23° 14.8	23° 14.9	+0.1
Чт 14	269° 55.5	284° 55.4	299° 55.2	314° 55.1	329° 55.0	344° 54.8	359° 54.7	14° 54.5	29° 54.4	44° 54.3	59° 54.1	74° 54.0	-0.1
	23° 16.5	23° 16.6	23° 16.7	23° 16.9	23° 17.0	23° 17.1	23° 17.2	23° 17.3	23° 17.4	23° 17.5	23° 17.6	23° 17.8	+0.1
Пт 15	269° 52.3	284° 52.1	299° 52.0	314° 51.9	329° 51.7	344° 51.6	359° 51.5	14° 51.3	29° 51.2	44° 51.1	59° 50.9	74° 50.8	-0.1
	23° 19.1	23° 19.2	23° 19.3	23° 19.4	23° 19.5	23° 19.6	23° 19.7	23° 19.8	23° 19.9	23° 20.0	23° 20.1	23° 20.2	+0.1
Сб 16	269° 49.0	284° 48.9	299° 48.8	314° 48.6	329° 48.5	344° 48.3	359° 48.2	14° 48.1	29° 47.9	44° 47.8	59° 47.7	74° 47.5	-0.1
	23° 21.3	23° 21.4	23° 21.5	23° 21.6	23° 21.6	23° 21.7	23° 21.8	23° 21.9	23° 22.0	23° 22.0	23° 22.1	23° 22.2	+0.1
Вс 17	269° 45.8	284° 45.6	299° 45.5	314° 45.4	329° 45.2	344° 45.1	359° 44.9	14° 44.8	29° 44.7	44° 44.5	59° 44.4	74° 44.3	-0.1
	23° 23.1	23° 23.2	23° 23.2	23° 23.3	23° 23.4	23° 23.4	23° 23.5	23° 23.5	23° 23.6	23° 23.7	23° 23.7	23° 23.8	+0.1
Пн 18	269° 42.5	284° 42.4	299° 42.2	314° 42.1	329° 42.0	344° 41.8	359° 41.7	14° 41.5	29° 41.4	44° 41.3	59° 41.1	74° 41.0	-0.1
	23° 24.5	23° 24.5	23° 24.6	23° 24.6	23° 24.7	23° 24.7	23° 24.8	23° 24.8	23° 24.8	23° 24.9	23° 24.9	23° 25.0	+0.0
Вт 19	269° 39.2	284° 39.1	299° 39.0	314° 38.8	329° 38.7	344° 38.5	359° 38.4	14° 38.3	29° 38.1	44° 38.0	59° 37.9	74° 37.7	-0.1
	23° 25.4	23° 25.5	23° 25.5	23° 25.5	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.7	23° 25.7	23° 25.7	23° 25.7	+0.0
Ср 20	269° 36.0	284° 35.8	299° 35.7	314° 35.6	329° 35.4	344° 35.3	359° 35.1	14° 35.0	29° 34.9	44° 34.7	59° 34.6	74° 34.5	-0.1
	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	+0.0
Чт 21	269° 32.7	284° 32.6	299° 32.4	314° 32.3	329° 32.2	344° 32.0	359° 31.9	14° 31.8	29° 31.6	44° 31.5	59° 31.3	74° 31.2	-0.1
	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.0	-0.0
Пт 22	269° 29.5	284° 29.3	299° 29.2	314° 29.1	329° 28.9	344° 28.8	359° 28.6	14° 28.5	29° 28.4	44° 28.2	59° 28.1	74° 28.0	-0.1
	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.6	23° 25.6	23° 25.6	-0.0
Сб 23	269° 26.2	284° 26.1	299° 26.0	314° 25.8	329° 25.7	344° 25.6	359° 25.4	14° 25.3	29° 25.2	44° 25.0	59° 24.9	74° 24.8	-0.1
	23° 25.1	23° 25.1	23° 25.1	23° 25.0	23° 25.0	23° 25.0	23° 24.9	23° 24.9	23° 24.8	23° 24.8	23° 24.8	23° 24.7	-0.0
Вс 24	269° 23.0	284° 22.9	299° 22.8	314° 22.6	329° 22.5	344° 22.4	359° 22.2	14° 22.1	29° 22.0	44° 21.8	59° 21.7	74° 21.6	-0.1
	23° 24.0	23° 24.0	23° 23.9	23° 23.9	23° 23.8	23° 23.8	23° 23.7	23° 23.6	23° 23.6	23° 23.5	23° 23.5	23° 23.4	-0.1
Пн 25	269° 19.9	284° 19.7	299° 19.6	314° 19.5	329° 19.3	344° 19.2	359° 19.1	14° 18.9	29° 18.8	44° 18.7	59° 18.5	74° 18.4	-0.1
	23° 22.5	23° 22.5	23° 22.4	23° 22.3	23° 22.2	23° 22.2	23° 22.1	23° 22.0	23° 21.9	23° 21.9	23° 21.8	23° 21.7	-0.1
Вт 26	269° 16.7	284° 16.6	299° 16.5	314° 16.3	329° 16.2	344° 16.1	359° 15.9	14° 15.8	29° 15.7	44° 15.6	59° 15.4	74° 15.3	-0.1
	23° 20.6	23° 20.5	23° 20.4	23° 20.3	23° 20.2	23° 20.2	23° 20.1	23° 20.0	23° 19.9	23° 19.8	23° 19.7	23° 19.6	-0.1
Ср 27	269° 13.6	284° 13.5	299° 13.4	314° 13.2	329° 13.1	344° 13.0	359° 12.9	14° 12.7	29° 12.6	44° 12.5	59° 12.3	74° 12.2	-0.1
	23° 18.3	23° 18.2	23° 18.1	23° 18.0	23° 17.8	23° 17.7	23° 17.6	23° 17.5	23° 17.4	23° 17.3	23° 17.2	23° 17.1	-0.1
Чт 28	269° 10.6	284° 10.4	299° 10.3	314° 10.2	329° 10.1	344° 09.9	359° 09.8	14° 09.7	29° 09.6	44° 09.4	59° 09.3	74° 09.2	-0.1
	23° 15.5	23° 15.4	23° 15.3	23° 15.2	23° 15.0	23° 14.9	23° 14.8	23° 14.7	23° 14.5	23° 14.4	23° 14.3	23° 14.1	-0.1
Пт 29	269° 07.6	284° 07.4	299° 07.3	314° 07.2	329° 07.1	344° 06.9	359° 06.8	14° 06.7	29° 06.6	44° 06.4	59° 06.3	74° 06.2	-0.1
	23° 12.4	23° 12.2	23° 12.1	23° 12.0	23° 11.8	23° 11.7	23° 11.5	23° 11.4	23° 11.2	23° 11.1	23° 10.9	23° 10.8	-0.1
Сб 30	269° 04.6	284° 04.5	299° 04.4	314° 04.2	329° 04.1	344° 04.0	359° 03.9	14° 03.7	29° 03.6	44° 03.5	59° 03.4	74° 03.3	-0.1
	23° 08.8	23° 08.7	23° 08.5	23° 08.3	23° 08.2	23° 08.0	23° 07.9	23° 07.7	23° 07.5	23° 07.4	23° 07.2	23° 07.1	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июнь 2029

Д	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ°/h	R/p
Пт 1	232° 59.7 -12° 39.9	247° 31.7 -12° 28.5	262° 03.8 -12° 17.0	276° 36.0 -12° 05.4	291° 08.3 -11° 53.9	305° 40.7 -11° 42.2	320° 13.1 -11° 30.6	334° 45.7 -11° 18.9	349° 18.3 -11° 07.2	3° 51.0 -10° 55.4	18° 23.7 -10° 43.6	+32.4 +11.6	15.3 56.0
Сб 2	236° 43.1 -7° 43.1	251° 16.9 -7° 30.9	265° 50.8 -7° 18.6	280° 24.7 -7° 06.4	294° 58.6 -6° 54.1	309° 32.6 -6° 41.8	324° 06.7 -6° 29.5	338° 40.8 -6° 17.2	353° 15.0 -6° 04.9	7° 49.2 -5° 52.5	22° 23.4 -5° 40.2	+34.0 +12.3	15.1 55.3
Вс 3	241° 02.2 -2° 33.8	255° 37.1 -2° 21.4	270° 12.0 -2° 08.9	284° 46.9 -1° 56.5	299° 21.8 -1° 44.0	313° 56.8 -1° 31.6	328° 31.8 -1° 19.1	343° 06.8 -1° 06.7	357° 41.8 -0° 54.3	12° 16.9 -0° 41.8	26° 52.0 -0° 29.4	+35.0 +12.4	14.9 54.7
◑ Пн 4	245° 40.0 2° 35.9	260° 15.3 2° 48.2	274° 50.5 3° 00.4	289° 25.8 3° 12.6	304° 01.1 3° 24.8	318° 36.3 3° 37.0	333° 11.6 3° 49.2	347° 46.9 4° 01.3	2° 22.2 4° 13.4	16° 57.4 4° 25.6	31° 32.7 4° 37.6	+35.3 +12.2	14.8 54.3
Вт 5	260° 15.3 2° 48.2	274° 50.5 3° 00.4	289° 25.8 3° 12.6	304° 01.1 3° 24.8	318° 36.3 3° 37.0	333° 11.6 3° 49.2	347° 46.9 4° 01.3	2° 22.2 4° 13.4	16° 57.4 4° 25.6	31° 32.7 4° 37.6	46° 07.9 4° 49.7	+35.3 +12.2	14.8 54.3
Ср 6	264° 55.3 7° 47.7	279° 30.3 7° 59.3	294° 05.3 8° 10.9	308° 40.3 8° 22.5	323° 15.2 8° 34.0	337° 50.2 8° 45.6	352° 25.1 8° 57.0	7° 00.0 9° 08.5	21° 34.8 9° 19.9	36° 09.6 9° 31.2	50° 44.4 9° 42.6	+34.9 +11.5	14.8 54.1
Чт 7	269° 22.2 12° 27.6	283° 56.4 12° 38.3	298° 30.6 12° 48.9	313° 04.7 12° 59.4	327° 38.8 13° 09.9	342° 12.9 13° 20.4	356° 46.9 13° 30.8	11° 20.8 13° 41.1	25° 54.7 13° 51.4	40° 28.6 14° 01.6	55° 02.4 14° 11.8	+34.0 +10.4	14.7 54.1
Пт 8	273° 23.2 16° 37.6	287° 56.1 16° 46.8	302° 29.0 16° 56.0	317° 01.8 17° 05.1	331° 34.6 17° 14.1	346° 07.3 17° 23.0	0° 40.0 17° 31.9	15° 12.6 17° 40.7	29° 45.1 17° 49.4	44° 17.6 17° 58.1	58° 50.0 18° 06.7	+32.7 +8.9	14.8 54.2
Сб 9	276° 48.5 20° 06.1	291° 19.9 20° 13.4	305° 51.2 20° 20.6	320° 22.5 20° 27.7	334° 53.7 20° 34.8	349° 24.8 20° 41.7	3° 55.9 20° 48.6	18° 26.9 20° 55.3	32° 57.8 21° 02.0	47° 28.7 21° 08.6	61° 59.5 21° 15.1	+31.1 +6.9	14.9 54.5
Вс 10	279° 34.0 22° 40.4	294° 03.8 22° 45.3	308° 33.6 22° 50.0	323° 03.2 22° 54.7	337° 32.9 22° 59.2	352° 02.4 23° 03.6	6° 32.0 23° 08.0	21° 01.4 23° 12.2	35° 30.8 23° 16.3	50° 00.2 23° 20.2	64° 29.4 23° 24.1	+29.5 +4.4	15.0 54.9
Пн 11	281° 42.7 24° 08.0	296° 11.2 24° 09.9	310° 39.7 24° 11.8	325° 08.1 24° 13.5	339° 36.5 24° 15.1	354° 04.9 24° 16.5	8° 33.2 24° 17.8	23° 01.5 24° 19.1	37° 29.7 24° 20.1	51° 57.9 24° 21.1	66° 26.1 24° 21.9	+28.3 +1.4	15.1 55.3
● Вт 12	283° 25.7 24° 18.7	297° 53.5 24° 17.4	312° 21.3 24° 16.0	326° 49.1 24° 14.5	341° 16.9 24° 12.9	355° 44.6 24° 11.1	10° 12.4 24° 09.1	24° 40.2 24° 07.1	39° 07.9 24° 04.9	53° 35.6 24° 02.6	68° 03.4 24° 00.1	+27.8 -1.9	15.2 55.8
Ср 13	284° 59.8 23° 07.5	299° 27.6 23° 03.0	313° 55.5 22° 58.3	328° 23.3 22° 53.5	342° 51.2 22° 48.6	357° 19.1 22° 43.5	11° 47.0 22° 38.3	26° 15.0 22° 33.0	40° 42.9 22° 27.5	55° 10.9 22° 22.0	69° 38.9 22° 16.3	+27.9 -5.1	15.4 56.3
Чт 14	286° 42.1 20° 36.1	301° 10.6 20° 28.4	315° 39.1 20° 20.7	330° 07.6 20° 12.8	344° 36.2 20° 04.9	359° 04.8 19° 56.8	13° 33.4 19° 48.6	28° 02.0 19° 40.2	42° 30.8 19° 31.8	56° 59.5 19° 23.3	71° 28.3 19° 14.6	+28.6 -8.1	15.5 56.8
Пт 15	288° 44.4 16° 52.4	303° 13.8 16° 42.2	317° 43.3 16° 31.8	332° 12.7 16° 21.3	346° 42.2 16° 10.8	1° 11.8 16° 00.1	15° 41.3 15° 49.4	30° 10.9 15° 38.6	44° 40.6 15° 27.6	59° 10.3 15° 16.6	73° 40.0 15° 05.5	+29.6 -10.7	15.6 57.4
Сб 16	291° 10.0 12° 09.5	305° 40.3 11° 57.2	320° 10.6 11° 44.8	334° 40.9 11° 32.3	349° 11.2 11° 19.8	3° 41.6 11° 07.2	18° 12.0 10° 54.5	32° 42.4 10° 41.8	47° 12.9 10° 29.0	61° 43.4 10° 16.1	76° 13.9 10° 03.2	+30.4 -12.6	15.8 57.9
Вс 17	293° 53.7 6° 43.1	308° 24.5 6° 29.4	322° 55.3 6° 15.6	337° 26.1 6° 01.8	351° 56.9 5° 48.0	6° 27.7 5° 34.1	20° 58.5 5° 20.2	35° 29.3 5° 06.2	50° 00.1 4° 52.3	64° 31.0 4° 38.2	79° 01.8 4° 24.2	+30.8 -13.9	15.9 58.3
Пн 18	296° 43.9 0° 50.5	311° 14.7 0° 36.1	325° 45.4 0° 21.7	340° 16.1 0° 07.3	354° 46.8 -0° 07.2	9° 17.4 -0° 21.6	23° 48.1 -0° 36.0	38° 18.7 -0° 50.5	52° 49.3 -1° 04.9	67° 19.9 -1° 19.3	81° 50.5 -1° 33.8	+30.7 -14.4	16.0 58.8
◐ Вт 19	299° 25.3 -5° 09.7	313° 55.4 -5° 24.0	328° 25.4 -5° 38.3	342° 55.3 -5° 52.5	357° 25.2 -6° 06.8	11° 55.1 -6° 21.0	26° 24.9 -6° 35.1	40° 54.7 -6° 49.3	55° 24.4 -7° 03.4	69° 54.1 -7° 17.4	84° 23.7 -7° 31.5	+29.8 -14.2	16.1 59.2
Ср 20	301° 41.3 -10° 57.2	316° 10.0 -11° 10.6	330° 38.6 -11° 23.8	345° 07.2 -11° 37.0	359° 35.7 -11° 50.2	14° 04.1 -12° 03.3	28° 32.5 -12° 16.3	43° 00.7 -12° 29.2	57° 29.0 -12° 42.1	71° 57.1 -12° 54.9	86° 25.2 -13° 07.7	+28.4 -13.1	16.2 59.5
Чт 21	303° 17.3 -16° 09.4	317° 44.2 -16° 20.8	332° 11.0 -16° 32.2	346° 37.7 -16° 43.4	1° 04.3 -16° 54.5	15° 30.9 -17° 05.5	29° 57.3 -17° 16.4	44° 23.7 -17° 27.2	58° 50.0 -17° 37.9	73° 16.3 -17° 48.5	87° 42.4 -17° 59.0	+26.5 -11.0	16.3 59.7
Пт 22	304° 05.5 -20° 22.1	318° 30.4 -20° 30.7	332° 55.3 -20° 39.1	347° 20.1 -20° 47.3	1° 44.8 -20° 55.5	16° 09.5 -21° 03.4	30° 34.1 -21° 11.3	44° 58.6 -21° 19.0	59° 23.1 -21° 26.6	73° 47.5 -21° 34.0	88° 11.8 -21° 41.3	+24.6 -7.9	16.3 59.7
Сб 23	304° 10.2 -23° 12.3	318° 33.7 -23° 17.1	332° 57.2 -23° 21.8	347° 20.6 -23° 26.2	1° 44.0 -23° 30.6	16° 07.4 -23° 34.7	30° 30.8 -23° 38.7	44° 54.1 -23° 42.6	59° 17.4 -23° 46.3	73° 40.6 -23° 49.8	88° 03.9 -23° 53.1	+23.4 -4.1	16.3 59.6
Вс 24	303° 51.3 -24° 23.0	318° 14.5 -24° 23.7	332° 37.6 -24° 24.1	347° 00.8 -24° 24.4	1° 24.1 -24° 24.6	15° 47.3 -24° 24.5	30° 10.6 -24° 24.3	44° 33.9 -24° 24.0	58° 57.2 -24° 23.4	73° 20.5 -24° 22.7	87° 43.9 -24° 21.8	+23.3 +0.1	16.2 59.3
Пн 25	303° 39.8 -23° 49.2	318° 03.9 -23° 45.7	332° 28.2 -23° 42.1	346° 52.5 -23° 38.3	1° 16.8 -23° 34.4	15° 41.2 -23° 30.3	30° 05.7 -23° 26.1	44° 30.3 -23° 21.8	58° 54.9 -23° 17.3	73° 19.7 -23° 12.6	87° 44.5 -23° 07.8	+24.5 +4.1	16.0 58.7
○ Вт 26	304° 06.4 -21° 39.1	318° 32.6 -21° 32.1	332° 58.9 -21° 25.0	347° 25.3 -21° 17.8	1° 51.7 -21° 10.5	16° 18.3 -21° 03.0	30° 45.0 -20° 55.5	45° 11.7 -20° 47.8	59° 38.6 -20° 40.0	74° 05.5 -20° 32.1	88° 32.6 -20° 24.0	+26.6 +7.5	15.8 58.1
Ср 27	305° 30.5 -18° 11.3	319° 59.1 -18° 01.7	334° 27.9 -17° 52.0	348° 56.7 -17° 42.2	3° 25.7 -17° 32.3	17° 54.7 -17° 22.4	32° 23.9 -17° 12.4	46° 53.2 -17° 02.3	61° 22.5 -16° 52.1	75° 52.0 -16° 41.8	90° 21.5 -16° 31.5	+29.1 +10.0	15.6 57.3
Чт 28	307° 56.1 -13° 48.4	322° 27.1 -13° 37.0	336° 58.2 -13° 25.6	351° 29.4 -13° 14.2	6° 00.7 -13° 02.7	20° 32.1 -12° 51.1	35° 03.5 -12° 39.5	49° 35.1 -12° 27.9	64° 06.7 -12° 16.2	78° 38.4 -12° 04.4	93° 10.2 -11° 52.7	+31.4 +11.6	15.4 56.5
Пт 29	322° 27.1 -13° 37.0	336° 58.2 -13° 25.6	351° 29.4 -13° 14.2	6° 00.7 -13° 02.7	20° 32.1 -12° 51.1	35° 03.5 -12° 39.5	49° 35.1 -12° 27.9	64° 06.7 -12° 16.2	78° 38.4 -12° 04.4	93° 10.2 -11° 52.7	107° 42.1 -11° 40.8	+31.5 +11.6	15.4 56.5
Сб 30	325° 49.0 -8° 39.3	340° 22.0 -8° 27.0	354° 55.0 -8° 14.7	9° 28.2 -8° 02.3	24° 01.4 -7° 49.9	38° 34.6 -7° 37.5	53° 08.0 -7° 25.0	67° 41.3 -7° 12.6	82° 14.8 -7° 00.1	96° 48.3 -6° 47.6	111° 21.8 -6° 35.1	+33.3 +12.4	15.2 55.8

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 4 01h18 — Новолуние: 12 03h50 — Первая четв.: 19 09h54 — Полнолуние: 26 03h22

СОЛНЦЕ

Июль 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 01.7	284° 01.6	299° 01.5	314° 01.3	329° 01.2	344° 01.1	359° 01.0	14° 00.9	29° 00.7	44° 00.6	59° 00.5	74° 00.4	-0.1
	23° 04.9	23° 04.7	23° 04.5	23° 04.3	23° 04.2	23° 04.0	23° 03.8	23° 03.6	23° 03.4	23° 03.3	23° 03.1	23° 02.9	-0.2
Пн 2	268° 58.9	283° 58.7	298° 58.6	313° 58.5	328° 58.4	343° 58.3	358° 58.2	13° 58.0	28° 57.9	43° 57.8	58° 57.7	73° 57.6	-0.1
	23° 00.5	23° 00.3	23° 00.1	22° 59.9	22° 59.7	22° 59.5	22° 59.3	22° 59.1	22° 58.9	22° 58.7	22° 58.6	22° 58.4	-0.2
Вт 3	268° 56.1	283° 56.0	298° 55.9	313° 55.8	328° 55.6	343° 55.5	358° 55.4	13° 55.3	28° 55.2	43° 55.1	58° 55.0	73° 54.8	-0.1
	22° 55.7	22° 55.5	22° 55.3	22° 55.1	22° 54.9	22° 54.7	22° 54.5	22° 54.3	22° 54.0	22° 53.8	22° 53.6	22° 53.4	-0.2
Ср 4	268° 53.4	283° 53.3	298° 53.2	313° 53.1	328° 53.0	343° 52.8	358° 52.7	13° 52.6	28° 52.5	43° 52.4	58° 52.3	73° 52.2	-0.1
	22° 50.5	22° 50.3	22° 50.1	22° 49.9	22° 49.6	22° 49.4	22° 49.2	22° 49.0	22° 48.7	22° 48.5	22° 48.3	22° 48.0	-0.2
Чт 5	268° 50.8	283° 50.7	298° 50.6	313° 50.5	328° 50.3	343° 50.2	358° 50.1	13° 50.0	28° 49.9	43° 49.8	58° 49.7	73° 49.6	-0.1
	22° 45.0	22° 44.7	22° 44.5	22° 44.3	22° 44.0	22° 43.8	22° 43.5	22° 43.3	22° 43.0	22° 42.8	22° 42.5	22° 42.3	-0.2
Пт 6	268° 48.2	283° 48.1	298° 48.0	313° 47.9	328° 47.8	343° 47.7	358° 47.6	13° 47.5	28° 47.4	43° 47.3	58° 47.2	73° 47.1	-0.1
	22° 39.0	22° 38.8	22° 38.5	22° 38.2	22° 38.0	22° 37.7	22° 37.5	22° 37.2	22° 36.9	22° 36.7	22° 36.4	22° 36.1	-0.3
Сб 7	268° 45.8	283° 45.7	298° 45.6	313° 45.5	328° 45.4	343° 45.3	358° 45.2	13° 45.1	28° 45.0	43° 44.9	58° 44.8	73° 44.7	-0.1
	22° 32.7	22° 32.4	22° 32.1	22° 31.8	22° 31.6	22° 31.3	22° 31.0	22° 30.7	22° 30.4	22° 30.2	22° 29.9	22° 29.6	-0.3
Вс 8	268° 43.4	283° 43.3	298° 43.2	313° 43.1	328° 43.0	343° 42.9	358° 42.8	13° 42.8	28° 42.7	43° 42.6	58° 42.5	73° 42.4	-0.1
	22° 25.9	22° 25.6	22° 25.3	22° 25.0	22° 24.7	22° 24.5	22° 24.2	22° 23.9	22° 23.6	22° 23.3	22° 23.0	22° 22.7	-0.3
Пн 9	268° 41.2	283° 41.1	298° 41.0	313° 40.9	328° 40.8	343° 40.7	358° 40.6	13° 40.5	28° 40.4	43° 40.3	58° 40.2	73° 40.2	-0.1
	22° 18.8	22° 18.5	22° 18.2	22° 17.8	22° 17.5	22° 17.2	22° 16.9	22° 16.6	22° 16.3	22° 16.0	22° 15.7	22° 15.4	-0.3
Вт 10	268° 39.0	283° 38.9	298° 38.8	313° 38.7	328° 38.7	343° 38.6	358° 38.5	13° 38.4	28° 38.3	43° 38.2	58° 38.1	73° 38.0	-0.1
	22° 11.2	22° 10.9	22° 10.6	22° 10.3	22° 10.0	22° 09.6	22° 09.3	22° 09.0	22° 08.7	22° 08.3	22° 08.0	22° 07.7	-0.3
Ср 11	268° 36.9	283° 36.9	298° 36.8	313° 36.7	328° 36.6	343° 36.5	358° 36.5	13° 36.4	28° 36.3	43° 36.2	58° 36.1	73° 36.0	-0.1
	22° 03.3	22° 03.0	22° 02.7	22° 02.3	22° 02.0	22° 01.6	22° 01.3	22° 01.0	22° 00.6	22° 00.3	21° 59.9	21° 59.6	-0.3
Чт 12	268° 35.0	283° 34.9	298° 34.9	313° 34.8	328° 34.7	343° 34.6	358° 34.5	13° 34.5	28° 34.4	43° 34.3	58° 34.2	73° 34.2	-0.1
	21° 55.1	21° 54.7	21° 54.3	21° 54.0	21° 53.6	21° 53.3	21° 52.9	21° 52.6	21° 52.2	21° 51.9	21° 51.5	21° 51.1	-0.4
Пт 13	268° 33.2	283° 33.1	298° 33.0	313° 33.0	328° 32.9	343° 32.8	358° 32.8	13° 32.7	28° 32.6	43° 32.5	58° 32.5	73° 32.4	-0.1
	21° 46.4	21° 46.0	21° 45.7	21° 45.3	21° 44.9	21° 44.5	21° 44.2	21° 43.8	21° 43.4	21° 43.1	21° 42.7	21° 42.3	-0.4
Сб 14	268° 31.5	283° 31.4	298° 31.4	313° 31.3	328° 31.2	343° 31.2	358° 31.1	13° 31.0	28° 30.9	43° 30.9	58° 30.8	73° 30.8	-0.1
	21° 37.4	21° 37.0	21° 36.6	21° 36.2	21° 35.8	21° 35.4	21° 35.1	21° 34.7	21° 34.3	21° 33.9	21° 33.5	21° 33.1	-0.4
Вс 15	268° 29.9	283° 29.9	298° 29.8	313° 29.7	328° 29.7	343° 29.6	358° 29.5	13° 29.5	28° 29.4	43° 29.4	58° 29.3	73° 29.2	-0.1
	21° 28.0	21° 27.6	21° 27.2	21° 26.8	21° 26.4	21° 26.0	21° 25.6	21° 25.2	21° 24.8	21° 24.4	21° 23.9	21° 23.5	-0.4
Пн 16	268° 28.5	283° 28.4	298° 28.4	313° 28.3	328° 28.2	343° 28.2	358° 28.1	13° 28.1	28° 28.0	43° 28.0	58° 27.9	73° 27.9	-0.1
	21° 18.2	21° 17.8	21° 17.4	21° 17.0	21° 16.5	21° 16.1	21° 15.7	21° 15.3	21° 14.9	21° 14.5	21° 14.0	21° 13.6	-0.4
Вт 17	268° 27.2	283° 27.1	298° 27.1	313° 27.0	328° 27.0	343° 26.9	358° 26.9	13° 26.8	28° 26.8	43° 26.7	58° 26.7	73° 26.6	-0.1
	21° 08.1	21° 07.7	21° 07.2	21° 06.8	21° 06.4	21° 05.9	21° 05.5	21° 05.1	21° 04.6	21° 04.2	21° 03.8	21° 03.3	-0.4
Ср 18	268° 26.0	283° 26.0	298° 25.9	313° 25.9	328° 25.8	343° 25.8	358° 25.7	13° 25.7	28° 25.6	43° 25.6	58° 25.6	73° 25.5	-0.0
	20° 57.6	20° 57.2	20° 56.7	20° 56.3	20° 55.8	20° 55.4	20° 54.9	20° 54.5	20° 54.0	20° 53.6	20° 53.1	20° 52.7	-0.4
Чт 19	268° 25.0	283° 24.9	298° 24.9	313° 24.9	328° 24.8	343° 24.8	358° 24.7	13° 24.7	28° 24.7	43° 24.6	58° 24.6	73° 24.5	-0.0
	20° 46.8	20° 46.3	20° 45.9	20° 45.4	20° 44.9	20° 44.5	20° 44.0	20° 43.5	20° 43.1	20° 42.6	20° 42.2	20° 41.7	-0.5
Пт 20	268° 24.1	283° 24.1	298° 24.0	313° 24.0	328° 24.0	343° 23.9	358° 23.9	13° 23.9	28° 23.8	43° 23.8	58° 23.8	73° 23.7	-0.0
	20° 35.6	20° 35.1	20° 34.6	20° 34.2	20° 33.7	20° 33.2	20° 32.7	20° 32.3	20° 31.8	20° 31.3	20° 30.8	20° 30.4	-0.5
Сб 21	268° 23.3	283° 23.3	298° 23.3	313° 23.3	328° 23.2	343° 23.2	358° 23.2	13° 23.2	28° 23.1	43° 23.1	58° 23.1	73° 23.1	-0.0
	20° 24.1	20° 23.6	20° 23.1	20° 22.6	20° 22.1	20° 21.6	20° 21.1	20° 20.6	20° 20.1	20° 19.7	20° 19.2	20° 18.7	-0.5
Вс 22	268° 22.8	283° 22.7	298° 22.7	313° 22.7	328° 22.7	343° 22.6	358° 22.6	13° 22.6	28° 22.6	43° 22.6	58° 22.6	73° 22.5	-0.0
	20° 12.2	20° 11.7	20° 11.2	20° 10.7	20° 10.2	20° 09.7	20° 09.2	20° 08.7	20° 08.2	20° 07.7	20° 07.2	20° 06.6	-0.5
Пн 23	268° 22.3	283° 22.3	298° 22.3	313° 22.3	328° 22.2	343° 22.2	358° 22.2	13° 22.2	28° 22.2	43° 22.2	58° 22.2	73° 22.2	-0.0
	20° 00.0	19° 59.5	19° 59.0	19° 58.4	19° 57.9	19° 57.4	19° 56.9	19° 56.4	19° 55.9	19° 55.3	19° 54.8	19° 54.3	-0.5
Вт 24	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 22.0	343° 22.0	358° 22.0	13° 22.0	28° 21.9	43° 21.9	58° 21.9	73° 21.9	-0.0
	19° 47.5	19° 46.9	19° 46.4	19° 45.9	19° 45.3	19° 44.8	19° 44.3	19° 43.7	19° 43.2	19° 42.7	19° 42.1	19° 41.6	-0.5
Ср 25	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.9	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.8	-0.0
	19° 34.6	19° 34.1	19° 33.5	19° 33.0	19° 32.4	19° 31.9	19° 31.3	19° 30.8	19° 30.2	19° 29.7	19° 29.1	19° 28.6	-0.5
Чт 26	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.9	358° 21.9	13° 21.9	28° 21.9	43° 21.9	58° 21.9	73° 21.9	+0.0
	19° 21.4	19° 20.9	19° 20.3	19° 19.7	19° 19.2	19° 18.6	19° 18.1	19° 17.5	19° 16.9	19° 16.4	19° 15.8	19° 15.3	-0.6
Пт 27	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 22.1	343° 22.1	358° 22.1	13° 22.1	28° 22.1	43° 22.1	58° 22.1	73° 22.1	+0.0
	19° 07.9	19° 07.3	19° 06.8	19° 06.2	19° 05.6	19° 05.1	19° 04.5	19° 03.9	19° 03.3	19° 02.8	19° 02.2	19° 01.6	-0.6
Сб 28	268° 22.3	283° 22.3	298° 22.3	313° 22.4	328° 22.4	343° 22.4	358° 22.4	13° 22.4	28° 22.4	43° 22.5	58° 22.5	73° 22.5	+0.0
	18° 54.1	18° 53.5	18° 52.9	18° 52.3	18° 51.7	18° 51.2	18° 50.6	18° 50.0	18° 49.4	18° 48.8	18° 48.2	18° 47.6	-0.6
Вс 29	268° 22.8	283° 22.8	298° 22.8	313° 22.8	328° 22.8	343° 22.9	358° 22.9	13° 22.9	28° 22.9	43° 23.0	58° 23.0	73° 23.0	+0.0
	18° 39.9	18° 39.3	18° 38.8	18° 38.2	18° 37.6	18° 37.0	18° 36.4	18° 35.8	18° 35.2	18° 34.6	18° 34.0	18° 33.4	-0.6
Пн 30	268° 23.4	283° 23.4	298° 23.4	313° 23.4	328° 23.5	343° 23.5	358° 23.5	13° 23.6	28° 23.6	43° 23.6	58° 23.6	73° 23.7	+0.0
	18° 25.5	18° 24.9	18° 24.3	18° 23.7	18° 23.1	18° 22.5	18° 21.8	18° 21.2	18° 20.6	18° 20.0	18° 19.4	18° 18.8	-0.6
Вт 31	268° 24.1	283° 24.1	298° 24.2	313° 24.2	328° 24.2	343° 24.3	358° 24.3	13° 24.3	28° 24.4	43° 24.4	58° 24.5	73° 24.5	+0.0
	18° 10.8	18° 10.1	18° 09.5	18° 08.9	18° 08.3	18° 07.6	18° 07.0	18° 06.4	18° 05.8	18° 05.1	18° 04.5	18° 03.9	-0.6

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2029

Д	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ'/h	R/p
Вс 1	232° 13.2 0° 20.7	246° 48.0 0° 33.3	261° 22.8 0° 45.8	275° 57.7 0° 58.3	290° 32.5 1° 10.8	305° 07.4 1° 23.3	319° 42.3 1° 35.8	334° 17.2 1° 48.3	348° 52.1 2° 00.7	3° 27.1 2° 13.1	18° 02.0 2° 25.6	+34.9 +12.5	14.9 54.8
Пн 2	236° 46.9 5° 29.3	251° 21.9 5° 41.4	265° 56.9 5° 53.4	280° 31.8 6° 05.4	295° 06.8 6° 17.4	309° 41.8 6° 29.3	324° 16.7 6° 41.2	338° 51.6 6° 53.1	353° 26.6 7° 05.0	8° 01.5 7° 16.8	22° 36.4 7° 28.6	+35.0 +11.9	14.8 54.4
◑ Вт 3	241° 17.7 10° 21.1	255° 52.2 10° 32.3	270° 26.8 10° 43.4	285° 01.3 10° 54.5	299° 35.8 11° 05.6	314° 10.2 11° 16.6	328° 44.6 11° 27.6	343° 19.0 11° 38.5	357° 53.3 11° 49.4	12° 27.6 12° 00.2	27° 01.9 12° 11.0	+34.4 +11.0	14.8 54.2
Ср 4	245° 31.3 14° 46.5	260° 04.9 14° 56.4	274° 38.4 15° 06.3	289° 11.9 15° 16.1	303° 45.4 15° 25.8	318° 18.8 15° 35.5	332° 52.2 15° 45.1	347° 25.5 15° 54.7	1° 58.7 16° 04.2	16° 31.9 16° 13.6	31° 05.1 16° 23.0	+33.4 +9.7	14.8 54.2
Чт 5	260° 04.9 14° 56.4	274° 38.4 15° 06.3	289° 11.9 15° 16.1	303° 45.4 15° 25.8	318° 18.8 15° 35.5	332° 52.2 15° 45.1	347° 25.5 15° 54.7	1° 58.7 16° 04.2	16° 31.9 16° 13.6	31° 05.1 16° 23.0	45° 38.2 16° 32.3	+33.3 +9.6	14.8 54.2
Пт 6	263° 47.8 18° 43.4	278° 20.0 18° 51.6	292° 52.1 18° 59.7	307° 24.2 19° 07.7	321° 56.1 19° 15.6	336° 28.1 19° 23.4	350° 59.9 19° 31.2	5° 31.7 19° 38.8	20° 03.4 19° 46.4	34° 35.1 19° 53.9	49° 06.7 20° 01.3	+31.9 +7.8	14.8 54.4
Сб 7	266° 53.0 21° 41.9	281° 23.6 21° 47.8	295° 54.1 21° 53.7	310° 24.5 21° 59.4	324° 54.9 22° 05.1	339° 25.2 22° 10.6	353° 55.4 22° 16.1	8° 25.6 22° 21.4	22° 55.7 22° 26.7	37° 25.8 22° 31.8	51° 55.8 22° 36.9	+30.3 +5.5	14.9 54.7
Вс 8	269° 18.3 23° 39.4	283° 47.3 23° 42.7	298° 16.3 23° 45.8	312° 45.2 23° 48.8	327° 14.1 23° 51.7	341° 42.9 23° 54.5	356° 11.7 23° 57.2	10° 40.4 23° 59.7	25° 09.1 24° 02.2	39° 37.7 24° 04.5	54° 06.2 24° 06.7	+28.8 +2.7	15.1 55.2
Пн 9	271° 09.4 24° 24.4	285° 37.3 24° 24.5	300° 05.1 24° 24.6	314° 33.0 24° 24.4	329° 00.8 24° 24.2	343° 28.5 24° 23.8	357° 56.3 24° 23.3	12° 24.0 24° 22.7	26° 51.7 24° 21.9	41° 19.4 24° 21.0	55° 47.0 24° 20.0	+27.8 -0.4	15.2 55.8
Вт 10	272° 39.6 23° 48.4	287° 07.0 23° 45.2	301° 34.4 23° 41.9	316° 01.8 23° 38.4	330° 29.2 23° 34.8	344° 56.6 23° 31.1	359° 24.0 23° 27.3	13° 51.5 23° 23.3	28° 18.9 23° 19.1	42° 46.3 23° 14.9	57° 13.7 23° 10.5	+27.4 -3.8	15.4 56.4
● Ср 11	274° 06.4 21° 48.8	288° 34.0 21° 42.3	303° 01.7 21° 35.7	317° 29.4 21° 29.0	331° 57.1 21° 22.1	346° 24.8 21° 15.1	0° 52.6 21° 08.0	15° 20.4 21° 00.8	29° 48.2 20° 53.4	44° 16.0 20° 45.9	58° 43.9 20° 38.3	+27.7 -7.0	15.6 57.0
Чт 12	275° 45.7 18° 30.2	290° 14.0 18° 20.7	304° 42.5 18° 11.2	319° 10.9 18° 01.5	333° 39.4 17° 51.7	348° 08.0 17° 41.9	2° 36.5 17° 31.9	17° 05.1 17° 21.8	31° 33.8 17° 11.6	46° 02.5 17° 01.3	60° 31.2 16° 50.9	+28.6 -9.9	15.7 57.6
Пт 13	277° 46.4 14° 03.8	292° 15.7 13° 52.0	306° 45.1 13° 40.1	321° 14.5 13° 28.0	335° 43.9 13° 16.0	350° 13.3 13° 03.8	4° 42.8 12° 51.6	19° 12.3 12° 39.2	33° 41.9 12° 26.8	48° 11.5 12° 14.4	62° 41.1 12° 01.8	+29.5 -12.2	15.9 58.1
Сб 14	280° 09.0 8° 45.9	294° 39.1 8° 32.4	309° 09.2 8° 18.8	323° 39.3 8° 05.2	338° 09.4 7° 51.5	352° 39.6 7° 37.8	7° 09.8 7° 24.1	21° 40.0 7° 10.2	36° 10.2 6° 56.4	50° 40.4 6° 42.5	65° 10.7 6° 28.5	+30.2 -13.7	16.0 58.6
Вс 15	282° 46.1 2° 55.5	297° 16.5 2° 41.1	311° 46.9 2° 26.6	326° 17.3 2° 12.2	340° 47.7 1° 57.7	355° 18.2 1° 43.3	9° 48.6 1° 28.8	24° 19.0 1° 14.3	38° 49.4 0° 59.8	53° 19.8 0° 45.2	67° 50.2 0° 30.7	+30.4 -14.5	16.1 58.9
Пн 16	285° 25.1 -3° 07.3	299° 55.3 -3° 21.7	314° 25.4 -3° 36.2	328° 55.6 -3° 50.6	343° 25.7 -4° 05.0	357° 55.8 -4° 19.4	12° 25.9 -4° 33.8	26° 55.9 -4° 48.2	41° 25.9 -5° 02.5	55° 55.9 -5° 16.8	70° 25.9 -5° 31.1	+30.1 -14.4	16.1 59.1
Вт 17	287° 51.0 -9° 01.3	302° 20.4 -9° 15.0	316° 49.7 -9° 28.6	331° 19.0 -9° 42.2	345° 48.2 -9° 55.7	0° 17.4 -10° 09.2	14° 46.5 -10° 22.6	29° 15.5 -10° 36.0	43° 44.6 -10° 49.3	58° 13.5 -11° 02.5	72° 42.4 -11° 15.7	+29.1 -13.4	16.1 59.2
◐ Ср 18	289° 49.5 -14° 25.2	304° 17.5 -14° 37.2	318° 45.4 -14° 49.2	333° 13.3 -15° 01.0	347° 41.1 -15° 12.8	2° 08.8 -15° 24.4	16° 36.5 -15° 36.0	31° 04.1 -15° 47.5	45° 31.7 -15° 58.9	59° 59.2 -16° 10.2	74° 26.6 -16° 21.4	+27.7 -11.6	16.2 59.2
Чт 19	291° 10.0 -18° 57.1	305° 36.4 -19° 06.6	320° 02.7 -19° 15.9	334° 28.9 -19° 25.2	348° 55.1 -19° 34.3	3° 21.2 -19° 43.3	17° 47.3 -19° 52.2	32° 13.2 -20° 01.0	46° 39.2 -20° 09.6	61° 05.0 -20° 18.1	75° 30.8 -20° 26.5	+26.1 -8.9	16.1 59.2
Пт 20	291° 50.9 -22° 16.0	306° 15.8 -22° 22.2	320° 40.6 -22° 28.3	335° 05.5 -22° 34.1	349° 30.2 -22° 39.9	3° 55.0 -22° 45.5	18° 19.7 -22° 50.9	32° 44.3 -22° 56.2	47° 08.9 -23° 01.4	61° 33.5 -23° 06.4	75° 58.0 -23° 11.2	+24.7 -5.5	16.1 59.0
Сб 21	292° 02.6 -24° 05.2	306° 26.7 -24° 07.5	320° 50.8 -24° 09.7	335° 15.0 -24° 11.7	349° 39.1 -24° 13.5	4° 03.2 -24° 15.2	18° 27.3 -24° 16.8	32° 51.5 -24° 18.1	47° 15.6 -24° 19.4	61° 39.7 -24° 20.4	76° 03.8 -24° 21.3	+24.1 -1.6	16.0 58.8
Вс 22	292° 07.5 -24° 15.4	306° 31.9 -24° 13.8	320° 56.4 -24° 12.0	335° 20.9 -24° 10.0	349° 45.5 -24° 07.9	4° 10.1 -24° 05.6	18° 34.7 -24° 03.1	32° 59.4 -24° 00.5	47° 24.2 -23° 57.8	61° 48.9 -23° 54.9	76° 13.8 -23° 51.9	+24.6 +2.4	15.9 58.4
Пн 23	292° 33.0 -22° 48.6	306° 58.8 -22° 43.3	321° 24.7 -22° 37.8	335° 50.6 -22° 32.2	350° 16.6 -22° 26.5	4° 42.7 -22° 20.6	19° 08.9 -22° 14.6	33° 35.1 -22° 08.4	48° 01.4 -22° 02.2	62° 27.8 -21° 55.8	76° 54.3 -21° 49.2	+26.1 +5.9	15.8 57.9
Вт 24	293° 41.4 -19° 57.1	308° 09.2 -19° 48.7	322° 37.1 -19° 40.2	337° 05.1 -19° 31.7	351° 33.2 -19° 23.0	6° 01.4 -19° 14.2	20° 29.7 -19° 05.3	34° 58.0 -18° 56.4	49° 26.5 -18° 47.3	63° 55.0 -18° 38.1	78° 23.6 -18° 28.9	+28.2 +8.8	15.6 57.4
○ Ср 25	295° 43.5 -15° 59.7	310° 13.5 -15° 49.1	324° 43.6 -15° 38.5	339° 13.8 -15° 27.7	353° 44.1 -15° 17.0	8° 14.5 -15° 06.1	22° 44.9 -14° 55.2	37° 15.4 -14° 44.2	51° 46.1 -14° 33.2	66° 16.7 -14° 22.1	80° 47.5 -14° 10.9	+30.4 +10.9	15.5 56.8
Чт 26	298° 38.4 -11° 17.2	313° 10.4 -11° 05.3	327° 42.5 -10° 53.3	342° 14.6 -10° 41.2	356° 46.8 -10° 29.2	11° 19.1 -10° 17.1	25° 51.4 -10° 04.9	40° 23.8 -9° 52.7	54° 56.3 -9° 40.5	69° 28.8 -9° 28.3	84° 01.4 -9° 16.0	+32.3 +12.1	15.3 56.1
Пт 27	302° 17.2 -6° 09.1	316° 50.7 -5° 56.5	331° 24.2 -5° 43.8	345° 57.8 -5° 31.2	0° 31.4 -5° 18.5	15° 05.1 -5° 05.9	29° 38.8 -4° 53.2	44° 12.6 -4° 40.5	58° 46.4 -4° 27.8	73° 20.2 -4° 15.1	87° 54.1 -4° 02.4	+33.7 +12.7	15.1 55.5
Сб 28	306° 26.7 -0° 51.7	321° 01.1 -0° 39.0	335° 35.6 -0° 26.4	350° 10.1 -0° 13.7	4° 44.5 -0° 01.0	19° 19.1 0° 11.6	33° 53.6 0° 24.3	48° 28.1 0° 36.9	63° 02.7 0° 49.5	77° 37.3 1° 02.1	92° 11.9 1° 14.7	+34.5 +12.6	15.0 55.0
Вс 29	321° 01.1 -0° 39.0	335° 35.6 -0° 26.4	350° 10.1 -0° 13.7	4° 44.5 -0° 01.0	19° 19.1 0° 11.6	33° 53.6 0° 24.3	48° 28.1 0° 36.9	63° 02.7 0° 49.5	77° 37.3 1° 02.1	92° 11.9 1° 14.7	106° 46.5 1° 27.3	+34.5 +12.6	15.0 55.0
Пн 30	325° 27.3 4° 33.6	340° 02.1 4° 45.9	354° 36.8 4° 58.1	9° 11.6 5° 10.3	23° 46.4 5° 22.5	38° 21.1 5° 34.6	52° 55.9 5° 46.7	67° 30.7 5° 58.8	82° 05.4 6° 10.8	96° 40.2 6° 22.8	111° 14.9 6° 34.8	+34.8 +12.1	14.9 54.6
Вт 31	329° 54.8 9° 30.3	344° 29.3 9° 41.7	359° 03.8 9° 53.1	13° 38.3 10° 04.4	28° 12.8 10° 15.6	42° 47.2 10° 26.9	57° 21.6 10° 38.0	71° 56.0 10° 49.2	86° 30.4 11° 00.3	101° 04.7 11° 11.3	115° 39.1 11° 22.3	+34.4 +11.2	14.8 54.3

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24
Последняя четв.: 3 17h57 — Новолуние: 11 15h51 — Первая четв.: 18 14h14 — Полнолуние: 25 13h35

СОЛНЦЕ

Август 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	268° 25.0	283° 25.0	298° 25.1	313° 25.1	328° 25.2	343° 25.2	358° 25.2	13° 25.3	28° 25.3	43° 25.4	58° 25.4	73° 25.5	+0.0
	17° 55.7	17° 55.1	17° 54.4	17° 53.8	17° 53.2	17° 52.5	17° 51.9	17° 51.3	17° 50.6	17° 50.0	17° 49.4	17° 48.7	-0.6
Чт 2	268° 26.0	283° 26.1	298° 26.1	313° 26.2	328° 26.2	343° 26.3	358° 26.3	13° 26.4	28° 26.4	43° 26.5	58° 26.5	73° 26.6	+0.0
	17° 40.4	17° 39.7	17° 39.1	17° 38.4	17° 37.8	17° 37.1	17° 36.5	17° 35.8	17° 35.2	17° 34.5	17° 33.9	17° 33.2	-0.6
Пт 3	268° 27.2	283° 27.3	298° 27.3	313° 27.4	328° 27.4	343° 27.5	358° 27.5	13° 27.6	28° 27.6	43° 27.7	58° 27.8	73° 27.8	+0.1
	17° 24.7	17° 24.1	17° 23.4	17° 22.8	17° 22.1	17° 21.5	17° 20.8	17° 20.1	17° 19.5	17° 18.8	17° 18.1	17° 17.5	-0.7
Сб 4	268° 28.6	283° 28.6	298° 28.7	313° 28.7	328° 28.8	343° 28.9	358° 28.9	13° 29.0	28° 29.0	43° 29.1	58° 29.2	73° 29.2	+0.1
	17° 08.8	17° 08.2	17° 07.5	17° 06.8	17° 06.2	17° 05.5	17° 04.8	17° 04.1	17° 03.5	17° 02.8	17° 02.1	17° 01.4	-0.7
Вс 5	268° 30.0	283° 30.1	298° 30.2	313° 30.2	328° 30.3	343° 30.4	358° 30.4	13° 30.5	28° 30.6	43° 30.6	58° 30.7	73° 30.8	+0.1
	16° 52.6	16° 52.0	16° 51.3	16° 50.6	16° 49.9	16° 49.2	16° 48.6	16° 47.9	16° 47.2	16° 46.5	16° 45.8	16° 45.1	-0.7
Пн 6	268° 31.7	283° 31.7	298° 31.8	313° 31.9	328° 31.9	343° 32.0	358° 32.1	13° 32.2	28° 32.2	43° 32.3	58° 32.4	73° 32.5	+0.1
	16° 36.2	16° 35.5	16° 34.8	16° 34.1	16° 33.4	16° 32.7	16° 32.0	16° 31.3	16° 30.6	16° 29.9	16° 29.2	16° 28.5	-0.7
Вт 7	268° 33.4	283° 33.5	298° 33.6	313° 33.7	328° 33.7	343° 33.8	358° 33.9	13° 34.0	28° 34.1	43° 34.1	58° 34.2	73° 34.3	+0.1
	16° 19.4	16° 18.7	16° 18.0	16° 17.3	16° 16.6	16° 15.9	16° 15.2	16° 14.5	16° 13.8	16° 13.1	16° 12.4	16° 11.7	-0.7
Ср 8	268° 35.3	283° 35.4	298° 35.5	313° 35.6	328° 35.7	343° 35.8	358° 35.9	13° 35.9	28° 36.0	43° 36.1	58° 36.2	73° 36.3	+0.1
	16° 02.4	16° 01.7	16° 01.0	16° 00.3	15° 59.6	15° 58.9	15° 58.2	15° 57.4	15° 56.7	15° 56.0	15° 55.3	15° 54.6	-0.7
Чт 9	268° 37.4	283° 37.5	298° 37.6	313° 37.7	328° 37.8	343° 37.9	358° 37.9	13° 38.0	28° 38.1	43° 38.2	58° 38.3	73° 38.4	+0.1
	15° 45.2	15° 44.5	15° 43.7	15° 43.0	15° 42.3	15° 41.6	15° 40.8	15° 40.1	15° 39.4	15° 38.7	15° 37.9	15° 37.2	-0.7
Пт 10	268° 39.6	283° 39.7	298° 39.8	313° 39.9	328° 40.0	343° 40.1	358° 40.2	13° 40.3	28° 40.4	43° 40.5	58° 40.6	73° 40.7	+0.1
	15° 27.7	15° 27.0	15° 26.2	15° 25.5	15° 24.7	15° 24.0	15° 23.3	15° 22.5	15° 21.8	15° 21.1	15° 20.3	15° 19.6	-0.7
Сб 11	268° 42.0	283° 42.1	298° 42.2	313° 42.3	328° 42.4	343° 42.5	358° 42.6	13° 42.7	28° 42.8	43° 42.9	58° 43.0	73° 43.1	+0.1
	15° 09.9	15° 09.2	15° 08.4	15° 07.7	15° 07.0	15° 06.2	15° 05.5	15° 04.7	15° 04.0	15° 03.2	15° 02.5	15° 01.7	-0.7
Вс 12	268° 44.5	283° 44.6	298° 44.7	313° 44.8	328° 44.9	343° 45.0	358° 45.1	13° 45.2	28° 45.3	43° 45.4	58° 45.5	73° 45.6	+0.1
	14° 51.9	14° 51.2	14° 50.4	14° 49.7	14° 48.9	14° 48.2	14° 47.4	14° 46.6	14° 45.9	14° 45.1	14° 44.4	14° 43.6	-0.8
Пн 13	268° 47.1	283° 47.2	298° 47.3	313° 47.4	328° 47.5	343° 47.6	358° 47.8	13° 47.9	28° 48.0	43° 48.1	58° 48.2	73° 48.3	+0.1
	14° 33.7	14° 32.9	14° 32.2	14° 31.4	14° 30.7	14° 29.9	14° 29.1	14° 28.4	14° 27.6	14° 26.8	14° 26.0	14° 25.3	-0.8
Вт 14	268° 49.9	283° 50.0	298° 50.1	313° 50.2	328° 50.3	343° 50.4	358° 50.6	13° 50.7	28° 50.8	43° 50.9	58° 51.1	73° 51.2	+0.1
	14° 15.3	14° 14.5	14° 13.7	14° 12.9	14° 12.2	14° 11.4	14° 10.6	14° 09.8	14° 09.0	14° 08.3	14° 07.5	14° 06.7	-0.8
Ср 15	268° 52.8	283° 52.9	298° 53.0	313° 53.1	328° 53.3	343° 53.4	358° 53.5	13° 53.6	28° 53.8	43° 53.9	58° 54.0	73° 54.1	+0.1
	13° 56.6	13° 55.8	13° 55.0	13° 54.2	13° 53.4	13° 52.6	13° 51.9	13° 51.1	13° 50.3	13° 49.5	13° 48.7	13° 47.9	-0.8
Чт 16	268° 55.8	283° 55.9	298° 56.1	313° 56.2	328° 56.3	343° 56.5	358° 56.6	13° 56.7	28° 56.9	43° 57.0	58° 57.1	73° 57.3	+0.1
	13° 37.7	13° 36.9	13° 36.1	13° 35.3	13° 34.5	13° 33.7	13° 32.9	13° 32.1	13° 31.3	13° 30.5	13° 29.7	13° 28.9	-0.8
Пт 17	268° 59.0	283° 59.1	298° 59.3	313° 59.4	328° 59.5	343° 59.7	358° 59.8	13° 59.9	29° 00.1	44° 00.2	59° 00.4	74° 00.5	+0.1
	13° 18.5	13° 17.7	13° 16.9	13° 16.1	13° 15.3	13° 14.5	13° 13.7	13° 12.9	13° 12.1	13° 11.3	13° 10.5	13° 09.7	-0.8
Сб 18	269° 02.3	284° 02.4	299° 02.6	314° 02.7	329° 02.9	344° 03.0	359° 03.2	14° 03.3	29° 03.4	44° 03.6	59° 03.7	74° 03.9	+0.1
	12° 59.2	12° 58.4	12° 57.6	12° 56.8	12° 56.0	12° 55.2	12° 54.3	12° 53.5	12° 52.7	12° 51.9	12° 51.1	12° 50.3	-0.8
Вс 19	269° 05.8	284° 05.9	299° 06.0	314° 06.2	329° 06.3	344° 06.5	359° 06.6	14° 06.8	29° 06.9	44° 07.1	59° 07.2	74° 07.4	+0.1
	12° 39.7	12° 38.9	12° 38.0	12° 37.2	12° 36.4	12° 35.6	12° 34.8	12° 33.9	12° 33.1	12° 32.3	12° 31.5	12° 30.7	-0.8
Пн 20	269° 09.3	284° 09.5	299° 09.6	314° 09.8	329° 09.9	344° 10.1	359° 10.2	14° 10.4	29° 10.5	44° 10.7	59° 10.8	74° 11.0	+0.2
	12° 20.0	12° 19.1	12° 18.3	12° 17.5	12° 16.6	12° 15.8	12° 15.0	12° 14.2	12° 13.3	12° 12.5	12° 11.7	12° 10.8	-0.8
Вт 21	269° 13.0	284° 13.2	299° 13.3	314° 13.5	329° 13.6	344° 13.8	359° 13.9	14° 14.1	29° 14.3	44° 14.4	59° 14.6	74° 14.7	+0.2
	12° 00.0	11° 59.2	11° 58.4	11° 57.5	11° 56.7	11° 55.9	11° 55.0	11° 54.2	11° 53.3	11° 52.5	11° 51.7	11° 50.8	-0.8
Ср 22	269° 16.8	284° 17.0	299° 17.1	314° 17.3	329° 17.5	344° 17.6	359° 17.8	14° 17.9	29° 18.1	44° 18.3	59° 18.4	74° 18.6	+0.2
	11° 39.9	11° 39.1	11° 38.2	11° 37.4	11° 36.5	11° 35.7	11° 34.9	11° 34.0	11° 33.2	11° 32.3	11° 31.5	11° 30.6	-0.8
Чт 23	269° 20.7	284° 20.9	299° 21.1	314° 21.2	329° 21.4	344° 21.6	359° 21.7	14° 21.9	29° 22.1	44° 22.2	59° 22.4	74° 22.6	+0.2
	11° 19.6	11° 18.8	11° 17.9	11° 17.1	11° 16.2	11° 15.4	11° 14.5	11° 13.7	11° 12.8	11° 12.0	11° 11.1	11° 10.3	-0.9
Пт 24	269° 24.8	284° 24.9	299° 25.1	314° 25.3	329° 25.4	344° 25.6	359° 25.8	14° 26.0	29° 26.1	44° 26.3	59° 26.5	74° 26.6	+0.2
	10° 59.1	10° 58.3	10° 57.4	10° 56.6	10° 55.7	10° 54.9	10° 54.0	10° 53.1	10° 52.3	10° 51.4	10° 50.6	10° 49.7	-0.9
Сб 25	269° 28.9	284° 29.1	299° 29.2	314° 29.4	329° 29.6	344° 29.8	359° 29.9	14° 30.1	29° 30.3	44° 30.5	59° 30.6	74° 30.8	+0.2
	10° 38.5	10° 37.6	10° 36.8	10° 35.9	10° 35.0	10° 34.2	10° 33.3	10° 32.4	10° 31.6	10° 30.7	10° 29.8	10° 29.0	-0.9
Вс 26	269° 33.1	284° 33.3	299° 33.5	314° 33.7	329° 33.8	344° 34.0	359° 34.2	14° 34.4	29° 34.6	44° 34.7	59° 34.9	74° 35.1	+0.2
	10° 17.7	10° 16.8	10° 15.9	10° 15.1	10° 14.2	10° 13.3	10° 12.5	10° 11.6	10° 10.7	10° 09.8	10° 09.0	10° 08.1	-0.9
Пн 27	269° 37.5	284° 37.6	299° 37.8	314° 38.0	329° 38.2	344° 38.4	359° 38.6	14° 38.7	29° 38.9	44° 39.1	59° 39.3	74° 39.5	+0.2
	9° 56.7	9° 55.8	9° 54.9	9° 54.1	9° 53.2	9° 52.3	9° 51.4	9° 50.5	9° 49.7	9° 48.8	9° 47.9	9° 47.0	-0.9
Вт 28	269° 41.9	284° 42.1	299° 42.2	314° 42.4	329° 42.6	344° 42.8	359° 43.0	14° 43.2	29° 43.4	44° 43.6	59° 43.7	74° 43.9	+0.2
	9° 35.6	9° 34.7	9° 33.8	9° 32.9	9° 32.0	9° 31.1	9° 30.2	9° 29.4	9° 28.5	9° 27.6	9° 26.7	9° 25.8	-0.9
Ср 29	269° 46.4	284° 46.6	299° 46.8	314° 47.0	329° 47.1	344° 47.3	359° 47.5	14° 47.7	29° 47.9	44° 48.1	59° 48.3	74° 48.5	+0.2
	9° 14.3	9° 13.4	9° 12.5	9° 11.6	9° 10.7	9° 09.8	9° 08.9	9° 08.0	9° 07.1	9° 06.2	9° 05.3	9° 04.5	-0.9
Чт 30	269° 51.0	284° 51.2	299° 51.4	314° 51.5	329° 51.7	344° 51.9	359° 52.1	14° 52.3	29° 52.5	44° 52.7	59° 52.9	74° 53.1	+0.2
	8° 52.8	8° 51.9	8° 51.0	8° 50.1	8° 49.2	8° 48.3	8° 47.4	8° 46.5	8° 45.6	8° 44.7	8° 43.8	8° 42.9	-0.9
Пт 31	269° 55.6	284° 55.8	299° 56.0	314° 56.2	329° 56.4	344° 56.6	359° 56.8	14° 57.0	29° 57.2	44° 57.4	59° 57.6	74° 57.8	+0.2
	8° 31.2	8° 30.3	8° 29.4	8° 28.5	8° 27.6	8° 26.7	8° 25.8	8° 24.9	8° 24.0	8° 23.1	8° 22.2	8° 21.3	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2029

Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	R/p
Ср 1	236° 11.6	250° 44.5	265° 17.5	279° 50.3	294° 23.2	308° 55.9	323° 28.7	338° 01.3	352° 33.9	7° 06.5	21° 39.0	+32.7	14.8
	16° 54.2	17° 03.2	17° 12.1	17° 21.0	17° 29.7	17° 38.5	17° 47.1	17° 55.7	18° 04.2	18° 12.6	18° 20.9	+8.7	54.2
◑ Чт 2	239° 39.8	254° 11.4	268° 42.9	283° 14.4	297° 45.8	312° 17.2	326° 48.5	341° 19.7	355° 50.8	10° 22.0	24° 53.0	+31.3	14.8
	20° 16.5	20° 23.5	20° 30.5	20° 37.3	20° 44.1	20° 50.8	20° 57.4	21° 03.9	21° 10.3	21° 16.6	21° 22.8	+6.6	54.4
Пт 3	242° 31.5	257° 01.6	271° 31.6	286° 01.6	300° 31.5	315° 01.3	329° 31.1	344° 00.9	358° 30.5	13° 00.2	27° 29.7	+29.8	14.9
	22° 44.3	22° 48.9	22° 53.5	22° 57.9	23° 02.2	23° 06.4	23° 10.4	23° 14.4	23° 18.3	23° 22.0	23° 25.7	+4.1	54.8
Сб 4	257° 01.6	271° 31.6	286° 01.6	300° 31.5	315° 01.3	329° 31.1	344° 00.9	358° 30.5	13° 00.2	27° 29.7	41° 59.2	+29.8	15.0
	22° 48.9	22° 53.5	22° 57.9	23° 02.2	23° 06.4	23° 10.4	23° 14.4	23° 18.3	23° 22.0	23° 25.7	23° 29.2	+4.0	54.8
Вс 5	259° 15.5	273° 44.2	288° 12.9	302° 41.5	317° 10.0	331° 38.5	346° 07.0	0° 35.4	15° 03.8	29° 32.1	44° 00.4	+28.5	15.1
	24° 08.3	24° 09.9	24° 11.5	24° 12.9	24° 14.2	24° 15.3	24° 16.3	24° 17.3	24° 18.0	24° 18.7	24° 19.2	+1.1	55.4
Пн 6	261° 00.8	275° 28.6	289° 56.3	304° 24.1	318° 51.8	333° 19.5	347° 47.2	2° 14.8	16° 42.5	31° 10.1	45° 37.7	+27.7	15.3
	24° 11.7	24° 10.2	24° 08.5	24° 06.7	24° 04.7	24° 02.7	24° 00.5	23° 58.1	23° 55.6	23° 53.0	23° 50.3	-2.1	56.1
Вт 7	262° 30.6	276° 58.1	291° 25.6	305° 53.1	320° 20.6	334° 48.1	349° 15.6	3° 43.1	18° 10.6	32° 38.1	47° 05.7	+27.5	15.5
	22° 53.1	22° 48.2	22° 43.2	22° 38.0	22° 32.8	22° 27.4	22° 21.8	22° 16.1	22° 10.3	22° 04.4	21° 58.3	-5.5	56.8
Ср 8	264° 00.2	278° 28.0	292° 55.7	307° 23.5	321° 51.4	336° 19.2	350° 47.1	5° 15.0	19° 42.9	34° 10.9	48° 38.8	+27.9	15.7
	20° 12.0	20° 03.9	19° 55.7	19° 47.3	19° 38.9	19° 30.3	19° 21.6	19° 12.8	19° 03.9	18° 54.8	18° 45.6	-8.6	57.6
Чт 9	265° 41.5	280° 09.9	294° 38.4	309° 06.8	323° 35.3	338° 03.8	352° 32.3	7° 00.9	21° 29.5	35° 58.1	50° 26.8	+28.5	15.9
	16° 14.9	16° 04.0	15° 53.0	15° 41.9	15° 30.7	15° 19.4	15° 08.0	14° 56.5	14° 44.9	14° 33.2	14° 21.5	-11.3	58.4
● Пт 10	267° 39.8	282° 08.9	296° 38.0	311° 07.1	325° 36.2	340° 05.4	354° 34.6	9° 03.8	23° 33.0	38° 02.3	52° 31.5	+29.2	16.1
	11° 14.8	11° 01.7	10° 48.6	10° 35.4	10° 22.1	10° 08.8	9° 55.3	9° 41.9	9° 28.3	9° 14.7	9° 01.1	-13.4	59.0
Сб 11	269° 52.5	284° 22.0	298° 51.5	313° 21.0	327° 50.6	342° 20.1	356° 49.6	11° 19.2	25° 48.7	40° 18.3	54° 47.8	+29.5	16.2
	5° 30.0	5° 15.5	5° 01.1	4° 46.6	4° 32.1	4° 17.5	4° 02.9	3° 48.3	3° 33.6	3° 19.0	3° 04.3	-14.6	59.4
Вс 12	272° 11.0	286° 40.5	301° 10.0	315° 39.4	330° 08.9	344° 38.3	359° 07.7	13° 37.2	28° 06.6	42° 35.9	57° 05.3	+29.4	16.3
	-0° 38.0	-0° 52.8	-1° 07.7	-1° 22.6	-1° 37.4	-1° 52.3	-2° 07.1	-2° 21.9	-2° 36.8	-2° 51.6	-3° 06.4	-14.8	59.7
Пн 13	274° 23.0	288° 51.9	303° 20.9	317° 49.7	332° 18.6	346° 47.4	1° 16.2	15° 45.0	30° 13.7	44° 42.4	59° 11.0	+28.8	16.3
	-6° 45.5	-6° 59.8	-7° 14.1	-7° 28.4	-7° 42.6	-7° 56.8	-8° 10.9	-8° 25.0	-8° 39.1	-8° 53.0	-9° 07.0	-14.2	59.8
Вт 14	276° 15.6	290° 43.6	305° 11.5	319° 39.3	334° 07.1	348° 34.9	3° 02.6	17° 30.2	31° 57.8	46° 25.4	60° 52.9	+27.7	16.3
	-12° 28.5	-12° 41.4	-12° 54.2	-13° 06.9	-13° 19.6	-13° 32.1	-13° 44.6	-13° 57.0	-14° 09.3	-14° 21.5	-14° 33.6	-12.5	59.7
Ср 15	277° 39.1	292° 05.7	306° 32.3	320° 58.8	335° 25.3	349° 51.8	4° 18.2	18° 44.5	33° 10.8	47° 37.0	62° 03.2	+26.4	16.2
	-17° 23.8	-17° 34.3	-17° 44.7	-17° 55.0	-18° 05.1	-18° 15.2	-18° 25.1	-18° 34.9	-18° 44.6	-18° 54.2	-19° 03.6	-10.0	59.4
◐ Чт 16	278° 30.0	292° 55.4	307° 20.8	321° 46.2	336° 11.5	350° 36.7	5° 02.0	19° 27.2	33° 52.3	48° 17.4	62° 42.5	+25.2	16.1
	-21° 10.0	-21° 17.4	-21° 24.6	-21° 31.7	-21° 38.6	-21° 45.4	-21° 52.1	-21° 58.6	-22° 04.9	-22° 11.2	-22° 17.2	-6.7	59.0
Пт 17	278° 55.5	293° 20.2	307° 44.9	322° 09.6	336° 34.3	350° 58.9	5° 23.6	19° 48.2	34° 12.9	48° 37.5	63° 02.2	+24.7	16.0
	-23° 30.5	-23° 34.2	-23° 37.7	-23° 41.0	-23° 44.3	-23° 47.3	-23° 50.2	-23° 52.9	-23° 55.5	-23° 58.0	-24° 00.2	-3.0	58.6
Сб 18	279° 12.9	293° 37.7	308° 02.6	322° 27.5	336° 52.4	351° 17.4	5° 42.4	20° 07.4	34° 32.4	48° 57.5	63° 22.7	+25.0	15.9
	-24° 15.7	-24° 15.5	-24° 15.1	-24° 14.6	-24° 13.9	-24° 13.1	-24° 12.1	-24° 11.0	-24° 09.7	-24° 08.3	-24° 06.7	+0.9	58.1
Вс 19	279° 45.1	294° 11.0	308° 37.0	323° 03.0	337° 29.1	351° 55.2	6° 21.5	20° 47.8	35° 14.1	49° 40.5	64° 07.0	+26.2	15.7
	-23° 25.4	-23° 21.5	-23° 17.4	-23° 13.2	-23° 08.9	-23° 04.5	-22° 59.9	-22° 55.2	-22° 50.3	-22° 45.4	-22° 40.2	+4.5	57.6
Пн 20	280° 52.8	295° 20.5	309° 48.2	324° 16.0	338° 43.9	353° 11.9	7° 39.9	22° 08.1	36° 36.3	51° 04.6	65° 32.9	+28.0	15.6
	-21° 08.5	-21° 01.4	-20° 54.2	-20° 47.0	-20° 39.5	-20° 32.0	-20° 24.4	-20° 16.7	-20° 08.8	-20° 00.9	-19° 52.9	+7.6	57.1
Вт 21	282° 48.1	297° 17.7	311° 47.5	326° 17.3	340° 47.2	355° 17.2	9° 47.2	24° 17.3	38° 47.5	53° 17.8	67° 48.2	+30.0	15.4
	-17° 40.6	-17° 31.1	-17° 21.5	-17° 11.8	-17° 02.0	-16° 52.1	-16° 42.2	-16° 32.2	-16° 22.1	-16° 11.9	-16° 01.7	+9.9	56.6
Ср 22	285° 32.6	300° 04.1	314° 35.7	329° 07.4	343° 39.1	358° 10.9	12° 42.8	27° 14.8	41° 46.8	56° 18.8	70° 51.0	+31.8	15.3
	-13° 20.1	-13° 08.9	-12° 57.6	-12° 46.2	-12° 34.8	-12° 23.4	-12° 11.9	-12° 00.3	-11° 48.7	-11° 37.1	-11° 25.4	+11.5	56.1
Чт 23	289° 00.1	303° 33.2	318° 06.3	332° 39.4	347° 12.6	1° 45.9	16° 19.2	30° 52.5	45° 25.9	59° 59.4	74° 32.9	+33.3	15.2
	-8° 25.5	-8° 13.3	-8° 01.0	-7° 48.7	-7° 36.3	-7° 24.0	-7° 11.6	-6° 59.2	-6° 46.8	-6° 34.4	-6° 21.9	+12.4	55.6
○ Пт 24	292° 59.9	307° 34.0	322° 08.1	336° 42.2	351° 16.4	5° 50.6	20° 24.8	34° 59.1	49° 33.4	64° 07.7	78° 42.0	+34.2	15.0
	-3° 13.5	-3° 00.9	-2° 48.3	-2° 35.6	-2° 23.0	-2° 10.4	-1° 57.7	-1° 45.1	-1° 32.5	-1° 19.8	-1° 07.2	+12.6	55.1
Сб 25	297° 19.2	311° 53.8	326° 28.4	341° 03.0	355° 37.7	10° 12.3	24° 46.9	39° 21.6	53° 56.2	68° 30.8	83° 05.5	+34.6	14.9
	2° 01.2	2° 13.6	2° 26.1	2° 38.5	2° 50.9	3° 03.3	3° 15.7	3° 28.0	3° 40.3	3° 52.6	4° 04.9	+12.4	54.7
Вс 26	301° 45.1	316° 19.7	330° 54.2	345° 28.8	0° 03.4	14° 37.9	29° 12.5	43° 47.0	58° 21.5	72° 56.0	87° 30.4	+34.5	14.8
	7° 05.9	7° 17.7	7° 29.5	7° 41.2	7° 52.9	8° 04.6	8° 16.2	8° 27.8	8° 39.4	8° 50.9	9° 02.4	+11.7	54.4
Пн 27	306° 05.1	320° 39.2	335° 13.3	349° 47.3	4° 21.4	18° 55.4	33° 29.3	48° 03.3	62° 37.2	77° 11.0	91° 44.9	+34.0	14.8
	11° 49.3	12° 00.0	12° 10.7	12° 21.4	12° 32.0	12° 42.5	12° 53.0	13° 03.4	13° 13.8	13° 24.1	13° 34.3	+10.5	54.2
Вт 28	320° 39.2	335° 13.3	349° 47.3	4° 21.4	18° 55.4	33° 29.3	48° 03.3	62° 37.2	77° 11.0	91° 44.9	106° 18.7	+34.0	14.8
	12° 00.0	12° 10.7	12° 21.4	12° 32.0	12° 42.5	12° 53.0	13° 03.4	13° 13.8	13° 24.1	13° 34.3	13° 44.5	+10.5	54.1
Ср 29	324° 41.4	339° 14.5	353° 47.7	8° 20.8	22° 53.9	37° 26.9	51° 59.9	66° 32.8	81° 05.7	95° 38.5	110° 11.3	+33.0	14.7
	16° 10.2	16° 19.4	16° 28.5	16° 37.6	16° 46.6	16° 55.5	17° 04.3	17° 13.1	17° 21.8	17° 30.4	17° 39.0	+8.9	54.1
Чт 30	328° 17.4	342° 49.4	357° 21.4	11° 53.3	26° 25.2	40° 57.0	55° 28.7	70° 00.4	84° 32.1	99° 03.7	113° 35.2	+31.8	14.8
	19° 38.0	19° 45.2	19° 52.4	19° 59.5	20° 06.6	20° 13.5	20° 20.4	20° 27.1	20° 33.8	20° 40.4	20° 46.9	+6.9	54.2
Пт 31	331° 22.1	345° 52.8	0° 23.5	14° 54.1	29° 24.6	43° 55.1	58° 25.6	72° 56.0	87° 26.3	101° 56.6	116° 26.9	+30.5	14.8
	22° 13.0	22° 18.0	22° 22.9	22° 27.6	22° 32.3	22° 36.9	22° 41.3	22° 45.7	22° 49.9	22° 54.0	22° 58.1	+4.5	54.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 2 11h15 — Новолуние: 10 01h55 — Первая четв.: 16 18h55 — Полнолуние: 24 01h51

СОЛНЦЕ

Сентябрь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	270° 00.4 8° 09.5	285° 00.6 8° 08.6	300° 00.8 8° 07.7	315° 01.0 8° 06.8	330° 01.2 8° 05.9	345° 01.4 8° 05.0	0° 01.6 8° 04.1	15° 01.8 8° 03.1	30° 02.0 8° 02.2	45° 02.2 8° 01.3	60° 02.4 8° 00.4	75° 02.6 7° 59.5	+0.2 -0.9
Вс 2	270° 05.2 7° 47.6	285° 05.4 7° 46.7	300° 05.6 7° 45.8	315° 05.8 7° 44.9	330° 06.0 7° 44.0	345° 06.2 7° 43.1	0° 06.4 7° 42.2	15° 06.6 7° 41.2	30° 06.8 7° 40.3	45° 07.0 7° 39.4	60° 07.2 7° 38.5	75° 07.4 7° 37.6	+0.2 -0.9
Пн 3	270° 10.1 7° 25.7	285° 10.3 7° 24.7	300° 10.5 7° 23.8	315° 10.7 7° 22.9	330° 10.9 7° 22.0	345° 11.1 7° 21.1	0° 11.3 7° 20.1	15° 11.5 7° 19.2	30° 11.7 7° 18.3	45° 11.9 7° 17.4	60° 12.1 7° 16.5	75° 12.3 7° 15.5	+0.2 -0.9
Вт 4	270° 15.0 7° 03.5	285° 15.2 7° 02.6	300° 15.4 7° 01.7	315° 15.6 7° 00.8	330° 15.8 6° 59.9	345° 16.0 6° 58.9	0° 16.2 6° 58.0	15° 16.4 6° 57.1	30° 16.7 6° 56.2	45° 16.9 6° 55.2	60° 17.1 6° 54.3	75° 17.3 6° 53.4	+0.2 -0.9
Ср 5	270° 20.0 6° 41.3	285° 20.2 6° 40.4	300° 20.4 6° 39.5	315° 20.6 6° 38.5	330° 20.8 6° 37.6	345° 21.0 6° 36.7	0° 21.2 6° 35.8	15° 21.5 6° 34.8	30° 21.7 6° 33.9	45° 21.9 6° 33.0	60° 22.1 6° 32.0	75° 22.3 6° 31.1	+0.2 -0.9
Чт 6	270° 25.0 6° 19.0	285° 25.2 6° 18.1	300° 25.4 6° 17.1	315° 25.7 6° 16.2	330° 25.9 6° 15.3	345° 26.1 6° 14.3	0° 26.3 6° 13.4	15° 26.5 6° 12.5	30° 26.7 6° 11.5	45° 26.9 6° 10.6	60° 27.1 6° 09.7	75° 27.4 6° 08.7	+0.2 -0.9
Пт 7	270° 30.1 5° 56.5	285° 30.3 5° 55.6	300° 30.5 5° 54.7	315° 30.8 5° 53.7	330° 31.0 5° 52.8	345° 31.2 5° 51.9	0° 31.4 5° 50.9	15° 31.6 5° 50.0	30° 31.8 5° 49.0	45° 32.0 5° 48.1	60° 32.3 5° 47.2	75° 32.5 5° 46.2	+0.2 -0.9
Сб 8	270° 35.3 5° 34.0	285° 35.5 5° 33.1	300° 35.7 5° 32.1	315° 35.9 5° 31.2	330° 36.1 5° 30.2	345° 36.3 5° 29.3	0° 36.5 5° 28.4	15° 36.8 5° 27.4	30° 37.0 5° 26.5	45° 37.2 5° 25.5	60° 37.4 5° 24.6	75° 37.6 5° 23.7	+0.2 -0.9
Вс 9	270° 40.4 5° 11.4	285° 40.7 5° 10.4	300° 40.9 5° 09.5	315° 41.1 5° 08.5	330° 41.3 5° 07.6	345° 41.5 5° 06.7	0° 41.7 5° 05.7	15° 42.0 5° 04.8	30° 42.2 5° 03.8	45° 42.4 5° 02.9	60° 42.6 5° 01.9	75° 42.8 5° 01.0	+0.2 -0.9
Пн 10	270° 45.6 4° 48.7	285° 45.9 4° 47.7	300° 46.1 4° 46.8	315° 46.3 4° 45.8	330° 46.5 4° 44.9	345° 46.7 4° 43.9	0° 47.0 4° 43.0	15° 47.2 4° 42.0	30° 47.4 4° 41.1	45° 47.6 4° 40.1	60° 47.8 4° 39.2	75° 48.1 4° 38.2	+0.2 -0.9
Вт 11	270° 50.9 4° 25.9	285° 51.1 4° 24.9	300° 51.3 4° 24.0	315° 51.6 4° 23.0	330° 51.8 4° 22.1	345° 52.0 4° 21.1	0° 52.2 4° 20.2	15° 52.4 4° 19.2	30° 52.7 4° 18.2	45° 52.9 4° 17.3	60° 53.1 4° 16.3	75° 53.3 4° 15.4	+0.2 -1.0
Ср 12	270° 56.2 4° 03.0	285° 56.4 4° 02.0	300° 56.6 4° 01.1	315° 56.8 4° 00.1	330° 57.1 3° 59.2	345° 57.3 3° 58.2	0° 57.5 3° 57.3	15° 57.7 3° 56.3	30° 57.9 3° 55.3	45° 58.2 3° 54.4	60° 58.4 3° 53.4	75° 58.6 3° 52.5	+0.2 -1.0
Чт 13	271° 01.5 3° 40.0	286° 01.7 3° 39.1	301° 01.9 3° 38.1	316° 02.2 3° 37.2	331° 02.4 3° 36.2	346° 02.6 3° 35.3	1° 02.8 3° 34.3	16° 03.0 3° 33.3	31° 03.3 3° 32.4	46° 03.5 3° 31.4	61° 03.7 3° 30.5	76° 03.9 3° 29.5	+0.2 -1.0
Пт 14	271° 06.8 3° 17.0	286° 07.0 3° 16.1	301° 07.3 3° 15.1	316° 07.5 3° 14.2	331° 07.7 3° 13.2	346° 07.9 3° 12.2	1° 08.2 3° 11.3	16° 08.4 3° 10.3	31° 08.6 3° 09.4	46° 08.8 3° 08.4	61° 09.0 3° 07.4	76° 09.3 3° 06.5	+0.2 -1.0
Сб 15	271° 12.2 2° 54.0	286° 12.4 2° 53.0	301° 12.6 2° 52.0	316° 12.8 2° 51.1	331° 13.1 2° 50.1	346° 13.3 2° 49.2	1° 13.5 2° 48.2	16° 13.7 2° 47.2	31° 13.9 2° 46.3	46° 14.2 2° 45.3	61° 14.4 2° 44.3	76° 14.6 2° 43.4	+0.2 -1.0
Вс 16	271° 17.5 2° 30.8	286° 17.7 2° 29.9	301° 18.0 2° 28.9	316° 18.2 2° 28.0	331° 18.4 2° 27.0	346° 18.6 2° 26.0	1° 18.9 2° 25.1	16° 19.1 2° 24.1	31° 19.3 2° 23.1	46° 19.5 2° 22.2	61° 19.8 2° 21.2	76° 20.0 2° 20.2	+0.2 -1.0
Пн 17	271° 22.9 2° 07.7	286° 23.1 2° 06.7	301° 23.3 2° 05.8	316° 23.6 2° 04.8	331° 23.8 2° 03.8	346° 24.0 2° 02.9	1° 24.2 2° 01.9	16° 24.5 2° 00.9	31° 24.7 2° 00.0	46° 24.9 1° 59.0	61° 25.1 1° 58.0	76° 25.3 1° 57.1	+0.2 -1.0
Вт 18	271° 28.3 1° 44.5	286° 28.5 1° 43.5	301° 28.7 1° 42.5	316° 28.9 1° 41.6	331° 29.1 1° 40.6	346° 29.4 1° 39.6	1° 29.6 1° 38.7	16° 29.8 1° 37.7	31° 30.0 1° 36.7	46° 30.3 1° 35.8	61° 30.5 1° 34.8	76° 30.7 1° 33.8	+0.2 -1.0
Ср 19	271° 33.6 1° 21.2	286° 33.8 1° 20.3	301° 34.1 1° 19.3	316° 34.3 1° 18.3	331° 34.5 1° 17.4	346° 34.7 1° 16.4	1° 35.0 1° 15.4	16° 35.2 1° 14.4	31° 35.4 1° 13.5	46° 35.6 1° 12.5	61° 35.9 1° 11.5	76° 36.1 1° 10.6	+0.2 -1.0
Чт 20	271° 39.0 0° 58.0	286° 39.2 0° 57.0	301° 39.4 0° 56.0	316° 39.6 0° 55.0	331° 39.9 0° 54.1	346° 40.1 0° 53.1	1° 40.3 0° 52.1	16° 40.5 0° 51.2	31° 40.8 0° 50.2	46° 41.0 0° 49.2	61° 41.2 0° 48.2	76° 41.4 0° 47.3	+0.2 -1.0
Пт 21	271° 44.3 0° 34.6	286° 44.5 0° 33.7	301° 44.8 0° 32.7	316° 45.0 0° 31.7	331° 45.2 0° 30.8	346° 45.4 0° 29.8	1° 45.6 0° 28.8	16° 45.9 0° 27.8	31° 46.1 0° 26.9	46° 46.3 0° 25.9	61° 46.5 0° 24.9	76° 46.8 0° 24.0	+0.2 -1.0
Сб 22	271° 49.6 0° 11.3	286° 49.9 0° 10.4	301° 50.1 0° 09.4	316° 50.3 0° 08.4	331° 50.5 0° 07.4	346° 50.7 0° 06.5	1° 51.0 0° 05.5	16° 51.2 0° 04.5	31° 51.4 0° 03.5	46° 51.6 0° 02.6	61° 51.8 0° 01.6	76° 52.1 0° 00.6	+0.2 -1.0
Вс 23	271° 54.9 -0° 12.0	286° 55.1 -0° 13.0	301° 55.4 -0° 14.0	316° 55.6 -0° 14.9	331° 55.8 -0° 15.9	346° 56.0 -0° 16.9	1° 56.2 -0° 17.9	16° 56.5 -0° 18.8	31° 56.7 -0° 19.8	46° 56.9 -0° 20.8	61° 57.1 -0° 21.7	76° 57.3 -0° 22.7	+0.2 -1.0
Пн 24	272° 00.2 -0° 35.4	287° 00.4 -0° 36.3	302° 00.6 -0° 37.3	317° 00.8 -0° 38.3	332° 01.1 -0° 39.3	347° 01.3 -0° 40.2	2° 01.5 -0° 41.2	17° 01.7 -0° 42.2	32° 01.9 -0° 43.2	47° 02.1 -0° 44.1	62° 02.4 -0° 45.1	77° 02.6 -0° 46.1	+0.2 -1.0
Вт 25	272° 05.4 -0° 58.7	287° 05.6 -0° 59.7	302° 05.8 -1° 00.7	317° 06.0 -1° 01.6	332° 06.3 -1° 02.6	347° 06.5 -1° 03.6	2° 06.7 -1° 04.6	17° 06.9 -1° 05.5	32° 07.1 -1° 06.5	47° 07.3 -1° 07.5	62° 07.6 -1° 08.5	77° 07.8 -1° 09.4	+0.2 -1.0
Ср 26	272° 10.6 -1° 22.1	287° 10.8 -1° 23.1	302° 11.0 -1° 24.0	317° 11.2 -1° 25.0	332° 11.4 -1° 26.0	347° 11.6 -1° 26.9	2° 11.9 -1° 27.9	17° 12.1 -1° 28.9	32° 12.3 -1° 29.9	47° 12.5 -1° 30.8	62° 12.7 -1° 31.8	77° 12.9 -1° 32.8	+0.2 -1.0
Чт 27	272° 15.7 -1° 45.4	287° 15.9 -1° 46.4	302° 16.1 -1° 47.4	317° 16.3 -1° 48.3	332° 16.5 -1° 49.3	347° 16.8 -1° 50.3	2° 17.0 -1° 51.3	17° 17.2 -1° 52.2	32° 17.4 -1° 53.2	47° 17.6 -1° 54.2	62° 17.8 -1° 55.2	77° 18.0 -1° 56.1	+0.2 -1.0
Пт 28	272° 20.8 -2° 08.8	287° 21.0 -2° 09.7	302° 21.2 -2° 10.7	317° 21.4 -2° 11.7	332° 21.6 -2° 12.7	347° 21.8 -2° 13.6	2° 22.0 -2° 14.6	17° 22.2 -2° 15.6	32° 22.4 -2° 16.5	47° 22.7 -2° 17.5	62° 22.9 -2° 18.5	77° 23.1 -2° 19.5	+0.2 -1.0
Сб 29	272° 25.8 -2° 32.1	287° 26.0 -2° 33.1	302° 26.2 -2° 34.0	317° 26.4 -2° 35.0	332° 26.6 -2° 36.0	347° 26.8 -2° 37.0	2° 27.0 -2° 37.9	17° 27.2 -2° 38.9	32° 27.4 -2° 39.9	47° 27.6 -2° 40.8	62° 27.8 -2° 41.8	77° 28.0 -2° 42.8	+0.2 -1.0
Вс 30	272° 30.7 -2° 55.4	287° 30.9 -2° 56.4	302° 31.1 -2° 57.3	317° 31.3 -2° 58.3	332° 31.5 -2° 59.3	347° 31.7 -3° 00.2	2° 31.9 -3° 01.2	17° 32.1 -3° 02.2	32° 32.3 -3° 03.2	47° 32.5 -3° 04.1	62° 32.8 -3° 05.1	77° 33.0 -3° 06.1	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2029

	Д	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ°/h	R/p
◑	Сб 1	234° 39.6 24° 08.2	249° 08.4 24° 08.3	263° 37.1 24° 08.3	278° 05.9 24° 08.2	292° 34.6 24° 07.9	307° 03.3 24° 07.6	321° 31.9 24° 07.1	336° 00.5 24° 06.4	350° 29.1 24° 05.7	4° 57.7 24° 04.8	19° 26.2 24° 03.8	+28.7 -0.4	15.1 55.3
	Вс 2	236° 31.6 23° 33.6	250° 59.8 23° 30.6	265° 28.0 23° 27.4	279° 56.2 23° 24.1	294° 24.4 23° 20.7	308° 52.5 23° 17.1	323° 20.7 23° 13.5	337° 48.8 23° 09.7	352° 17.0 23° 05.7	6° 45.1 23° 01.7	21° 13.2 22° 57.5	+28.2 -3.6	15.3 56.1
	Пн 3	250° 59.8 23° 30.6	265° 28.0 23° 27.4	279° 56.2 23° 24.1	294° 24.4 23° 20.7	308° 52.5 23° 17.1	323° 20.7 23° 13.5	337° 48.8 23° 09.7	352° 17.0 23° 05.7	6° 45.1 23° 01.7	21° 13.2 22° 57.5	35° 41.3 22° 53.1	+28.2 -3.7	15.3 56.1
	Вт 4	252° 42.7 21° 33.0	267° 10.8 21° 26.7	281° 39.0 21° 20.2	296° 07.1 21° 13.6	310° 35.2 21° 06.9	325° 03.3 21° 00.0	339° 31.4 20° 53.0	353° 59.6 20° 45.9	8° 27.7 20° 38.7	22° 55.9 20° 31.4	37° 24.0 20° 23.9	+28.1 -6.9	15.5 57.0
	Ср 5	254° 27.8 18° 17.5	268° 56.2 18° 08.2	283° 24.5 17° 58.7	297° 52.9 17° 49.1	312° 21.3 17° 39.5	326° 49.7 17° 29.7	341° 18.2 17° 19.7	355° 46.6 17° 09.7	10° 15.1 16° 59.6	24° 43.6 16° 49.4	39° 12.0 16° 39.0	+28.4 -9.9	15.8 57.9
	Чт 6	256° 21.3 13° 51.7	270° 50.0 13° 39.8	285° 18.7 13° 27.8	299° 47.5 13° 15.7	314° 16.3 13° 03.5	328° 45.1 12° 51.2	343° 13.9 12° 38.8	357° 42.7 12° 26.4	12° 11.5 12° 13.8	26° 40.4 12° 01.2	41° 09.2 11° 48.5	+28.8 -12.3	16.0 58.8
	Пт 7	258° 23.1 8° 28.9	272° 52.1 8° 15.1	287° 21.1 8° 01.2	301° 50.1 7° 47.2	316° 19.1 7° 33.2	330° 48.1 7° 19.1	345° 17.1 7° 05.0	359° 46.1 6° 50.8	14° 15.1 6° 36.5	28° 44.1 6° 22.3	43° 13.1 6° 07.9	+29.0 -14.1	16.2 59.6
●	Сб 8	260° 27.5 2° 27.9	274° 56.4 2° 13.0	289° 25.2 1° 58.1	303° 54.1 1° 43.1	318° 23.0 1° 28.1	332° 51.8 1° 13.1	347° 20.6 0° 58.1	1° 49.4 0° 43.1	16° 18.2 0° 28.0	30° 47.0 0° 12.9	45° 15.7 -0° 02.1	+28.8 -15.0	16.4 60.2
	Вс 9	262° 24.2 -3° 48.1	276° 52.6 -4° 03.1	291° 20.9 -4° 18.1	305° 49.2 -4° 33.0	320° 17.4 -4° 48.0	334° 45.6 -5° 02.9	349° 13.8 -5° 17.7	3° 42.0 -5° 32.6	18° 10.1 -5° 47.4	32° 38.1 -6° 02.2	47° 06.2 -6° 16.9	+28.2 -14.9	16.5 60.5
	Пн 10	264° 01.8 -9° 52.9	278° 29.2 -10° 06.8	292° 56.5 -10° 20.7	307° 23.7 -10° 34.6	321° 50.9 -10° 48.3	336° 18.1 -11° 02.0	350° 45.2 -11° 15.7	5° 12.3 -11° 29.2	19° 39.3 -11° 42.7	34° 06.3 -11° 56.1	48° 33.2 -12° 09.4	+27.1 -13.7	16.5 60.6
	Вт 11	265° 10.7 -15° 18.9	279° 36.8 -15° 30.7	294° 02.9 -15° 42.5	308° 28.9 -15° 54.1	322° 54.8 -16° 05.7	337° 20.7 -16° 17.1	351° 46.5 -16° 28.4	6° 12.3 -16° 39.6	20° 38.0 -16° 50.7	35° 03.7 -17° 01.7	49° 29.3 -17° 12.6	+25.9 -11.4	16.5 60.4
	Ср 12	265° 47.8 -19° 40.5	280° 12.7 -19° 49.3	294° 37.6 -19° 58.0	309° 02.4 -20° 06.5	323° 27.1 -20° 14.9	337° 51.8 -20° 23.1	352° 16.5 -20° 31.3	6° 41.2 -20° 39.2	21° 05.8 -20° 47.0	35° 30.3 -20° 54.7	49° 54.9 -21° 02.3	+24.7 -8.2	16.3 59.9
	Чт 13	265° 59.8 -22° 37.2	280° 24.0 -22° 42.3	294° 48.1 -22° 47.3	309° 12.3 -22° 52.1	323° 36.4 -22° 56.7	338° 00.6 -23° 01.2	352° 24.7 -23° 05.5	6° 48.8 -23° 09.6	21° 12.9 -23° 13.6	35° 37.1 -23° 17.5	50° 01.2 -23° 21.2	+24.1 -4.4	16.2 59.3
	Пт 14	266° 04.0 -23° 57.2	280° 28.4 -23° 58.4	294° 52.7 -23° 59.3	309° 17.1 -24° 00.2	323° 41.5 -24° 00.8	338° 06.0 -24° 01.3	352° 30.5 -24° 01.7	6° 55.0 -24° 01.9	21° 19.6 -24° 01.9	35° 44.1 -24° 01.8	50° 08.8 -24° 01.5	+24.5 -0.4	16.0 58.6
◐	Сб 15	266° 23.9 -23° 39.2	280° 49.3 -23° 36.5	295° 14.8 -23° 33.7	309° 40.4 -23° 30.7	324° 06.0 -23° 27.6	338° 31.7 -23° 24.4	352° 57.5 -23° 21.0	7° 23.3 -23° 17.5	21° 49.2 -23° 13.8	36° 15.2 -23° 10.0	50° 41.2 -23° 06.1	+25.7 +3.3	15.8 57.9
	Вс 16	267° 20.6 -21° 51.5	281° 47.9 -21° 45.6	296° 15.2 -21° 39.5	310° 42.6 -21° 33.3	325° 10.1 -21° 27.0	339° 37.7 -21° 20.5	354° 05.3 -21° 14.0	8° 33.1 -21° 07.3	23° 00.9 -21° 00.5	37° 28.8 -20° 53.7	51° 56.8 -20° 46.7	+27.6 +6.5	15.6 57.2
	Пн 17	269° 06.6 -18° 49.4	283° 35.9 -18° 40.9	298° 05.4 -18° 32.2	312° 34.8 -18° 23.4	327° 04.4 -18° 14.6	341° 34.1 -18° 05.6	356° 03.8 -17° 56.6	10° 33.6 -17° 47.5	25° 03.5 -17° 38.3	39° 33.5 -17° 29.1	54° 03.6 -17° 19.7	+29.7 +9.0	15.4 56.6
	Вт 18	271° 43.9 -14° 50.7	286° 15.2 -14° 40.2	300° 46.5 -14° 29.6	315° 17.9 -14° 19.0	329° 49.4 -14° 08.4	344° 21.0 -13° 57.7	358° 52.7 -13° 46.9	13° 24.4 -13° 36.1	27° 56.2 -13° 25.2	42° 28.0 -13° 14.2	56° 59.9 -13° 03.2	+31.6 +10.7	15.3 56.0
	Ср 19	275° 06.2 -10° 12.8	289° 39.1 -10° 01.1	304° 12.0 -9° 49.3	318° 45.0 -9° 37.6	333° 18.0 -9° 25.8	347° 51.1 -9° 13.9	2° 24.3 -9° 02.1	16° 57.5 -8° 50.2	31° 30.7 -8° 38.2	46° 04.0 -8° 26.3	60° 37.4 -8° 14.3	+33.1 +11.8	15.1 55.5
	Чт 20	279° 02.7 -5° 11.8	293° 36.7 -4° 59.5	308° 10.7 -4° 47.2	322° 44.8 -4° 34.8	337° 18.9 -4° 22.5	351° 53.0 -4° 10.1	6° 27.2 -3° 57.7	21° 01.4 -3° 45.4	35° 35.6 -3° 33.0	50° 09.8 -3° 20.6	64° 44.1 -3° 08.2	+34.1 +12.4	15.0 55.0
	Пт 21	283° 20.9 -0° 02.0	297° 55.5 0° 10.4	312° 30.1 0° 22.8	327° 04.7 0° 35.1	341° 39.3 0° 47.5	356° 13.9 0° 59.9	10° 48.6 1° 12.2	25° 23.3 1° 24.5	39° 57.9 1° 36.9	54° 32.6 1° 49.2	69° 07.3 2° 01.5	+34.6 +12.4	14.9 54.7
○	Сб 22	287° 47.8 5° 03.8	302° 22.5 5° 15.8	316° 57.2 5° 27.7	331° 31.8 5° 39.7	346° 06.5 5° 51.6	0° 41.2 6° 03.4	15° 15.8 6° 15.3	29° 50.4 6° 27.1	44° 25.1 6° 38.9	58° 59.7 6° 50.6	73° 34.3 7° 02.3	+34.7 +11.9	14.8 54.3
	Вс 23	292° 11.5 9° 53.8	306° 45.8 10° 04.9	321° 20.1 10° 16.0	335° 54.4 10° 27.0	350° 28.7 10° 38.0	5° 02.9 10° 49.0	19° 37.1 10° 59.8	34° 11.3 11° 10.7	48° 45.4 11° 21.5	63° 19.5 11° 32.2	77° 53.6 11° 42.9	+34.2 +10.9	14.8 54.1
	Пн 24	296° 21.4 14° 16.9	310° 55.0 14° 26.7	325° 28.5 14° 36.4	340° 02.1 14° 46.1	354° 35.5 14° 55.8	9° 09.0 15° 05.3	23° 42.4 15° 14.8	38° 15.7 15° 24.2	52° 49.0 15° 33.6	67° 22.3 15° 42.9	81° 55.6 15° 52.1	+33.4 +9.5	14.7 54.0
	Вт 25	300° 09.3 18° 02.2	314° 41.8 18° 10.2	329° 14.3 18° 18.2	343° 46.8 18° 26.2	358° 19.3 18° 34.0	12° 51.7 18° 41.8	27° 24.0 18° 49.4	41° 56.3 18° 57.0	56° 28.6 19° 04.5	71° 00.8 19° 12.0	85° 32.9 19° 19.3	+32.4 +7.7	14.7 54.2
	Ср 26	303° 29.9 20° 59.2	318° 01.3 21° 05.1	332° 32.7 21° 10.9	347° 04.1 21° 16.7	1° 35.4 21° 22.3	16° 06.6 21° 27.9	30° 37.8 21° 33.4	45° 09.0 21° 38.7	59° 40.1 21° 44.0	74° 11.2 21° 49.2	88° 42.2 21° 54.2	+31.2 +5.5	14.7 54.1
	Чт 27	318° 01.3 21° 05.1	332° 32.7 21° 10.9	347° 04.1 21° 16.7	1° 35.4 21° 22.3	16° 06.6 21° 27.9	30° 37.8 21° 33.4	45° 09.0 21° 38.7	59° 40.1 21° 44.0	74° 11.2 21° 49.2	88° 42.2 21° 54.2	103° 13.2 21° 59.2	+31.2 +5.4	14.7 54.1
	Пт 28	320° 52.8 23° 01.6	335° 23.1 23° 04.9	349° 53.4 23° 08.1	4° 23.7 23° 11.2	18° 53.9 23° 14.2	33° 24.0 23° 17.1	47° 54.2 23° 19.9	62° 24.3 23° 22.5	76° 54.3 23° 25.1	91° 24.3 23° 27.5	105° 54.3 23° 29.9	+30.1 +2.8	14.8 54.3
	Сб 29	323° 20.3 23° 51.3	337° 49.8 23° 51.8	352° 19.3 23° 52.2	6° 48.7 23° 52.5	21° 18.1 23° 52.7	35° 47.5 23° 52.7	50° 16.9 23° 52.6	64° 46.3 23° 52.4	79° 15.6 23° 52.1	93° 44.9 23° 51.7	108° 14.2 23° 51.1	+29.0 -0.0	14.8 54.8
◑	Вс 30	325° 31.6 23° 28.5	340° 00.7 23° 26.0	354° 29.7 23° 23.4	8° 58.8 23° 20.7	23° 27.8 23° 17.9	37° 56.8 23° 14.9	52° 25.8 23° 11.8	66° 54.9 23° 08.6	81° 23.9 23° 05.3	95° 52.9 23° 01.9	110° 21.9 22° 58.3	+29.0 -3.0	15.1 55.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 1 04h33 — Новолуние: 8 10h44 — Первая четв.: 15 01h29 — Полнолуние: 22 16h29 — Последняя четв.: 30 20h56

СОЛНЦЕ

Октябрь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	272° 35.6 -3° 18.7	287° 35.8 -3° 19.6	302° 36.0 -3° 20.6	317° 36.2 -3° 21.6	332° 36.4 -3° 22.5	347° 36.6 -3° 23.5	2° 36.8 -3° 24.5	17° 37.0 -3° 25.4	32° 37.2 -3° 26.4	47° 37.4 -3° 27.4	62° 37.6 -3° 28.4	77° 37.8 -3° 29.3	+0.2 -1.0
Вт 2	272° 40.4 -3° 41.9	287° 40.6 -3° 42.9	302° 40.8 -3° 43.8	317° 41.0 -3° 44.8	332° 41.2 -3° 45.8	347° 41.4 -3° 46.7	2° 41.6 -3° 47.7	17° 41.8 -3° 48.7	32° 41.9 -3° 49.6	47° 42.1 -3° 50.6	62° 42.3 -3° 51.6	77° 42.5 -3° 52.5	+0.2 -1.0
Ср 3	272° 45.1 -4° 05.1	287° 45.3 -4° 06.1	302° 45.5 -4° 07.0	317° 45.7 -4° 08.0	332° 45.9 -4° 09.0	347° 46.0 -4° 09.9	2° 46.2 -4° 10.9	17° 46.4 -4° 11.9	32° 46.6 -4° 12.8	47° 46.8 -4° 13.8	62° 47.0 -4° 14.8	77° 47.2 -4° 15.7	+0.2 -1.0
Чт 4	272° 49.7 -4° 28.3	287° 49.9 -4° 29.2	302° 50.1 -4° 30.2	317° 50.3 -4° 31.1	332° 50.5 -4° 32.1	347° 50.6 -4° 33.1	2° 50.8 -4° 34.0	17° 51.0 -4° 35.0	32° 51.2 -4° 36.0	47° 51.4 -4° 36.9	62° 51.6 -4° 37.9	77° 51.8 -4° 38.8	+0.2 -1.0
Пт 5	272° 54.2 -4° 51.4	287° 54.4 -4° 52.3	302° 54.6 -4° 53.3	317° 54.8 -4° 54.2	332° 55.0 -4° 55.2	347° 55.2 -4° 56.2	2° 55.3 -4° 57.1	17° 55.5 -4° 58.1	32° 55.7 -4° 59.0	47° 55.9 -5° 00.0	62° 56.1 -5° 01.0	77° 56.3 -5° 01.9	+0.2 -1.0
Сб 6	272° 58.6 -5° 14.4	287° 58.8 -5° 15.3	302° 59.0 -5° 16.3	317° 59.2 -5° 17.3	332° 59.4 -5° 18.2	347° 59.6 -5° 19.2	2° 59.7 -5° 20.1	17° 59.9 -5° 21.1	33° 00.1 -5° 22.1	48° 00.3 -5° 23.0	63° 00.5 -5° 24.0	78° 00.6 -5° 24.9	+0.2 -1.0
Вс 7	273° 03.0 -5° 37.4	288° 03.2 -5° 38.3	303° 03.3 -5° 39.3	318° 03.5 -5° 40.2	333° 03.7 -5° 41.2	348° 03.9 -5° 42.1	3° 04.0 -5° 43.1	18° 04.2 -5° 44.0	33° 04.4 -5° 45.0	48° 04.6 -5° 46.0	63° 04.7 -5° 46.9	78° 04.9 -5° 47.9	+0.2 -1.0
Пн 8	273° 07.2 -6° 00.3	288° 07.4 -6° 01.2	303° 07.5 -6° 02.2	318° 07.7 -6° 03.1	333° 07.9 -6° 04.1	348° 08.1 -6° 05.0	3° 08.2 -6° 06.0	18° 08.4 -6° 06.9	33° 08.6 -6° 07.9	48° 08.8 -6° 08.8	63° 08.9 -6° 09.8	78° 09.1 -6° 10.7	+0.2 -1.0
Вт 9	273° 11.3 -6° 23.1	288° 11.5 -6° 24.0	303° 11.7 -6° 25.0	318° 11.8 -6° 25.9	333° 12.0 -6° 26.9	348° 12.2 -6° 27.8	3° 12.3 -6° 28.8	18° 12.5 -6° 29.7	33° 12.7 -6° 30.7	48° 12.8 -6° 31.6	63° 13.0 -6° 32.6	78° 13.2 -6° 33.5	+0.2 -0.9
Ср 10	273° 15.3 -6° 45.8	288° 15.5 -6° 46.8	303° 15.6 -6° 47.7	318° 15.8 -6° 48.6	333° 16.0 -6° 49.6	348° 16.1 -6° 50.5	3° 16.3 -6° 51.5	18° 16.5 -6° 52.4	33° 16.6 -6° 53.4	48° 16.8 -6° 54.3	63° 17.0 -6° 55.3	78° 17.1 -6° 56.2	+0.2 -0.9
Чт 11	273° 19.2 -7° 08.5	288° 19.4 -7° 09.4	303° 19.5 -7° 10.3	318° 19.7 -7° 11.3	333° 19.8 -7° 12.2	348° 20.0 -7° 13.2	3° 20.2 -7° 14.1	18° 20.3 -7° 15.0	33° 20.5 -7° 16.0	48° 20.6 -7° 16.9	63° 20.8 -7° 17.9	78° 20.9 -7° 18.8	+0.2 -0.9
Пт 12	273° 23.0 -7° 31.0	288° 23.1 -7° 31.9	303° 23.3 -7° 32.9	318° 23.4 -7° 33.8	333° 23.6 -7° 34.8	348° 23.7 -7° 35.7	3° 23.9 -7° 36.6	18° 24.0 -7° 37.6	33° 24.2 -7° 38.5	48° 24.4 -7° 39.4	63° 24.5 -7° 40.4	78° 24.7 -7° 41.3	+0.2 -0.9
Сб 13	273° 26.6 -7° 53.4	288° 26.8 -7° 54.4	303° 26.9 -7° 55.3	318° 27.1 -7° 56.2	333° 27.2 -7° 57.2	348° 27.4 -7° 58.1	3° 27.5 -7° 59.0	18° 27.7 -8° 00.0	33° 27.8 -8° 00.9	48° 28.0 -8° 01.8	63° 28.1 -8° 02.8	78° 28.2 -8° 03.7	+0.1 -0.9
Вс 14	273° 30.1 -8° 15.8	288° 30.3 -8° 16.7	303° 30.4 -8° 17.6	318° 30.6 -8° 18.6	333° 30.7 -8° 19.5	348° 30.9 -8° 20.4	3° 31.0 -8° 21.3	18° 31.1 -8° 22.3	33° 31.3 -8° 23.2	48° 31.4 -8° 24.1	63° 31.6 -8° 25.0	78° 31.7 -8° 26.0	+0.1 -0.9
Пн 15	273° 33.5 -8° 38.0	288° 33.7 -8° 38.9	303° 33.8 -8° 39.8	318° 33.9 -8° 40.8	333° 34.1 -8° 41.7	348° 34.2 -8° 42.6	3° 34.4 -8° 43.5	18° 34.5 -8° 44.4	33° 34.6 -8° 45.4	48° 34.8 -8° 46.3	63° 34.9 -8° 47.2	78° 35.0 -8° 48.1	+0.1 -0.9
Вт 16	273° 36.8 -9° 00.1	288° 36.9 -9° 01.0	303° 37.0 -9° 01.9	318° 37.2 -9° 02.8	333° 37.3 -9° 03.7	348° 37.4 -9° 04.7	3° 37.6 -9° 05.6	18° 37.7 -9° 06.5	33° 37.8 -9° 07.4	48° 38.0 -9° 08.3	63° 38.1 -9° 09.2	78° 38.2 -9° 10.2	+0.1 -0.9
Ср 17	273° 39.9 -9° 22.0	288° 40.0 -9° 22.9	303° 40.1 -9° 23.9	318° 40.3 -9° 24.8	333° 40.4 -9° 25.7	348° 40.5 -9° 26.6	3° 40.6 -9° 27.5	18° 40.8 -9° 28.4	33° 40.9 -9° 29.3	48° 41.0 -9° 30.2	63° 41.1 -9° 31.1	78° 41.3 -9° 32.1	+0.1 -0.9
Чт 18	273° 42.8 -9° 43.9	288° 43.0 -9° 44.8	303° 43.1 -9° 45.7	318° 43.2 -9° 46.6	333° 43.3 -9° 47.5	348° 43.4 -9° 48.4	3° 43.6 -9° 49.3	18° 43.7 -9° 50.2	33° 43.8 -9° 51.1	48° 43.9 -9° 52.0	63° 44.0 -9° 52.9	78° 44.2 -9° 53.8	+0.1 -0.9
Пт 19	273° 45.7 -10° 05.5	288° 45.8 -10° 06.4	303° 45.9 -10° 07.3	318° 46.0 -10° 08.2	333° 46.1 -10° 09.1	348° 46.2 -10° 10.0	3° 46.3 -10° 10.9	18° 46.5 -10° 11.8	33° 46.6 -10° 12.7	48° 46.7 -10° 13.6	63° 46.8 -10° 14.5	78° 46.9 -10° 15.4	+0.1 -0.9
Сб 20	273° 48.3 -10° 27.1	288° 48.4 -10° 28.0	303° 48.5 -10° 28.9	318° 48.6 -10° 29.7	333° 48.7 -10° 30.6	348° 48.9 -10° 31.5	3° 49.0 -10° 32.4	18° 49.1 -10° 33.3	33° 49.2 -10° 34.2	48° 49.3 -10° 35.1	63° 49.4 -10° 36.0	78° 49.5 -10° 36.9	+0.1 -0.9
Вс 21	273° 50.8 -10° 48.4	288° 50.9 -10° 49.3	303° 51.0 -10° 50.2	318° 51.1 -10° 51.1	333° 51.2 -10° 52.0	348° 51.3 -10° 52.9	3° 51.4 -10° 53.8	18° 51.5 -10° 54.6	33° 51.6 -10° 55.5	48° 51.7 -10° 56.4	63° 51.8 -10° 57.3	78° 51.9 -10° 58.2	+0.1 -0.9
Пн 22	273° 53.1 -11° 09.7	288° 53.2 -11° 10.5	303° 53.3 -11° 11.4	318° 53.4 -11° 12.3	333° 53.5 -11° 13.2	348° 53.6 -11° 14.1	3° 53.7 -11° 14.9	18° 53.8 -11° 15.8	33° 53.9 -11° 16.7	48° 54.0 -11° 17.6	63° 54.1 -11° 18.5	78° 54.2 -11° 19.3	+0.1 -0.9
Вт 23	273° 55.3 -11° 30.7	288° 55.4 -11° 31.6	303° 55.5 -11° 32.5	318° 55.6 -11° 33.3	333° 55.7 -11° 34.2	348° 55.7 -11° 35.1	3° 55.8 -11° 35.9	18° 55.9 -11° 36.8	33° 56.0 -11° 37.7	48° 56.1 -11° 38.6	63° 56.2 -11° 39.4	78° 56.2 -11° 40.3	+0.1 -0.9
Ср 24	273° 57.3 -11° 51.6	288° 57.4 -11° 52.5	303° 57.5 -11° 53.3	318° 57.5 -11° 54.2	333° 57.6 -11° 55.1	348° 57.7 -11° 55.9	3° 57.8 -11° 56.8	18° 57.8 -11° 57.6	33° 57.9 -11° 58.5	48° 58.0 -11° 59.4	63° 58.1 -12° 00.2	78° 58.2 -12° 01.1	+0.1 -0.9
Чт 25	273° 59.1 -12° 12.3	288° 59.2 -12° 13.1	303° 59.3 -12° 14.0	318° 59.3 -12° 14.9	333° 59.4 -12° 15.7	348° 59.5 -12° 16.6	3° 59.5 -12° 17.4	18° 59.6 -12° 18.3	33° 59.7 -12° 19.1	48° 59.7 -12° 20.0	63° 59.8 -12° 20.9	78° 59.9 -12° 21.7	+0.1 -0.9
Пт 26	274° 00.7 -12° 32.8	289° 00.8 -12° 33.7	304° 00.9 -12° 34.5	319° 00.9 -12° 35.4	334° 01.0 -12° 36.2	349° 01.1 -12° 37.1	4° 01.1 -12° 37.9	19° 01.2 -12° 38.7	34° 01.2 -12° 39.6	49° 01.3 -12° 40.4	64° 01.4 -12° 41.3	79° 01.4 -12° 42.1	+0.1 -0.8
Сб 27	274° 02.2 -12° 53.1	289° 02.2 -12° 54.0	304° 02.3 -12° 54.8	319° 02.4 -12° 55.6	334° 02.4 -12° 56.5	349° 02.5 -12° 57.3	4° 02.5 -12° 58.2	19° 02.6 -12° 59.0	34° 02.6 -12° 59.9	49° 02.7 -13° 00.7	64° 02.7 -13° 01.5	79° 02.8 -13° 02.4	+0.1 -0.8
Вс 28	274° 03.4 -13° 13.2	289° 03.5 -13° 14.1	304° 03.5 -13° 14.9	319° 03.6 -13° 15.7	334° 03.6 -13° 16.6	349° 03.7 -13° 17.4	4° 03.7 -13° 18.2	19° 03.8 -13° 19.1	34° 03.8 -13° 19.9	49° 03.9 -13° 20.7	64° 03.9 -13° 21.6	79° 03.9 -13° 22.4	+0.0 -0.8
Пн 29	274° 04.5 -13° 33.2	289° 04.5 -13° 34.0	304° 04.6 -13° 34.8	319° 04.6 -13° 35.6	334° 04.7 -13° 36.5	349° 04.7 -13° 37.3	4° 04.7 -13° 38.1	19° 04.8 -13° 38.9	34° 04.8 -13° 39.8	49° 04.8 -13° 40.6	64° 04.9 -13° 41.4	79° 04.9 -13° 42.2	+0.0 -0.8
Вт 30	274° 05.4 -13° 52.9	289° 05.4 -13° 53.7	304° 05.4 -13° 54.5	319° 05.4 -13° 55.3	334° 05.5 -13° 56.1	349° 05.5 -13° 56.9	4° 05.5 -13° 57.8	19° 05.6 -13° 58.6	34° 05.6 -13° 59.4	49° 05.6 -14° 00.2	64° 05.7 -14° 01.0	79° 05.7 -14° 01.8	+0.0 -0.8
Ср 31	274° 06.0 -14° 12.3	289° 06.0 -14° 13.2	304° 06.1 -14° 14.0	319° 06.1 -14° 14.8	334° 06.1 -14° 15.6	349° 06.1 -14° 16.4	4° 06.2 -14° 17.2	19° 06.2 -14° 18.0	34° 06.2 -14° 18.8	49° 06.2 -14° 19.6	64° 06.2 -14° 20.4	79° 06.3 -14° 21.2	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2029

Д	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	R/p
Пн 1	228° 19.3 19° 53.8	242° 48.5 19° 46.3	257° 17.6 19° 38.6	271° 46.7 19° 30.8	286° 15.9 19° 22.9	300° 45.0 19° 14.8	315° 14.2 19° 06.7	329° 43.4 18° 58.5	344° 12.5 18° 50.1	358° 41.7 18° 41.7	13° 10.9 18° 33.1	+29.2 -8.1	15.5 56.7
Вт 2	230° 30.3 16° 11.8	244° 59.7 16° 01.5	259° 29.0 15° 51.2	273° 58.4 15° 40.7	288° 27.8 15° 30.2	302° 57.2 15° 19.6	317° 26.6 15° 08.8	331° 56.1 14° 58.0	346° 25.5 14° 47.1	0° 54.9 14° 36.1	15° 24.4 14° 25.0	+29.4 -10.7	15.7 57.7
Ср 3	244° 59.7 16° 01.5	259° 29.0 15° 51.2	273° 58.4 15° 40.7	288° 27.8 15° 30.2	302° 57.2 15° 19.6	317° 26.6 15° 08.8	331° 56.1 14° 58.0	346° 25.5 14° 47.1	0° 54.9 14° 36.1	15° 24.4 14° 25.0	29° 53.8 14° 13.8	+29.4 -10.8	15.7 57.8
Чт 4	247° 16.2 11° 15.2	261° 45.7 11° 02.6	276° 15.2 10° 50.0	290° 44.7 10° 37.3	305° 14.2 10° 24.5	319° 43.7 10° 11.6	334° 13.3 9° 58.7	348° 42.8 9° 45.7	3° 12.2 9° 32.6	17° 41.7 9° 19.4	32° 11.2 9° 06.2	+29.5 -12.9	16.0 58.8
Пт 5	249° 32.4 5° 40.4	264° 01.8 5° 26.2	278° 31.1 5° 12.0	293° 00.3 4° 57.7	307° 29.6 4° 43.4	321° 58.8 4° 29.1	336° 28.0 4° 14.7	350° 57.2 4° 00.3	5° 26.4 3° 45.8	19° 55.6 3° 31.3	34° 24.7 3° 16.7	+29.2 -14.4	16.3 59.7
Сб 6	251° 38.3 -0° 25.0	266° 06.9 -0° 39.9	280° 35.5 -0° 54.9	295° 04.1 -1° 09.8	309° 32.6 -1° 24.8	324° 01.1 -1° 39.8	338° 29.6 -1° 54.7	352° 58.0 -2° 09.7	7° 26.3 -2° 24.7	21° 54.7 -2° 39.7	36° 22.9 -2° 54.6	+28.5 -15.0	16.5 60.5
● Вс 7	253° 21.3 -6° 37.7	267° 48.7 -6° 52.4	282° 16.1 -7° 07.0	296° 43.5 -7° 21.6	311° 10.8 -7° 36.2	325° 38.0 -7° 50.7	340° 05.2 -8° 05.2	354° 32.3 -8° 19.6	8° 59.4 -8° 34.0	23° 26.4 -8° 48.4	37° 53.3 -9° 02.7	+27.2 -14.5	16.6 61.0
Пн 8	254° 29.8 -12° 29.9	268° 55.7 -12° 43.2	283° 21.5 -12° 56.3	297° 47.3 -13° 09.4	312° 13.0 -13° 22.4	326° 38.6 -13° 35.3	341° 04.2 -13° 48.1	355° 29.7 -14° 00.8	9° 55.1 -14° 13.4	24° 20.5 -14° 25.9	38° 45.8 -14° 38.4	+25.6 -12.9	16.7 61.2
Вт 9	254° 57.5 -17° 31.7	269° 21.7 -17° 42.3	283° 46.0 -17° 52.8	298° 10.1 -18° 03.2	312° 34.2 -18° 13.4	326° 58.3 -18° 23.5	341° 22.2 -18° 33.5	355° 46.2 -18° 43.3	10° 10.0 -18° 53.0	24° 33.9 -19° 02.5	38° 57.6 -19° 11.9	+24.0 -10.0	16.7 61.1
Ср 10	254° 48.7 -21° 15.4	269° 11.8 -21° 22.4	283° 34.8 -21° 29.2	297° 57.9 -21° 35.9	312° 20.9 -21° 42.4	326° 43.9 -21° 48.8	341° 06.8 -21° 55.0	355° 29.8 -22° 01.0	9° 52.7 -22° 06.9	24° 15.6 -22° 12.6	38° 38.5 -22° 18.2	+23.0 -6.3	16.5 60.6
Чт 11	254° 21.1 -23° 21.2	268° 44.0 -23° 24.1	283° 06.9 -23° 26.8	297° 29.8 -23° 29.3	311° 52.8 -23° 31.6	326° 15.7 -23° 33.8	340° 38.7 -23° 35.8	355° 01.7 -23° 37.7	9° 24.8 -23° 39.3	23° 47.8 -23° 40.8	38° 10.9 -23° 42.2	+23.0 -2.1	16.3 59.9
Пт 12	254° 02.6 -23° 42.4	268° 26.5 -23° 41.1	282° 50.4 -23° 39.7	297° 14.4 -23° 38.1	311° 38.4 -23° 36.3	326° 02.6 -23° 34.4	340° 26.8 -23° 32.3	354° 51.0 -23° 30.1	9° 15.3 -23° 27.8	23° 39.8 -23° 25.2	38° 04.2 -23° 22.6	+24.2 +2.0	16.1 59.0
Сб 13	254° 21.0 -22° 25.3	268° 46.9 -22° 20.4	283° 12.8 -22° 15.3	297° 38.7 -22° 10.1	312° 04.8 -22° 04.8	326° 31.0 -21° 59.4	340° 57.3 -21° 53.8	355° 23.6 -21° 48.1	9° 50.1 -21° 42.3	24° 16.6 -21° 36.4	38° 43.3 -21° 30.3	+26.2 +5.5	15.8 58.1
◐ Вс 14	255° 34.6 -19° 46.0	270° 02.8 -19° 38.2	284° 31.1 -19° 30.3	298° 59.5 -19° 22.3	313° 27.9 -19° 14.2	327° 56.5 -19° 06.0	342° 25.2 -18° 57.7	356° 54.0 -18° 49.4	11° 22.8 -18° 40.9	25° 51.8 -18° 32.3	40° 20.9 -18° 23.7	+28.6 +8.2	15.6 57.2
Пн 15	257° 47.9 -16° 04.3	272° 18.4 -15° 54.5	286° 49.0 -15° 44.5	301° 19.7 -15° 34.5	315° 50.5 -15° 24.4	330° 21.3 -15° 14.3	344° 52.3 -15° 04.1	359° 23.3 -14° 53.8	13° 54.4 -14° 43.4	28° 25.6 -14° 33.1	42° 56.9 -14° 22.6	+30.9 +10.2	15.4 56.4
Вт 16	260° 55.0 -11° 39.6	275° 27.4 -11° 28.3	289° 59.9 -11° 17.0	304° 32.5 -11° 05.7	319° 05.1 -10° 54.4	333° 37.8 -10° 43.0	348° 10.6 -10° 31.5	2° 43.4 -10° 20.0	17° 16.3 -10° 08.5	31° 49.3 -9° 57.0	46° 22.3 -9° 45.4	+32.7 +11.4	15.2 55.7
Ср 17	264° 43.8 -6° 48.4	279° 17.6 -6° 36.4	293° 51.5 -6° 24.4	308° 25.4 -6° 12.3	322° 59.3 -6° 00.3	337° 33.3 -5° 48.2	352° 07.3 -5° 36.2	6° 41.4 -5° 24.1	21° 15.5 -5° 12.0	35° 49.6 -4° 59.9	50° 23.8 -4° 47.7	+34.0 +12.1	15.0 55.1
Чт 18	269° 00.0 -1° 44.8	283° 34.6 -1° 32.6	298° 09.2 -1° 20.4	312° 43.9 -1° 08.2	327° 18.6 -0° 56.0	341° 53.3 -0° 43.7	356° 28.0 -0° 31.5	11° 02.7 -0° 19.3	25° 37.4 -0° 07.1	40° 12.2 0° 05.1	54° 46.9 0° 17.3	+34.7 +12.2	14.9 54.7
Пт 19	273° 29.3 3° 18.8	288° 04.1 3° 30.8	302° 39.0 3° 42.8	317° 13.8 3° 54.7	331° 48.7 4° 06.7	346° 23.5 4° 18.6	0° 58.3 4° 30.5	15° 33.2 4° 42.3	30° 08.0 4° 54.2	44° 42.8 5° 06.0	59° 17.6 5° 17.8	+34.8 +11.9	14.8 54.3
Сб 20	277° 58.3 8° 11.4	292° 32.9 8° 22.7	307° 07.5 8° 34.0	321° 42.0 8° 45.3	336° 16.5 8° 56.5	350° 51.0 9° 07.6	5° 25.5 9° 18.8	20° 00.0 9° 29.9	34° 34.4 9° 40.9	49° 08.8 9° 51.9	63° 43.2 10° 02.9	+34.5 +11.2	14.8 54.1
Вс 21	282° 15.5 12° 42.0	296° 49.4 12° 52.2	311° 23.3 13° 02.4	325° 57.1 13° 12.5	340° 30.9 13° 22.5	355° 04.6 13° 32.5	9° 38.4 13° 42.4	24° 12.0 13° 52.3	38° 45.7 14° 02.1	53° 19.3 14° 11.9	67° 52.9 14° 21.6	+33.7 +10.0	14.7 53.9
○ Пн 22	286° 11.7 16° 39.6	300° 44.6 16° 48.2	315° 17.5 16° 56.8	329° 50.3 17° 05.4	344° 23.1 17° 13.8	358° 55.8 17° 22.2	13° 28.5 17° 30.5	28° 01.2 17° 38.7	42° 33.8 17° 46.8	57° 06.3 17° 54.9	71° 38.8 18° 02.9	+32.7 +8.3	14.7 53.9
Вт 23	289° 41.2 19° 53.2	304° 13.0 19° 59.8	318° 44.7 20° 06.4	333° 16.4 20° 12.9	347° 48.1 20° 19.3	2° 19.7 20° 25.6	16° 51.3 20° 31.9	31° 22.8 20° 38.0	45° 54.3 20° 44.1	60° 25.7 20° 50.0	74° 57.1 20° 55.9	+31.6 +6.3	14.7 53.9
Ср 24	292° 42.9 22° 12.2	307° 13.6 22° 16.5	321° 44.3 22° 20.7	336° 15.0 22° 24.8	350° 45.6 22° 28.8	5° 16.1 22° 32.7	19° 46.7 22° 36.5	34° 17.2 22° 40.1	48° 47.7 22° 43.7	63° 18.1 22° 47.2	77° 48.5 22° 50.5	+30.6 +3.8	14.7 54.1
Чт 25	295° 20.8 23° 27.8	309° 50.7 23° 29.4	324° 20.6 23° 30.9	338° 50.5 23° 32.3	353° 20.3 23° 33.6	7° 50.2 23° 34.7	22° 20.0 23° 35.8	36° 49.8 23° 36.7	51° 19.6 23° 37.5	65° 49.3 23° 38.2	80° 19.1 23° 38.8	+29.8 +1.1	14.8 54.3
Пт 26	297° 43.3 23° 33.7	312° 12.9 23° 32.4	326° 42.4 23° 31.0	341° 11.9 23° 29.5	355° 41.4 23° 27.9	10° 10.9 23° 26.2	24° 40.4 23° 24.3	39° 09.9 23° 22.4	53° 39.4 23° 20.3	68° 08.9 23° 18.1	82° 38.4 23° 15.8	+29.5 -1.8	14.9 54.7
Сб 27	312° 12.9 23° 32.4	326° 42.4 23° 31.0	341° 11.9 23° 29.5	355° 41.4 23° 27.9	10° 10.9 23° 26.2	24° 40.4 23° 24.3	39° 09.9 23° 22.4	53° 39.4 23° 20.3	68° 08.9 23° 18.1	82° 38.4 23° 15.8	97° 07.9 23° 13.3	+29.5 -1.9	14.9 54.7
Вс 28	314° 30.7 22° 22.9	329° 00.3 22° 18.6	343° 29.9 22° 14.2	357° 59.4 22° 09.7	12° 29.0 22° 05.1	26° 58.6 22° 00.4	41° 28.3 21° 55.5	55° 57.9 21° 50.6	70° 27.5 21° 45.5	84° 57.2 21° 40.3	99° 26.9 21° 35.0	+29.6 -4.8	15.1 55.3
Пн 29	316° 53.6 20° 02.3	331° 23.5 19° 55.3	345° 53.4 19° 48.2	0° 23.3 19° 40.9	14° 53.3 19° 33.5	29° 23.3 19° 26.1	43° 53.3 19° 18.5	58° 23.3 19° 10.8	72° 53.3 19° 03.1	87° 23.4 18° 55.2	101° 53.4 18° 47.2	+30.0 -7.5	15.3 55.9
◑ Вт 30	319° 26.4 16° 35.6	333° 56.7 16° 26.1	348° 27.0 16° 16.5	2° 57.4 16° 06.7	17° 27.8 15° 56.9	31° 58.2 15° 47.0	46° 28.6 15° 37.0	60° 59.0 15° 26.9	75° 29.4 15° 16.7	89° 59.8 15° 06.5	104° 30.3 14° 56.1	+30.4 -10.0	15.5 56.7
Ср 31	322° 08.2 12° 10.8	336° 38.8 11° 59.1	351° 09.3 11° 47.4	5° 39.9 11° 35.5	20° 10.5 11° 23.6	34° 41.1 11° 11.7	49° 11.7 10° 59.7	63° 42.3 10° 47.5	78° 12.9 10° 35.4	92° 43.5 10° 23.1	107° 14.1 10° 10.8	+30.6 -12.0	15.7 57.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 7 19h14 — Первая четв.: 14 11h08 — Полнолуние: 22 09h27 — Последняя четв.: 30 11h32

СОЛНЦЕ

Ноябрь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	274° 06.5	289° 06.5	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 31.6	-14° 32.4	-14° 33.2	-14° 34.0	-14° 34.8	-14° 35.6	-14° 36.4	-14° 37.2	-14° 38.0	-14° 38.8	-14° 39.6	-14° 40.4	-0.8
Пт 2	274° 06.7	289° 06.7	304° 06.7	319° 06.7	334° 06.8	349° 06.8	4° 06.8	19° 06.8	34° 06.8	49° 06.8	64° 06.8	79° 06.8	+0.0
	-14° 50.6	-14° 51.4	-14° 52.2	-14° 53.0	-14° 53.8	-14° 54.6	-14° 55.4	-14° 56.1	-14° 56.9	-14° 57.7	-14° 58.5	-14° 59.3	-0.8
Сб 3	274° 06.8	289° 06.8	304° 06.8	319° 06.8	334° 06.8	349° 06.8	4° 06.8	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.7	-0.0
	-15° 09.4	-15° 10.2	-15° 11.0	-15° 11.7	-15° 12.5	-15° 13.3	-15° 14.1	-15° 14.8	-15° 15.6	-15° 16.4	-15° 17.2	-15° 17.9	-0.8
Вс 4	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.6	4° 06.5	19° 06.5	34° 06.5	49° 06.5	64° 06.5	79° 06.5	-0.0
	-15° 28.0	-15° 28.7	-15° 29.5	-15° 30.3	-15° 31.0	-15° 31.8	-15° 32.5	-15° 33.3	-15° 34.1	-15° 34.8	-15° 35.6	-15° 36.4	-0.8
Пн 5	274° 06.2	289° 06.2	304° 06.2	319° 06.2	334° 06.2	349° 06.1	4° 06.1	19° 06.1	34° 06.1	49° 06.0	64° 06.0	79° 06.0	-0.0
	-15° 46.2	-15° 47.0	-15° 47.7	-15° 48.5	-15° 49.3	-15° 50.0	-15° 50.8	-15° 51.5	-15° 52.3	-15° 53.0	-15° 53.8	-15° 54.5	-0.8
Вт 6	274° 05.7	289° 05.6	304° 05.6	319° 05.6	334° 05.5	349° 05.5	4° 05.5	19° 05.5	34° 05.4	49° 05.4	64° 05.4	79° 05.3	-0.0
	-16° 04.3	-16° 05.0	-16° 05.7	-16° 06.5	-16° 07.2	-16° 08.0	-16° 08.7	-16° 09.5	-16° 10.2	-16° 10.9	-16° 11.7	-16° 12.4	-0.7
Ср 7	274° 04.9	289° 04.8	304° 04.8	319° 04.8	334° 04.7	349° 04.7	4° 04.6	19° 04.6	34° 04.6	49° 04.5	64° 04.5	79° 04.4	-0.0
	-16° 22.0	-16° 22.7	-16° 23.5	-16° 24.2	-16° 24.9	-16° 25.7	-16° 26.4	-16° 27.1	-16° 27.9	-16° 28.6	-16° 29.3	-16° 30.1	-0.7
Чт 8	274° 03.9	289° 03.8	304° 03.8	319° 03.7	334° 03.7	349° 03.6	4° 03.6	19° 03.5	34° 03.5	49° 03.4	64° 03.4	79° 03.3	-0.0
	-16° 39.5	-16° 40.2	-16° 40.9	-16° 41.7	-16° 42.4	-16° 43.1	-16° 43.8	-16° 44.5	-16° 45.3	-16° 46.0	-16° 46.7	-16° 47.4	-0.7
Пт 9	274° 02.7	289° 02.6	304° 02.6	319° 02.5	334° 02.4	349° 02.4	4° 02.3	19° 02.3	34° 02.2	49° 02.2	64° 02.1	79° 02.0	-0.1
	-16° 56.7	-16° 57.4	-16° 58.1	-16° 58.8	-16° 59.5	-17° 00.2	-17° 00.9	-17° 01.6	-17° 02.4	-17° 03.1	-17° 03.8	-17° 04.5	-0.7
Сб 10	274° 01.3	289° 01.2	304° 01.1	319° 01.1	334° 01.0	349° 00.9	4° 00.9	19° 00.8	34° 00.7	49° 00.7	64° 00.6	79° 00.5	-0.1
	-17° 13.6	-17° 14.3	-17° 15.0	-17° 15.7	-17° 16.4	-17° 17.1	-17° 17.8	-17° 18.5	-17° 19.2	-17° 19.9	-17° 20.6	-17° 21.2	-0.7
Вс 11	273° 59.6	288° 59.6	303° 59.5	318° 59.4	333° 59.3	348° 59.3	3° 59.2	18° 59.1	33° 59.0	48° 59.0	63° 58.9	78° 58.8	-0.1
	-17° 30.2	-17° 30.9	-17° 31.6	-17° 32.3	-17° 32.9	-17° 33.6	-17° 34.3	-17° 35.0	-17° 35.7	-17° 36.4	-17° 37.0	-17° 37.7	-0.7
Пн 12	273° 57.8	288° 57.7	303° 57.6	318° 57.6	333° 57.5	348° 57.4	3° 57.3	18° 57.2	33° 57.1	48° 57.1	63° 57.0	78° 56.9	-0.1
	-17° 46.5	-17° 47.2	-17° 47.9	-17° 48.5	-17° 49.2	-17° 49.9	-17° 50.5	-17° 51.2	-17° 51.9	-17° 52.6	-17° 53.2	-17° 53.9	-0.7
Вт 13	273° 55.8	288° 55.7	303° 55.6	318° 55.5	333° 55.4	348° 55.3	3° 55.2	18° 55.1	33° 55.0	48° 54.9	63° 54.9	78° 54.8	-0.1
	-18° 02.5	-18° 03.2	-18° 03.8	-18° 04.5	-18° 05.2	-18° 05.8	-18° 06.5	-18° 07.1	-18° 07.8	-18° 08.4	-18° 09.1	-18° 09.7	-0.7
Ср 14	273° 53.5	288° 53.4	303° 53.3	318° 53.2	333° 53.1	348° 53.0	3° 52.9	18° 52.8	33° 52.7	48° 52.6	63° 52.5	78° 52.4	-0.1
	-18° 18.2	-18° 18.8	-18° 19.5	-18° 20.1	-18° 20.8	-18° 21.4	-18° 22.1	-18° 22.7	-18° 23.4	-18° 24.0	-18° 24.6	-18° 25.3	-0.6
Чт 15	273° 51.1	288° 51.0	303° 50.9	318° 50.7	333° 50.6	348° 50.5	3° 50.4	18° 50.3	33° 50.2	48° 50.1	63° 50.0	78° 49.9	-0.1
	-18° 33.6	-18° 34.2	-18° 34.8	-18° 35.5	-18° 36.1	-18° 36.7	-18° 37.4	-18° 38.0	-18° 38.6	-18° 39.2	-18° 39.9	-18° 40.5	-0.6
Пт 16	273° 48.4	288° 48.3	303° 48.2	318° 48.1	333° 47.9	348° 47.8	3° 47.7	18° 47.6	33° 47.5	48° 47.4	63° 47.2	78° 47.1	-0.1
	-18° 48.6	-18° 49.2	-18° 49.8	-18° 50.5	-18° 51.1	-18° 51.7	-18° 52.3	-18° 52.9	-18° 53.5	-18° 54.1	-18° 54.8	-18° 55.4	-0.6
Сб 17	273° 45.5	288° 45.4	303° 45.3	318° 45.2	333° 45.1	348° 44.9	3° 44.8	18° 44.7	33° 44.5	48° 44.4	63° 44.3	78° 44.2	-0.1
	-19° 03.3	-19° 03.9	-19° 04.5	-19° 05.1	-19° 05.7	-19° 06.3	-19° 06.9	-19° 07.5	-19° 08.1	-19° 08.7	-19° 09.3	-19° 09.9	-0.6
Вс 18	273° 42.5	288° 42.3	303° 42.2	318° 42.1	333° 41.9	348° 41.8	3° 41.7	18° 41.5	33° 41.4	48° 41.3	63° 41.1	78° 41.0	-0.1
	-19° 17.7	-19° 18.2	-19° 18.8	-19° 19.4	-19° 20.0	-19° 20.6	-19° 21.2	-19° 21.8	-19° 22.4	-19° 23.0	-19° 23.5	-19° 24.1	-0.6
Пн 19	273° 39.2	288° 39.1	303° 38.9	318° 38.8	333° 38.6	348° 38.5	3° 38.4	18° 38.2	33° 38.1	48° 37.9	63° 37.8	78° 37.6	-0.1
	-19° 31.7	-19° 32.2	-19° 32.8	-19° 33.4	-19° 34.0	-19° 34.5	-19° 35.1	-19° 35.7	-19° 36.3	-19° 36.8	-19° 37.4	-19° 38.0	-0.6
Вт 20	273° 35.7	288° 35.6	303° 35.4	318° 35.3	333° 35.1	348° 35.0	3° 34.8	18° 34.7	33° 34.5	48° 34.4	63° 34.2	78° 34.1	-0.2
	-19° 45.3	-19° 45.9	-19° 46.5	-19° 47.0	-19° 47.6	-19° 48.1	-19° 48.7	-19° 49.2	-19° 49.8	-19° 50.4	-19° 50.9	-19° 51.5	-0.6
Ср 21	273° 32.1	288° 31.9	303° 31.7	318° 31.6	333° 31.4	348° 31.3	3° 31.1	18° 30.9	33° 30.8	48° 30.6	63° 30.5	78° 30.3	-0.2
	-19° 58.6	-19° 59.2	-19° 59.7	-20° 00.3	-20° 00.8	-20° 01.4	-20° 01.9	-20° 02.4	-20° 03.0	-20° 03.5	-20° 04.1	-20° 04.6	-0.5
Чт 22	273° 28.2	288° 28.0	303° 27.8	318° 27.7	333° 27.5	348° 27.3	3° 27.2	18° 27.0	33° 26.8	48° 26.7	63° 26.5	78° 26.3	-0.2
	-20° 11.6	-20° 12.1	-20° 12.6	-20° 13.2	-20° 13.7	-20° 14.2	-20° 14.8	-20° 15.3	-20° 15.8	-20° 16.3	-20° 16.9	-20° 17.4	-0.5
Пт 23	273° 24.1	288° 23.9	303° 23.8	318° 23.6	333° 23.4	348° 23.2	3° 23.1	18° 22.9	33° 22.7	48° 22.5	63° 22.3	78° 22.2	-0.2
	-20° 24.1	-20° 24.7	-20° 25.2	-20° 25.7	-20° 26.2	-20° 26.7	-20° 27.2	-20° 27.7	-20° 28.3	-20° 28.8	-20° 29.3	-20° 29.8	-0.5
Сб 24	273° 19.8	288° 19.6	303° 19.5	318° 19.3	333° 19.1	348° 18.9	3° 18.7	18° 18.5	33° 18.4	48° 18.2	63° 18.0	78° 17.8	-0.2
	-20° 36.3	-20° 36.8	-20° 37.3	-20° 37.8	-20° 38.3	-20° 38.8	-20° 39.3	-20° 39.8	-20° 40.3	-20° 40.8	-20° 41.3	-20° 41.8	-0.5
Вс 25	273° 15.4	288° 15.2	303° 15.0	318° 14.8	333° 14.6	348° 14.4	3° 14.2	18° 14.0	33° 13.8	48° 13.6	63° 13.4	78° 13.3	-0.2
	-20° 48.2	-20° 48.6	-20° 49.1	-20° 49.6	-20° 50.1	-20° 50.6	-20° 51.0	-20° 51.5	-20° 52.0	-20° 52.5	-20° 53.0	-20° 53.4	-0.5
Пн 26	273° 10.7	288° 10.5	303° 10.3	318° 10.1	333° 09.9	348° 09.7	3° 09.5	18° 09.3	33° 09.1	48° 08.9	63° 08.7	78° 08.5	-0.2
	-20° 59.6	-21° 00.0	-21° 00.5	-21° 01.0	-21° 01.4	-21° 01.9	-21° 02.4	-21° 02.8	-21° 03.3	-21° 03.8	-21° 04.2	-21° 04.7	-0.5
Вт 27	273° 05.9	288° 05.7	303° 05.5	318° 05.2	333° 05.0	348° 04.8	3° 04.6	18° 04.4	33° 04.2	48° 04.0	63° 03.8	78° 03.6	-0.2
	-21° 10.6	-21° 11.1	-21° 11.5	-21° 12.0	-21° 12.4	-21° 12.9	-21° 13.3	-21° 13.8	-21° 14.2	-21° 14.6	-21° 15.1	-21° 15.5	-0.4
Ср 28	273° 00.8	288° 00.6	303° 00.4	318° 00.2	333° 00.0	347° 59.8	2° 59.6	17° 59.3	32° 59.1	47° 58.9	62° 58.7	77° 58.5	-0.2
	-21° 21.2	-21° 21.7	-21° 22.1	-21° 22.5	-21° 23.0	-21° 23.4	-21° 23.8	-21° 24.3	-21° 24.7	-21° 25.1	-21° 25.6	-21° 26.0	-0.4
Чт 29	272° 55.6	287° 55.4	302° 55.2	317° 55.0	332° 54.7	347° 54.5	2° 54.3	17° 54.1	32° 53.9	47° 53.6	62° 53.4	77° 53.2	-0.2
	-21° 31.5	-21° 31.9	-21° 32.3	-21° 32.7	-21° 33.1	-21° 33.6	-21° 34.0	-21° 34.4	-21° 34.8	-21° 35.2	-21° 35.6	-21° 36.0	-0.4
Пт 30	272° 50.2	287° 50.0	302° 49.8	317° 49.6	332° 49.3	347° 49.1	2° 48.9	17° 48.6	32° 48.4	47° 48.2	62° 48.0	77° 47.7	-0.2
	-21° 41.3	-21° 41.7	-21° 42.1	-21° 42.5	-21° 42.9	-21° 43.3	-21° 43.7	-21° 44.1	-21° 44.5	-21° 44.9	-21° 45.3	-21° 45.7	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2029

Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
Чт 1	252° 19.7 8° 04.1	266° 50.2 7° 51.0	281° 20.8 7° 38.0	295° 51.3 7° 24.8	310° 21.7 7° 11.6	324° 52.2 6° 58.4	339° 22.7 6° 45.1	353° 53.1 6° 31.8	8° 23.5 6° 18.4	22° 54.0 6° 04.9	37° 24.3 5° 51.4	+30.5 -13.3	15.9 58.4
Пт 2	254° 57.5 2° 23.6	269° 27.4 2° 09.4	283° 57.4 1° 55.2	298° 27.3 1° 41.0	312° 57.2 1° 26.8	327° 27.0 1° 12.5	341° 56.8 0° 58.2	356° 26.6 0° 43.9	10° 56.3 0° 29.5	25° 26.0 0° 15.2	39° 55.6 0° 00.8	+29.8 -14.3	16.2 59.4
Сб 3	257° 14.5 -3° 36.4	271° 43.3 -3° 50.9	286° 12.1 -4° 05.4	300° 40.8 -4° 19.9	315° 09.4 -4° 34.4	329° 38.0 -4° 48.8	344° 06.6 -5° 03.3	358° 35.0 -5° 17.8	13° 03.4 -5° 32.2	27° 31.8 -5° 46.6	42° 00.0 -6° 01.0	+28.6 -14.5	16.4 60.3
Вс 4	258° 55.6 -9° 33.5	273° 22.7 -9° 47.4	287° 49.8 -10° 01.2	302° 16.7 -10° 15.0	316° 43.6 -10° 28.7	331° 10.4 -10° 42.3	345° 37.1 -10° 55.9	0° 03.7 -11° 09.4	14° 30.2 -11° 22.9	28° 56.7 -11° 36.3	43° 23.1 -11° 49.6	+26.7 -13.6	16.6 60.9
Пн 5	259° 48.5 -15° 00.5	274° 13.6 -15° 12.5	288° 38.5 -15° 24.5	303° 03.3 -15° 36.3	317° 28.1 -15° 48.0	331° 52.8 -15° 59.6	346° 17.3 -16° 11.1	0° 41.8 -16° 22.5	15° 06.3 -16° 33.8	29° 30.6 -16° 45.0	43° 54.9 -16° 56.0	+24.6 -11.6	16.7 61.3
● Вт 6	259° 49.2 -19° 26.9	274° 12.3 -19° 35.9	288° 35.2 -19° 44.7	302° 58.1 -19° 53.4	317° 21.0 -20° 01.9	331° 43.7 -20° 10.3	346° 06.4 -20° 18.5	0° 29.1 -20° 26.6	14° 51.7 -20° 34.5	29° 14.2 -20° 42.3	43° 36.7 -20° 49.9	+22.7 -8.3	16.7 61.3
Ср 7	259° 08.4 -22° 24.7	273° 30.3 -22° 29.6	287° 52.1 -22° 34.4	302° 13.9 -22° 39.0	316° 35.7 -22° 43.5	330° 57.5 -22° 47.8	345° 19.2 -22° 51.9	359° 41.0 -22° 55.8	14° 02.7 -22° 59.5	28° 24.4 -23° 03.1	42° 46.2 -23° 06.5	+21.8 -4.2	16.6 61.0
Чт 8	258° 13.4 -23° 36.0	272° 35.4 -23° 36.6	286° 57.5 -23° 37.0	301° 19.6 -23° 37.2	315° 41.7 -23° 37.2	330° 03.9 -23° 37.0	344° 26.1 -23° 36.7	358° 48.4 -23° 36.2	13° 10.7 -23° 35.6	27° 33.1 -23° 34.7	41° 55.5 -23° 33.7	+22.2 +0.2	16.5 60.3
Пт 9	257° 40.1 -22° 58.9	272° 03.7 -22° 55.3	286° 27.3 -22° 51.5	300° 51.1 -22° 47.6	315° 14.9 -22° 43.6	329° 38.9 -22° 39.4	344° 02.9 -22° 35.0	358° 27.1 -22° 30.5	12° 51.3 -22° 25.9	27° 15.6 -22° 21.1	41° 40.0 -22° 16.2	+24.0 +4.3	16.2 59.5
Сб 10	257° 58.5 -20° 46.2	272° 24.6 -20° 39.3	286° 50.8 -20° 32.1	301° 17.1 -20° 24.9	315° 43.5 -20° 17.6	330° 10.1 -20° 10.1	344° 36.7 -20° 02.5	359° 03.4 -19° 54.9	13° 30.3 -19° 47.1	27° 57.2 -19° 39.2	42° 24.3 -19° 31.2	+26.6 +7.5	15.9 58.5
Вс 11	259° 23.5 -17° 19.8	273° 52.3 -17° 10.4	288° 21.2 -17° 00.8	302° 50.2 -16° 51.2	317° 19.3 -16° 41.5	331° 48.5 -16° 31.8	346° 17.9 -16° 21.9	0° 47.3 -16° 12.0	15° 16.8 -16° 02.0	29° 46.4 -15° 52.0	44° 16.2 -15° 41.9	+29.3 +9.8	15.7 57.5
Пн 12	261° 53.6 -13° 02.7	276° 24.9 -12° 51.7	290° 56.2 -12° 40.6	305° 27.6 -12° 29.5	319° 59.0 -12° 18.3	334° 30.6 -12° 07.1	349° 02.3 -11° 55.8	3° 34.0 -11° 44.5	18° 05.8 -11° 33.1	32° 37.7 -11° 21.8	47° 09.6 -11° 10.3	+31.6 +11.2	15.4 56.5
◐ Вт 13	265° 17.8 -8° 15.0	279° 50.9 -8° 03.1	294° 24.0 -7° 51.2	308° 57.2 -7° 39.2	323° 30.5 -7° 27.3	338° 03.8 -7° 15.3	352° 37.1 -7° 03.3	7° 10.6 -6° 51.3	21° 44.0 -6° 39.2	36° 17.6 -6° 27.2	50° 51.1 -6° 15.1	+33.3 +12.0	15.2 55.7
Ср 14	269° 20.4 -3° 12.8	283° 54.6 -3° 00.6	298° 28.9 -2° 48.4	313° 03.3 -2° 36.2	327° 37.6 -2° 24.0	342° 12.0 -2° 11.8	356° 46.4 -1° 59.6	11° 20.9 -1° 47.4	25° 55.4 -1° 35.2	40° 29.9 -1° 23.0	55° 04.4 -1° 10.8	+34.4 +12.2	15.0 55.0
Чт 15	273° 44.8 1° 51.2	288° 19.7 2° 03.3	302° 54.5 2° 15.3	317° 29.3 2° 27.3	332° 04.1 2° 39.3	346° 39.0 2° 51.3	1° 13.8 3° 03.3	15° 48.7 3° 15.2	30° 23.5 3° 27.1	44° 58.4 3° 39.0	59° 33.2 3° 50.9	+34.8 +12.0	14.9 54.5
Пт 16	278° 15.7 6° 46.3	292° 50.5 6° 57.8	307° 25.3 7° 09.2	322° 00.0 7° 20.6	336° 34.7 7° 32.0	351° 09.4 7° 43.4	5° 44.1 7° 54.7	20° 18.8 8° 06.0	34° 53.5 8° 17.2	49° 28.1 8° 28.4	64° 02.7 8° 39.6	+34.7 +11.3	14.8 54.2
Сб 17	282° 39.2 11° 22.4	297° 13.4 11° 32.9	311° 47.6 11° 43.3	326° 21.8 11° 53.7	340° 55.9 12° 04.1	355° 30.0 12° 14.4	10° 04.0 12° 24.7	24° 38.1 12° 34.9	39° 12.0 12° 45.0	53° 46.0 12° 55.2	68° 19.9 13° 05.2	+34.1 +10.3	14.7 54.0
Вс 18	286° 44.0 15° 29.2	301° 17.2 15° 38.3	315° 50.5 15° 47.4	330° 23.6 15° 56.4	344° 56.8 16° 05.3	359° 29.9 16° 14.2	14° 02.9 16° 23.0	28° 35.9 16° 31.7	43° 08.9 16° 40.3	57° 41.8 16° 48.9	72° 14.7 16° 57.4	+33.1 +8.8	14.7 53.9
Пн 19	290° 22.0 18° 56.2	304° 54.1 19° 03.5	319° 26.1 19° 10.7	333° 58.1 19° 17.8	348° 30.1 19° 24.9	3° 02.0 19° 31.8	17° 33.8 19° 38.7	32° 05.6 19° 45.5	46° 37.4 19° 52.2	61° 09.1 19° 58.8	75° 40.8 20° 05.3	+31.9 +6.9	14.7 53.9
Вт 20	293° 30.0 21° 32.3	308° 01.0 21° 37.4	322° 31.8 21° 42.3	337° 02.7 21° 47.2	351° 33.4 21° 51.9	6° 04.2 21° 56.6	20° 34.9 22° 01.1	35° 05.5 22° 05.5	49° 36.2 22° 09.9	64° 06.7 22° 14.1	78° 37.3 22° 18.3	+30.7 +4.6	14.7 54.1
○ Ср 21	296° 10.8 23° 07.6	310° 40.8 23° 10.0	325° 10.7 23° 12.4	339° 40.6 23° 14.6	354° 10.5 23° 16.6	8° 40.3 23° 18.6	23° 10.2 23° 20.5	37° 39.9 23° 22.2	52° 09.7 23° 23.9	66° 39.5 23° 25.4	81° 09.2 23° 26.8	+29.8 +1.9	14.8 54.3
Чт 22	298° 32.7 23° 34.3	313° 02.2 23° 33.9	327° 31.6 23° 33.3	342° 01.0 23° 32.7	356° 30.5 23° 31.9	10° 59.9 23° 31.0	25° 29.3 23° 30.0	39° 58.7 23° 28.9	54° 28.1 23° 27.6	68° 57.5 23° 26.2	83° 26.9 23° 24.8	+29.4 -1.0	14.9 54.6
Пт 23	300° 48.0 22° 48.6	315° 17.5 22° 45.2	329° 46.9 22° 41.8	344° 16.4 22° 38.2	358° 45.9 22° 34.5	13° 15.4 22° 30.7	27° 44.9 22° 26.8	42° 14.5 22° 22.8	56° 44.0 22° 18.7	71° 13.6 22° 14.4	85° 43.1 22° 10.0	+29.5 -3.9	15.0 55.0
Сб 24	303° 09.0 20° 51.3	317° 38.9 20° 45.1	332° 08.9 20° 38.9	346° 38.8 20° 32.6	1° 08.8 20° 26.2	15° 38.8 20° 19.6	30° 08.8 20° 13.0	44° 38.8 20° 06.2	59° 08.9 19° 59.4	73° 39.0 19° 52.4	88° 09.1 19° 45.3	+30.0 -6.6	15.1 55.4
Вс 25	317° 38.9 20° 45.1	332° 08.9 20° 38.9	346° 38.8 20° 32.6	1° 08.8 20° 26.2	15° 38.8 20° 19.6	30° 08.8 20° 13.0	44° 38.8 20° 06.2	59° 08.9 19° 59.4	73° 39.0 19° 52.4	88° 09.1 19° 45.3	102° 39.3 19° 38.2	+30.0 -6.7	15.1 55.5
Пн 26	320° 14.8 17° 39.0	334° 45.4 17° 30.3	349° 16.0 17° 21.5	3° 46.6 17° 12.6	18° 17.3 17° 03.6	32° 47.9 16° 54.5	47° 18.7 16° 45.4	61° 49.4 16° 36.1	76° 20.2 16° 26.8	90° 51.0 16° 17.4	105° 21.8 16° 07.9	+30.7 -9.1	15.3 56.0
Вт 27	323° 06.8 13° 35.4	337° 38.0 13° 24.6	352° 09.2 13° 13.7	6° 40.4 13° 02.8	21° 11.6 12° 51.7	35° 42.9 12° 40.7	50° 14.1 12° 29.5	64° 45.4 12° 18.3	79° 16.7 12° 07.0	93° 48.0 11° 55.6	108° 19.3 11° 44.2	+31.3 -11.1	15.5 56.7
◑ Ср 28	326° 10.3 8° 45.1	340° 41.8 8° 32.7	355° 13.2 8° 20.2	9° 44.7 8° 07.7	24° 16.1 7° 55.1	38° 47.6 7° 42.5	53° 19.0 7° 29.8	67° 50.5 7° 17.1	82° 21.9 7° 04.3	96° 53.4 6° 51.5	111° 24.8 6° 38.6	+31.4 -12.6	15.7 57.4
Чт 29	329° 14.9 3° 20.6	343° 46.2 3° 07.1	358° 17.3 2° 53.6	12° 48.5 2° 40.0	27° 19.7 2° 26.5	41° 50.8 2° 12.9	56° 21.9 1° 59.2	70° 52.9 1° 45.6	85° 24.0 1° 31.9	99° 55.0 1° 18.2	114° 26.0 1° 04.4	+31.1 -13.6	15.9 58.2
Пт 30	332° 06.3 -2° 23.4	346° 36.6 -2° 37.3	1° 06.9 -2° 51.3	15° 37.2 -3° 05.2	30° 07.3 -3° 19.1	44° 37.5 -3° 33.1	59° 07.6 -3° 47.0	73° 37.6 -4° 00.9	88° 07.6 -4° 14.8	102° 37.5 -4° 28.8	117° 07.4 -4° 42.7	+30.1 -13.9	16.1 59.0

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 6 04h24 — Первая четв.: 13 00h35 — Полнолуние: 21 04h02 — Последняя четв.: 28 23h47

СОЛНЦЕ

Декабрь 2029

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	272° 44.7 -21° 50.7	287° 44.5 -21° 51.1	302° 44.2 -21° 51.5	317° 44.0 -21° 51.9	332° 43.8 -21° 52.2	347° 43.5 -21° 52.6	2° 43.3 -21° 53.0	17° 43.0 -21° 53.4	32° 42.8 -21° 53.8	47° 42.6 -21° 54.1	62° 42.3 -21° 54.5	77° 42.1 -21° 54.9	-0.2 -0.4
Вс 2	272° 39.0 -21° 59.7	287° 38.7 -22° 00.1	302° 38.5 -22° 00.4	317° 38.2 -22° 00.8	332° 38.0 -22° 01.2	347° 37.8 -22° 01.5	2° 37.5 -22° 01.9	17° 37.3 -22° 02.2	32° 37.0 -22° 02.6	47° 36.8 -22° 03.0	62° 36.5 -22° 03.3	77° 36.3 -22° 03.7	-0.2 -0.4
Пн 3	272° 33.1 -22° 08.3	287° 32.8 -22° 08.6	302° 32.6 -22° 09.0	317° 32.3 -22° 09.3	332° 32.1 -22° 09.7	347° 31.9 -22° 10.0	2° 31.6 -22° 10.3	17° 31.4 -22° 10.7	32° 31.1 -22° 11.0	47° 30.9 -22° 11.4	62° 30.6 -22° 11.7	77° 30.3 -23° 12.0	-0.2 -0.3
Вт 4	272° 27.1 -22° 16.4	287° 26.8 -22° 16.7	302° 26.6 -22° 17.1	317° 26.3 -22° 17.4	332° 26.0 -22° 17.7	347° 25.8 -22° 18.0	2° 25.5 -22° 18.4	17° 25.3 -22° 18.7	32° 25.0 -22° 19.0	47° 24.8 -22° 19.3	62° 24.5 -22° 19.7	77° 24.3 -22° 20.0	-0.3 -0.3
Ср 5	272° 20.9 -22° 24.1	287° 20.6 -22° 24.4	302° 20.4 -22° 24.7	317° 20.1 -22° 25.0	332° 19.8 -22° 25.4	347° 19.6 -22° 25.7	2° 19.3 -22° 26.0	17° 19.1 -22° 26.3	32° 18.8 -22° 26.6	47° 18.5 -22° 26.9	62° 18.3 -22° 27.2	77° 18.0 -22° 27.5	-0.3 -0.3
Чт 6	272° 14.6 -22° 31.4	287° 14.3 -22° 31.7	302° 14.0 -22° 32.0	317° 13.8 -22° 32.3	332° 13.5 -22° 32.6	347° 13.2 -22° 32.8	2° 13.0 -22° 33.1	17° 12.7 -22° 33.4	32° 12.4 -22° 33.7	47° 12.2 -22° 34.0	62° 11.9 -22° 34.3	77° 11.6 -22° 34.6	-0.3 -0.3
Пт 7	272° 08.1 -22° 38.2	287° 07.9 -22° 38.5	302° 07.6 -22° 38.8	317° 07.3 -22° 39.0	332° 07.0 -22° 39.3	347° 06.8 -22° 39.6	2° 06.5 -22° 39.9	17° 06.2 -22° 40.1	32° 06.0 -22° 40.4	47° 05.7 -22° 40.7	62° 05.4 -22° 40.9	77° 05.1 -22° 41.2	-0.3 -0.3
Сб 8	272° 01.6 -22° 44.6	287° 01.3 -22° 44.9	302° 01.0 -22° 45.1	317° 00.7 -22° 45.4	332° 00.5 -22° 45.6	347° 00.2 -22° 45.9	1° 59.9 -22° 46.1	16° 59.6 -22° 46.4	31° 59.4 -22° 46.6	46° 59.1 -22° 46.9	61° 58.8 -22° 47.1	76° 58.5 -22° 47.4	-0.3 -0.3
Вс 9	271° 54.9 -22° 50.5	286° 54.6 -22° 50.8	301° 54.3 -22° 51.0	316° 54.1 -22° 51.3	331° 53.8 -22° 51.5	346° 53.5 -22° 51.7	1° 53.2 -22° 52.0	16° 52.9 -22° 52.2	31° 52.6 -22° 52.4	46° 52.4 -22° 52.7	61° 52.1 -22° 52.9	76° 51.8 -22° 53.1	-0.3 -0.2
Пн 10	271° 48.1 -22° 56.0	286° 47.8 -22° 56.3	301° 47.5 -22° 56.5	316° 47.3 -22° 56.7	331° 47.0 -22° 56.9	346° 46.7 -22° 57.1	1° 46.4 -22° 57.3	16° 46.1 -22° 57.6	31° 45.8 -22° 57.8	46° 45.5 -22° 58.0	61° 45.3 -22° 58.2	76° 45.0 -22° 58.4	-0.3 -0.2
Вт 11	271° 41.2 -23° 01.1	286° 41.0 -23° 01.3	301° 40.7 -23° 01.5	316° 40.4 -23° 01.7	331° 40.1 -23° 01.9	346° 39.8 -23° 02.1	1° 39.5 -23° 02.3	16° 39.2 -23° 02.5	31° 38.9 -23° 02.7	46° 38.6 -23° 02.9	61° 38.3 -23° 03.0	76° 38.1 -23° 03.2	-0.3 -0.2
Ср 12	271° 34.3 -23° 05.7	286° 34.0 -23° 05.8	301° 33.7 -23° 06.0	316° 33.4 -23° 06.2	331° 33.1 -23° 06.4	346° 32.8 -23° 06.6	1° 32.5 -23° 06.7	16° 32.2 -23° 06.9	31° 31.9 -23° 07.1	46° 31.6 -23° 07.3	61° 31.3 -23° 07.4	76° 31.1 -23° 07.6	-0.3 -0.2
Чт 13	271° 27.2 -23° 09.8	286° 26.9 -23° 10.0	301° 26.6 -23° 10.1	316° 26.3 -23° 10.3	331° 26.0 -23° 10.4	346° 25.7 -23° 10.6	1° 25.5 -23° 10.7	16° 25.2 -23° 10.9	31° 24.9 -23° 11.1	46° 24.6 -23° 11.2	61° 24.3 -23° 11.4	76° 24.0 -23° 11.5	-0.3 -0.2
Пт 14	271° 20.1 -23° 13.5	286° 19.8 -23° 13.6	301° 19.5 -23° 13.7	316° 19.2 -23° 13.9	331° 18.9 -23° 14.0	346° 18.6 -23° 14.2	1° 18.3 -23° 14.3	16° 18.0 -23° 14.4	31° 17.7 -23° 14.6	46° 17.4 -23° 14.7	61° 17.1 -23° 14.8	76° 16.8 -23° 15.0	-0.3 -0.1
Сб 15	271° 12.9 -23° 16.7	286° 12.6 -23° 16.8	301° 12.3 -23° 16.9	316° 12.0 -23° 17.0	331° 11.7 -23° 17.1	346° 11.4 -23° 17.3	1° 11.1 -23° 17.4	16° 10.8 -23° 17.5	31° 10.5 -23° 17.6	46° 10.2 -23° 17.7	61° 09.9 -23° 17.9	76° 09.6 -23° 18.0	-0.3 -0.1
Вс 16	271° 05.7 -23° 19.4	286° 05.4 -23° 19.5	301° 05.1 -23° 19.6	316° 04.8 -23° 19.7	331° 04.5 -23° 19.8	346° 04.2 -23° 19.9	1° 03.9 -23° 20.0	16° 03.6 -23° 20.1	31° 03.2 -23° 20.2	46° 02.9 -23° 20.3	61° 02.6 -23° 20.4	76° 02.3 -23° 20.5	-0.3 -0.1
Пн 17	270° 58.4 -23° 21.7	285° 58.1 -23° 21.8	300° 57.8 -23° 21.8	315° 57.5 -23° 21.9	330° 57.2 -23° 22.0	345° 56.9 -23° 22.1	0° 56.5 -23° 22.2	15° 56.2 -23° 22.2	30° 55.9 -23° 22.3	45° 55.6 -23° 22.4	60° 55.3 -23° 22.5	75° 55.0 -23° 22.6	-0.3 -0.1
Вт 18	270° 51.0 -23° 23.5	285° 50.7 -23° 23.5	300° 50.4 -23° 23.6	315° 50.1 -23° 23.7	330° 49.8 -23° 23.7	345° 49.5 -23° 23.8	0° 49.2 -23° 23.8	15° 48.9 -23° 23.9	30° 48.6 -23° 24.0	45° 48.3 -23° 24.0	60° 48.0 -23° 24.1	75° 47.7 -23° 24.1	-0.3 -0.1
Ср 19	270° 43.7 -23° 24.8	285° 43.4 -23° 24.9	300° 43.1 -23° 24.9	315° 42.7 -23° 24.9	330° 42.4 -23° 25.0	345° 42.1 -23° 25.0	0° 41.8 -23° 25.1	15° 41.5 -23° 25.1	30° 41.2 -23° 25.1	45° 40.9 -23° 25.2	60° 40.6 -23° 25.2	75° 40.3 -23° 25.3	-0.3 -0.0
Чт 20	270° 36.3 -23° 25.7	285° 36.0 -23° 25.7	300° 35.7 -23° 25.7	315° 35.3 -23° 25.8	330° 35.0 -23° 25.8	345° 34.7 -23° 25.8	0° 34.4 -23° 25.8	15° 34.1 -23° 25.8	30° 33.8 -23° 25.9	45° 33.5 -23° 25.9	60° 33.2 -23° 25.9	75° 32.9 -23° 25.9	-0.3 -0.0
Пт 21	270° 28.8 -23° 26.1	285° 28.5 -23° 26.1	300° 28.2 -23° 26.1	315° 27.9 -23° 26.1	330° 27.6 -23° 26.1	345° 27.3 -23° 26.1	0° 27.0 -23° 26.1	15° 26.7 -23° 26.1	30° 26.4 -23° 26.1	45° 26.1 -23° 26.1	60° 25.8 -23° 26.1	75° 25.4 -23° 26.1	-0.3 -0.0
Сб 22	270° 21.4 -23° 26.0	285° 21.1 -23° 26.0	300° 20.8 -23° 26.0	315° 20.5 -23° 26.0	330° 20.2 -23° 25.9	345° 19.9 -23° 25.9	0° 19.6 -23° 25.9	15° 19.2 -23° 25.9	30° 18.9 -23° 25.9	45° 18.6 -23° 25.9	60° 18.3 -23° 25.8	75° 18.0 -23° 25.8	-0.3 +0.0
Вс 23	270° 14.0 -23° 25.5	285° 13.7 -23° 25.4	300° 13.4 -23° 25.4	315° 13.1 -23° 25.4	330° 12.7 -23° 25.3	345° 12.4 -23° 25.3	0° 12.1 -23° 25.3	15° 11.8 -23° 25.2	30° 11.5 -23° 25.2	45° 11.2 -23° 25.1	60° 10.9 -23° 25.1	75° 10.6 -23° 25.1	-0.3 +0.0
Пн 24	270° 06.5 -23° 24.4	285° 06.2 -23° 24.4	300° 05.9 -23° 24.3	315° 05.6 -23° 24.3	330° 05.3 -23° 24.2	345° 05.0 -23° 24.2	0° 04.7 -23° 24.1	15° 04.4 -23° 24.1	30° 04.1 -23° 24.0	45° 03.8 -23° 23.9	60° 03.5 -23° 23.9	75° 03.1 -23° 23.8	-0.3 +0.1
Вт 25	269° 59.1 -23° 23.0	284° 58.8 -23° 22.9	299° 58.5 -23° 22.8	314° 58.2 -23° 22.7	329° 57.9 -23° 22.7	344° 57.6 -23° 22.6	359° 57.3 -23° 22.5	14° 57.0 -23° 22.4	29° 56.7 -23° 22.4	44° 56.3 -23° 22.3	59° 56.0 -23° 22.2	74° 55.7 -23° 22.1	-0.3 +0.1
Ср 26	269° 51.7 -23° 21.0	284° 51.4 -23° 20.9	299° 51.1 -23° 20.8	314° 50.8 -23° 20.7	329° 50.5 -23° 20.6	344° 50.2 -23° 20.5	359° 49.9 -23° 20.5	14° 49.6 -23° 20.4	29° 49.3 -23° 20.3	44° 48.9 -23° 20.2	59° 48.6 -23° 20.1	74° 48.3 -23° 20.0	-0.3 +0.1
Чт 27	269° 44.3 -23° 18.6	284° 44.0 -23° 18.5	299° 43.7 -23° 18.4	314° 43.4 -23° 18.3	329° 43.1 -23° 18.1	344° 42.8 -23° 18.0	359° 42.5 -23° 17.9	14° 42.2 -23° 17.8	29° 41.9 -23° 17.7	44° 41.6 -23° 17.6	59° 41.3 -23° 17.4	74° 41.0 -23° 17.3	-0.3 +0.1
Пт 28	269° 37.0 -23° 15.7	284° 36.7 -23° 15.6	299° 36.4 -23° 15.4	314° 36.1 -23° 15.3	329° 35.8 -23° 15.2	344° 35.5 -23° 15.0	359° 35.2 -23° 14.9	14° 34.9 -23° 14.8	29° 34.6 -23° 14.6	44° 34.3 -23° 14.5	59° 33.9 -23° 14.4	74° 33.6 -23° 14.2	-0.3 +0.1
Сб 29	269° 29.7 -23° 12.3	284° 29.4 -23° 12.2	299° 29.1 -23° 12.0	314° 28.8 -23° 11.9	329° 28.5 -23° 11.7	344° 28.2 -23° 11.6	359° 27.9 -23° 11.4	14° 27.6 -23° 11.3	29° 27.3 -23° 11.1	44° 27.0 -23° 11.0	59° 26.7 -23° 10.8	74° 26.4 -23° 10.6	-0.3 +0.2
Вс 30	269° 22.4 -23° 08.5	284° 22.1 -23° 08.3	299° 21.8 -23° 08.2	314° 21.5 -23° 08.0	329° 21.2 -23° 07.8	344° 20.9 -23° 07.7	359° 20.6 -23° 07.5	14° 20.3 -23° 07.3	29° 20.0 -23° 07.1	44° 19.7 -23° 07.0	59° 19.4 -23° 06.8	74° 19.1 -23° 06.6	-0.3 +0.2
Пн 31	269° 15.2 -23° 04.2	284° 14.9 -23° 04.0	299° 14.6 -23° 03.8	314° 14.3 -23° 03.7	329° 14.1 -23° 03.5	344° 13.8 -23° 03.3	359° 13.5 -23° 03.1	14° 13.2 -23° 02.9	29° 12.9 -23° 02.7	44° 12.6 -23° 02.5	59° 12.3 -23° 02.3	74° 12.0 -23° 02.1	-0.3 +0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Декабрь 2029

Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
Сб 1	247 ○ 33.4	262 ○ 02.7	276 ○ 31.8	291 ○ 00.9	305 ○ 30.0	319 ○ 58.9	334 ○ 27.8	348 ○ 56.6	3 ○ 25.3	17 ○ 54.0	32 ○ 22.6	+28.9	16.3
	-6 ○ 47.2	-7 ○ 00.9	-7 ○ 14.6	-7 ○ 28.3	-7 ○ 42.0	-7 ○ 55.6	-8 ○ 09.2	-8 ○ 22.8	-8 ○ 36.4	-8 ○ 49.9	-9 ○ 03.3	-13.6	59.6
Вс 2	249 ○ 21.5	263 ○ 48.7	278 ○ 15.9	292 ○ 43.0	307 ○ 09.9	321 ○ 36.8	336 ○ 03.6	350 ○ 30.3	4 ○ 56.9	19 ○ 23.4	33 ○ 49.9	+26.8	16.4
	-12 ○ 19.9	-12 ○ 32.5	-12 ○ 45.1	-12 ○ 57.6	-13 ○ 10.1	-13 ○ 22.5	-13 ○ 34.8	-13 ○ 47.0	-13 ○ 59.2	-14 ○ 11.3	-14 ○ 23.3	-12.3	60.3
Пн 3	250 ○ 14.9	264 ○ 39.8	279 ○ 04.6	293 ○ 29.4	307 ○ 54.0	322 ○ 18.5	336 ○ 43.0	351 ○ 07.3	5 ○ 31.6	19 ○ 55.8	34 ○ 19.9	+24.5	16.6
	-17 ○ 12.5	-17 ○ 23.0	-17 ○ 33.3	-17 ○ 43.6	-17 ○ 53.7	-18 ○ 03.8	-18 ○ 13.7	-18 ○ 23.4	-18 ○ 33.1	-18 ○ 42.6	-18 ○ 52.0	-10.0	60.8
Вт 4	250 ○ 11.2	264 ○ 34.0	278 ○ 56.7	293 ○ 19.4	307 ○ 42.0	322 ○ 04.5	336 ○ 27.0	350 ○ 49.4	5 ○ 11.7	19 ○ 34.0	33 ○ 56.3	+22.5	16.6
	-20 ○ 57.0	-21 ○ 04.1	-21 ○ 11.2	-21 ○ 18.0	-21 ○ 24.7	-21 ○ 31.3	-21 ○ 37.7	-21 ○ 43.9	-21 ○ 50.0	-21 ○ 55.9	-22 ○ 01.7	-6.5	61.0
● Ср 5	249 ○ 24.6	263 ○ 46.2	278 ○ 07.8	292 ○ 29.4	306 ○ 51.0	321 ○ 12.6	335 ○ 34.2	349 ○ 55.8	4 ○ 17.3	18 ○ 38.9	33 ○ 00.5	+21.6	16.6
	-23 ○ 07.7	-23 ○ 10.8	-23 ○ 13.6	-23 ○ 16.3	-23 ○ 18.8	-23 ○ 21.1	-23 ○ 23.2	-23 ○ 25.2	-23 ○ 26.9	-23 ○ 28.5	-23 ○ 30.0	-2.2	60.8
Чт 6	248 ○ 26.2	262 ○ 48.2	277 ○ 10.2	291 ○ 32.3	305 ○ 54.4	320 ○ 16.6	334 ○ 38.8	349 ○ 01.1	3 ○ 23.4	17 ○ 45.8	32 ○ 08.3	+22.2	16.5
	-23 ○ 29.9	-23 ○ 28.5	-23 ○ 26.9	-23 ○ 25.2	-23 ○ 23.3	-23 ○ 21.2	-23 ○ 18.9	-23 ○ 16.5	-23 ○ 13.8	-23 ○ 11.1	-23 ○ 08.1	+2.2	60.4
Пт 7	247 ○ 54.4	262 ○ 18.1	276 ○ 41.9	291 ○ 05.9	305 ○ 29.9	319 ○ 54.0	334 ○ 18.3	348 ○ 42.6	3 ○ 07.0	17 ○ 31.6	31 ○ 56.2	+24.2	16.3
	-22 ○ 04.9	-21 ○ 59.4	-21 ○ 53.9	-21 ○ 48.1	-21 ○ 42.3	-21 ○ 36.3	-21 ○ 30.1	-21 ○ 23.8	-21 ○ 17.4	-21 ○ 10.9	-21 ○ 04.2	+6.1	59.7
Сб 8	248 ○ 18.5	262 ○ 44.9	277 ○ 11.4	291 ○ 37.9	306 ○ 04.6	320 ○ 31.4	334 ○ 58.4	349 ○ 25.4	3 ○ 52.6	18 ○ 19.8	32 ○ 47.2	+26.9	16.0
	-19 ○ 09.0	-19 ○ 00.4	-18 ○ 51.7	-18 ○ 43.0	-18 ○ 34.1	-18 ○ 25.1	-18 ○ 16.0	-18 ○ 06.8	-17 ○ 57.5	-17 ○ 48.1	-17 ○ 38.6	+9.0	58.7
Вс 9	249 ○ 50.8	264 ○ 19.9	278 ○ 49.1	293 ○ 18.5	307 ○ 47.9	322 ○ 17.4	336 ○ 47.0	351 ○ 16.7	5 ○ 46.5	20 ○ 16.4	34 ○ 46.4	+29.6	15.8
	-15 ○ 06.7	-14 ○ 56.0	-14 ○ 45.2	-14 ○ 34.3	-14 ○ 23.4	-14 ○ 12.5	-14 ○ 01.4	-13 ○ 50.3	-13 ○ 39.2	-13 ○ 28.0	-13 ○ 16.8	+11.0	57.8
Пн 10	252 ○ 27.7	266 ○ 59.1	281 ○ 30.6	296 ○ 02.3	310 ○ 33.9	325 ○ 05.7	339 ○ 37.6	354 ○ 09.5	8 ○ 41.5	23 ○ 13.6	37 ○ 45.7	+31.8	15.5
	-10 ○ 22.5	-10 ○ 10.6	-9 ○ 58.6	-9 ○ 46.6	-9 ○ 34.6	-9 ○ 22.6	-9 ○ 10.5	-8 ○ 58.4	-8 ○ 46.3	-8 ○ 34.1	-8 ○ 21.9	+12.1	56.8
Вт 11	255 ○ 56.0	270 ○ 29.2	285 ○ 02.4	299 ○ 35.7	314 ○ 09.0	328 ○ 42.4	343 ○ 15.8	357 ○ 49.3	12 ○ 22.9	26 ○ 56.4	41 ○ 30.1	+33.4	15.3
	-5 ○ 17.2	-5 ○ 04.8	-4 ○ 52.4	-4 ○ 40.0	-4 ○ 27.6	-4 ○ 15.1	-4 ○ 02.7	-3 ○ 50.3	-3 ○ 37.8	-3 ○ 25.4	-3 ○ 13.0	+12.4	55.9
◐ Ср 12	259 ○ 59.2	274 ○ 33.4	289 ○ 07.7	303 ○ 42.0	318 ○ 16.3	332 ○ 50.6	347 ○ 24.9	1 ○ 59.3	16 ○ 33.7	31 ○ 08.1	45 ○ 42.5	+34.3	15.1
	-0 ○ 06.9	0 ○ 05.4	0 ○ 17.8	0 ○ 30.1	0 ○ 42.4	0 ○ 54.6	1 ○ 06.9	1 ○ 19.2	1 ○ 31.4	1 ○ 43.6	1 ○ 55.8	+12.3	55.2
Чт 13	264 ○ 20.5	278 ○ 55.1	293 ○ 29.7	308 ○ 04.3	322 ○ 38.9	337 ○ 13.5	351 ○ 48.1	6 ○ 22.7	20 ○ 57.2	35 ○ 31.8	50 ○ 06.4	+34.6	14.9
	4 ○ 56.2	5 ○ 08.0	5 ○ 19.8	5 ○ 31.6	5 ○ 43.3	5 ○ 55.0	6 ○ 06.7	6 ○ 18.4	6 ○ 30.0	6 ○ 41.6	6 ○ 53.1	+11.7	54.6
Пт 14	268 ○ 44.0	283 ○ 18.3	297 ○ 52.7	312 ○ 27.0	327 ○ 01.4	341 ○ 35.7	356 ○ 09.9	10 ○ 44.2	25 ○ 18.4	39 ○ 52.6	54 ○ 26.8	+34.3	14.8
	9 ○ 42.0	9 ○ 52.9	10 ○ 03.8	10 ○ 14.6	10 ○ 25.5	10 ○ 36.2	10 ○ 46.9	10 ○ 57.6	11 ○ 08.2	11 ○ 18.8	11 ○ 29.3	+10.7	54.3
Сб 15	272 ○ 55.9	287 ○ 29.6	302 ○ 03.2	316 ○ 36.8	331 ○ 10.4	345 ○ 43.9	0 ○ 17.4	14 ○ 50.8	29 ○ 24.2	43 ○ 57.6	58 ○ 30.9	+33.5	14.7
	14 ○ 01.0	14 ○ 10.7	14 ○ 20.3	14 ○ 29.9	14 ○ 39.4	14 ○ 48.8	14 ○ 58.2	15 ○ 07.5	15 ○ 16.7	15 ○ 25.9	15 ○ 35.1	+9.4	54.1
Вс 16	276 ○ 45.4	291 ○ 18.0	305 ○ 50.6	320 ○ 23.1	334 ○ 55.5	349 ○ 27.9	4 ○ 00.3	18 ○ 32.6	33 ○ 04.8	47 ○ 37.0	62 ○ 09.2	+32.4	14.7
	17 ○ 43.8	17 ○ 51.8	17 ○ 59.8	18 ○ 07.6	18 ○ 15.4	18 ○ 23.1	18 ○ 30.7	18 ○ 38.3	18 ○ 45.8	18 ○ 53.2	19 ○ 00.5	+7.7	54.0
Пн 17	280 ○ 05.5	294 ○ 36.9	309 ○ 08.2	323 ○ 39.4	338 ○ 10.6	352 ○ 41.8	7 ○ 12.9	21 ○ 44.0	36 ○ 15.0	50 ○ 45.9	65 ○ 16.8	+31.1	14.8
	20 ○ 40.1	20 ○ 46.0	20 ○ 51.9	20 ○ 57.6	21 ○ 03.3	21 ○ 08.9	21 ○ 14.3	21 ○ 19.7	21 ○ 25.0	21 ○ 30.2	21 ○ 35.3	+5.5	54.1
Вт 18	282 ○ 54.9	297 ○ 25.1	311 ○ 55.2	326 ○ 25.3	340 ○ 55.4	355 ○ 25.4	9 ○ 55.4	24 ○ 25.4	38 ○ 55.3	53 ○ 25.1	67 ○ 55.0	+30.0	14.8
	22 ○ 39.6	22 ○ 43.0	22 ○ 46.4	22 ○ 49.6	22 ○ 52.8	22 ○ 55.8	22 ○ 58.7	23 ○ 01.5	23 ○ 04.2	23 ○ 06.8	23 ○ 09.3	+3.0	54.3
Ср 19	285 ○ 18.7	299 ○ 48.0	314 ○ 17.4	328 ○ 46.7	343 ○ 16.0	357 ○ 45.2	12 ○ 14.5	26 ○ 43.7	41 ○ 12.9	55 ○ 42.1	70 ○ 11.3	+29.3	14.9
	23 ○ 33.0	23 ○ 33.7	23 ○ 34.2	23 ○ 34.7	23 ○ 35.0	23 ○ 35.2	23 ○ 35.3	23 ○ 35.2	23 ○ 35.1	23 ○ 34.8	23 ○ 34.4	+0.1	54.7
○ Чт 20	287 ○ 27.8	301 ○ 56.9	316 ○ 25.9	330 ○ 55.0	345 ○ 24.1	359 ○ 53.1	14 ○ 22.2	28 ○ 51.3	43 ○ 20.3	57 ○ 49.4	72 ○ 18.5	+29.1	15.0
	23 ○ 14.2	23 ○ 11.9	23 ○ 09.5	23 ○ 07.0	23 ○ 04.3	23 ○ 01.5	22 ○ 58.6	22 ○ 55.6	22 ○ 52.5	22 ○ 49.3	22 ○ 45.9	-2.8	55.0
Пт 21	289 ○ 36.2	304 ○ 05.5	318 ○ 34.9	333 ○ 04.2	347 ○ 33.6	2 ○ 03.0	16 ○ 32.4	31 ○ 01.8	45 ○ 31.3	60 ○ 00.8	74 ○ 30.3	+29.4	15.1
	21 ○ 41.5	21 ○ 36.3	21 ○ 30.9	21 ○ 25.5	21 ○ 20.0	21 ○ 14.3	21 ○ 08.5	21 ○ 02.7	20 ○ 56.7	20 ○ 50.6	20 ○ 44.4	-5.7	55.5
Сб 22	291 ○ 56.2	306 ○ 26.2	320 ○ 56.1	335 ○ 26.2	349 ○ 56.2	4 ○ 26.3	18 ○ 56.4	33 ○ 26.6	47 ○ 56.7	62 ○ 27.0	76 ○ 57.2	+30.1	15.3
	18 ○ 58.5	18 ○ 50.7	18 ○ 42.7	18 ○ 34.6	18 ○ 26.5	18 ○ 18.2	18 ○ 09.8	18 ○ 01.4	17 ○ 52.8	17 ○ 44.2	17 ○ 35.4	-8.3	55.9
Вс 23	294 ○ 34.6	309 ○ 05.4	323 ○ 36.2	338 ○ 07.0	352 ○ 37.8	7 ○ 08.7	21 ○ 39.6	36 ○ 10.5	50 ○ 41.4	65 ○ 12.4	79 ○ 43.4	+30.9	15.4
	15 ○ 13.7	15 ○ 03.6	14 ○ 53.4	14 ○ 43.1	14 ○ 32.7	14 ○ 22.3	14 ○ 11.8	14 ○ 01.2	13 ○ 50.5	13 ○ 39.8	13 ○ 29.0	-10.5	56.4
Пн 24	297 ○ 31.5	312 ○ 02.9	326 ○ 34.3	341 ○ 05.8	355 ○ 37.2	10 ○ 08.7	24 ○ 40.1	39 ○ 11.6	53 ○ 43.1	68 ○ 14.6	82 ○ 46.2	+31.5	15.5
	10 ○ 38.6	10 ○ 26.8	10 ○ 14.9	10 ○ 02.9	9 ○ 50.9	9 ○ 38.8	9 ○ 26.6	9 ○ 14.4	9 ○ 02.2	8 ○ 49.9	8 ○ 37.5	-12.1	57.0
Вт 25	312 ○ 02.9	326 ○ 34.3	341 ○ 05.8	355 ○ 37.2	10 ○ 08.7	24 ○ 40.1	39 ○ 11.6	53 ○ 43.1	68 ○ 14.6	82 ○ 46.2	97 ○ 17.7	+31.5	15.5
	10 ○ 26.8	10 ○ 14.9	10 ○ 02.9	9 ○ 50.9	9 ○ 38.8	9 ○ 26.6	9 ○ 14.4	9 ○ 02.2	8 ○ 49.9	8 ○ 37.5	8 ○ 25.2	-12.2	57.0
Ср 26	315 ○ 11.9	329 ○ 43.5	344 ○ 15.2	358 ○ 46.8	13 ○ 18.5	27 ○ 50.1	42 ○ 21.7	56 ○ 53.3	71 ○ 25.0	85 ○ 56.6	100 ○ 28.2	+31.6	15.7
	5 ○ 13.9	5 ○ 00.8	4 ○ 47.7	4 ○ 34.6	4 ○ 21.4	4 ○ 08.2	3 ○ 55.0	3 ○ 41.8	3 ○ 28.5	3 ○ 15.2	3 ○ 01.9	-13.2	57.5
Чт 27	318 ○ 20.5	332 ○ 51.8	347 ○ 23.1	1 ○ 54.4	16 ○ 25.7	30 ○ 56.9	45 ○ 28.1	59 ○ 59.2	74 ○ 30.4	89 ○ 01.5	103 ○ 32.5	+31.2	15.8
	-0 ○ 20.3	-0 ○ 33.9	-0 ○ 47.5	-1 ○ 01.1	-1 ○ 14.7	-1 ○ 28.3	-1 ○ 41.9	-1 ○ 55.5	-2 ○ 09.1	-2 ○ 22.7	-2 ○ 36.3	-13.6	58.1
◑ Пт 28	321 ○ 13.7	335 ○ 44.1	350 ○ 14.4	4 ○ 44.7	19 ○ 14.9	33 ○ 45.1	48 ○ 15.2	62 ○ 45.3	77 ○ 15.2	91 ○ 45.2	106 ○ 15.1	+30.1	16.0
	-5 ○ 59.5	-6 ○ 12.9	-6 ○ 26.3	-6 ○ 39.7	-6 ○ 53.1	-7 ○ 06.4	-7 ○ 19.7	-7 ○ 32.9	-7 ○ 46.2	-7 ○ 59.4	-8 ○ 12.6	-13.3	58.7
Сб 29	323 ○ 35.5	338 ○ 04.3	352 ○ 33.0	7 ○ 01.6	21 ○ 30.2	35 ○ 58.7	50 ○ 27.1	64 ○ 55.5	79 ○ 23.7	93 ○ 51.9	108 ○ 20.0	+28.5	16.1
	-11 ○ 25.4	-11 ○ 37.9	-11 ○ 50.3	-12 ○ 02.7	-12 ○ 15.0	-12 ○ 27.2	-12 ○ 39.4	-12 ○ 51.5	-13 ○ 03.5	-13 ○ 15.5	-13 ○ 27.4	-12.2	59.2
Вс 30	325 ○ 11.5	339 ○ 38.3	354 ○ 04.9	8 ○ 31.5	22 ○ 58.0	37 ○ 24.4	51 ○ 50.7	66 ○ 16.9	80 ○ 43.0	95 ○ 09.1	109 ○ 35.0	+26.4	16.3
	-16 ○ 16.9	-16 ○ 27.5	-16 ○ 38.0	-16 ○ 48.5	-16 ○ 58.8	-17 ○ 09.0	-17 ○ 19.1	-17 ○ 29.2	-17 ○ 39.1	-17 ○ 48.9	-17 ○ 58.6	-10.2	59.7
Пн 31	325 ○ 54.1	340 ○ 18.7	354 ○ 43.2	9 ○ 07.6	23 ○ 32.0	37 ○ 56.3	52 ○ 20.5	66 ○ 44.6	81 ○ 08.7	95 ○ 32.7	109 ○ 56.6	+24.2	16.4
	-20 ○ 10.4	-20 ○ 18.1	-20 ○ 25.8	-20 ○ 33.3	-20 ○ 40.7	-20 ○ 48.0	-20 ○ 55.1	-21 ○ 02.1	-21 ○ 08.9	-21 ○ 15.6	-21 ○ 22.1	-7.2	60.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 5 14h52 — Первая четв.: 12 17h49 — Полнолуние: 20 22h46 — Последняя четв.: 28 09h49

СОЛНЦЕ

Январь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	269° 08.1	284° 07.8	299° 07.5	314° 07.2	329° 06.9	344° 06.6	359° 06.3	14° 06.1	29° 05.8	44° 05.5	59° 05.2	74° 04.9	-0.3
	-22° 59.5	-22° 59.3	-22° 59.1	-22° 58.8	-22° 58.6	-22° 58.4	-22° 58.2	-22° 58.0	-22° 57.8	-22° 57.6	-22° 57.4	-22° 57.1	+0.2
Ср 2	269° 01.1	284° 00.8	299° 00.5	314° 00.2	328° 59.9	343° 59.6	358° 59.3	13° 59.0	28° 58.7	43° 58.4	58° 58.2	73° 57.9	-0.3
	-22° 54.3	-22° 54.0	-22° 53.8	-22° 53.6	-22° 53.3	-22° 53.1	-22° 52.9	-22° 52.7	-22° 52.4	-22° 52.2	-22° 52.0	-22° 51.7	+0.2
Чт 3	268° 54.1	283° 53.8	298° 53.5	313° 53.2	328° 52.9	343° 52.7	358° 52.4	13° 52.1	28° 51.8	43° 51.5	58° 51.2	73° 50.9	-0.3
	-22° 48.6	-22° 48.3	-22° 48.1	-22° 47.9	-22° 47.6	-22° 47.4	-22° 47.1	-22° 46.9	-22° 46.6	-22° 46.4	-22° 46.1	-22° 45.8	+0.3
Пт 4	268° 47.2	283° 46.9	298° 46.7	313° 46.4	328° 46.1	343° 45.8	358° 45.5	13° 45.2	28° 45.0	43° 44.7	58° 44.4	73° 44.1	-0.3
	-22° 42.5	-22° 42.2	-22° 41.9	-22° 41.7	-22° 41.4	-22° 41.1	-22° 40.9	-22° 40.6	-22° 40.3	-22° 40.1	-22° 39.8	-22° 39.5	+0.3
Сб 5	268° 40.5	283° 40.2	298° 39.9	313° 39.6	328° 39.3	343° 39.1	358° 38.8	13° 38.5	28° 38.2	43° 37.9	58° 37.7	73° 37.4	-0.3
	-22° 35.9	-22° 35.6	-22° 35.3	-22° 35.1	-22° 34.8	-22° 34.5	-22° 34.2	-22° 33.9	-22° 33.6	-22° 33.3	-22° 33.0	-22° 32.7	+0.3
Вс 6	268° 33.8	283° 33.5	298° 33.2	313° 33.0	328° 32.7	343° 32.4	358° 32.1	13° 31.9	28° 31.6	43° 31.3	58° 31.1	73° 30.8	-0.3
	-22° 28.9	-22° 28.6	-22° 28.3	-22° 28.0	-22° 27.7	-22° 27.4	-22° 27.1	-22° 26.8	-22° 26.5	-22° 26.1	-22° 25.8	-22° 25.5	+0.3
Пн 7	268° 27.3	283° 27.0	298° 26.7	313° 26.4	328° 26.2	343° 25.9	358° 25.6	13° 25.4	28° 25.1	43° 24.8	58° 24.6	73° 24.3	-0.3
	-22° 21.4	-22° 21.1	-22° 20.8	-22° 20.5	-22° 20.1	-22° 19.8	-22° 19.5	-22° 19.2	-22° 18.8	-22° 18.5	-22° 18.2	-22° 17.9	+0.3
Вт 8	268° 20.8	283° 20.6	298° 20.3	313° 20.0	328° 19.8	343° 19.5	358° 19.3	13° 19.0	28° 18.7	43° 18.5	58° 18.2	73° 17.9	-0.3
	-22° 13.5	-22° 13.2	-22° 12.9	-22° 12.5	-22° 12.2	-22° 11.8	-22° 11.5	-22° 11.1	-22° 10.8	-22° 10.5	-22° 10.1	-22° 09.8	+0.3
Ср 9	268° 14.6	283° 14.3	298° 14.0	313° 13.8	328° 13.5	343° 13.3	358° 13.0	13° 12.8	28° 12.5	43° 12.2	58° 12.0	73° 11.7	-0.3
	-22° 05.2	-22° 04.8	-22° 04.5	-22° 04.1	-22° 03.8	-22° 03.4	-22° 03.0	-22° 02.7	-22° 02.3	-22° 02.0	-22° 01.6	-22° 01.2	+0.4
Чт 10	268° 08.4	283° 08.2	298° 07.9	313° 07.7	328° 07.4	343° 07.2	358° 06.9	13° 06.7	28° 06.4	43° 06.2	58° 05.9	73° 05.7	-0.3
	-21° 56.4	-21° 56.1	-21° 55.7	-21° 55.3	-21° 54.9	-21° 54.5	-21° 54.2	-21° 53.8	-21° 53.4	-21° 53.0	-21° 52.6	-21° 52.3	+0.4
Пт 11	268° 02.4	283° 02.2	298° 01.9	313° 01.7	328° 01.4	343° 01.2	358° 01.0	13° 00.7	28° 00.5	43° 00.2	58° 00.0	72° 59.7	-0.2
	-21° 47.2	-21° 46.8	-21° 46.4	-21° 46.1	-21° 45.7	-21° 45.3	-21° 44.9	-21° 44.5	-21° 44.1	-21° 43.7	-21° 43.3	-21° 42.9	+0.4
Сб 12	267° 56.6	282° 56.3	297° 56.1	312° 55.9	327° 55.6	342° 55.4	357° 55.1	12° 54.9	27° 54.7	42° 54.4	57° 54.2	72° 54.0	-0.2
	-21° 37.6	-21° 37.2	-21° 36.8	-21° 36.4	-21° 36.0	-21° 35.6	-21° 35.1	-21° 34.7	-21° 34.3	-21° 33.9	-21° 33.5	-21° 33.1	+0.4
Вс 13	267° 50.9	282° 50.7	297° 50.4	312° 50.2	327° 50.0	342° 49.7	357° 49.5	12° 49.3	27° 49.0	42° 48.8	57° 48.6	72° 48.3	-0.2
	-21° 27.6	-21° 27.2	-21° 26.7	-21° 26.3	-21° 25.9	-21° 25.4	-21° 25.0	-21° 24.6	-21° 24.1	-21° 23.7	-21° 23.3	-21° 22.8	+0.4
Пн 14	267° 45.4	282° 45.2	297° 44.9	312° 44.7	327° 44.5	342° 44.2	357° 44.0	12° 43.8	27° 43.6	42° 43.3	57° 43.1	72° 42.9	-0.2
	-21° 17.1	-21° 16.7	-21° 16.2	-21° 15.8	-21° 15.4	-21° 14.9	-21° 14.5	-21° 14.0	-21° 13.6	-21° 13.1	-21° 12.7	-21° 12.2	+0.4
Вт 15	267° 40.0	282° 39.8	297° 39.6	312° 39.4	327° 39.1	342° 38.9	357° 38.7	12° 38.5	27° 38.3	42° 38.1	57° 37.8	72° 37.6	-0.2
	-21° 06.3	-21° 05.8	-21° 05.4	-21° 04.9	-21° 04.4	-21° 04.0	-21° 03.5	-21° 03.0	-21° 02.6	-21° 02.1	-21° 01.6	-21° 01.2	+0.5
Ср 16	267° 34.8	282° 34.6	297° 34.4	312° 34.2	327° 34.0	342° 33.8	357° 33.6	12° 33.4	27° 33.1	42° 32.9	57° 32.7	72° 32.5	-0.2
	-20° 55.0	-20° 54.5	-20° 54.1	-20° 53.6	-20° 53.1	-20° 52.6	-20° 52.1	-20° 51.7	-20° 51.2	-20° 50.7	-20° 50.2	-20° 49.7	+0.5
Чт 17	267° 29.8	282° 29.6	297° 29.4	312° 29.2	327° 29.0	342° 28.8	357° 28.6	12° 28.4	27° 28.2	42° 28.0	57° 27.8	72° 27.6	-0.2
	-20° 43.4	-20° 42.9	-20° 42.4	-20° 41.9	-20° 41.4	-20° 40.9	-20° 40.4	-20° 39.9	-20° 39.4	-20° 38.9	-20° 38.4	-20° 37.9	+0.5
Пт 18	267° 25.0	282° 24.8	297° 24.6	312° 24.4	327° 24.2	342° 24.0	357° 23.8	12° 23.6	27° 23.4	42° 23.2	57° 23.0	72° 22.8	-0.2
	-20° 31.3	-20° 30.8	-20° 30.3	-20° 29.8	-20° 29.3	-20° 28.8	-20° 28.2	-20° 27.7	-20° 27.2	-20° 26.7	-20° 26.2	-20° 25.7	+0.5
Сб 19	267° 20.3	282° 20.2	297° 20.0	312° 19.8	327° 19.6	342° 19.4	357° 19.2	12° 19.0	27° 18.8	42° 18.7	57° 18.5	72° 18.3	-0.2
	-20° 18.9	-20° 18.3	-20° 17.8	-20° 17.3	-20° 16.8	-20° 16.2	-20° 15.7	-20° 15.2	-20° 14.6	-20° 14.1	-20° 13.6	-20° 13.0	+0.5
Вс 20	267° 15.9	282° 15.7	297° 15.5	312° 15.3	327° 15.2	342° 15.0	357° 14.8	12° 14.6	27° 14.4	42° 14.3	57° 14.1	72° 13.9	-0.2
	-20° 06.1	-20° 05.5	-20° 05.0	-20° 04.4	-20° 03.9	-20° 03.3	-20° 02.8	-20° 02.2	-20° 01.7	-20° 01.2	-20° 00.6	-20° 00.1	+0.5
Пн 21	267° 11.6	282° 11.4	297° 11.3	312° 11.1	327° 10.9	342° 10.7	357° 10.6	12° 10.4	27° 10.2	42° 10.0	57° 09.9	72° 09.7	-0.2
	-19° 52.9	-19° 52.3	-19° 51.7	-19° 51.2	-19° 50.6	-19° 50.1	-19° 49.5	-19° 48.9	-19° 48.4	-19° 47.8	-19° 47.3	-19° 46.7	+0.6
Вт 22	267° 07.5	282° 07.3	297° 07.2	312° 07.0	327° 06.8	342° 06.7	357° 06.5	12° 06.4	27° 06.2	42° 06.0	57° 05.9	72° 05.7	-0.2
	-19° 39.3	-19° 38.7	-19° 38.1	-19° 37.6	-19° 37.0	-19° 36.4	-19° 35.8	-19° 35.3	-19° 34.7	-19° 34.1	-19° 33.5	-19° 33.0	+0.6
Ср 23	267° 03.6	282° 03.5	297° 03.3	312° 03.1	327° 03.0	342° 02.8	357° 02.7	12° 02.5	27° 02.4	42° 02.2	57° 02.0	72° 01.9	-0.2
	-19° 25.4	-19° 24.8	-19° 24.2	-19° 23.6	-19° 23.0	-19° 22.4	-19° 21.8	-19° 21.2	-19° 20.6	-19° 20.0	-19° 19.4	-19° 18.9	+0.6
Чт 24	266° 59.9	281° 59.7	296° 59.6	311° 59.4	326° 59.3	341° 59.2	356° 59.0	11° 58.9	26° 58.7	41° 58.6	56° 58.4	71° 58.3	-0.1
	-19° 11.1	-19° 10.5	-19° 09.9	-19° 09.3	-19° 08.6	-19° 08.0	-19° 07.4	-19° 06.8	-19° 06.2	-19° 05.6	-19° 05.0	-19° 04.4	+0.6
Пт 25	266° 56.4	281° 56.2	296° 56.1	311° 56.0	326° 55.8	341° 55.7	356° 55.5	11° 55.4	26° 55.3	41° 55.1	56° 55.0	71° 54.8	-0.1
	-18° 56.4	-18° 55.8	-18° 55.2	-18° 54.6	-18° 53.9	-18° 53.3	-18° 52.7	-18° 52.1	-18° 51.5	-18° 50.8	-18° 50.2	-18° 49.6	+0.6
Сб 26	266° 53.1	281° 52.9	296° 52.8	311° 52.7	326° 52.5	341° 52.4	356° 52.3	11° 52.1	26° 52.0	41° 51.9	56° 51.7	71° 51.6	-0.1
	-18° 41.4	-18° 40.8	-18° 40.2	-18° 39.5	-18° 38.9	-18° 38.3	-18° 37.6	-18° 37.0	-18° 36.3	-18° 35.7	-18° 35.1	-18° 34.4	+0.6
Вс 27	266° 49.9	281° 49.8	296° 49.7	311° 49.6	326° 49.4	341° 49.3	356° 49.2	11° 49.1	26° 48.9	41° 48.8	56° 48.7	71° 48.6	-0.1
	-18° 26.1	-18° 25.4	-18° 24.8	-18° 24.1	-18° 23.5	-18° 22.8	-18° 22.2	-18° 21.5	-18° 20.9	-18° 20.2	-18° 19.6	-18° 18.9	+0.6
Пн 28	266° 47.0	281° 46.9	296° 46.8	311° 46.6	326° 46.5	341° 46.4	356° 46.3	11° 46.2	26° 46.1	41° 45.9	56° 45.8	71° 45.7	-0.1
	-18° 10.4	-18° 09.7	-18° 09.1	-18° 08.4	-18° 07.8	-18° 07.1	-18° 06.4	-18° 05.8	-18° 05.1	-18° 04.4	-18° 03.8	-18° 03.1	+0.7
Вт 29	266° 44.3	281° 44.1	296° 44.0	311° 43.9	326° 43.8	341° 43.7	356° 43.6	11° 43.5	26° 43.4	41° 43.3	56° 43.2	71° 43.1	-0.1
	-17° 54.4	-17° 53.7	-17° 53.1	-17° 52.4	-17° 51.7	-17° 51.0	-17° 50.4	-17° 49.7	-17° 49.0	-17° 48.3	-17° 47.6	-17° 47.0	+0.7
Ср 30	266° 41.7	281° 41.6	296° 41.5	311° 41.4	326° 41.3	341° 41.2	356° 41.1	11° 41.0	26° 40.9	41° 40.8	56° 40.7	71° 40.6	-0.1
	-17° 38.1	-17° 37.4	-17° 36.7	-17° 36.0	-17° 35.3	-17° 34.6	-17° 34.0	-17° 33.3	-17° 32.6	-17° 31.9	-17° 31.2	-17° 30.5	+0.7
Чт 31	266° 39.4	281° 39.3	296° 39.2	311° 39.1	326° 39.0	341° 38.9	356° 38.8	11° 38.7	26° 38.7	41° 38.6	56° 38.5	71° 38.4	-0.1
	-17° 21.4	-17° 20.7	-17° 20.0	-17° 19.3	-17° 18.6	-17° 17.9	-17° 17.2	-17° 16.5	-17° 15.8	-17° 15.1	-17° 14.4	-17° 13.7	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2030

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	R/p
Вт 1	253° 52.1	268° 15.4	282° 38.5	297° 01.6	311° 24.7	325° 47.7	340° 10.7	354° 33.6	8° 56.5	23° 19.3	37° 42.1	+23.0	16.4
	-22° 19.5	-22° 24.3	-22° 29.1	-22° 33.7	-22° 38.1	-22° 42.3	-22° 46.4	-22° 50.4	-22° 54.2	-22° 57.8	-23° 01.2	-4.2	60.1
Ср 2	253° 20.7	267° 43.1	282° 05.6	296° 28.0	310° 50.5	325° 12.9	339° 35.4	353° 57.8	8° 20.3	22° 42.8	37° 05.3	+22.5	16.4
	-23° 32.9	-23° 33.7	-23° 34.3	-23° 34.7	-23° 34.9	-23° 35.0	-23° 34.9	-23° 34.6	-23° 34.2	-23° 33.6	-23° 32.8	+0.0	60.1
Чт 3	252° 46.3	267° 09.4	281° 32.5	295° 55.6	310° 18.8	324° 42.1	339° 05.5	353° 28.9	7° 52.3	22° 15.8	36° 39.4	+23.3	16.3
	-23° 01.1	-22° 57.7	-22° 54.1	-22° 50.3	-22° 46.4	-22° 42.3	-22° 38.1	-22° 33.7	-22° 29.2	-22° 24.5	-22° 19.7	+4.1	59.8
● Пт 4	252° 42.4	267° 07.3	281° 32.2	295° 57.3	310° 22.4	324° 47.6	339° 12.9	353° 38.3	8° 03.8	22° 29.4	36° 55.1	+25.3	16.2
	-20° 49.6	-20° 42.5	-20° 35.3	-20° 27.9	-20° 20.4	-20° 12.8	-20° 05.1	-19° 57.2	-19° 49.2	-19° 41.1	-19° 32.9	+7.7	59.3
Сб 5	253° 32.4	267° 59.6	282° 27.0	296° 54.5	311° 22.1	325° 49.8	340° 17.5	354° 45.4	9° 13.4	23° 41.5	38° 09.7	+27.7	16.0
	-17° 16.6	-17° 06.7	-16° 56.8	-16° 46.7	-16° 36.6	-16° 26.3	-16° 16.0	-16° 05.6	-15° 55.1	-15° 44.6	-15° 33.9	+10.3	58.6
Вс 6	255° 23.9	269° 53.6	284° 23.4	298° 53.3	313° 23.2	327° 53.3	342° 23.4	356° 53.7	11° 24.0	25° 54.4	40° 24.9	+30.1	15.7
	-12° 46.2	-12° 34.6	-12° 22.9	-12° 11.1	-11° 59.3	-11° 47.4	-11° 35.5	-11° 23.6	-11° 11.6	-10° 59.5	-10° 47.5	+11.9	57.7
Пн 7	258° 11.7	272° 43.5	287° 15.2	301° 47.1	316° 19.0	330° 51.0	345° 23.1	359° 55.2	14° 27.4	28° 59.6	43° 31.9	+32.0	15.5
	-7° 42.4	-7° 29.9	-7° 17.3	-7° 04.7	-6° 52.1	-6° 39.5	-6° 26.9	-6° 14.3	-6° 01.6	-5° 48.9	-5° 36.3	+12.6	56.9
Вт 8	261° 43.2	276° 16.3	290° 49.5	305° 22.7	319° 56.0	334° 29.3	349° 02.7	3° 36.1	18° 09.5	32° 43.0	47° 16.5	+33.3	15.3
	-2° 25.5	-2° 12.8	-2° 00.1	-1° 47.4	-1° 34.8	-1° 22.1	-1° 09.4	-0° 56.8	-0° 44.1	-0° 31.5	-0° 18.8	+12.7	56.0
Ср 9	265° 42.7	280° 16.7	294° 50.6	309° 24.6	323° 58.6	338° 32.6	353° 06.7	7° 40.7	22° 14.8	36° 48.8	51° 22.9	+34.0	15.1
	2° 48.5	3° 00.8	3° 13.1	3° 25.3	3° 37.6	3° 49.8	4° 02.0	4° 14.1	4° 26.3	4° 38.4	4° 50.4	+12.2	55.3
Чт 10	269° 54.8	284° 29.0	299° 03.1	313° 37.2	328° 11.3	342° 45.4	357° 19.6	11° 53.6	26° 27.7	41° 01.8	55° 35.9	+34.1	14.9
	7° 47.3	7° 58.8	8° 10.2	8° 21.6	8° 33.0	8° 44.3	8° 55.6	9° 06.8	9° 18.0	9° 29.2	9° 40.3	+11.3	54.8
◐ Пт 11	274° 05.0	288° 38.8	303° 12.5	317° 46.3	332° 20.0	346° 53.7	1° 27.3	16° 01.0	30° 34.6	45° 08.1	59° 41.7	+33.7	14.8
	12° 20.8	12° 31.1	12° 41.3	12° 51.5	13° 01.6	13° 11.7	13° 21.7	13° 31.6	13° 41.5	13° 51.3	14° 01.1	+10.0	54.4
Сб 12	278° 00.9	292° 33.9	307° 06.8	321° 39.7	336° 12.6	350° 45.4	5° 18.2	19° 51.0	34° 23.7	48° 56.4	63° 29.0	+32.8	14.8
	16° 19.9	16° 28.6	16° 37.3	16° 45.9	16° 54.4	17° 02.8	17° 11.2	17° 19.5	17° 27.7	17° 35.8	17° 43.9	+8.4	54.2
Вс 13	281° 33.1	296° 05.0	310° 36.8	325° 08.6	339° 40.4	354° 12.1	8° 43.8	23° 15.4	37° 47.0	52° 18.5	66° 50.0	+31.7	14.8
	19° 35.4	19° 42.2	19° 48.9	19° 55.5	20° 02.0	20° 08.5	20° 14.8	20° 21.1	20° 27.2	20° 33.3	20° 39.3	+6.4	54.1
Пн 14	284° 36.5	299° 07.2	313° 37.9	328° 08.5	342° 39.1	357° 09.6	11° 40.1	26° 10.6	40° 41.0	55° 11.4	69° 41.7	+30.5	14.8
	21° 58.0	22° 02.4	22° 06.8	22° 11.1	22° 15.2	22° 19.3	22° 23.2	22° 27.1	22° 30.9	22° 34.5	22° 38.0	+4.0	54.3
Вт 15	287° 11.7	301° 41.4	316° 11.1	330° 40.7	345° 10.3	359° 39.9	14° 09.4	28° 38.9	43° 08.4	57° 37.8	72° 07.2	+29.5	14.9
	23° 18.4	23° 20.2	23° 21.9	23° 23.4	23° 24.9	23° 26.3	23° 27.5	23° 28.6	23° 29.6	23° 30.5	23° 31.3	+1.3	54.6
Ср 16	289° 25.4	303° 54.4	318° 23.5	332° 52.5	347° 21.5	1° 50.5	16° 19.5	30° 48.4	45° 17.4	59° 46.4	74° 15.3	+29.0	15.0
	23° 29.0	23° 27.9	23° 26.7	23° 25.3	23° 23.9	23° 22.3	23° 20.6	23° 18.8	23° 16.8	23° 14.8	23° 12.6	-1.6	55.0
Чт 17	291° 28.9	305° 57.8	320° 26.7	334° 55.7	349° 24.6	3° 53.5	18° 22.5	32° 51.4	47° 20.4	61° 49.4	76° 18.4	+28.9	15.1
	22° 25.5	22° 21.4	22° 17.2	22° 12.9	22° 08.5	22° 03.9	21° 59.2	21° 54.4	21° 49.5	21° 44.5	21° 39.3	-4.6	55.6
Пт 18	293° 35.0	308° 04.2	322° 33.5	337° 02.8	351° 32.1	6° 01.5	20° 30.9	35° 00.2	49° 29.7	63° 59.1	78° 28.6	+29.4	15.3
	20° 08.4	20° 01.5	19° 54.4	19° 47.2	19° 40.0	19° 32.6	19° 25.1	19° 17.5	19° 09.8	19° 02.0	18° 54.1	-7.4	56.1
○ Сб 19	295° 53.6	310° 23.5	324° 53.5	339° 23.4	353° 53.4	8° 23.4	22° 53.4	37° 23.5	51° 53.6	66° 23.7	80° 53.8	+30.0	15.5
	16° 43.4	16° 33.9	16° 24.3	16° 14.7	16° 04.9	15° 55.1	15° 45.2	15° 35.1	15° 25.0	15° 14.9	15° 04.6	-9.9	56.7
Вс 20	298° 29.2	312° 59.7	327° 30.3	342° 00.9	356° 31.6	11° 02.2	25° 32.9	40° 03.6	54° 34.3	69° 05.1	83° 35.8	+30.7	15.6
	12° 21.0	12° 09.5	11° 57.9	11° 46.2	11° 34.5	11° 22.8	11° 10.9	10° 59.0	10° 47.1	10° 35.1	10° 23.0	-11.8	57.2
Пн 21	301° 19.4	315° 50.4	330° 21.4	344° 52.4	359° 23.5	13° 54.5	28° 25.6	42° 56.7	57° 27.7	71° 58.8	86° 29.9	+31.1	15.7
	7° 15.2	7° 02.3	6° 49.3	6° 36.3	6° 23.3	6° 10.2	5° 57.1	5° 44.0	5° 30.8	5° 17.6	5° 04.3	-13.1	57.7
Вт 22	304° 16.3	318° 47.4	333° 18.4	347° 49.5	2° 20.5	16° 51.5	31° 22.5	45° 53.5	60° 24.5	74° 55.5	89° 26.4	+31.0	15.9
	1° 42.4	1° 28.8	1° 15.1	1° 01.5	0° 47.8	0° 34.2	0° 20.5	0° 06.8	-0° 06.9	-0° 20.6	-0° 34.3	-13.7	58.1
Ср 23	318° 47.4	333° 18.4	347° 49.5	2° 20.5	16° 51.5	31° 22.5	45° 53.5	60° 24.5	74° 55.5	89° 26.4	103° 57.4	+31.0	15.9
	1° 28.8	1° 15.1	1° 01.5	0° 47.8	0° 34.2	0° 20.5	0° 06.8	-0° 06.9	-0° 20.6	-0° 34.3	-0° 48.0	-13.7	58.2
Чт 24	321° 38.8	336° 09.3	350° 39.9	5° 10.3	19° 40.8	34° 11.2	48° 41.6	63° 11.9	77° 42.2	92° 12.5	106° 42.7	+30.4	16.0
	-4° 13.2	-4° 26.8	-4° 40.4	-4° 53.9	-5° 07.4	-5° 21.0	-5° 34.5	-5° 47.9	-6° 01.4	-6° 14.8	-6° 28.2	-13.5	58.5
Пт 25	324° 10.8	338° 40.3	353° 09.8	7° 39.1	22° 08.4	36° 37.7	51° 06.9	65° 36.1	80° 05.2	94° 34.2	109° 03.2	+29.2	16.0
	-9° 44.7	-9° 57.5	-10° 10.2	-10° 22.8	-10° 35.4	-10° 48.0	-11° 00.5	-11° 12.9	-11° 25.3	-11° 37.6	-11° 49.9	-12.5	58.8
◑ Сб 26	326° 10.3	340° 38.3	355° 06.2	9° 34.0	24° 01.7	38° 29.4	52° 57.0	67° 24.5	81° 52.0	96° 19.4	110° 46.7	+27.6	16.1
	-14° 45.6	-14° 56.7	-15° 07.8	-15° 18.7	-15° 29.6	-15° 40.3	-15° 51.0	-16° 01.6	-16° 12.1	-16° 22.5	-16° 32.8	-10.7	59.0
Вс 27	327° 28.1	341° 54.3	356° 20.4	10° 46.5	25° 12.5	39° 38.4	54° 04.2	68° 30.0	82° 55.7	97° 21.4	111° 47.0	+25.9	16.1
	-18° 55.1	-19° 03.7	-19° 12.2	-19° 20.6	-19° 28.9	-19° 37.0	-19° 45.0	-19° 52.9	-20° 00.7	-20° 08.4	-20° 15.9	-8.1	59.2
Пн 28	328° 03.3	342° 28.0	356° 52.5	11° 17.1	25° 41.6	40° 06.0	54° 30.4	68° 54.8	83° 19.1	97° 43.3	112° 07.6	+24.4	16.2
	-21° 52.8	-21° 58.1	-22° 03.3	-22° 08.4	-22° 13.3	-22° 18.1	-22° 22.7	-22° 27.2	-22° 31.5	-22° 35.7	-22° 39.7	-4.7	59.3
Вт 29	328° 07.1	342° 30.8	356° 54.6	11° 18.4	25° 42.1	40° 05.9	54° 29.6	68° 53.3	83° 17.1	97° 40.8	112° 04.5	+23.7	16.2
	-23° 21.7	-23° 23.2	-23° 24.6	-23° 25.8	-23° 26.9	-23° 27.8	-23° 28.5	-23° 29.1	-23° 29.6	-23° 29.8	-23° 30.0	-0.8	59.2
Ср 30	328° 01.8	342° 25.8	356° 49.8	11° 13.8	25° 37.9	40° 02.0	54° 26.2	68° 50.4	83° 14.6	97° 38.9	112° 03.2	+24.1	16.1
	-23° 12.6	-23° 10.2	-23° 07.6	-23° 04.9	-23° 02.0	-22° 59.0	-22° 55.8	-22° 52.5	-22° 49.0	-22° 45.4	-22° 41.6	+3.1	59.1
Чт 31	328° 14.5	342° 39.7	357° 05.0	11° 30.4	25° 55.8	40° 21.3	54° 46.9	69° 12.5	83° 38.3	98° 04.0	112° 29.9	+25.5	16.0
	-21° 27.4	-21° 21.3	-21° 15.1	-21° 08.8	-21° 02.3	-20° 55.7	-20° 49.0	-20° 42.2	-20° 35.2	-20° 28.1	-20° 20.9	+6.7	58.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 4 02h49 — Первая четв.: 11 14h06 — Полнолуние: 19 15h54 — Последняя четв.: 26 18h14

СОЛНЦЕ

Февраль 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	266° 37.3 -17° 04.5	281° 37.2 -17° 03.8	296° 37.1 -17° 03.1	311° 37.0 -17° 02.4	326° 36.9 -17° 01.6	341° 36.8 -17° 00.9	356° 36.7 -17° 00.2	11° 36.7 -16° 59.5	26° 36.6 -16° 58.8	41° 36.5 -16° 58.1	56° 36.4 -16° 57.3	71° 36.3 -16° 56.6	-0.1 +0.7
Сб 2	266° 35.3 -16° 47.2	281° 35.2 -16° 46.5	296° 35.2 -16° 45.8	311° 35.1 -16° 45.1	326° 35.0 -16° 44.3	341° 34.9 -16° 43.6	356° 34.9 -16° 42.9	11° 34.8 -16° 42.2	26° 34.7 -16° 41.4	41° 34.6 -16° 40.7	56° 34.6 -16° 40.0	71° 34.5 -16° 39.2	-0.1 +0.7
Вс 3	266° 33.6 -16° 29.7	281° 33.5 -16° 29.0	296° 33.5 -16° 28.2	311° 33.4 -16° 27.5	326° 33.3 -16° 26.8	341° 33.3 -16° 26.0	356° 33.2 -16° 25.3	11° 33.1 -16° 24.5	26° 33.1 -16° 23.8	41° 33.0 -16° 23.1	56° 32.9 -16° 22.3	71° 32.9 -16° 21.6	-0.1 +0.7
Пн 4	266° 32.1 -16° 11.9	281° 32.0 -16° 11.1	296° 31.9 -16° 10.4	311° 31.9 -16° 09.6	326° 31.8 -16° 08.9	341° 31.8 -16° 08.1	356° 31.7 -16° 07.4	11° 31.7 -16° 06.6	26° 31.6 -16° 05.9	41° 31.5 -16° 05.1	56° 31.5 -16° 04.4	71° 31.4 -16° 03.6	-0.1 +0.8
Вт 5	266° 30.7 -15° 53.8	281° 30.7 -15° 53.0	296° 30.6 -15° 52.3	311° 30.6 -15° 51.5	326° 30.5 -15° 50.7	341° 30.5 -15° 50.0	356° 30.4 -15° 49.2	11° 30.4 -15° 48.4	26° 30.3 -15° 47.7	41° 30.3 -15° 46.9	56° 30.3 -15° 46.1	71° 30.2 -15° 45.4	-0.0 +0.8
Ср 6	266° 29.6 -15° 35.4	281° 29.6 -15° 34.6	296° 29.5 -15° 33.9	311° 29.5 -15° 33.1	326° 29.5 -15° 32.3	341° 29.4 -15° 31.5	356° 29.4 -15° 30.8	11° 29.3 -15° 30.0	26° 29.3 -15° 29.2	41° 29.3 -15° 28.4	56° 29.2 -15° 27.7	71° 29.2 -15° 26.9	-0.0 +0.8
Чт 7	266° 28.7 -15° 16.8	281° 28.7 -15° 16.0	296° 28.6 -15° 15.2	311° 28.6 -15° 14.4	326° 28.6 -15° 13.6	341° 28.5 -15° 12.8	356° 28.5 -15° 12.0	11° 28.5 -15° 11.3	26° 28.5 -15° 10.5	41° 28.4 -15° 09.7	56° 28.4 -15° 08.9	71° 28.4 -15° 08.1	-0.0 +0.8
Пт 8	266° 28.0 -14° 57.8	281° 28.0 -14° 57.1	296° 28.0 -14° 56.3	311° 27.9 -14° 55.5	326° 27.9 -14° 54.7	341° 27.9 -14° 53.9	356° 27.9 -14° 53.1	11° 27.8 -14° 52.3	26° 27.8 -14° 51.5	41° 27.8 -14° 50.7	56° 27.8 -14° 49.9	71° 27.7 -14° 49.1	-0.0 +0.8
Сб 9	266° 27.5 -14° 38.7	281° 27.5 -14° 37.9	296° 27.5 -14° 37.1	311° 27.4 -14° 36.3	326° 27.4 -14° 35.5	341° 27.4 -14° 34.7	356° 27.4 -14° 33.9	11° 27.4 -14° 33.1	26° 27.4 -14° 32.3	41° 27.4 -14° 31.4	56° 27.3 -14° 30.6	71° 27.3 -14° 29.8	-0.0 +0.8
Вс 10	266° 27.2 -14° 19.3	281° 27.2 -14° 18.5	296° 27.2 -14° 17.7	311° 27.2 -14° 16.9	326° 27.1 -14° 16.0	341° 27.1 -14° 15.2	356° 27.1 -14° 14.4	11° 27.1 -14° 13.6	26° 27.1 -14° 12.8	41° 27.1 -14° 12.0	56° 27.1 -14° 11.1	71° 27.1 -14° 10.3	-0.0 +0.8
Пн 11	266° 27.1 -13° 59.7	281° 27.1 -13° 58.8	296° 27.1 -13° 58.0	311° 27.1 -13° 57.2	326° 27.1 -13° 56.4	341° 27.1 -13° 55.5	356° 27.1 -13° 54.7	11° 27.1 -13° 53.9	26° 27.1 -13° 53.1	41° 27.1 -13° 52.2	56° 27.1 -13° 51.4	71° 27.1 -13° 50.6	+0.0 +0.8
Вт 12	266° 27.2 -13° 39.8	281° 27.2 -13° 39.0	296° 27.2 -13° 38.1	311° 27.2 -13° 37.3	326° 27.2 -13° 36.5	341° 27.2 -13° 35.6	356° 27.2 -13° 34.8	11° 27.2 -13° 34.0	26° 27.2 -13° 33.1	41° 27.2 -13° 32.3	56° 27.2 -13° 31.5	71° 27.3 -13° 30.6	+0.0 +0.8
Ср 13	266° 27.4 -13° 19.7	281° 27.4 -13° 18.9	296° 27.5 -13° 18.0	311° 27.5 -13° 17.2	326° 27.5 -13° 16.3	341° 27.5 -13° 15.5	356° 27.5 -13° 14.7	11° 27.5 -13° 13.8	26° 27.6 -13° 13.0	41° 27.6 -13° 12.1	56° 27.6 -13° 11.3	71° 27.6 -13° 10.4	+0.0 +0.8
Чт 14	266° 27.9 -12° 59.4	281° 27.9 -12° 58.6	296° 27.9 -12° 57.7	311° 28.0 -12° 56.9	326° 28.0 -12° 56.0	341° 28.0 -12° 55.2	356° 28.0 -12° 54.3	11° 28.1 -12° 53.4	26° 28.1 -12° 52.6	41° 28.1 -12° 51.7	56° 28.1 -12° 50.9	71° 28.2 -12° 50.0	+0.0 +0.9
Пт 15	266° 28.5 -12° 38.9	281° 28.6 -12° 38.0	296° 28.6 -12° 37.2	311° 28.6 -12° 36.3	326° 28.7 -12° 35.5	341° 28.7 -12° 34.6	356° 28.7 -12° 33.7	11° 28.8 -12° 32.9	26° 28.8 -12° 32.0	41° 28.8 -12° 31.1	56° 28.9 -12° 30.3	71° 28.9 -12° 29.4	+0.0 +0.9
Сб 16	266° 29.4 -12° 18.2	281° 29.4 -12° 17.3	296° 29.5 -12° 16.4	311° 29.5 -12° 15.6	326° 29.5 -12° 14.7	341° 29.6 -12° 13.8	356° 29.6 -12° 13.0	11° 29.7 -12° 12.1	26° 29.7 -12° 11.2	41° 29.7 -12° 10.4	56° 29.8 -12° 09.5	71° 29.8 -12° 08.6	+0.0 +0.9
Вс 17	266° 30.4 -11° 57.3	281° 30.4 -11° 56.4	296° 30.5 -11° 55.5	311° 30.5 -11° 54.6	326° 30.6 -11° 53.8	341° 30.6 -11° 52.9	356° 30.7 -11° 52.0	11° 30.7 -11° 51.1	26° 30.8 -11° 50.3	41° 30.8 -11° 49.4	56° 30.9 -11° 48.5	71° 30.9 -11° 47.6	+0.0 +0.9
Пн 18	266° 31.6 -11° 36.2	281° 31.6 -11° 35.3	296° 31.7 -11° 34.4	311° 31.7 -11° 33.5	326° 31.8 -11° 32.6	341° 31.8 -11° 31.7	356° 31.9 -11° 30.9	11° 32.0 -11° 30.0	26° 32.0 -11° 29.1	41° 32.1 -11° 28.2	56° 32.1 -11° 27.3	71° 32.2 -11° 26.4	+0.1 +0.9
Вт 19	266° 32.9 -11° 14.9	281° 33.0 -11° 14.0	296° 33.1 -11° 13.1	311° 33.1 -11° 12.2	326° 33.2 -11° 11.3	341° 33.2 -11° 10.4	356° 33.3 -11° 09.5	11° 33.4 -11° 08.6	26° 33.4 -11° 07.7	41° 33.5 -11° 06.9	56° 33.6 -11° 06.0	71° 33.6 -11° 05.1	+0.1 +0.9
Ср 20	266° 34.5 -10° 53.4	281° 34.5 -10° 52.5	296° 34.6 -10° 51.6	311° 34.7 -10° 50.7	326° 34.7 -10° 49.8	341° 34.8 -10° 48.9	356° 34.9 -10° 48.0	11° 34.9 -10° 47.1	26° 35.0 -10° 46.2	41° 35.1 -10° 45.3	56° 35.2 -10° 44.4	71° 35.2 -10° 43.5	+0.1 +0.9
Чт 21	266° 36.2 -10° 31.8	281° 36.2 -10° 30.9	296° 36.3 -10° 30.0	311° 36.4 -10° 29.1	326° 36.5 -10° 28.2	341° 36.5 -10° 27.3	356° 36.6 -10° 26.4	11° 36.7 -10° 25.4	26° 36.8 -10° 24.5	41° 36.8 -10° 23.6	56° 36.9 -10° 22.7	71° 37.0 -10° 21.8	+0.1 +0.9
Пт 22	266° 38.0 -10° 10.0	281° 38.1 -10° 09.1	296° 38.2 -10° 08.2	311° 38.2 -10° 07.3	326° 38.3 -10° 06.3	341° 38.4 -10° 05.4	356° 38.5 -10° 04.5	11° 38.6 -10° 03.6	26° 38.7 -10° 02.7	41° 38.7 -10° 01.8	56° 38.8 -10° 00.9	71° 38.9 -9° 59.9	+0.1 +0.9
Сб 23	266° 40.0 -9° 48.0	281° 40.1 -9° 47.1	296° 40.2 -9° 46.2	311° 40.3 -9° 45.3	326° 40.3 -9° 44.4	341° 40.4 -9° 43.4	356° 40.5 -9° 42.5	11° 40.6 -9° 41.6	26° 40.7 -9° 40.7	41° 40.8 -9° 39.8	56° 40.9 -9° 38.8	71° 41.0 -9° 37.9	+0.1 +0.9
Вс 24	266° 42.1 -9° 25.9	281° 42.2 -9° 25.0	296° 42.3 -9° 24.1	311° 42.4 -9° 23.2	326° 42.5 -9° 22.2	341° 42.6 -9° 21.3	356° 42.7 -9° 20.4	11° 42.8 -9° 19.5	26° 42.9 -9° 18.5	41° 43.0 -9° 17.6	56° 43.1 -9° 16.7	71° 43.2 -9° 15.7	+0.1 +0.9
Пн 25	266° 44.4 -9° 03.7	281° 44.5 -9° 02.7	296° 44.6 -9° 01.8	311° 44.7 -9° 00.9	326° 44.8 -9° 00.0	341° 44.9 -8° 59.0	356° 45.0 -8° 58.1	11° 45.1 -8° 57.2	26° 45.2 -8° 56.2	41° 45.3 -8° 55.3	56° 45.4 -8° 54.4	71° 45.5 -8° 53.4	+0.1 +0.9
Вт 26	266° 46.9 -8° 41.3	281° 47.0 -8° 40.4	296° 47.1 -8° 39.4	311° 47.2 -8° 38.5	326° 47.3 -8° 37.5	341° 47.4 -8° 36.6	356° 47.5 -8° 35.7	11° 47.6 -8° 34.7	26° 47.7 -8° 33.8	41° 47.8 -8° 32.9	56° 47.9 -8° 31.9	71° 48.0 -8° 31.0	+0.1 +0.9
Ср 27	266° 49.4 -8° 18.8	281° 49.5 -8° 17.8	296° 49.6 -8° 16.9	311° 49.8 -8° 15.9	326° 49.9 -8° 15.0	341° 50.0 -8° 14.1	356° 50.1 -8° 13.1	11° 50.2 -8° 12.2	26° 50.3 -8° 11.2	41° 50.4 -8° 10.3	56° 50.5 -8° 09.3	71° 50.6 -8° 08.4	+0.1 +0.9
Чт 28	266° 52.1 -7° 56.1	281° 52.2 -7° 55.2	296° 52.3 -7° 54.2	311° 52.5 -7° 53.3	326° 52.6 -7° 52.3	341° 52.7 -7° 51.4	356° 52.8 -7° 50.4	11° 52.9 -7° 49.5	26° 53.0 -7° 48.6	41° 53.2 -7° 47.6	56° 53.3 -7° 46.7	71° 53.4 -7° 45.7	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2030

Д	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	R/p
Пт 1	256° 52.8 -19° 02.1	271° 19.5 -18° 53.6	285° 46.3 -18° 44.9	300° 13.2 -18° 36.2	314° 40.2 -18° 27.4	329° 07.2 -18° 18.5	343° 34.4 -18° 09.4	358° 01.6 -18° 00.3	12° 28.9 -17° 51.1	26° 56.3 -17° 41.7	41° 23.8 -17° 32.3	+27.1 +9.0	15.9 58.4
Сб 2	258° 25.8 -15° 00.2	272° 54.7 -14° 49.4	287° 23.5 -14° 38.6	301° 52.5 -14° 27.6	316° 21.6 -14° 16.6	330° 50.7 -14° 05.6	345° 19.9 -13° 54.4	359° 49.2 -13° 43.2	14° 18.6 -13° 32.0	28° 48.0 -13° 20.6	43° 17.6 -13° 09.3	+29.2 +11.1	15.8 57.9
Вс 3	260° 49.8 -10° 12.1	275° 20.5 -9° 59.9	289° 51.3 -9° 47.7	304° 22.2 -9° 35.4	318° 53.1 -9° 23.1	333° 24.1 -9° 10.8	347° 55.2 -8° 58.5	2° 26.3 -8° 46.1	16° 57.5 -8° 33.7	31° 28.8 -8° 21.2	46° 00.1 -8° 08.8	+31.0 +12.3	15.6 57.3
Пн 4	263° 57.2 -4° 59.1	278° 29.4 -4° 46.3	293° 01.7 -4° 33.6	307° 34.0 -4° 20.8	322° 06.4 -4° 08.0	336° 38.9 -3° 55.2	351° 11.3 -3° 42.4	5° 43.9 -3° 29.6	20° 16.4 -3° 16.8	34° 49.1 -3° 04.0	49° 21.7 -2° 51.2	+32.5 +12.8	15.4 56.6
Вт 5	267° 36.2 0° 20.1	282° 09.4 0° 32.8	296° 42.6 0° 45.5	311° 15.9 0° 58.1	325° 49.2 1° 10.7	340° 22.6 1° 23.3	354° 55.9 1° 35.9	9° 29.3 1° 48.5	24° 02.7 2° 01.0	38° 36.1 2° 13.5	53° 09.6 2° 26.0	+33.3 +12.6	15.2 55.9
Ср 6	271° 33.3 5° 30.3	286° 07.0 5° 42.3	300° 40.7 5° 54.3	315° 14.3 6° 06.3	329° 48.0 6° 18.2	344° 21.7 6° 30.1	358° 55.4 6° 41.9	13° 29.1 6° 53.7	28° 02.9 7° 05.5	42° 36.6 7° 17.2	57° 10.3 7° 28.9	+33.7 +11.9	15.1 55.3
Чт 7	275° 35.5 10° 18.8	290° 09.1 10° 29.8	304° 42.7 10° 40.7	319° 16.3 10° 51.5	333° 49.8 11° 02.3	348° 23.4 11° 13.0	2° 57.0 11° 23.7	17° 30.5 11° 34.3	32° 04.0 11° 44.9	46° 37.5 11° 55.4	61° 11.0 12° 05.9	+33.6 +10.7	14.9 54.8
Пт 8	279° 30.8 14° 35.4	294° 03.9 14° 44.9	308° 37.0 14° 54.3	323° 10.1 15° 03.6	337° 43.1 15° 12.9	352° 16.1 15° 22.1	6° 49.1 15° 31.2	21° 22.1 15° 40.3	35° 55.0 15° 49.2	50° 27.9 15° 58.2	65° 00.8 16° 07.0	+33.0 +9.2	14.8 54.4
Сб 9	283° 09.7 18° 10.7	297° 42.0 18° 18.3	312° 14.3 18° 25.9	326° 46.6 18° 33.3	341° 18.8 18° 40.7	355° 50.9 18° 48.0	10° 23.0 18° 55.2	24° 55.1 19° 02.4	39° 27.2 19° 09.4	53° 59.2 19° 16.4	68° 31.2 19° 23.3	+32.1 +7.3	14.8 54.2
Вс 10	286° 25.9 20° 55.9	300° 57.2 21° 01.3	315° 28.5 21° 06.7	329° 59.8 21° 12.0	344° 31.0 21° 17.1	359° 02.1 21° 22.2	13° 33.3 21° 27.2	28° 04.3 21° 32.0	42° 35.4 21° 36.8	57° 06.4 21° 41.5	71° 37.4 21° 46.1	+31.1 +5.0	14.8 54.2
Пн 11	289° 17.2 22° 42.7	303° 47.5 22° 45.7	318° 17.8 22° 48.5	332° 48.1 22° 51.2	347° 18.4 22° 53.9	1° 48.6 22° 56.4	16° 18.8 22° 58.8	30° 48.9 23° 01.1	45° 19.0 23° 03.3	59° 49.1 23° 05.4	74° 19.1 23° 07.4	+30.2 +2.5	14.8 54.4
Вт 12	291° 46.2 23° 23.8	306° 15.8 23° 24.0	320° 45.4 23° 24.1	335° 15.0 23° 24.0	349° 44.5 23° 23.9	4° 14.0 23° 23.6	18° 43.5 23° 23.2	33° 12.9 23° 22.7	47° 42.4 23° 22.1	62° 11.8 23° 21.4	76° 41.2 23° 20.5	+29.5 -0.3	14.9 54.7
Ср 13	294° 00.4 22° 53.8	308° 29.6 22° 51.1	322° 58.7 22° 48.3	337° 27.9 22° 45.3	351° 57.1 22° 42.2	6° 26.2 22° 39.0	20° 55.4 22° 35.7	35° 24.5 22° 32.3	49° 53.7 22° 28.8	64° 22.8 22° 25.1	78° 52.0 22° 21.3	+29.2 -3.2	15.1 55.3
Чт 14	296° 09.2 21° 10.7	310° 38.4 21° 05.1	325° 07.6 20° 59.3	339° 36.8 20° 53.5	354° 06.0 20° 47.5	8° 35.2 20° 41.4	23° 04.4 20° 35.2	37° 33.7 20° 28.9	52° 02.9 20° 22.5	66° 32.2 20° 16.0	81° 01.4 20° 09.3	+29.2 -6.1	15.2 55.9
Пт 15	298° 22.0 18° 16.7	312° 51.4 18° 08.3	327° 20.9 17° 59.9	341° 50.5 17° 51.3	356° 20.0 17° 42.6	10° 49.5 17° 33.9	25° 19.1 17° 25.0	39° 48.7 17° 16.0	54° 18.3 17° 07.0	68° 47.9 16° 57.8	83° 17.6 16° 48.6	+29.6 -8.8	15.4 56.6
Сб 16	300° 44.2 14° 18.6	315° 14.1 14° 07.9	329° 44.1 13° 57.1	344° 14.0 13° 46.2	358° 44.0 13° 35.2	13° 14.0 13° 24.2	27° 44.0 13° 13.1	42° 14.0 13° 01.9	56° 44.0 12° 50.6	71° 14.0 12° 39.2	85° 44.1 12° 27.8	+30.0 -11.1	15.6 57.4
Вс 17	303° 16.5 9° 27.8	317° 46.8 9° 15.3	332° 17.0 9° 02.7	346° 47.3 8° 50.1	1° 17.6 8° 37.4	15° 47.8 8° 24.6	30° 18.1 8° 11.8	44° 48.4 7° 59.0	59° 18.7 7° 46.0	73° 49.0 7° 33.1	88° 19.3 7° 20.1	+30.3 -12.8	15.8 58.1
Пн 18	305° 54.1 3° 59.7	320° 24.4 3° 46.1	334° 54.6 3° 32.4	349° 24.9 3° 18.7	3° 55.2 3° 04.9	18° 25.5 2° 51.2	32° 55.7 2° 37.4	47° 26.0 2° 23.6	61° 56.2 2° 09.8	76° 26.4 1° 55.9	90° 56.6 1° 42.1	+30.3 -13.8	16.0 58.6
Вт 19	308° 27.9 -1° 47.2	322° 57.8 -2° 01.1	337° 27.7 -2° 15.1	351° 57.6 -2° 29.1	6° 27.4 -2° 43.0	20° 57.3 -2° 57.0	35° 27.1 -3° 10.9	49° 56.8 -3° 24.8	64° 26.6 -3° 38.8	78° 56.3 -3° 52.7	93° 25.9 -4° 06.5	+29.8 -13.9	16.1 59.1
Ср 20	310° 46.8 -7° 31.8	325° 15.9 -7° 45.3	339° 45.0 -7° 58.7	354° 13.9 -8° 12.0	8° 42.9 -8° 25.3	23° 11.8 -8° 38.5	37° 40.7 -8° 51.8	52° 09.5 -9° 04.9	66° 38.3 -9° 18.0	81° 07.0 -9° 31.1	95° 35.6 -9° 44.1	+28.9 -13.2	16.2 59.3
Чт 21	325° 15.9 -7° 45.3	339° 45.0 -7° 58.7	354° 13.9 -8° 12.0	8° 42.9 -8° 25.3	23° 11.8 -8° 38.5	37° 40.7 -8° 51.8	52° 09.5 -9° 04.9	66° 38.3 -9° 18.0	81° 07.0 -9° 31.1	95° 35.6 -9° 44.1	110° 04.3 -9° 57.0	+28.8 -13.2	16.2 59.4
Пт 22	327° 07.5 -13° 03.9	341° 35.3 -13° 15.7	356° 03.0 -13° 27.6	10° 30.7 -13° 39.3	24° 58.3 -13° 50.9	39° 25.8 -14° 02.5	53° 53.3 -14° 14.0	68° 20.8 -14° 25.4	82° 48.1 -14° 36.7	97° 15.5 -14° 47.9	111° 42.7 -14° 59.1	+27.5 -11.5	16.2 59.5
Сб 23	328° 24.7 -17° 34.3	342° 51.1 -17° 43.8	357° 17.4 -17° 53.2	11° 43.6 -18° 02.5	26° 09.7 -18° 11.7	40° 35.9 -18° 20.7	55° 01.9 -18° 29.7	69° 27.9 -18° 38.5	83° 53.8 -18° 47.2	98° 19.7 -18° 55.8	112° 45.6 -19° 04.2	+26.1 -9.0	16.2 59.4
Вс 24	329° 07.0 -20° 55.8	343° 32.0 -21° 02.2	357° 57.0 -21° 08.4	12° 22.0 -21° 14.5	26° 46.9 -21° 20.4	41° 11.8 -21° 26.3	55° 36.7 -21° 31.9	70° 01.5 -21° 37.5	84° 26.3 -21° 42.8	98° 51.0 -21° 48.1	113° 15.8 -21° 53.2	+24.9 -5.7	16.2 59.3
Пн 25	329° 23.3 -22° 51.9	343° 47.7 -22° 54.6	358° 12.0 -22° 57.2	12° 36.4 -22° 59.6	27° 00.7 -23° 01.8	41° 25.0 -23° 03.9	55° 49.3 -23° 05.9	70° 13.7 -23° 07.6	84° 38.0 -23° 09.3	99° 02.3 -23° 10.8	113° 26.6 -23° 12.1	+24.3 -2.0	16.1 59.0
Вт 26	329° 32.5 -23° 13.7	343° 57.0 -23° 12.6	358° 21.6 -23° 11.3	12° 46.2 -23° 09.9	27° 10.8 -23° 08.3	41° 35.5 -23° 06.6	56° 00.2 -23° 04.7	70° 24.9 -23° 02.7	84° 49.6 -23° 00.6	99° 14.4 -22° 58.2	113° 39.3 -22° 55.8	+24.7 +1.8	16.0 58.7
Ср 27	329° 57.2 -22° 01.8	344° 22.9 -21° 57.0	358° 48.5 -21° 52.2	13° 14.3 -21° 47.2	27° 40.1 -21° 42.1	42° 05.9 -21° 36.9	56° 31.8 -21° 31.5	70° 57.8 -21° 26.0	85° 23.8 -21° 20.3	99° 50.0 -21° 14.6	114° 16.1 -21° 08.7	+25.9 +5.3	15.9 58.3
Чт 28	330° 56.9 -19° 25.9	345° 24.2 -19° 18.1	359° 51.6 -19° 10.2	14° 19.0 -19° 02.3	28° 46.6 -18° 54.2	43° 14.1 -18° 46.0	57° 41.8 -18° 37.7	72° 09.6 -18° 29.3	86° 37.4 -18° 20.8	101° 05.3 -18° 12.2	115° 33.2 -18° 03.5	+27.6 +8.2	15.8 57.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 2 16h07 — Первая четв.: 10 11h49 — Полнолуние: 18 06h19 — Последняя четв.: 25 01h57

СОЛНЦЕ

Март 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	266° 54.9	281° 55.1	296° 55.2	311° 55.3	326° 55.4	341° 55.5	356° 55.7	11° 55.8	26° 55.9	41° 56.0	56° 56.1	71° 56.3	+0.1
	-7° 33.4	-7° 32.4	-7° 31.5	-7° 30.5	-7° 29.6	-7° 28.6	-7° 27.7	-7° 26.7	-7° 25.8	-7° 24.8	-7° 23.8	-7° 22.9	+1.0
Сб 2	266° 57.9	281° 58.0	296° 58.1	311° 58.3	326° 58.4	341° 58.5	356° 58.6	11° 58.8	26° 58.9	41° 59.0	56° 59.1	71° 59.3	+0.1
	-7° 10.5	-7° 09.5	-7° 08.6	-7° 07.6	-7° 06.7	-7° 05.7	-7° 04.8	-7° 03.8	-7° 02.9	-7° 01.9	-7° 00.9	-7° 00.0	+1.0
Вс 3	267° 00.9	282° 01.1	297° 01.2	312° 01.3	327° 01.5	342° 01.6	357° 01.7	12° 01.9	27° 02.0	42° 02.1	57° 02.3	72° 02.4	+0.1
	-6° 47.5	-6° 46.6	-6° 45.6	-6° 44.6	-6° 43.7	-6° 42.7	-6° 41.8	-6° 40.8	-6° 39.8	-6° 38.9	-6° 37.9	-6° 37.0	+1.0
Пн 4	267° 04.1	282° 04.3	297° 04.4	312° 04.5	327° 04.7	342° 04.8	357° 04.9	12° 05.1	27° 05.2	42° 05.3	57° 05.5	72° 05.6	+0.1
	-6° 24.5	-6° 23.5	-6° 22.5	-6° 21.6	-6° 20.6	-6° 19.6	-6° 18.7	-6° 17.7	-6° 16.7	-6° 15.8	-6° 14.8	-6° 13.9	+1.0
Вт 5	267° 07.4	282° 07.6	297° 07.7	312° 07.8	327° 08.0	342° 08.1	357° 08.3	12° 08.4	27° 08.5	42° 08.7	57° 08.8	72° 09.0	+0.1
	-6° 01.3	-6° 00.3	-5° 59.4	-5° 58.4	-5° 57.4	-5° 56.5	-5° 55.5	-5° 54.5	-5° 53.6	-5° 52.6	-5° 51.6	-5° 50.7	+1.0
Ср 6	267° 10.8	282° 11.0	297° 11.1	312° 11.3	327° 11.4	342° 11.5	357° 11.7	12° 11.8	27° 12.0	42° 12.1	57° 12.3	72° 12.4	+0.1
	-5° 38.1	-5° 37.1	-5° 36.1	-5° 35.2	-5° 34.2	-5° 33.2	-5° 32.2	-5° 31.3	-5° 30.3	-5° 29.3	-5° 28.4	-5° 27.4	+1.0
Чт 7	267° 14.3	282° 14.5	297° 14.6	312° 14.8	327° 14.9	342° 15.1	357° 15.2	12° 15.4	27° 15.5	42° 15.7	57° 15.8	72° 16.0	+0.1
	-5° 14.8	-5° 13.8	-5° 12.8	-5° 11.8	-5° 10.9	-5° 09.9	-5° 08.9	-5° 07.9	-5° 07.0	-5° 06.0	-5° 05.0	-5° 04.0	+1.0
Пт 8	267° 17.9	282° 18.1	297° 18.2	312° 18.4	327° 18.5	342° 18.7	357° 18.8	12° 19.0	27° 19.2	42° 19.3	57° 19.5	72° 19.6	+0.2
	-4° 51.4	-4° 50.4	-4° 49.4	-4° 48.4	-4° 47.5	-4° 46.5	-4° 45.5	-4° 44.5	-4° 43.6	-4° 42.6	-4° 41.6	-4° 40.6	+1.0
Сб 9	267° 21.6	282° 21.8	297° 21.9	312° 22.1	327° 22.3	342° 22.4	357° 22.6	12° 22.7	27° 22.9	42° 23.0	57° 23.2	72° 23.4	+0.2
	-4° 27.9	-4° 27.0	-4° 26.0	-4° 25.0	-4° 24.0	-4° 23.0	-4° 22.1	-4° 21.1	-4° 20.1	-4° 19.1	-4° 18.1	-4° 17.2	+1.0
Вс 10	267° 25.4	282° 25.6	297° 25.7	312° 25.9	327° 26.1	342° 26.2	357° 26.4	12° 26.5	27° 26.7	42° 26.9	57° 27.0	72° 27.2	+0.2
	-4° 04.4	-4° 03.4	-4° 02.5	-4° 01.5	-4° 00.5	-3° 59.5	-3° 58.5	-3° 57.6	-3° 56.6	-3° 55.6	-3° 54.6	-3° 53.6	+1.0
Пн 11	267° 29.3	282° 29.5	297° 29.6	312° 29.8	327° 30.0	342° 30.1	357° 30.3	12° 30.4	27° 30.6	42° 30.8	57° 30.9	72° 31.1	+0.2
	-3° 40.9	-3° 39.9	-3° 38.9	-3° 37.9	-3° 37.0	-3° 36.0	-3° 35.0	-3° 34.0	-3° 33.0	-3° 32.0	-3° 31.1	-3° 30.1	+1.0
Вт 12	267° 33.3	282° 33.4	297° 33.6	312° 33.8	327° 33.9	342° 34.1	357° 34.3	12° 34.4	27° 34.6	42° 34.8	57° 34.9	72° 35.1	+0.2
	-3° 17.3	-3° 16.3	-3° 15.3	-3° 14.3	-3° 13.4	-3° 12.4	-3° 11.4	-3° 10.4	-3° 09.4	-3° 08.4	-3° 07.5	-3° 06.5	+1.0
Ср 13	267° 37.3	282° 37.5	297° 37.6	312° 37.8	327° 38.0	342° 38.2	357° 38.3	12° 38.5	27° 38.7	42° 38.8	57° 39.0	72° 39.2	+0.2
	-2° 53.7	-2° 52.7	-2° 51.7	-2° 50.7	-2° 49.7	-2° 48.7	-2° 47.8	-2° 46.8	-2° 45.8	-2° 44.8	-2° 43.8	-2° 42.8	+1.0
Чт 14	267° 41.4	282° 41.6	297° 41.8	312° 41.9	327° 42.1	342° 42.3	357° 42.5	12° 42.6	27° 42.8	42° 43.0	57° 43.1	72° 43.3	+0.2
	-2° 30.0	-2° 29.0	-2° 28.0	-2° 27.0	-2° 26.1	-2° 25.1	-2° 24.1	-2° 23.1	-2° 22.1	-2° 21.1	-2° 20.1	-2° 19.2	+1.0
Пт 15	267° 45.6	282° 45.8	297° 45.9	312° 46.1	327° 46.3	342° 46.5	357° 46.6	12° 46.8	27° 47.0	42° 47.2	57° 47.4	72° 47.5	+0.2
	-2° 06.3	-2° 05.3	-2° 04.4	-2° 03.4	-2° 02.4	-2° 01.4	-2° 00.4	-1° 59.4	-1° 58.4	-1° 57.4	-1° 56.5	-1° 55.5	+1.0
Сб 16	267° 49.8	282° 50.0	297° 50.2	312° 50.4	327° 50.5	342° 50.7	357° 50.9	12° 51.1	27° 51.3	42° 51.4	57° 51.6	72° 51.8	+0.2
	-1° 42.6	-1° 41.6	-1° 40.7	-1° 39.7	-1° 38.7	-1° 37.7	-1° 36.7	-1° 35.7	-1° 34.7	-1° 33.7	-1° 32.8	-1° 31.8	+1.0
Вс 17	267° 54.1	282° 54.3	297° 54.5	312° 54.7	327° 54.8	342° 55.0	357° 55.2	12° 55.4	27° 55.6	42° 55.8	57° 55.9	72° 56.1	+0.2
	-1° 18.9	-1° 17.9	-1° 16.9	-1° 16.0	-1° 15.0	-1° 14.0	-1° 13.0	-1° 12.0	-1° 11.0	-1° 10.0	-1° 09.0	-1° 08.1	+1.0
Пн 18	267° 58.5	282° 58.7	297° 58.8	312° 59.0	327° 59.2	342° 59.4	357° 59.6	12° 59.7	27° 59.9	43° 00.1	58° 00.3	73° 00.5	+0.2
	-0° 55.2	-0° 54.2	-0° 53.2	-0° 52.2	-0° 51.3	-0° 50.3	-0° 49.3	-0° 48.3	-0° 47.3	-0° 46.3	-0° 45.3	-0° 44.3	+1.0
Вт 19	268° 02.9	283° 03.0	298° 03.2	313° 03.4	328° 03.6	343° 03.8	358° 04.0	13° 04.2	28° 04.3	43° 04.5	58° 04.7	73° 04.9	+0.2
	-0° 31.5	-0° 30.5	-0° 29.5	-0° 28.5	-0° 27.5	-0° 26.5	-0° 25.6	-0° 24.6	-0° 23.6	-0° 22.6	-0° 21.6	-0° 20.6	+1.0
Ср 20	268° 07.3	283° 07.5	298° 07.7	313° 07.8	328° 08.0	343° 08.2	358° 08.4	13° 08.6	28° 08.8	43° 09.0	58° 09.1	73° 09.3	+0.2
	-0° 07.8	-0° 06.8	-0° 05.8	-0° 04.8	-0° 03.8	-0° 02.8	-0° 01.8	-0° 00.9	0° 00.1	0° 01.1	0° 02.1	0° 03.1	+1.0
Чт 21	268° 11.8	283° 11.9	298° 12.1	313° 12.3	328° 12.5	343° 12.7	358° 12.9	13° 13.1	28° 13.2	43° 13.4	58° 13.6	73° 13.8	+0.2
	0° 15.9	0° 16.9	0° 17.9	0° 18.9	0° 19.9	0° 20.9	0° 21.8	0° 22.8	0° 23.8	0° 24.8	0° 25.8	0° 26.8	+1.0
Пт 22	268° 16.2	283° 16.4	298° 16.6	313° 16.8	328° 17.0	343° 17.2	358° 17.4	13° 17.6	28° 17.7	43° 17.9	58° 18.1	73° 18.3	+0.2
	0° 39.6	0° 40.6	0° 41.6	0° 42.6	0° 43.6	0° 44.5	0° 45.5	0° 46.5	0° 47.5	0° 48.5	0° 49.5	0° 50.5	+1.0
Сб 23	268° 20.7	283° 20.9	298° 21.1	313° 21.3	328° 21.5	343° 21.7	358° 21.9	13° 22.1	28° 22.2	43° 22.4	58° 22.6	73° 22.8	+0.2
	1° 03.3	1° 04.3	1° 05.2	1° 06.2	1° 07.2	1° 08.2	1° 09.2	1° 10.2	1° 11.2	1° 12.1	1° 13.1	1° 14.1	+1.0
Вс 24	268° 25.3	283° 25.5	298° 25.6	313° 25.8	328° 26.0	343° 26.2	358° 26.4	13° 26.6	28° 26.8	43° 27.0	58° 27.1	73° 27.3	+0.2
	1° 26.9	1° 27.9	1° 28.9	1° 29.9	1° 30.8	1° 31.8	1° 32.8	1° 33.8	1° 34.8	1° 35.8	1° 36.7	1° 37.7	+1.0
Пн 25	268° 29.8	283° 30.0	298° 30.2	313° 30.4	328° 30.5	343° 30.7	358° 30.9	13° 31.1	28° 31.3	43° 31.5	58° 31.7	73° 31.9	+0.2
	1° 50.5	1° 51.5	1° 52.5	1° 53.5	1° 54.4	1° 55.4	1° 56.4	1° 57.4	1° 58.4	1° 59.4	2° 00.3	2° 01.3	+1.0
Вт 26	268° 34.3	283° 34.5	298° 34.7	313° 34.9	328° 35.1	343° 35.3	358° 35.5	13° 35.6	28° 35.8	43° 36.0	58° 36.2	73° 36.4	+0.2
	2° 14.1	2° 15.1	2° 16.0	2° 17.0	2° 18.0	2° 19.0	2° 20.0	2° 20.9	2° 21.9	2° 22.9	2° 23.9	2° 24.9	+1.0
Ср 27	268° 38.8	283° 39.0	298° 39.2	313° 39.4	328° 39.6	343° 39.8	358° 40.0	13° 40.2	28° 40.4	43° 40.5	58° 40.7	73° 40.9	+0.2
	2° 37.6	2° 38.6	2° 39.6	2° 40.5	2° 41.5	2° 42.5	2° 43.5	2° 44.4	2° 45.4	2° 46.4	2° 47.4	2° 48.4	+1.0
Чт 28	268° 43.4	283° 43.6	298° 43.7	313° 43.9	328° 44.1	343° 44.3	358° 44.5	13° 44.7	28° 44.9	43° 45.1	58° 45.2	73° 45.4	+0.2
	3° 01.1	3° 02.0	3° 03.0	3° 04.0	3° 05.0	3° 05.9	3° 06.9	3° 07.9	3° 08.9	3° 09.8	3° 10.8	3° 11.8	+1.0
Пт 29	268° 47.9	283° 48.1	298° 48.2	313° 48.4	328° 48.6	343° 48.8	358° 49.0	13° 49.2	28° 49.4	43° 49.6	58° 49.7	73° 49.9	+0.2
	3° 24.5	3° 25.4	3° 26.4	3° 27.4	3° 28.4	3° 29.3	3° 30.3	3° 31.3	3° 32.3	3° 33.2	3° 34.2	3° 35.2	+1.0
Сб 30	268° 52.4	283° 52.5	298° 52.7	313° 52.9	328° 53.1	343° 53.3	358° 53.5	13° 53.7	28° 53.9	43° 54.0	58° 54.2	73° 54.4	+0.2
	3° 47.8	3° 48.8	3° 49.8	3° 50.7	3° 51.7	3° 52.7	3° 53.6	3° 54.6	3° 55.6	3° 56.6	3° 57.5	3° 58.5	+1.0
Вс 31	268° 56.8	283° 57.0	298° 57.2	313° 57.4	328° 57.6	343° 57.8	358° 57.9	13° 58.1	28° 58.3	43° 58.5	58° 58.7	73° 58.9	+0.2
	4° 11.1	4° 12.1	4° 13.0	4° 14.0	4° 15.0	4° 15.9	4° 16.9	4° 17.9	4° 18.8	4° 19.8	4° 20.8	4° 21.7	+1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2030

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	R/p
Пт 1	245° 48.3 -16° 41.1	260° 17.1 -16° 31.5	274° 45.9 -16° 21.8	289° 14.7 -16° 12.0	303° 43.7 -16° 02.1	318° 12.7 -15° 52.2	332° 41.8 -15° 42.2	347° 11.0 -15° 32.1	1° 40.2 -15° 21.9	16° 09.5 -15° 11.7	30° 38.9 -15° 01.4	+29.1 +10.0	15.7 57.6
Сб 2	248° 08.3 -12° 18.5	262° 38.8 -12° 07.2	277° 09.4 -11° 55.8	291° 40.0 -11° 44.4	306° 10.7 -11° 32.9	320° 41.5 -11° 21.3	335° 12.3 -11° 09.7	349° 43.2 -10° 58.1	4° 14.1 -10° 46.4	18° 45.1 -10° 34.7	33° 16.2 -10° 22.9	+30.8 +11.6	15.6 57.1
Вс 3	251° 09.2 -7° 21.9	265° 41.1 -7° 09.6	280° 13.1 -6° 57.2	294° 45.2 -6° 44.9	309° 17.3 -6° 32.5	323° 49.4 -6° 20.1	338° 21.6 -6° 07.6	352° 53.9 -5° 55.2	7° 26.1 -5° 42.7	21° 58.5 -5° 30.3	36° 30.8 -5° 17.8	+32.2 +12.4	15.4 56.5
● Пн 4	254° 41.0 -2° 09.2	269° 14.0 -1° 56.6	283° 47.0 -1° 44.0	298° 20.0 -1° 31.4	312° 53.0 -1° 18.8	327° 26.1 -1° 06.2	341° 59.2 -0° 53.6	356° 32.3 -0° 41.1	11° 05.4 -0° 28.5	25° 38.6 -0° 15.9	40° 11.8 -0° 03.4	+33.1 +12.6	15.3 56.0
Вт 5	258° 32.0 3° 03.3	273° 05.5 3° 15.6	287° 38.9 3° 27.8	302° 12.4 3° 40.1	316° 45.9 3° 52.3	331° 19.4 4° 04.5	345° 52.9 4° 16.6	0° 26.4 4° 28.8	15° 00.0 4° 40.9	29° 33.5 4° 52.9	44° 07.0 5° 05.0	+33.5 +12.2	15.1 55.5
Ср 6	262° 30.2 8° 01.5	277° 03.7 8° 12.9	291° 37.2 8° 24.3	306° 10.7 8° 35.7	320° 44.2 8° 47.0	335° 17.7 8° 58.3	349° 51.2 9° 09.5	4° 24.7 9° 20.7	18° 58.1 9° 31.9	33° 31.6 9° 42.9	48° 05.0 9° 54.0	+33.5 +11.3	15.0 55.0
Чт 7	266° 24.9 12° 33.2	280° 58.0 12° 43.3	295° 31.2 12° 53.4	310° 04.4 13° 03.5	324° 37.5 13° 13.5	339° 10.6 13° 23.4	353° 43.6 13° 33.2	8° 16.7 13° 43.0	22° 49.7 13° 52.7	37° 22.7 14° 02.4	51° 55.7 14° 12.0	+33.1 +9.9	14.9 54.6
Пт 8	270° 07.3 16° 27.6	284° 39.8 16° 36.1	299° 12.3 16° 44.5	313° 44.8 16° 52.8	328° 17.3 17° 01.0	342° 49.7 17° 09.2	357° 22.1 17° 17.3	11° 54.5 17° 25.3	26° 26.8 17° 33.2	40° 59.1 17° 41.0	55° 31.4 17° 48.8	+32.4 +8.1	14.8 54.3
Сб 9	273° 31.5 19° 35.3	288° 03.2 19° 41.7	302° 34.9 19° 48.0	317° 06.6 19° 54.3	331° 38.2 20° 00.4	346° 09.8 20° 06.4	0° 41.4 20° 12.4	15° 13.0 20° 18.3	29° 44.5 20° 24.1	44° 15.9 20° 29.7	58° 47.4 20° 35.3	+31.6 +6.0	14.8 54.1
Вс 10	276° 35.0 21° 47.8	291° 05.9 21° 51.8	305° 36.8 21° 55.8	320° 07.7 21° 59.6	334° 38.5 22° 03.4	349° 09.3 22° 07.0	3° 40.1 22° 10.5	18° 10.8 22° 14.0	32° 41.6 22° 17.3	47° 12.2 22° 20.6	61° 42.9 22° 23.7	+30.8 +3.6	14.8 54.1
Пн 11	279° 19.5 22° 58.1	293° 49.7 22° 59.5	308° 20.0 23° 00.8	322° 50.2 23° 02.1	337° 20.3 23° 03.2	351° 50.5 23° 04.2	6° 20.6 23° 05.1	20° 50.8 23° 05.9	35° 20.9 23° 06.5	49° 50.9 23° 07.1	64° 21.0 23° 07.6	+30.1 +1.0	14.8 54.3
◐ Вт 12	281° 50.0 23° 01.1	296° 19.9 22° 59.8	310° 49.7 22° 58.3	325° 19.5 22° 56.8	339° 49.3 22° 55.1	354° 19.1 22° 53.3	8° 48.9 22° 51.5	23° 18.7 22° 49.5	37° 48.4 22° 47.3	52° 18.2 22° 45.1	66° 47.9 22° 42.8	+29.8 -1.8	14.9 54.7
Ср 13	284° 13.9 21° 54.2	298° 43.6 21° 50.1	313° 13.3 21° 45.8	327° 43.1 21° 41.5	342° 12.8 21° 37.0	356° 42.5 21° 32.4	11° 12.3 21° 27.8	25° 42.0 21° 23.0	40° 11.7 21° 18.0	54° 41.5 21° 13.0	69° 11.2 21° 07.9	+29.7 -4.6	15.1 55.3
Чт 14	286° 38.2 19° 37.9	301° 08.1 19° 31.0	315° 37.9 19° 24.1	330° 07.8 19° 17.0	344° 37.7 19° 09.8	359° 07.6 19° 02.6	13° 37.5 18° 55.2	28° 07.4 18° 47.7	42° 37.3 18° 40.1	57° 07.3 18° 32.4	71° 37.2 18° 24.7	+29.9 -7.3	15.3 56.0
Пт 15	289° 07.5 16° 15.9	303° 37.6 16° 06.6	318° 07.7 15° 57.1	332° 37.8 15° 47.6	347° 07.9 15° 38.0	1° 38.1 15° 28.2	16° 08.2 15° 18.4	30° 38.4 15° 08.5	45° 08.5 14° 58.5	59° 38.7 14° 48.5	74° 08.9 14° 38.3	+30.1 -9.8	15.5 56.8
Сб 16	291° 42.2 11° 55.7	306° 12.5 11° 44.3	320° 42.7 11° 32.7	335° 13.0 11° 21.1	349° 43.3 11° 09.4	4° 13.5 10° 57.6	18° 43.8 10° 45.8	33° 14.1 10° 33.9	47° 44.3 10° 21.9	62° 14.6 10° 09.8	76° 44.8 9° 57.7	+30.3 -11.8	15.7 57.7
Вс 17	294° 18.2 6° 48.5	308° 48.4 6° 35.4	323° 18.5 6° 22.3	337° 48.7 6° 09.2	352° 18.8 5° 55.9	6° 48.9 5° 42.7	21° 19.0 5° 29.4	35° 49.1 5° 16.0	50° 19.2 5° 02.6	64° 49.3 4° 49.2	79° 19.3 4° 35.7	+30.1 -13.3	16.0 58.6
Пн 18	296° 47.4 1° 09.6	311° 17.1 0° 55.6	325° 46.8 0° 41.6	340° 16.4 0° 27.6	354° 46.0 0° 13.6	9° 15.6 -0° 00.4	23° 45.1 -0° 14.4	38° 14.6 -0° 28.5	52° 44.1 -0° 42.5	67° 13.5 -0° 56.6	81° 42.9 -1° 10.7	+29.5 -14.0	16.2 59.3
○ Вт 19	298° 59.2 -4° 41.5	313° 27.9 -4° 55.5	327° 56.6 -5° 09.5	342° 25.3 -5° 23.4	356° 53.9 -5° 37.3	11° 22.5 -5° 51.2	25° 51.0 -6° 05.1	40° 19.4 -6° 18.9	54° 47.8 -6° 32.7	69° 16.2 -6° 46.5	83° 44.5 -7° 00.2	+28.5 -13.9	16.3 59.9
Ср 20	300° 42.4 -10° 21.4	315° 09.8 -10° 34.4	329° 37.2 -10° 47.3	344° 04.5 -11° 00.2	358° 31.7 -11° 13.0	12° 58.8 -11° 25.7	27° 25.9 -11° 38.4	41° 53.0 -11° 51.0	56° 19.9 -12° 03.5	70° 46.8 -12° 16.0	85° 13.7 -12° 28.4	+27.1 -12.7	16.4 60.3
Чт 21	301° 48.9 -15° 24.1	316° 14.7 -15° 35.1	330° 40.5 -15° 45.9	345° 06.2 -15° 56.7	359° 31.9 -16° 07.3	13° 57.5 -16° 17.9	28° 23.0 -16° 28.3	42° 48.5 -16° 38.7	57° 13.9 -16° 48.9	71° 39.2 -16° 59.0	86° 04.5 -17° 09.0	+25.6 -10.5	16.5 60.3
Пт 22	302° 17.2 -19° 24.2	316° 41.6 -19° 32.2	331° 06.0 -19° 40.0	345° 30.3 -19° 47.7	359° 54.6 -19° 55.3	14° 18.9 -20° 02.7	28° 43.1 -20° 10.0	43° 07.2 -20° 17.1	57° 31.3 -20° 24.1	71° 55.4 -20° 31.0	86° 19.5 -20° 37.7	+24.2 -7.4	16.4 60.2
Сб 23	316° 41.6 -19° 32.2	331° 06.0 -19° 40.0	345° 30.3 -19° 47.7	359° 54.6 -19° 55.3	14° 18.9 -20° 02.7	28° 43.1 -20° 10.0	43° 07.2 -20° 17.1	57° 31.3 -20° 24.1	71° 55.4 -20° 31.0	86° 19.5 -20° 37.7	100° 43.5 -20° 44.3	+24.2 -7.2	16.4 60.2
Вс 24	316° 40.2 -22° 04.8	331° 03.8 -22° 09.0	345° 27.4 -22° 13.0	359° 51.0 -22° 16.8	14° 14.5 -22° 20.5	28° 38.1 -22° 24.0	43° 01.7 -22° 27.3	57° 25.3 -22° 30.5	71° 48.8 -22° 33.6	86° 12.4 -22° 36.5	100° 35.9 -22° 39.2	+23.6 -3.4	16.3 59.8
Пн 25	316° 30.7 -23° 01.1	330° 54.5 -23° 01.3	345° 18.3 -23° 01.3	359° 42.2 -23° 01.2	14° 06.1 -23° 00.9	28° 30.0 -23° 00.5	42° 54.0 -22° 59.9	57° 18.0 -22° 59.2	71° 42.1 -22° 58.3	86° 06.2 -22° 57.2	100° 30.3 -22° 56.0	+24.0 +0.5	16.2 59.3
◑ Вт 26	316° 38.4 -22° 20.2	331° 03.4 -22° 16.6	345° 28.4 -22° 12.9	359° 53.5 -22° 09.1	14° 18.7 -22° 05.1	28° 44.0 -22° 01.0	43° 09.3 -21° 56.8	57° 34.7 -21° 52.4	72° 00.2 -21° 47.9	86° 25.7 -21° 43.3	100° 51.3 -21° 38.5	+25.3 +4.2	16.0 58.6
Ср 27	317° 24.6 -20° 11.8	331° 51.4 -20° 05.0	346° 18.4 -19° 58.2	0° 45.4 -19° 51.2	15° 12.5 -19° 44.1	29° 39.6 -19° 37.0	44° 06.9 -19° 29.7	58° 34.2 -19° 22.3	73° 01.6 -19° 14.8	87° 29.2 -19° 07.2	101° 56.7 -18° 59.5	+27.2 +7.2	15.8 58.0
Чт 28	319° 00.5 -16° 52.2	333° 29.4 -16° 43.0	347° 58.4 -16° 33.8	2° 27.5 -16° 24.4	16° 56.6 -16° 15.0	31° 25.8 -16° 05.4	45° 55.1 -15° 55.9	60° 24.5 -15° 46.2	74° 54.0 -15° 36.4	89° 23.5 -15° 26.6	103° 53.2 -15° 16.7	+29.3 +9.6	15.7 57.4
Пт 29	321° 26.4 -12° 40.3	335° 57.2 -12° 29.4	350° 28.1 -12° 18.5	4° 59.0 -12° 07.5	19° 30.0 -11° 56.4	34° 01.0 -11° 45.3	48° 32.1 -11° 34.1	63° 03.3 -11° 22.9	77° 34.6 -11° 11.7	92° 05.9 -11° 00.4	106° 37.3 -10° 49.0	+31.1 +11.1	15.5 56.8
Сб 30	324° 34.8 -7° 54.3	339° 07.1 -7° 42.4	353° 39.4 -7° 30.5	8° 11.7 -7° 18.5	22° 44.1 -7° 06.5	37° 16.6 -6° 54.5	51° 49.1 -6° 42.5	66° 21.6 -6° 30.4	80° 54.2 -6° 18.4	95° 26.8 -6° 06.3	109° 59.5 -5° 54.1	+32.5 +12.0	15.3 56.3
Вс 31	328° 14.1 -2° 50.8	342° 47.3 -2° 38.5	357° 20.6 -2° 26.2	11° 53.8 -2° 13.9	26° 27.2 -2° 01.6	41° 00.5 -1° 49.3	55° 33.9 -1° 37.0	70° 07.3 -1° 24.7	84° 40.7 -1° 12.4	99° 14.1 -1° 00.1	113° 47.6 -0° 47.8	+33.4 +12.3	15.2 55.7

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 4 06h34 — Первая четв.: 12 08h47 — Полнолуние: 19 17h56 — Последняя четв.: 26 09h51

СОЛНЦЕ

Апрель 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	269° 01.3	284° 01.5	299° 01.6	314° 01.8	329° 02.0	344° 02.2	359° 02.4	14° 02.6	29° 02.7	44° 02.9	59° 03.1	74° 03.3	+0.2
	4° 34.3	4° 35.3	4° 36.2	4° 37.2	4° 38.2	4° 39.1	4° 40.1	4° 41.0	4° 42.0	4° 43.0	4° 43.9	4° 44.9	+1.0
Вт 2	269° 05.7	284° 05.9	299° 06.1	314° 06.2	329° 06.4	344° 06.6	359° 06.8	14° 07.0	29° 07.1	44° 07.3	59° 07.5	74° 07.7	+0.2
	4° 57.4	4° 58.4	4° 59.3	5° 00.3	5° 01.3	5° 02.2	5° 03.2	5° 04.1	5° 05.1	5° 06.1	5° 07.0	5° 08.0	+1.0
Ср 3	269° 10.1	284° 10.2	299° 10.4	314° 10.6	329° 10.8	344° 11.0	359° 11.2	14° 11.3	29° 11.5	44° 11.7	59° 11.9	74° 12.1	+0.2
	5° 20.4	5° 21.4	5° 22.4	5° 23.3	5° 24.3	5° 25.2	5° 26.2	5° 27.1	5° 28.1	5° 29.0	5° 30.0	5° 31.0	+1.0
Чт 4	269° 14.4	284° 14.6	299° 14.8	314° 14.9	329° 15.1	344° 15.3	359° 15.5	14° 15.7	29° 15.8	44° 16.0	59° 16.2	74° 16.4	+0.2
	5° 43.4	5° 44.3	5° 45.3	5° 46.2	5° 47.2	5° 48.1	5° 49.1	5° 50.0	5° 51.0	5° 51.9	5° 52.9	5° 53.8	+1.0
Пт 5	269° 18.7	284° 18.9	299° 19.1	314° 19.2	329° 19.4	344° 19.6	359° 19.8	14° 20.0	29° 20.1	44° 20.3	59° 20.5	74° 20.7	+0.2
	6° 06.2	6° 07.2	6° 08.1	6° 09.1	6° 10.0	6° 10.9	6° 11.9	6° 12.8	6° 13.8	6° 14.7	6° 15.7	6° 16.6	+0.9
Сб 6	269° 23.0	284° 23.1	299° 23.3	314° 23.5	329° 23.7	344° 23.9	359° 24.0	14° 24.2	29° 24.4	44° 24.6	59° 24.7	74° 24.9	+0.2
	6° 28.9	6° 29.9	6° 30.8	6° 31.8	6° 32.7	6° 33.7	6° 34.6	6° 35.5	6° 36.5	6° 37.4	6° 38.4	6° 39.3	+0.9
Вс 7	269° 27.2	284° 27.4	299° 27.5	314° 27.7	329° 27.9	344° 28.1	359° 28.2	14° 28.4	29° 28.6	44° 28.7	59° 28.9	74° 29.1	+0.2
	6° 51.5	6° 52.5	6° 53.4	6° 54.4	6° 55.3	6° 56.2	6° 57.2	6° 58.1	6° 59.1	7° 00.0	7° 00.9	7° 01.9	+0.9
Пн 8	269° 31.3	284° 31.5	299° 31.7	314° 31.9	329° 32.0	344° 32.2	359° 32.4	14° 32.5	29° 32.7	44° 32.9	59° 33.1	74° 33.2	+0.2
	7° 14.0	7° 15.0	7° 15.9	7° 16.8	7° 17.8	7° 18.7	7° 19.6	7° 20.6	7° 21.5	7° 22.4	7° 23.4	7° 24.3	+0.9
Вт 9	269° 35.4	284° 35.6	299° 35.8	314° 35.9	329° 36.1	344° 36.3	359° 36.5	14° 36.6	29° 36.8	44° 37.0	59° 37.1	74° 37.3	+0.2
	7° 36.4	7° 37.3	7° 38.3	7° 39.2	7° 40.1	7° 41.1	7° 42.0	7° 42.9	7° 43.8	7° 44.8	7° 45.7	7° 46.6	+0.9
Ср 10	269° 39.5	284° 39.6	299° 39.8	314° 40.0	329° 40.1	344° 40.3	359° 40.5	14° 40.6	29° 40.8	44° 41.0	59° 41.1	74° 41.3	+0.2
	7° 58.7	7° 59.6	8° 00.5	8° 01.4	8° 02.4	8° 03.3	8° 04.2	8° 05.1	8° 06.0	8° 07.0	8° 07.9	8° 08.8	+0.9
Чт 11	269° 43.5	284° 43.6	299° 43.8	314° 43.9	329° 44.1	344° 44.3	359° 44.4	14° 44.6	29° 44.8	44° 44.9	59° 45.1	74° 45.3	+0.2
	8° 20.8	8° 21.7	8° 22.6	8° 23.5	8° 24.4	8° 25.4	8° 26.3	8° 27.2	8° 28.1	8° 29.0	8° 29.9	8° 30.8	+0.9
Пт 12	269° 47.4	284° 47.5	299° 47.7	314° 47.8	329° 48.0	344° 48.2	359° 48.3	14° 48.5	29° 48.7	44° 48.8	59° 49.0	74° 49.1	+0.2
	8° 42.7	8° 43.6	8° 44.6	8° 45.5	8° 46.4	8° 47.3	8° 48.2	8° 49.1	8° 50.0	8° 50.9	8° 51.8	8° 52.7	+0.9
Сб 13	269° 51.2	284° 51.4	299° 51.5	314° 51.7	329° 51.8	344° 52.0	359° 52.2	14° 52.3	29° 52.5	44° 52.6	59° 52.8	74° 52.9	+0.2
	9° 04.5	9° 05.5	9° 06.4	9° 07.3	9° 08.2	9° 09.1	9° 10.0	9° 10.9	9° 11.8	9° 12.7	9° 13.6	9° 14.5	+0.9
Вс 14	269° 55.0	284° 55.1	299° 55.3	314° 55.4	329° 55.6	344° 55.7	359° 55.9	14° 56.0	29° 56.2	44° 56.4	59° 56.5	74° 56.7	+0.2
	9° 26.2	9° 27.1	9° 28.0	9° 28.9	9° 29.8	9° 30.7	9° 31.6	9° 32.5	9° 33.4	9° 34.3	9° 35.2	9° 36.1	+0.9
Пн 15	269° 58.6	284° 58.8	299° 58.9	314° 59.1	329° 59.2	344° 59.4	359° 59.6	14° 59.7	29° 59.9	45° 00.0	60° 00.2	75° 00.3	+0.2
	9° 47.7	9° 48.6	9° 49.5	9° 50.4	9° 51.3	9° 52.2	9° 53.1	9° 54.0	9° 54.9	9° 55.7	9° 56.6	9° 57.5	+0.9
Вт 16	270° 02.2	285° 02.4	300° 02.5	315° 02.7	330° 02.8	345° 03.0	0° 03.1	15° 03.3	30° 03.4	45° 03.6	60° 03.7	75° 03.9	+0.1
	10° 09.1	10° 10.0	10° 10.8	10° 11.7	10° 12.6	10° 13.5	10° 14.4	10° 15.3	10° 16.1	10° 17.0	10° 17.9	10° 18.8	+0.9
Ср 17	270° 05.7	285° 05.9	300° 06.0	315° 06.2	330° 06.3	345° 06.5	0° 06.6	15° 06.7	30° 06.9	45° 07.0	60° 07.2	75° 07.3	+0.1
	10° 30.2	10° 31.1	10° 32.0	10° 32.9	10° 33.8	10° 34.6	10° 35.5	10° 36.4	10° 37.3	10° 38.1	10° 39.0	10° 39.9	+0.9
Чт 18	270° 09.2	285° 09.3	300° 09.4	315° 09.6	330° 09.7	345° 09.9	0° 10.0	15° 10.1	30° 10.3	45° 10.4	60° 10.5	75° 10.7	+0.1
	10° 51.2	10° 52.1	10° 53.0	10° 53.9	10° 54.7	10° 55.6	10° 56.5	10° 57.3	10° 58.2	10° 59.1	10° 59.9	11° 00.8	+0.9
Пт 19	270° 12.5	285° 12.6	300° 12.7	315° 12.9	330° 13.0	345° 13.1	0° 13.3	15° 13.4	30° 13.5	45° 13.7	60° 13.8	75° 13.9	+0.1
	11° 12.1	11° 12.9	11° 13.8	11° 14.7	11° 15.5	11° 16.4	11° 17.2	11° 18.1	11° 19.0	11° 19.8	11° 20.7	11° 21.6	+0.9
Сб 20	270° 15.7	285° 15.8	300° 15.9	315° 16.1	330° 16.2	345° 16.3	0° 16.5	15° 16.6	30° 16.7	45° 16.8	60° 17.0	75° 17.1	+0.1
	11° 32.7	11° 33.6	11° 34.4	11° 35.3	11° 36.1	11° 37.0	11° 37.8	11° 38.7	11° 39.6	11° 40.4	11° 41.3	11° 42.1	+0.9
Вс 21	270° 18.8	285° 18.9	300° 19.0	315° 19.2	330° 19.3	345° 19.4	0° 19.5	15° 19.7	30° 19.8	45° 19.9	60° 20.0	75° 20.2	+0.1
	11° 53.2	11° 54.0	11° 54.9	11° 55.7	11° 56.6	11° 57.4	11° 58.3	11° 59.1	11° 59.9	12° 00.8	12° 01.6	12° 02.5	+0.8
Пн 22	270° 21.8	285° 21.9	300° 22.0	315° 22.1	330° 22.2	345° 22.4	0° 22.5	15° 22.6	30° 22.7	45° 22.8	60° 23.0	75° 23.1	+0.1
	12° 13.4	12° 14.3	12° 15.1	12° 15.9	12° 16.8	12° 17.6	12° 18.5	12° 19.3	12° 20.1	12° 21.0	12° 21.8	12° 22.6	+0.8
Вт 23	270° 24.6	285° 24.7	300° 24.9	315° 25.0	330° 25.1	345° 25.2	0° 25.3	15° 25.4	30° 25.6	45° 25.7	60° 25.8	75° 25.9	+0.1
	12° 33.5	12° 34.3	12° 35.1	12° 36.0	12° 36.8	12° 37.6	12° 38.5	12° 39.3	12° 40.1	12° 41.0	12° 41.8	12° 42.6	+0.8
Ср 24	270° 27.4	285° 27.5	300° 27.6	315° 27.7	330° 27.8	345° 27.9	0° 28.0	15° 28.2	30° 28.3	45° 28.4	60° 28.5	75° 28.6	+0.1
	12° 53.3	12° 54.2	12° 55.0	12° 55.8	12° 56.6	12° 57.5	12° 58.3	12° 59.1	12° 59.9	13° 00.7	13° 01.6	13° 02.4	+0.8
Чт 25	270° 30.0	285° 30.1	300° 30.2	315° 30.3	330° 30.4	345° 30.5	0° 30.6	15° 30.7	30° 30.8	45° 31.0	60° 31.1	75° 31.2	+0.1
	13° 13.0	13° 13.8	13° 14.6	13° 15.4	13° 16.2	13° 17.1	13° 17.9	13° 18.7	13° 19.5	13° 20.3	13° 21.1	13° 21.9	+0.8
Пт 26	270° 32.5	285° 32.6	300° 32.7	315° 32.8	330° 32.9	345° 33.0	0° 33.1	15° 33.2	30° 33.3	45° 33.4	60° 33.5	75° 33.6	+0.1
	13° 32.4	13° 33.2	13° 34.0	13° 34.8	13° 35.6	13° 36.4	13° 37.2	13° 38.0	13° 38.8	13° 39.6	13° 40.4	13° 41.2	+0.8
Сб 27	270° 34.9	285° 35.0	300° 35.1	315° 35.2	330° 35.3	345° 35.4	0° 35.4	15° 35.5	30° 35.6	45° 35.7	60° 35.8	75° 35.9	+0.1
	13° 51.6	13° 52.4	13° 53.2	13° 54.0	13° 54.8	13° 55.6	13° 56.4	13° 57.2	13° 58.0	13° 58.8	13° 59.6	14° 00.3	+0.8
Вс 28	270° 37.1	285° 37.2	300° 37.3	315° 37.4	330° 37.5	345° 37.6	0° 37.7	15° 37.7	30° 37.8	45° 37.9	60° 38.0	75° 38.1	+0.1
	14° 10.6	14° 11.4	14° 12.2	14° 12.9	14° 13.7	14° 14.5	14° 15.3	14° 16.1	14° 16.9	14° 17.7	14° 18.4	14° 19.2	+0.8
Пн 29	270° 39.2	285° 39.3	300° 39.4	315° 39.5	330° 39.6	345° 39.6	0° 39.7	15° 39.8	30° 39.9	45° 40.0	60° 40.1	75° 40.1	+0.1
	14° 29.3	14° 30.1	14° 30.9	14° 31.7	14° 32.4	14° 33.2	14° 34.0	14° 34.8	14° 35.5	14° 36.3	14° 37.1	14° 37.8	+0.8
Вт 30	270° 41.2	285° 41.3	300° 41.4	315° 41.4	330° 41.5	345° 41.6	0° 41.7	15° 41.8	30° 41.8	45° 41.9	60° 42.0	75° 42.1	+0.1
	14° 47.8	14° 48.6	14° 49.4	14° 50.1	14° 50.9	14° 51.7	14° 52.4	14° 53.2	14° 54.0	14° 54.7	14° 55.5	14° 56.2	+0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2030

Д	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	R/p
Пн 1	244° 49.5 1° 02.5	259° 23.1 1° 14.7	273° 56.8 1° 26.9	288° 30.4 1° 39.0	303° 04.1 1° 51.2	317° 37.7 2° 03.3	332° 11.4 2° 15.5	346° 45.1 2° 27.6	1° 18.8 2° 39.7	15° 52.5 2° 51.8	30° 26.2 3° 03.8	+33.7 +12.1	15.1 55.4
● Вт 2	248° 52.3 6° 01.8	263° 26.0 6° 13.4	277° 59.8 6° 25.0	292° 33.5 6° 36.6	307° 07.2 6° 48.2	321° 40.9 6° 59.7	336° 14.6 7° 11.1	350° 48.3 7° 22.6	5° 22.0 7° 33.9	19° 55.6 7° 45.3	34° 29.3 7° 56.6	+33.7 +11.5	15.0 55.0
Ср 3	252° 52.6 10° 41.2	267° 26.0 10° 51.8	281° 59.4 11° 02.3	296° 32.8 11° 12.8	311° 06.1 11° 23.2	325° 39.5 11° 33.6	340° 12.8 11° 43.9	354° 46.1 11° 54.2	9° 19.4 12° 04.4	23° 52.6 12° 14.6	38° 25.8 12° 24.7	+33.3 +10.4	14.9 54.6
Чт 4	256° 41.2 14° 49.0	271° 14.0 14° 58.1	285° 46.8 15° 07.1	300° 19.6 15° 16.1	314° 52.3 15° 25.0	329° 25.0 15° 33.8	343° 57.7 15° 42.6	358° 30.3 15° 51.2	13° 02.9 15° 59.8	27° 35.5 16° 08.4	42° 08.0 16° 16.9	+32.7 +8.8	14.8 54.3
Пт 5	260° 12.3 18° 14.6	274° 44.3 18° 21.8	289° 16.3 18° 29.0	303° 48.3 18° 36.0	318° 20.2 18° 43.0	332° 52.1 18° 49.8	347° 24.0 18° 56.6	1° 55.8 19° 03.3	16° 27.7 19° 09.9	30° 59.4 19° 16.5	45° 31.2 19° 22.9	+31.9 +6.8	14.7 54.1
Сб 6	263° 23.5 20° 48.7	277° 54.8 20° 53.6	292° 26.0 20° 58.5	306° 57.2 21° 03.3	321° 28.3 21° 08.0	335° 59.5 21° 12.6	350° 30.6 21° 17.1	5° 01.6 21° 21.5	19° 32.7 21° 25.8	34° 03.7 21° 30.0	48° 34.7 21° 34.0	+31.1 +4.5	14.7 54.0
Вс 7	266° 16.7 22° 23.4	280° 47.3 22° 25.9	295° 17.9 22° 28.2	309° 48.5 22° 30.5	324° 19.1 22° 32.7	338° 49.6 22° 34.7	353° 20.1 22° 36.6	7° 50.6 22° 38.5	22° 21.1 22° 40.2	36° 51.6 22° 41.8	51° 22.1 22° 43.4	+30.5 +2.0	14.7 54.0
Пн 8	268° 57.4 22° 53.4	283° 27.6 22° 53.2	297° 57.9 22° 52.9	312° 28.2 22° 52.4	326° 58.4 22° 51.9	341° 28.6 22° 51.3	355° 58.9 22° 50.6	10° 29.1 22° 49.7	24° 59.3 22° 48.8	39° 29.6 22° 47.7	53° 59.8 22° 46.5	+30.2 -0.7	14.8 54.2
Вт 9	271° 33.1 22° 15.9	286° 03.3 22° 13.0	300° 33.5 22° 10.0	315° 03.8 22° 06.9	329° 34.0 22° 03.7	344° 04.3 22° 00.3	358° 34.5 21° 56.9	13° 04.8 21° 53.3	27° 35.1 21° 49.7	42° 05.4 21° 45.9	56° 35.7 21° 42.0	+30.3 -3.4	14.9 54.6
Ср 10	274° 11.1 20° 31.4	288° 41.5 20° 25.9	303° 12.0 20° 20.2	317° 42.4 20° 14.5	332° 12.9 20° 08.6	346° 43.4 20° 02.7	1° 13.9 19° 56.7	15° 44.4 19° 50.5	30° 15.0 19° 44.3	44° 45.5 19° 37.9	59° 16.1 19° 31.5	+30.5 -6.0	15.0 55.1
◐ Чт 11	276° 55.9 17° 43.0	291° 26.7 17° 35.0	305° 57.5 17° 26.9	320° 28.2 17° 18.8	334° 59.0 17° 10.5	349° 29.8 17° 02.1	4° 00.7 16° 53.7	18° 31.5 16° 45.1	33° 02.3 16° 36.5	47° 33.2 16° 27.8	62° 04.0 16° 18.9	+30.8 -8.4	15.2 55.8
Пт 12	279° 47.9 13° 56.4	294° 18.9 13° 46.2	308° 49.9 13° 36.0	323° 20.9 13° 25.6	337° 51.9 13° 15.2	352° 22.9 13° 04.7	6° 53.9 12° 54.2	21° 24.9 12° 43.5	35° 55.9 12° 32.8	50° 26.9 12° 22.0	64° 57.9 12° 11.2	+31.0 -10.5	15.5 56.7
Сб 13	282° 42.7 9° 19.7	297° 13.6 9° 07.7	311° 44.5 8° 55.7	326° 15.5 8° 43.6	340° 46.4 8° 31.4	355° 17.3 8° 19.2	9° 48.1 8° 06.9	24° 19.0 7° 54.6	38° 49.9 7° 42.2	53° 20.7 7° 29.8	67° 51.5 7° 17.3	+30.9 -12.2	15.7 57.6
Вс 14	285° 31.5 4° 03.8	300° 02.0 3° 50.6	314° 32.4 3° 37.3	329° 02.8 3° 24.0	343° 33.2 3° 10.6	358° 03.6 2° 57.2	12° 33.9 2° 43.8	27° 04.2 2° 30.3	41° 34.4 2° 16.8	56° 04.6 2° 03.3	70° 34.8 1° 49.7	+30.3 -13.4	16.0 58.6
Пн 15	288° 02.6 -1° 36.4	302° 32.1 -1° 50.2	317° 01.6 -2° 04.1	331° 31.0 -2° 18.0	346° 00.3 -2° 31.8	0° 29.6 -2° 45.7	14° 58.8 -2° 59.6	29° 28.0 -3° 13.5	43° 57.1 -3° 27.3	58° 26.2 -3° 41.2	72° 55.2 -3° 55.1	+29.3 -13.9	16.2 59.5
Вт 16	290° 02.8 -7° 21.5	304° 30.8 -7° 35.1	318° 58.7 -7° 48.6	333° 26.5 -8° 02.1	347° 54.3 -8° 15.6	2° 22.0 -8° 29.0	16° 49.6 -8° 42.4	31° 17.1 -8° 55.8	45° 44.6 -9° 09.1	60° 12.0 -9° 22.4	74° 39.3 -9° 35.6	+27.7 -13.4	16.5 60.3
Ср 17	291° 19.9 -12° 47.1	305° 46.0 -12° 59.4	320° 12.0 -13° 11.5	334° 37.9 -13° 23.6	349° 03.7 -13° 35.6	3° 29.5 -13° 47.5	17° 55.2 -13° 59.3	32° 20.8 -14° 11.0	46° 46.3 -14° 22.7	61° 11.7 -14° 34.2	75° 37.0 -14° 45.7	+25.7 -11.9	16.6 60.9
○ Чт 18	291° 47.8 -17° 25.2	306° 12.0 -17° 34.9	320° 36.0 -17° 44.5	335° 00.0 -17° 54.0	349° 23.9 -18° 03.4	3° 47.7 -18° 12.6	18° 11.5 -18° 21.7	32° 35.2 -18° 30.7	46° 58.8 -18° 39.5	61° 22.3 -18° 48.2	75° 45.8 -18° 56.8	+23.8 -9.2	16.7 61.1
Пт 19	291° 31.4 -20° 48.1	305° 54.1 -20° 54.3	320° 16.7 -21° 00.4	334° 39.2 -21° 06.3	349° 01.8 -21° 12.0	3° 24.3 -21° 17.6	17° 46.7 -21° 23.1	32° 09.2 -21° 28.3	46° 31.6 -21° 33.4	60° 54.0 -21° 38.4	75° 16.3 -21° 43.2	+22.5 -5.5	16.6 60.9
Сб 20	290° 50.1 -22° 35.0	305° 12.3 -22° 37.1	319° 34.5 -22° 39.0	333° 56.8 -22° 40.8	348° 19.1 -22° 42.4	2° 41.4 -22° 43.8	17° 03.7 -22° 45.1	31° 26.0 -22° 46.2	45° 48.4 -22° 47.1	60° 10.8 -22° 47.9	74° 33.2 -22° 48.5	+22.3 -1.4	16.5 60.5
Вс 21	290° 14.1 -22° 37.6	304° 37.2 -22° 35.6	319° 00.4 -22° 33.4	333° 23.6 -22° 31.0	347° 47.0 -22° 28.5	2° 10.3 -22° 25.9	16° 33.8 -22° 23.1	30° 57.3 -22° 20.2	45° 20.9 -22° 17.1	59° 44.5 -22° 13.8	74° 08.3 -22° 10.4	+23.4 +2.7	16.3 59.8
Пн 22	304° 37.2 -22° 35.6	319° 00.4 -22° 33.4	333° 23.6 -22° 31.0	347° 47.0 -22° 28.5	2° 10.3 -22° 25.9	16° 33.8 -22° 23.1	30° 57.3 -22° 20.2	45° 20.9 -22° 17.1	59° 44.5 -22° 13.8	74° 08.3 -22° 10.4	88° 32.1 -22° 06.8	+23.5 +2.9	16.3 59.8
Вт 23	304° 38.9 -20° 56.5	319° 04.1 -20° 50.8	333° 29.3 -20° 44.9	347° 54.7 -20° 38.9	2° 20.1 -20° 32.7	16° 45.6 -20° 26.4	31° 11.3 -20° 20.0	45° 37.0 -20° 13.5	60° 02.8 -20° 06.9	74° 28.7 -20° 00.2	88° 54.7 -19° 53.3	+25.6 +6.3	16.1 59.0
◑ Ср 24	305° 36.5 -17° 57.3	320° 04.0 -17° 48.7	334° 31.7 -17° 40.1	348° 59.5 -17° 31.4	3° 27.3 -17° 22.6	17° 55.3 -17° 13.7	32° 23.3 -17° 04.7	46° 51.5 -16° 55.6	61° 19.7 -16° 46.4	75° 48.1 -16° 37.2	90° 16.5 -16° 27.9	+28.0 +8.9	15.9 58.2
Чт 25	307° 34.1 -13° 59.1	322° 04.0 -13° 48.7	336° 34.0 -13° 38.2	351° 04.1 -13° 27.6	5° 34.2 -13° 17.0	20° 04.4 -13° 06.3	34° 34.7 -12° 55.5	49° 05.1 -12° 44.8	63° 35.6 -12° 33.9	78° 06.2 -12° 23.0	92° 36.8 -12° 12.1	+30.3 +10.7	15.6 56.9
Пт 26	310° 25.1 -9° 22.7	324° 56.9 -9° 11.1	339° 28.7 -8° 59.5	354° 00.6 -8° 47.8	8° 32.6 -8° 36.2	23° 04.6 -8° 24.4	37° 36.7 -8° 12.7	52° 08.9 -8° 00.9	66° 41.1 -7° 49.2	81° 13.3 -7° 37.3	95° 45.7 -7° 25.5	+32.1 +11.7	15.4 56.6
Сб 27	313° 56.5 -4° 25.8	328° 29.6 -4° 13.7	343° 02.7 -4° 01.6	357° 35.9 -3° 49.5	12° 09.1 -3° 37.4	26° 42.4 -3° 25.2	41° 15.6 -3° 13.1	55° 48.9 -3° 01.0	70° 22.3 -2° 48.9	84° 55.7 -2° 36.7	99° 29.1 -2° 24.6	+33.3 +12.1	15.2 55.9
Вс 28	317° 53.5 0° 37.0	332° 27.3 0° 49.0	347° 01.2 1° 01.1	1° 35.0 1° 13.1	16° 08.9 1° 25.1	30° 42.7 1° 37.1	45° 16.6 1° 49.1	59° 50.5 2° 01.0	74° 24.4 2° 13.0	88° 58.3 2° 24.9	103° 32.2 2° 36.8	+33.9 +12.0	15.1 55.3
Пн 29	322° 01.8 5° 32.9	336° 35.7 5° 44.4	351° 09.7 5° 55.9	5° 43.7 6° 07.3	20° 17.6 6° 18.8	34° 51.6 6° 30.2	49° 25.5 6° 41.6	63° 59.5 6° 52.9	78° 33.4 7° 04.2	93° 07.3 7° 15.5	107° 41.2 7° 26.7	+34.0 +11.4	15.0 54.8
Вт 30	326° 08.4 10° 10.4	340° 42.1 10° 21.0	355° 15.7 10° 31.5	9° 49.4 10° 42.0	24° 23.0 10° 52.4	38° 56.6 11° 02.8	53° 30.2 11° 13.1	68° 03.7 11° 23.4	82° 37.2 11° 33.6	97° 10.7 11° 43.8	111° 44.2 11° 53.9	+33.6 +10.3	14.9 54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 2 22h02 — Первая четв.: 11 02h56 — Полнолуние: 18 03h20 — Последняя четв.: 24 18h39

СОЛНЦЕ

Май 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	270° 43.0 15° 06.1	285° 43.1 15° 06.9	300° 43.2 15° 07.6	315° 43.3 15° 08.4	330° 43.3 15° 09.1	345° 43.4 15° 09.9	0° 43.5 15° 10.6	15° 43.6 15° 11.4	30° 43.6 15° 12.1	45° 43.7 15° 12.9	60° 43.8 15° 13.6	75° 43.8 15° 14.4	+0.1 +0.8
Чт 2	270° 44.7 15° 24.1	285° 44.8 15° 24.9	300° 44.9 15° 25.6	315° 45.0 15° 26.3	330° 45.0 15° 27.1	345° 45.1 15° 27.8	0° 45.2 15° 28.6	15° 45.2 15° 29.3	30° 45.3 15° 30.1	45° 45.4 15° 30.8	60° 45.4 15° 31.5	75° 45.5 15° 32.3	+0.1 +0.7
Пт 3	270° 46.3 15° 41.9	285° 46.4 15° 42.6	300° 46.4 15° 43.3	315° 46.5 15° 44.1	330° 46.6 15° 44.8	345° 46.6 15° 45.5	0° 46.7 15° 46.3	15° 46.8 15° 47.0	30° 46.8 15° 47.7	45° 46.9 15° 48.5	60° 46.9 15° 49.2	75° 47.0 15° 49.9	+0.1 +0.7
Сб 4	270° 47.8 15° 59.4	285° 47.8 16° 00.1	300° 47.9 16° 00.8	315° 47.9 16° 01.5	330° 48.0 16° 02.3	345° 48.0 16° 03.0	0° 48.1 16° 03.7	15° 48.1 16° 04.4	30° 48.2 16° 05.1	45° 48.3 16° 05.9	60° 48.3 16° 06.6	75° 48.4 16° 07.3	+0.1 +0.7
Вс 5	270° 49.0 16° 16.6	285° 49.1 16° 17.3	300° 49.1 16° 18.0	315° 49.2 16° 18.7	330° 49.2 16° 19.4	345° 49.3 16° 20.1	0° 49.3 16° 20.9	15° 49.4 16° 21.6	30° 49.4 16° 22.3	45° 49.5 16° 23.0	60° 49.5 16° 23.7	75° 49.6 16° 24.4	+0.0 +0.7
Пн 6	270° 50.2 16° 33.5	285° 50.2 16° 34.2	300° 50.3 16° 34.9	315° 50.3 16° 35.6	330° 50.4 16° 36.3	345° 50.4 16° 37.0	0° 50.5 16° 37.7	15° 50.5 16° 38.4	30° 50.6 16° 39.1	45° 50.6 16° 39.8	60° 50.6 16° 40.5	75° 50.7 16° 41.2	+0.0 +0.7
Вт 7	270° 51.2 16° 50.2	285° 51.3 16° 50.9	300° 51.3 16° 51.6	315° 51.3 16° 52.3	330° 51.4 16° 53.0	345° 51.4 16° 53.7	0° 51.5 16° 54.4	15° 51.5 16° 55.0	30° 51.5 16° 55.7	45° 51.6 16° 56.4	60° 51.6 16° 57.1	75° 51.6 16° 57.8	+0.0 +0.7
Ср 8	270° 52.1 17° 06.6	285° 52.1 17° 07.3	300° 52.2 17° 08.0	315° 52.2 17° 08.7	330° 52.2 17° 09.3	345° 52.3 17° 10.0	0° 52.3 17° 10.7	15° 52.3 17° 11.4	30° 52.4 17° 12.0	45° 52.4 17° 12.7	60° 52.4 17° 13.4	75° 52.5 17° 14.0	+0.0 +0.7
Чт 9	270° 52.8 17° 22.7	285° 52.9 17° 23.4	300° 52.9 17° 24.1	315° 52.9 17° 24.7	330° 53.0 17° 25.4	345° 53.0 17° 26.1	0° 53.0 17° 26.7	15° 53.0 17° 27.4	30° 53.1 17° 28.0	45° 53.1 17° 28.7	60° 53.1 17° 29.4	75° 53.1 17° 30.0	+0.0 +0.7
Пт 10	270° 53.4 17° 38.6	285° 53.5 17° 39.2	300° 53.5 17° 39.9	315° 53.5 17° 40.5	330° 53.5 17° 41.2	345° 53.6 17° 41.8	0° 53.6 17° 42.5	15° 53.6 17° 43.1	30° 53.6 17° 43.8	45° 53.6 17° 44.4	60° 53.7 17° 45.1	75° 53.7 17° 45.7	+0.0 +0.6
Сб 11	270° 53.9 17° 54.1	285° 53.9 17° 54.7	300° 53.9 17° 55.4	315° 54.0 17° 56.0	330° 54.0 17° 56.6	345° 54.0 17° 57.3	0° 54.0 17° 57.9	15° 54.0 17° 58.6	30° 54.0 17° 59.2	45° 54.1 17° 59.8	60° 54.1 18° 00.5	75° 54.1 18° 01.1	+0.0 +0.6
Вс 12	270° 54.2 18° 09.3	285° 54.3 18° 09.9	300° 54.3 18° 10.6	315° 54.3 18° 11.2	330° 54.3 18° 11.8	345° 54.3 18° 12.4	0° 54.3 18° 13.1	15° 54.3 18° 13.7	30° 54.3 18° 14.3	45° 54.3 18° 14.9	60° 54.3 18° 15.6	75° 54.3 18° 16.2	+0.0 +0.6
Пн 13	270° 54.4 18° 24.2	285° 54.4 18° 24.8	300° 54.4 18° 25.5	315° 54.4 18° 26.1	330° 54.5 18° 26.7	345° 54.5 18° 27.3	0° 54.5 18° 27.9	15° 54.5 18° 28.5	30° 54.5 18° 29.1	45° 54.5 18° 29.7	60° 54.5 18° 30.3	75° 54.5 18° 31.0	+0.0 +0.6
Вт 14	270° 54.5 18° 38.8	285° 54.5 18° 39.4	300° 54.5 18° 40.0	315° 54.5 18° 40.6	330° 54.5 18° 41.2	345° 54.5 18° 41.8	0° 54.5 18° 42.4	15° 54.5 18° 43.0	30° 54.5 18° 43.6	45° 54.5 18° 44.2	60° 54.5 18° 44.8	75° 54.5 18° 45.4	-0.0 +0.6
Ср 15	270° 54.4 18° 53.1	285° 54.4 18° 53.7	300° 54.4 18° 54.3	315° 54.4 18° 54.9	330° 54.4 18° 55.5	345° 54.4 18° 56.1	0° 54.4 18° 56.6	15° 54.3 18° 57.2	30° 54.3 18° 57.8	45° 54.3 18° 58.4	60° 54.3 18° 59.0	75° 54.3 18° 59.6	-0.0 +0.6
Чт 16	270° 54.2 19° 07.1	285° 54.2 19° 07.7	300° 54.2 19° 08.2	315° 54.1 19° 08.8	330° 54.1 19° 09.4	345° 54.1 19° 10.0	0° 54.1 19° 10.5	15° 54.1 19° 11.1	30° 54.1 19° 11.7	45° 54.1 19° 12.2	60° 54.0 19° 12.8	75° 54.0 19° 13.4	-0.0 +0.6
Пт 17	270° 53.8 19° 20.7	285° 53.8 19° 21.3	300° 53.8 19° 21.9	315° 53.8 19° 22.4	330° 53.7 19° 23.0	345° 53.7 19° 23.5	0° 53.7 19° 24.1	15° 53.7 19° 24.7	30° 53.7 19° 25.2	45° 53.6 19° 25.8	60° 53.6 19° 26.3	75° 53.6 19° 26.9	-0.0 +0.6
Сб 18	270° 53.3 19° 34.1	285° 53.3 19° 34.6	300° 53.3 19° 35.1	315° 53.2 19° 35.7	330° 53.2 19° 36.2	345° 53.2 19° 36.8	0° 53.2 19° 37.3	15° 53.1 19° 37.9	30° 53.1 19° 38.4	45° 53.1 19° 39.0	60° 53.1 19° 39.5	75° 53.0 19° 40.0	-0.0 +0.5
Вс 19	270° 52.7 19° 47.0	285° 52.6 19° 47.6	300° 52.6 19° 48.1	315° 52.6 19° 48.6	330° 52.5 19° 49.2	345° 52.5 19° 49.7	0° 52.5 19° 50.2	15° 52.5 19° 50.8	30° 52.4 19° 51.3	45° 52.4 19° 51.8	60° 52.4 19° 52.4	75° 52.3 19° 52.9	-0.0 +0.5
Пн 20	270° 51.9 19° 59.7	285° 51.9 20° 00.2	300° 51.8 20° 00.7	315° 51.8 20° 01.2	330° 51.7 20° 01.8	345° 51.7 20° 02.3	0° 51.7 20° 02.8	15° 51.6 20° 03.3	30° 51.6 20° 03.8	45° 51.6 20° 04.3	60° 51.5 20° 04.9	75° 51.5 20° 05.4	-0.0 +0.5
Вт 21	270° 51.0 20° 12.0	285° 50.9 20° 12.5	300° 50.9 20° 13.0	315° 50.8 20° 13.5	330° 50.8 20° 14.0	345° 50.8 20° 14.5	0° 50.7 20° 15.0	15° 50.7 20° 15.5	30° 50.6 20° 16.0	45° 50.6 20° 16.5	60° 50.5 20° 17.0	75° 50.5 20° 17.5	-0.0 +0.5
Ср 22	270° 49.9 20° 24.0	285° 49.9 20° 24.5	300° 49.8 20° 24.9	315° 49.8 20° 25.4	330° 49.7 20° 25.9	345° 49.7 20° 26.4	0° 49.6 20° 26.9	15° 49.6 20° 27.4	30° 49.5 20° 27.9	45° 49.5 20° 28.4	60° 49.4 20° 28.8	75° 49.4 20° 29.3	-0.0 +0.5
Чт 23	270° 48.7 20° 35.6	285° 48.7 20° 36.1	300° 48.6 20° 36.5	315° 48.6 20° 37.0	330° 48.5 20° 37.5	345° 48.5 20° 38.0	0° 48.4 20° 38.4	15° 48.4 20° 38.9	30° 48.3 20° 39.4	45° 48.2 20° 39.8	60° 48.2 20° 40.3	75° 48.1 20° 40.8	-0.1 +0.5
Пт 24	270° 47.4 20° 46.8	285° 47.3 20° 47.3	300° 47.3 20° 47.8	315° 47.2 20° 48.2	330° 47.2 20° 48.7	345° 47.1 20° 49.1	0° 47.1 20° 49.6	15° 47.0 20° 50.1	30° 46.9 20° 50.5	45° 46.9 20° 51.0	60° 46.8 20° 51.4	75° 46.8 20° 51.9	-0.1 +0.5
Сб 25	270° 45.9 20° 57.7	285° 45.9 20° 58.2	300° 45.8 20° 58.6	315° 45.8 20° 59.1	330° 45.7 20° 59.5	345° 45.6 21° 00.0	0° 45.6 21° 00.4	15° 45.5 21° 00.9	30° 45.4 21° 01.3	45° 45.4 21° 01.7	60° 45.3 21° 02.2	75° 45.2 21° 02.6	-0.1 +0.4
Вс 26	270° 44.4 21° 08.3	285° 44.3 21° 08.7	300° 44.2 21° 09.2	315° 44.2 21° 09.6	330° 44.1 21° 10.0	345° 44.0 21° 10.4	0° 43.9 21° 10.9	15° 43.9 21° 11.3	30° 43.8 21° 11.7	45° 43.7 21° 12.2	60° 43.7 21° 12.6	75° 43.6 21° 13.0	-0.1 +0.4
Пн 27	270° 42.7 21° 18.5	285° 42.6 21° 18.9	300° 42.5 21° 19.3	315° 42.4 21° 19.7	330° 42.4 21° 20.1	345° 42.3 21° 20.5	0° 42.2 21° 21.0	15° 42.1 21° 21.4	30° 42.1 21° 21.8	45° 42.0 21° 22.2	60° 41.9 21° 22.6	75° 41.8 21° 23.0	-0.1 +0.4
Вт 28	270° 40.8 21° 28.3	285° 40.7 21° 28.7	300° 40.7 21° 29.1	315° 40.6 21° 29.5	330° 40.5 21° 29.9	345° 40.4 21° 30.3	0° 40.4 21° 30.7	15° 40.3 21° 31.1	30° 40.2 21° 31.5	45° 40.1 21° 31.9	60° 40.0 21° 32.3	75° 39.9 21° 32.7	-0.1 +0.4
Ср 29	270° 38.9 21° 37.7	285° 38.8 21° 38.1	300° 38.7 21° 38.5	315° 38.6 21° 38.9	330° 38.5 21° 39.3	345° 38.5 21° 39.6	0° 38.4 21° 40.0	15° 38.3 21° 40.4	30° 38.2 21° 40.8	45° 38.1 21° 41.2	60° 38.0 21° 41.5	75° 37.9 21° 41.9	-0.1 +0.4
Чт 30	270° 36.8 21° 46.8	285° 36.7 21° 47.1	300° 36.6 21° 47.5	315° 36.6 21° 47.9	330° 36.5 21° 48.3	345° 36.4 21° 48.6	0° 36.3 21° 49.0	15° 36.2 21° 49.4	30° 36.1 21° 49.7	45° 36.0 21° 50.1	60° 35.9 21° 50.4	75° 35.8 21° 50.8	-0.1 +0.4
Пт 31	270° 34.7 21° 55.5	285° 34.6 21° 55.8	300° 34.5 21° 56.2	315° 34.4 21° 56.5	330° 34.3 21° 56.9	345° 34.2 21° 57.2	0° 34.1 21° 57.6	15° 34.0 21° 57.9	30° 33.9 21° 58.3	45° 33.8 21° 58.6	60° 33.7 21° 59.0	75° 33.6 21° 59.3	-0.1 +0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2030

Д	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	R/p
Ср 1	242° 44.4 13° 22.4	257° 17.6 13° 32.0	271° 50.7 13° 41.5	286° 23.9 13° 50.9	300° 57.0 14° 00.3	315° 30.1 14° 09.6	330° 03.2 14° 18.8	344° 36.2 14° 28.0	359° 09.2 14° 37.1	13° 42.2 14° 46.2	28° 15.1 14° 55.2	+33.1 +9.3	14.8 54.3
● Чт 2	246° 25.3 17° 01.6	260° 57.7 17° 09.5	275° 30.0 17° 17.2	290° 02.4 17° 24.9	304° 34.7 17° 32.5	319° 06.9 17° 40.1	333° 39.2 17° 47.5	348° 11.4 17° 54.9	2° 43.5 18° 02.2	17° 15.7 18° 09.4	31° 47.7 18° 16.6	+32.2 +7.5	14.7 54.0
Пт 3	249° 44.9 19° 53.5	264° 16.5 19° 59.3	278° 48.0 20° 05.0	293° 19.5 20° 10.5	307° 50.9 20° 16.0	322° 22.3 20° 21.4	336° 53.7 20° 26.7	351° 25.0 20° 32.0	5° 56.4 20° 37.1	20° 27.6 20° 42.1	34° 58.9 20° 47.0	+31.4 +5.4	14.7 53.9
Сб 4	252° 44.3 21° 49.4	267° 15.1 21° 52.7	281° 45.9 21° 56.0	296° 16.7 21° 59.1	310° 47.4 22° 02.2	325° 18.1 22° 05.2	339° 48.8 22° 08.0	354° 19.5 22° 10.8	8° 50.2 22° 13.4	23° 20.8 22° 16.0	37° 51.5 22° 18.4	+30.7 +2.9	14.7 53.9
Вс 5	255° 28.9 22° 42.4	269° 59.3 22° 43.2	284° 29.7 22° 43.8	299° 00.1 22° 44.4	313° 30.4 22° 44.8	328° 00.8 22° 45.1	342° 31.2 22° 45.3	357° 01.5 22° 45.5	11° 31.9 22° 45.5	26° 02.2 22° 45.4	40° 32.5 22° 45.2	+30.4 +0.3	14.7 54.0
Пн 6	258° 07.5 22° 29.2	272° 37.9 22° 27.2	287° 08.2 22° 25.2	301° 38.6 22° 23.1	316° 09.0 22° 20.8	330° 39.4 22° 18.5	345° 09.7 22° 16.0	359° 40.1 22° 13.5	14° 10.6 22° 10.8	28° 41.0 22° 08.0	43° 11.4 22° 05.1	+30.4 -2.4	14.8 54.2
Вт 7	260° 49.4 21° 09.5	275° 20.0 21° 04.9	289° 50.7 21° 00.3	304° 21.4 20° 55.6	318° 52.1 20° 50.7	333° 22.8 20° 45.8	347° 53.5 20° 40.8	2° 24.3 20° 35.6	16° 55.1 20° 30.4	31° 25.9 20° 25.1	45° 56.7 20° 19.6	+30.7 -5.0	14.9 54.5
Ср 8	263° 41.3 18° 46.6	278° 12.4 18° 39.6	292° 43.6 18° 32.6	307° 14.8 18° 25.5	321° 46.0 18° 18.2	336° 17.2 18° 10.9	350° 48.4 18° 03.5	5° 19.7 17° 56.0	19° 51.0 17° 48.4	34° 22.3 17° 40.7	48° 53.6 17° 33.0	+31.2 -7.4	15.0 55.0
Чт 9	266° 45.6 15° 26.3	281° 17.2 15° 17.2	295° 48.8 15° 08.0	310° 20.5 14° 58.8	324° 52.1 14° 49.4	339° 23.8 14° 40.0	353° 55.5 14° 30.5	8° 27.2 14° 21.0	22° 58.9 14° 11.3	37° 30.6 14° 01.6	52° 02.3 13° 51.8	+31.7 -9.5	15.2 55.7
◐ Пт 10	269° 59.3 11° 16.3	284° 31.1 11° 05.4	299° 03.0 10° 54.4	313° 34.8 10° 43.4	328° 06.7 10° 32.3	342° 38.5 10° 21.1	357° 10.4 10° 09.9	11° 42.2 9° 58.6	26° 14.1 9° 47.3	40° 45.9 9° 35.9	55° 17.7 9° 24.4	+31.8 -11.2	15.4 56.5
Сб 11	273° 14.4 6° 25.9	287° 46.1 6° 13.5	302° 17.7 6° 01.2	316° 49.4 5° 48.8	331° 21.0 5° 36.3	345° 52.6 5° 23.9	0° 24.2 5° 11.3	14° 55.7 4° 58.7	29° 27.3 4° 46.1	43° 58.8 4° 33.5	58° 30.3 4° 20.8	+31.6 -12.5	15.6 57.4
Вс 12	276° 19.1 1° 06.2	290° 50.0 0° 53.0	305° 21.0 0° 39.8	319° 51.8 0° 26.6	334° 22.7 0° 13.3	348° 53.5 0° 00.0	3° 24.2 -0° 13.3	17° 54.9 -0° 26.6	32° 25.6 -0° 40.0	46° 56.2 -0° 53.3	61° 26.8 -1° 06.7	+30.8 -13.3	15.9 58.3
Пн 13	278° 58.6 -4° 28.1	293° 28.3 -4° 41.6	307° 57.8 -4° 55.0	322° 27.3 -5° 08.4	336° 56.8 -5° 21.8	351° 26.1 -5° 35.2	5° 55.4 -5° 48.6	20° 24.7 -6° 02.0	34° 53.8 -6° 15.3	49° 22.9 -6° 28.6	63° 51.9 -6° 42.0	+29.3 -13.4	16.2 59.3
Вт 14	280° 57.6 -9° 58.3	295° 25.3 -10° 11.1	309° 52.9 -10° 23.9	324° 20.5 -10° 36.6	338° 47.9 -10° 49.3	353° 15.3 -11° 01.9	7° 42.5 -11° 14.4	22° 09.7 -11° 26.9	36° 36.8 -11° 39.3	51° 03.8 -11° 51.7	65° 30.7 -12° 04.0	+27.3 -12.6	16.4 60.2
Ср 15	282° 02.9 -15° 00.3	296° 28.3 -15° 11.4	310° 53.6 -15° 22.4	325° 18.8 -15° 33.3	339° 43.9 -15° 44.1	354° 08.9 -15° 54.8	8° 33.8 -16° 05.4	22° 58.6 -16° 15.9	37° 23.3 -16° 26.4	51° 48.0 -16° 36.7	66° 12.5 -16° 46.9	+25.0 -10.7	16.6 60.9
Чт 16	282° 09.5 -19° 05.7	296° 32.6 -19° 13.9	310° 55.7 -19° 22.0	325° 18.6 -19° 30.0	339° 41.5 -19° 37.8	354° 04.3 -19° 45.5	8° 27.0 -19° 53.0	22° 49.7 -20° 00.4	37° 12.3 -20° 07.6	51° 34.8 -20° 14.7	65° 57.2 -20° 21.7	+22.8 -7.6	16.7 61.3
○ Пт 17	281° 26.7 -21° 47.0	295° 48.3 -21° 51.3	310° 09.9 -21° 55.5	324° 31.4 -21° 59.6	338° 52.9 -22° 03.4	353° 14.3 -22° 07.1	7° 35.8 -22° 10.7	21° 57.2 -22° 14.0	36° 18.6 -22° 17.2	50° 39.9 -22° 20.2	65° 01.3 -22° 23.1	+21.4 -3.6	16.7 61.3
Сб 18	280° 21.3 -22° 44.6	294° 42.7 -22° 44.6	309° 04.1 -22° 44.4	323° 25.6 -22° 44.1	337° 47.1 -22° 43.6	352° 08.7 -22° 43.0	6° 30.2 -22° 42.1	20° 51.9 -22° 41.1	35° 13.5 -22° 39.9	49° 35.2 -22° 38.6	63° 57.0 -22° 37.0	+21.6 +0.8	16.6 61.0
Вс 19	279° 30.1 -21° 54.2	293° 52.8 -21° 50.1	308° 15.7 -21° 45.8	322° 38.6 -21° 41.4	337° 01.6 -21° 36.8	351° 24.7 -21° 32.0	5° 47.9 -21° 27.1	20° 11.1 -21° 22.1	34° 34.5 -21° 16.9	48° 57.9 -21° 11.6	63° 21.4 -21° 06.1	+23.1 +4.8	16.5 60.4
Пн 20	279° 26.0 -19° 27.9	293° 51.1 -19° 20.3	308° 16.4 -19° 12.6	322° 41.7 -19° 04.8	337° 07.2 -18° 56.9	351° 32.7 -18° 48.9	5° 58.4 -18° 40.8	20° 24.1 -18° 32.6	34° 50.0 -18° 24.2	49° 16.0 -18° 15.8	63° 42.0 -18° 07.2	+25.6 +8.1	16.2 59.5
Вт 21	280° 26.3 -15° 47.7	294° 54.1 -15° 37.7	309° 22.0 -15° 27.7	323° 50.0 -15° 17.5	338° 18.1 -15° 07.3	352° 46.3 -14° 57.0	7° 14.6 -14° 46.7	21° 43.0 -14° 36.2	36° 11.6 -14° 25.8	50° 40.2 -14° 15.2	65° 08.9 -14° 04.6	+28.3 +10.3	16.0 58.6
Ср 22	294° 54.1 -15° 37.7	309° 22.0 -15° 27.7	323° 50.0 -15° 17.5	338° 18.1 -15° 07.3	352° 46.3 -14° 57.0	7° 14.6 -14° 46.7	21° 43.0 -14° 36.2	36° 11.6 -14° 25.8	50° 40.2 -14° 15.2	65° 08.9 -14° 04.6	79° 37.7 -13° 53.9	+28.4 +10.4	16.0 58.5
Чт 23	297° 01.5 -11° 07.0	311° 31.8 -10° 55.5	326° 02.2 -10° 44.0	340° 32.7 -10° 32.4	355° 03.2 -10° 20.8	9° 33.9 -10° 09.1	24° 04.6 -9° 57.4	38° 35.4 -9° 45.7	53° 06.3 -9° 33.9	67° 37.3 -9° 22.1	82° 08.3 -9° 10.3	+30.7 +11.7	15.7 57.5
◑ Пт 24	300° 02.6 -6° 10.1	314° 34.7 -5° 57.9	329° 06.9 -5° 45.8	343° 39.2 -5° 33.6	358° 11.5 -5° 21.4	12° 43.9 -5° 09.2	27° 16.3 -4° 57.0	41° 48.8 -4° 44.7	56° 21.3 -4° 32.5	70° 53.9 -4° 20.3	85° 26.6 -4° 08.0	+32.4 +12.2	15.4 56.6
Сб 25	303° 41.7 -1° 04.4	318° 15.0 -0° 52.2	332° 48.4 -0° 40.0	347° 21.8 -0° 27.8	1° 55.2 -0° 15.7	16° 28.7 -0° 03.5	31° 02.2 0° 08.6	45° 35.7 0° 20.8	60° 09.2 0° 32.9	74° 42.8 0° 45.0	89° 16.4 0° 57.1	+33.5 +12.2	15.2 55.8
Вс 26	307° 42.7 3° 56.3	322° 16.5 4° 08.0	336° 50.4 4° 19.8	351° 24.3 4° 31.5	5° 58.2 4° 43.1	20° 32.1 4° 54.8	35° 06.0 5° 06.4	49° 39.9 5° 18.0	64° 13.8 5° 29.6	78° 47.8 5° 41.1	93° 21.7 5° 52.6	+33.9 +11.6	15.0 55.2
Пн 27	311° 50.3 8° 40.7	326° 24.1 8° 51.6	340° 58.0 9° 02.4	355° 31.8 9° 13.2	10° 05.6 9° 24.0	24° 39.4 9° 34.7	39° 13.2 9° 45.4	53° 47.0 9° 56.0	68° 20.8 10° 06.6	82° 54.5 10° 17.1	97° 28.3 10° 27.6	+33.8 +10.7	14.9 54.7
Вт 28	315° 51.8 12° 58.8	330° 25.2 13° 08.4	344° 58.6 13° 18.0	359° 31.9 13° 27.5	14° 05.2 13° 36.9	28° 38.5 13° 46.3	43° 11.7 13° 55.7	57° 44.9 14° 05.0	72° 18.1 14° 14.2	86° 51.3 14° 23.3	101° 24.4 14° 32.4	+33.3 +9.4	14.8 54.3
Ср 29	319° 37.5 16° 40.7	334° 10.1 16° 48.7	348° 42.7 16° 56.6	3° 15.2 17° 04.5	17° 47.7 17° 12.2	32° 20.2 17° 19.9	46° 52.6 17° 27.5	61° 25.0 17° 35.1	75° 57.4 17° 42.5	90° 29.7 17° 49.9	105° 02.0 17° 57.2	+32.4 +7.7	14.7 54.0
Чт 30	323° 01.8 19° 37.0	337° 33.5 19° 43.0	352° 05.2 19° 48.9	6° 36.8 19° 54.7	21° 08.4 20° 00.4	35° 39.9 20° 06.0	50° 11.5 20° 11.5	64° 43.0 20° 16.9	79° 14.4 20° 22.3	93° 45.8 20° 27.5	108° 17.2 20° 32.7	+31.5 +5.6	14.7 53.9
Пт 31	326° 04.1 21° 38.8	340° 35.0 21° 42.4	355° 05.8 21° 45.9	9° 36.7 21° 49.3	24° 07.5 21° 52.7	38° 38.2 21° 55.9	53° 09.0 21° 59.0	67° 39.7 22° 02.0	82° 10.4 22° 04.9	96° 41.1 22° 07.8	111° 11.8 22° 10.5	+30.8 +3.2	14.7 53.9

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Новолуние: 2 14h12 — Первая четв.: 10 17h11 — Полнолуние: 17 11h19 — Последняя четв.: 24 04h57

СОЛНЦЕ

Июнь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	270° 32.4	285° 32.3	300° 32.2	315° 32.1	330° 32.0	345° 31.9	0° 31.8	15° 31.7	30° 31.6	45° 31.5	60° 31.4	75° 31.3	-0.1
	22° 03.8	22° 04.1	22° 04.4	22° 04.8	22° 05.1	22° 05.4	22° 05.8	22° 06.1	22° 06.4	22° 06.8	22° 07.1	22° 07.4	+0.3
Вс 2	270° 30.0	285° 29.9	300° 29.8	315° 29.7	330° 29.6	345° 29.5	0° 29.4	15° 29.3	30° 29.2	45° 29.1	60° 29.0	75° 28.9	-0.1
	22° 11.7	22° 12.0	22° 12.3	22° 12.6	22° 13.0	22° 13.3	22° 13.6	22° 13.9	22° 14.2	22° 14.5	22° 14.9	22° 15.2	+0.3
Пн 3	270° 27.5	285° 27.4	300° 27.3	315° 27.2	330° 27.1	345° 27.0	0° 26.9	15° 26.8	30° 26.7	45° 26.6	60° 26.5	75° 26.4	-0.1
	22° 19.2	22° 19.5	22° 19.8	22° 20.1	22° 20.4	22° 20.7	22° 21.0	22° 21.3	22° 21.6	22° 21.9	22° 22.2	22° 22.5	+0.3
Вт 4	270° 25.0	285° 24.9	300° 24.8	315° 24.7	330° 24.6	345° 24.5	0° 24.3	15° 24.2	30° 24.1	45° 24.0	60° 23.9	75° 23.8	-0.1
	22° 26.3	22° 26.6	22° 26.9	22° 27.2	22° 27.5	22° 27.8	22° 28.1	22° 28.4	22° 28.6	22° 28.9	22° 29.2	22° 29.5	+0.3
Ср 5	270° 22.4	285° 22.3	300° 22.1	315° 22.0	330° 21.9	345° 21.8	0° 21.7	15° 21.6	30° 21.5	45° 21.4	60° 21.2	75° 21.1	-0.1
	22° 33.1	22° 33.4	22° 33.6	22° 33.9	22° 34.2	22° 34.5	22° 34.7	22° 35.0	22° 35.3	22° 35.5	22° 35.8	22° 36.1	+0.3
Чт 6	270° 19.6	285° 19.5	300° 19.4	315° 19.3	330° 19.2	345° 19.1	0° 19.0	15° 18.8	30° 18.7	45° 18.6	60° 18.5	75° 18.4	-0.1
	22° 39.4	22° 39.7	22° 40.0	22° 40.2	22° 40.5	22° 40.7	22° 41.0	22° 41.2	22° 41.5	22° 41.7	22° 42.0	22° 42.2	+0.3
Пт 7	270° 16.9	285° 16.7	300° 16.6	315° 16.5	330° 16.4	345° 16.3	0° 16.2	15° 16.0	30° 15.9	45° 15.8	60° 15.7	75° 15.6	-0.1
	22° 45.4	22° 45.6	22° 45.9	22° 46.1	22° 46.4	22° 46.6	22° 46.8	22° 47.1	22° 47.3	22° 47.5	22° 47.8	22° 48.0	+0.2
Сб 8	270° 14.0	285° 13.9	300° 13.8	315° 13.7	330° 13.5	345° 13.4	0° 13.3	15° 13.2	30° 13.1	45° 12.9	60° 12.8	75° 12.7	-0.1
	22° 51.0	22° 51.2	22° 51.4	22° 51.6	22° 51.8	22° 52.1	22° 52.3	22° 52.5	22° 52.7	22° 52.9	22° 53.1	22° 53.4	+0.2
Вс 9	270° 11.1	285° 11.0	300° 10.9	315° 10.7	330° 10.6	345° 10.5	0° 10.4	15° 10.2	30° 10.1	45° 10.0	60° 09.9	75° 09.8	-0.1
	22° 56.1	22° 56.3	22° 56.5	22° 56.7	22° 56.9	22° 57.1	22° 57.3	22° 57.5	22° 57.7	22° 57.9	22° 58.1	22° 58.3	+0.2
Пн 10	270° 08.1	285° 08.0	300° 07.9	315° 07.8	330° 07.6	345° 07.5	0° 07.4	15° 07.3	30° 07.1	45° 07.0	60° 06.9	75° 06.8	-0.1
	23° 00.8	23° 01.0	23° 01.2	23° 01.4	23° 01.6	23° 01.8	23° 02.0	23° 02.2	23° 02.3	23° 02.5	23° 02.7	23° 02.9	+0.2
Вт 11	270° 05.1	285° 05.0	300° 04.9	315° 04.7	330° 04.6	345° 04.5	0° 04.4	15° 04.2	30° 04.1	45° 04.0	60° 03.9	75° 03.7	-0.1
	23° 05.2	23° 05.4	23° 05.5	23° 05.7	23° 05.9	23° 06.0	23° 06.2	23° 06.4	23° 06.5	23° 06.7	23° 06.9	23° 07.0	+0.2
Ср 12	270° 02.1	285° 01.9	300° 01.8	315° 01.7	330° 01.5	345° 01.4	0° 01.3	15° 01.2	30° 01.0	45° 00.9	60° 00.8	75° 00.6	-0.1
	23° 09.1	23° 09.3	23° 09.4	23° 09.6	23° 09.7	23° 09.9	23° 10.0	23° 10.2	23° 10.3	23° 10.5	23° 10.6	23° 10.8	+0.2
Чт 13	269° 59.0	284° 58.8	299° 58.7	314° 58.6	329° 58.4	344° 58.3	359° 58.2	14° 58.0	29° 57.9	44° 57.8	59° 57.7	74° 57.5	-0.1
	23° 12.7	23° 12.8	23° 12.9	23° 13.1	23° 13.2	23° 13.3	23° 13.5	23° 13.6	23° 13.7	23° 13.9	23° 14.0	23° 14.1	+0.1
Пт 14	269° 55.8	284° 55.7	299° 55.6	314° 55.4	329° 55.3	344° 55.2	359° 55.0	14° 54.9	29° 54.8	44° 54.6	59° 54.5	74° 54.4	-0.1
	23° 15.8	23° 15.9	23° 16.0	23° 16.1	23° 16.3	23° 16.4	23° 16.5	23° 16.6	23° 16.7	23° 16.8	23° 17.0	23° 17.1	+0.1
Сб 15	269° 52.7	284° 52.5	299° 52.4	314° 52.3	329° 52.1	344° 52.0	359° 51.9	14° 51.7	29° 51.6	44° 51.5	59° 51.3	74° 51.2	-0.1
	23° 18.5	23° 18.6	23° 18.7	23° 18.8	23° 18.9	23° 19.0	23° 19.1	23° 19.2	23° 19.3	23° 19.4	23° 19.5	23° 19.6	+0.1
Вс 16	269° 49.5	284° 49.3	299° 49.2	314° 49.1	329° 48.9	344° 48.8	359° 48.7	14° 48.5	29° 48.4	44° 48.3	59° 48.1	74° 48.0	-0.1
	23° 20.8	23° 20.9	23° 21.0	23° 21.0	23° 21.1	23° 21.2	23° 21.3	23° 21.4	23° 21.5	23° 21.5	23° 21.6	23° 21.7	+0.1
Пн 17	269° 46.2	284° 46.1	299° 46.0	314° 45.8	329° 45.7	344° 45.6	359° 45.4	14° 45.3	29° 45.2	44° 45.0	59° 44.9	74° 44.8	-0.1
	23° 22.7	23° 22.7	23° 22.8	23° 22.9	23° 22.9	23° 23.0	23° 23.1	23° 23.1	23° 23.2	23° 23.3	23° 23.3	23° 23.4	+0.1
Вт 18	269° 43.0	284° 42.9	299° 42.7	314° 42.6	329° 42.5	344° 42.3	359° 42.2	14° 42.1	29° 41.9	44° 41.8	59° 41.7	74° 41.5	-0.1
	23° 24.1	23° 24.2	23° 24.2	23° 24.3	23° 24.3	23° 24.4	23° 24.4	23° 24.5	23° 24.5	23° 24.6	23° 24.6	23° 24.7	+0.0
Ср 19	269° 39.8	284° 39.6	299° 39.5	314° 39.3	329° 39.2	344° 39.1	359° 38.9	14° 38.8	29° 38.7	44° 38.5	59° 38.4	74° 38.3	-0.1
	23° 25.2	23° 25.2	23° 25.3	23° 25.3	23° 25.3	23° 25.4	23° 25.4	23° 25.4	23° 25.5	23° 25.5	23° 25.5	23° 25.5	+0.0
Чт 20	269° 36.5	284° 36.4	299° 36.2	314° 36.1	329° 36.0	344° 35.8	359° 35.7	14° 35.6	29° 35.4	44° 35.3	59° 35.1	74° 35.0	-0.1
	23° 25.8	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	+0.0
Пт 21	269° 33.2	284° 33.1	299° 33.0	314° 32.8	329° 32.7	344° 32.6	359° 32.4	14° 32.3	29° 32.2	44° 32.0	59° 31.9	74° 31.7	-0.1
	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	23° 26.1	-0.0
Сб 22	269° 30.0	284° 29.9	299° 29.7	314° 29.6	329° 29.4	344° 29.3	359° 29.2	14° 29.0	29° 28.9	44° 28.8	59° 28.6	74° 28.5	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.7	23° 25.7	23° 25.7	-0.0
Вс 23	269° 26.7	284° 26.6	299° 26.5	314° 26.3	329° 26.2	344° 26.1	359° 25.9	14° 25.8	29° 25.7	44° 25.5	59° 25.4	74° 25.3	-0.1
	23° 25.3	23° 25.3	23° 25.2	23° 25.2	23° 25.2	23° 25.1	23° 25.1	23° 25.1	23° 25.0	23° 25.0	23° 24.9	23° 24.9	-0.0
Пн 24	269° 23.5	284° 23.4	299° 23.2	314° 23.1	329° 23.0	344° 22.8	359° 22.7	14° 22.6	29° 22.4	44° 22.3	59° 22.2	74° 22.0	-0.1
	23° 24.3	23° 24.2	23° 24.2	23° 24.1	23° 24.1	23° 24.0	23° 24.0	23° 23.9	23° 23.9	23° 23.8	23° 23.8	23° 23.7	-0.1
Вт 25	269° 20.3	284° 20.2	299° 20.0	314° 19.9	329° 19.8	344° 19.6	359° 19.5	14° 19.4	29° 19.2	44° 19.1	59° 19.0	74° 18.8	-0.1
	23° 22.9	23° 22.8	23° 22.7	23° 22.7	23° 22.6	23° 22.5	23° 22.5	23° 22.4	23° 22.3	23° 22.2	23° 22.2	23° 22.1	-0.1
Ср 26	269° 17.1	284° 17.0	299° 16.8	314° 16.7	329° 16.6	344° 16.5	359° 16.3	14° 16.2	29° 16.1	44° 15.9	59° 15.8	74° 15.7	-0.1
	23° 21.0	23° 21.0	23° 20.9	23° 20.8	23° 20.7	23° 20.6	23° 20.5	23° 20.4	23° 20.3	23° 20.3	23° 20.2	23° 20.1	-0.1
Чт 27	269° 14.0	284° 13.8	299° 13.7	314° 13.6	329° 13.4	344° 13.3	359° 13.2	14° 13.1	29° 12.9	44° 12.8	59° 12.7	74° 12.5	-0.1
	23° 18.8	23° 18.7	23° 18.6	23° 18.5	23° 18.4	23° 18.3	23° 18.2	23° 18.1	23° 18.0	23° 17.9	23° 17.7	23° 17.6	-0.1
Пт 28	269° 10.9	284° 10.7	299° 10.6	314° 10.5	329° 10.3	344° 10.2	359° 10.1	14° 10.0	29° 09.8	44° 09.7	59° 09.6	74° 09.4	-0.1
	23° 16.1	23° 16.0	23° 15.9	23° 15.8	23° 15.7	23° 15.5	23° 15.4	23° 15.3	23° 15.2	23° 15.0	23° 14.9	23° 14.8	-0.1
Сб 29	269° 07.8	284° 07.7	299° 07.5	314° 07.4	329° 07.3	344° 07.2	359° 07.0	14° 06.9	29° 06.8	44° 06.7	59° 06.5	74° 06.4	-0.1
	23° 13.1	23° 13.0	23° 12.8	23° 12.7	23° 12.5	23° 12.4	23° 12.3	23° 12.1	23° 12.0	23° 11.8	23° 11.7	23° 11.5	-0.1
Вс 30	269° 04.8	284° 04.7	299° 04.5	314° 04.4	329° 04.3	344° 04.2	359° 04.0	14° 03.9	29° 03.8	44° 03.7	59° 03.5	74° 03.4	-0.1
	23° 09.6	23° 09.5	23° 09.3	23° 09.2	23° 09.0	23° 08.8	23° 08.7	23° 08.5	23° 08.4	23° 08.2	23° 08.1	23° 07.9	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

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	Д	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	R/p
●	Сб 1	241° 46.7	256° 17.1	270° 47.5	285° 18.0	299° 48.4	314° 18.8	328° 49.1	343° 19.5	357° 49.8	12° 20.2	26° 50.5	+30.4	14.7
		22° 30.3	22° 31.9	22° 33.5	22° 35.0	22° 36.3	22° 37.6	22° 38.7	22° 39.8	22° 40.7	22° 41.5	22° 42.2	+1.2	53.9
	Вс 2	244° 24.4	258° 54.7	273° 24.9	287° 55.2	302° 25.4	316° 55.6	331° 25.9	345° 56.1	0° 26.4	14° 56.7	29° 26.9	+30.2	14.8
		22° 40.1	22° 39.1	22° 38.0	22° 36.8	22° 35.5	22° 34.1	22° 32.5	22° 30.9	22° 29.1	22° 27.3	22° 25.3	-1.5	54.1
	Пн 3	247° 02.1	261° 32.5	276° 03.0	290° 33.4	305° 03.9	319° 34.5	334° 05.0	348° 35.5	3° 06.1	17° 36.7	32° 07.3	+30.5	14.8
		21° 43.0	21° 39.4	21° 35.6	21° 31.8	21° 27.8	21° 23.7	21° 19.6	21° 15.3	21° 10.9	21° 06.4	21° 01.9	-4.1	54.3
	Вт 4	249° 49.1	264° 20.1	278° 51.1	293° 22.1	307° 53.2	322° 24.2	336° 55.3	351° 26.5	5° 57.6	20° 28.8	35° 00.0	+31.1	14.9
		19° 41.3	19° 35.2	19° 29.0	19° 22.6	19° 16.2	19° 09.7	19° 03.1	18° 56.4	18° 49.6	18° 42.7	18° 35.8	-6.6	54.7
	Ср 5	252° 51.3	267° 22.9	281° 54.6	296° 26.3	310° 58.0	325° 29.7	340° 01.4	354° 33.2	9° 05.0	23° 36.8	38° 08.7	+31.7	15.0
		16° 40.8	16° 32.4	16° 24.0	16° 15.5	16° 07.0	15° 58.3	15° 49.6	15° 40.7	15° 31.9	15° 22.9	15° 13.9	-8.7	55.1
	Чт 6	256° 08.9	270° 41.1	285° 13.3	299° 45.5	314° 17.7	328° 49.9	343° 22.2	357° 54.4	12° 26.7	26° 59.0	41° 31.3	+32.2	15.2
		12° 49.5	12° 39.4	12° 29.1	12° 18.8	12° 08.5	11° 58.0	11° 47.5	11° 37.0	11° 26.4	11° 15.7	11° 05.0	-10.5	55.7
	Пт 7	259° 36.7	274° 09.0	288° 41.4	303° 13.8	317° 46.2	332° 18.6	346° 51.0	1° 23.4	15° 55.7	30° 28.1	45° 00.5	+32.4	15.4
		8° 17.3	8° 05.7	7° 54.0	7° 42.3	7° 30.6	7° 18.8	7° 07.0	6° 55.1	6° 43.2	6° 31.2	6° 19.2	-11.8	56.4
	Сб 8	263° 04.5	277° 36.7	292° 08.8	306° 40.9	321° 12.9	335° 45.0	350° 17.0	4° 49.0	19° 20.9	33° 52.9	48° 24.8	+32.0	15.6
		3° 14.7	3° 02.1	2° 49.6	2° 36.9	2° 24.3	2° 11.6	1° 58.9	1° 46.2	1° 33.5	1° 20.7	1° 07.9	-12.7	57.2
◐	Вс 9	266° 19.0	280° 50.2	295° 21.5	309° 52.6	324° 23.8	338° 54.9	353° 25.9	7° 56.9	22° 27.8	36° 58.7	51° 29.5	+31.1	15.8
		-2° 05.8	-2° 18.8	-2° 31.8	-2° 44.8	-2° 57.8	-3° 10.8	-3° 23.8	-3° 36.8	-3° 49.8	-4° 02.8	-4° 15.8	-13.0	58.0
	Пн 10	269° 04.2	283° 33.9	298° 03.6	312° 33.3	327° 02.8	341° 32.3	356° 01.7	10° 31.0	25° 00.2	39° 29.4	53° 58.4	+29.4	16.1
		-7° 29.5	-7° 42.2	-7° 55.0	-8° 07.7	-8° 20.4	-8° 33.0	-8° 45.6	-8° 58.2	-9° 10.8	-9° 23.3	-9° 35.8	-12.6	58.9
	Вт 11	271° 04.2	285° 31.9	299° 59.4	314° 26.9	328° 54.3	343° 21.6	357° 48.7	12° 15.8	26° 42.8	41° 09.7	55° 36.5	+27.2	16.3
		-12° 37.6	-12° 49.3	-13° 01.0	-13° 12.5	-13° 24.0	-13° 35.5	-13° 46.8	-13° 58.1	-14° 09.3	-14° 20.5	-14° 31.5	-11.4	59.7
	Ср 12	272° 06.5	286° 31.7	300° 56.8	315° 21.8	329° 46.7	344° 11.5	358° 36.2	13° 00.8	27° 25.3	41° 49.7	56° 14.1	+24.8	16.5
		-17° 07.2	-17° 16.8	-17° 26.3	-17° 35.7	-17° 45.0	-17° 54.2	-18° 03.2	-18° 12.2	-18° 21.0	-18° 29.7	-18° 38.3	-9.1	60.5
	Чт 13	272° 07.9	286° 30.8	300° 53.6	315° 16.3	329° 39.0	344° 01.6	358° 24.1	12° 46.6	27° 09.0	41° 31.3	55° 53.6	+22.6	16.6
		-20° 31.7	-20° 38.2	-20° 44.5	-20° 50.7	-20° 56.7	-21° 02.5	-21° 08.2	-21° 13.8	-21° 19.2	-21° 24.4	-21° 29.5	-5.8	61.0
	Пт 14	271° 20.9	285° 42.4	300° 03.8	314° 25.3	328° 46.7	343° 08.1	357° 29.5	11° 50.8	26° 12.1	40° 33.5	54° 54.8	+21.4	16.7
		-22° 26.2	-22° 28.7	-22° 30.9	-22° 33.0	-22° 35.0	-22° 36.7	-22° 38.3	-22° 39.7	-22° 40.9	-22° 41.9	-22° 42.8	-1.7	61.1
○	Сб 15	270° 15.3	284° 36.8	298° 58.4	313° 20.0	327° 41.6	342° 03.3	356° 25.0	10° 46.8	25° 08.6	39° 30.5	53° 52.4	+21.7	16.6
		-22° 34.8	-22° 32.9	-22° 30.8	-22° 28.5	-22° 26.1	-22° 23.5	-22° 20.7	-22° 17.8	-22° 14.6	-22° 11.4	-22° 07.9	+2.7	61.0
	Вс 16	269° 29.0	283° 52.0	298° 15.1	312° 38.3	327° 01.6	341° 25.0	355° 48.5	10° 12.0	24° 35.7	38° 59.4	53° 23.3	+23.4	16.5
		-20° 57.1	-20° 51.2	-20° 45.1	-20° 38.8	-20° 32.5	-20° 25.9	-20° 19.3	-20° 12.5	-20° 05.6	-19° 58.5	-19° 51.3	+6.6	60.5
	Пн 17	269° 32.8	283° 58.2	298° 23.8	312° 49.5	327° 15.2	341° 41.1	356° 07.1	10° 33.2	24° 59.4	39° 25.7	53° 52.1	+25.9	16.3
		-17° 48.5	-17° 39.4	-17° 30.2	-17° 20.9	-17° 11.5	-17° 02.0	-16° 52.4	-16° 42.7	-16° 32.9	-16° 23.1	-16° 13.1	+9.6	59.8
	Вт 18	270° 40.8	285° 08.9	299° 37.1	314° 05.4	328° 33.7	343° 02.2	357° 30.8	11° 59.4	26° 28.2	40° 57.1	55° 26.0	+28.5	16.0
		-13° 33.9	-13° 22.7	-13° 11.4	-13° 00.1	-12° 48.7	-12° 37.3	-12° 25.8	-12° 14.3	-12° 02.7	-11° 51.1	-11° 39.4	+11.4	58.9
	Ср 19	272° 51.2	287° 21.5	301° 52.0	316° 22.5	330° 53.1	345° 23.7	359° 54.5	14° 25.3	28° 56.2	43° 27.2	57° 58.2	+30.7	15.8
		-8° 39.2	-8° 26.9	-8° 14.6	-8° 02.3	-7° 49.9	-7° 37.6	-7° 25.2	-7° 12.8	-7° 00.3	-6° 47.9	-6° 35.4	+12.4	57.9
	Чт 20	275° 51.9	290° 23.9	304° 56.0	319° 28.2	334° 00.4	348° 32.7	3° 05.0	17° 37.4	32° 09.8	46° 42.3	61° 14.8	+32.3	15.5
		-3° 27.3	-3° 14.7	-3° 02.1	-2° 49.5	-2° 37.0	-2° 24.4	-2° 11.9	-1° 59.3	-1° 46.8	-1° 34.3	-1° 21.7	+12.6	56.9
	Пт 21	290° 23.9	304° 56.0	319° 28.2	334° 00.4	348° 32.7	3° 05.0	17° 37.4	32° 09.8	46° 42.3	61° 14.8	75° 47.3	+32.3	15.5
		-3° 14.7	-3° 02.1	-2° 49.5	-2° 37.0	-2° 24.4	-2° 11.9	-1° 59.3	-1° 46.8	-1° 34.3	-1° 21.7	-1° 09.2	+12.5	56.9
◑	Сб 22	294° 00.3	308° 33.5	323° 06.6	337° 39.8	352° 13.0	6° 46.2	21° 19.5	35° 52.8	50° 26.1	64° 59.4	79° 32.8	+33.2	15.3
		1° 56.6	2° 08.8	2° 21.0	2° 33.2	2° 45.3	2° 57.5	3° 09.6	3° 21.6	3° 33.7	3° 45.7	3° 57.7	+12.1	56.0
	Вс 23	297° 54.6	312° 28.1	327° 01.7	341° 35.2	356° 08.8	10° 42.3	25° 15.8	39° 49.4	54° 22.9	68° 56.5	83° 30.0	+33.5	15.1
		6° 53.5	7° 04.9	7° 16.3	7° 27.6	7° 38.9	7° 50.2	8° 01.4	8° 12.6	8° 23.7	8° 34.8	8° 45.8	+11.2	55.3
	Пн 24	301° 52.2	316° 25.6	330° 59.0	345° 32.4	0° 05.7	14° 39.1	29° 12.4	43° 45.7	58° 18.9	72° 52.2	87° 25.4	+33.3	14.9
		11° 25.4	11° 35.6	11° 45.8	11° 55.9	12° 05.9	12° 15.9	12° 25.9	12° 35.7	12° 45.6	12° 55.3	13° 05.0	+10.0	54.7
	Вт 25	305° 41.2	320° 14.1	334° 46.9	349° 19.7	3° 52.4	18° 25.2	32° 57.9	47° 30.5	62° 03.2	76° 35.8	91° 08.4	+32.7	14.8
		15° 23.0	15° 31.6	15° 40.2	15° 48.7	15° 57.2	16° 05.6	16° 13.9	16° 22.1	16° 30.3	16° 38.4	16° 46.4	+8.3	54.3
	Ср 26	309° 13.1	323° 45.1	338° 17.1	352° 49.1	7° 21.0	21° 52.9	36° 24.8	50° 56.7	65° 28.5	80° 00.2	94° 31.9	+31.9	14.7
		18° 37.4	18° 44.2	18° 50.9	18° 57.5	19° 04.0	19° 10.4	19° 16.7	19° 23.0	19° 29.1	19° 35.2	19° 41.2	+6.4	54.1
	Чт 27	312° 23.8	326° 55.0	341° 26.1	355° 57.2	10° 28.3	24° 59.4	39° 30.4	54° 01.4	68° 32.4	83° 03.3	97° 34.2	+31.0	14.7
		21° 00.3	21° 04.8	21° 09.3	21° 13.6	21° 17.9	21° 22.0	21° 26.1	21° 30.0	21° 33.9	21° 37.6	21° 41.3	+4.1	54.0
	Пт 28	315° 14.6	329° 45.1	344° 15.5	358° 46.0	13° 16.4	27° 46.8	42° 17.2	56° 47.6	71° 18.0	85° 48.3	100° 18.6	+30.4	14.7
		22° 24.0	22° 26.1	22° 28.0	22° 29.8	22° 31.5	22° 33.1	22° 34.6	22° 36.0	22° 37.3	22° 38.5	22° 39.6	+1.6	54.0
	Сб 29	317° 51.9	332° 22.0	346° 52.1	1° 22.3	15° 52.4	30° 22.5	44° 52.6	59° 22.8	73° 52.9	88° 23.0	102° 53.1	+30.1	14.8
		22° 43.0	22° 42.3	22° 41.6	22° 40.7	22° 39.7	22° 38.7	22° 37.5	22° 36.2	22° 34.8	22° 33.3	22° 31.7	-1.1	54.2
●	Вс 30	320° 25.4	334° 55.6	349° 25.9	3° 56.1	18° 26.4	32° 56.6	47° 26.9	61° 57.2	76° 27.5	90° 57.8	105° 28.2	+30.3	14.8
		21° 54.5	21° 51.2	21° 47.8	21° 44.2	21° 40.6	21° 36.8	21° 33.0	21° 29.0	21° 24.9	21° 20.8	21° 16.5	-3.8	54.4

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 1 06h21 — Первая четв.: 9 03h35 — Полнолуние: 15 18h41 — Последняя четв.: 22 17h19 — Новолуние: 30 21h34

СОЛНЦЕ

Июль 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	269° 01.8	284° 01.7	299° 01.6	314° 01.5	329° 01.3	344° 01.2	359° 01.1	14° 01.0	29° 00.9	44° 00.7	59° 00.6	74° 00.5	-0.1
	23° 05.7	23° 05.6	23° 05.4	23° 05.2	23° 05.1	23° 04.9	23° 04.7	23° 04.5	23° 04.4	23° 04.2	23° 04.0	23° 03.8	-0.2
Вт 2	268° 58.9	283° 58.8	298° 58.7	313° 58.6	328° 58.5	343° 58.3	358° 58.2	13° 58.1	28° 58.0	43° 57.9	58° 57.8	73° 57.6	-0.1
	23° 01.5	23° 01.3	23° 01.1	23° 00.9	23° 00.7	23° 00.5	23° 00.3	23° 00.1	22° 59.9	22° 59.8	22° 59.6	22° 59.4	-0.2
Ср 3	268° 56.1	283° 56.0	298° 55.9	313° 55.8	328° 55.7	343° 55.5	358° 55.4	13° 55.3	28° 55.2	43° 55.1	58° 55.0	73° 54.9	-0.1
	22° 56.8	22° 56.6	22° 56.4	22° 56.2	22° 56.0	22° 55.8	22° 55.6	22° 55.3	22° 55.1	22° 54.9	22° 54.7	22° 54.5	-0.2
Чт 4	268° 53.4	283° 53.3	298° 53.2	313° 53.1	328° 52.9	343° 52.8	358° 52.7	13° 52.6	28° 52.5	43° 52.4	58° 52.3	73° 52.2	-0.1
	22° 51.7	22° 51.5	22° 51.3	22° 51.0	22° 50.8	22° 50.6	22° 50.4	22° 50.1	22° 49.9	22° 49.7	22° 49.5	22° 49.2	-0.2
Пт 5	268° 50.7	283° 50.6	298° 50.5	313° 50.4	328° 50.3	343° 50.2	358° 50.1	13° 50.0	28° 49.9	43° 49.8	58° 49.7	73° 49.5	-0.1
	22° 46.2	22° 46.0	22° 45.8	22° 45.5	22° 45.3	22° 45.0	22° 44.8	22° 44.6	22° 44.3	22° 44.1	22° 43.8	22° 43.6	-0.2
Сб 6	268° 48.2	283° 48.1	298° 48.0	313° 47.9	328° 47.8	343° 47.7	358° 47.5	13° 47.4	28° 47.3	43° 47.2	58° 47.1	73° 47.0	-0.1
	22° 40.4	22° 40.1	22° 39.8	22° 39.6	22° 39.3	22° 39.1	22° 38.8	22° 38.6	22° 38.3	22° 38.1	22° 37.8	22° 37.5	-0.3
Вс 7	268° 45.7	283° 45.6	298° 45.5	313° 45.4	328° 45.3	343° 45.2	358° 45.1	13° 45.0	28° 44.9	43° 44.8	58° 44.7	73° 44.6	-0.1
	22° 34.1	22° 33.8	22° 33.6	22° 33.3	22° 33.0	22° 32.7	22° 32.5	22° 32.2	22° 31.9	22° 31.6	22° 31.4	22° 31.1	-0.3
Пн 8	268° 43.3	283° 43.2	298° 43.1	313° 43.0	328° 43.0	343° 42.9	358° 42.8	13° 42.7	28° 42.6	43° 42.5	58° 42.4	73° 42.3	-0.1
	22° 27.4	22° 27.2	22° 26.9	22° 26.6	22° 26.3	22° 26.0	22° 25.7	22° 25.4	22° 25.1	22° 24.8	22° 24.5	22° 24.3	-0.3
Вт 9	268° 41.1	283° 41.0	298° 40.9	313° 40.8	328° 40.7	343° 40.6	358° 40.5	13° 40.4	28° 40.3	43° 40.3	58° 40.2	73° 40.1	-0.1
	22° 20.4	22° 20.1	22° 19.8	22° 19.5	22° 19.2	22° 18.9	22° 18.6	22° 18.3	22° 18.0	22° 17.7	22° 17.3	22° 17.0	-0.3
Ср 10	268° 38.9	283° 38.8	298° 38.7	313° 38.7	328° 38.6	343° 38.5	358° 38.4	13° 38.3	28° 38.2	43° 38.1	58° 38.1	73° 38.0	-0.1
	22° 13.0	22° 12.7	22° 12.3	22° 12.0	22° 11.7	22° 11.4	22° 11.1	22° 10.7	22° 10.4	22° 10.1	22° 09.8	22° 09.4	-0.3
Чт 11	268° 36.9	283° 36.8	298° 36.7	313° 36.6	328° 36.6	343° 36.5	358° 36.4	13° 36.3	28° 36.2	43° 36.1	58° 36.1	73° 36.0	-0.1
	22° 05.2	22° 04.8	22° 04.5	22° 04.2	22° 03.8	22° 03.5	22° 03.1	22° 02.8	22° 02.5	22° 02.1	22° 01.8	22° 01.5	-0.3
Пт 12	268° 35.0	283° 34.9	298° 34.8	313° 34.7	328° 34.6	343° 34.6	358° 34.5	13° 34.4	28° 34.3	43° 34.3	58° 34.2	73° 34.1	-0.1
	21° 57.0	21° 56.6	21° 56.3	21° 55.9	21° 55.6	21° 55.2	21° 54.9	21° 54.5	21° 54.2	21° 53.8	21° 53.5	21° 53.1	-0.4
Сб 13	268° 33.2	283° 33.1	298° 33.0	313° 32.9	328° 32.9	343° 32.8	358° 32.7	13° 32.6	28° 32.6	43° 32.5	58° 32.4	73° 32.4	-0.1
	21° 48.4	21° 48.0	21° 47.7	21° 47.3	21° 47.0	21° 46.6	21° 46.2	21° 45.8	21° 45.5	21° 45.1	21° 44.7	21° 44.4	-0.4
Вс 14	268° 31.5	283° 31.4	298° 31.3	313° 31.3	328° 31.2	343° 31.1	358° 31.1	13° 31.0	28° 30.9	43° 30.9	58° 30.8	73° 30.7	-0.1
	21° 39.5	21° 39.1	21° 38.7	21° 38.3	21° 38.0	21° 37.6	21° 37.2	21° 36.8	21° 36.4	21° 36.0	21° 35.7	21° 35.3	-0.4
Пн 15	268° 29.9	283° 29.9	298° 29.8	313° 29.7	328° 29.7	343° 29.6	358° 29.5	13° 29.5	28° 29.4	43° 29.4	58° 29.3	73° 29.2	-0.1
	21° 30.2	21° 29.8	21° 29.4	21° 29.0	21° 28.6	21° 28.2	21° 27.8	21° 27.4	21° 27.0	21° 26.6	21° 26.2	21° 25.8	-0.4
Вт 16	268° 28.5	283° 28.4	298° 28.4	313° 28.3	328° 28.3	343° 28.2	358° 28.1	13° 28.1	28° 28.0	43° 28.0	58° 27.9	73° 27.9	-0.1
	21° 20.5	21° 20.1	21° 19.7	21° 19.3	21° 18.9	21° 18.5	21° 18.0	21° 17.6	21° 17.2	21° 16.8	21° 16.4	21° 16.0	-0.4
Ср 17	268° 27.2	283° 27.1	298° 27.1	313° 27.0	328° 27.0	343° 26.9	358° 26.9	13° 26.8	28° 26.8	43° 26.7	58° 26.7	73° 26.6	-0.1
	21° 10.5	21° 10.1	21° 09.6	21° 09.2	21° 08.8	21° 08.3	21° 07.9	21° 07.5	21° 07.1	21° 06.6	21° 06.2	21° 05.8	-0.4
Чт 18	268° 26.0	283° 26.0	298° 25.9	313° 25.9	328° 25.8	343° 25.8	358° 25.7	13° 25.7	28° 25.6	43° 25.6	58° 25.6	73° 25.5	-0.0
	21° 00.1	20° 59.7	20° 59.2	20° 58.8	20° 58.3	20° 57.9	20° 57.4	20° 57.0	20° 56.6	20° 56.1	20° 55.7	20° 55.2	-0.4
Пт 19	268° 25.0	283° 24.9	298° 24.9	313° 24.8	328° 24.8	343° 24.8	358° 24.7	13° 24.7	28° 24.6	43° 24.6	58° 24.6	73° 24.5	-0.0
	20° 49.4	20° 48.9	20° 48.4	20° 48.0	20° 47.5	20° 47.1	20° 46.6	20° 46.1	20° 45.7	20° 45.2	20° 44.8	20° 44.3	-0.5
Сб 20	268° 24.1	283° 24.0	298° 24.0	313° 23.9	328° 23.9	343° 23.9	358° 23.8	13° 23.8	28° 23.8	43° 23.7	58° 23.7	73° 23.7	-0.0
	20° 38.3	20° 37.8	20° 37.3	20° 36.8	20° 36.4	20° 35.9	20° 35.4	20° 35.0	20° 34.5	20° 34.0	20° 33.5	20° 33.1	-0.5
Вс 21	268° 23.3	283° 23.3	298° 23.2	313° 23.2	328° 23.2	343° 23.1	358° 23.1	13° 23.1	28° 23.1	43° 23.0	58° 23.0	73° 23.0	-0.0
	20° 26.8	20° 26.3	20° 25.8	20° 25.4	20° 24.9	20° 24.4	20° 23.9	20° 23.4	20° 22.9	20° 22.4	20° 21.9	20° 21.4	-0.5
Пн 22	268° 22.6	283° 22.6	298° 22.6	313° 22.6	328° 22.6	343° 22.5	358° 22.5	13° 22.5	28° 22.5	43° 22.4	58° 22.4	73° 22.4	-0.0
	20° 15.0	20° 14.5	20° 14.0	20° 13.5	20° 13.0	20° 12.5	20° 12.0	20° 11.5	20° 11.0	20° 10.5	20° 10.0	20° 09.5	-0.5
Вт 23	268° 22.1	283° 22.1	298° 22.1	313° 22.1	328° 22.1	343° 22.1	358° 22.0	13° 22.0	28° 22.0	43° 22.0	58° 22.0	73° 22.0	-0.0
	20° 02.9	20° 02.4	20° 01.9	20° 01.4	20° 00.8	20° 00.3	19° 59.8	19° 59.3	19° 58.8	19° 58.3	19° 57.7	19° 57.2	-0.5
Ср 24	268° 21.8	283° 21.8	298° 21.8	313° 21.8	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	-0.0
	19° 50.4	19° 49.9	19° 49.4	19° 48.8	19° 48.3	19° 47.8	19° 47.3	19° 46.7	19° 46.2	19° 45.7	19° 45.1	19° 44.6	-0.5
Чт 25	268° 21.6	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.5	13° 21.5	28° 21.5	43° 21.5	58° 21.5	73° 21.5	-0.0
	19° 37.6	19° 37.1	19° 36.5	19° 36.0	19° 35.5	19° 34.9	19° 34.4	19° 33.8	19° 33.3	19° 32.7	19° 32.2	19° 31.7	-0.5
Пт 26	268° 21.5	283° 21.5	298° 21.5	313° 21.5	328° 21.5	343° 21.5	358° 21.5	13° 21.5	28° 21.5	43° 21.5	58° 21.5	73° 21.5	+0.0
	19° 24.5	19° 24.0	19° 23.4	19° 22.8	19° 22.3	19° 21.7	19° 21.2	19° 20.6	19° 20.1	19° 19.5	19° 18.9	19° 18.4	-0.6
Сб 27	268° 21.6	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.6	13° 21.6	28° 21.7	43° 21.7	58° 21.7	73° 21.7	+0.0
	19° 11.1	19° 10.5	19° 09.9	19° 09.4	19° 08.8	19° 08.2	19° 07.7	19° 07.1	19° 06.5	19° 05.9	19° 05.4	19° 04.8	-0.6
Вс 28	268° 21.8	283° 21.8	298° 21.8	313° 21.9	328° 21.9	343° 21.9	358° 21.9	13° 21.9	28° 21.9	43° 21.9	58° 22.0	73° 22.0	+0.0
	18° 57.3	18° 56.7	18° 56.1	18° 55.6	18° 55.0	18° 54.4	18° 53.8	18° 53.2	18° 52.6	18° 52.1	18° 51.5	18° 50.9	-0.6
Пн 29	268° 22.2	283° 22.2	298° 22.2	313° 22.3	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.4	43° 22.4	58° 22.4	73° 22.4	+0.0
	18° 43.2	18° 42.6	18° 42.0	18° 41.4	18° 40.8	18° 40.3	18° 39.7	18° 39.1	18° 38.5	18° 37.9	18° 37.3	18° 36.7	-0.6
Вт 30	268° 22.7	283° 22.7	298° 22.8	313° 22.8	328° 22.8	343° 22.8	358° 22.9	13° 22.9	28° 22.9	43° 23.0	58° 23.0	73° 23.0	+0.0
	18° 28.8	18° 28.2	18° 27.6	18° 27.0	18° 26.4	18° 25.8	18° 25.2	18° 24.6	18° 24.0	18° 23.4	18° 22.8	18° 22.2	-0.6
Ср 31	268° 23.4	283° 23.4	298° 23.5	313° 23.5	328° 23.5	343° 23.6	358° 23.6	13° 23.6	28° 23.7	43° 23.7	58° 23.7	73° 23.8	+0.0
	18° 14.2	18° 13.5	18° 12.9	18° 12.3	18° 11.7	18° 11.1	18° 10.4	18° 09.8	18° 09.2	18° 08.6	18° 08.0	18° 07.3	-0.6

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2030

Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
Пн 1	250° 32.6 20° 28.2	265° 03.2 20° 22.8	279° 33.7 20° 17.3	294° 04.3 20° 11.7	308° 34.9 20° 06.0	323° 05.6 20° 00.2	337° 36.2 19° 54.3	352° 06.9 19° 48.4	6° 37.7 19° 42.3	21° 08.4 19° 36.1	35° 39.1 19° 29.9	+30.7 -5.8	14.9 54.7
Вт 2	253° 23.7 17° 44.8	267° 54.9 17° 37.0	282° 26.1 17° 29.2	296° 57.3 17° 21.3	311° 28.6 17° 13.4	325° 59.9 17° 05.3	340° 31.2 16° 57.2	355° 02.5 16° 48.9	9° 33.9 16° 40.6	24° 05.3 16° 32.2	38° 36.7 16° 23.8	+31.3 -8.1	15.0 55.1
Ср 3	256° 31.4 14° 07.3	271° 03.2 13° 57.7	285° 35.1 13° 47.9	300° 07.0 13° 38.1	314° 38.9 13° 28.2	329° 10.9 13° 18.2	343° 42.8 13° 08.2	358° 14.8 12° 58.1	12° 46.8 12° 48.0	27° 18.8 12° 37.8	41° 50.9 12° 27.5	+32.0 -10.0	15.1 55.5
Чт 4	259° 53.9 9° 46.1	274° 26.2 9° 34.9	288° 58.5 9° 23.6	303° 30.9 9° 12.3	318° 03.2 9° 00.9	332° 35.6 8° 49.5	347° 08.0 8° 38.1	1° 40.4 8° 26.6	16° 12.8 8° 15.1	30° 45.2 8° 03.5	45° 17.6 7° 51.8	+32.4 -11.4	15.3 56.0
Пт 5	263° 24.2 4° 52.5	277° 56.6 4° 40.3	292° 29.0 4° 28.0	307° 01.4 4° 15.7	321° 33.9 4° 03.4	336° 06.3 3° 51.1	350° 38.6 3° 38.7	5° 11.0 3° 26.3	19° 43.4 3° 13.8	34° 15.8 3° 01.4	48° 48.1 2° 48.9	+32.4 -12.4	15.4 56.6
Сб 6	266° 51.2 -0° 20.5	281° 23.3 -0° 33.3	295° 55.3 -0° 46.0	310° 27.2 -0° 58.8	324° 59.2 -1° 11.5	339° 31.1 -1° 24.3	354° 03.0 -1° 37.0	8° 34.8 -1° 49.8	23° 06.6 -2° 02.6	37° 38.4 -2° 15.4	52° 10.1 -2° 28.1	+31.9 -12.8	15.6 57.2
Вс 7	270° 01.2 -5° 39.1	284° 32.3 -5° 51.7	299° 03.2 -6° 04.3	313° 34.2 -6° 16.9	328° 05.0 -6° 29.5	342° 35.8 -6° 42.1	357° 06.6 -6° 54.6	11° 37.3 -7° 07.1	26° 07.9 -7° 19.6	40° 38.5 -7° 32.1	55° 09.1 -7° 44.5	+30.8 -12.5	15.8 57.9
◐ Пн 8	272° 39.0 -10° 47.0	287° 08.5 -10° 58.9	301° 37.8 -11° 10.7	316° 07.1 -11° 22.4	330° 36.3 -11° 34.1	345° 05.4 -11° 45.7	359° 34.5 -11° 57.3	14° 03.4 -12° 08.8	28° 32.3 -12° 20.3	43° 01.1 -12° 31.7	57° 29.9 -12° 43.1	+29.1 -11.6	16.0 58.6
Вт 9	274° 30.5 -15° 25.4	288° 57.9 -15° 35.6	303° 25.1 -15° 45.7	317° 52.3 -15° 55.8	332° 19.4 -16° 05.7	346° 46.3 -16° 15.6	1° 13.2 -16° 25.4	15° 40.0 -16° 35.1	30° 06.7 -16° 44.7	44° 33.4 -16° 54.2	58° 59.9 -17° 03.6	+26.9 -9.8	16.2 59.3
Ср 10	275° 26.8 -19° 12.2	289° 51.8 -19° 19.8	304° 16.8 -19° 27.4	318° 41.7 -19° 34.8	333° 06.5 -19° 42.1	347° 31.2 -19° 49.3	1° 55.9 -19° 56.3	16° 20.4 -20° 03.2	30° 44.9 -20° 10.0	45° 09.3 -20° 16.7	59° 33.6 -20° 23.2	+24.7 -7.1	16.3 59.9
Чт 11	275° 29.1 -21° 44.4	289° 52.3 -21° 48.6	304° 15.4 -21° 52.7	318° 38.4 -21° 56.6	333° 01.4 -22° 00.4	347° 24.3 -22° 04.0	1° 47.2 -22° 07.5	16° 10.0 -22° 10.8	30° 32.8 -22° 13.9	44° 55.5 -22° 16.9	59° 18.2 -22° 19.8	+22.9 -3.5	16.4 60.3
Пт 12	274° 54.1 -22° 42.6	289° 16.4 -22° 42.8	303° 38.6 -22° 42.8	318° 00.8 -22° 42.7	332° 22.9 -22° 42.4	346° 45.1 -22° 41.9	1° 07.3 -22° 41.2	15° 29.5 -22° 40.4	29° 51.7 -22° 39.4	44° 13.9 -22° 38.3	58° 36.1 -22° 37.0	+22.2 +0.6	16.5 60.5
Сб 13	274° 11.4 -21° 57.4	288° 34.0 -21° 53.4	302° 56.7 -21° 49.3	317° 19.4 -21° 45.1	331° 42.1 -21° 40.6	346° 04.9 -21° 36.1	0° 27.8 -21° 31.3	14° 50.7 -21° 26.5	29° 13.6 -21° 21.4	43° 36.6 -21° 16.2	57° 59.7 -21° 10.9	+22.8 +4.6	16.5 60.5
Вс 14	273° 53.7 -19° 33.5	288° 17.9 -19° 25.9	302° 42.2 -19° 18.2	317° 06.6 -19° 10.4	331° 31.0 -19° 02.4	345° 55.5 -18° 54.3	0° 20.1 -18° 46.1	14° 44.8 -18° 37.8	29° 09.6 -18° 29.3	43° 34.5 -18° 20.7	57° 59.5 -18° 12.0	+24.6 +8.2	16.4 60.1
○ Пн 15	274° 24.7 -15° 48.8	288° 51.2 -15° 38.5	303° 17.7 -15° 28.0	317° 44.3 -15° 17.5	332° 11.0 -15° 07.0	346° 37.8 -14° 56.3	1° 04.7 -14° 45.5	15° 31.7 -14° 34.7	29° 58.8 -14° 23.8	44° 25.9 -14° 12.8	58° 53.2 -14° 01.7	+26.8 +10.7	16.2 59.6
Вт 16	275° 53.1 -11° 08.0	290° 21.8 -10° 55.9	304° 50.6 -10° 43.9	319° 19.5 -10° 31.7	333° 48.4 -10° 19.6	348° 17.4 -10° 07.3	2° 46.6 -9° 55.1	17° 15.8 -9° 42.8	31° 45.1 -9° 30.5	46° 14.4 -9° 18.1	60° 43.9 -9° 05.7	+29.1 +12.2	16.0 58.8
Ср 17	278° 14.6 -5° 56.4	292° 45.2 -5° 43.6	307° 15.9 -5° 30.8	321° 46.6 -5° 18.0	336° 17.4 -5° 05.2	350° 48.3 -4° 52.4	5° 19.2 -4° 39.6	19° 50.2 -4° 26.7	34° 21.3 -4° 13.9	48° 52.4 -4° 01.1	63° 23.6 -3° 48.2	+30.9 +12.8	15.8 57.9
Чт 18	281° 17.5 -0° 36.1	295° 49.5 -0° 23.3	310° 21.5 -0° 10.6	324° 53.6 0° 02.1	339° 25.7 0° 14.8	353° 57.8 0° 27.5	8° 30.0 0° 40.1	23° 02.2 0° 52.7	37° 34.4 1° 05.3	52° 06.7 1° 17.9	66° 39.0 1° 30.5	+32.2 +12.7	15.5 57.0
Пт 19	284° 47.4 4° 35.6	299° 20.2 4° 47.7	313° 52.9 4° 59.8	328° 25.7 5° 11.8	342° 58.5 5° 23.7	357° 31.4 5° 35.7	12° 04.2 5° 47.6	26° 37.0 5° 59.4	41° 09.9 6° 11.2	55° 42.8 6° 23.0	70° 15.7 6° 34.8	+32.8 +11.9	15.3 56.1
Сб 20	299° 20.2 4° 47.7	313° 52.9 4° 59.8	328° 25.7 5° 11.8	342° 58.5 5° 23.7	357° 31.4 5° 35.7	12° 04.2 5° 47.6	26° 37.0 5° 59.4	41° 09.9 6° 11.2	55° 42.8 6° 23.0	70° 15.7 6° 34.8	84° 48.6 6° 46.4	+32.8 +11.9	15.3 56.1
Вс 21	303° 03.0 9° 36.2	317° 36.0 9° 47.1	332° 08.9 9° 58.0	346° 41.9 10° 08.8	1° 14.9 10° 19.5	15° 47.9 10° 30.2	30° 20.8 10° 40.9	44° 53.8 10° 51.5	59° 26.7 11° 02.0	73° 59.7 11° 12.5	88° 32.6 11° 22.9	+33.0 +10.7	15.1 55.4
◑ Пн 22	306° 45.3 13° 51.7	321° 18.1 14° 01.1	335° 50.8 14° 10.4	350° 23.5 14° 19.7	4° 56.2 14° 28.9	19° 28.8 14° 38.0	34° 01.5 14° 47.0	48° 34.1 14° 56.0	63° 06.7 15° 05.0	77° 39.3 15° 13.8	92° 11.8 15° 22.6	+32.7 +9.1	14.9 54.8
Вт 23	310° 17.4 17° 25.2	324° 49.5 17° 32.8	339° 21.7 17° 40.2	353° 53.8 17° 47.6	8° 25.9 17° 55.0	22° 57.9 18° 02.2	37° 29.9 18° 09.3	52° 01.9 18° 16.4	66° 33.9 18° 23.4	81° 05.8 18° 30.3	95° 37.7 18° 37.1	+32.0 +7.2	14.8 54.4
Ср 24	313° 32.8 20° 08.9	328° 04.3 20° 14.3	342° 35.7 20° 19.6	357° 07.0 20° 24.8	11° 38.4 20° 29.9	26° 09.7 20° 35.0	40° 41.0 20° 39.9	55° 12.2 20° 44.8	69° 43.5 20° 49.5	84° 14.7 20° 54.2	98° 45.8 20° 58.7	+31.3 +5.0	14.8 54.2
Чт 25	316° 30.0 21° 55.5	331° 00.8 21° 58.5	345° 31.5 22° 01.4	0° 02.1 22° 04.2	14° 32.8 22° 06.8	29° 03.4 22° 09.4	43° 34.1 22° 11.9	58° 04.7 22° 14.3	72° 35.2 22° 16.6	87° 05.8 22° 18.7	101° 36.3 22° 20.8	+30.6 +2.5	14.8 54.1
Пт 26	319° 11.9 22° 39.2	333° 42.2 22° 39.6	348° 12.4 22° 39.9	2° 42.6 22° 40.0	17° 12.9 22° 40.1	31° 43.1 22° 40.0	46° 13.2 22° 39.9	60° 43.4 22° 39.6	75° 13.6 22° 39.2	89° 43.8 22° 38.7	104° 13.9 22° 38.2	+30.2 -0.1	14.8 54.2
Сб 27	321° 45.6 22° 16.4	336° 15.7 22° 14.0	350° 45.8 22° 11.6	5° 15.9 22° 09.1	19° 46.0 22° 06.5	34° 16.2 22° 03.7	48° 46.3 22° 00.9	63° 16.4 21° 57.9	77° 46.5 21° 54.8	92° 16.7 21° 51.7	106° 46.8 21° 48.4	+30.1 -2.8	14.9 54.5
Вс 28	324° 20.1 20° 46.5	338° 50.4 20° 41.6	353° 20.7 20° 36.5	7° 51.1 20° 31.4	22° 21.5 20° 26.1	36° 51.8 20° 20.7	51° 22.2 20° 15.3	65° 52.6 20° 09.7	80° 23.1 20° 04.1	94° 53.5 19° 58.3	109° 24.0 19° 52.4	+30.4 -5.4	14.9 54.8
Пн 29	327° 03.4 18° 13.0	341° 34.2 18° 05.6	356° 05.1 17° 58.1	10° 35.9 17° 50.5	25° 06.8 17° 42.9	39° 37.7 17° 35.1	54° 08.6 17° 27.3	68° 39.5 17° 19.4	83° 10.5 17° 11.4	97° 41.5 17° 03.3	112° 12.5 16° 55.1	+30.9 -7.8	15.1 55.2
● Вт 30	330° 00.4 14° 42.5	344° 31.7 14° 33.0	359° 03.1 14° 23.5	13° 34.5 14° 13.8	28° 06.0 14° 04.2	42° 37.5 13° 54.4	57° 08.9 13° 44.5	71° 40.4 13° 34.6	86° 12.0 13° 24.7	100° 43.5 13° 14.6	115° 15.1 13° 04.5	+31.5 -9.8	15.2 55.7
Ср 31	333° 10.8 10° 25.0	347° 42.7 10° 13.9	2° 14.5 10° 02.7	16° 46.4 9° 51.5	31° 18.3 9° 40.2	45° 50.2 9° 28.9	60° 22.1 9° 17.5	74° 54.0 9° 06.1	89° 26.0 8° 54.6	103° 57.9 8° 43.1	118° 29.9 8° 31.5	+31.9 -11.4	15.3 56.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Первая четв.: 8 11h01 — Полнолуние: 15 02h12 — Последняя четв.: 22 08h07 — Новолуние: 30 11h11

СОЛНЦЕ

Август 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	268° 24.2 17° 59.2	283° 24.3 17° 58.5	298° 24.3 17° 57.9	313° 24.3 17° 57.3	328° 24.4 17° 56.7	343° 24.4 17° 56.0	358° 24.5 17° 55.4	13° 24.5 17° 54.8	28° 24.5 17° 54.1	43° 24.6 17° 53.5	58° 24.6 17° 52.8	73° 24.7 17° 52.2	+0.0 -0.6
Пт 2	268° 25.2 17° 43.9	283° 25.3 17° 43.3	298° 25.3 17° 42.6	313° 25.4 17° 42.0	328° 25.4 17° 41.3	343° 25.4 17° 40.7	358° 25.5 17° 40.0	13° 25.5 17° 39.4	28° 25.6 17° 38.7	43° 25.6 17° 38.1	58° 25.7 17° 37.5	73° 25.7 17° 36.8	+0.0 -0.6
Сб 3	268° 26.4 17° 28.3	283° 26.4 17° 27.7	298° 26.5 17° 27.0	313° 26.5 17° 26.4	328° 26.6 17° 25.7	343° 26.6 17° 25.1	358° 26.7 17° 24.4	13° 26.7 17° 23.8	28° 26.8 17° 23.1	43° 26.8 17° 22.4	58° 26.9 17° 21.8	73° 26.9 17° 21.1	+0.1 -0.7
Вс 4	268° 27.7 17° 12.5	283° 27.7 17° 11.8	298° 27.8 17° 11.2	313° 27.8 17° 10.5	328° 27.9 17° 09.8	343° 27.9 17° 09.2	358° 28.0 17° 08.5	13° 28.1 17° 07.8	28° 28.1 17° 07.2	43° 28.2 17° 06.5	58° 28.2 17° 05.8	73° 28.3 17° 05.1	+0.1 -0.7
Пн 5	268° 29.1 16° 56.4	283° 29.2 16° 55.7	298° 29.2 16° 55.0	313° 29.3 16° 54.3	328° 29.4 16° 53.7	343° 29.4 16° 53.0	358° 29.5 16° 52.3	13° 29.6 16° 51.6	28° 29.6 16° 50.9	43° 29.7 16° 50.3	58° 29.8 16° 49.6	73° 29.8 16° 48.9	+0.1 -0.7
Вт 6	268° 30.7 16° 40.0	283° 30.8 16° 39.3	298° 30.8 16° 38.6	313° 30.9 16° 37.9	328° 31.0 16° 37.2	343° 31.1 16° 36.5	358° 31.1 16° 35.8	13° 31.2 16° 35.2	28° 31.3 16° 34.5	43° 31.3 16° 33.8	58° 31.4 16° 33.1	73° 31.5 16° 32.4	+0.1 -0.7
Ср 7	268° 32.5 16° 23.3	283° 32.5 16° 22.6	298° 32.6 16° 21.9	313° 32.7 16° 21.2	328° 32.8 16° 20.5	343° 32.8 16° 19.8	358° 32.9 16° 19.1	13° 33.0 16° 18.4	28° 33.1 16° 17.7	43° 33.2 16° 17.0	58° 33.2 16° 16.3	73° 33.3 16° 15.6	+0.1 -0.7
Чт 8	268° 34.4 16° 06.4	283° 34.5 16° 05.7	298° 34.5 16° 05.0	313° 34.6 16° 04.3	328° 34.7 16° 03.6	343° 34.8 16° 02.8	358° 34.9 16° 02.1	13° 35.0 16° 01.4	28° 35.0 16° 00.7	43° 35.1 15° 59.3	58° 35.2 15° 58.6	73° 35.3 15° 58.6	+0.1 -0.7
Пт 9	268° 36.4 15° 49.2	283° 36.5 15° 48.5	298° 36.6 15° 47.8	313° 36.7 15° 47.1	328° 36.8 15° 46.3	343° 36.9 15° 45.6	358° 37.0 15° 44.9	13° 37.1 15° 44.2	28° 37.2 15° 43.4	43° 37.2 15° 42.7	58° 37.3 15° 42.0	73° 37.4 15° 41.3	+0.1 -0.7
Сб 10	268° 38.6 15° 31.8	283° 38.7 15° 31.1	298° 38.8 15° 30.3	313° 38.9 15° 29.6	328° 39.0 15° 28.9	343° 39.1 15° 28.1	358° 39.2 15° 27.4	13° 39.3 15° 26.7	28° 39.4 15° 25.9	43° 39.5 15° 25.2	58° 39.6 15° 24.5	73° 39.7 15° 23.7	+0.1 -0.7
Вс 11	268° 41.0 15° 14.1	283° 41.1 15° 13.4	298° 41.2 15° 12.6	313° 41.3 15° 11.9	328° 41.4 15° 11.1	343° 41.5 15° 10.4	358° 41.6 15° 09.7	13° 41.7 15° 08.9	28° 41.8 15° 08.2	43° 41.9 15° 07.4	58° 42.0 15° 06.7	73° 42.1 15° 05.9	+0.1 -0.7
Пн 12	268° 43.5 14° 56.2	283° 43.6 14° 55.4	298° 43.7 14° 54.7	313° 43.8 14° 53.9	328° 43.9 14° 53.2	343° 44.0 14° 52.4	358° 44.2 14° 51.7	13° 44.3 14° 50.9	28° 44.4 14° 50.2	43° 44.5 14° 49.4	58° 44.6 14° 48.7	73° 44.7 14° 47.9	+0.1 -0.8
Вт 13	268° 46.2 14° 38.0	283° 46.3 14° 37.3	298° 46.4 14° 36.5	313° 46.5 14° 35.8	328° 46.6 14° 35.0	343° 46.7 14° 34.2	358° 46.8 14° 33.5	13° 46.9 14° 32.7	28° 47.1 14° 31.9	43° 47.2 14° 31.2	58° 47.3 14° 30.4	73° 47.4 14° 29.6	+0.1 -0.8
Ср 14	268° 48.9 14° 19.6	283° 49.1 14° 18.9	298° 49.2 14° 18.1	313° 49.3 14° 17.3	328° 49.4 14° 16.6	343° 49.5 14° 15.8	358° 49.6 14° 15.0	13° 49.8 14° 14.2	28° 49.9 14° 13.5	43° 50.0 14° 12.7	58° 50.1 14° 11.9	73° 50.3 14° 11.1	+0.1 -0.8
Чт 15	268° 51.8 14° 01.0	283° 52.0 14° 00.2	298° 52.1 13° 59.5	313° 52.2 13° 58.7	328° 52.3 13° 57.9	343° 52.5 13° 57.1	358° 52.6 13° 56.3	13° 52.7 13° 55.6	28° 52.8 13° 54.8	43° 53.0 13° 54.0	58° 53.1 13° 53.2	73° 53.2 13° 52.4	+0.1 -0.8
Пт 16	268° 54.9 13° 42.2	283° 55.0 13° 41.4	298° 55.2 13° 40.6	313° 55.3 13° 39.8	328° 55.4 13° 39.0	343° 55.5 13° 38.2	358° 55.7 13° 37.4	13° 55.8 13° 36.6	28° 55.9 13° 35.9	43° 56.1 13° 35.1	58° 56.2 13° 34.3	73° 56.3 13° 33.5	+0.1 -0.8
Сб 17	268° 58.1 13° 23.1	283° 58.2 13° 22.3	298° 58.3 13° 21.5	313° 58.5 13° 20.7	328° 58.6 13° 19.9	343° 58.7 13° 19.1	358° 58.9 13° 18.3	13° 59.0 13° 17.5	28° 59.2 13° 16.7	43° 59.3 13° 15.9	58° 59.4 13° 15.1	73° 59.6 13° 14.3	+0.1 -0.8
Вс 18	269° 01.4 13° 03.9	284° 01.5 13° 03.0	299° 01.6 13° 02.2	314° 01.8 13° 01.4	329° 01.9 13° 00.6	344° 02.1 12° 59.8	359° 02.2 12° 59.0	14° 02.4 12° 58.2	29° 02.5 12° 57.4	44° 02.6 12° 56.6	59° 02.8 12° 55.8	74° 02.9 12° 54.9	+0.1 -0.8
Пн 19	269° 04.8 12° 44.4	284° 04.9 12° 43.6	299° 05.1 12° 42.7	314° 05.2 12° 41.9	329° 05.4 12° 41.1	344° 05.5 12° 40.3	359° 05.7 12° 39.5	14° 05.8 12° 38.6	29° 06.0 12° 37.8	44° 06.1 12° 37.0	59° 06.2 12° 36.2	74° 06.4 12° 35.4	+0.1 -0.8
Вт 20	269° 08.3 12° 24.7	284° 08.5 12° 23.9	299° 08.6 12° 23.0	314° 08.8 12° 22.2	329° 08.9 12° 21.4	344° 09.1 12° 20.6	359° 09.2 12° 19.7	14° 09.4 12° 18.9	29° 09.5 12° 18.1	44° 09.7 12° 17.3	59° 09.8 12° 16.4	74° 10.0 12° 15.6	+0.2 -0.8
Ср 21	269° 12.0 12° 04.8	284° 12.1 12° 04.0	299° 12.3 12° 03.1	314° 12.4 12° 02.3	329° 12.6 12° 01.5	344° 12.8 12° 00.6	359° 12.9 11° 59.8	14° 13.1 11° 59.0	29° 13.2 11° 58.1	44° 13.4 11° 57.3	59° 13.5 11° 56.5	74° 13.7 11° 55.6	+0.2 -0.8
Чт 22	269° 15.7 11° 44.7	284° 15.9 11° 43.9	299° 16.1 11° 43.0	314° 16.2 11° 42.2	329° 16.4 11° 41.4	344° 16.5 11° 40.5	359° 16.7 11° 39.7	14° 16.9 11° 38.8	29° 17.0 11° 38.0	44° 17.2 11° 37.1	59° 17.3 11° 36.3	74° 17.5 11° 35.5	+0.2 -0.8
Пт 23	269° 19.6 11° 24.5	284° 19.8 11° 23.6	299° 19.9 11° 22.8	314° 20.1 11° 21.9	329° 20.3 11° 21.1	344° 20.4 11° 20.2	359° 20.6 11° 19.4	14° 20.8 11° 18.5	29° 20.9 11° 17.7	44° 21.1 11° 16.8	59° 21.3 11° 16.0	74° 21.4 11° 15.1	+0.2 -0.9
Сб 24	269° 23.6 11° 04.0	284° 23.8 11° 03.2	299° 23.9 11° 02.3	314° 24.1 11° 01.4	329° 24.3 11° 00.6	344° 24.4 10° 59.7	359° 24.6 10° 58.9	14° 24.8 10° 58.0	29° 24.9 10° 57.2	44° 25.1 10° 56.3	59° 25.3 10° 55.4	74° 25.4 10° 54.6	+0.2 -0.9
Вс 25	269° 27.7 10° 43.4	284° 27.8 10° 42.5	299° 28.0 10° 41.7	314° 28.2 10° 40.8	329° 28.4 10° 39.9	344° 28.5 10° 39.1	359° 28.7 10° 38.2	14° 28.9 10° 37.3	29° 29.1 10° 36.5	44° 29.2 10° 35.6	59° 29.4 10° 34.8	74° 29.6 10° 33.9	+0.2 -0.9
Пн 26	269° 31.8 10° 22.6	284° 32.0 10° 21.7	299° 32.2 10° 20.9	314° 32.4 10° 20.0	329° 32.6 10° 19.1	344° 32.7 10° 18.2	359° 32.9 10° 17.4	14° 33.1 10° 16.5	29° 33.3 10° 15.6	44° 33.4 10° 14.8	59° 33.6 10° 13.9	74° 33.8 10° 13.0	+0.2 -0.9
Вт 27	269° 36.1 10° 01.6	284° 36.3 10° 00.8	299° 36.5 9° 59.9	314° 36.7 9° 59.0	329° 36.8 9° 58.1	344° 37.0 9° 57.3	359° 37.2 9° 56.4	14° 37.4 9° 55.5	29° 37.6 9° 54.6	44° 37.8 9° 53.7	59° 37.9 9° 52.9	74° 38.1 9° 52.0	+0.2 -0.9
Ср 28	269° 40.5 9° 40.5	284° 40.7 9° 39.6	299° 40.9 9° 38.8	314° 41.0 9° 37.9	329° 41.2 9° 37.0	344° 41.4 9° 36.1	359° 41.6 9° 35.2	14° 41.8 9° 34.3	29° 42.0 9° 33.5	44° 42.2 9° 32.6	59° 42.3 9° 31.7	74° 42.5 9° 30.8	+0.2 -0.9
Чт 29	269° 44.9 9° 19.3	284° 45.1 9° 18.4	299° 45.3 9° 17.5	314° 45.5 9° 16.6	329° 45.7 9° 15.7	344° 45.9 9° 14.8	359° 46.1 9° 13.9	14° 46.3 9° 13.0	29° 46.5 9° 12.1	44° 46.6 9° 11.2	59° 46.8 9° 10.4	74° 47.0 9° 09.5	+0.2 -0.9
Пт 30	269° 49.5 8° 57.8	284° 49.7 8° 56.9	299° 49.9 8° 56.1	314° 50.1 8° 55.2	329° 50.3 8° 54.3	344° 50.4 8° 53.4	359° 50.6 8° 52.5	14° 50.8 8° 51.6	29° 51.0 8° 50.7	44° 51.2 8° 49.8	59° 51.4 8° 48.9	74° 51.6 8° 48.0	+0.2 -0.9
Сб 31	269° 54.1 8° 36.3	284° 54.3 8° 35.4	299° 54.5 8° 34.5	314° 54.7 8° 33.6	329° 54.9 8° 32.7	344° 55.1 8° 31.8	359° 55.3 8° 30.9	14° 55.5 8° 30.0	29° 55.7 8° 29.1	44° 55.9 8° 28.2	59° 56.1 8° 27.3	74° 56.3 8° 26.4	+0.2 -0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2030

Д	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	R/p
Чт 1	249° 17.8	263° 49.9	278° 21.9	292° 53.9	307° 26.0	321° 58.0	336° 30.0	351° 02.1	5° 34.1	20° 06.1	34° 38.2	+32.0	15.4
	6° 45.3	6° 33.2	6° 21.2	6° 09.1	5° 57.0	5° 44.8	5° 32.6	5° 20.4	5° 08.1	4° 55.8	4° 43.5	-12.2	56.6
Пт 2	252° 37.9	267° 09.8	281° 41.7	296° 13.6	310° 45.5	325° 17.3	339° 49.1	354° 20.9	8° 52.7	23° 24.5	37° 56.2	+31.8	15.6
	1° 35.5	1° 22.9	1° 10.2	0° 57.4	0° 44.7	0° 32.0	0° 19.2	0° 06.4	-0° 06.3	-0° 19.1	-0° 31.9	-12.7	57.2
Сб 3	255° 49.3	270° 20.6	284° 51.8	299° 23.1	313° 54.3	328° 25.4	342° 56.5	357° 27.6	11° 58.6	26° 29.6	41° 00.5	+31.1	15.7
	-3° 43.7	-3° 56.5	-4° 09.2	-4° 21.9	-4° 34.6	-4° 47.3	-5° 00.0	-5° 12.7	-5° 25.3	-5° 37.9	-5° 50.5	-12.7	57.7
Вс 4	258° 39.1	273° 09.3	287° 39.4	302° 09.4	316° 39.4	331° 09.3	345° 39.2	0° 09.0	14° 38.8	29° 08.5	43° 38.1	+29.9	15.9
	-8° 56.2	-9° 08.3	-9° 20.4	-9° 32.4	-9° 44.4	-9° 56.4	-10° 08.3	-10° 20.1	-10° 31.9	-10° 43.7	-10° 55.4	-11.9	58.1
Пн 5	260° 54.7	275° 23.3	289° 51.8	304° 20.2	318° 48.5	333° 16.8	347° 45.0	2° 13.1	16° 41.2	31° 09.2	45° 37.1	+28.2	16.0
	-13° 43.9	-13° 54.6	-14° 05.3	-14° 15.9	-14° 26.4	-14° 36.8	-14° 47.1	-14° 57.4	-15° 07.6	-15° 17.7	-15° 27.7	-10.4	58.6
◐ Вт 6	262° 26.5	276° 53.2	291° 19.8	305° 46.3	320° 12.8	334° 39.2	349° 05.5	3° 31.7	17° 57.9	32° 24.0	46° 50.0	+26.3	16.1
	-17° 47.2	-17° 55.7	-18° 04.1	-18° 12.4	-18° 20.6	-18° 28.7	-18° 36.7	-18° 44.6	-18° 52.4	-19° 00.0	-19° 07.5	-8.0	59.0
Ср 7	263° 11.6	277° 36.5	292° 01.4	306° 26.1	320° 50.9	335° 15.5	349° 40.1	4° 04.7	18° 29.2	32° 53.6	47° 18.0	+24.6	16.2
	-20° 45.9	-20° 51.4	-20° 56.8	-21° 02.1	-21° 07.2	-21° 12.2	-21° 17.1	-21° 21.8	-21° 26.4	-21° 30.8	-21° 35.1	-4.9	59.4
Чт 8	263° 18.0	277° 41.7	292° 05.4	306° 29.1	320° 52.7	335° 16.3	349° 39.8	4° 03.4	18° 26.9	32° 50.4	47° 13.9	+23.6	16.3
	-22° 21.9	-22° 23.8	-22° 25.6	-22° 27.2	-22° 28.7	-22° 30.0	-22° 31.1	-22° 32.1	-22° 33.0	-22° 33.6	-22° 34.2	-1.2	59.6
Пт 9	263° 05.4	277° 28.9	291° 52.4	306° 15.9	320° 39.4	335° 02.9	349° 26.5	3° 50.0	18° 13.6	32° 37.3	47° 00.9	+23.5	16.3
	-22° 23.2	-22° 21.3	-22° 19.1	-22° 16.8	-22° 14.4	-22° 11.8	-22° 09.0	-22° 06.1	-22° 03.1	-21° 59.8	-21° 56.5	+2.7	59.7
Сб 10	263° 00.1	277° 24.4	291° 48.7	306° 13.1	320° 37.6	335° 02.1	349° 26.7	3° 51.3	18° 16.0	32° 40.7	47° 05.5	+24.5	16.3
	-20° 48.2	-20° 42.4	-20° 36.6	-20° 30.6	-20° 24.5	-20° 18.2	-20° 11.8	-20° 05.3	-19° 58.7	-19° 51.9	-19° 44.9	+6.3	59.7
Вс 11	263° 25.7	277° 51.6	292° 17.6	306° 43.7	321° 09.8	335° 36.0	350° 02.3	4° 28.7	18° 55.1	33° 21.6	47° 48.2	+26.2	16.2
	-17° 46.3	-17° 37.5	-17° 28.5	-17° 19.5	-17° 10.3	-17° 01.1	-16° 51.7	-16° 42.3	-16° 32.7	-16° 23.0	-16° 13.3	+9.3	59.4
Пн 12	264° 36.3	279° 04.2	293° 32.1	308° 00.0	322° 28.1	336° 56.2	351° 24.4	5° 52.7	20° 21.1	34° 49.5	49° 18.0	+28.2	16.1
	-13° 36.4	-13° 25.3	-13° 14.1	-13° 02.9	-12° 51.6	-12° 40.2	-12° 28.8	-12° 17.3	-12° 05.7	-11° 54.1	-11° 42.4	+11.4	59.0
○ Вт 13	266° 34.1	281° 03.7	295° 33.4	310° 03.2	324° 33.0	339° 02.9	353° 32.8	8° 02.8	22° 32.9	37° 03.0	51° 33.2	+29.9	15.9
	-8° 41.2	-8° 28.8	-8° 16.3	-8° 03.8	-7° 51.3	-7° 38.8	-7° 26.2	-7° 13.6	-7° 01.0	-6° 48.3	-6° 35.7	+12.6	58.3
Ср 14	269° 12.6	283° 43.7	298° 14.8	312° 45.9	327° 17.1	341° 48.3	356° 19.6	10° 50.9	25° 22.2	39° 53.6	54° 25.1	+31.2	15.7
	-3° 23.7	-3° 10.8	-2° 58.0	-2° 45.1	-2° 32.2	-2° 19.4	-2° 06.5	-1° 53.6	-1° 40.8	-1° 27.9	-1° 15.1	+12.9	57.6
Чт 15	272° 20.9	286° 52.9	301° 24.9	315° 56.9	330° 28.9	345° 01.0	359° 33.1	14° 05.2	28° 37.4	43° 09.6	57° 41.7	+32.1	15.5
	1° 55.9	2° 08.4	2° 21.0	2° 33.5	2° 46.0	2° 58.5	3° 10.9	3° 23.3	3° 35.7	3° 48.1	4° 00.4	+12.5	56.8
Пт 16	275° 46.5	290° 18.9	304° 51.3	319° 23.8	333° 56.2	348° 28.7	3° 01.1	17° 33.6	32° 06.0	46° 38.5	61° 10.9	+32.4	15.3
	7° 00.7	7° 12.4	7° 24.0	7° 35.6	7° 47.1	7° 58.6	8° 10.1	8° 21.5	8° 32.8	8° 44.1	8° 55.4	+11.5	56.1
Сб 17	279° 17.8	293° 50.2	308° 22.6	322° 55.0	337° 27.4	351° 59.8	6° 32.2	21° 04.6	35° 36.9	50° 09.3	64° 41.6	+32.4	15.1
	11° 37.3	11° 47.6	11° 57.9	12° 08.1	12° 18.2	12° 28.3	12° 38.3	12° 48.2	12° 58.1	13° 07.9	13° 17.6	+10.0	55.4
Вс 18	282° 45.0	297° 17.1	311° 49.2	326° 21.2	340° 53.3	355° 25.3	9° 57.3	24° 29.3	39° 01.3	53° 33.2	68° 05.1	+32.0	15.0
	15° 35.1	15° 43.7	15° 52.1	16° 00.6	16° 08.9	16° 17.2	16° 25.3	16° 33.4	16° 41.5	16° 49.4	16° 57.3	+8.2	54.9
Пн 19	297° 17.1	311° 49.2	326° 21.2	340° 53.3	355° 25.3	9° 57.3	24° 29.3	39° 01.3	53° 33.2	68° 05.1	82° 37.0	+32.0	15.0
	15° 43.7	15° 52.1	16° 00.6	16° 08.9	16° 17.2	16° 25.3	16° 33.4	16° 41.5	16° 49.4	16° 57.3	17° 05.1	+8.1	54.8
Вт 20	300° 32.9	315° 04.4	329° 35.9	344° 07.4	358° 38.9	13° 10.3	27° 41.8	42° 13.2	56° 44.6	71° 15.9	85° 47.2	+31.4	14.8
	18° 51.7	18° 58.1	19° 04.4	19° 10.6	19° 16.8	19° 22.8	19° 28.8	19° 34.7	19° 40.5	19° 46.2	19° 51.8	+6.0	54.4
◑ Ср 21	303° 34.4	318° 05.4	332° 36.3	347° 07.2	1° 38.1	16° 09.0	30° 39.9	45° 10.7	59° 41.5	74° 12.3	88° 43.1	+30.9	14.8
	21° 04.5	21° 08.5	21° 12.5	21° 16.4	21° 20.2	21° 23.9	21° 27.4	21° 30.9	21° 34.3	21° 37.6	21° 40.8	+3.6	54.2
Чт 22	306° 22.5	320° 53.0	335° 23.5	349° 54.0	4° 24.4	18° 54.9	33° 25.3	47° 55.7	62° 26.1	76° 56.5	91° 26.9	+30.4	14.8
	22° 16.3	22° 17.9	22° 19.3	22° 20.6	22° 21.9	22° 23.0	22° 24.0	22° 24.9	22° 25.8	22° 26.5	22° 27.1	+1.1	54.2
Пт 23	309° 01.7	323° 31.9	338° 02.2	352° 32.5	7° 02.7	21° 33.0	36° 03.2	50° 33.5	65° 03.7	79° 34.0	94° 04.2	+30.3	14.8
	22° 23.4	22° 22.3	22° 21.1	22° 19.8	22° 18.4	22° 16.9	22° 15.2	22° 13.5	22° 11.7	22° 09.7	22° 07.7	-1.6	54.4
Сб 24	311° 38.4	326° 08.7	340° 39.0	355° 09.4	9° 39.7	24° 10.1	38° 40.4	53° 10.8	67° 41.2	82° 11.6	96° 42.0	+30.4	14.9
	21° 24.2	21° 20.5	21° 16.7	21° 12.7	21° 08.7	21° 04.5	21° 00.3	20° 55.9	20° 51.4	20° 46.9	20° 42.2	-4.2	54.7
Вс 25	314° 19.4	328° 50.0	343° 20.7	357° 51.3	12° 21.9	26° 52.6	41° 23.3	55° 54.0	70° 24.7	84° 55.4	99° 26.2	+30.7	15.0
	19° 20.2	19° 14.0	19° 07.6	19° 01.1	18° 54.6	18° 48.0	18° 41.2	18° 34.4	18° 27.5	18° 20.5	18° 13.3	-6.7	55.1
Пн 26	317° 09.4	331° 40.4	346° 11.4	0° 42.4	15° 13.5	29° 44.6	44° 15.7	58° 46.8	73° 17.9	87° 49.0	102° 20.2	+31.1	15.2
	16° 15.8	16° 07.3	15° 58.7	15° 50.0	15° 41.2	15° 32.3	15° 23.4	15° 14.4	15° 05.3	14° 56.1	14° 46.8	-8.9	55.7
Вт 27	320° 09.2	334° 40.6	349° 12.0	3° 43.4	18° 14.8	32° 46.2	47° 17.6	61° 49.0	76° 20.5	90° 51.9	105° 23.4	+31.4	15.4
	12° 18.7	12° 08.3	11° 57.8	11° 47.2	11° 36.5	11° 25.8	11° 15.0	11° 04.2	10° 53.3	10° 42.4	10° 31.3	-10.7	56.3
● Ср 28	323° 15.9	337° 47.5	352° 19.0	6° 50.5	21° 22.0	35° 53.6	50° 25.1	64° 56.6	79° 28.1	93° 59.6	108° 31.2	+31.5	15.5
	7° 39.3	7° 27.4	7° 15.4	7° 03.5	6° 51.5	6° 39.4	6° 27.3	6° 15.1	6° 03.0	5° 50.7	5° 38.5	-12.1	57.0
Чт 29	326° 22.8	340° 54.1	355° 25.5	9° 56.8	24° 28.1	38° 59.4	53° 30.6	68° 01.9	82° 33.1	97° 04.3	111° 35.5	+31.3	15.7
	2° 30.6	2° 17.8	2° 05.1	1° 52.3	1° 39.5	1° 26.7	1° 13.9	1° 01.0	0° 48.1	0° 35.3	0° 22.4	-12.8	57.6
Пт 30	329° 20.2	343° 51.0	358° 21.7	12° 52.4	27° 23.0	41° 53.6	56° 24.2	70° 54.7	85° 25.2	99° 55.7	114° 26.1	+30.6	15.8
	-2° 51.7	-3° 04.6	-3° 17.5	-3° 30.4	-3° 43.3	-3° 56.2	-4° 09.1	-4° 21.9	-4° 34.8	-4° 47.6	-5° 00.4	-12.9	58.1
Сб 31	331° 57.3	346° 27.0	0° 56.6	15° 26.2	29° 55.8	44° 25.3	58° 54.7	73° 24.1	87° 53.5	102° 22.7	116° 52.0	+29.5	16.0
	-8° 09.7	-8° 22.0	-8° 34.3	-8° 46.6	-8° 58.8	-9° 11.0	-9° 23.2	-9° 35.3	-9° 47.3	-9° 59.3	-10° 11.3	-12.2	58.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 6 16h42 — Полнолуние: 13 10h44 — Последняя четв.: 21 01h15 — Новолуние: 28 23h07

СОЛНЦЕ

Сентябрь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 58.8	284° 59.0	299° 59.2	314° 59.4	329° 59.6	344° 59.8	0° 00.0	15° 00.2	30° 00.4	45° 00.6	60° 00.8	75° 01.0	+0.2
	8° 14.6	8° 13.7	8° 12.8	8° 11.9	8° 11.0	8° 10.1	8° 09.1	8° 08.2	8° 07.3	8° 06.4	8° 05.5	8° 04.6	-0.9
Пн 2	270° 03.6	285° 03.8	300° 04.0	315° 04.2	330° 04.4	345° 04.6	0° 04.8	15° 05.0	30° 05.2	45° 05.4	60° 05.6	75° 05.8	+0.2
	7° 52.8	7° 51.9	7° 50.9	7° 50.0	7° 49.1	7° 48.2	7° 47.3	7° 46.4	7° 45.5	7° 44.5	7° 43.6	7° 42.7	-0.9
Вт 3	270° 08.5	285° 08.7	300° 08.9	315° 09.1	330° 09.3	345° 09.5	0° 09.7	15° 09.9	30° 10.1	45° 10.3	60° 10.5	75° 10.7	+0.2
	7° 30.8	7° 29.9	7° 29.0	7° 28.1	7° 27.1	7° 26.2	7° 25.3	7° 24.4	7° 23.5	7° 22.5	7° 21.6	7° 20.7	-0.9
Ср 4	270° 13.4	285° 13.6	300° 13.8	315° 14.0	330° 14.2	345° 14.4	0° 14.6	15° 14.9	30° 15.1	45° 15.3	60° 15.5	75° 15.7	+0.2
	7° 08.7	7° 07.8	7° 06.9	7° 06.0	7° 05.1	7° 04.1	7° 03.2	7° 02.3	7° 01.4	7° 00.4	6° 59.5	6° 58.6	-0.9
Чт 5	270° 18.4	285° 18.6	300° 18.8	315° 19.0	330° 19.2	345° 19.4	0° 19.7	15° 19.9	30° 20.1	45° 20.3	60° 20.5	75° 20.7	+0.2
	6° 46.6	6° 45.6	6° 44.7	6° 43.8	6° 42.8	6° 41.9	6° 41.0	6° 40.1	6° 39.1	6° 38.2	6° 37.3	6° 36.4	-0.9
Пт 6	270° 23.5	285° 23.7	300° 23.9	315° 24.1	330° 24.3	345° 24.5	0° 24.7	15° 24.9	30° 25.2	45° 25.4	60° 25.6	75° 25.8	+0.2
	6° 24.3	6° 23.3	6° 22.4	6° 21.5	6° 20.5	6° 19.6	6° 18.7	6° 17.7	6° 16.8	6° 15.9	6° 14.9	6° 14.0	-0.9
Сб 7	270° 28.6	285° 28.8	300° 29.0	315° 29.2	330° 29.4	345° 29.6	0° 29.9	15° 30.1	30° 30.3	45° 30.5	60° 30.7	75° 30.9	+0.2
	6° 01.9	6° 00.9	6° 00.0	5° 59.1	5° 58.1	5° 57.2	5° 56.2	5° 55.3	5° 54.4	5° 53.4	5° 52.5	5° 51.6	-0.9
Вс 8	270° 33.7	285° 33.9	300° 34.2	315° 34.4	330° 34.6	345° 34.8	0° 35.0	15° 35.2	30° 35.5	45° 35.7	60° 35.9	75° 36.1	+0.2
	5° 39.4	5° 38.4	5° 37.5	5° 36.5	5° 35.6	5° 34.7	5° 33.7	5° 32.8	5° 31.8	5° 30.9	5° 30.0	5° 29.0	-0.9
Пн 9	270° 38.9	285° 39.2	300° 39.4	315° 39.6	330° 39.8	345° 40.0	0° 40.3	15° 40.5	30° 40.7	45° 40.9	60° 41.1	75° 41.3	+0.2
	5° 16.8	5° 15.8	5° 14.9	5° 13.9	5° 13.0	5° 12.1	5° 11.1	5° 10.2	5° 09.2	5° 08.3	5° 07.3	5° 06.4	-0.9
Вт 10	270° 44.2	285° 44.4	300° 44.6	315° 44.9	330° 45.1	345° 45.3	0° 45.5	15° 45.7	30° 46.0	45° 46.2	60° 46.4	75° 46.6	+0.2
	4° 54.1	4° 53.2	4° 52.2	4° 51.3	4° 50.3	4° 49.4	4° 48.4	4° 47.5	4° 46.5	4° 45.6	4° 44.6	4° 43.7	-0.9
Ср 11	270° 49.5	285° 49.7	300° 49.9	315° 50.1	330° 50.4	345° 50.6	0° 50.8	15° 51.0	30° 51.3	45° 51.5	60° 51.7	75° 51.9	+0.2
	4° 31.3	4° 30.4	4° 29.4	4° 28.5	4° 27.5	4° 26.6	4° 25.6	4° 24.7	4° 23.7	4° 22.8	4° 21.8	4° 20.9	-1.0
Чт 12	270° 54.8	285° 55.0	300° 55.2	315° 55.5	330° 55.7	345° 55.9	0° 56.1	15° 56.4	30° 56.6	45° 56.8	60° 57.0	75° 57.2	+0.2
	4° 08.5	4° 07.6	4° 06.6	4° 05.6	4° 04.7	4° 03.7	4° 02.8	4° 01.8	4° 00.9	3° 59.9	3° 59.0	3° 58.0	-1.0
Пт 13	271° 00.1	286° 00.4	301° 00.6	316° 00.8	331° 01.0	346° 01.3	1° 01.5	16° 01.7	31° 01.9	46° 02.2	61° 02.4	76° 02.6	+0.2
	3° 45.6	3° 44.6	3° 43.7	3° 42.7	3° 41.8	3° 40.8	3° 39.9	3° 38.9	3° 37.9	3° 37.0	3° 36.0	3° 35.1	-1.0
Сб 14	271° 05.5	286° 05.7	301° 05.9	316° 06.2	331° 06.4	346° 06.6	1° 06.8	16° 07.1	31° 07.3	46° 07.5	61° 07.7	76° 08.0	+0.2
	3° 22.6	3° 21.7	3° 20.7	3° 19.7	3° 18.8	3° 17.8	3° 16.9	3° 15.9	3° 14.9	3° 14.0	3° 13.0	3° 12.1	-1.0
Вс 15	271° 10.9	286° 11.1	301° 11.3	316° 11.5	331° 11.8	346° 12.0	1° 12.2	16° 12.4	31° 12.7	46° 12.9	61° 13.1	76° 13.3	+0.2
	2° 59.6	2° 58.6	2° 57.6	2° 56.7	2° 55.7	2° 54.8	2° 53.8	2° 52.8	2° 51.9	2° 50.9	2° 50.0	2° 49.0	-1.0
Пн 16	271° 16.2	286° 16.5	301° 16.7	316° 16.9	331° 17.1	346° 17.4	1° 17.6	16° 17.8	31° 18.0	46° 18.3	61° 18.5	76° 18.7	+0.2
	2° 36.5	2° 35.5	2° 34.5	2° 33.6	2° 32.6	2° 31.7	2° 30.7	2° 29.7	2° 28.8	2° 27.8	2° 26.8	2° 25.9	-1.0
Вт 17	271° 21.6	286° 21.9	301° 22.1	316° 22.3	331° 22.5	346° 22.7	1° 23.0	16° 23.2	31° 23.4	46° 23.6	61° 23.9	76° 24.1	+0.2
	2° 13.3	2° 12.4	2° 11.4	2° 10.4	2° 09.5	2° 08.5	2° 07.5	2° 06.6	2° 05.6	2° 04.6	2° 03.7	2° 02.7	-1.0
Ср 18	271° 27.0	286° 27.2	301° 27.4	316° 27.7	331° 27.9	346° 28.1	1° 28.3	16° 28.6	31° 28.8	46° 29.0	61° 29.2	76° 29.5	+0.2
	1° 50.1	1° 49.1	1° 48.2	1° 47.2	1° 46.2	1° 45.3	1° 44.3	1° 43.3	1° 42.4	1° 41.4	1° 40.4	1° 39.5	-1.0
Чт 19	271° 32.4	286° 32.6	301° 32.8	316° 33.0	331° 33.3	346° 33.5	1° 33.7	16° 33.9	31° 34.2	46° 34.4	61° 34.6	76° 34.8	+0.2
	1° 26.9	1° 25.9	1° 24.9	1° 24.0	1° 23.0	1° 22.0	1° 21.1	1° 20.1	1° 19.1	1° 18.2	1° 17.2	1° 16.2	-1.0
Пт 20	271° 37.7	286° 37.9	301° 38.2	316° 38.4	331° 38.6	346° 38.8	1° 39.0	16° 39.3	31° 39.5	46° 39.7	61° 39.9	76° 40.2	+0.2
	1° 03.6	1° 02.6	1° 01.7	1° 00.7	0° 59.7	0° 58.7	0° 57.8	0° 56.8	0° 55.8	0° 54.9	0° 53.9	0° 52.9	-1.0
Сб 21	271° 43.0	286° 43.3	301° 43.5	316° 43.7	331° 43.9	346° 44.1	1° 44.4	16° 44.6	31° 44.8	46° 45.0	61° 45.3	76° 45.5	+0.2
	0° 40.3	0° 39.3	0° 38.3	0° 37.4	0° 36.4	0° 35.4	0° 34.5	0° 33.5	0° 32.5	0° 31.5	0° 30.6	0° 29.6	-1.0
Вс 22	271° 48.3	286° 48.6	301° 48.8	316° 49.0	331° 49.2	346° 49.4	1° 49.7	16° 49.9	31° 50.1	46° 50.3	61° 50.5	76° 50.8	+0.2
	0° 17.0	0° 16.0	0° 15.0	0° 14.0	0° 13.1	0° 12.1	0° 11.1	0° 10.2	0° 09.2	0° 08.2	0° 07.2	0° 06.3	-1.0
Пн 23	271° 53.6	286° 53.8	301° 54.1	316° 54.3	331° 54.5	346° 54.7	1° 54.9	16° 55.2	31° 55.4	46° 55.6	61° 55.8	76° 56.0	+0.2
	-0° 06.4	-0° 07.4	-0° 08.3	-0° 09.3	-0° 10.3	-0° 11.3	-0° 12.2	-0° 13.2	-0° 14.2	-0° 15.1	-0° 16.1	-0° 17.1	-1.0
Вт 24	271° 58.9	286° 59.1	301° 59.3	316° 59.5	331° 59.7	346° 59.9	2° 00.2	17° 00.4	32° 00.6	47° 00.8	62° 01.0	77° 01.2	+0.2
	-0° 29.7	-0° 30.7	-0° 31.7	-0° 32.7	-0° 33.6	-0° 34.6	-0° 35.6	-0° 36.6	-0° 37.5	-0° 38.5	-0° 39.5	-0° 40.5	-1.0
Ср 25	272° 04.1	287° 04.3	302° 04.5	317° 04.7	332° 04.9	347° 05.1	2° 05.3	17° 05.6	32° 05.8	47° 06.0	62° 06.2	77° 06.4	+0.2
	-0° 53.1	-0° 54.1	-0° 55.1	-0° 56.0	-0° 57.0	-0° 58.0	-0° 59.0	-0° 59.9	-1° 00.9	-1° 01.9	-1° 02.9	-1° 03.8	-1.0
Чт 26	272° 09.2	287° 09.4	302° 09.6	317° 09.9	332° 10.1	347° 10.3	2° 10.5	17° 10.7	32° 10.9	47° 11.1	62° 11.3	77° 11.6	+0.2
	-1° 16.5	-1° 17.5	-1° 18.4	-1° 19.4	-1° 20.4	-1° 21.4	-1° 22.3	-1° 23.3	-1° 24.3	-1° 25.2	-1° 26.2	-1° 27.2	-1.0
Пт 27	272° 14.3	287° 14.5	302° 14.7	317° 15.0	332° 15.2	347° 15.4	2° 15.6	17° 15.8	32° 16.0	47° 16.2	62° 16.4	77° 16.6	+0.2
	-1° 39.8	-1° 40.8	-1° 41.8	-1° 42.8	-1° 43.7	-1° 44.7	-1° 45.7	-1° 46.7	-1° 47.6	-1° 48.6	-1° 49.6	-1° 50.6	-1.0
Сб 28	272° 19.4	287° 19.6	302° 19.8	317° 20.0	332° 20.2	347° 20.4	2° 20.6	17° 20.8	32° 21.0	47° 21.3	62° 21.5	77° 21.7	+0.2
	-2° 03.2	-2° 04.2	-2° 05.1	-2° 06.1	-2° 07.1	-2° 08.1	-2° 09.0	-2° 10.0	-2° 11.0	-2° 11.9	-2° 12.9	-2° 13.9	-1.0
Вс 29	272° 24.4	287° 24.6	302° 24.8	317° 25.0	332° 25.2	347° 25.4	2° 25.6	17° 25.8	32° 26.0	47° 26.2	62° 26.4	77° 26.6	+0.2
	-2° 26.5	-2° 27.5	-2° 28.5	-2° 29.4	-2° 30.4	-2° 31.4	-2° 32.4	-2° 33.3	-2° 34.3	-2° 35.3	-2° 36.2	-2° 37.2	-1.0
Пн 30	272° 29.3	287° 29.5	302° 29.7	317° 29.9	332° 30.1	347° 30.3	2° 30.5	17° 30.7	32° 30.9	47° 31.1	62° 31.3	77° 31.5	+0.2
	-2° 49.8	-2° 50.8	-2° 51.8	-2° 52.8	-2° 53.7	-2° 54.7	-2° 55.7	-2° 56.6	-2° 57.6	-2° 58.6	-2° 59.5	-3° 00.5	-1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	R/p
Вс 1	247° 12.5 -11° 56.4	261° 41.1 -12° 07.8	276° 09.7 -12° 19.1	290° 38.2 -12° 30.4	305° 06.7 -12° 41.6	319° 35.1 -12° 52.7	334° 03.4 -13° 03.7	348° 31.7 -13° 14.7	2° 59.9 -13° 25.6	17° 28.1 -13° 36.4	31° 56.2 -13° 47.2	+28.4 -11.1	16.0 58.8
Пн 2	248° 49.9 -16° 18.5	263° 17.0 -16° 27.9	277° 44.0 -16° 37.1	292° 10.9 -16° 46.3	306° 37.8 -16° 55.4	321° 04.6 -17° 04.3	335° 31.4 -17° 13.2	349° 58.0 -17° 22.0	4° 24.7 -17° 30.6	18° 51.2 -17° 39.2	33° 17.7 -17° 47.6	+26.8 -8.9	16.1 59.0
Вт 3	249° 47.8 -19° 40.7	264° 13.3 -19° 47.2	278° 38.8 -19° 53.7	293° 04.2 -20° 00.0	307° 29.6 -20° 06.2	321° 54.9 -20° 12.3	336° 20.2 -20° 18.2	350° 45.4 -20° 24.0	5° 10.6 -20° 29.7	19° 35.7 -20° 35.2	34° 00.8 -20° 40.6	+25.3 -6.0	16.1 59.2
◐ Ср 4	250° 12.1 -21° 45.2	264° 36.6 -21° 48.4	279° 01.0 -21° 51.4	293° 25.4 -21° 54.3	307° 49.8 -21° 57.0	322° 14.2 -21° 59.6	336° 38.5 -22° 02.0	351° 02.8 -22° 04.3	5° 27.1 -22° 06.5	19° 51.4 -22° 08.5	34° 15.7 -22° 10.3	+24.4 -2.5	16.1 59.2
Чт 5	250° 18.7 -22° 20.2	264° 42.9 -22° 19.7	279° 07.1 -22° 19.0	293° 31.3 -22° 18.1	307° 55.5 -22° 17.1	322° 19.8 -22° 16.0	336° 44.0 -22° 14.7	351° 08.3 -22° 13.3	5° 32.6 -22° 11.7	19° 56.9 -22° 10.0	34° 21.2 -22° 08.1	+24.2 +1.2	16.1 59.2
Пт 6	250° 29.4 -21° 22.5	264° 54.3 -21° 18.3	279° 19.1 -21° 14.0	293° 44.0 -21° 09.6	308° 09.0 -21° 05.0	322° 34.0 -21° 00.2	336° 59.1 -20° 55.4	351° 24.2 -20° 50.4	5° 49.3 -20° 45.2	20° 14.5 -20° 40.0	34° 39.8 -20° 34.6	+25.0 +4.8	16.1 59.0
Сб 7	251° 05.2 -18° 58.5	265° 31.3 -18° 51.1	279° 57.6 -18° 43.6	294° 23.9 -18° 36.0	308° 50.2 -18° 28.3	323° 16.6 -18° 20.5	337° 43.1 -18° 12.5	352° 09.7 -18° 04.5	6° 36.3 -17° 56.3	21° 03.0 -17° 48.1	35° 29.8 -17° 39.7	+26.5 +7.9	16.0 58.8
Вс 8	252° 19.2 -15° 22.5	266° 47.1 -15° 12.6	281° 15.0 -15° 02.6	295° 43.0 -14° 52.6	310° 11.0 -14° 42.4	324° 39.1 -14° 32.2	339° 07.3 -14° 22.0	353° 35.6 -14° 11.6	8° 03.9 -14° 01.2	22° 32.3 -13° 50.6	37° 00.7 -13° 40.1	+28.1 +10.2	16.0 58.5
Пн 9	254° 15.3 -10° 53.4	268° 44.8 -10° 41.8	283° 14.3 -10° 30.2	297° 43.9 -10° 18.5	312° 13.5 -10° 06.8	326° 43.3 -9° 55.0	341° 13.0 -9° 43.2	355° 42.8 -9° 31.3	10° 12.7 -9° 19.4	24° 42.7 -9° 07.5	39° 12.7 -8° 55.5	+29.7 +11.8	15.8 58.1
Вт 10	256° 48.9 -5° 51.7	271° 19.7 -5° 39.2	285° 50.5 -5° 26.7	300° 21.4 -5° 14.2	314° 52.4 -5° 01.7	329° 23.3 -4° 49.1	343° 54.4 -4° 36.6	358° 25.4 -4° 24.0	12° 56.5 -4° 11.5	27° 27.7 -3° 58.9	41° 58.9 -3° 46.3	+31.0 +12.5	15.7 57.6
○ Ср 11	259° 50.8 -0° 36.9	274° 22.5 -0° 24.3	288° 54.3 -0° 11.7	303° 26.0 0° 00.9	317° 57.8 0° 13.4	332° 29.6 0° 26.0	347° 01.5 0° 38.5	1° 33.3 0° 51.1	16° 05.2 1° 03.6	30° 37.1 1° 16.1	45° 09.1 1° 28.6	+31.8 +12.6	15.5 57.0
Чт 12	263° 10.1 4° 33.1	277° 42.3 4° 45.2	292° 14.5 4° 57.2	306° 46.7 5° 09.2	321° 18.9 5° 21.2	335° 51.1 5° 33.1	350° 23.3 5° 45.0	4° 55.5 5° 56.9	19° 27.8 6° 08.7	34° 00.0 6° 20.5	48° 32.2 6° 32.3	+32.2 +11.9	15.4 56.4
Пт 13	266° 36.0 9° 23.0	281° 08.3 9° 34.0	295° 40.5 9° 44.9	310° 12.7 9° 55.8	324° 45.0 10° 06.6	339° 17.2 10° 17.4	353° 49.4 10° 28.1	8° 21.6 10° 38.7	22° 53.8 10° 49.3	37° 26.0 10° 59.8	51° 58.2 11° 10.3	+32.2 +10.7	15.2 55.8
Сб 14	269° 59.6 13° 39.7	284° 31.6 13° 49.2	299° 03.6 13° 58.5	313° 35.5 14° 07.8	328° 07.5 14° 17.0	342° 39.4 14° 26.1	357° 11.3 14° 35.2	11° 43.2 14° 44.2	26° 15.1 14° 53.1	40° 47.0 15° 01.9	55° 18.8 15° 10.7	+31.9 +9.1	15.1 55.2
Вс 15	273° 14.4 17° 12.6	287° 46.0 17° 20.1	302° 17.5 17° 27.5	316° 49.0 17° 34.8	331° 20.5 17° 42.0	345° 52.0 17° 49.1	0° 23.5 17° 56.2	14° 54.9 18° 03.1	29° 26.3 18° 10.0	43° 57.7 18° 16.8	58° 29.1 18° 23.5	+31.5 +7.1	14.9 54.8
Пн 16	276° 17.5 19° 53.0	290° 48.5 19° 58.2	305° 19.6 20° 03.3	319° 50.6 20° 08.4	334° 21.6 20° 13.3	348° 52.6 20° 18.1	3° 23.6 20° 22.9	17° 54.6 20° 27.5	32° 25.5 20° 32.1	46° 56.5 20° 36.5	61° 27.4 20° 40.9	+31.0 +4.8	14.8 54.4
Вт 17	279° 09.3 21° 34.4	293° 39.9 21° 37.2	308° 10.6 21° 39.8	322° 41.3 21° 42.4	337° 11.9 21° 44.8	351° 42.6 21° 47.2	6° 13.2 21° 49.5	20° 43.8 21° 51.6	35° 14.4 21° 53.7	49° 45.0 21° 55.6	64° 15.6 21° 57.4	+30.6 +2.3	14.8 54.2
Ср 18	293° 39.9 21° 37.2	308° 10.6 21° 39.8	322° 41.3 21° 42.4	337° 11.9 21° 44.8	351° 42.6 21° 47.2	6° 13.2 21° 49.5	20° 43.8 21° 51.6	35° 14.4 21° 53.7	49° 45.0 21° 55.6	64° 15.6 21° 57.4	78° 46.2 21° 59.2	+30.6 +2.2	14.8 54.2
◑ Чт 19	296° 24.0 22° 12.9	310° 54.5 22° 13.0	325° 25.0 22° 12.9	339° 55.5 22° 12.8	354° 26.0 22° 12.6	8° 56.5 22° 12.3	23° 27.0 22° 11.8	37° 57.4 22° 11.3	52° 27.9 22° 10.6	66° 58.4 22° 09.9	81° 28.9 22° 09.0	+30.5 -0.4	14.8 54.2
Пт 20	299° 06.5 21° 43.7	313° 37.1 21° 41.2	328° 07.6 21° 38.6	342° 38.2 21° 35.9	357° 08.8 21° 33.1	11° 39.4 21° 30.1	26° 09.9 21° 27.1	40° 40.5 21° 24.0	55° 11.2 21° 20.8	69° 41.8 21° 17.4	84° 12.4 21° 14.0	+30.6 -3.0	14.8 54.4
Сб 21	301° 53.1 20° 10.5	316° 23.9 20° 05.5	330° 54.7 20° 00.4	345° 25.5 19° 55.2	359° 56.4 19° 49.9	14° 27.2 19° 44.5	28° 58.1 19° 39.0	43° 29.0 19° 33.4	57° 59.9 19° 27.7	72° 30.8 19° 21.9	87° 01.7 19° 16.0	+30.9 -5.5	14.9 54.8
Вс 22	304° 47.4 17° 36.6	319° 18.5 17° 29.2	333° 49.7 17° 21.8	348° 20.9 17° 14.2	2° 52.1 17° 06.6	17° 23.3 16° 58.9	31° 54.5 16° 51.1	46° 25.7 16° 43.3	60° 57.0 16° 35.3	75° 28.2 16° 27.2	89° 59.5 16° 19.1	+31.2 -7.7	15.1 55.3
Пн 23	307° 50.0 14° 07.3	322° 21.4 13° 57.9	336° 52.9 13° 48.4	351° 24.3 13° 38.9	5° 55.8 13° 29.2	20° 27.3 13° 19.5	34° 58.8 13° 09.7	49° 30.3 12° 59.8	64° 01.8 12° 49.9	78° 33.3 12° 39.9	93° 04.8 12° 29.8	+31.5 -9.8	15.3 56.0
Вт 24	310° 57.7 9° 50.7	325° 29.3 9° 39.6	340° 00.8 9° 28.4	354° 32.3 9° 17.1	9° 03.8 8° 05.9	23° 35.4 8° 54.5	38° 06.9 8° 43.1	52° 38.4 8° 31.6	67° 09.9 8° 20.1	81° 41.4 8° 08.6	96° 12.9 7° 57.0	+31.5 -11.4	15.5 56.7
Ср 25	314° 03.9 4° 57.0	328° 35.2 4° 44.6	343° 06.5 4° 32.2	357° 37.7 4° 19.8	12° 09.0 4° 07.4	26° 40.2 3° 54.9	41° 11.4 3° 42.4	55° 42.6 3° 29.8	70° 13.7 3° 17.2	84° 44.8 3° 04.6	99° 15.9 2° 52.0	+31.2 -12.5	15.7 57.5
Чт 26	316° 59.2 -0° 20.4	331° 29.8 -0° 33.4	346° 00.4 -0° 46.4	0° 31.0 -0° 59.3	15° 01.5 -1° 12.3	29° 32.0 -1° 25.3	44° 02.5 -1° 38.3	58° 32.9 -1° 51.3	73° 03.2 -2° 04.3	87° 33.6 -2° 17.4	102° 03.9 -2° 30.4	+30.5 -13.0	15.9 58.3
● Пт 27	319° 32.7 -5° 44.7	334° 02.2 -5° 57.5	348° 31.7 -6° 10.3	3° 01.1 -6° 23.1	17° 30.5 -6° 35.9	31° 59.8 -6° 48.6	46° 29.1 -7° 01.3	60° 58.3 -7° 14.0	75° 27.4 -7° 26.7	89° 56.5 -7° 39.3	104° 25.6 -7° 51.9	+29.3 -12.7	16.1 58.9
Сб 28	321° 33.8 -10° 55.5	336° 01.8 -11° 07.3	350° 29.8 -11° 19.1	4° 57.7 -11° 30.8	19° 25.5 -11° 42.5	33° 53.3 -11° 54.1	48° 21.0 -12° 05.6	62° 48.7 -12° 17.1	77° 16.2 -12° 28.5	91° 43.8 -12° 39.8	106° 11.2 -12° 51.0	+27.7 -11.6	16.2 59.4
Вс 29	322° 54.7 -15° 30.2	337° 21.1 -15° 40.1	351° 47.4 -15° 49.9	6° 13.6 -15° 59.6	20° 39.8 -16° 09.2	35° 05.9 -16° 18.7	49° 31.9 -16° 28.1	63° 57.9 -16° 37.4	78° 23.8 -16° 46.6	92° 49.6 -16° 55.7	107° 15.4 -17° 04.6	+26.1 -9.5	16.3 59.7
Пн 30	323° 34.7 -19° 05.5	337° 59.5 -19° 12.6	352° 24.3 -19° 19.5	6° 49.0 -19° 26.3	21° 13.7 -19° 33.0	35° 38.4 -19° 39.6	50° 02.9 -19° 46.0	64° 27.5 -19° 52.3	78° 52.0 -19° 58.4	93° 16.4 -20° 04.5	107° 40.8 -20° 10.4	+24.6 -6.5	16.3 59.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 4 21h55 — Полнолуние: 11 21h17 — Последняя четв.: 19 19h56 — Новолуние: 27 09h54

СОЛНЦЕ

Октябрь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	272° 34.2 -3° 13.1	287° 34.4 -3° 14.1	302° 34.6 -3° 15.1	317° 34.8 -3° 16.0	332° 35.0 -3° 17.0	347° 35.2 -3° 18.0	2° 35.4 -3° 18.9	17° 35.6 -3° 19.9	32° 35.8 -3° 20.9	47° 36.0 -3° 21.8	62° 36.2 -3° 22.8	77° 36.4 -3° 23.8	+0.2 -1.0
Ср 2	272° 39.0 -3° 36.4	287° 39.2 -3° 37.3	302° 39.4 -3° 38.3	317° 39.6 -3° 39.3	332° 39.8 -3° 40.2	347° 40.0 -3° 41.2	2° 40.2 -3° 42.2	17° 40.4 -3° 43.1	32° 40.6 -3° 44.1	47° 40.8 -3° 45.1	62° 41.0 -3° 46.0	77° 41.2 -3° 47.0	+0.2 -1.0
Чт 3	272° 43.7 -3° 59.6	287° 43.9 -4° 00.5	302° 44.1 -4° 01.5	317° 44.3 -4° 02.5	332° 44.5 -4° 03.4	347° 44.7 -4° 04.4	2° 44.9 -4° 05.4	17° 45.1 -4° 06.3	32° 45.3 -4° 07.3	47° 45.5 -4° 08.2	62° 45.7 -4° 09.2	77° 45.9 -4° 10.2	+0.2 -1.0
Пт 4	272° 48.4 -4° 22.7	287° 48.6 -4° 23.7	302° 48.8 -4° 24.6	317° 48.9 -4° 25.6	332° 49.1 -4° 26.6	347° 49.3 -4° 27.5	2° 49.5 -4° 28.5	17° 49.7 -4° 29.5	32° 49.9 -4° 30.4	47° 50.1 -4° 31.4	62° 50.3 -4° 32.3	77° 50.5 -4° 33.3	+0.2 -1.0
Сб 5	272° 52.9 -4° 45.8	287° 53.1 -4° 46.8	302° 53.3 -4° 47.7	317° 53.5 -4° 48.7	332° 53.7 -4° 49.7	347° 53.9 -4° 50.6	2° 54.1 -4° 51.6	17° 54.3 -4° 52.5	32° 54.4 -4° 53.5	47° 54.6 -4° 54.5	62° 54.8 -4° 55.4	77° 55.0 -4° 56.4	+0.2 -1.0
Вс 6	272° 57.4 -5° 08.8	287° 57.6 -5° 09.8	302° 57.8 -5° 10.8	317° 58.0 -5° 11.7	332° 58.2 -5° 12.7	347° 58.3 -5° 13.6	2° 58.5 -5° 14.6	17° 58.7 -5° 15.6	32° 58.9 -5° 16.5	47° 59.1 -5° 17.5	62° 59.3 -5° 18.4	77° 59.4 -5° 19.4	+0.2 -1.0
Пн 7	273° 01.8 -5° 31.8	288° 02.0 -5° 32.8	303° 02.2 -5° 33.7	318° 02.4 -5° 34.7	333° 02.5 -5° 35.6	348° 02.7 -5° 36.6	3° 02.9 -5° 37.5	18° 03.1 -5° 38.5	33° 03.3 -5° 39.5	48° 03.4 -5° 40.4	63° 03.6 -5° 41.4	78° 03.8 -5° 42.3	+0.2 -1.0
Вт 8	273° 06.1 -5° 54.7	288° 06.3 -5° 55.7	303° 06.5 -5° 56.6	318° 06.6 -5° 57.6	333° 06.8 -5° 58.5	348° 07.0 -5° 59.5	3° 07.2 -6° 00.4	18° 07.3 -6° 01.4	33° 07.5 -6° 02.3	48° 07.7 -6° 03.3	63° 07.9 -6° 04.2	78° 08.0 -6° 05.2	+0.2 -1.0
Ср 9	273° 10.3 -6° 17.5	288° 10.5 -6° 18.5	303° 10.6 -6° 19.4	318° 10.8 -6° 20.4	333° 11.0 -6° 21.3	348° 11.1 -6° 22.3	3° 11.3 -6° 23.2	18° 11.5 -6° 24.2	33° 11.7 -6° 25.1	48° 11.8 -6° 26.1	63° 12.0 -6° 27.0	78° 12.2 -6° 28.0	+0.2 -0.9
Чт 10	273° 14.4 -6° 40.3	288° 14.5 -6° 41.2	303° 14.7 -6° 42.2	318° 14.9 -6° 43.1	333° 15.0 -6° 44.1	348° 15.2 -6° 45.0	3° 15.4 -6° 45.9	18° 15.5 -6° 46.9	33° 15.7 -6° 47.8	48° 15.9 -6° 48.8	63° 16.0 -6° 49.7	78° 16.2 -6° 50.7	+0.2 -0.9
Пт 11	273° 18.3 -7° 02.9	288° 18.5 -7° 03.9	303° 18.7 -7° 04.8	318° 18.8 -7° 05.7	333° 19.0 -7° 06.7	348° 19.1 -7° 07.6	3° 19.3 -7° 08.6	18° 19.5 -7° 09.5	33° 19.6 -7° 10.5	48° 19.8 -7° 11.4	63° 19.9 -7° 12.3	78° 20.1 -7° 13.3	+0.2 -0.9
Сб 12	273° 22.2 -7° 25.5	288° 22.3 -7° 26.4	303° 22.5 -7° 27.4	318° 22.6 -7° 28.3	333° 22.8 -7° 29.2	348° 23.0 -7° 30.2	3° 23.1 -7° 31.1	18° 23.3 -7° 32.0	33° 23.4 -7° 33.0	48° 23.6 -7° 33.9	63° 23.7 -7° 34.8	78° 23.9 -7° 35.8	+0.2 -0.9
Вс 13	273° 25.9 -7° 47.9	288° 26.0 -7° 48.9	303° 26.2 -7° 49.8	318° 26.3 -7° 50.7	333° 26.5 -7° 51.7	348° 26.6 -7° 52.6	3° 26.8 -7° 53.5	18° 26.9 -7° 54.5	33° 27.1 -7° 55.4	48° 27.2 -7° 56.3	63° 27.4 -7° 57.3	78° 27.5 -7° 58.2	+0.2 -0.9
Пн 14	273° 29.5 -8° 10.3	288° 29.6 -8° 11.2	303° 29.8 -8° 12.1	318° 29.9 -8° 13.1	333° 30.1 -8° 14.0	348° 30.2 -8° 14.9	3° 30.3 -8° 15.8	18° 30.5 -8° 16.8	33° 30.6 -8° 17.7	48° 30.8 -8° 18.6	63° 30.9 -8° 19.6	78° 31.1 -8° 20.5	+0.1 -0.9
Вт 15	273° 32.9 -8° 32.5	288° 33.1 -8° 33.4	303° 33.2 -8° 34.4	318° 33.3 -8° 35.3	333° 33.5 -8° 36.2	348° 33.6 -8° 37.1	3° 33.7 -8° 38.1	18° 33.9 -8° 39.0	33° 34.0 -8° 39.9	48° 34.2 -8° 40.8	63° 34.3 -8° 41.7	78° 34.4 -8° 42.7	+0.1 -0.9
Ср 16	273° 36.2 -8° 54.6	288° 36.3 -8° 55.5	303° 36.5 -8° 56.5	318° 36.6 -8° 57.4	333° 36.7 -8° 58.3	348° 36.9 -8° 59.2	3° 37.0 -9° 00.1	18° 37.1 -9° 01.1	33° 37.3 -9° 02.0	48° 37.4 -9° 02.9	63° 37.5 -9° 03.8	78° 37.7 -9° 04.7	+0.1 -0.9
Чт 17	273° 39.4 -9° 16.6	288° 39.5 -9° 17.5	303° 39.6 -9° 18.4	318° 39.8 -9° 19.4	333° 39.9 -9° 20.3	348° 40.0 -9° 21.2	3° 40.1 -9° 22.1	18° 40.3 -9° 23.0	33° 40.4 -9° 23.9	48° 40.5 -9° 24.8	63° 40.6 -9° 25.7	78° 40.8 -9° 26.7	+0.1 -0.9
Пт 18	273° 42.4 -9° 38.5	288° 42.5 -9° 39.4	303° 42.6 -9° 40.3	318° 42.7 -9° 41.2	333° 42.9 -9° 42.1	348° 43.0 -9° 43.0	3° 43.1 -9° 43.9	18° 43.2 -9° 44.8	33° 43.3 -9° 45.7	48° 43.5 -9° 46.6	63° 43.6 -9° 47.5	78° 43.7 -9° 48.4	+0.1 -0.9
Сб 19	273° 45.2 -10° 00.2	288° 45.3 -10° 01.1	303° 45.4 -10° 02.0	318° 45.6 -10° 02.9	333° 45.7 -10° 03.8	348° 45.8 -10° 04.7	3° 45.9 -10° 05.6	18° 46.0 -10° 06.5	33° 46.1 -10° 07.4	48° 46.2 -10° 08.3	63° 46.4 -10° 09.2	78° 46.5 -10° 10.1	+0.1 -0.9
Вс 20	273° 47.9 -10° 21.8	288° 48.0 -10° 22.7	303° 48.1 -10° 23.6	318° 48.2 -10° 24.5	333° 48.3 -10° 25.4	348° 48.4 -10° 26.2	3° 48.5 -10° 27.1	18° 48.6 -10° 28.0	33° 48.8 -10° 28.9	48° 48.9 -10° 29.8	63° 49.0 -10° 30.7	78° 49.1 -10° 31.6	+0.1 -0.9
Пн 21	273° 50.4 -10° 43.2	288° 50.5 -10° 44.1	303° 50.6 -10° 45.0	318° 50.7 -10° 45.9	333° 50.8 -10° 46.8	348° 50.9 -10° 47.6	3° 51.0 -10° 48.5	18° 51.1 -10° 49.4	33° 51.2 -10° 50.3	48° 51.3 -10° 51.2	63° 51.4 -10° 52.1	78° 51.5 -10° 53.0	+0.1 -0.9
Вт 22	273° 52.8 -11° 04.5	288° 52.9 -11° 05.3	303° 52.9 -11° 06.2	318° 53.0 -11° 07.1	333° 53.1 -11° 08.0	348° 53.2 -11° 08.9	3° 53.3 -11° 09.8	18° 53.4 -11° 10.6	33° 53.5 -11° 11.5	48° 53.6 -11° 12.4	63° 53.7 -11° 13.3	78° 53.8 -11° 14.2	+0.1 -0.9
Ср 23	273° 54.9 -11° 25.6	288° 55.0 -11° 26.4	303° 55.1 -11° 27.3	318° 55.2 -11° 28.2	333° 55.3 -11° 29.1	348° 55.4 -11° 29.9	3° 55.5 -11° 30.8	18° 55.5 -11° 31.7	33° 55.6 -11° 32.6	48° 55.7 -11° 33.4	63° 55.8 -11° 34.3	78° 55.9 -11° 35.2	+0.1 -0.9
Чт 24	273° 56.9 -11° 46.5	288° 57.0 -11° 47.4	303° 57.1 -11° 48.2	318° 57.2 -11° 49.1	333° 57.3 -11° 50.0	348° 57.3 -11° 50.8	3° 57.4 -11° 51.7	18° 57.5 -11° 52.6	33° 57.6 -11° 53.4	48° 57.6 -11° 54.3	63° 57.7 -11° 55.2	78° 57.8 -11° 56.0	+0.1 -0.9
Пт 25	273° 58.8 -12° 07.2	288° 58.8 -12° 08.1	303° 58.9 -12° 09.0	318° 59.0 -12° 09.8	333° 59.0 -12° 10.7	348° 59.1 -12° 11.5	3° 59.2 -12° 12.4	18° 59.3 -12° 13.3	33° 59.3 -12° 14.1	48° 59.4 -12° 15.0	63° 59.5 -12° 15.8	78° 59.5 -12° 16.7	+0.1 -0.9
Сб 26	274° 00.4 -12° 27.8	289° 00.5 -12° 28.7	304° 00.5 -12° 29.5	319° 00.6 -12° 30.4	334° 00.6 -12° 31.2	349° 00.7 -12° 32.1	4° 00.8 -12° 32.9	19° 00.8 -12° 33.8	34° 00.9 -12° 34.6	49° 01.0 -12° 35.5	64° 01.0 -12° 36.3	79° 01.1 -12° 37.2	+0.1 -0.9
Вс 27	274° 01.8 -12° 48.2	289° 01.9 -12° 49.0	304° 02.0 -12° 49.9	319° 02.0 -12° 50.7	334° 02.1 -12° 51.6	349° 02.1 -12° 52.4	4° 02.2 -12° 53.2	19° 02.2 -12° 54.1	34° 02.3 -12° 54.9	49° 02.3 -12° 55.8	64° 02.4 -12° 56.6	79° 02.5 -12° 57.5	+0.1 -0.8
Пн 28	274° 03.1 -13° 08.4	289° 03.2 -13° 09.2	304° 03.2 -13° 10.0	319° 03.3 -13° 10.9	334° 03.3 -13° 11.7	349° 03.4 -13° 12.5	4° 03.4 -13° 13.4	19° 03.4 -13° 14.2	34° 03.5 -13° 15.0	49° 03.5 -13° 15.9	64° 03.6 -13° 16.7	79° 03.6 -13° 17.5	+0.0 -0.8
Вт 29	274° 04.2 -13° 28.3	289° 04.2 -13° 29.2	304° 04.3 -13° 30.0	319° 04.3 -13° 30.8	334° 04.4 -13° 31.6	349° 04.4 -13° 32.5	4° 04.4 -13° 33.3	19° 04.5 -13° 34.1	34° 04.5 -13° 34.9	49° 04.6 -13° 35.8	64° 04.6 -13° 36.6	79° 04.6 -13° 37.4	+0.0 -0.8
Ср 30	274° 05.1 -13° 48.1	289° 05.1 -13° 48.9	304° 05.2 -13° 49.7	319° 05.2 -13° 50.5	334° 05.2 -13° 51.4	349° 05.2 -13° 52.2	4° 05.3 -13° 53.0	19° 05.3 -13° 53.8	34° 05.3 -13° 54.6	49° 05.4 -13° 55.4	64° 05.4 -13° 56.3	79° 05.4 -13° 57.1	+0.0 -0.8
Чт 31	274° 05.8 -14° 07.6	289° 05.8 -14° 08.4	304° 05.8 -14° 09.2	319° 05.9 -14° 10.1	334° 05.9 -14° 10.9	349° 05.9 -14° 11.7	4° 05.9 -14° 12.5	19° 06.0 -14° 13.3	34° 06.0 -14° 14.1	49° 06.0 -14° 14.9	64° 06.0 -14° 15.7	79° 06.0 -14° 16.5	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

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Д	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	R/p
Вт 1	251° 42.8	266° 06.8	280° 30.7	294° 54.7	309° 18.6	323° 42.5	338° 06.4	352° 30.3	6° 54.1	21° 18.0	35° 41.8	+23.9	16.3
	-21° 01.5	-21° 05.8	-21° 10.0	-21° 14.0	-21° 17.9	-21° 21.6	-21° 25.2	-21° 28.7	-21° 32.0	-21° 35.1	-21° 38.1	-3.7	59.7
Ср 2	251° 38.2	266° 02.0	280° 25.7	294° 49.6	309° 13.4	323° 37.2	338° 01.1	352° 24.9	6° 48.8	21° 12.7	35° 36.7	+23.8	16.2
	-22° 04.9	-22° 05.4	-22° 05.9	-22° 06.1	-22° 06.2	-22° 06.2	-22° 06.0	-22° 05.7	-22° 05.2	-22° 04.5	-22° 03.7	+0.1	59.5
Чт 3	251° 39.7	266° 04.2	280° 28.7	294° 53.4	309° 18.0	323° 42.8	338° 07.5	352° 32.4	6° 57.2	21° 22.2	35° 47.2	+24.7	16.1
	-21° 34.1	-21° 31.0	-21° 27.7	-21° 24.3	-21° 20.7	-21° 17.0	-21° 13.2	-21° 09.2	-21° 05.1	-21° 00.9	-20° 56.5	+3.8	59.2
◐ Пт 4	252° 09.4	266° 35.4	281° 01.5	295° 27.7	309° 53.9	324° 20.2	338° 46.6	353° 13.0	7° 39.5	22° 06.1	36° 32.7	+26.3	16.0
	-19° 35.4	-19° 29.0	-19° 22.5	-19° 15.8	-19° 09.1	-19° 02.2	-18° 55.3	-18° 48.2	-18° 41.0	-18° 33.7	-18° 26.3	+6.9	58.7
Сб 5	253° 21.4	267° 49.2	282° 17.1	296° 45.1	311° 13.2	325° 41.3	340° 09.5	354° 37.8	9° 06.1	23° 34.5	38° 03.0	+28.2	15.9
	-16° 22.8	-16° 13.9	-16° 04.8	-15° 55.6	-15° 46.4	-15° 37.0	-15° 27.6	-15° 18.1	-15° 08.6	-14° 58.9	-14° 49.2	+9.4	58.3
Вс 6	255° 18.7	269° 48.3	284° 18.0	298° 47.7	313° 17.5	327° 47.3	342° 17.2	356° 47.2	11° 17.2	25° 47.3	40° 17.4	+29.9	15.8
	-12° 14.7	-12° 03.8	-11° 53.0	-11° 42.0	-11° 31.1	-11° 20.0	-11° 08.9	-10° 57.8	-10° 46.6	-10° 35.4	-10° 24.1	+11.1	57.8
Пн 7	257° 56.2	272° 27.2	286° 58.3	301° 29.4	316° 00.5	330° 31.7	345° 02.9	359° 34.2	14° 05.5	28° 36.9	43° 08.3	+31.2	15.6
	-7° 29.8	-7° 17.9	-7° 06.0	-6° 54.0	-6° 42.1	-6° 30.1	-6° 18.0	-6° 06.0	-5° 53.9	-5° 41.8	-5° 29.7	+12.0	57.3
Вт 8	261° 03.7	275° 35.7	290° 07.6	304° 39.7	319° 11.7	333° 43.8	348° 15.8	2° 48.0	17° 20.1	31° 52.3	46° 24.4	+32.1	15.5
	-2° 26.3	-2° 14.0	-2° 01.7	-1° 49.4	-1° 37.1	-1° 24.8	-1° 12.5	-1° 00.2	-0° 48.0	-0° 35.7	-0° 23.4	+12.3	56.8
Ср 9	264° 29.3	279° 01.7	293° 34.1	308° 06.6	322° 39.0	337° 11.5	351° 44.0	6° 16.4	20° 48.9	35° 21.4	49° 53.9	+32.5	15.3
	2° 39.4	2° 51.5	3° 03.5	3° 15.5	3° 27.5	3° 39.5	3° 51.4	4° 03.3	4° 15.2	4° 27.1	4° 38.9	+12.0	56.3
Чт 10	268° 01.3	282° 33.8	297° 06.3	311° 38.7	326° 11.2	340° 43.6	355° 16.1	9° 48.5	24° 20.9	38° 53.3	53° 25.7	+32.4	15.2
	7° 32.4	7° 43.7	7° 54.9	8° 06.0	8° 17.2	8° 28.3	8° 39.3	8° 50.3	9° 01.2	9° 12.1	9° 23.0	+11.1	55.8
○ Пт 11	271° 30.2	286° 02.4	300° 34.6	315° 06.7	329° 38.9	344° 11.0	358° 43.1	13° 15.2	27° 47.2	42° 19.3	56° 51.3	+32.1	15.1
	11° 59.2	12° 09.1	12° 19.0	12° 28.8	12° 38.6	12° 48.3	12° 57.9	13° 07.5	13° 17.0	13° 26.4	13° 35.8	+9.7	55.3
Сб 12	274° 49.1	289° 20.8	303° 52.5	318° 24.1	332° 55.8	347° 27.4	1° 59.0	16° 30.5	31° 02.0	45° 33.6	60° 05.1	+31.6	15.0
	15° 47.7	15° 55.9	16° 04.0	16° 12.0	16° 20.0	16° 27.9	16° 35.7	16° 43.4	16° 51.0	16° 58.6	17° 06.0	+7.8	54.9
Вс 13	277° 54.9	292° 26.0	306° 57.2	321° 28.3	335° 59.4	350° 30.4	5° 01.5	19° 32.5	34° 03.6	48° 34.6	63° 05.5	+31.1	14.9
	18° 47.7	18° 53.8	18° 59.8	19° 05.7	19° 11.5	19° 17.2	19° 22.8	19° 28.3	19° 33.8	19° 39.1	19° 44.3	+5.7	54.5
Пн 14	280° 48.3	295° 19.0	309° 49.8	324° 20.5	338° 51.2	353° 21.9	7° 52.5	22° 23.2	36° 53.9	51° 24.5	65° 55.2	+30.7	14.8
	20° 51.3	20° 55.0	20° 58.6	21° 02.1	21° 05.5	21° 08.8	21° 12.0	21° 15.0	21° 18.0	21° 20.9	21° 23.7	+3.2	54.2
Вт 15	283° 34.0	298° 04.5	312° 35.1	327° 05.6	341° 36.2	356° 06.8	10° 37.3	25° 07.9	39° 38.4	54° 09.0	68° 39.6	+30.6	14.7
	21° 53.2	21° 54.3	21° 55.4	21° 56.3	21° 57.1	21° 57.9	21° 58.5	21° 59.0	21° 59.4	21° 59.8	22° 00.0	+0.7	54.1
Ср 16	286° 18.7	300° 49.3	315° 20.0	329° 50.7	344° 21.4	358° 52.1	13° 22.8	27° 53.6	42° 24.3	56° 55.1	71° 25.8	+30.7	14.8
	21° 50.9	21° 49.5	21° 48.0	21° 46.3	21° 44.6	21° 42.8	21° 40.9	21° 38.8	21° 36.7	21° 34.5	21° 32.1	-1.9	54.1
Чт 17	300° 49.3	315° 20.0	329° 50.7	344° 21.4	358° 52.1	13° 22.8	27° 53.6	42° 24.3	56° 55.1	71° 25.8	85° 56.6	+30.7	14.8
	21° 49.5	21° 48.0	21° 46.3	21° 44.6	21° 42.8	21° 40.9	21° 38.8	21° 36.7	21° 34.5	21° 32.1	21° 29.7	-2.0	54.1
Пт 18	303° 40.2	318° 11.2	332° 42.3	347° 13.3	1° 44.4	16° 15.5	30° 46.7	45° 17.8	59° 49.0	74° 20.2	88° 51.4	+31.1	14.8
	20° 41.3	20° 37.3	20° 33.2	20° 29.0	20° 24.7	20° 20.4	20° 15.9	20° 11.3	20° 06.6	20° 01.9	19° 57.0	-4.4	54.3
◑ Сб 19	306° 41.6	321° 13.2	335° 44.7	350° 16.2	4° 47.8	19° 19.4	33° 51.0	48° 22.6	62° 54.2	77° 25.9	91° 57.5	+31.6	14.9
	18° 33.1	18° 26.8	18° 20.4	18° 13.9	18° 07.4	18° 00.7	17° 54.0	17° 47.1	17° 40.2	17° 33.2	17° 26.1	-6.7	54.7
Вс 20	309° 54.6	324° 26.5	338° 58.4	353° 30.4	8° 02.3	22° 34.3	37° 06.3	51° 38.3	66° 10.3	80° 42.3	95° 14.3	+32.0	15.1
	15° 30.0	15° 21.6	15° 13.2	15° 04.6	14° 56.0	14° 47.4	14° 38.6	14° 29.8	14° 20.9	14° 11.9	14° 02.8	-8.7	55.2
Пн 21	313° 15.6	327° 47.7	342° 19.9	356° 52.0	11° 24.1	25° 56.2	40° 28.4	55° 00.5	69° 32.6	84° 04.7	98° 36.8	+32.1	15.3
	11° 38.6	11° 28.5	11° 18.3	11° 08.0	10° 57.7	10° 47.3	10° 36.8	10° 26.3	10° 15.7	10° 05.0	9° 54.3	-10.4	56.0
Вт 22	316° 37.6	331° 09.6	345° 41.5	0° 13.5	14° 45.4	29° 17.3	43° 49.1	58° 21.0	72° 52.8	87° 24.6	101° 56.4	+31.9	15.5
	7° 07.1	6° 55.6	6° 44.0	6° 32.3	6° 20.6	6° 08.9	5° 57.1	5° 45.2	5° 33.4	5° 21.4	5° 09.5	-11.8	56.8
Ср 23	319° 50.2	334° 21.5	348° 52.8	3° 24.1	17° 55.3	32° 26.5	46° 57.7	61° 28.8	75° 59.8	90° 30.9	105° 01.9	+31.2	15.7
	2° 05.7	1° 53.1	1° 40.6	1° 28.1	1° 15.5	1° 02.9	0° 50.2	0° 37.6	0° 24.9	0° 12.2	-0° 00.5	-12.6	57.7
Чт 24	322° 40.9	337° 11.1	351° 41.2	6° 11.3	20° 41.3	35° 11.2	49° 41.1	64° 11.0	78° 40.7	93° 10.4	107° 40.1	+29.9	16.0
	-3° 12.6	-3° 25.5	-3° 38.3	-3° 51.1	-4° 04.0	-4° 16.8	-4° 29.7	-4° 42.5	-4° 55.3	-5° 08.1	-5° 20.9	-12.8	58.7
Пт 25	324° 56.6	339° 25.1	353° 53.6	8° 21.9	22° 50.2	37° 18.5	51° 46.6	66° 14.7	80° 42.6	95° 10.6	109° 38.4	+28.2	16.2
	-8° 30.4	-8° 42.8	-8° 55.1	-9° 07.5	-9° 19.8	-9° 32.0	-9° 44.2	-9° 56.4	-10° 08.5	-10° 20.6	-10° 32.6	-12.2	59.5
● Сб 26	326° 26.0	340° 52.5	355° 19.0	9° 45.3	24° 11.6	38° 37.7	53° 03.8	67° 29.8	81° 55.8	96° 21.6	110° 47.4	+26.1	16.4
	-13° 25.8	-13° 36.8	-13° 47.7	-13° 58.6	-14° 09.3	-14° 20.0	-14° 30.6	-14° 41.1	-14° 51.5	-15° 01.9	-15° 12.1	-10.6	60.1
Вс 27	327° 04.0	341° 28.5	355° 52.9	10° 17.2	24° 41.5	39° 05.7	53° 29.8	67° 53.8	82° 17.8	96° 41.7	111° 05.6	+24.2	16.5
	-17° 33.6	-17° 42.1	-17° 50.6	-17° 58.9	-18° 07.1	-18° 15.2	-18° 23.1	-18° 30.9	-18° 38.6	-18° 46.2	-18° 53.6	-8.0	60.5
Пн 28	326° 56.2	341° 19.2	355° 42.1	10° 05.0	24° 27.8	38° 50.6	53° 13.4	67° 36.1	81° 58.8	96° 21.5	110° 44.2	+22.8	16.5
	-20° 28.5	-20° 33.7	-20° 38.7	-20° 43.6	-20° 48.4	-20° 52.9	-20° 57.3	-21° 01.6	-21° 05.7	-21° 09.7	-21° 13.5	-4.5	60.6
Вт 29	326° 22.0	340° 44.5	355° 07.0	9° 29.5	23° 52.0	38° 14.5	52° 37.0	66° 59.6	81° 22.1	95° 44.7	110° 07.3	+22.5	16.5
	-21° 51.4	-21° 52.6	-21° 53.7	-21° 54.6	-21° 55.4	-21° 56.0	-21° 56.4	-21° 56.7	-21° 56.8	-21° 56.8	-21° 56.6	-0.5	60.5
Ср 30	325° 50.6	340° 13.8	354° 37.1	9° 00.5	23° 23.9	37° 47.3	52° 10.9	66° 34.4	80° 58.1	95° 21.8	109° 45.6	+23.5	16.4
	-21° 34.5	-21° 31.8	-21° 29.0	-21° 26.0	-21° 22.8	-21° 19.5	-21° 16.0	-21° 12.4	-21° 08.7	-21° 04.8	-21° 00.8	+3.4	60.0
Чт 31	325° 50.9	340° 15.9	354° 41.0	9° 06.1	23° 31.3	37° 56.7	52° 22.1	66° 47.6	81° 13.1	95° 38.8	110° 04.5	+25.4	16.2
	-19° 43.9	-19° 37.7	-19° 31.4	-19° 25.0	-19° 18.4	-19° 11.8	-19° 05.0	-18° 58.1	-18° 51.1	-18° 44.0	-18° 36.7	+6.7	59.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Первая четв.: 4 03h56 — Полнолуние: 11 10h46 — Последняя четв.: 19 14h50 — Новолуние: 26 20h17

СОЛНЦЕ

Ноябрь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ’/h
Пт 1	274° 06.3	289° 06.3	304° 06.3	319° 06.3	334° 06.4	349° 06.4	4° 06.4	19° 06.4	34° 06.4	49° 06.4	64° 06.4	79° 06.5	+0.0
	-14° 26.9	-14° 27.7	-14° 28.5	-14° 29.3	-14° 30.1	-14° 30.9	-14° 31.7	-14° 32.5	-14° 33.3	-14° 34.1	-14° 34.9	-14° 35.7	-0.8
Сб 2	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.6	4° 06.7	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.7	+0.0
	-14° 46.0	-14° 46.8	-14° 47.6	-14° 48.4	-14° 49.2	-14° 50.0	-14° 50.7	-14° 51.5	-14° 52.3	-14° 53.1	-14° 53.9	-14° 54.7	-0.8
Вс 3	274° 06.7	289° 06.7	304° 06.7	319° 06.7	334° 06.7	349° 06.7	4° 06.7	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.7	-0.0
	-15° 04.8	-15° 05.6	-15° 06.4	-15° 07.2	-15° 08.0	-15° 08.7	-15° 09.5	-15° 10.3	-15° 11.1	-15° 11.8	-15° 12.6	-15° 13.4	-0.8
Пн 4	274° 06.6	289° 06.6	304° 06.6	319° 06.6	334° 06.6	349° 06.6	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.5	79° 06.5	-0.0
	-15° 23.4	-15° 24.2	-15° 25.0	-15° 25.7	-15° 26.5	-15° 27.3	-15° 28.0	-15° 28.8	-15° 29.6	-15° 30.3	-15° 31.1	-15° 31.9	-0.8
Вт 5	274° 06.4	289° 06.3	304° 06.3	319° 06.3	334° 06.3	349° 06.3	4° 06.3	19° 06.2	34° 06.2	49° 06.2	64° 06.2	79° 06.2	-0.0
	-15° 41.8	-15° 42.5	-15° 43.3	-15° 44.0	-15° 44.8	-15° 45.6	-15° 46.3	-15° 47.1	-15° 47.8	-15° 48.6	-15° 49.3	-15° 50.1	-0.8
Ср 6	274° 05.9	289° 05.8	304° 05.8	319° 05.8	334° 05.8	349° 05.7	4° 05.7	19° 05.7	34° 05.7	49° 05.6	64° 05.6	79° 05.6	-0.0
	-15° 59.8	-16° 00.6	-16° 01.3	-16° 02.1	-16° 02.8	-16° 03.6	-16° 04.3	-16° 05.1	-16° 05.8	-16° 06.6	-16° 07.3	-16° 08.0	-0.7
Чт 7	274° 05.2	289° 05.1	304° 05.1	319° 05.1	334° 05.0	349° 05.0	4° 05.0	19° 04.9	34° 04.9	49° 04.9	64° 04.8	79° 04.8	-0.0
	-16° 17.6	-16° 18.4	-16° 19.1	-16° 19.9	-16° 20.6	-16° 21.3	-16° 22.1	-16° 22.8	-16° 23.5	-16° 24.3	-16° 25.0	-16° 25.7	-0.7
Пт 8	274° 04.3	289° 04.2	304° 04.2	319° 04.2	334° 04.1	349° 04.1	4° 04.0	19° 04.0	34° 03.9	49° 03.9	64° 03.8	79° 03.8	-0.0
	-16° 35.2	-16° 35.9	-16° 36.6	-16° 37.4	-16° 38.1	-16° 38.8	-16° 39.5	-16° 40.2	-16° 41.0	-16° 41.7	-16° 42.4	-16° 43.1	-0.7
Сб 9	274° 03.2	289° 03.1	304° 03.1	319° 03.0	334° 03.0	349° 02.9	4° 02.9	19° 02.8	34° 02.8	49° 02.7	64° 02.6	79° 02.6	-0.1
	-16° 52.4	-16° 53.2	-16° 53.9	-16° 54.6	-16° 55.3	-16° 56.0	-16° 56.7	-16° 57.4	-16° 58.1	-16° 58.8	-16° 59.5	-17° 00.3	-0.7
Вс 10	274° 01.9	289° 01.8	304° 01.7	319° 01.7	334° 01.6	349° 01.6	4° 01.5	19° 01.4	34° 01.4	49° 01.3	64° 01.2	79° 01.2	-0.1
	-17° 09.4	-17° 10.1	-17° 10.8	-17° 11.5	-17° 12.2	-17° 12.9	-17° 13.6	-17° 14.3	-17° 15.0	-17° 15.7	-17° 16.4	-17° 17.1	-0.7
Пн 11	274° 00.3	289° 00.3	304° 00.2	319° 00.1	334° 00.0	349° 00.0	3° 59.9	18° 59.8	33° 59.8	48° 59.7	63° 59.6	78° 59.6	-0.1
	-17° 26.1	-17° 26.8	-17° 27.5	-17° 28.1	-17° 28.8	-17° 29.5	-17° 30.2	-17° 30.9	-17° 31.6	-17° 32.3	-17° 32.9	-17° 33.6	-0.7
Вт 12	273° 58.6	288° 58.5	303° 58.4	318° 58.3	333° 58.3	348° 58.2	3° 58.1	18° 58.0	33° 57.9	48° 57.9	63° 57.8	78° 57.7	-0.1
	-17° 42.5	-17° 43.1	-17° 43.8	-17° 44.5	-17° 45.2	-17° 45.8	-17° 46.5	-17° 47.2	-17° 47.9	-17° 48.5	-17° 49.2	-17° 49.9	-0.7
Ср 13	273° 56.6	288° 56.5	303° 56.4	318° 56.4	333° 56.3	348° 56.2	3° 56.1	18° 56.0	33° 55.9	48° 55.8	63° 55.7	78° 55.7	-0.1
	-17° 58.5	-17° 59.2	-17° 59.9	-18° 00.5	-18° 01.2	-18° 01.8	-18° 02.5	-18° 03.2	-18° 03.8	-18° 04.5	-18° 05.1	-18° 05.8	-0.7
Чт 14	273° 54.4	288° 54.4	303° 54.3	318° 54.2	333° 54.1	348° 54.0	3° 53.9	18° 53.8	33° 53.7	48° 53.6	63° 53.5	78° 53.4	-0.1
	-18° 14.3	-18° 14.9	-18° 15.6	-18° 16.2	-18° 16.9	-18° 17.5	-18° 18.2	-18° 18.8	-18° 19.5	-18° 20.1	-18° 20.8	-18° 21.4	-0.6
Пт 15	273° 52.1	288° 52.0	303° 51.9	318° 51.7	333° 51.6	348° 51.5	3° 51.4	18° 51.3	33° 51.2	48° 51.1	63° 51.0	78° 50.9	-0.1
	-18° 29.7	-18° 30.4	-18° 31.0	-18° 31.6	-18° 32.3	-18° 32.9	-18° 33.6	-18° 34.2	-18° 34.8	-18° 35.4	-18° 36.1	-18° 36.7	-0.6
Сб 16	273° 49.5	288° 49.3	303° 49.2	318° 49.1	333° 49.0	348° 48.9	3° 48.8	18° 48.7	33° 48.5	48° 48.4	63° 48.3	78° 48.2	-0.1
	-18° 44.9	-18° 45.5	-18° 46.1	-18° 46.7	-18° 47.3	-18° 48.0	-18° 48.6	-18° 49.2	-18° 49.8	-18° 50.4	-18° 51.1	-18° 51.7	-0.6
Вс 17	273° 46.6	288° 46.5	303° 46.4	318° 46.3	333° 46.2	348° 46.0	3° 45.9	18° 45.8	33° 45.7	48° 45.5	63° 45.4	78° 45.3	-0.1
	-18° 59.6	-19° 00.3	-19° 00.9	-19° 01.5	-19° 02.1	-19° 02.7	-19° 03.3	-19° 03.9	-19° 04.5	-19° 05.1	-19° 05.7	-19° 06.3	-0.6
Пн 18	273° 43.6	288° 43.5	303° 43.4	318° 43.2	333° 43.1	348° 43.0	3° 42.8	18° 42.7	33° 42.6	48° 42.4	63° 42.3	78° 42.2	-0.1
	-19° 14.1	-19° 14.7	-19° 15.3	-19° 15.9	-19° 16.5	-19° 17.1	-19° 17.7	-19° 18.2	-19° 18.8	-19° 19.4	-19° 20.0	-19° 20.6	-0.6
Вт 19	273° 40.4	288° 40.2	303° 40.1	318° 40.0	333° 39.8	348° 39.7	3° 39.5	18° 39.4	33° 39.2	48° 39.1	63° 39.0	78° 38.8	-0.1
	-19° 28.2	-19° 28.8	-19° 29.4	-19° 29.9	-19° 30.5	-19° 31.1	-19° 31.7	-19° 32.2	-19° 32.8	-19° 33.4	-19° 34.0	-19° 34.5	-0.6
Ср 20	273° 36.9	288° 36.8	303° 36.6	318° 36.5	333° 36.3	348° 36.2	3° 36.0	18° 35.9	33° 35.7	48° 35.6	63° 35.4	78° 35.3	-0.2
	-19° 42.0	-19° 42.5	-19° 43.1	-19° 43.6	-19° 44.2	-19° 44.8	-19° 45.3	-19° 45.9	-19° 46.5	-19° 47.0	-19° 47.6	-19° 48.1	-0.6
Чт 21	273° 33.3	288° 33.1	303° 32.9	318° 32.8	333° 32.6	348° 32.5	3° 32.3	18° 32.2	33° 32.0	48° 31.8	63° 31.7	78° 31.5	-0.2
	-19° 55.3	-19° 55.9	-19° 56.4	-19° 57.0	-19° 57.5	-19° 58.1	-19° 58.6	-19° 59.2	-19° 59.7	-20° 00.3	-20° 00.8	-20° 01.4	-0.5
Пт 22	273° 29.4	288° 29.2	303° 29.1	318° 28.9	333° 28.7	348° 28.6	3° 28.4	18° 28.2	33° 28.1	48° 27.9	63° 27.7	78° 27.6	-0.2
	-20° 08.4	-20° 08.9	-20° 09.4	-20° 10.0	-20° 10.5	-20° 11.0	-20° 11.6	-20° 12.1	-20° 12.6	-20° 13.2	-20° 13.7	-20° 14.2	-0.5
Сб 23	273° 25.3	288° 25.1	303° 25.0	318° 24.8	333° 24.6	348° 24.4	3° 24.3	18° 24.1	33° 23.9	48° 23.7	63° 23.6	78° 23.4	-0.2
	-20° 21.0	-20° 21.6	-20° 22.1	-20° 22.6	-20° 23.1	-20° 23.6	-20° 24.2	-20° 24.7	-20° 25.2	-20° 25.7	-20° 26.2	-20° 26.7	-0.5
Вс 24	273° 21.1	288° 20.9	303° 20.7	318° 20.5	333° 20.3	348° 20.1	3° 20.0	18° 19.8	33° 19.6	48° 19.4	63° 19.2	78° 19.0	-0.2
	-20° 33.3	-20° 33.8	-20° 34.3	-20° 34.8	-20° 35.3	-20° 35.8	-20° 36.3	-20° 36.8	-20° 37.3	-20° 37.8	-20° 38.3	-20° 38.8	-0.5
Пн 25	273° 16.6	288° 16.4	303° 16.2	318° 16.0	333° 15.8	348° 15.6	3° 15.5	18° 15.3	33° 15.1	48° 14.9	63° 14.7	78° 14.5	-0.2
	-20° 45.2	-20° 45.7	-20° 46.2	-20° 46.7	-20° 47.2	-20° 47.7	-20° 48.2	-20° 48.6	-20° 49.1	-20° 49.6	-20° 50.1	-20° 50.6	-0.5
Вт 26	273° 11.9	288° 11.7	303° 11.6	318° 11.4	333° 11.2	348° 11.0	3° 10.8	18° 10.6	33° 10.4	48° 10.2	63° 10.0	78° 09.8	-0.2
	-20° 56.8	-20° 57.2	-20° 57.7	-20° 58.2	-20° 58.6	-20° 59.1	-20° 59.6	-21° 00.1	-21° 00.5	-21° 01.0	-21° 01.5	-21° 01.9	-0.5
Ср 27	273° 07.1	288° 06.9	303° 06.7	318° 06.5	333° 06.3	348° 06.1	3° 05.9	18° 05.7	33° 05.5	48° 05.3	63° 05.0	78° 04.8	-0.2
	-21° 07.9	-21° 08.4	-21° 08.8	-21° 09.3	-21° 09.7	-21° 10.2	-21° 10.6	-21° 11.1	-21° 11.5	-21° 12.0	-21° 12.4	-21° 12.9	-0.5
Чт 28	273° 02.1	288° 01.9	303° 01.7	318° 01.5	333° 01.3	348° 01.0	3° 00.8	18° 00.6	33° 00.4	48° 00.2	63° 00.0	77° 59.7	-0.2
	-21° 18.6	-21° 19.1	-21° 19.5	-21° 19.9	-21° 20.4	-21° 20.8	-21° 21.2	-21° 21.7	-21° 22.1	-21° 22.6	-21° 23.0	-21° 23.4	-0.4
Пт 29	272° 56.9	287° 56.7	302° 56.5	317° 56.3	332° 56.0	347° 55.8	2° 55.6	17° 55.4	32° 55.2	47° 54.9	62° 54.7	77° 54.5	-0.2
	-21° 29.0	-21° 29.4	-21° 29.8	-21° 30.2	-21° 30.6	-21° 31.1	-21° 31.5	-21° 31.9	-21° 32.3	-21° 32.7	-21° 33.1	-21° 33.6	-0.4
Сб 30	272° 51.6	287° 51.3	302° 51.1	317° 50.9	332° 50.7	347° 50.4	2° 50.2	17° 50.0	32° 49.8	47° 49.5	62° 49.3	77° 49.1	-0.2
	-21° 38.9	-21° 39.3	-21° 39.7	-21° 40.1	-21° 40.5	-21° 40.9	-21° 41.3	-21° 41.7	-21° 42.1	-21° 42.5	-21° 42.9	-21° 43.3	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ’/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ’/h = изменение δ за час
Полудиаметр R: 16.2’

ЛУНА

Ноябрь 2030

Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
Пт 1	254° 26.9 -17° 18.5	268° 53.6 -17° 10.1	283° 20.4 -17° 01.6	297° 47.3 -16° 53.1	312° 14.3 -16° 44.4	326° 41.4 -16° 35.6	341° 08.6 -16° 26.8	355° 35.8 -16° 17.8	10° 03.2 -16° 08.8	24° 30.6 -15° 59.7	38° 58.2 -15° 50.5	+27.1 +8.8	16.1 58.9
Сб 2	256° 01.5 -13° 23.2	270° 30.4 -13° 12.8	284° 59.3 -13° 02.4	299° 28.4 -12° 51.9	313° 57.5 -12° 41.3	328° 26.7 -12° 30.7	342° 56.0 -12° 20.0	357° 25.4 -12° 09.3	11° 54.8 -11° 58.5	26° 24.4 -11° 47.7	40° 54.0 -11° 36.8	+29.3 +10.6	15.9 58.2
Вс 3	258° 26.5 -8° 47.9	272° 57.2 -8° 36.3	287° 28.0 -8° 24.7	301° 58.8 -8° 13.1	316° 29.7 -8° 01.4	331° 00.6 -7° 49.7	345° 31.6 -7° 38.0	0° 02.7 -7° 26.2	14° 33.8 -7° 14.5	29° 05.0 -7° 02.7	43° 36.2 -6° 50.8	+31.0 +11.7	15.7 57.4
Пн 4	261° 30.6 -3° 51.3	276° 02.6 -3° 39.3	290° 34.6 -3° 27.2	305° 06.7 -3° 15.1	319° 38.8 -3° 03.0	334° 10.9 -2° 50.9	348° 43.1 -2° 38.9	3° 15.3 -2° 26.8	17° 47.6 -2° 14.7	32° 19.8 -2° 02.6	46° 52.1 -1° 50.5	+32.2 +12.1	15.5 56.8
Вт 5	264° 59.9 1° 10.3	279° 32.6 1° 22.3	294° 05.3 1° 34.2	308° 38.1 1° 46.2	323° 10.8 1° 58.1	337° 43.6 2° 10.0	352° 16.3 2° 21.9	6° 49.1 2° 33.7	21° 21.9 2° 45.6	35° 54.7 2° 57.4	50° 27.6 3° 09.2	+32.8 +11.9	15.3 56.2
Ср 6	268° 40.6 6° 03.1	283° 13.4 6° 14.4	297° 46.3 6° 25.8	312° 19.2 6° 37.0	326° 52.1 6° 48.3	341° 24.9 6° 59.5	355° 57.8 7° 10.7	10° 30.7 7° 21.8	25° 03.5 7° 32.9	39° 36.4 7° 43.9	54° 09.2 7° 54.9	+32.9 +11.2	15.2 55.6
Чт 7	272° 20.5 10° 34.6	286° 53.1 10° 44.8	301° 25.7 10° 55.0	315° 58.4 11° 05.2	330° 30.9 11° 15.3	345° 03.5 11° 25.3	359° 36.1 11° 35.3	14° 08.6 11° 45.2	28° 41.1 11° 55.0	43° 13.6 12° 04.9	57° 46.1 12° 14.6	+32.6 +10.0	15.0 55.2
Пт 8	275° 50.6 14° 33.2	290° 22.7 14° 41.9	304° 54.8 14° 50.6	319° 26.8 14° 59.1	333° 58.9 15° 07.6	348° 30.9 15° 16.0	3° 02.9 15° 24.4	17° 34.8 15° 32.7	32° 06.7 15° 40.9	46° 38.6 15° 49.0	61° 10.5 15° 57.0	+32.0 +8.4	14.9 54.8
Сб 9	279° 05.6 17° 48.4	293° 37.0 17° 55.1	308° 08.5 18° 01.8	322° 39.9 18° 08.4	337° 11.3 18° 14.9	351° 42.6 18° 21.3	6° 14.0 18° 27.7	20° 45.3 18° 33.9	35° 16.6 18° 40.1	49° 47.8 18° 46.2	64° 19.1 18° 52.1	+31.3 +6.4	14.8 54.5
Вс 10	282° 04.9 20° 10.9	296° 35.8 20° 15.4	311° 06.7 20° 19.8	325° 37.5 20° 24.1	340° 08.3 20° 28.3	354° 39.2 20° 32.4	9° 10.0 20° 36.4	23° 40.7 20° 40.4	38° 11.5 20° 44.2	52° 42.3 20° 47.9	67° 13.0 20° 51.5	+30.8 +4.1	14.8 54.2
Пн 11	284° 52.6 21° 33.9	299° 23.1 21° 35.9	313° 53.7 21° 37.8	328° 24.3 21° 39.6	342° 54.8 21° 41.3	357° 25.3 21° 42.9	11° 55.9 21° 44.4	26° 26.4 21° 45.8	40° 57.0 21° 47.1	55° 27.5 21° 48.3	69° 58.0 21° 49.4	+30.5 +1.6	14.7 54.0
Вт 12	287° 36.3 21° 53.5	302° 06.9 21° 53.0	316° 37.5 21° 52.3	331° 08.1 21° 51.6	345° 38.7 21° 50.7	0° 09.3 21° 49.7	14° 39.9 21° 48.7	29° 10.6 21° 47.5	43° 41.3 21° 46.3	58° 11.9 21° 44.9	72° 42.6 21° 43.4	+30.6 -1.0	14.7 54.0
Ср 13	290° 24.8 21° 09.5	304° 55.8 21° 06.4	319° 26.8 21° 03.3	333° 57.8 21° 00.0	348° 28.8 20° 56.7	2° 59.8 20° 53.2	17° 30.9 20° 49.7	32° 02.0 20° 46.1	46° 33.1 20° 42.3	61° 04.2 20° 38.5	75° 35.4 20° 34.6	+31.1 -3.5	14.7 54.0
Чт 14	293° 25.6 19° 24.7	307° 57.2 19° 19.3	322° 28.8 19° 13.9	337° 00.4 19° 08.3	351° 32.0 19° 02.7	6° 03.7 18° 56.9	20° 35.3 18° 51.1	35° 07.1 18° 45.2	49° 38.8 18° 39.2	64° 10.5 18° 33.1	78° 42.3 18° 27.0	+31.7 -5.8	14.8 54.2
Пт 15	307° 57.2 19° 19.3	322° 28.8 19° 13.9	337° 00.4 19° 08.3	351° 32.0 19° 02.7	6° 03.7 18° 56.9	20° 35.3 18° 51.1	35° 07.1 18° 45.2	49° 38.8 18° 39.2	64° 10.5 18° 33.1	78° 42.3 18° 27.0	93° 14.1 18° 20.7	+31.7 -5.9	14.8 54.2
Сб 16	311° 14.4 16° 37.2	325° 46.6 16° 29.7	340° 18.9 16° 22.1	354° 51.1 16° 14.4	9° 23.4 16° 06.6	23° 55.7 15° 58.8	38° 28.0 15° 50.9	53° 00.4 15° 42.9	67° 32.8 15° 34.8	82° 05.2 15° 26.7	96° 37.6 15° 18.5	+32.3 -7.9	14.9 54.6
Вс 17	314° 46.1 13° 07.1	329° 18.8 12° 57.8	343° 51.5 12° 48.4	358° 24.2 12° 39.0	12° 56.9 12° 29.5	27° 29.7 12° 20.0	42° 02.4 12° 10.4	56° 35.2 12° 00.7	71° 08.0 11° 51.0	85° 40.7 11° 41.2	100° 13.5 11° 31.3	+32.8 -9.6	15.0 55.1
Пн 18	318° 26.1 8° 56.8	332° 58.9 8° 46.1	347° 31.7 8° 35.3	2° 04.6 8° 24.5	16° 37.4 8° 13.6	31° 10.2 8° 02.7	45° 43.1 7° 51.7	60° 15.9 7° 40.7	74° 48.7 7° 29.6	89° 21.5 7° 18.5	103° 54.3 7° 07.3	+32.8 -10.9	15.2 55.8
Вт 19	322° 04.5 4° 15.1	336° 37.0 4° 03.3	351° 09.5 3° 51.5	5° 42.0 3° 39.6	20° 14.4 3° 27.7	34° 46.9 3° 15.8	49° 19.3 3° 03.9	63° 51.6 2° 51.9	78° 24.0 2° 39.9	92° 56.3 2° 27.9	107° 28.5 2° 15.8	+32.4 -11.9	15.4 56.6
Ср 20	325° 28.3 -0° 47.9	339° 59.9 -1° 00.2	354° 31.5 -1° 12.6	9° 03.1 -1° 25.1	23° 34.6 -1° 37.5	38° 06.0 -1° 49.9	52° 37.4 -2° 02.4	67° 08.8 -2° 14.8	81° 40.0 -2° 27.3	96° 11.3 -2° 39.7	110° 42.4 -2° 52.2	+31.4 -12.4	15.7 57.6
Чт 21	328° 22.7 -5° 59.1	342° 52.8 -6° 11.5	357° 22.9 -6° 23.9	11° 52.9 -6° 36.2	26° 22.8 -6° 48.6	40° 52.6 -7° 00.9	55° 22.4 -7° 13.2	69° 52.1 -7° 25.5	84° 21.7 -7° 37.8	98° 51.2 -7° 50.0	113° 20.7 -8° 02.2	+29.8 -12.3	16.0 58.6
Пт 22	330° 32.4 -11° 01.6	345° 00.4 -11° 13.2	359° 28.4 -11° 24.8	13° 56.3 -11° 36.3	28° 24.1 -11° 47.7	42° 51.8 -11° 59.1	57° 19.4 -12° 10.5	71° 46.9 -12° 21.8	86° 14.3 -12° 33.0	100° 41.6 -12° 44.2	115° 08.8 -12° 55.3	+27.6 -11.4	16.2 59.6
Сб 23	331° 45.2 -15° 33.3	346° 10.8 -15° 43.1	0° 36.3 -15° 52.9	15° 01.8 -16° 02.6	29° 27.1 -16° 12.2	43° 52.3 -16° 21.7	58° 17.5 -16° 31.0	72° 42.5 -16° 40.3	87° 07.4 -16° 49.5	101° 32.3 -16° 58.6	115° 57.0 -17° 07.6	+25.2 -9.4	16.5 60.4
Вс 24	331° 57.0 -19° 08.2	346° 20.3 -19° 15.2	0° 43.5 -19° 22.1	15° 06.7 -19° 28.9	29° 29.7 -19° 35.5	43° 52.7 -19° 42.0	58° 15.6 -19° 48.4	72° 38.4 -19° 54.6	87° 01.2 -20° 00.6	101° 23.8 -20° 06.6	115° 46.4 -20° 12.3	+22.9 -6.4	16.6 61.0
Пн 25	331° 18.2 -21° 20.6	345° 40.0 -21° 23.9	0° 01.6 -21° 27.0	14° 23.3 -21° 30.0	28° 44.9 -21° 32.8	43° 06.5 -21° 35.4	57° 28.1 -21° 37.9	71° 49.6 -21° 40.1	86° 11.1 -21° 42.3	100° 32.6 -21° 44.2	114° 54.1 -21° 46.0	+21.6 -2.5	16.7 61.3
Вт 26	330° 15.5 -21° 52.6	344° 37.0 -21° 51.6	358° 58.6 -21° 50.5	13° 20.1 -21° 49.3	27° 41.7 -21° 47.9	42° 03.3 -21° 46.3	56° 24.9 -21° 44.5	70° 46.6 -21° 42.6	85° 08.3 -21° 40.5	99° 30.1 -21° 38.2	113° 51.9 -21° 35.8	+21.6 +1.7	16.7 61.2
Ср 27	329° 25.1 -20° 40.5	343° 47.8 -20° 35.6	358° 10.6 -20° 30.5	12° 33.5 -20° 25.3	26° 56.4 -20° 19.9	41° 19.5 -20° 14.4	55° 42.6 -20° 08.8	70° 05.8 -20° 03.0	84° 29.0 -19° 57.1	98° 52.4 -19° 51.0	113° 15.8 -19° 44.8	+23.1 +5.6	16.6 60.7
Чт 28	329° 18.3 -17° 56.5	343° 43.3 -17° 48.4	358° 08.3 -17° 40.1	12° 33.4 -17° 31.7	26° 58.6 -17° 23.2	41° 24.0 -17° 14.6	55° 49.4 -17° 05.9	70° 14.9 -16° 57.1	84° 40.5 -16° 48.2	99° 06.3 -16° 39.2	113° 32.1 -16° 30.1	+25.4 +8.7	16.4 60.0
Пт 29	330° 11.5 -14° 03.0	344° 38.9 -13° 52.6	359° 06.4 -13° 42.1	13° 34.0 -13° 31.5	28° 01.8 -13° 20.8	42° 29.6 -13° 10.1	56° 57.5 -12° 59.4	71° 25.5 -12° 48.5	85° 53.5 -12° 37.7	100° 21.7 -12° 26.7	114° 50.0 -12° 15.7	+27.9 +10.7	16.1 59.2
Сб 30	332° 04.8 -9° 24.7	346° 34.5 -9° 13.0	1° 04.2 -9° 01.2	15° 34.0 -8° 49.4	30° 03.9 -8° 37.6	44° 33.9 -8° 25.7	59° 03.9 -8° 13.8	73° 34.1 -8° 01.9	88° 04.2 -7° 50.0	102° 34.5 -7° 38.0	117° 04.9 -7° 26.0	+30.0 +11.9	15.9 58.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 2 11h56 — Полнолуние: 10 03h30 — Последняя четв.: 18 08h32 — Новолуние: 25 06h46

СОЛНЦЕ

Декабрь 2030

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	272° 46.1	287° 45.8	302° 45.6	317° 45.4	332° 45.1	347° 44.9	2° 44.7	17° 44.4	32° 44.2	47° 44.0	62° 43.7	77° 43.5	-0.2
	-21° 48.4	-21° 48.8	-21° 49.2	-21° 49.6	-21° 49.9	-21° 50.3	-21° 50.7	-21° 51.1	-21° 51.5	-21° 51.8	-21° 52.2	-21° 52.6	-0.4
Пн 2	272° 40.4	287° 40.2	302° 39.9	317° 39.7	332° 39.4	347° 39.2	2° 39.0	17° 38.7	32° 38.5	47° 38.2	62° 38.0	77° 37.7	-0.2
	-21° 57.5	-21° 57.9	-21° 58.2	-21° 58.6	-21° 59.0	-21° 59.3	-21° 59.7	-22° 00.1	-22° 00.4	-22° 00.8	-22° 01.1	-22° 01.5	-0.4
Вт 3	272° 34.6	287° 34.3	302° 34.1	317° 33.8	332° 33.6	347° 33.3	2° 33.1	17° 32.9	32° 32.6	47° 32.4	62° 32.1	77° 31.9	-0.2
	-22° 06.2	-22° 06.5	-22° 06.9	-22° 07.2	-22° 07.6	-22° 07.9	-22° 08.3	-22° 08.6	-22° 08.9	-22° 09.3	-22° 09.6	-22° 10.0	-0.3
Ср 4	272° 28.6	287° 28.4	302° 28.1	317° 27.9	332° 27.6	347° 27.4	2° 27.1	17° 26.9	32° 26.6	47° 26.3	62° 26.1	77° 25.8	-0.3
	-22° 14.4	-22° 14.7	-22° 15.1	-22° 15.4	-22° 15.7	-22° 16.1	-22° 16.4	-22° 16.7	-22° 17.0	-22° 17.4	-22° 17.7	-22° 18.0	-0.3
Чт 5	272° 22.5	287° 22.3	302° 22.0	317° 21.7	332° 21.5	347° 21.2	2° 21.0	17° 20.7	32° 20.5	47° 20.2	62° 19.9	77° 19.7	-0.3
	-22° 22.2	-22° 22.5	-22° 22.8	-22° 23.2	-22° 23.5	-22° 23.8	-22° 24.1	-22° 24.4	-22° 24.7	-22° 25.0	-22° 25.3	-22° 25.6	-0.3
Пт 6	272° 16.3	287° 16.0	302° 15.8	317° 15.5	332° 15.2	347° 15.0	2° 14.7	17° 14.4	32° 14.2	47° 13.9	62° 13.6	77° 13.4	-0.3
	-22° 29.6	-22° 29.9	-22° 30.2	-22° 30.5	-22° 30.8	-22° 31.1	-22° 31.4	-22° 31.7	-22° 31.9	-22° 32.2	-22° 32.5	-22° 32.8	-0.3
Сб 7	272° 09.9	287° 09.6	302° 09.4	317° 09.1	332° 08.8	347° 08.6	2° 08.3	17° 08.0	32° 07.8	47° 07.5	62° 07.2	77° 07.0	-0.3
	-22° 36.5	-22° 36.8	-22° 37.1	-22° 37.4	-22° 37.6	-22° 37.9	-22° 38.2	-22° 38.5	-22° 38.7	-22° 39.0	-22° 39.3	-22° 39.6	-0.3
Вс 8	272° 03.4	287° 03.2	302° 02.9	317° 02.6	332° 02.3	347° 02.1	2° 01.8	17° 01.5	32° 01.2	47° 01.0	62° 00.7	77° 00.4	-0.3
	-22° 43.0	-22° 43.3	-22° 43.5	-22° 43.8	-22° 44.1	-22° 44.3	-22° 44.6	-22° 44.8	-22° 45.1	-22° 45.3	-22° 45.6	-22° 45.8	-0.3
Пн 9	271° 56.8	286° 56.5	301° 56.3	316° 56.0	331° 55.7	346° 55.4	1° 55.2	16° 54.9	31° 54.6	46° 54.3	61° 54.0	76° 53.8	-0.3
	-22° 49.1	-22° 49.3	-22° 49.6	-22° 49.8	-22° 50.0	-22° 50.3	-22° 50.5	-22° 50.8	-22° 51.0	-22° 51.2	-22° 51.5	-22° 51.7	-0.2
Вт 10	271° 50.1	286° 49.8	301° 49.5	316° 49.3	331° 49.0	346° 48.7	1° 48.4	16° 48.1	31° 47.8	46° 47.6	61° 47.3	76° 47.0	-0.3
	-22° 54.7	-22° 54.9	-22° 55.1	-22° 55.3	-22° 55.6	-22° 55.8	-22° 56.0	-22° 56.2	-22° 56.4	-22° 56.7	-22° 56.9	-22° 57.1	-0.2
Ср 11	271° 43.3	286° 43.0	301° 42.7	316° 42.4	331° 42.1	346° 41.9	1° 41.6	16° 41.3	31° 41.0	46° 40.7	61° 40.4	76° 40.1	-0.3
	-22° 59.8	-23° 00.0	-23° 00.2	-23° 00.4	-23° 00.6	-23° 00.8	-23° 01.0	-23° 01.2	-23° 01.4	-23° 01.6	-23° 01.8	-23° 02.0	-0.2
Чт 12	271° 36.4	286° 36.1	301° 35.8	316° 35.5	331° 35.2	346° 34.9	1° 34.6	16° 34.3	31° 34.0	46° 33.8	61° 33.5	76° 33.2	-0.3
	-23° 04.5	-23° 04.7	-23° 04.9	-23° 05.1	-23° 05.3	-23° 05.4	-23° 05.6	-23° 05.8	-23° 06.0	-23° 06.2	-23° 06.3	-23° 06.5	-0.2
Пт 13	271° 29.4	286° 29.1	301° 28.8	316° 28.5	331° 28.2	346° 27.9	1° 27.6	16° 27.3	31° 27.0	46° 26.7	61° 26.4	76° 26.1	-0.3
	-23° 08.8	-23° 08.9	-23° 09.1	-23° 09.3	-23° 09.4	-23° 09.6	-23° 09.8	-23° 09.9	-23° 10.1	-23° 10.2	-23° 10.4	-23° 10.6	-0.2
Сб 14	271° 22.3	286° 22.0	301° 21.7	316° 21.4	331° 21.1	346° 20.8	1° 20.5	16° 20.2	31° 19.9	46° 19.6	61° 19.3	76° 19.0	-0.3
	-23° 12.5	-23° 12.7	-23° 12.8	-23° 13.0	-23° 13.1	-23° 13.3	-23° 13.4	-23° 13.6	-23° 13.7	-23° 13.8	-23° 14.0	-23° 14.1	-0.1
Вс 15	271° 15.1	286° 14.8	301° 14.5	316° 14.2	331° 13.9	346° 13.6	1° 13.3	16° 13.0	31° 12.7	46° 12.4	61° 12.1	76° 11.8	-0.3
	-23° 15.9	-23° 16.0	-23° 16.1	-23° 16.2	-23° 16.4	-23° 16.5	-23° 16.6	-23° 16.7	-23° 16.9	-23° 17.0	-23° 17.1	-23° 17.2	-0.1
Пн 16	271° 07.9	286° 07.6	301° 07.3	316° 07.0	331° 06.7	346° 06.4	1° 06.1	16° 05.8	31° 05.5	46° 05.2	61° 04.9	76° 04.5	-0.3
	-23° 18.7	-23° 18.8	-23° 18.9	-23° 19.0	-23° 19.1	-23° 19.3	-23° 19.4	-23° 19.5	-23° 19.6	-23° 19.7	-23° 19.8	-23° 19.9	-0.1
Вт 17	271° 00.6	286° 00.3	301° 00.0	315° 59.7	330° 59.4	345° 59.1	0° 58.8	15° 58.5	30° 58.1	45° 57.8	60° 57.5	75° 57.2	-0.3
	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.5	-23° 21.5	-23° 21.6	-23° 21.7	-23° 21.8	-23° 21.9	-23° 22.0	-23° 22.0	-0.1
Ср 18	270° 53.2	285° 52.9	300° 52.6	315° 52.3	330° 52.0	345° 51.7	0° 51.4	15° 51.1	30° 50.8	45° 50.5	60° 50.2	75° 49.9	-0.3
	-23° 23.0	-23° 23.1	-23° 23.2	-23° 23.2	-23° 23.3	-23° 23.4	-23° 23.4	-23° 23.5	-23° 23.6	-23° 23.6	-23° 23.7	-23° 23.7	-0.1
Чт 19	270° 45.8	285° 45.5	300° 45.2	315° 44.9	330° 44.6	345° 44.3	0° 44.0	15° 43.7	30° 43.4	45° 43.1	60° 42.8	75° 42.4	-0.3
	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-23° 24.7	-23° 24.7	-23° 24.8	-23° 24.8	-23° 24.9	-23° 24.9	-23° 24.9	-23° 25.0	-0.0
Пт 20	270° 38.4	285° 38.1	300° 37.8	315° 37.5	330° 37.2	345° 36.9	0° 36.6	15° 36.2	30° 35.9	45° 35.6	60° 35.3	75° 35.0	-0.3
	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.8	-0.0
Сб 21	270° 31.0	285° 30.6	300° 30.3	315° 30.0	330° 29.7	345° 29.4	0° 29.1	15° 28.8	30° 28.5	45° 28.2	60° 27.8	75° 27.5	-0.3
	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-0.0
Вс 22	270° 23.5	285° 23.2	300° 22.9	315° 22.5	330° 22.2	345° 21.9	0° 21.6	15° 21.3	30° 21.0	45° 20.7	60° 20.4	75° 20.1	-0.3
	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	+0.0
Пн 23	270° 16.0	285° 15.7	300° 15.4	315° 15.1	330° 14.8	345° 14.4	0° 14.1	15° 13.8	30° 13.5	45° 13.2	60° 12.9	75° 12.6	-0.3
	-23° 25.6	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.3	-23° 25.3	-23° 25.3	-23° 25.2	+0.0
Вт 24	270° 08.5	285° 08.2	300° 07.9	315° 07.6	330° 07.3	345° 07.0	0° 06.6	15° 06.3	30° 06.0	45° 05.7	60° 05.4	75° 05.1	-0.3
	-23° 24.7	-23° 24.6	-23° 24.6	-23° 24.5	-23° 24.5	-23° 24.4	-23° 24.4	-23° 24.3	-23° 24.3	-23° 24.2	-23° 24.2	-23° 24.1	+0.1
Ср 25	270° 01.0	285° 00.7	300° 00.4	315° 00.1	329° 59.8	344° 59.5	359° 59.2	14° 58.9	29° 58.6	44° 58.2	59° 57.9	74° 57.6	-0.3
	-23° 23.3	-23° 23.2	-23° 23.2	-23° 23.1	-23° 23.0	-23° 23.0	-23° 22.9	-23° 22.8	-23° 22.7	-23° 22.7	-23° 22.6	-23° 22.5	+0.1
Чт 26	269° 53.6	284° 53.3	299° 53.0	314° 52.7	329° 52.3	344° 52.0	359° 51.7	14° 51.4	29° 51.1	44° 50.8	59° 50.5	74° 50.2	-0.3
	-23° 21.5	-23° 21.4	-23° 21.3	-23° 21.2	-23° 21.1	-23° 21.0	-23° 20.9	-23° 20.8	-23° 20.7	-23° 20.6	-23° 20.6	-23° 20.5	+0.1
Пт 27	269° 46.2	284° 45.9	299° 45.6	314° 45.2	329° 44.9	344° 44.6	359° 44.3	14° 44.0	29° 43.7	44° 43.4	59° 43.1	74° 42.8	-0.3
	-23° 19.1	-23° 19.0	-23° 18.9	-23° 18.8	-23° 18.7	-23° 18.6	-23° 18.5	-23° 18.4	-23° 18.3	-23° 18.2	-23° 18.0	-23° 17.9	+0.1
Сб 28	269° 38.8	284° 38.5	299° 38.2	314° 37.9	329° 37.6	344° 37.3	359° 36.9	14° 36.6	29° 36.3	44° 36.0	59° 35.7	74° 35.4	-0.3
	-23° 16.4	-23° 16.2	-23° 16.1	-23° 16.0	-23° 15.9	-23° 15.7	-23° 15.6	-23° 15.5	-23° 15.3	-23° 15.2	-23° 15.1	-23° 14.9	+0.1
Вс 29	269° 31.5	284° 31.2	299° 30.8	314° 30.5	329° 30.2	344° 29.9	359° 29.6	14° 29.3	29° 29.0	44° 28.7	59° 28.4	74° 28.1	-0.3
	-23° 13.1	-23° 13.0	-23° 12.8	-23° 12.7	-23° 12.5	-23° 12.4	-23° 12.2	-23° 12.1	-23° 11.9	-23° 11.8	-23° 11.6	-23° 11.5	+0.1
Пн 30	269° 24.2	284° 23.9	299° 23.6	314° 23.3	329° 23.0	344° 22.7	359° 22.4	14° 22.1	29° 21.8	44° 21.5	59° 21.2	74° 20.9	-0.3
	-23° 09.4	-23° 09.2	-23° 09.1	-23° 08.9	-23° 08.7	-23° 08.6	-23° 08.4	-23° 08.2	-23° 08.1	-23° 07.9	-23° 07.7	-23° 07.6	+0.2
Вт 31	269° 17.0	284° 16.7	299° 16.4	314° 16.1	329° 15.8	344° 15.5	359° 15.2	14° 14.9	29° 14.6	44° 14.3	59° 14.0	74° 13.7	-0.3
	-23° 05.2	-23° 05.1	-23° 04.9	-23° 04.7	-23° 04.5	-23° 04.3	-23° 04.1	-23° 03.9	-23° 03.7	-23° 03.6	-23° 03.4	-23° 03.2	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Декабрь 2030

	Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
◐	Вс 1	247° 41.0	262° 12.0	276° 43.1	291° 14.2	305° 45.4	320° 16.6	334° 47.9	349° 19.3	3° 50.7	18° 22.2	32° 53.7	+31.3	15.7
		-5° 37.2	-5° 25.0	-5° 12.8	-5° 00.7	-4° 48.5	-4° 36.2	-4° 24.0	-4° 11.8	-3° 59.6	-3° 47.3	-3° 35.1	+12.2	57.6
	Пн 2	250° 52.1	265° 24.3	279° 56.6	294° 28.9	309° 01.2	323° 33.6	338° 06.0	352° 38.4	7° 10.9	21° 43.3	36° 15.9	+32.4	15.5
		-0° 31.8	-0° 19.7	-0° 07.5	0° 04.6	0° 16.7	0° 28.8	0° 40.9	0° 53.0	1° 05.0	1° 17.1	1° 29.1	+12.1	56.7
	Вт 3	254° 26.2	268° 59.0	283° 31.9	298° 04.7	312° 37.6	327° 10.5	341° 43.3	356° 16.2	10° 49.1	25° 22.0	39° 54.9	+32.9	15.3
		4° 26.6	4° 38.2	4° 49.8	5° 01.3	5° 12.8	5° 24.3	5° 35.8	5° 47.2	5° 58.6	6° 09.9	6° 21.2	+11.5	56.0
	Ср 4	258° 08.7	272° 41.6	287° 14.5	301° 47.4	316° 20.2	330° 53.1	345° 25.9	359° 58.8	14° 31.6	29° 04.4	43° 37.2	+32.9	15.1
		9° 05.8	9° 16.4	9° 27.0	9° 37.5	9° 47.9	9° 58.4	10° 08.7	10° 19.0	10° 29.3	10° 39.5	10° 49.7	+10.4	55.3
	Чт 5	261° 47.5	276° 20.0	290° 52.5	305° 25.0	319° 57.5	334° 30.0	349° 02.4	3° 34.8	18° 07.2	32° 39.6	47° 11.9	+32.4	15.0
		13° 15.1	13° 24.3	13° 33.5	13° 42.5	13° 51.6	14° 00.5	14° 09.4	14° 18.2	14° 27.0	14° 35.6	14° 44.3	+8.9	54.8
	Пт 6	265° 14.0	279° 45.9	294° 17.8	308° 49.7	323° 21.6	337° 53.4	352° 25.2	6° 56.9	21° 28.7	36° 00.4	50° 32.1	+31.8	14.8
		16° 44.8	16° 52.2	16° 59.6	17° 06.9	17° 14.1	17° 21.2	17° 28.2	17° 35.2	17° 42.0	17° 48.8	17° 55.5	+7.1	54.4
	Сб 7	268° 24.2	282° 55.4	297° 26.7	311° 57.9	326° 29.1	341° 00.2	355° 31.4	10° 02.5	24° 33.6	39° 04.6	53° 35.7	+31.2	14.8
		19° 25.9	19° 31.2	19° 36.5	19° 41.6	19° 46.6	19° 51.6	19° 56.5	20° 01.2	20° 05.9	20° 10.5	20° 15.0	+4.9	54.2
	Вс 8	271° 19.0	285° 49.7	300° 20.4	314° 51.1	329° 21.8	343° 52.5	358° 23.2	12° 53.9	27° 24.5	41° 55.1	56° 25.8	+30.7	14.7
		21° 10.8	21° 13.7	21° 16.6	21° 19.3	21° 21.9	21° 24.5	21° 26.9	21° 29.3	21° 31.5	21° 33.6	21° 35.7	+2.5	54.0
○	Пн 9	274° 04.3	288° 34.8	303° 05.3	317° 35.9	332° 06.4	346° 36.9	1° 07.5	15° 38.0	30° 08.6	44° 39.1	59° 09.7	+30.5	14.7
		21° 54.0	21° 54.4	21° 54.7	21° 54.9	21° 55.0	21° 55.0	21° 54.9	21° 54.7	21° 54.4	21° 54.0	21° 53.5	-0.1	53.9
	Вт 10	276° 49.0	291° 19.8	305° 50.5	320° 21.3	334° 52.0	349° 22.8	3° 53.6	18° 24.4	32° 55.3	47° 26.1	61° 57.0	+30.8	14.7
		21° 33.5	21° 31.4	21° 29.1	21° 26.8	21° 24.3	21° 21.8	21° 19.2	21° 16.4	21° 13.6	21° 10.7	21° 07.6	-2.6	53.9
	Ср 11	279° 42.8	294° 14.0	308° 45.3	323° 16.6	337° 47.9	352° 19.3	6° 50.6	21° 22.0	35° 53.5	50° 24.9	64° 56.4	+31.4	14.7
		20° 10.6	20° 06.1	20° 01.4	19° 56.7	19° 51.9	19° 47.0	19° 42.0	19° 36.9	19° 31.7	19° 26.4	19° 21.0	-5.0	54.0
	Чт 12	282° 52.3	297° 24.3	311° 56.3	326° 28.3	341° 00.3	355° 32.4	10° 04.5	24° 36.7	39° 08.9	53° 41.1	68° 13.3	+32.1	14.8
		17° 50.3	17° 43.6	17° 36.8	17° 29.9	17° 22.9	17° 15.9	17° 08.8	17° 01.6	16° 54.3	16° 47.0	16° 39.6	-7.1	54.2
	Пт 13	286° 20.1	300° 52.8	315° 25.5	329° 58.2	344° 31.0	359° 03.8	13° 36.6	28° 09.4	42° 42.2	57° 15.1	71° 48.0	+32.8	14.9
		14° 39.6	14° 31.0	14° 22.4	14° 13.7	14° 05.0	13° 56.1	13° 47.3	13° 38.3	13° 29.3	13° 20.2	13° 11.1	-8.8	54.5
	Сб 14	290° 03.6	304° 36.8	319° 10.0	333° 43.2	348° 16.4	2° 49.7	17° 22.9	31° 56.1	46° 29.4	61° 02.7	75° 35.9	+33.2	15.0
		10° 47.1	10° 37.1	10° 27.0	10° 16.9	10° 06.7	9° 56.5	9° 46.2	9° 35.8	9° 25.4	9° 15.0	9° 04.5	-10.3	55.0
	Вс 15	304° 36.8	319° 10.0	333° 43.2	348° 16.4	2° 49.7	17° 22.9	31° 56.1	46° 29.4	61° 02.7	75° 35.9	90° 09.2	+33.2	15.0
		10° 37.1	10° 27.0	10° 16.9	10° 06.7	9° 56.5	9° 46.2	9° 35.8	9° 25.4	9° 15.0	9° 04.5	8° 54.0	-10.3	55.0
	Пн 16	308° 28.9	323° 02.2	337° 35.5	352° 08.8	6° 42.1	21° 15.4	35° 48.6	50° 21.9	64° 55.2	79° 28.4	94° 01.6	+33.3	15.2
		6° 11.0	5° 59.9	5° 48.6	5° 37.4	5° 26.1	5° 14.8	5° 03.5	4° 52.1	4° 40.7	4° 29.2	4° 17.8	-11.3	55.6
	Вт 17	312° 18.0	326° 50.9	341° 23.8	355° 56.7	10° 29.5	25° 02.3	39° 35.0	54° 07.8	68° 40.5	83° 13.1	97° 45.8	+32.8	15.4
		1° 22.6	1° 10.7	0° 58.8	0° 46.9	0° 35.0	0° 23.1	0° 11.2	-0° 00.8	-0° 12.7	-0° 24.7	-0° 36.7	-11.9	56.3
◑	Ср 18	315° 50.3	330° 22.2	344° 54.1	359° 25.9	13° 57.7	28° 29.4	43° 01.0	57° 32.6	72° 04.1	86° 35.6	101° 07.0	+31.7	15.6
		-3° 37.4	-3° 49.5	-4° 01.5	-4° 13.6	-4° 25.7	-4° 37.7	-4° 49.7	-5° 01.8	-5° 13.8	-5° 25.8	-5° 37.8	-12.0	57.2
	Чт 19	318° 50.2	333° 20.5	347° 50.7	2° 20.9	16° 50.9	31° 20.9	45° 50.8	60° 20.6	74° 50.4	89° 20.0	103° 49.6	+29.9	15.9
		-8° 35.9	-8° 47.5	-8° 59.2	-9° 10.8	-9° 22.4	-9° 34.0	-9° 45.5	-9° 57.0	-10° 08.5	-10° 19.9	-10° 31.2	-11.5	58.1
	Пт 20	321° 02.3	335° 30.4	349° 58.4	4° 26.3	18° 54.1	33° 21.8	47° 49.4	62° 16.9	76° 44.3	91° 11.6	105° 38.8	+27.7	16.1
		-13° 16.2	-13° 26.8	-13° 37.3	-13° 47.7	-13° 58.1	-14° 08.3	-14° 18.6	-14° 28.7	-14° 38.8	-14° 48.8	-14° 58.7	-10.3	59.1
	Сб 21	322° 14.5	336° 40.0	351° 05.5	5° 30.8	19° 56.1	34° 21.2	48° 46.3	63° 11.2	77° 36.0	92° 00.8	106° 25.4	+25.1	16.4
		-17° 17.5	-17° 26.1	-17° 34.5	-17° 42.7	-17° 50.9	-17° 59.0	-18° 07.0	-18° 14.9	-18° 22.6	-18° 30.2	-18° 37.8	-8.0	60.0
	Вс 22	322° 23.6	336° 46.7	351° 09.8	5° 32.8	19° 55.7	34° 18.5	48° 41.3	63° 04.0	77° 26.6	91° 49.1	106° 11.6	+22.8	16.6
		-20° 15.5	-20° 21.0	-20° 26.3	-20° 31.5	-20° 36.5	-20° 41.4	-20° 46.1	-20° 50.7	-20° 55.1	-20° 59.4	-21° 03.5	-4.8	60.8
	Пн 23	321° 41.4	336° 03.0	350° 24.6	4° 46.1	19° 07.7	33° 29.1	47° 50.6	62° 12.0	76° 33.4	90° 54.8	105° 16.2	+21.5	16.7
		-21° 46.6	-21° 48.2	-21° 49.6	-21° 50.8	-21° 51.9	-21° 52.8	-21° 53.5	-21° 54.1	-21° 54.5	-21° 54.7	-21° 54.7	-0.8	61.2
●	Вт 24	320° 36.4	334° 57.9	349° 19.3	3° 40.8	18° 02.4	32° 23.9	46° 45.5	61° 07.1	75° 28.8	89° 50.5	104° 12.3	+21.6	16.7
		-21° 35.2	-21° 32.5	-21° 29.7	-21° 26.7	-21° 23.5	-21° 20.2	-21° 16.7	-21° 13.1	-21° 09.3	-21° 05.3	-21° 01.1	+3.4	61.4
	Ср 25	319° 45.1	334° 07.8	348° 30.6	2° 53.5	17° 16.4	31° 39.4	46° 02.5	60° 25.7	74° 49.0	89° 12.3	103° 35.8	+23.1	16.7
		-19° 40.5	-19° 33.9	-19° 27.2	-19° 20.3	-19° 13.4	-19° 06.2	-18° 59.0	-18° 51.6	-18° 44.1	-18° 36.4	-18° 28.6	+7.2	61.1
	Чт 26	319° 38.0	334° 02.9	348° 27.9	2° 53.0	17° 18.2	31° 43.5	46° 08.9	60° 34.4	75° 00.0	89° 25.7	103° 51.5	+25.3	16.5
		-16° 17.5	-16° 07.9	-15° 58.2	-15° 48.4	-15° 38.4	-15° 28.4	-15° 18.3	-15° 08.1	-14° 57.9	-14° 47.5	-14° 37.0	+10.1	60.5
	Пт 27	320° 29.9	334° 57.2	349° 24.6	3° 52.2	18° 19.8	32° 47.5	47° 15.3	61° 43.1	76° 11.1	90° 39.2	105° 07.3	+27.7	16.3
		-11° 51.2	-11° 39.6	-11° 28.0	-11° 16.3	-11° 04.5	-10° 52.8	-10° 40.9	-10° 29.0	-10° 17.1	-10° 05.1	-9° 53.1	+11.8	59.7
	Сб 28	322° 19.7	336° 49.2	351° 18.7	5° 48.4	20° 18.1	34° 47.8	49° 17.6	63° 47.6	78° 17.5	92° 47.6	107° 17.7	+29.8	16.0
		-6° 48.6	-6° 36.1	-6° 23.6	-6° 11.0	-5° 58.5	-5° 45.9	-5° 33.3	-5° 20.7	-5° 08.1	-4° 55.5	-4° 42.9	+12.6	58.7
	Вс 29	324° 56.8	339° 27.9	353° 59.0	8° 30.2	23° 01.4	37° 32.6	52° 03.9	66° 35.3	81° 06.7	95° 38.1	110° 09.6	+31.3	15.7
		-1° 33.5	-1° 20.9	-1° 08.3	-0° 55.8	-0° 43.2	-0° 30.7	-0° 18.2	-0° 05.7	0° 06.8	0° 19.3	0° 31.7	+12.5	57.7
	Пн 30	328° 06.4	342° 38.4	357° 10.5	11° 42.6	26° 14.7	40° 46.8	55° 19.0	69° 51.2	84° 23.4	98° 55.6	113° 27.9	+32.2	15.5
		3° 35.4	3° 47.4	3° 59.4	4° 11.3	4° 23.2	4° 35.1	4° 46.9	4° 58.7	5° 10.5	5° 22.2	5° 33.9	+11.9	56.7
◐	Вт 31	331° 33.4	346° 05.8	0° 38.3	15° 10.7	29° 43.2	44° 15.7	58° 48.1	73° 20.6	87° 53.1	102° 25.5	116° 58.0	+32.5	15.2
		8° 23.8	8° 34.8	8° 45.7	8° 56.5	9° 07.3	9° 18.1	9° 28.7	9° 39.4	9° 50.0	10° 00.5	10° 10.9	+10.7	55.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 1 22h56 — Полнолуние: 9 22h40 — Последняя четв.: 18 00h01 — Новолуние: 24 17h32 — Первая четв.: 31 13h36

СОЛНЦЕ

Январь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	269° 09.8	284° 09.6	299° 09.3	314° 09.0	329° 08.7	344° 08.4	359° 08.1	14° 07.8	29° 07.5	44° 07.2	59° 06.9	74° 06.6	-0.3
	-23° 00.6	-23° 00.4	-23° 00.2	-23° 00.0	-22° 59.8	-22° 59.6	-22° 59.4	-22° 59.2	-22° 59.0	-22° 58.7	-22° 58.5	-22° 58.3	+0.2
Чт 2	269° 02.8	284° 02.5	299° 02.2	314° 01.9	329° 01.6	344° 01.3	359° 01.1	14° 00.8	29° 00.5	44° 00.2	58° 59.9	73° 59.6	-0.3
	-22° 55.5	-22° 55.3	-22° 55.1	-22° 54.8	-22° 54.6	-22° 54.4	-22° 54.2	-22° 53.9	-22° 53.7	-22° 53.5	-22° 53.3	-22° 53.0	+0.2
Пт 3	268° 55.8	283° 55.6	298° 55.3	313° 55.0	328° 54.7	343° 54.4	358° 54.1	13° 53.8	28° 53.5	43° 53.3	58° 53.0	73° 52.7	-0.3
	-22° 50.0	-22° 49.7	-22° 49.5	-22° 49.2	-22° 49.0	-22° 48.7	-22° 48.5	-22° 48.3	-22° 48.0	-22° 47.8	-22° 47.5	-22° 47.3	+0.2
Сб 4	268° 49.0	283° 48.7	298° 48.4	313° 48.1	328° 47.8	343° 47.6	358° 47.3	13° 47.0	28° 46.7	43° 46.4	58° 46.2	73° 45.9	-0.3
	-22° 44.0	-22° 43.7	-22° 43.4	-22° 43.2	-22° 42.9	-22° 42.7	-22° 42.4	-22° 42.1	-22° 41.9	-22° 41.6	-22° 41.3	-22° 41.1	+0.3
Вс 5	268° 42.2	283° 41.9	298° 41.7	313° 41.4	328° 41.1	343° 40.8	358° 40.6	13° 40.3	28° 40.0	43° 39.7	58° 39.4	73° 39.2	-0.3
	-22° 37.5	-22° 37.2	-22° 36.9	-22° 36.7	-22° 36.4	-22° 36.1	-22° 35.8	-22° 35.5	-22° 35.3	-22° 35.0	-22° 34.7	-22° 34.4	+0.3
Пн 6	268° 35.6	283° 35.3	298° 35.0	313° 34.8	328° 34.5	343° 34.2	358° 33.9	13° 33.7	28° 33.4	43° 33.1	58° 32.8	73° 32.6	-0.3
	-22° 30.6	-22° 30.3	-22° 30.0	-22° 29.7	-22° 29.4	-22° 29.1	-22° 28.8	-22° 28.5	-22° 28.2	-22° 27.9	-22° 27.6	-22° 27.3	+0.3
Вт 7	268° 29.0	283° 28.8	298° 28.5	313° 28.2	328° 28.0	343° 27.7	358° 27.4	13° 27.2	28° 26.9	43° 26.6	58° 26.4	73° 26.1	-0.3
	-22° 23.3	-22° 22.9	-22° 22.6	-22° 22.3	-22° 22.0	-22° 21.7	-22° 21.4	-22° 21.0	-22° 20.7	-22° 20.4	-22° 20.1	-22° 19.7	+0.3
Ср 8	268° 22.6	283° 22.4	298° 22.1	313° 21.8	328° 21.6	343° 21.3	358° 21.1	13° 20.8	28° 20.5	43° 20.3	58° 20.0	73° 19.7	-0.3
	-22° 15.5	-22° 15.1	-22° 14.8	-22° 14.5	-22° 14.1	-22° 13.8	-22° 13.5	-22° 13.1	-22° 12.8	-22° 12.4	-22° 12.1	-22° 11.8	+0.3
Чт 9	268° 16.4	283° 16.1	298° 15.8	313° 15.6	328° 15.3	343° 15.1	358° 14.8	13° 14.6	28° 14.3	43° 14.0	58° 13.8	73° 13.5	-0.3
	-22° 07.3	-22° 06.9	-22° 06.5	-22° 06.2	-22° 05.8	-22° 05.5	-22° 05.1	-22° 04.8	-22° 04.4	-22° 04.1	-22° 03.7	-22° 03.3	+0.4
Пт 10	268° 10.2	283° 10.0	298° 09.7	313° 09.5	328° 09.2	343° 09.0	358° 08.7	13° 08.4	28° 08.2	43° 07.9	58° 07.7	73° 07.4	-0.3
	-21° 58.6	-21° 58.2	-21° 57.9	-21° 57.5	-21° 57.1	-21° 56.7	-21° 56.4	-21° 56.0	-21° 55.6	-21° 55.2	-21° 54.9	-21° 54.5	+0.4
Сб 11	268° 04.2	283° 04.0	298° 03.7	313° 03.5	328° 03.2	343° 03.0	358° 02.7	13° 02.5	28° 02.2	43° 02.0	58° 01.7	73° 01.5	-0.2
	-21° 49.5	-21° 49.1	-21° 48.7	-21° 48.4	-21° 48.0	-21° 47.6	-21° 47.2	-21° 46.8	-21° 46.4	-21° 46.0	-21° 45.6	-21° 45.2	+0.4
Вс 12	267° 58.3	282° 58.1	297° 57.9	312° 57.6	327° 57.4	342° 57.1	357° 56.9	12° 56.7	27° 56.4	42° 56.2	57° 55.9	72° 55.7	-0.2
	-21° 40.0	-21° 39.6	-21° 39.2	-21° 38.8	-21° 38.4	-21° 38.0	-21° 37.6	-21° 37.2	-21° 36.7	-21° 36.3	-21° 35.9	-21° 35.5	+0.4
Пн 13	267° 52.6	282° 52.4	297° 52.2	312° 51.9	327° 51.7	342° 51.5	357° 51.2	12° 51.0	27° 50.8	42° 50.5	57° 50.3	72° 50.1	-0.2
	-21° 30.1	-21° 29.7	-21° 29.2	-21° 28.8	-21° 28.4	-21° 28.0	-21° 27.5	-21° 27.1	-21° 26.7	-21° 26.2	-21° 25.8	-21° 25.4	+0.4
Вт 14	267° 47.1	282° 46.8	297° 46.6	312° 46.4	327° 46.2	342° 45.9	357° 45.7	12° 45.5	27° 45.3	42° 45.0	57° 44.8	72° 44.6	-0.2
	-21° 19.7	-21° 19.3	-21° 18.9	-21° 18.4	-21° 18.0	-21° 17.5	-21° 17.1	-21° 16.6	-21° 16.2	-21° 15.7	-21° 15.3	-21° 14.9	+0.4
Ср 15	267° 41.7	282° 41.4	297° 41.2	312° 41.0	327° 40.8	342° 40.6	357° 40.3	12° 40.1	27° 39.9	42° 39.7	57° 39.5	72° 39.2	-0.2
	-21° 09.0	-21° 08.5	-21° 08.1	-21° 07.6	-21° 07.1	-21° 06.7	-21° 06.2	-21° 05.8	-21° 05.3	-21° 04.8	-21° 04.4	-21° 03.9	+0.5
Чт 16	267° 36.4	282° 36.2	297° 36.0	312° 35.8	327° 35.6	342° 35.4	357° 35.1	12° 34.9	27° 34.7	42° 34.5	57° 34.3	72° 34.1	-0.2
	-20° 57.8	-20° 57.3	-20° 56.9	-20° 56.4	-20° 55.9	-20° 55.4	-20° 55.0	-20° 54.5	-20° 54.0	-20° 53.5	-20° 53.0	-20° 52.6	+0.5
Пт 17	267° 31.3	282° 31.1	297° 30.9	312° 30.7	327° 30.5	342° 30.3	357° 30.1	12° 29.9	27° 29.7	42° 29.5	57° 29.3	72° 29.1	-0.2
	-20° 46.2	-20° 45.7	-20° 45.3	-20° 44.8	-20° 44.3	-20° 43.8	-20° 43.3	-20° 42.8	-20° 42.3	-20° 41.8	-20° 41.3	-20° 40.8	+0.5
Сб 18	267° 26.4	282° 26.2	297° 26.0	312° 25.8	327° 25.6	342° 25.4	357° 25.2	12° 25.0	27° 24.8	42° 24.6	57° 24.4	72° 24.2	-0.2
	-20° 34.3	-20° 33.8	-20° 33.3	-20° 32.8	-20° 32.2	-20° 31.7	-20° 31.2	-20° 30.7	-20° 30.2	-20° 29.7	-20° 29.2	-20° 28.7	+0.5
Вс 19	267° 21.7	282° 21.5	297° 21.3	312° 21.1	327° 20.9	342° 20.7	357° 20.5	12° 20.4	27° 20.2	42° 20.0	57° 19.8	72° 19.6	-0.2
	-20° 21.9	-20° 21.4	-20° 20.9	-20° 20.4	-20° 19.8	-20° 19.3	-20° 18.8	-20° 18.2	-20° 17.7	-20° 17.2	-20° 16.7	-20° 16.1	+0.5
Пн 20	267° 17.1	282° 17.0	297° 16.8	312° 16.6	327° 16.4	342° 16.2	357° 16.0	12° 15.9	27° 15.7	42° 15.5	57° 15.3	72° 15.1	-0.2
	-20° 09.2	-20° 08.6	-20° 08.1	-20° 07.6	-20° 07.0	-20° 06.5	-20° 05.9	-20° 05.4	-20° 04.9	-20° 04.3	-20° 03.8	-20° 03.2	+0.5
Вт 21	267° 12.8	282° 12.6	297° 12.4	312° 12.2	327° 12.1	342° 11.9	357° 11.7	12° 11.5	27° 11.4	42° 11.2	57° 11.0	72° 10.8	-0.2
	-19° 56.1	-19° 55.5	-19° 55.0	-19° 54.4	-19° 53.8	-19° 53.3	-19° 52.7	-19° 52.2	-19° 51.6	-19° 51.0	-19° 50.5	-19° 49.9	+0.6
Ср 22	267° 08.6	282° 08.4	297° 08.2	312° 08.1	327° 07.9	342° 07.7	357° 07.6	12° 07.4	27° 07.2	42° 07.1	57° 06.9	72° 06.7	-0.2
	-19° 42.6	-19° 42.0	-19° 41.4	-19° 40.9	-19° 40.3	-19° 39.7	-19° 39.1	-19° 38.6	-19° 38.0	-19° 37.4	-19° 36.8	-19° 36.3	+0.6
Чт 23	267° 04.6	282° 04.4	297° 04.3	312° 04.1	327° 03.9	342° 03.8	357° 03.6	12° 03.5	27° 03.3	42° 03.1	57° 03.0	72° 02.8	-0.2
	-19° 28.7	-19° 28.1	-19° 27.5	-19° 27.0	-19° 26.4	-19° 25.8	-19° 25.2	-19° 24.6	-19° 24.0	-19° 23.4	-19° 22.8	-19° 22.2	+0.6
Пт 24	267° 00.8	282° 00.6	297° 00.5	312° 00.3	327° 00.2	342° 00.0	356° 59.9	11° 59.7	26° 59.6	41° 59.4	56° 59.3	71° 59.1	-0.2
	-19° 14.5	-19° 13.9	-19° 13.3	-19° 12.7	-19° 12.1	-19° 11.5	-19° 10.9	-19° 10.3	-19° 09.7	-19° 09.1	-19° 08.5	-19° 07.9	+0.6
Сб 25	266° 57.2	281° 57.0	296° 56.9	311° 56.8	326° 56.6	341° 56.5	356° 56.3	11° 56.2	26° 56.0	41° 55.9	56° 55.7	71° 55.6	-0.1
	-18° 59.9	-18° 59.3	-18° 58.7	-18° 58.1	-18° 57.5	-18° 56.8	-18° 56.2	-18° 55.6	-18° 55.0	-18° 54.4	-18° 53.8	-18° 53.1	+0.6
Вс 26	266° 53.8	281° 53.6	296° 53.5	311° 53.4	326° 53.2	341° 53.1	356° 53.0	11° 52.8	26° 52.7	41° 52.6	56° 52.4	71° 52.3	-0.1
	-18° 45.0	-18° 44.4	-18° 43.8	-18° 43.1	-18° 42.5	-18° 41.9	-18° 41.2	-18° 40.6	-18° 40.0	-18° 39.3	-18° 38.7	-18° 38.1	+0.6
Пн 27	266° 50.6	281° 50.5	296° 50.3	311° 50.2	326° 50.1	341° 49.9	356° 49.8	11° 49.7	26° 49.6	41° 49.4	56° 49.3	71° 49.2	-0.1
	-18° 29.8	-18° 29.1	-18° 28.5	-18° 27.8	-18° 27.2	-18° 26.5	-18° 25.9	-18° 25.2	-18° 24.6	-18° 23.9	-18° 23.3	-18° 22.6	+0.6
Вт 28	266° 47.6	281° 47.5	296° 47.4	311° 47.2	326° 47.1	341° 47.0	356° 46.9	11° 46.8	26° 46.6	41° 46.5	56° 46.4	71° 46.3	-0.1
	-18° 14.2	-18° 13.5	-18° 12.8	-18° 12.2	-18° 11.5	-18° 10.9	-18° 10.2	-18° 09.5	-18° 08.9	-18° 08.2	-18° 07.6	-18° 06.9	+0.7
Ср 29	266° 44.8	281° 44.7	296° 44.6	311° 44.5	326° 44.4	341° 44.2	356° 44.1	11° 44.0	26° 43.9	41° 43.8	56° 43.7	71° 43.6	-0.1
	-17° 58.2	-17° 57.6	-17° 56.9	-17° 56.2	-17° 55.6	-17° 54.9	-17° 54.2	-17° 53.5	-17° 52.9	-17° 52.2	-17° 51.5	-17° 50.8	+0.7
Чт 30	266° 42.2	281° 42.1	296° 42.0	311° 41.9	326° 41.8	341° 41.7	356° 41.6	11° 41.5	26° 41.4	41° 41.3	56° 41.2	71° 41.1	-0.1
	-17° 42.0	-17° 41.3	-17° 40.6	-17° 39.9	-17° 39.3	-17° 38.6	-17° 37.9	-17° 37.2	-17° 36.5	-17° 35.8	-17° 35.1	-17° 34.4	+0.7
Пт 31	266° 39.9	281° 39.8	296° 39.7	311° 39.6	326° 39.5	341° 39.4	356° 39.3	11° 39.2	26° 39.1	41° 39.0	56° 38.9	71° 38.8	-0.1
	-17° 25.4	-17° 24.7	-17° 24.0	-17° 23.4	-17° 22.7	-17° 22.0	-17° 21.3	-17° 20.6	-17° 19.9	-17° 19.2	-17° 18.5	-17° 17.8	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2031

	Д	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	R/p
	Ср 1	247° 50.1 11° 42.5	262° 22.6 11° 52.4	276° 55.0 12° 02.2	291° 27.4 12° 12.0	305° 59.8 12° 21.7	320° 32.2 12° 31.3	335° 04.6 12° 40.8	349° 37.0 12° 50.3	4° 09.4 12° 59.8	18° 41.7 13° 09.1	33° 14.1 13° 18.4	+32.4 +9.6	15.1 55.3
	Чт 2	251° 17.6 15° 29.5	265° 49.7 15° 37.7	280° 21.8 15° 45.7	294° 53.8 15° 53.8	309° 25.9 16° 01.7	323° 57.9 16° 09.5	338° 29.9 16° 17.3	353° 01.9 16° 25.0	7° 33.9 16° 32.6	22° 05.8 16° 40.2	36° 37.7 16° 47.7	+32.0 +7.8	14.9 54.8
	Пт 3	254° 33.9 18° 29.8	269° 05.5 18° 36.0	283° 37.0 18° 42.0	298° 08.6 18° 48.0	312° 40.1 18° 53.9	327° 11.5 18° 59.7	341° 43.0 19° 05.4	356° 14.4 19° 11.0	10° 45.8 19° 16.5	25° 17.2 19° 21.9	39° 48.6 19° 27.3	+31.5 +5.7	14.8 54.3
	Сб 4	257° 36.5 20° 36.4	272° 07.5 20° 40.3	286° 38.5 20° 44.0	301° 09.5 20° 47.7	315° 40.5 20° 51.3	330° 11.4 20° 54.7	344° 42.4 20° 58.1	359° 13.3 21° 01.4	13° 44.2 21° 04.6	28° 15.1 21° 07.7	42° 45.9 21° 10.7	+30.9 +3.4	14.7 54.1
	Вс 5	260° 27.3 21° 43.6	274° 58.0 21° 45.0	289° 28.7 21° 46.3	303° 59.3 21° 47.4	318° 29.9 21° 48.5	333° 00.6 21° 49.5	347° 31.2 21° 50.4	2° 01.8 21° 51.2	16° 32.5 21° 51.9	31° 03.1 21° 52.5	45° 33.7 21° 52.9	+30.6 +0.9	14.7 53.9
	Пн 6	263° 12.7 21° 47.9	277° 43.4 21° 46.8	292° 14.0 21° 45.5	306° 44.6 21° 44.2	321° 15.3 21° 42.7	335° 45.9 21° 41.2	350° 16.6 21° 39.5	4° 47.2 21° 37.8	19° 17.9 21° 35.9	33° 48.6 21° 33.9	48° 19.3 21° 31.9	+30.7 -1.6	14.7 53.9
	Вт 7	266° 01.2 20° 49.1	280° 32.2 20° 45.5	295° 03.1 20° 41.7	309° 34.1 20° 37.9	324° 05.1 20° 34.0	338° 36.1 20° 30.0	353° 07.1 20° 25.9	7° 38.1 20° 21.7	22° 09.2 20° 17.4	36° 40.3 20° 13.0	51° 11.4 20° 08.5	+31.0 -4.1	14.7 54.0
○	Ср 8	269° 00.9 18° 50.2	283° 32.4 18° 44.2	298° 03.9 18° 38.2	312° 35.5 18° 32.1	327° 07.1 18° 25.9	341° 38.7 18° 19.7	356° 10.3 18° 13.3	10° 42.0 18° 06.9	25° 13.7 18° 00.3	39° 45.4 17° 53.7	54° 17.2 17° 47.0	+31.6 -6.3	14.8 54.2
	Чт 9	272° 16.9 15° 57.2	286° 49.1 15° 49.3	301° 21.3 15° 41.3	315° 53.6 15° 33.2	330° 25.9 15° 25.1	344° 58.2 15° 16.8	359° 30.5 15° 08.5	14° 02.9 15° 00.2	28° 35.3 14° 51.8	43° 07.7 14° 43.3	57° 40.2 14° 34.7	+32.3 -8.3	14.9 54.5
	Пт 10	275° 50.0 12° 18.6	290° 22.8 12° 09.1	304° 55.7 11° 59.5	319° 28.6 11° 49.8	334° 01.5 11° 40.1	348° 34.4 11° 30.3	3° 07.3 11° 20.5	17° 40.3 11° 10.6	32° 13.3 11° 00.6	46° 46.3 10° 50.6	61° 19.3 10° 40.6	+32.9 -9.8	14.9 54.8
	Сб 11	279° 36.4 8° 04.3	294° 09.7 7° 53.5	308° 42.9 7° 42.7	323° 16.2 7° 31.8	337° 49.4 7° 21.0	352° 22.7 7° 10.0	6° 56.0 6° 59.1	21° 29.3 6° 48.1	36° 02.6 6° 37.0	50° 35.8 6° 26.0	65° 09.1 6° 14.9	+33.3 -10.9	15.1 55.2
	Вс 12	283° 28.5 3° 24.8	298° 01.8 3° 13.2	312° 35.0 3° 01.7	327° 08.3 2° 50.1	341° 41.5 2° 38.5	356° 14.7 2° 26.8	10° 47.9 2° 15.2	25° 21.1 2° 03.5	39° 54.3 1° 51.8	54° 27.4 1° 40.1	69° 00.6 1° 28.4	+33.2 -11.6	15.2 55.7
	Пн 13	287° 15.3 -1° 28.6	301° 48.1 -1° 40.5	316° 20.9 -1° 52.3	330° 53.6 -2° 04.2	345° 26.3 -2° 16.0	359° 58.9 -2° 27.9	14° 31.6 -2° 39.7	29° 04.1 -2° 51.6	43° 36.7 -3° 03.4	58° 09.2 -3° 15.3	72° 41.7 -3° 27.1	+32.6 -11.9	15.4 56.3
	Вт 14	301° 48.1 -1° 40.5	316° 20.9 -1° 52.3	330° 53.6 -2° 04.2	345° 26.3 -2° 16.0	359° 58.9 -2° 27.9	14° 31.6 -2° 39.7	29° 04.1 -2° 51.6	43° 36.7 -3° 03.4	58° 09.2 -3° 15.3	72° 41.7 -3° 27.1	87° 14.1 -3° 39.0	+32.6 -11.9	15.4 56.4
	Ср 15	305° 15.5 -6° 35.2	319° 47.2 -6° 46.8	334° 18.8 -6° 58.4	348° 50.4 -7° 10.0	3° 22.0 -7° 21.6	17° 53.4 -7° 33.1	32° 24.9 -7° 44.6	46° 56.2 -7° 56.1	61° 27.5 -8° 07.5	75° 58.8 -8° 19.0	90° 30.0 -8° 30.4	+31.4 -11.5	15.6 57.0
◑	Чт 16	308° 09.7 -11° 17.0	322° 39.8 -11° 27.8	337° 09.8 -11° 38.5	351° 39.7 -11° 49.2	6° 09.6 -11° 59.8	20° 39.4 -12° 10.4	35° 09.1 -12° 20.9	49° 38.7 -12° 31.4	64° 08.2 -12° 41.8	78° 37.7 -12° 52.1	93° 07.1 -13° 02.4	+29.7 -10.5	15.8 57.8
	Пт 17	310° 17.5 -15° 29.2	324° 45.5 -15° 38.4	339° 13.4 -15° 47.5	353° 41.3 -15° 56.5	8° 09.0 -16° 05.5	22° 36.6 -16° 14.4	37° 04.2 -16° 23.2	51° 31.6 -16° 31.9	65° 59.0 -16° 40.5	80° 26.2 -16° 49.0	94° 53.4 -16° 57.4	+27.6 -8.8	16.0 58.6
	Сб 18	311° 30.0 -18° 52.2	325° 55.7 -18° 59.0	340° 21.3 -19° 05.7	354° 46.8 -19° 12.3	9° 12.3 -19° 18.8	23° 37.6 -19° 25.1	38° 02.9 -19° 31.3	52° 28.0 -19° 37.4	66° 53.1 -19° 43.4	81° 18.1 -19° 49.3	95° 43.1 -19° 55.0	+25.3 -6.3	16.2 59.4
	Вс 19	311° 47.2 -21° 05.3	326° 10.9 -21° 08.8	340° 34.5 -21° 12.3	354° 58.0 -21° 15.6	9° 21.5 -21° 18.7	23° 44.9 -21° 21.7	38° 08.3 -21° 24.6	52° 31.6 -21° 27.3	66° 54.8 -21° 29.8	81° 18.0 -21° 32.2	95° 41.1 -21° 34.5	+23.4 -2.9	16.4 60.1
	Пн 20	311° 22.6 -21° 49.7	325° 45.1 -21° 49.4	340° 07.6 -21° 49.0	354° 30.0 -21° 48.4	8° 52.4 -21° 47.7	23° 14.8 -21° 46.8	37° 37.2 -21° 45.7	51° 59.6 -21° 44.5	66° 21.9 -21° 43.1	80° 44.3 -21° 41.6	95° 06.6 -21° 39.9	+22.4 +1.0	16.5 60.6
	Вт 21	310° 42.3 -20° 55.1	325° 04.8 -20° 50.8	339° 27.4 -20° 46.4	353° 49.9 -20° 41.9	8° 12.5 -20° 37.2	22° 35.1 -20° 32.3	36° 57.8 -20° 27.3	51° 20.5 -20° 22.1	65° 43.2 -20° 16.8	80° 06.0 -20° 11.3	94° 28.8 -20° 05.7	+22.6 +4.9	16.6 60.9
	Ср 22	310° 17.0 -18° 24.2	324° 40.7 -18° 16.4	339° 04.4 -18° 08.4	353° 28.2 -18° 00.3	7° 52.1 -17° 52.1	22° 16.0 -17° 43.7	36° 40.0 -17° 35.2	51° 04.1 -17° 26.6	65° 28.3 -17° 17.9	79° 52.5 -17° 09.1	94° 16.8 -17° 00.1	+24.0 +8.4	16.6 60.8
●	Чт 23	310° 30.5 -14° 33.0	324° 56.1 -14° 22.4	339° 21.7 -14° 11.7	353° 47.4 -14° 01.0	8° 13.2 -13° 50.1	22° 39.1 -13° 39.2	37° 05.0 -13° 28.2	51° 31.1 -13° 17.1	65° 57.2 -13° 05.9	80° 23.4 -12° 54.7	94° 49.7 -12° 43.3	+25.9 +11.0	16.5 60.5
	Пт 24	311° 33.7 -9° 45.8	326° 01.3 -9° 33.5	340° 28.9 -9° 21.2	354° 56.6 -9° 08.8	9° 24.4 -8° 56.4	23° 52.3 -8° 44.0	38° 20.3 -8° 31.5	52° 48.3 -8° 19.0	67° 16.4 -8° 06.5	81° 44.5 -7° 53.9	96° 12.8 -7° 41.2	+27.9 +12.5	16.3 59.8
	Сб 25	313° 24.8 -4° 29.2	327° 54.1 -4° 16.3	342° 23.5 -4° 03.3	356° 53.0 -3° 50.4	11° 22.5 -3° 37.5	25° 52.0 -3° 24.5	40° 21.7 -3° 11.6	54° 51.3 -2° 58.6	69° 21.1 -2° 45.7	83° 50.9 -2° 32.7	98° 20.7 -2° 19.8	+29.6 +12.9	16.1 59.0
	Вс 26	315° 54.4 0° 52.9	330° 25.1 1° 05.6	344° 55.7 1° 18.3	359° 26.4 1° 30.9	13° 57.1 1° 43.5	28° 27.9 1° 56.1	42° 58.7 2° 08.7	57° 29.6 2° 21.3	72° 00.4 2° 33.8	86° 31.3 2° 46.3	101° 02.3 2° 58.7	+30.8 +12.6	15.8 58.0
	Пн 27	318° 50.1 6° 01.0	333° 21.5 6° 12.8	347° 52.9 6° 24.6	2° 24.3 6° 36.3	16° 55.7 6° 48.0	31° 27.2 6° 59.6	45° 58.7 7° 11.2	60° 30.2 7° 22.7	75° 01.7 7° 34.2	89° 33.2 7° 45.6	104° 04.8 7° 56.9	+31.5 +11.6	15.6 57.1
	Вт 28	321° 59.2 10° 40.5	336° 30.9 10° 50.9	351° 02.6 11° 01.3	5° 34.3 11° 11.6	20° 06.0 11° 21.8	34° 37.7 11° 32.0	49° 09.4 11° 42.1	63° 41.1 11° 52.1	78° 12.8 12° 02.0	92° 44.5 12° 11.9	107° 16.2 12° 21.7	+31.7 +10.1	15.3 56.2
	Ср 29	325° 11.3 14° 40.4	339° 43.0 14° 49.0	354° 14.6 14° 57.6	8° 46.2 15° 06.1	23° 17.8 15° 14.5	37° 49.4 15° 22.8	52° 21.0 15° 31.1	66° 52.5 15° 39.3	81° 24.1 15° 47.4	95° 55.7 15° 55.4	110° 27.2 16° 03.3	+31.6 +8.3	15.1 55.4
◐	Чт 30	328° 18.9 17° 52.2	342° 50.2 17° 58.8	357° 21.5 18° 05.3	11° 52.9 18° 11.7	26° 24.2 18° 18.0	40° 55.4 18° 24.2	55° 26.7 18° 30.4	69° 58.0 18° 36.4	84° 29.2 18° 42.4	99° 00.4 18° 48.2	113° 31.7 18° 54.0	+31.3 +6.2	14.9 54.8
	Пт 31	331° 18.1 20° 09.5	345° 49.1 20° 13.8	0° 20.1 20° 18.0	14° 51.1 20° 22.1	29° 22.0 20° 26.1	43° 52.9 20° 30.0	58° 23.9 20° 33.8	72° 54.8 20° 37.5	87° 25.7 20° 41.1	101° 56.6 20° 44.6	116° 27.4 20° 48.0	+30.9 +3.9	14.8 54.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 8 18h25 — Последняя четв.: 16 12h47 — Новолуние: 23 04h31 — Первая четв.: 30 07h43

СОЛНЦЕ

Февраль 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	266° 37.7 -17° 08.6	281° 37.6 -17° 07.9	296° 37.5 -17° 07.2	311° 37.4 -17° 06.5	326° 37.4 -17° 05.7	341° 37.3 -17° 05.0	356° 37.2 -17° 04.3	11° 37.1 -17° 03.6	26° 37.0 -17° 02.9	41° 36.9 -17° 02.2	56° 36.9 -17° 01.5	71° 36.8 -17° 00.8	-0.1 +0.7
Вс 2	266° 35.7 -16° 51.4	281° 35.7 -16° 50.7	296° 35.6 -16° 50.0	311° 35.5 -16° 49.3	326° 35.4 -16° 48.5	341° 35.4 -16° 47.8	356° 35.3 -16° 47.1	11° 35.2 -16° 46.4	26° 35.1 -16° 45.6	41° 35.1 -16° 44.9	56° 35.0 -16° 44.2	71° 34.9 -16° 43.5	-0.1 +0.7
Пн 3	266° 34.0 -16° 34.0	281° 33.9 -16° 33.2	296° 33.9 -16° 32.5	311° 33.8 -16° 31.8	326° 33.7 -16° 31.0	341° 33.7 -16° 30.3	356° 33.6 -16° 29.5	11° 33.5 -16° 28.8	26° 33.5 -16° 28.1	41° 33.4 -16° 27.3	56° 33.3 -16° 26.6	71° 33.3 -16° 25.9	-0.1 +0.7
Вт 4	266° 32.5 -16° 16.2	281° 32.4 -16° 15.5	296° 32.3 -16° 14.7	311° 32.3 -16° 14.0	326° 32.2 -16° 13.2	341° 32.2 -16° 12.5	356° 32.1 -16° 11.7	11° 32.0 -16° 11.0	26° 32.0 -16° 10.2	41° 31.9 -16° 09.5	56° 31.9 -16° 08.7	71° 31.8 -16° 08.0	-0.1 +0.7
Ср 5	266° 31.1 -15° 58.2	281° 31.1 -15° 57.4	296° 31.0 -15° 56.7	311° 31.0 -15° 55.9	326° 30.9 -15° 55.2	341° 30.9 -15° 54.4	356° 30.8 -15° 53.6	11° 30.8 -15° 52.9	26° 30.7 -15° 52.1	41° 30.7 -15° 51.4	56° 30.6 -15° 50.6	71° 30.6 -15° 49.8	-0.0 +0.8
Чт 6	266° 30.0 -15° 39.9	281° 29.9 -15° 39.1	296° 29.9 -15° 38.3	311° 29.9 -15° 37.6	326° 29.8 -15° 36.8	341° 29.8 -15° 36.0	356° 29.7 -15° 35.3	11° 29.7 -15° 34.5	26° 29.7 -15° 33.7	41° 29.6 -15° 33.0	56° 29.6 -15° 32.2	71° 29.5 -15° 31.4	-0.0 +0.8
Пт 7	266° 29.1 -15° 21.3	281° 29.0 -15° 20.5	296° 29.0 -15° 19.8	311° 29.0 -15° 19.0	326° 28.9 -15° 18.2	341° 28.9 -15° 17.4	356° 28.9 -15° 16.6	11° 28.8 -15° 15.9	26° 28.8 -15° 15.1	41° 28.8 -15° 14.3	56° 28.7 -15° 13.5	71° 28.7 -15° 12.7	-0.0 +0.8
Сб 8	266° 28.3 -15° 02.5	281° 28.3 -15° 01.7	296° 28.3 -15° 00.9	311° 28.2 -15° 00.1	326° 28.2 -14° 59.3	341° 28.2 -14° 58.5	356° 28.2 -14° 57.7	11° 28.1 -14° 57.0	26° 28.1 -14° 56.2	41° 28.1 -14° 55.4	56° 28.1 -14° 54.6	71° 28.1 -14° 53.8	-0.0 +0.8
Вс 9	266° 27.8 -14° 43.4	281° 27.8 -14° 42.6	296° 27.8 -14° 41.8	311° 27.7 -14° 41.0	326° 27.7 -14° 40.2	341° 27.7 -14° 39.4	356° 27.7 -14° 38.6	11° 27.7 -14° 37.8	26° 27.7 -14° 37.0	41° 27.6 -14° 36.2	56° 27.6 -14° 35.4	71° 27.6 -14° 34.6	-0.0 +0.8
Пн 10	266° 27.5 -14° 24.1	281° 27.4 -14° 23.3	296° 27.4 -14° 22.5	311° 27.4 -14° 21.6	326° 27.4 -14° 20.8	341° 27.4 -14° 20.0	356° 27.4 -14° 19.2	11° 27.4 -14° 18.4	26° 27.4 -14° 17.6	41° 27.4 -14° 16.8	56° 27.4 -14° 15.9	71° 27.4 -14° 15.1	-0.0 +0.8
Вт 11	266° 27.3 -14° 04.5	281° 27.3 -14° 03.7	296° 27.3 -14° 02.9	311° 27.3 -14° 02.0	326° 27.3 -14° 01.2	341° 27.3 -14° 00.4	356° 27.3 -13° 59.6	11° 27.3 -13° 58.7	26° 27.3 -13° 57.9	41° 27.3 -13° 57.1	56° 27.3 -13° 56.3	71° 27.3 -13° 55.5	-0.0 +0.8
Ср 12	266° 27.3 -13° 44.7	281° 27.4 -13° 43.9	296° 27.4 -13° 43.0	311° 27.4 -13° 42.2	326° 27.4 -13° 41.4	341° 27.4 -13° 40.5	356° 27.4 -13° 39.7	11° 27.4 -13° 38.9	26° 27.4 -13° 38.0	41° 27.4 -13° 37.2	56° 27.4 -13° 36.4	71° 27.4 -13° 35.5	+0.0 +0.8
Чт 13	266° 27.6 -13° 24.7	281° 27.6 -13° 23.8	296° 27.6 -13° 23.0	311° 27.6 -13° 22.1	326° 27.6 -13° 21.3	341° 27.6 -13° 20.5	356° 27.7 -13° 19.6	11° 27.7 -13° 18.8	26° 27.7 -13° 17.9	41° 27.7 -13° 17.1	56° 27.7 -13° 16.2	71° 27.7 -13° 15.4	+0.0 +0.8
Пт 14	266° 28.0 -13° 04.4	281° 28.0 -13° 03.6	296° 28.0 -13° 02.7	311° 28.0 -13° 01.9	326° 28.1 -13° 01.0	341° 28.1 -13° 00.2	356° 28.1 -12° 59.3	11° 28.1 -12° 58.5	26° 28.2 -12° 57.6	41° 28.2 -12° 56.7	56° 28.2 -12° 55.9	71° 28.2 -12° 55.0	+0.0 +0.9
Сб 15	266° 28.6 -12° 43.9	281° 28.6 -12° 43.1	296° 28.6 -12° 42.2	311° 28.7 -12° 41.4	326° 28.7 -12° 40.5	341° 28.7 -12° 39.6	356° 28.7 -12° 38.8	11° 28.8 -12° 37.9	26° 28.8 -12° 37.1	41° 28.8 -12° 36.2	56° 28.9 -12° 35.3	71° 28.9 -12° 34.5	+0.0 +0.9
Вс 16	266° 29.3 -12° 23.2	281° 29.4 -12° 22.4	296° 29.4 -12° 21.5	311° 29.4 -12° 20.6	326° 29.5 -12° 19.8	341° 29.5 -12° 18.9	356° 29.6 -12° 18.0	11° 29.6 -12° 17.2	26° 29.6 -12° 16.3	41° 29.7 -12° 15.4	56° 29.7 -12° 14.6	71° 29.7 -12° 13.7	+0.0 +0.9
Пн 17	266° 30.3 -12° 02.4	281° 30.3 -12° 01.5	296° 30.4 -12° 00.6	311° 30.4 -11° 59.7	326° 30.4 -11° 58.9	341° 30.5 -11° 58.0	356° 30.5 -11° 57.1	11° 30.6 -11° 56.2	26° 30.6 -11° 55.4	41° 30.7 -11° 54.5	56° 30.7 -11° 53.6	71° 30.8 -11° 52.7	+0.0 +0.9
Вт 18	266° 31.4 -11° 41.3	281° 31.4 -11° 40.4	296° 31.5 -11° 39.5	311° 31.5 -11° 38.6	326° 31.6 -11° 37.8	341° 31.6 -11° 36.9	356° 31.7 -11° 36.0	11° 31.7 -11° 35.1	26° 31.8 -11° 34.2	41° 31.8 -11° 33.3	56° 31.9 -11° 32.5	71° 31.9 -11° 31.6	+0.1 +0.9
Ср 19	266° 32.7 -11° 20.0	281° 32.7 -11° 19.1	296° 32.8 -11° 18.3	311° 32.8 -11° 17.4	326° 32.9 -11° 16.5	341° 32.9 -11° 15.6	356° 33.0 -11° 14.7	11° 33.1 -11° 13.8	26° 33.1 -11° 12.9	41° 33.2 -11° 12.0	56° 33.2 -11° 11.1	71° 33.3 -11° 10.2	+0.1 +0.9
Чт 20	266° 34.1 -10° 58.6	281° 34.2 -10° 57.7	296° 34.2 -10° 56.8	311° 34.3 -10° 55.9	326° 34.4 -10° 55.0	341° 34.4 -10° 54.1	356° 34.5 -10° 53.2	11° 34.6 -10° 52.3	26° 34.6 -10° 51.4	41° 34.7 -10° 50.5	56° 34.8 -10° 49.6	71° 34.8 -10° 48.7	+0.1 +0.9
Пт 21	266° 35.7 -10° 37.0	281° 35.8 -10° 36.1	296° 35.8 -10° 35.2	311° 35.9 -10° 34.3	326° 36.0 -10° 33.4	341° 36.1 -10° 32.5	356° 36.1 -10° 31.6	11° 36.2 -10° 30.7	26° 36.3 -10° 29.7	41° 36.4 -10° 28.8	56° 36.4 -10° 27.9	71° 36.5 -10° 27.0	+0.1 +0.9
Сб 22	266° 37.5 -10° 15.2	281° 37.5 -10° 14.3	296° 37.6 -10° 13.4	311° 37.7 -10° 12.5	326° 37.8 -10° 11.6	341° 37.9 -10° 10.7	356° 37.9 -10° 09.7	11° 38.0 -10° 08.8	26° 38.1 -10° 07.9	41° 38.2 -10° 07.0	56° 38.3 -10° 06.1	71° 38.3 -10° 05.2	+0.1 +0.9
Вс 23	266° 39.4 -9° 53.3	281° 39.5 -9° 52.4	296° 39.6 -9° 51.5	311° 39.6 -9° 50.5	326° 39.7 -9° 49.6	341° 39.8 -9° 48.7	356° 39.9 -9° 47.8	11° 40.0 -9° 46.9	26° 40.1 -9° 45.9	41° 40.2 -9° 45.0	56° 40.2 -9° 44.1	71° 40.3 -9° 43.2	+0.1 +0.9
Пн 24	266° 41.5 -9° 31.2	281° 41.6 -9° 30.3	296° 41.7 -9° 29.4	311° 41.7 -9° 28.4	326° 41.8 -9° 27.5	341° 41.9 -9° 26.6	356° 42.0 -9° 25.7	11° 42.1 -9° 24.7	26° 42.2 -9° 23.8	41° 42.3 -9° 22.9	56° 42.4 -9° 22.0	71° 42.5 -9° 21.0	+0.1 +0.9
Вт 25	266° 43.7 -9° 09.0	281° 43.8 -9° 08.1	296° 43.9 -9° 07.1	311° 44.0 -9° 06.2	326° 44.1 -9° 05.3	341° 44.2 -9° 04.3	356° 44.3 -9° 03.4	11° 44.4 -9° 02.5	26° 44.5 -9° 01.6	41° 44.6 -9° 00.6	56° 44.7 -8° 59.7	71° 44.8 -8° 58.8	+0.1 +0.9
Ср 26	266° 46.1 -8° 46.6	281° 46.2 -8° 45.7	296° 46.3 -8° 44.8	311° 46.4 -8° 43.8	326° 46.5 -8° 42.9	341° 46.6 -8° 42.0	356° 46.7 -8° 41.0	11° 46.8 -8° 40.1	26° 46.9 -8° 39.1	41° 47.0 -8° 38.2	56° 47.1 -8° 37.3	71° 47.2 -8° 36.3	+0.1 +0.9
Чт 27	266° 48.6 -8° 24.1	281° 48.7 -8° 23.2	296° 48.8 -8° 22.3	311° 48.9 -8° 21.3	326° 49.0 -8° 20.4	341° 49.1 -8° 19.4	356° 49.3 -8° 18.5	11° 49.4 -8° 17.6	26° 49.5 -8° 16.6	41° 49.6 -8° 15.7	56° 49.7 -8° 14.7	71° 49.8 -8° 13.8	+0.1 +0.9
Пт 28	266° 51.3 -8° 01.5	281° 51.4 -8° 00.6	296° 51.5 -7° 59.6	311° 51.6 -7° 58.7	326° 51.7 -7° 57.8	341° 51.8 -7° 56.8	356° 52.0 -7° 55.9	11° 52.1 -7° 54.9	26° 52.2 -7° 54.0	41° 52.3 -7° 53.0	56° 52.4 -7° 52.1	71° 52.5 -7° 51.1	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2031

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Сб 1	247° 04.8	261° 35.6	276° 06.4	290° 37.1	305° 07.9	319° 38.6	334° 09.4	348° 40.1	3° 10.8	17° 41.5	32° 12.2	+30.7	14.8
	21° 14.3	21° 16.7	21° 19.1	21° 21.3	21° 23.4	21° 25.5	21° 27.4	21° 29.2	21° 31.0	21° 32.6	21° 34.1	+2.0	54.1
Вс 2	249° 52.5	264° 23.1	278° 53.8	293° 24.5	307° 55.1	322° 25.8	336° 56.5	351° 27.2	5° 57.9	20° 28.6	34° 59.2	+30.7	14.7
	21° 45.1	21° 45.0	21° 44.8	21° 44.5	21° 44.1	21° 43.6	21° 43.1	21° 42.4	21° 41.6	21° 40.7	21° 39.7	-0.5	54.0
Пн 3	252° 40.5	267° 11.3	281° 42.2	296° 13.0	310° 43.9	325° 14.7	339° 45.6	354° 16.5	8° 47.4	23° 18.4	37° 49.3	+30.9	14.7
	21° 12.9	21° 10.3	21° 07.7	21° 04.9	21° 02.0	20° 59.0	20° 56.0	20° 52.8	20° 49.5	20° 46.2	20° 42.7	-3.0	54.1
Вт 4	255° 35.4	270° 06.7	284° 37.9	299° 09.2	313° 40.5	328° 11.8	342° 43.1	357° 14.4	11° 45.8	26° 17.2	40° 48.6	+31.3	14.8
	19° 39.5	19° 34.5	19° 29.5	19° 24.3	19° 19.1	19° 13.8	19° 08.3	19° 02.8	18° 57.2	18° 51.6	18° 45.8	-5.4	54.2
Ср 5	258° 42.4	273° 14.2	287° 46.0	302° 17.8	316° 49.6	331° 21.5	345° 53.4	0° 25.3	14° 57.2	29° 29.2	44° 01.2	+31.9	14.9
	17° 09.0	17° 01.9	16° 54.7	16° 47.4	16° 40.1	16° 32.7	16° 25.1	16° 17.6	16° 09.9	16° 02.2	15° 54.3	-7.5	54.5
Чт 6	262° 03.5	276° 35.8	291° 08.2	305° 40.5	320° 12.9	334° 45.3	349° 17.8	3° 50.2	18° 22.7	32° 55.2	47° 27.7	+32.4	15.0
	13° 48.4	13° 39.5	13° 30.5	13° 21.4	13° 12.3	13° 03.1	12° 53.8	12° 44.5	12° 35.1	12° 25.6	12° 16.1	-9.2	54.9
○ Пт 7	265° 37.1	280° 09.9	294° 42.6	309° 15.4	323° 48.2	338° 20.9	352° 53.7	7° 26.5	21° 59.4	36° 32.2	51° 05.0	+32.8	15.1
	9° 46.7	9° 36.3	9° 25.9	9° 15.4	9° 04.9	8° 54.3	8° 43.7	8° 33.0	8° 22.3	8° 11.6	8° 00.8	-10.6	55.3
Сб 8	269° 18.1	283° 51.0	298° 23.8	312° 56.7	327° 29.6	342° 02.5	356° 35.3	11° 08.2	25° 41.1	40° 13.9	54° 46.8	+32.9	15.2
	5° 14.4	5° 03.0	4° 51.6	4° 40.2	4° 28.8	4° 17.3	4° 05.8	3° 54.3	3° 42.7	3° 31.1	3° 19.5	-11.5	55.8
Вс 9	272° 58.2	287° 30.8	302° 03.5	316° 36.1	331° 08.7	345° 41.2	0° 13.8	14° 46.3	29° 18.8	43° 51.3	58° 23.7	+32.6	15.3
	0° 23.5	0° 11.6	-0° 00.2	-0° 12.1	-0° 24.0	-0° 35.8	-0° 47.7	-0° 59.6	-1° 11.5	-1° 23.3	-1° 35.2	-11.9	56.3
Пн 10	276° 27.1	290° 59.0	305° 30.9	320° 02.8	334° 34.7	349° 06.5	3° 38.2	18° 10.0	32° 41.6	47° 13.3	61° 44.9	+31.8	15.5
	-4° 33.0	-4° 44.7	-4° 56.5	-5° 08.2	-5° 19.9	-5° 31.6	-5° 43.3	-5° 55.0	-6° 06.6	-6° 18.3	-6° 29.9	-11.7	56.8
Вт 11	279° 33.1	294° 03.9	308° 34.7	323° 05.3	337° 36.0	352° 06.6	6° 37.1	21° 07.5	35° 37.9	50° 08.3	64° 38.6	+30.5	15.6
	-9° 20.4	-9° 31.5	-9° 42.6	-9° 53.6	-10° 04.6	-10° 15.5	-10° 26.4	-10° 37.2	-10° 48.0	-10° 58.7	-11° 09.4	-10.9	57.3
Ср 12	282° 05.1	296° 34.3	311° 03.5	325° 32.6	340° 01.6	354° 30.5	8° 59.4	23° 28.2	37° 57.0	52° 25.6	66° 54.2	+28.9	15.8
	-13° 43.1	-13° 52.9	-14° 02.6	-14° 12.2	-14° 21.7	-14° 31.2	-14° 40.6	-14° 49.9	-14° 59.2	-15° 08.3	-15° 17.4	-9.4	57.8
Чт 13	296° 34.3	311° 03.5	325° 32.6	340° 01.6	354° 30.5	8° 59.4	23° 28.2	37° 57.0	52° 25.6	66° 54.2	81° 22.7	+28.8	15.8
	-13° 52.9	-14° 02.6	-14° 12.2	-14° 21.7	-14° 31.2	-14° 40.6	-14° 49.9	-14° 59.2	-15° 08.3	-15° 17.4	-15° 26.4	-9.4	57.9
◑ Пт 14	298° 21.7	312° 49.0	327° 16.3	341° 43.5	356° 10.6	10° 37.6	25° 04.6	39° 31.5	53° 58.3	68° 25.0	82° 51.7	+27.0	15.9
	-17° 31.4	-17° 39.0	-17° 46.5	-17° 53.9	-18° 01.2	-18° 08.4	-18° 15.5	-18° 22.4	-18° 29.3	-18° 36.1	-18° 42.8	-7.1	58.4
Сб 15	299° 23.3	313° 48.9	328° 14.4	342° 39.8	357° 05.2	11° 30.5	25° 55.8	40° 21.0	54° 46.1	69° 11.2	83° 36.2	+25.3	16.1
	-20° 09.1	-20° 13.9	-20° 18.6	-20° 23.1	-20° 27.5	-20° 31.8	-20° 36.0	-20° 40.0	-20° 43.9	-20° 47.7	-20° 51.3	-4.2	58.9
Вс 16	299° 45.6	314° 09.9	328° 34.1	342° 58.3	357° 22.5	11° 46.6	26° 10.7	40° 34.8	54° 58.9	69° 22.9	83° 46.9	+24.1	16.2
	-21° 29.5	-21° 30.9	-21° 32.1	-21° 33.3	-21° 34.3	-21° 35.1	-21° 35.8	-21° 36.3	-21° 36.7	-21° 37.0	-21° 37.1	-0.8	59.4
Пн 17	299° 44.8	314° 08.6	328° 32.4	342° 56.2	357° 20.0	11° 43.9	26° 07.7	40° 31.5	54° 55.3	69° 19.2	83° 43.1	+23.8	16.3
	-21° 20.9	-21° 18.7	-21° 16.3	-21° 13.7	-21° 11.0	-21° 08.1	-21° 05.1	-21° 02.0	-20° 58.7	-20° 55.2	-20° 51.7	+2.9	59.8
Вт 18	299° 43.5	314° 07.8	328° 32.1	342° 56.4	357° 20.8	11° 45.2	26° 09.6	40° 34.1	54° 58.7	69° 23.2	83° 47.9	+24.4	16.4
	-19° 40.6	-19° 34.8	-19° 28.8	-19° 22.7	-19° 16.4	-19° 10.0	-19° 03.5	-18° 56.9	-18° 50.1	-18° 43.2	-18° 36.2	+6.5	60.0
Ср 19	300° 03.1	314° 28.6	328° 54.1	343° 19.6	357° 45.3	12° 10.9	26° 36.7	41° 02.5	55° 28.3	69° 54.2	84° 20.2	+25.7	16.4
	-16° 36.0	-16° 27.1	-16° 18.1	-16° 08.9	-15° 59.7	-15° 50.3	-15° 40.9	-15° 31.3	-15° 21.7	-15° 11.9	-15° 02.1	+9.4	60.0
Чт 20	300° 57.3	315° 24.3	329° 51.3	344° 18.4	358° 45.6	13° 12.8	27° 40.1	42° 07.4	56° 34.9	71° 02.3	85° 29.9	+27.3	16.3
	-12° 23.8	-12° 12.6	-12° 01.4	-11° 50.0	-11° 38.6	-11° 27.2	-11° 15.6	-11° 04.0	-10° 52.4	-10° 40.7	-10° 28.9	+11.5	59.8
● Пт 21	302° 29.9	316° 58.4	331° 26.9	345° 55.5	0° 24.1	14° 52.8	29° 21.5	43° 50.3	58° 19.1	72° 48.0	87° 16.9	+28.7	16.2
	-7° 26.2	-7° 13.7	-7° 01.2	-6° 48.6	-6° 36.0	-6° 23.4	-6° 10.7	-5° 58.0	-5° 45.3	-5° 32.6	-5° 19.9	+12.6	59.4
Сб 22	304° 36.6	319° 06.3	333° 36.0	348° 05.8	2° 35.5	17° 05.4	31° 35.2	46° 05.1	60° 35.0	75° 05.0	89° 35.0	+29.8	16.0
	-2° 07.1	-1° 54.2	-1° 41.3	-1° 28.4	-1° 15.5	-1° 02.6	-0° 49.8	-0° 36.9	-0° 24.1	-0° 11.2	0° 01.6	+12.9	58.7
Вс 23	307° 08.8	321° 39.2	336° 09.7	350° 40.3	5° 10.8	19° 41.4	34° 11.9	48° 42.6	63° 13.2	77° 43.8	92° 14.5	+30.6	15.8
	3° 11.5	3° 24.0	3° 36.4	3° 48.8	4° 01.2	4° 13.5	4° 25.7	4° 38.0	4° 50.2	5° 02.3	5° 14.5	+12.3	57.9
Пн 24	309° 56.3	324° 27.2	338° 58.1	353° 29.0	7° 59.9	22° 30.8	37° 01.7	51° 32.7	66° 03.6	80° 34.5	95° 05.5	+30.9	15.6
	8° 10.7	8° 22.1	8° 33.3	8° 44.6	8° 55.7	9° 06.8	9° 17.9	9° 28.9	9° 39.8	9° 50.7	10° 01.5	+11.1	57.1
Вт 25	312° 50.1	327° 21.1	341° 52.0	356° 23.0	10° 54.0	25° 25.0	39° 55.9	54° 26.9	68° 57.8	83° 28.8	97° 59.8	+31.0	15.3
	12° 35.5	12° 45.2	12° 54.8	13° 04.3	13° 13.8	13° 23.2	13° 32.5	13° 41.8	13° 51.0	14° 00.1	14° 09.1	+9.4	56.3
Ср 26	315° 43.5	330° 14.3	344° 45.2	359° 16.0	13° 46.9	28° 17.7	42° 48.5	57° 19.4	71° 50.2	86° 21.0	100° 51.8	+30.8	15.1
	16° 14.4	16° 22.1	16° 29.7	16° 37.2	16° 44.6	16° 52.0	16° 59.2	17° 06.4	17° 13.4	17° 20.4	17° 27.3	+7.3	55.5
Чт 27	318° 32.9	333° 03.5	347° 34.2	2° 04.9	16° 35.5	31° 06.2	45° 36.8	60° 07.5	74° 38.1	89° 08.7	103° 39.4	+30.7	15.0
	18° 59.5	19° 04.9	19° 10.2	19° 15.4	19° 20.5	19° 25.5	19° 30.4	19° 35.2	19° 39.9	19° 44.6	19° 49.1	+5.0	54.9
Пт 28	321° 18.2	335° 48.7	350° 19.3	4° 49.9	19° 20.4	33° 51.0	48° 21.5	62° 52.1	77° 22.6	91° 53.2	106° 23.7	+30.6	14.9
	20° 45.2	20° 48.1	20° 50.9	20° 53.7	20° 56.3	20° 58.9	21° 01.3	21° 03.7	21° 05.9	21° 08.0	21° 10.1	+2.5	54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 7 12h46 — Последняя четв.: 14 22h49 — Новолуние: 21 15h48

СОЛНЦЕ

Март 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	266 ° 54.1 -7 ° 38.8	281 ° 54.2 -7 ° 37.9	296 ° 54.3 -7 ° 36.9	311 ° 54.4 -7 ° 36.0	326 ° 54.5 -7 ° 35.0	341 ° 54.7 -7 ° 34.1	356 ° 54.8 -7 ° 33.1	11 ° 54.9 -7 ° 32.2	26 ° 55.0 -7 ° 31.2	41 ° 55.1 -7 ° 30.3	56 ° 55.3 -7 ° 29.3	71 ° 55.4 -7 ° 28.4	+0.1 +1.0
Вс 2	266 ° 57.0 -7 ° 16.0	281 ° 57.1 -7 ° 15.0	296 ° 57.2 -7 ° 14.1	311 ° 57.4 -7 ° 13.1	326 ° 57.5 -7 ° 12.2	341 ° 57.6 -7 ° 11.2	356 ° 57.7 -7 ° 10.3	11 ° 57.9 -7 ° 09.3	26 ° 58.0 -7 ° 08.3	41 ° 58.1 -7 ° 07.4	56 ° 58.3 -7 ° 06.4	71 ° 58.4 -7 ° 05.5	+0.1 +1.0
Пн 3	267 ° 00.1 -6 ° 53.0	282 ° 00.2 -6 ° 52.1	297 ° 00.3 -6 ° 51.1	312 ° 00.4 -6 ° 50.2	327 ° 00.6 -6 ° 49.2	342 ° 00.7 -6 ° 48.3	357 ° 00.8 -6 ° 47.3	12 ° 01.0 -6 ° 46.3	27 ° 01.1 -6 ° 45.4	42 ° 01.2 -6 ° 44.4	57 ° 01.4 -6 ° 43.5	72 ° 01.5 -6 ° 42.5	+0.1 +1.0
Вт 4	267 ° 03.2 -6 ° 30.0	282 ° 03.4 -6 ° 29.1	297 ° 03.5 -6 ° 28.1	312 ° 03.6 -6 ° 27.1	327 ° 03.8 -6 ° 26.2	342 ° 03.9 -6 ° 25.2	357 ° 04.0 -6 ° 24.2	12 ° 04.2 -6 ° 23.3	27 ° 04.3 -6 ° 22.3	42 ° 04.5 -6 ° 21.4	57 ° 04.6 -6 ° 20.4	72 ° 04.7 -6 ° 19.4	+0.1 +1.0
Ср 5	267 ° 06.5 -6 ° 06.9	282 ° 06.7 -6 ° 05.9	297 ° 06.8 -6 ° 05.0	312 ° 06.9 -6 ° 04.0	327 ° 07.1 -6 ° 03.0	342 ° 07.2 -6 ° 02.1	357 ° 07.4 -6 ° 01.1	12 ° 07.5 -6 ° 00.1	27 ° 07.7 -5 ° 59.2	42 ° 07.8 -5 ° 58.2	57 ° 07.9 -5 ° 57.2	72 ° 08.1 -5 ° 56.3	+0.1 +1.0
Чт 6	267 ° 09.9 -5 ° 43.7	282 ° 10.1 -5 ° 42.7	297 ° 10.2 -5 ° 41.8	312 ° 10.4 -5 ° 40.8	327 ° 10.5 -5 ° 39.8	342 ° 10.7 -5 ° 38.8	357 ° 10.8 -5 ° 37.9	12 ° 11.0 -5 ° 36.9	27 ° 11.1 -5 ° 35.9	42 ° 11.2 -5 ° 35.0	57 ° 11.4 -5 ° 34.0	72 ° 11.5 -5 ° 33.0	+0.1 +1.0
Пт 7	267 ° 13.5 -5 ° 20.4	282 ° 13.6 -5 ° 19.4	297 ° 13.8 -5 ° 18.5	312 ° 13.9 -5 ° 17.5	327 ° 14.0 -5 ° 16.5	342 ° 14.2 -5 ° 15.6	357 ° 14.3 -5 ° 14.6	12 ° 14.5 -5 ° 13.6	27 ° 14.6 -5 ° 12.6	42 ° 14.8 -5 ° 11.7	57 ° 14.9 -5 ° 10.7	72 ° 15.1 -5 ° 09.7	+0.1 +1.0
Сб 8	267 ° 17.1 -4 ° 57.1	282 ° 17.2 -4 ° 56.1	297 ° 17.4 -4 ° 55.1	312 ° 17.5 -4 ° 54.1	327 ° 17.7 -4 ° 53.2	342 ° 17.8 -4 ° 52.2	357 ° 18.0 -4 ° 51.2	12 ° 18.1 -4 ° 50.2	27 ° 18.3 -4 ° 49.3	42 ° 18.5 -4 ° 48.3	57 ° 18.6 -4 ° 47.3	72 ° 18.8 -4 ° 46.3	+0.2 +1.0
Вс 9	267 ° 20.8 -4 ° 33.6	282 ° 20.9 -4 ° 32.7	297 ° 21.1 -4 ° 31.7	312 ° 21.3 -4 ° 30.7	327 ° 21.4 -4 ° 29.7	342 ° 21.6 -4 ° 28.8	357 ° 21.7 -4 ° 27.8	12 ° 21.9 -4 ° 26.8	27 ° 22.0 -4 ° 25.8	42 ° 22.2 -4 ° 24.9	57 ° 22.4 -4 ° 23.9	72 ° 22.5 -4 ° 22.9	+0.2 +1.0
Пн 10	267 ° 24.6 -4 ° 10.2	282 ° 24.7 -4 ° 09.2	297 ° 24.9 -4 ° 08.2	312 ° 25.1 -4 ° 07.2	327 ° 25.2 -4 ° 06.3	342 ° 25.4 -4 ° 05.3	357 ° 25.5 -4 ° 04.3	12 ° 25.7 -4 ° 03.3	27 ° 25.9 -4 ° 02.3	42 ° 26.0 -4 ° 01.4	57 ° 26.2 -4 ° 00.4	72 ° 26.4 -3 ° 59.4	+0.2 +1.0
Вт 11	267 ° 28.5 -3 ° 46.6	282 ° 28.6 -3 ° 45.7	297 ° 28.8 -3 ° 44.7	312 ° 29.0 -3 ° 43.7	327 ° 29.1 -3 ° 42.7	342 ° 29.3 -3 ° 41.7	357 ° 29.5 -3 ° 40.8	12 ° 29.6 -3 ° 39.8	27 ° 29.8 -3 ° 38.8	42 ° 29.9 -3 ° 37.8	57 ° 30.1 -3 ° 36.8	72 ° 30.3 -3 ° 35.8	+0.2 +1.0
Ср 12	267 ° 32.4 -3 ° 23.1	282 ° 32.6 -3 ° 22.1	297 ° 32.8 -3 ° 21.1	312 ° 32.9 -3 ° 20.1	327 ° 33.1 -3 ° 19.1	342 ° 33.3 -3 ° 18.2	357 ° 33.4 -3 ° 17.2	12 ° 33.6 -3 ° 16.2	27 ° 33.8 -3 ° 15.2	42 ° 33.9 -3 ° 14.2	57 ° 34.1 -3 ° 13.2	72 ° 34.3 -3 ° 12.3	+0.2 +1.0
Чт 13	267 ° 36.5 -2 ° 59.5	282 ° 36.6 -2 ° 58.5	297 ° 36.8 -2 ° 57.5	312 ° 37.0 -2 ° 56.5	327 ° 37.1 -2 ° 55.5	342 ° 37.3 -2 ° 54.5	357 ° 37.5 -2 ° 53.5	12 ° 37.7 -2 ° 52.6	27 ° 37.8 -2 ° 51.6	42 ° 38.0 -2 ° 50.6	57 ° 38.2 -2 ° 49.6	72 ° 38.3 -2 ° 48.6	+0.2 +1.0
Пт 14	267 ° 40.6 -2 ° 35.8	282 ° 40.7 -2 ° 34.8	297 ° 40.9 -2 ° 33.8	312 ° 41.1 -2 ° 32.8	327 ° 41.3 -2 ° 31.9	342 ° 41.4 -2 ° 30.9	357 ° 41.6 -2 ° 29.9	12 ° 41.8 -2 ° 28.9	27 ° 41.9 -2 ° 27.9	42 ° 42.1 -2 ° 26.9	57 ° 42.3 -2 ° 25.9	72 ° 42.5 -2 ° 25.0	+0.2 +1.0
Сб 15	267 ° 44.7 -2 ° 12.1	282 ° 44.9 -2 ° 11.1	297 ° 45.1 -2 ° 10.2	312 ° 45.2 -2 ° 09.2	327 ° 45.4 -2 ° 08.2	342 ° 45.6 -2 ° 07.2	357 ° 45.8 -2 ° 06.2	12 ° 45.9 -2 ° 05.2	27 ° 46.1 -2 ° 04.2	42 ° 46.3 -2 ° 03.2	57 ° 46.5 -2 ° 02.3	72 ° 46.6 -2 ° 01.3	+0.2 +1.0
Вс 16	267 ° 48.9 -1 ° 48.4	282 ° 49.1 -1 ° 47.4	297 ° 49.3 -1 ° 46.4	312 ° 49.5 -1 ° 45.5	327 ° 49.6 -1 ° 44.5	342 ° 49.8 -1 ° 43.5	357 ° 50.0 -1 ° 42.5	12 ° 50.2 -1 ° 41.5	27 ° 50.4 -1 ° 40.5	42 ° 50.5 -1 ° 39.5	57 ° 50.7 -1 ° 38.5	72 ° 50.9 -1 ° 37.6	+0.2 +1.0
Пн 17	267 ° 53.2 -1 ° 24.7	282 ° 53.4 -1 ° 23.7	297 ° 53.6 -1 ° 22.7	312 ° 53.7 -1 ° 21.7	327 ° 53.9 -1 ° 20.7	342 ° 54.1 -1 ° 19.8	357 ° 54.3 -1 ° 18.8	12 ° 54.4 -1 ° 17.8	27 ° 54.6 -1 ° 16.8	42 ° 54.8 -1 ° 15.8	57 ° 55.0 -1 ° 14.8	72 ° 55.2 -1 ° 13.8	+0.2 +1.0
Вт 18	267 ° 57.5 -1 ° 01.0	282 ° 57.7 -1 ° 00.0	297 ° 57.9 -0 ° 59.0	312 ° 58.0 -0 ° 58.0	327 ° 58.2 -0 ° 57.0	342 ° 58.4 -0 ° 56.0	357 ° 58.6 -0 ° 55.0	12 ° 58.8 -0 ° 54.1	27 ° 58.9 -0 ° 53.1	42 ° 59.1 -0 ° 52.1	57 ° 59.3 -0 ° 51.1	72 ° 59.5 -0 ° 50.1	+0.2 +1.0
Ср 19	268 ° 01.9 -0 ° 37.2	283 ° 02.0 -0 ° 36.3	298 ° 02.2 -0 ° 35.3	313 ° 02.4 -0 ° 34.3	328 ° 02.6 -0 ° 33.3	343 ° 02.8 -0 ° 32.3	358 ° 02.9 -0 ° 31.3	13 ° 03.1 -0 ° 30.3	28 ° 03.3 -0 ° 29.3	43 ° 03.5 -0 ° 28.3	58 ° 03.7 -0 ° 27.4	73 ° 03.9 -0 ° 26.4	+0.2 +1.0
Чт 20	268 ° 06.2 -0 ° 13.5	283 ° 06.4 -0 ° 12.5	298 ° 06.6 -0 ° 11.5	313 ° 06.8 -0 ° 10.5	328 ° 07.0 -0 ° 09.6	343 ° 07.1 -0 ° 08.6	358 ° 07.3 -0 ° 07.6	13 ° 07.5 -0 ° 06.6	28 ° 07.7 -0 ° 05.6	43 ° 07.9 -0 ° 04.6	58 ° 08.1 -0 ° 03.6	73 ° 08.3 -0 ° 02.6	+0.2 +1.0
Пт 21	268 ° 10.6 0 ° 10.2	283 ° 10.8 0 ° 11.2	298 ° 11.0 0 ° 12.2	313 ° 11.2 0 ° 13.2	328 ° 11.4 0 ° 14.2	343 ° 11.6 0 ° 15.2	358 ° 11.8 0 ° 16.1	13 ° 11.9 0 ° 17.1	28 ° 12.1 0 ° 18.1	43 ° 12.3 0 ° 19.1	58 ° 12.5 0 ° 20.1	73 ° 12.7 0 ° 21.1	+0.2 +1.0
Сб 22	268 ° 15.1 0 ° 33.9	283 ° 15.3 0 ° 34.9	298 ° 15.5 0 ° 35.9	313 ° 15.6 0 ° 36.9	328 ° 15.8 0 ° 37.9	343 ° 16.0 0 ° 38.9	358 ° 16.2 0 ° 39.8	13 ° 16.4 0 ° 40.8	28 ° 16.6 0 ° 41.8	43 ° 16.8 0 ° 42.8	58 ° 16.9 0 ° 43.8	73 ° 17.1 0 ° 44.8	+0.2 +1.0
Вс 23	268 ° 19.5 0 ° 57.6	283 ° 19.7 0 ° 58.6	298 ° 19.9 0 ° 59.6	313 ° 20.1 1 ° 00.6	328 ° 20.3 1 ° 01.5	343 ° 20.5 1 ° 02.5	358 ° 20.7 1 ° 03.5	13 ° 20.8 1 ° 04.5	28 ° 21.0 1 ° 05.5	43 ° 21.2 1 ° 06.5	58 ° 21.4 1 ° 07.5	73 ° 21.6 1 ° 08.4	+0.2 +1.0
Пн 24	268 ° 24.0 1 ° 21.3	283 ° 24.2 1 ° 22.2	298 ° 24.4 1 ° 23.2	313 ° 24.6 1 ° 24.2	328 ° 24.8 1 ° 25.2	343 ° 25.0 1 ° 26.2	358 ° 25.1 1 ° 27.2	13 ° 25.3 1 ° 28.1	28 ° 25.5 1 ° 29.1	43 ° 25.7 1 ° 30.1	58 ° 25.9 1 ° 31.1	73 ° 26.1 1 ° 32.1	+0.2 +1.0
Вт 25	268 ° 28.5 1 ° 44.9	283 ° 28.7 1 ° 45.9	298 ° 28.9 1 ° 46.8	313 ° 29.1 1 ° 47.8	328 ° 29.3 1 ° 48.8	343 ° 29.4 1 ° 49.8	358 ° 29.6 1 ° 50.8	13 ° 29.8 1 ° 51.8	28 ° 30.0 1 ° 52.7	43 ° 30.2 1 ° 53.7	58 ° 30.4 1 ° 54.7	73 ° 30.6 1 ° 55.7	+0.2 +1.0
Ср 26	268 ° 33.0 2 ° 08.5	283 ° 33.2 2 ° 09.4	298 ° 33.4 2 ° 10.4	313 ° 33.6 2 ° 11.4	328 ° 33.8 2 ° 12.4	343 ° 34.0 2 ° 13.4	358 ° 34.1 2 ° 14.3	13 ° 34.3 2 ° 15.3	28 ° 34.5 2 ° 16.3	43 ° 34.7 2 ° 17.3	58 ° 34.9 2 ° 18.3	73 ° 35.1 2 ° 19.2	+0.2 +1.0
Чт 27	268 ° 37.5 2 ° 32.0	283 ° 37.7 2 ° 33.0	298 ° 37.9 2 ° 33.9	313 ° 38.1 2 ° 34.9	328 ° 38.3 2 ° 35.9	343 ° 38.5 2 ° 36.9	358 ° 38.7 2 ° 37.9	13 ° 38.8 2 ° 38.8	28 ° 39.0 2 ° 39.8	43 ° 39.2 2 ° 40.8	58 ° 39.4 2 ° 41.8	73 ° 39.6 2 ° 42.8	+0.2 +1.0
Пт 28	268 ° 42.0 2 ° 55.5	283 ° 42.2 2 ° 56.4	298 ° 42.4 2 ° 57.4	313 ° 42.6 2 ° 58.4	328 ° 42.8 2 ° 59.4	343 ° 43.0 3 ° 00.3	358 ° 43.2 3 ° 01.3	13 ° 43.3 3 ° 02.3	28 ° 43.5 3 ° 03.3	43 ° 43.7 3 ° 04.3	58 ° 43.9 3 ° 05.2	73 ° 44.1 3 ° 06.2	+0.2 +1.0
Сб 29	268 ° 46.5 3 ° 18.9	283 ° 46.7 3 ° 19.9	298 ° 46.9 3 ° 20.8	313 ° 47.1 3 ° 21.8	328 ° 47.3 3 ° 22.8	343 ° 47.5 3 ° 23.8	358 ° 47.7 3 ° 24.7	13 ° 47.9 3 ° 25.7	28 ° 48.0 3 ° 26.7	43 ° 48.2 3 ° 27.6	58 ° 48.4 3 ° 28.6	73 ° 48.6 3 ° 29.6	+0.2 +1.0
Вс 30	268 ° 51.0 3 ° 42.2	283 ° 51.2 3 ° 43.2	298 ° 51.4 3 ° 44.2	313 ° 51.6 3 ° 45.2	328 ° 51.8 3 ° 46.1	343 ° 52.0 3 ° 47.1	358 ° 52.2 3 ° 48.1	13 ° 52.3 3 ° 49.0	28 ° 52.5 3 ° 50.0	43 ° 52.7 3 ° 51.0	58 ° 52.9 3 ° 51.9	73 ° 53.1 3 ° 52.9	+0.2 +1.0
Пн 31	268 ° 55.5 4 ° 05.5	283 ° 55.7 4 ° 06.5	298 ° 55.9 4 ° 07.5	313 ° 56.1 4 ° 08.4	328 ° 56.3 4 ° 09.4	343 ° 56.5 4 ° 10.4	358 ° 56.6 4 ° 11.3	13 ° 56.8 4 ° 12.3	28 ° 57.0 4 ° 13.3	43 ° 57.2 4 ° 14.2	58 ° 57.4 4 ° 15.2	73 ° 57.6 4 ° 16.2	+0.2 +1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2031

	Д	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	R/p
◐	Сб 1	251° 29.3 21° 24.9	265° 59.9 21° 25.9	280° 30.5 21° 26.7	295° 01.1 21° 27.4	309° 31.7 21° 28.1	324° 02.3 21° 28.6	338° 32.9 21° 29.0	353° 03.5 21° 29.3	7° 34.1 21° 29.6	22° 04.7 21° 29.7	36° 35.3 21° 29.7	+30.6 +0.5	14.8 54.2
	Вс 2	254° 15.8 21° 18.1	268° 46.5 21° 16.5	283° 17.3 21° 14.9	297° 48.1 21° 13.1	312° 19.0 21° 11.2	326° 49.8 21° 09.3	341° 20.6 21° 07.2	355° 51.5 21° 05.0	10° 22.4 21° 02.8	24° 53.2 21° 00.4	39° 24.1 20° 58.0	+30.8 -2.0	14.8 54.1
	Пн 3	257° 09.5 20° 09.7	271° 40.7 20° 05.8	286° 11.9 20° 01.7	300° 43.1 19° 57.6	315° 14.3 19° 53.3	329° 45.5 19° 49.0	344° 16.8 19° 44.5	358° 48.1 19° 40.0	13° 19.4 19° 35.4	27° 50.7 19° 30.7	42° 22.0 19° 25.9	+31.2 -4.4	14.8 54.2
	Вт 4	260° 14.4 18° 03.4	274° 46.0 17° 57.2	289° 17.7 17° 50.9	303° 49.4 17° 44.6	318° 21.1 17° 38.1	332° 52.9 17° 31.6	347° 24.6 17° 25.0	1° 56.4 17° 18.3	16° 28.2 17° 11.5	31° 00.0 17° 04.7	45° 31.8 16° 57.8	+31.7 -6.6	14.8 54.5
	Ср 5	263° 31.6 15° 04.5	278° 03.7 14° 56.3	292° 35.9 14° 48.1	307° 08.0 14° 39.8	321° 40.2 14° 31.4	336° 12.4 14° 23.0	350° 44.6 14° 14.5	5° 16.9 14° 05.9	19° 49.1 13° 57.3	34° 21.4 13° 48.6	48° 53.6 13° 39.8	+32.2 -8.5	15.0 54.8
	Чт 6	266° 59.3 11° 20.4	281° 31.8 11° 10.6	296° 04.3 11° 00.7	310° 36.8 10° 50.8	325° 09.3 10° 40.9	339° 41.8 10° 30.9	354° 14.3 10° 20.8	8° 46.8 10° 10.7	23° 19.3 10° 00.5	37° 51.9 9° 50.3	52° 24.4 9° 40.0	+32.5 -10.0	15.1 55.3
	Пт 7	270° 32.8 7° 00.1	285° 05.3 6° 49.1	299° 37.9 6° 38.0	314° 10.4 6° 26.9	328° 43.0 6° 15.8	343° 15.5 6° 04.6	357° 48.1 5° 53.4	12° 20.6 5° 42.2	26° 53.1 5° 30.9	41° 25.6 5° 19.6	55° 58.2 5° 08.3	+32.5 -11.2	15.2 55.9
	Сб 8	274° 04.5 2° 14.6	288° 36.8 2° 02.9	303° 09.1 1° 51.1	317° 41.3 1° 39.3	332° 13.6 1° 27.5	346° 45.8 1° 15.6	1° 18.0 1° 03.8	15° 50.2 0° 51.9	30° 22.4 0° 40.0	44° 54.5 0° 28.1	59° 26.6 0° 16.2	+32.2 -11.8	15.4 56.5
○	Вс 9	277° 25.2 -2° 43.0	291° 56.8 -2° 55.0	306° 28.4 -3° 06.9	321° 00.0 -3° 18.9	335° 31.6 -3° 30.8	350° 03.1 -3° 42.8	4° 34.6 -3° 54.7	19° 06.0 -4° 06.6	33° 37.4 -4° 18.5	48° 08.7 -4° 30.4	62° 40.1 -4° 42.2	+31.5 -11.9	15.6 57.0
	Пн 10	280° 24.6 -7° 37.9	294° 55.2 -7° 49.4	309° 25.7 -8° 00.8	323° 56.2 -8° 12.3	338° 26.7 -8° 23.7	352° 57.1 -8° 35.0	7° 27.4 -8° 46.4	21° 57.7 -8° 57.7	36° 27.9 -9° 08.9	50° 58.1 -9° 20.1	65° 28.2 -9° 31.3	+30.4 -11.3	15.7 57.6
	Вт 11	282° 53.1 -12° 12.8	297° 22.3 -12° 23.2	311° 51.5 -12° 33.4	326° 20.5 -12° 43.6	340° 49.5 -12° 53.8	355° 18.4 -13° 03.8	9° 47.3 -13° 13.9	24° 16.1 -13° 23.8	38° 44.9 -13° 33.7	53° 13.6 -13° 43.4	67° 42.2 -13° 53.2	+28.9 -10.0	15.8 58.0
	Ср 12	284° 43.7 -16° 09.5	299° 11.3 -16° 17.9	313° 38.8 -16° 26.2	328° 06.2 -16° 34.5	342° 33.6 -16° 42.6	357° 00.9 -16° 50.6	11° 28.2 -16° 58.6	25° 55.4 -17° 06.4	40° 22.5 -17° 14.1	54° 49.6 -17° 21.8	69° 16.6 -17° 29.3	+27.3 -8.0	15.9 58.4
	Чт 13	285° 54.4 -19° 09.4	300° 20.5 -19° 15.2	314° 46.5 -19° 20.9	329° 12.5 -19° 26.4	343° 38.4 -19° 31.8	358° 04.2 -19° 37.1	12° 30.0 -19° 42.3	26° 55.7 -19° 47.3	41° 21.4 -19° 52.3	55° 47.1 -19° 57.1	70° 12.7 -20° 01.7	+25.8 -5.2	16.0 58.7
	Пт 14	300° 20.5 -19° 15.2	314° 46.5 -19° 20.9	329° 12.5 -19° 26.4	343° 38.4 -19° 31.8	358° 04.2 -19° 37.1	12° 30.0 -19° 42.3	26° 55.7 -19° 47.3	41° 21.4 -19° 52.3	55° 47.1 -19° 57.1	70° 12.7 -20° 01.7	84° 38.2 -20° 06.3	+25.8 -5.1	16.0 58.8
	Сб 15	300° 56.5 -20° 58.9	315° 21.4 -21° 01.3	329° 46.3 -21° 03.6	344° 11.2 -21° 05.8	358° 36.0 -21° 07.8	13° 00.8 -21° 09.7	27° 25.6 -21° 11.4	41° 50.4 -21° 13.0	56° 15.1 -21° 14.5	70° 39.9 -21° 15.8	85° 04.6 -21° 17.0	+24.8 -1.8	16.1 59.0
◑	Вс 16	301° 13.7 -21° 17.9	315° 38.3 -21° 16.9	330° 02.9 -21° 15.7	344° 27.5 -21° 14.3	358° 52.1 -21° 12.8	13° 16.6 -21° 11.2	27° 41.2 -21° 09.4	42° 05.9 -21° 07.5	56° 30.5 -21° 05.4	70° 55.1 -21° 03.2	85° 19.7 -21° 00.9	+24.6 +1.7	16.1 59.2
	Пн 17	301° 31.8 -20° 09.3	315° 56.8 -20° 04.8	330° 21.9 -20° 00.1	344° 47.0 -19° 55.4	359° 12.1 -19° 50.4	13° 37.2 -19° 45.4	28° 02.4 -19° 40.2	42° 27.6 -19° 34.9	56° 52.9 -19° 29.5	71° 18.2 -19° 23.9	85° 43.5 -19° 18.3	+25.2 +5.1	16.2 59.3
	Вт 18	302° 09.0 -17° 38.5	316° 35.0 -17° 30.9	331° 01.2 -17° 23.2	345° 27.3 -17° 15.4	359° 53.6 -17° 07.5	14° 19.9 -16° 59.5	28° 46.2 -16° 51.4	43° 12.6 -16° 43.2	57° 39.0 -16° 34.9	72° 05.5 -16° 26.4	86° 32.1 -16° 17.9	+26.3 +8.1	16.2 59.2
	Ср 19	303° 16.9 -13° 58.6	317° 44.3 -13° 48.6	332° 11.8 -13° 38.5	346° 39.3 -13° 28.4	1° 06.9 -13° 18.1	15° 34.5 -13° 07.8	30° 02.2 -12° 57.4	44° 30.0 -12° 47.0	58° 57.8 -12° 36.4	73° 25.7 -12° 25.8	87° 53.6 -12° 15.2	+27.7 +10.3	16.1 59.1
	Чт 20	304° 58.7 -9° 27.4	319° 27.4 -9° 15.8	333° 56.2 -9° 04.1	348° 25.0 -8° 52.4	2° 53.9 -8° 40.6	17° 22.8 -8° 28.8	31° 51.8 -8° 17.0	46° 20.8 -8° 05.1	60° 49.9 -7° 53.1	75° 19.0 -7° 41.1	89° 48.2 -7° 29.1	+29.0 +11.8	16.1 58.9
	Пт 21	307° 10.4 -4° 25.2	321° 40.2 -4° 12.8	336° 10.0 -4° 00.3	350° 39.9 -3° 47.8	5° 09.8 -3° 35.3	19° 39.7 -3° 22.8	34° 09.6 -3° 10.3	48° 39.6 -2° 57.8	63° 09.6 -2° 45.3	77° 39.7 -2° 32.7	92° 09.8 -2° 20.2	+29.9 +12.5	16.0 58.5
	Сб 22	309° 44.0 0° 47.8	324° 14.4 1° 00.3	338° 44.9 1° 12.7	353° 15.4 1° 25.2	7° 45.9 1° 37.6	22° 16.5 1° 50.0	36° 47.0 2° 02.4	51° 17.6 2° 14.7	65° 48.2 2° 27.1	80° 18.8 2° 39.4	94° 49.4 2° 51.7	+30.5 +12.4	15.8 58.0
●	Вс 23	312° 29.9 5° 52.6	327° 00.7 6° 04.4	341° 31.4 6° 16.1	356° 02.2 6° 27.8	10° 33.0 6° 39.4	25° 03.8 6° 51.0	39° 34.5 7° 02.6	54° 05.3 7° 14.1	68° 36.1 7° 25.5	83° 06.9 7° 37.0	97° 37.7 7° 48.3	+30.8 +11.6	15.6 57.4
	Пн 24	315° 19.5 10° 32.2	329° 50.2 10° 42.7	344° 21.0 10° 53.1	358° 51.7 11° 03.4	13° 22.5 11° 13.6	27° 53.2 11° 23.8	42° 23.9 11° 34.0	56° 54.7 11° 44.0	71° 25.4 11° 54.0	85° 56.1 12° 03.9	100° 26.8 12° 13.8	+30.7 +10.2	15.5 56.7
	Вт 25	318° 06.4 14° 32.5	332° 37.0 14° 41.2	347° 07.6 14° 49.7	1° 38.1 14° 58.2	16° 08.7 15° 06.6	30° 39.2 15° 14.9	45° 09.7 15° 23.1	59° 40.2 15° 31.2	74° 10.7 15° 39.2	88° 41.2 15° 47.2	103° 11.7 15° 55.1	+30.5 +8.3	15.3 56.0
	Ср 26	320° 47.9 17° 42.5	335° 18.3 17° 48.9	349° 48.6 17° 55.3	4° 18.9 18° 01.5	18° 49.3 18° 07.6	33° 19.6 18° 13.7	47° 49.9 18° 19.6	62° 20.2 18° 25.5	76° 50.5 18° 31.3	91° 20.8 18° 36.9	105° 51.1 18° 42.5	+30.3 +6.0	15.1 55.4
	Чт 27	323° 24.8 19° 54.3	337° 55.0 19° 58.3	352° 25.2 20° 02.2	6° 55.4 20° 06.0	21° 25.7 20° 09.7	35° 55.9 20° 13.3	50° 26.1 20° 16.8	64° 56.3 20° 20.2	79° 26.6 20° 23.4	93° 56.8 20° 26.6	108° 27.0 20° 29.7	+30.2 +3.5	15.0 54.9
	Пт 28	326° 00.9 21° 03.7	340° 31.2 21° 05.2	355° 01.5 21° 06.5	9° 31.9 21° 07.8	24° 02.2 21° 08.9	38° 32.6 21° 10.0	53° 02.9 21° 10.9	67° 33.3 21° 11.8	82° 03.7 21° 12.5	96° 34.1 21° 13.2	111° 04.5 21° 13.7	+30.4 +1.0	14.9 54.5
	Сб 29	328° 42.1 21° 09.7	343° 12.8 21° 08.6	357° 43.4 21° 07.5	12° 14.1 21° 06.2	26° 44.8 21° 04.8	41° 15.5 21° 03.4	55° 46.2 21° 01.8	70° 17.0 21° 00.2	84° 47.7 20° 58.4	99° 18.5 20° 56.6	113° 49.3 20° 54.6	+30.7 -1.5	14.8 54.2
	Вс 30	331° 33.9 20° 13.9	346° 05.1 20° 10.5	0° 36.3 20° 06.9	15° 07.5 20° 03.3	29° 38.7 19° 59.5	44° 10.0 19° 55.7	58° 41.2 19° 51.8	73° 12.5 19° 47.7	87° 43.8 19° 43.6	102° 15.2 19° 39.4	116° 46.5 19° 35.2	+31.3 -3.9	14.8 54.2
◐	Пн 31	334° 40.0 18° 20.4	349° 11.7 18° 14.7	3° 43.5 18° 09.0	18° 15.3 18° 03.2	32° 47.1 17° 57.2	47° 19.0 17° 51.2	61° 50.8 17° 45.2	76° 22.7 17° 39.0	90° 54.6 17° 32.8	105° 26.6 17° 26.4	119° 58.5 17° 20.0	+31.9 -6.0	14.8 54.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 1 04h02 — Полнолуние: 9 04h29 — Последняя четв.: 16 06h35 — Новолуние: 23 03h49 — Первая четв.: 31 00h32

СОЛНЦЕ

Апрель 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	269° 00.0	284° 00.2	299° 00.4	314° 00.5	329° 00.7	344° 00.9	359° 01.1	14° 01.3	29° 01.5	44° 01.7	59° 01.8	74° 02.0	+0.2
	4° 28.7	4° 29.7	4° 30.7	4° 31.6	4° 32.6	4° 33.6	4° 34.5	4° 35.5	4° 36.4	4° 37.4	4° 38.4	4° 39.3	+1.0
Ср 2	269° 04.4	284° 04.6	299° 04.8	314° 05.0	329° 05.2	344° 05.4	359° 05.5	14° 05.7	29° 05.9	44° 06.1	59° 06.3	74° 06.5	+0.2
	4° 51.9	4° 52.8	4° 53.8	4° 54.7	4° 55.7	4° 56.7	4° 57.6	4° 58.6	4° 59.5	5° 00.5	5° 01.5	5° 02.4	+1.0
Чт 3	269° 08.9	284° 09.0	299° 09.2	314° 09.4	329° 09.6	344° 09.8	359° 10.0	14° 10.1	29° 10.3	44° 10.5	59° 10.7	74° 10.9	+0.2
	5° 14.9	5° 15.8	5° 16.8	5° 17.8	5° 18.7	5° 19.7	5° 20.6	5° 21.6	5° 22.6	5° 23.5	5° 24.5	5° 25.4	+1.0
Пт 4	269° 13.2	284° 13.4	299° 13.6	314° 13.8	329° 14.0	344° 14.2	359° 14.3	14° 14.5	29° 14.7	44° 14.9	59° 15.1	74° 15.2	+0.2
	5° 37.8	5° 38.8	5° 39.7	5° 40.7	5° 41.6	5° 42.6	5° 43.6	5° 44.5	5° 45.5	5° 46.4	5° 47.4	5° 48.3	+1.0
Сб 5	269° 17.6	284° 17.8	299° 18.0	314° 18.1	329° 18.3	344° 18.5	359° 18.7	14° 18.9	29° 19.0	44° 19.2	59° 19.4	74° 19.6	+0.2
	6° 00.7	6° 01.6	6° 02.6	6° 03.5	6° 04.5	6° 05.4	6° 06.4	6° 07.3	6° 08.3	6° 09.2	6° 10.2	6° 11.1	+0.9
Вс 6	269° 21.9	284° 22.1	299° 22.3	314° 22.4	329° 22.6	344° 22.8	359° 23.0	14° 23.2	29° 23.3	44° 23.5	59° 23.7	74° 23.9	+0.2
	6° 23.4	6° 24.4	6° 25.3	6° 26.3	6° 27.2	6° 28.1	6° 29.1	6° 30.0	6° 31.0	6° 31.9	6° 32.9	6° 33.8	+0.9
Пн 7	269° 26.2	284° 26.3	299° 26.5	314° 26.7	329° 26.9	344° 27.0	359° 27.2	14° 27.4	29° 27.6	44° 27.7	59° 27.9	74° 28.1	+0.2
	6° 46.0	6° 47.0	6° 47.9	6° 48.9	6° 49.8	6° 50.7	6° 51.7	6° 52.6	6° 53.6	6° 54.5	6° 55.4	6° 56.4	+0.9
Вт 8	269° 30.4	284° 30.5	299° 30.7	314° 30.9	329° 31.1	344° 31.2	359° 31.4	14° 31.6	29° 31.8	44° 31.9	59° 32.1	74° 32.3	+0.2
	7° 08.6	7° 09.5	7° 10.4	7° 11.4	7° 12.3	7° 13.2	7° 14.2	7° 15.1	7° 16.0	7° 17.0	7° 17.9	7° 18.8	+0.9
Ср 9	269° 34.5	284° 34.7	299° 34.9	314° 35.0	329° 35.2	344° 35.4	359° 35.5	14° 35.7	29° 35.9	44° 36.1	59° 36.2	74° 36.4	+0.2
	7° 31.0	7° 31.9	7° 32.8	7° 33.7	7° 34.7	7° 35.6	7° 36.5	7° 37.5	7° 38.4	7° 39.3	7° 40.2	7° 41.2	+0.9
Чт 10	269° 38.6	284° 38.8	299° 38.9	314° 39.1	329° 39.3	344° 39.4	359° 39.6	14° 39.8	29° 39.9	44° 40.1	59° 40.3	74° 40.4	+0.2
	7° 53.2	7° 54.1	7° 55.1	7° 56.0	7° 56.9	7° 57.8	7° 58.8	7° 59.7	8° 00.6	8° 01.5	8° 02.5	8° 03.4	+0.9
Пт 11	269° 42.6	284° 42.8	299° 42.9	314° 43.1	329° 43.3	344° 43.4	359° 43.6	14° 43.8	29° 43.9	44° 44.1	59° 44.3	74° 44.4	+0.2
	8° 15.4	8° 16.3	8° 17.2	8° 18.1	8° 19.0	8° 20.0	8° 20.9	8° 21.8	8° 22.7	8° 23.6	8° 24.5	8° 25.5	+0.9
Сб 12	269° 46.5	284° 46.7	299° 46.9	314° 47.0	329° 47.2	344° 47.4	359° 47.5	14° 47.7	29° 47.8	44° 48.0	59° 48.2	74° 48.3	+0.2
	8° 37.4	8° 38.3	8° 39.2	8° 40.1	8° 41.0	8° 41.9	8° 42.8	8° 43.7	8° 44.7	8° 45.6	8° 46.5	8° 47.4	+0.9
Вс 13	269° 50.4	284° 50.6	299° 50.7	314° 50.9	329° 51.0	344° 51.2	359° 51.4	14° 51.5	29° 51.7	44° 51.8	59° 52.0	74° 52.1	+0.2
	8° 59.2	9° 00.1	9° 01.0	9° 01.9	9° 02.8	9° 03.7	9° 04.7	9° 05.6	9° 06.5	9° 07.4	9° 08.3	9° 09.2	+0.9
Пн 14	269° 54.2	284° 54.3	299° 54.5	314° 54.6	329° 54.8	344° 55.0	359° 55.1	14° 55.3	29° 55.4	44° 55.6	59° 55.7	74° 55.9	+0.2
	9° 20.9	9° 21.8	9° 22.7	9° 23.6	9° 24.5	9° 25.4	9° 26.3	9° 27.2	9° 28.1	9° 29.0	9° 29.9	9° 30.8	+0.9
Вт 15	269° 57.9	284° 58.0	299° 58.2	314° 58.3	329° 58.5	344° 58.6	359° 58.8	14° 58.9	29° 59.1	44° 59.2	59° 59.4	74° 59.5	+0.2
	9° 42.5	9° 43.4	9° 44.3	9° 45.2	9° 46.1	9° 46.9	9° 47.8	9° 48.7	9° 49.6	9° 50.5	9° 51.4	9° 52.3	+0.9
Ср 16	270° 01.5	285° 01.6	300° 01.7	315° 01.9	330° 02.0	345° 02.2	0° 02.3	15° 02.5	30° 02.6	45° 02.8	60° 02.9	75° 03.1	+0.1
	10° 03.9	10° 04.8	10° 05.6	10° 06.5	10° 07.4	10° 08.3	10° 09.2	10° 10.1	10° 11.0	10° 11.9	10° 12.7	10° 13.6	+0.9
Чт 17	270° 05.0	285° 05.1	300° 05.2	315° 05.4	330° 05.5	345° 05.7	0° 05.8	15° 06.0	30° 06.1	45° 06.2	60° 06.4	75° 06.5	+0.1
	10° 25.1	10° 26.0	10° 26.9	10° 27.7	10° 28.6	10° 29.5	10° 30.4	10° 31.3	10° 32.1	10° 33.0	10° 33.9	10° 34.8	+0.9
Пт 18	270° 08.3	285° 08.5	300° 08.6	315° 08.8	330° 08.9	345° 09.0	0° 09.2	15° 09.3	30° 09.5	45° 09.6	60° 09.7	75° 09.9	+0.1
	10° 46.2	10° 47.0	10° 47.9	10° 48.8	10° 49.7	10° 50.5	10° 51.4	10° 52.3	10° 53.1	10° 54.0	10° 54.9	10° 55.8	+0.9
Сб 19	270° 11.6	285° 11.8	300° 11.9	315° 12.0	330° 12.2	345° 12.3	0° 12.4	15° 12.6	30° 12.7	45° 12.9	60° 13.0	75° 13.1	+0.1
	11° 07.0	11° 07.9	11° 08.8	11° 09.6	11° 10.5	11° 11.4	11° 12.2	11° 13.1	11° 14.0	11° 14.8	11° 15.7	11° 16.5	+0.9
Вс 20	270° 14.8	285° 15.0	300° 15.1	315° 15.2	330° 15.4	345° 15.5	0° 15.6	15° 15.7	30° 15.9	45° 16.0	60° 16.1	75° 16.3	+0.1
	11° 27.7	11° 28.6	11° 29.5	11° 30.3	11° 31.2	11° 32.0	11° 32.9	11° 33.7	11° 34.6	11° 35.5	11° 36.3	11° 37.2	+0.9
Пн 21	270° 17.9	285° 18.0	300° 18.2	315° 18.3	330° 18.4	345° 18.5	0° 18.7	15° 18.8	30° 18.9	45° 19.0	60° 19.2	75° 19.3	+0.1
	11° 48.2	11° 49.1	11° 49.9	11° 50.8	11° 51.6	11° 52.5	11° 53.3	11° 54.2	11° 55.0	11° 55.9	11° 56.7	11° 57.6	+0.8
Вт 22	270° 20.9	285° 21.0	300° 21.1	315° 21.3	330° 21.4	345° 21.5	0° 21.6	15° 21.7	30° 21.9	45° 22.0	60° 22.1	75° 22.2	+0.1
	12° 08.6	12° 09.4	12° 10.2	12° 11.1	12° 11.9	12° 12.8	12° 13.6	12° 14.4	12° 15.3	12° 16.1	12° 17.0	12° 17.8	+0.8
Ср 23	270° 23.8	285° 23.9	300° 24.0	315° 24.1	330° 24.2	345° 24.3	0° 24.5	15° 24.6	30° 24.7	45° 24.8	60° 24.9	75° 25.0	+0.1
	12° 28.7	12° 29.5	12° 30.3	12° 31.2	12° 32.0	12° 32.8	12° 33.7	12° 34.5	12° 35.3	12° 36.2	12° 37.0	12° 37.8	+0.8
Чт 24	270° 26.5	285° 26.6	300° 26.7	315° 26.8	330° 26.9	345° 27.1	0° 27.2	15° 27.3	30° 27.4	45° 27.5	60° 27.6	75° 27.7	+0.1
	12° 48.6	12° 49.4	12° 50.2	12° 51.1	12° 51.9	12° 52.7	12° 53.5	12° 54.3	12° 55.2	12° 56.0	12° 56.8	12° 57.6	+0.8
Пт 25	270° 29.1	285° 29.2	300° 29.4	315° 29.5	330° 29.6	345° 29.7	0° 29.8	15° 29.9	30° 30.0	45° 30.1	60° 30.2	75° 30.3	+0.1
	13° 08.3	13° 09.1	13° 09.9	13° 10.7	13° 11.5	13° 12.4	13° 13.2	13° 14.0	13° 14.8	13° 15.6	13° 16.4	13° 17.2	+0.8
Сб 26	270° 31.7	285° 31.8	300° 31.9	315° 32.0	330° 32.1	345° 32.2	0° 32.3	15° 32.4	30° 32.5	45° 32.6	60° 32.7	75° 32.8	+0.1
	13° 27.8	13° 28.6	13° 29.4	13° 30.2	13° 31.0	13° 31.8	13° 32.6	13° 33.4	13° 34.2	13° 35.0	13° 35.8	13° 36.6	+0.8
Вс 27	270° 34.0	285° 34.1	300° 34.2	315° 34.3	330° 34.4	345° 34.5	0° 34.6	15° 34.7	30° 34.8	45° 34.9	60° 35.0	75° 35.1	+0.1
	13° 47.0	13° 47.8	13° 48.6	13° 49.4	13° 50.2	13° 51.0	13° 51.8	13° 52.6	13° 53.4	13° 54.2	13° 55.0	13° 55.8	+0.8
Пн 28	270° 36.3	285° 36.4	300° 36.5	315° 36.6	330° 36.7	345° 36.8	0° 36.9	15° 37.0	30° 37.1	45° 37.1	60° 37.2	75° 37.3	+0.1
	14° 06.0	14° 06.8	14° 07.6	14° 08.4	14° 09.2	14° 10.0	14° 10.8	14° 11.6	14° 12.3	14° 13.1	14° 13.9	14° 14.7	+0.8
Вт 29	270° 38.5	285° 38.6	300° 38.7	315° 38.7	330° 38.8	345° 38.9	0° 39.0	15° 39.1	30° 39.2	45° 39.3	60° 39.3	75° 39.4	+0.1
	14° 24.8	14° 25.6	14° 26.4	14° 27.2	14° 27.9	14° 28.7	14° 29.5	14° 30.3	14° 31.1	14° 31.8	14° 32.6	14° 33.4	+0.8
Ср 30	270° 40.5	285° 40.6	300° 40.7	315° 40.7	330° 40.8	345° 40.9	0° 41.0	15° 41.1	30° 41.2	45° 41.2	60° 41.3	75° 41.4	+0.1
	14° 43.4	14° 44.2	14° 44.9	14° 45.7	14° 46.5	14° 47.2	14° 48.0	14° 48.8	14° 49.5	14° 50.3	14° 51.1	14° 51.8	+0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2031

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Вт 1	250° 47.2 16° 18.9	265° 19.4 16° 11.7	279° 51.6 16° 04.4	294° 23.8 15° 57.1	308° 56.0 15° 49.7	323° 28.3 15° 42.2	338° 00.6 15° 34.7	352° 32.9 15° 27.0	7° 05.2 15° 19.4	21° 37.5 15° 11.6	36° 09.9 15° 03.7	+32.3 -7.5	14.9 54.5
Ср 2	254° 17.0 12° 57.9	268° 49.6 12° 49.0	283° 22.2 12° 40.0	297° 54.9 12° 30.9	312° 27.5 12° 21.8	327° 00.1 12° 12.6	341° 32.7 12° 03.4	356° 05.4 11° 54.1	10° 38.1 11° 44.8	25° 10.7 11° 35.4	39° 43.4 11° 25.9	+32.6 -9.2	15.0 55.0
Чт 3	257° 54.1 8° 57.2	272° 26.8 8° 46.8	286° 59.5 8° 36.5	301° 32.2 8° 26.0	316° 04.9 8° 15.6	330° 37.6 8° 05.0	345° 10.4 7° 54.5	359° 43.1 7° 43.8	14° 15.7 7° 33.2	28° 48.4 7° 22.5	43° 21.1 7° 11.7	+32.7 -10.5	15.2 55.6
Пт 4	261° 30.1 4° 25.7	276° 02.6 4° 14.3	290° 35.0 4° 02.9	305° 07.5 3° 51.5	319° 39.9 3° 40.1	334° 12.3 3° 28.6	348° 44.7 3° 17.1	3° 17.0 3° 05.6	17° 49.4 2° 54.0	32° 21.7 2° 42.4	46° 54.0 2° 30.8	+32.4 -11.5	15.3 56.3
Сб 5	264° 55.0 -0° 25.8	279° 26.8 -0° 37.7	293° 58.5 -0° 49.6	308° 30.3 -1° 01.5	323° 02.0 -1° 13.4	337° 33.6 -1° 25.3	352° 05.3 -1° 37.3	6° 36.8 -1° 49.2	21° 08.4 -2° 01.1	35° 39.9 -2° 13.1	50° 11.3 -2° 25.0	+31.6 -11.9	15.5 57.0
Вс 6	267° 57.6 -5° 23.8	282° 28.3 -5° 35.6	296° 58.9 -5° 47.4	311° 29.5 -5° 59.2	326° 00.0 -6° 11.0	340° 30.5 -6° 22.7	355° 00.9 -6° 34.5	9° 31.2 -6° 46.2	24° 01.5 -6° 57.9	38° 31.8 -7° 09.5	53° 01.9 -7° 21.2	+30.4 -11.7	15.7 57.7
○ Пн 7	270° 27.2 -10° 11.7	284° 56.3 -10° 22.7	299° 25.4 -10° 33.7	313° 54.4 -10° 44.7	328° 23.4 -10° 55.6	342° 52.3 -11° 06.4	357° 21.1 -11° 17.2	11° 49.9 -11° 27.9	26° 18.5 -11° 38.6	40° 47.2 -11° 49.2	55° 15.7 -11° 59.8	+28.9 -10.8	15.9 58.4
Вт 8	272° 15.3 -14° 30.2	286° 42.7 -14° 39.6	301° 10.1 -14° 48.9	315° 37.3 -14° 58.2	330° 04.5 -15° 07.4	344° 31.6 -15° 16.5	358° 58.7 -15° 25.5	13° 25.6 -15° 34.4	27° 52.5 -15° 43.2	42° 19.4 -15° 51.9	56° 46.1 -16° 00.6	+27.1 -9.0	16.1 58.9
Ср 9	273° 19.4 -17° 58.1	287° 45.1 -18° 05.1	302° 10.8 -18° 12.0	316° 36.3 -18° 18.7	331° 01.9 -18° 25.4	345° 27.3 -18° 31.9	359° 52.7 -18° 38.3	14° 18.1 -18° 44.6	28° 43.3 -18° 50.7	43° 08.6 -18° 56.8	57° 33.7 -19° 02.7	+25.4 -6.5	16.2 59.3
Чт 10	273° 45.5 -20° 16.0	288° 10.0 -20° 19.8	302° 34.4 -20° 23.5	316° 58.8 -20° 27.1	331° 23.1 -20° 30.5	345° 47.4 -20° 33.8	0° 11.7 -20° 36.9	14° 36.0 -20° 39.9	29° 00.2 -20° 42.8	43° 24.4 -20° 45.5	57° 48.6 -20° 48.1	+24.3 -3.2	16.2 59.5
Пт 11	273° 49.5 -21° 09.5	288° 13.5 -21° 09.8	302° 37.6 -21° 09.9	317° 01.6 -21° 09.9	331° 25.6 -21° 09.7	345° 49.6 -21° 09.4	0° 13.6 -21° 09.0	14° 37.7 -21° 08.4	29° 01.7 -21° 07.6	43° 25.8 -21° 06.8	57° 49.9 -21° 05.7	+24.0 +0.4	16.2 59.5
Сб 12	273° 53.8 -20° 33.3	288° 18.3 -20° 30.0	302° 42.8 -20° 26.6	317° 07.4 -20° 23.0	331° 32.0 -20° 19.3	345° 56.7 -20° 15.5	0° 21.4 -20° 11.5	14° 46.1 -20° 07.4	29° 10.9 -20° 03.2	43° 35.7 -19° 58.8	58° 00.6 -19° 54.4	+24.7 +3.9	16.2 59.4
Вс 13	288° 18.3 -20° 30.0	302° 42.8 -20° 26.6	317° 07.4 -20° 23.0	331° 32.0 -20° 19.3	345° 56.7 -20° 15.5	0° 21.4 -20° 11.5	14° 46.1 -20° 07.4	29° 10.9 -20° 03.2	43° 35.7 -19° 58.8	58° 00.6 -19° 54.4	72° 25.5 -19° 49.7	+24.7 +4.0	16.2 59.4
◑ Пн 14	288° 45.6 -18° 25.4	303° 11.4 -18° 18.9	317° 37.2 -18° 12.2	332° 03.1 -18° 05.4	346° 29.1 -17° 58.4	0° 55.1 -17° 51.4	15° 21.2 -17° 44.3	29° 47.4 -17° 37.0	44° 13.6 -17° 29.7	58° 39.9 -17° 22.2	73° 06.2 -17° 14.6	+26.1 +7.1	16.1 59.2
Вт 15	289° 49.2 -15° 09.3	304° 16.5 -15° 00.2	318° 44.0 -14° 51.0	333° 11.5 -14° 41.7	347° 39.1 -14° 32.4	2° 06.7 -14° 22.9	16° 34.4 -14° 13.4	31° 02.2 -14° 03.8	45° 30.0 -13° 54.2	59° 57.9 -13° 44.4	74° 25.8 -13° 34.6	+27.7 +9.5	16.1 58.9
Ср 16	291° 32.5 -10° 59.0	306° 01.5 -10° 48.1	320° 30.4 -10° 37.2	334° 59.5 -10° 26.3	349° 28.6 -10° 15.2	3° 57.7 -10° 04.1	18° 26.9 -9° 53.0	32° 56.1 -9° 41.8	47° 25.4 -9° 30.6	61° 54.8 -9° 19.3	76° 24.2 -9° 08.0	+29.2 +11.1	16.0 58.5
Чт 17	293° 51.0 -6° 13.6	308° 21.1 -6° 01.7	322° 51.3 -5° 49.8	337° 21.5 -5° 37.9	351° 51.8 -5° 25.9	6° 22.1 -5° 13.9	20° 52.4 -5° 01.9	35° 22.8 -4° 49.9	49° 53.2 -4° 37.9	64° 23.7 -4° 25.8	78° 54.1 -4° 13.8	+30.3 +12.0	15.8 58.1
Пт 18	296° 34.9 -1° 11.5	311° 05.8 -0° 59.3	325° 36.8 -0° 47.1	340° 07.7 -0° 34.9	354° 38.7 -0° 22.7	9° 09.7 -0° 10.6	23° 40.8 0° 01.6	38° 11.8 0° 13.8	52° 42.9 0° 25.9	67° 13.9 0° 38.0	81° 45.0 0° 50.2	+31.0 +12.2	15.7 57.6
Сб 19	299° 32.9 3° 50.1	314° 04.2 4° 02.0	328° 35.4 4° 13.7	343° 06.7 4° 25.5	357° 38.0 4° 37.2	12° 09.2 4° 49.0	26° 40.5 5° 00.6	41° 11.8 5° 12.3	55° 43.1 5° 23.9	70° 14.3 5° 35.5	84° 45.6 5° 47.0	+31.3 +11.7	15.6 57.2
Вс 20	302° 34.4 8° 35.2	317° 05.6 8° 46.1	331° 36.8 8° 56.9	346° 08.0 9° 07.6	0° 39.2 9° 18.3	15° 10.3 9° 29.0	29° 41.5 9° 39.5	44° 12.6 9° 50.1	58° 43.8 10° 00.6	73° 14.9 10° 11.0	87° 46.0 10° 21.3	+31.2 +10.6	15.4 56.6
● Пн 21	305° 31.2 12° 49.4	320° 02.0 12° 58.7	334° 32.9 13° 08.0	349° 03.8 13° 17.2	3° 34.6 13° 26.3	18° 05.5 13° 35.3	32° 36.3 13° 44.3	47° 07.1 13° 53.2	61° 37.8 14° 02.0	76° 08.6 14° 10.8	90° 39.4 14° 19.5	+30.8 +9.0	15.3 56.1
Вт 22	308° 18.6 16° 20.0	322° 49.1 16° 27.4	337° 19.5 16° 34.7	351° 50.0 16° 41.8	6° 20.4 16° 49.0	20° 50.8 16° 56.0	35° 21.2 17° 02.9	49° 51.6 17° 09.7	64° 22.0 17° 16.5	78° 52.4 17° 23.1	93° 22.7 17° 29.7	+30.4 +7.0	15.2 55.6
Ср 23	310° 56.5 18° 57.1	325° 26.7 19° 02.1	339° 56.8 19° 07.1	354° 27.0 19° 11.9	8° 57.1 19° 16.7	23° 27.2 19° 21.4	37° 57.4 19° 25.9	52° 27.5 19° 30.4	66° 57.6 19° 34.8	81° 27.7 19° 39.1	95° 57.8 19° 43.2	+30.1 +4.6	15.0 55.1
Чт 24	313° 29.0 20° 33.7	327° 59.1 20° 36.2	342° 29.2 20° 38.7	356° 59.3 20° 41.0	11° 29.4 20° 43.3	25° 59.5 20° 45.4	40° 29.6 20° 47.5	54° 59.7 20° 49.4	69° 29.9 20° 51.2	84° 00.0 20° 53.0	98° 30.1 20° 54.6	+30.1 +2.1	14.9 54.7
Пт 25	316° 03.4 21° 06.8	330° 33.7 21° 06.8	345° 04.1 21° 06.7	359° 34.4 21° 06.5	14° 04.8 21° 06.2	28° 35.2 21° 05.8	43° 05.6 21° 05.3	57° 36.0 21° 04.7	72° 06.5 21° 04.0	86° 37.0 21° 03.2	101° 07.5 21° 02.3	+30.4 -0.5	14.8 54.3
Сб 26	318° 47.5 20° 36.9	333° 18.3 20° 34.5	347° 49.2 20° 31.9	2° 20.2 20° 29.3	16° 51.1 20° 26.5	31° 22.1 20° 23.7	45° 53.1 20° 20.7	60° 24.1 20° 17.7	74° 55.1 20° 14.6	89° 26.2 20° 11.4	103° 57.3 20° 08.1	+31.0 -2.9	14.8 54.1
Вс 27	321° 47.5 19° 07.7	336° 19.0 19° 03.0	350° 50.6 18° 58.2	5° 22.3 18° 53.3	19° 54.0 18° 48.3	34° 25.7 18° 43.3	48° 57.4 18° 38.1	63° 29.1 18° 32.9	78° 00.9 18° 27.6	92° 32.8 18° 22.2	107° 04.6 18° 16.7	+31.7 -5.1	14.8 54.1
Пн 28	325° 05.9 16° 44.9	339° 38.2 16° 38.2	354° 10.5 16° 31.4	8° 42.9 16° 24.5	23° 15.3 16° 17.6	37° 47.7 16° 10.5	52° 20.2 16° 03.4	66° 52.6 15° 56.3	81° 25.1 15° 49.0	95° 57.6 15° 41.7	110° 30.2 15° 34.3	+32.4 -7.1	14.8 54.3
◐ Вт 29	328° 41.1 13° 35.4	343° 14.0 13° 26.9	357° 46.9 13° 18.4	12° 19.8 13° 09.9	26° 52.8 13° 01.2	41° 25.7 12° 52.5	55° 58.7 12° 43.8	70° 31.7 12° 34.9	85° 04.7 12° 26.1	99° 37.7 12° 17.1	114° 10.8 12° 08.1	+33.0 -8.7	14.9 54.6
Ср 30	332° 27.5 9° 46.6	347° 00.6 9° 36.7	1° 33.8 9° 26.8	16° 07.0 9° 16.8	30° 40.2 9° 06.8	45° 13.3 8° 56.8	59° 46.5 8° 46.7	74° 19.7 8° 36.5	88° 52.9 8° 26.3	103° 26.0 8° 16.1	117° 59.2 8° 05.8	+33.2 -10.1	15.0 55.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 7 17h21 — Последняя четв.: 14 12h57 — Новолуние: 21 16h57 — Первая четв.: 29 19h19

СОЛНЦЕ

Май 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	270° 42.4	285° 42.5	300° 42.6	315° 42.6	330° 42.7	345° 42.8	0° 42.9	15° 42.9	30° 43.0	45° 43.1	60° 43.2	75° 43.2	+0.1
	15° 01.7	15° 02.5	15° 03.2	15° 04.0	15° 04.7	15° 05.5	15° 06.2	15° 07.0	15° 07.8	15° 08.5	15° 09.3	15° 10.0	+0.8
Пт 2	270° 44.2	285° 44.2	300° 44.3	315° 44.4	330° 44.5	345° 44.5	0° 44.6	15° 44.7	30° 44.7	45° 44.8	60° 44.9	75° 44.9	+0.1
	15° 19.8	15° 20.5	15° 21.3	15° 22.0	15° 22.8	15° 23.5	15° 24.2	15° 25.0	15° 25.7	15° 26.5	15° 27.2	15° 28.0	+0.7
Сб 3	270° 45.8	285° 45.9	300° 45.9	315° 46.0	330° 46.1	345° 46.1	0° 46.2	15° 46.3	30° 46.3	45° 46.4	60° 46.5	75° 46.5	+0.1
	15° 37.6	15° 38.3	15° 39.1	15° 39.8	15° 40.5	15° 41.3	15° 42.0	15° 42.7	15° 43.5	15° 44.2	15° 44.9	15° 45.7	+0.7
Вс 4	270° 47.3	285° 47.4	300° 47.4	315° 47.5	330° 47.6	345° 47.6	0° 47.7	15° 47.7	30° 47.8	45° 47.8	60° 47.9	75° 48.0	+0.1
	15° 55.1	15° 55.9	15° 56.6	15° 57.3	15° 58.0	15° 58.7	15° 59.5	16° 00.2	16° 00.9	16° 01.6	16° 02.4	16° 03.1	+0.7
Пн 5	270° 48.7	285° 48.7	300° 48.8	315° 48.8	330° 48.9	345° 49.0	0° 49.0	15° 49.1	30° 49.1	45° 49.2	60° 49.2	75° 49.3	+0.1
	16° 12.4	16° 13.1	16° 13.8	16° 14.6	16° 15.3	16° 16.0	16° 16.7	16° 17.4	16° 18.1	16° 18.8	16° 19.5	16° 20.2	+0.7
Вт 6	270° 49.9	285° 50.0	300° 50.0	315° 50.1	330° 50.1	345° 50.2	0° 50.2	15° 50.3	30° 50.3	45° 50.3	60° 50.4	75° 50.4	+0.0
	16° 29.4	16° 30.1	16° 30.8	16° 31.5	16° 32.2	16° 32.9	16° 33.6	16° 34.3	16° 35.0	16° 35.7	16° 36.4	16° 37.1	+0.7
Ср 7	270° 51.0	285° 51.1	300° 51.1	315° 51.1	330° 51.2	345° 51.2	0° 51.3	15° 51.3	30° 51.3	45° 51.4	60° 51.4	75° 51.5	+0.0
	16° 46.2	16° 46.9	16° 47.5	16° 48.2	16° 48.9	16° 49.6	16° 50.3	16° 51.0	16° 51.7	16° 52.4	16° 53.1	16° 53.7	+0.7
Чт 8	270° 52.0	285° 52.0	300° 52.0	315° 52.1	330° 52.1	345° 52.1	0° 52.2	15° 52.2	30° 52.3	45° 52.3	60° 52.3	75° 52.4	+0.0
	17° 02.6	17° 03.3	17° 04.0	17° 04.7	17° 05.3	17° 06.0	17° 06.7	17° 07.4	17° 08.0	17° 08.7	17° 09.4	17° 10.1	+0.7
Пт 9	270° 52.8	285° 52.8	300° 52.8	315° 52.9	330° 52.9	345° 52.9	0° 53.0	15° 53.0	30° 53.0	45° 53.0	60° 53.1	75° 53.1	+0.0
	17° 18.8	17° 19.5	17° 20.1	17° 20.8	17° 21.5	17° 22.1	17° 22.8	17° 23.5	17° 24.1	17° 24.8	17° 25.5	17° 26.1	+0.7
Сб 10	270° 53.4	285° 53.5	300° 53.5	315° 53.5	330° 53.5	345° 53.6	0° 53.6	15° 53.6	30° 53.6	45° 53.6	60° 53.7	75° 53.7	+0.0
	17° 34.7	17° 35.3	17° 36.0	17° 36.7	17° 37.3	17° 38.0	17° 38.6	17° 39.3	17° 39.9	17° 40.6	17° 41.2	17° 41.9	+0.7
Вс 11	270° 54.0	285° 54.0	300° 54.0	315° 54.0	330° 54.0	345° 54.0	0° 54.1	15° 54.1	30° 54.1	45° 54.1	60° 54.1	75° 54.1	+0.0
	17° 50.3	17° 50.9	17° 51.6	17° 52.2	17° 52.9	17° 53.5	17° 54.1	17° 54.8	17° 55.4	17° 56.1	17° 56.7	17° 57.3	+0.6
Пн 12	270° 54.3	285° 54.3	300° 54.3	315° 54.4	330° 54.4	345° 54.4	0° 54.4	15° 54.4	30° 54.4	45° 54.4	60° 54.4	75° 54.4	+0.0
	18° 05.6	18° 06.2	18° 06.8	18° 07.5	18° 08.1	18° 08.7	18° 09.4	18° 10.0	18° 10.6	18° 11.2	18° 11.9	18° 12.5	+0.6
Вт 13	270° 54.5	285° 54.5	300° 54.6	315° 54.6	330° 54.6	345° 54.6	0° 54.6	15° 54.6	30° 54.6	45° 54.6	60° 54.6	75° 54.6	+0.0
	18° 20.6	18° 21.2	18° 21.8	18° 22.4	18° 23.0	18° 23.7	18° 24.3	18° 24.9	18° 25.5	18° 26.1	18° 26.7	18° 27.3	+0.6
Ср 14	270° 54.6	285° 54.6	300° 54.6	315° 54.6	330° 54.6	345° 54.6	0° 54.6	15° 54.6	30° 54.6	45° 54.6	60° 54.6	75° 54.6	-0.0
	18° 35.3	18° 35.9	18° 36.5	18° 37.1	18° 37.7	18° 38.3	18° 38.9	18° 39.5	18° 40.1	18° 40.7	18° 41.3	18° 41.9	+0.6
Чт 15	270° 54.5	285° 54.5	300° 54.5	315° 54.5	330° 54.5	345° 54.5	0° 54.5	15° 54.5	30° 54.5	45° 54.5	60° 54.5	75° 54.5	-0.0
	18° 49.6	18° 50.2	18° 50.8	18° 51.4	18° 52.0	18° 52.6	18° 53.2	18° 53.8	18° 54.4	18° 54.9	18° 55.5	18° 56.1	+0.6
Пт 16	270° 54.3	285° 54.3	300° 54.3	315° 54.3	330° 54.3	345° 54.3	0° 54.2	15° 54.2	30° 54.2	45° 54.2	60° 54.2	75° 54.2	-0.0
	19° 03.7	19° 04.3	19° 04.8	19° 05.4	19° 06.0	19° 06.6	19° 07.1	19° 07.7	19° 08.3	19° 08.9	19° 09.4	19° 10.0	+0.6
Сб 17	270° 54.0	285° 53.9	300° 53.9	315° 53.9	330° 53.9	345° 53.9	0° 53.8	15° 53.8	30° 53.8	45° 53.8	60° 53.8	75° 53.7	-0.0
	19° 17.4	19° 18.0	19° 18.5	19° 19.1	19° 19.7	19° 20.2	19° 20.8	19° 21.4	19° 21.9	19° 22.5	19° 23.0	19° 23.6	+0.6
Вс 18	270° 53.4	285° 53.4	300° 53.4	315° 53.4	330° 53.3	345° 53.3	0° 53.3	15° 53.3	30° 53.2	45° 53.2	60° 53.2	75° 53.2	-0.0
	19° 30.8	19° 31.4	19° 31.9	19° 32.5	19° 33.0	19° 33.6	19° 34.1	19° 34.7	19° 35.2	19° 35.8	19° 36.3	19° 36.9	+0.5
Пн 19	270° 52.8	285° 52.8	300° 52.7	315° 52.7	330° 52.7	345° 52.6	0° 52.6	15° 52.6	30° 52.5	45° 52.5	60° 52.5	75° 52.4	-0.0
	19° 43.9	19° 44.4	19° 45.0	19° 45.5	19° 46.0	19° 46.6	19° 47.1	19° 47.6	19° 48.2	19° 48.7	19° 49.2	19° 49.8	+0.5
Вт 20	270° 52.0	285° 52.0	300° 51.9	315° 51.9	330° 51.9	345° 51.8	0° 51.8	15° 51.7	30° 51.7	45° 51.7	60° 51.6	75° 51.6	-0.0
	19° 56.6	19° 57.1	19° 57.7	19° 58.2	19° 58.7	19° 59.2	19° 59.8	20° 00.3	20° 00.8	20° 01.3	20° 01.8	20° 02.3	+0.5
Ср 21	270° 51.1	285° 51.0	300° 51.0	315° 51.0	330° 50.9	345° 50.9	0° 50.8	15° 50.8	30° 50.7	45° 50.7	60° 50.7	75° 50.6	-0.0
	20° 09.0	20° 09.5	20° 10.0	20° 10.5	20° 11.1	20° 11.6	20° 12.1	20° 12.6	20° 13.1	20° 13.6	20° 14.1	20° 14.6	+0.5
Чт 22	270° 50.0	285° 50.0	300° 49.9	315° 49.9	330° 49.8	345° 49.8	0° 49.7	15° 49.7	30° 49.6	45° 49.6	60° 49.5	75° 49.5	-0.0
	20° 21.1	20° 21.6	20° 22.1	20° 22.6	20° 23.0	20° 23.5	20° 24.0	20° 24.5	20° 25.0	20° 25.5	20° 26.0	20° 26.5	+0.5
Пт 23	270° 48.8	285° 48.8	300° 48.7	315° 48.7	330° 48.6	345° 48.6	0° 48.5	15° 48.5	30° 48.4	45° 48.3	60° 48.3	75° 48.2	-0.1
	20° 32.8	20° 33.3	20° 33.7	20° 34.2	20° 34.7	20° 35.2	20° 35.6	20° 36.1	20° 36.6	20° 37.1	20° 37.5	20° 38.0	+0.5
Сб 24	270° 47.5	285° 47.5	300° 47.4	315° 47.3	330° 47.3	345° 47.2	0° 47.2	15° 47.1	30° 47.0	45° 47.0	60° 46.9	75° 46.9	-0.1
	20° 44.1	20° 44.6	20° 45.0	20° 45.5	20° 46.0	20° 46.4	20° 46.9	20° 47.4	20° 47.8	20° 48.3	20° 48.7	20° 49.2	+0.5
Вс 25	270° 46.1	285° 46.0	300° 45.9	315° 45.9	330° 45.8	345° 45.8	0° 45.7	15° 45.6	30° 45.6	45° 45.5	60° 45.4	75° 45.4	-0.1
	20° 55.1	20° 55.6	20° 56.0	20° 56.5	20° 56.9	20° 57.4	20° 57.8	20° 58.2	20° 58.7	20° 59.1	20° 59.6	21° 00.0	+0.4
Пн 26	270° 44.5	285° 44.4	300° 44.4	315° 44.3	330° 44.2	345° 44.2	0° 44.1	15° 44.0	30° 44.0	45° 43.9	60° 43.8	75° 43.8	-0.1
	21° 05.7	21° 06.2	21° 06.6	21° 07.0	21° 07.5	21° 07.9	21° 08.3	21° 08.8	21° 09.2	21° 09.6	21° 10.1	21° 10.5	+0.4
Вт 27	270° 42.8	285° 42.8	300° 42.7	315° 42.6	330° 42.5	345° 42.5	0° 42.4	15° 42.3	30° 42.2	45° 42.2	60° 42.1	75° 42.0	-0.1
	21° 16.0	21° 16.4	21° 16.8	21° 17.3	21° 17.7	21° 18.1	21° 18.5	21° 18.9	21° 19.3	21° 19.8	21° 20.2	21° 20.6	+0.4
Ср 28	270° 41.0	285° 41.0	300° 40.9	315° 40.8	330° 40.7	345° 40.6	0° 40.6	15° 40.5	30° 40.4	45° 40.3	60° 40.3	75° 40.2	-0.1
	21° 25.9	21° 26.3	21° 26.7	21° 27.1	21° 27.5	21° 27.9	21° 28.3	21° 28.7	21° 29.1	21° 29.5	21° 29.9	21° 30.3	+0.4
Чт 29	270° 39.1	285° 39.1	300° 39.0	315° 38.9	330° 38.8	345° 38.7	0° 38.6	15° 38.6	30° 38.5	45° 38.4	60° 38.3	75° 38.2	-0.1
	21° 35.4	21° 35.8	21° 36.2	21° 36.6	21° 37.0	21° 37.4	21° 37.8	21° 38.1	21° 38.5	21° 38.9	21° 39.3	21° 39.7	+0.4
Пт 30	270° 37.1	285° 37.0	300° 37.0	315° 36.9	330° 36.8	345° 36.7	0° 36.6	15° 36.5	30° 36.4	45° 36.3	60° 36.3	75° 36.2	-0.1
	21° 44.6	21° 45.0	21° 45.3	21° 45.7	21° 46.1	21° 46.4	21° 46.8	21° 47.2	21° 47.6	21° 47.9	21° 48.3	21° 48.7	+0.4
Сб 31	270° 35.0	285° 34.9	300° 34.8	315° 34.7	330° 34.7	345° 34.6	0° 34.5	15° 34.4	30° 34.3	45° 34.2	60° 34.1	75° 34.0	-0.1
	21° 53.4	21° 53.7	21° 54.1	21° 54.4	21° 54.8	21° 55.1	21° 55.5	21° 55.8	21° 56.2	21° 56.6	21° 56.9	21° 57.3	+0.4

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2031

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ°/h	R/p
Чт 1	248° 57.5 6° 31.3	263° 30.6 6° 20.6	278° 03.7 6° 09.8	292° 36.8 5° 59.1	307° 09.9 5° 48.2	321° 43.0 5° 37.4	336° 16.0 5° 26.5	350° 49.1 5° 15.5	5° 22.1 5° 04.6	19° 55.1 4° 53.6	34° 28.1 4° 42.5	+33.1 -10.9	15.2 55.6
Пт 2	252° 40.3 1° 53.5	267° 12.9 1° 42.0	281° 45.4 1° 30.5	296° 18.0 1° 19.0	310° 50.5 1° 07.4	325° 23.0 0° 55.8	339° 55.4 0° 44.3	354° 27.8 0° 32.7	9° 00.2 0° 21.1	23° 32.5 0° 09.4	38° 04.8 -0° 02.2	+32.5 -11.6	15.4 56.4
Сб 3	256° 04.1 -2° 58.2	270° 35.7 -3° 10.0	285° 07.2 -3° 21.8	299° 38.7 -3° 33.6	314° 10.1 -3° 45.3	328° 41.4 -3° 57.1	343° 12.8 -4° 08.9	357° 44.0 -4° 20.6	12° 15.2 -4° 32.4	26° 46.3 -4° 44.1	41° 17.4 -4° 55.9	+31.3 -11.8	15.6 57.3
Вс 4	258° 55.8 -7° 50.3	273° 25.8 -8° 01.7	287° 55.7 -8° 13.1	302° 25.6 -8° 24.5	316° 55.4 -8° 35.9	331° 25.1 -8° 47.2	345° 54.8 -8° 58.6	0° 24.4 -9° 09.8	14° 53.9 -9° 21.1	29° 23.3 -9° 32.3	43° 52.6 -9° 43.4	+29.7 -11.3	15.9 58.2
Пн 5	261° 03.1 -12° 25.3	275° 31.2 -12° 35.7	289° 59.1 -12° 46.0	304° 27.0 -12° 56.2	318° 54.8 -13° 06.4	333° 22.5 -13° 16.5	347° 50.1 -13° 26.5	2° 17.6 -13° 36.5	16° 45.0 -13° 46.4	31° 12.4 -13° 56.2	45° 39.6 -14° 05.9	+27.7 -10.1	16.1 59.0
Вт 6	262° 18.3 -16° 22.3	276° 44.2 -16° 30.7	291° 10.0 -16° 38.9	305° 35.7 -16° 47.1	320° 01.3 -16° 55.2	334° 26.9 -17° 03.1	348° 52.4 -17° 11.0	3° 17.8 -17° 18.7	17° 43.1 -17° 26.3	32° 08.3 -17° 33.9	46° 33.5 -17° 41.3	+25.5 -7.9	16.3 59.7
○ Ср 7	262° 42.0 -19° 18.3	277° 06.0 -19° 23.8	291° 30.0 -19° 29.1	305° 53.9 -19° 34.3	320° 17.7 -19° 39.4	334° 41.5 -19° 44.3	349° 05.2 -19° 49.1	3° 28.9 -19° 53.8	17° 52.5 -19° 58.3	32° 16.1 -20° 02.7	46° 39.6 -20° 06.9	+23.8 -4.9	16.4 60.1
Чт 8	262° 27.5 -20° 53.1	276° 50.4 -20° 55.0	291° 13.3 -20° 56.7	305° 36.2 -20° 58.3	319° 59.1 -20° 59.8	334° 22.0 -21° 01.0	348° 44.9 -21° 02.2	3° 07.7 -21° 03.1	17° 30.6 -21° 04.0	31° 53.4 -21° 04.6	46° 16.2 -21° 05.2	+22.9 -1.2	16.5 60.4
Пт 9	261° 59.4 -20° 54.5	276° 22.4 -20° 52.6	290° 45.4 -20° 50.5	305° 08.5 -20° 48.3	319° 31.6 -20° 45.9	333° 54.7 -20° 43.4	348° 17.9 -20° 40.7	2° 41.1 -20° 37.9	17° 04.3 -20° 34.9	31° 27.6 -20° 31.8	45° 50.9 -20° 28.6	+23.1 +2.6	16.4 60.3
Сб 10	261° 46.6 -19° 22.8	276° 10.8 -19° 17.3	290° 35.0 -19° 11.7	304° 59.3 -19° 06.0	319° 23.7 -19° 00.2	333° 48.1 -18° 54.2	348° 12.6 -18° 48.1	2° 37.2 -18° 41.8	17° 01.8 -18° 35.5	31° 26.5 -18° 29.0	45° 51.3 -18° 22.4	+24.5 +6.0	16.4 60.0
Вс 11	262° 11.8 -16° 29.8	276° 37.8 -16° 21.5	291° 03.9 -16° 13.0	305° 30.0 -16° 04.5	319° 56.3 -15° 55.9	334° 22.6 -15° 47.1	348° 49.0 -15° 38.3	3° 15.4 -15° 29.4	17° 42.0 -15° 20.4	32° 08.6 -15° 11.3	46° 35.3 -15° 02.1	+26.3 +8.8	16.2 59.6
Пн 12	263° 25.3 -12° 34.8	277° 53.2 -12° 24.4	292° 21.3 -12° 13.9	306° 49.4 -12° 03.4	321° 17.5 -11° 52.9	335° 45.8 -11° 42.2	350° 14.1 -11° 31.5	4° 42.5 -11° 20.8	19° 11.0 -11° 09.9	33° 39.5 -10° 59.1	48° 08.1 -10° 48.2	+28.3 +10.7	16.1 59.0
◑ Вт 13	277° 53.2 -12° 24.4	292° 21.3 -12° 13.9	306° 49.4 -12° 03.4	321° 17.5 -11° 52.9	335° 45.8 -11° 42.2	350° 14.1 -11° 31.5	4° 42.5 -11° 20.8	19° 11.0 -11° 09.9	33° 39.5 -10° 59.1	48° 08.1 -10° 48.2	62° 36.8 -10° 37.2	+28.4 +10.7	16.1 59.0
Ср 14	279° 54.8 -7° 47.3	294° 24.5 -7° 35.6	308° 54.3 -7° 24.0	323° 24.1 -7° 12.3	337° 54.0 -7° 00.6	352° 23.9 -6° 48.8	6° 53.9 -6° 37.1	21° 23.9 -6° 25.3	35° 54.0 -6° 13.4	50° 24.2 -6° 01.6	64° 54.4 -5° 49.7	+30.0 +11.8	15.9 58.3
Чт 15	282° 32.8 -2° 50.0	297° 03.7 -2° 37.9	311° 34.6 -2° 25.8	326° 05.6 -2° 13.8	340° 36.6 -2° 01.7	355° 07.7 -1° 49.6	9° 38.7 -1° 37.6	24° 09.8 -1° 25.5	38° 41.0 -1° 13.5	53° 12.1 -1° 01.4	67° 43.3 -0° 49.3	+31.1 +12.1	15.7 57.7
Пт 16	285° 34.2 2° 10.2	300° 05.7 2° 22.0	314° 37.3 2° 33.9	329° 08.9 2° 45.7	343° 40.5 2° 57.4	358° 12.1 3° 09.2	12° 43.7 3° 20.9	27° 15.3 3° 32.6	41° 47.0 3° 44.3	56° 18.6 3° 56.0	70° 50.3 4° 07.6	+31.6 +11.7	15.6 57.1
Сб 17	288° 45.8 6° 58.1	303° 17.5 7° 09.2	317° 49.3 7° 20.2	332° 21.0 7° 31.2	346° 52.7 7° 42.1	1° 24.4 7° 53.0	15° 56.0 8° 03.8	30° 27.7 8° 14.6	44° 59.4 8° 25.4	59° 31.1 8° 36.1	74° 02.8 8° 46.8	+31.7 +10.9	15.4 56.5
Вс 18	291° 56.5 11° 20.4	306° 28.0 11° 30.1	320° 59.5 11° 39.9	335° 30.9 11° 49.5	350° 02.4 11° 59.1	4° 33.8 12° 08.7	19° 05.2 12° 18.1	33° 36.6 12° 27.5	48° 08.0 12° 36.9	62° 39.3 12° 46.1	77° 10.7 12° 55.4	+31.4 +9.5	15.3 56.0
Пн 19	294° 58.5 15° 05.0	309° 29.5 15° 13.1	324° 00.5 15° 21.0	338° 31.5 15° 28.9	353° 02.4 15° 36.7	7° 33.4 15° 44.5	22° 04.3 15° 52.1	36° 35.2 15° 59.7	51° 06.1 16° 07.2	65° 37.0 16° 14.6	80° 07.8 16° 21.9	+30.9 +7.7	15.1 55.5
Вт 20	297° 48.2 18° 01.5	312° 18.7 18° 07.5	326° 49.3 18° 13.3	341° 19.8 18° 19.1	355° 50.3 18° 24.7	10° 20.7 18° 30.3	24° 51.2 18° 35.8	39° 21.6 18° 41.2	53° 52.1 18° 46.4	68° 22.5 18° 51.6	82° 52.9 18° 56.7	+30.5 +5.5	15.0 55.0
● Ср 21	300° 27.4 20° 01.7	314° 57.6 20° 05.2	329° 27.8 20° 08.7	343° 58.0 20° 12.0	358° 28.2 20° 15.3	12° 58.4 20° 18.4	27° 28.6 20° 21.5	41° 58.8 20° 24.4	56° 29.0 20° 27.3	70° 59.2 20° 30.0	85° 29.4 20° 32.7	+30.2 +3.1	14.9 54.6
Чт 22	303° 02.2 21° 00.2	317° 32.4 21° 01.2	332° 02.6 21° 02.1	346° 32.9 21° 02.9	1° 03.1 21° 03.6	15° 33.4 21° 04.3	30° 03.6 21° 04.8	44° 33.9 21° 05.2	59° 04.2 21° 05.5	73° 34.5 21° 05.7	88° 04.8 21° 05.8	+30.3 +0.6	14.8 54.3
Пт 23	305° 41.4 20° 55.4	320° 12.0 20° 53.9	334° 42.6 20° 52.3	349° 13.2 20° 50.7	3° 43.9 20° 48.9	18° 14.5 20° 47.0	32° 45.3 20° 45.0	47° 16.0 20° 43.0	61° 46.7 20° 40.8	76° 17.5 20° 38.5	90° 48.3 20° 36.2	+30.7 -1.9	14.8 54.1
Сб 24	308° 33.7 19° 49.6	323° 04.9 19° 45.7	337° 36.2 19° 41.8	352° 07.6 19° 37.8	6° 38.9 19° 33.7	21° 10.3 19° 29.5	35° 41.7 19° 25.2	50° 13.2 19° 20.9	64° 44.7 19° 16.4	79° 16.2 19° 11.9	93° 47.7 19° 07.2	+31.4 -4.2	14.7 54.0
Вс 25	311° 45.0 17° 47.9	326° 17.1 17° 42.0	340° 49.2 17° 35.9	355° 21.4 17° 29.9	9° 53.6 17° 23.7	24° 25.8 17° 17.4	38° 58.0 17° 11.1	53° 30.3 17° 04.7	68° 02.7 16° 58.3	82° 35.0 16° 51.7	97° 07.4 16° 45.1	+32.2 -6.3	14.7 54.0
Пн 26	315° 16.9 14° 57.4	329° 49.8 14° 49.7	344° 22.7 14° 41.9	358° 55.6 14° 34.0	13° 28.6 14° 26.1	28° 01.6 14° 18.2	42° 34.6 14° 10.1	57° 07.6 14° 02.0	71° 40.7 13° 53.8	86° 13.8 13° 45.6	100° 46.9 13° 37.3	+33.0 -8.0	14.8 54.2
Вт 27	319° 06.3 11° 26.1	333° 39.7 11° 16.9	348° 13.2 11° 07.7	2° 46.7 10° 58.4	17° 20.2 10° 49.1	31° 53.7 10° 39.7	46° 27.2 10° 30.2	61° 00.7 10° 20.7	75° 34.3 10° 11.2	90° 07.8 10° 01.6	104° 41.4 9° 52.0	+33.5 -9.4	14.9 54.5
Ср 28	323° 05.8 7° 22.2	337° 39.4 7° 11.9	352° 13.1 7° 01.5	6° 46.7 6° 51.1	21° 20.4 6° 40.7	35° 54.0 6° 30.2	50° 27.7 6° 19.7	65° 01.3 6° 09.2	79° 34.9 5° 58.6	94° 08.6 5° 48.0	108° 42.2 5° 37.4	+33.6 -10.5	15.0 55.0
◐ Чт 29	327° 05.0 2° 54.1	341° 38.4 2° 43.0	356° 11.8 2° 31.9	10° 45.1 2° 20.8	25° 18.4 2° 09.6	39° 51.7 1° 58.4	54° 25.0 1° 47.2	68° 58.2 1° 36.0	83° 31.4 1° 24.7	98° 04.6 1° 13.5	112° 37.8 1° 02.2	+33.3 -11.2	15.2 55.7
Пт 30	330° 51.0 -1° 48.8	345° 23.6 -2° 00.3	359° 56.1 -2° 11.7	14° 28.6 -2° 23.2	29° 01.0 -2° 34.7	43° 33.4 -2° 46.2	58° 05.8 -2° 57.7	72° 38.0 -3° 09.2	87° 10.3 -3° 20.7	101° 42.4 -3° 32.2	116° 14.6 -3° 43.7	+32.4 -11.5	15.4 56.5
Сб 31	334° 09.5 -6° 35.4	348° 40.7 -6° 46.7	3° 11.8 -6° 58.1	17° 42.8 -7° 09.4	32° 13.7 -7° 20.7	46° 44.6 -7° 31.9	61° 15.4 -7° 43.2	75° 46.1 -7° 54.4	90° 16.8 -8° 05.6	104° 47.4 -8° 16.8	119° 17.9 -8° 28.0	+30.8 -11.3	15.7 57.4

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Полнолуние: 7 03h39 — Последняя четв.: 13 19h06 — Новолуние: 21 07h17 — Первая четв.: 29 11h19

СОЛНЦЕ

Июнь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	270° 32.8	285° 32.7	300° 32.6	315° 32.5	330° 32.4	345° 32.3	0° 32.2	15° 32.1	30° 32.0	45° 31.9	60° 31.9	75° 31.8	-0.1
	22° 01.8	22° 02.1	22° 02.4	22° 02.8	22° 03.1	22° 03.5	22° 03.8	22° 04.1	22° 04.5	22° 04.8	22° 05.1	22° 05.5	+0.3
Пн 2	270° 30.5	285° 30.4	300° 30.3	315° 30.2	330° 30.1	345° 30.0	0° 29.9	15° 29.8	30° 29.7	45° 29.6	60° 29.5	75° 29.4	-0.1
	22° 09.8	22° 10.1	22° 10.4	22° 10.7	22° 11.1	22° 11.4	22° 11.7	22° 12.0	22° 12.3	22° 12.7	22° 13.0	22° 13.3	+0.3
Вт 3	270° 28.1	285° 28.0	300° 27.9	315° 27.8	330° 27.7	345° 27.6	0° 27.5	15° 27.4	30° 27.3	45° 27.2	60° 27.1	75° 27.0	-0.1
	22° 17.4	22° 17.7	22° 18.0	22° 18.3	22° 18.6	22° 18.9	22° 19.2	22° 19.5	22° 19.8	22° 20.1	22° 20.4	22° 20.7	+0.3
Ср 4	270° 25.6	285° 25.5	300° 25.4	315° 25.3	330° 25.2	345° 25.1	0° 25.0	15° 24.9	30° 24.8	45° 24.7	60° 24.6	75° 24.4	-0.1
	22° 24.6	22° 24.9	22° 25.2	22° 25.5	22° 25.8	22° 26.1	22° 26.4	22° 26.6	22° 26.9	22° 27.2	22° 27.5	22° 27.8	+0.3
Чт 5	270° 23.0	285° 22.9	300° 22.8	315° 22.7	330° 22.6	345° 22.5	0° 22.4	15° 22.3	30° 22.2	45° 22.1	60° 21.9	75° 21.8	-0.1
	22° 31.4	22° 31.7	22° 32.0	22° 32.3	22° 32.6	22° 32.8	22° 33.1	22° 33.4	22° 33.6	22° 33.9	22° 34.2	22° 34.5	+0.3
Пт 6	270° 20.4	285° 20.3	300° 20.2	315° 20.1	330° 19.9	345° 19.8	0° 19.7	15° 19.6	30° 19.5	45° 19.4	60° 19.3	75° 19.2	-0.1
	22° 37.9	22° 38.2	22° 38.4	22° 38.7	22° 38.9	22° 39.2	22° 39.4	22° 39.7	22° 40.0	22° 40.2	22° 40.5	22° 40.7	+0.3
Сб 7	270° 17.7	285° 17.5	300° 17.4	315° 17.3	330° 17.2	345° 17.1	0° 17.0	15° 16.9	30° 16.7	45° 16.6	60° 16.5	75° 16.4	-0.1
	22° 43.9	22° 44.2	22° 44.4	22° 44.7	22° 44.9	22° 45.2	22° 45.4	22° 45.6	22° 45.9	22° 46.1	22° 46.3	22° 46.6	+0.2
Вс 8	270° 14.9	285° 14.7	300° 14.6	315° 14.5	330° 14.4	345° 14.3	0° 14.1	15° 14.0	30° 13.9	45° 13.8	60° 13.7	75° 13.5	-0.1
	22° 49.6	22° 49.8	22° 50.0	22° 50.3	22° 50.5	22° 50.7	22° 50.9	22° 51.2	22° 51.4	22° 51.6	22° 51.8	22° 52.1	+0.2
Пн 9	270° 12.0	285° 11.9	300° 11.7	315° 11.6	330° 11.5	345° 11.4	0° 11.3	15° 11.1	30° 11.0	45° 10.9	60° 10.8	75° 10.6	-0.1
	22° 54.8	22° 55.1	22° 55.3	22° 55.5	22° 55.7	22° 55.9	22° 56.1	22° 56.3	22° 56.5	22° 56.7	22° 56.9	22° 57.1	+0.2
Вт 10	270° 09.0	285° 08.9	300° 08.8	315° 08.7	330° 08.5	345° 08.4	0° 08.3	15° 08.2	30° 08.0	45° 07.9	60° 07.8	75° 07.7	-0.1
	22° 59.7	22° 59.9	23° 00.1	23° 00.3	23° 00.5	23° 00.6	23° 00.8	23° 01.0	23° 01.2	23° 01.4	23° 01.6	23° 01.8	+0.2
Ср 11	270° 06.0	285° 05.9	300° 05.8	315° 05.7	330° 05.5	345° 05.4	0° 05.3	15° 05.2	30° 05.0	45° 04.9	60° 04.8	75° 04.6	-0.1
	23° 04.1	23° 04.3	23° 04.5	23° 04.7	23° 04.8	23° 05.0	23° 05.2	23° 05.4	23° 05.5	23° 05.7	23° 05.9	23° 06.0	+0.2
Чт 12	270° 03.0	285° 02.8	300° 02.7	315° 02.6	330° 02.5	345° 02.3	0° 02.2	15° 02.1	30° 01.9	45° 01.8	60° 01.7	75° 01.6	-0.1
	23° 08.2	23° 08.3	23° 08.5	23° 08.6	23° 08.8	23° 09.0	23° 09.1	23° 09.3	23° 09.4	23° 09.6	23° 09.7	23° 09.9	+0.2
Пт 13	269° 59.9	284° 59.7	299° 59.6	314° 59.5	329° 59.3	344° 59.2	359° 59.1	14° 58.9	29° 58.8	44° 58.7	59° 58.6	74° 58.4	-0.1
	23° 11.8	23° 11.9	23° 12.1	23° 12.2	23° 12.4	23° 12.5	23° 12.6	23° 12.8	23° 12.9	23° 13.0	23° 13.2	23° 13.3	+0.1
Сб 14	269° 56.7	284° 56.6	299° 56.4	314° 56.3	329° 56.2	344° 56.0	359° 55.9	14° 55.8	29° 55.6	44° 55.5	59° 55.4	74° 55.2	-0.1
	23° 15.0	23° 15.1	23° 15.3	23° 15.4	23° 15.5	23° 15.6	23° 15.7	23° 15.9	23° 16.0	23° 16.1	23° 16.2	23° 16.3	+0.1
Вс 15	269° 53.5	284° 53.4	299° 53.2	314° 53.1	329° 53.0	344° 52.8	359° 52.7	14° 52.6	29° 52.4	44° 52.3	59° 52.2	74° 52.0	-0.1
	23° 17.8	23° 17.9	23° 18.0	23° 18.1	23° 18.2	23° 18.3	23° 18.5	23° 18.6	23° 18.7	23° 18.8	23° 18.9	23° 19.0	+0.1
Пн 16	269° 50.3	284° 50.1	299° 50.0	314° 49.9	329° 49.7	344° 49.6	359° 49.5	14° 49.3	29° 49.2	44° 49.1	59° 48.9	74° 48.8	-0.1
	23° 20.2	23° 20.3	23° 20.4	23° 20.5	23° 20.6	23° 20.7	23° 20.7	23° 20.8	23° 20.9	23° 21.0	23° 21.1	23° 21.2	+0.1
Вт 17	269° 47.0	284° 46.9	299° 46.8	314° 46.6	329° 46.5	344° 46.3	359° 46.2	14° 46.1	29° 45.9	44° 45.8	59° 45.7	74° 45.5	-0.1
	23° 22.2	23° 22.3	23° 22.3	23° 22.4	23° 22.5	23° 22.6	23° 22.6	23° 22.7	23° 22.8	23° 22.8	23° 22.9	23° 23.0	+0.1
Ср 18	269° 43.8	284° 43.6	299° 43.5	314° 43.3	329° 43.2	344° 43.1	359° 42.9	14° 42.8	29° 42.7	44° 42.5	59° 42.4	74° 42.2	-0.1
	23° 23.8	23° 23.8	23° 23.9	23° 23.9	23° 24.0	23° 24.0	23° 24.1	23° 24.1	23° 24.2	23° 24.2	23° 24.3	23° 24.3	+0.1
Чт 19	269° 40.5	284° 40.3	299° 40.2	314° 40.1	329° 39.9	344° 39.8	359° 39.6	14° 39.5	29° 39.4	44° 39.2	59° 39.1	74° 39.0	-0.1
	23° 24.9	23° 25.0	23° 25.0	23° 25.0	23° 25.1	23° 25.1	23° 25.1	23° 25.2	23° 25.2	23° 25.2	23° 25.3	23° 25.3	+0.0
Пт 20	269° 37.2	284° 37.0	299° 36.9	314° 36.8	329° 36.6	344° 36.5	359° 36.3	14° 36.2	29° 36.1	44° 35.9	59° 35.8	74° 35.7	-0.1
	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.9	23° 25.9	+0.0
Сб 21	269° 33.9	284° 33.7	299° 33.6	314° 33.5	329° 33.3	344° 33.2	359° 33.1	14° 32.9	29° 32.8	44° 32.6	59° 32.5	74° 32.4	-0.1
	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	+0.0
Вс 22	269° 30.6	284° 30.5	299° 30.3	314° 30.2	329° 30.0	344° 29.9	359° 29.8	14° 29.6	29° 29.5	44° 29.4	59° 29.2	74° 29.1	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.7	-0.0
Пн 23	269° 27.3	284° 27.2	299° 27.1	314° 26.9	329° 26.8	344° 26.6	359° 26.5	14° 26.4	29° 26.2	44° 26.1	59° 26.0	74° 25.8	-0.1
	23° 25.4	23° 25.4	23° 25.4	23° 25.3	23° 25.3	23° 25.3	23° 25.2	23° 25.2	23° 25.2	23° 25.1	23° 25.1	23° 25.1	-0.0
Вт 24	269° 24.1	284° 23.9	299° 23.8	314° 23.7	329° 23.5	344° 23.4	359° 23.3	14° 23.1	29° 23.0	44° 22.9	59° 22.7	74° 22.6	-0.1
	23° 24.5	23° 24.5	23° 24.4	23° 24.4	23° 24.3	23° 24.3	23° 24.2	23° 24.2	23° 24.1	23° 24.1	23° 24.0	23° 24.0	-0.1
Ср 25	269° 20.9	284° 20.7	299° 20.6	314° 20.4	329° 20.3	344° 20.2	359° 20.0	14° 19.9	29° 19.8	44° 19.7	59° 19.5	74° 19.4	-0.1
	23° 23.2	23° 23.1	23° 23.1	23° 23.0	23° 22.9	23° 22.9	23° 22.8	23° 22.7	23° 22.7	23° 22.6	23° 22.5	23° 22.4	-0.1
Чт 26	269° 17.7	284° 17.5	299° 17.4	314° 17.3	329° 17.1	344° 17.0	359° 16.9	14° 16.7	29° 16.6	44° 16.5	59° 16.3	74° 16.2	-0.1
	23° 21.5	23° 21.4	23° 21.3	23° 21.2	23° 21.1	23° 21.0	23° 21.0	23° 20.9	23° 20.8	23° 20.7	23° 20.6	23° 20.5	-0.1
Пт 27	269° 14.5	284° 14.4	299° 14.3	314° 14.1	329° 14.0	344° 13.9	359° 13.7	14° 13.6	29° 13.5	44° 13.3	59° 13.2	74° 13.1	-0.1
	23° 19.3	23° 19.2	23° 19.1	23° 19.0	23° 18.9	23° 18.8	23° 18.7	23° 18.6	23° 18.5	23° 18.4	23° 18.3	23° 18.2	-0.1
Сб 28	269° 11.4	284° 11.3	299° 11.2	314° 11.0	329° 10.9	344° 10.8	359° 10.6	14° 10.5	29° 10.4	44° 10.3	59° 10.1	74° 10.0	-0.1
	23° 16.8	23° 16.7	23° 16.5	23° 16.4	23° 16.3	23° 16.2	23° 16.1	23° 15.9	23° 15.8	23° 15.7	23° 15.6	23° 15.5	-0.1
Вс 29	269° 08.4	284° 08.2	299° 08.1	314° 08.0	329° 07.9	344° 07.7	359° 07.6	14° 07.5	29° 07.4	44° 07.2	59° 07.1	74° 07.0	-0.1
	23° 13.8	23° 13.7	23° 13.5	23° 13.4	23° 13.3	23° 13.1	23° 13.0	23° 12.9	23° 12.7	23° 12.6	23° 12.5	23° 12.3	-0.1
Пн 30	269° 05.4	284° 05.3	299° 05.1	314° 05.0	329° 04.9	344° 04.8	359° 04.6	14° 04.5	29° 04.4	44° 04.3	59° 04.1	74° 04.0	-0.1
	23° 10.4	23° 10.3	23° 10.1	23° 10.0	23° 09.8	23° 09.7	23° 09.5	23° 09.4	23° 09.2	23° 09.1	23° 08.9	23° 08.8	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

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Д	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	R/p
Вс 1	249° 48.9 -10° 07.0	264° 18.6 -10° 17.8	278° 48.2 -10° 28.6	293° 17.7 -10° 39.3	307° 47.2 -10° 50.1	322° 16.5 -11° 00.7	336° 45.8 -11° 11.3	351° 15.0 -11° 21.9	5° 44.1 -11° 32.4	20° 13.1 -11° 42.9	34° 42.0 -11° 53.3	+29.3 -10.6	15.9 58.2
Пн 2	251° 44.7 -14° 22.8	266° 12.1 -14° 32.2	280° 39.4 -14° 41.5	295° 06.6 -14° 50.8	309° 33.7 -15° 00.0	324° 00.8 -15° 09.2	338° 27.7 -15° 18.2	352° 54.5 -15° 27.2	7° 21.3 -15° 36.1	21° 47.9 -15° 44.9	36° 14.4 -15° 53.6	+27.0 -9.1	16.1 59.1
Вт 3	252° 40.8 -17° 52.8	267° 05.8 -17° 59.9	281° 30.7 -18° 06.9	295° 55.6 -18° 13.8	310° 20.3 -18° 20.6	324° 44.9 -18° 27.3	339° 09.5 -18° 33.8	353° 33.9 -18° 40.3	7° 58.3 -18° 46.6	22° 22.6 -18° 52.7	36° 46.8 -18° 58.8	+24.6 -6.6	16.4 60.0
Ср 4	252° 40.3 -20° 13.9	267° 03.3 -20° 17.8	281° 26.3 -20° 21.6	295° 49.1 -20° 25.2	310° 11.9 -20° 28.7	324° 34.7 -20° 32.0	338° 57.4 -20° 35.1	353° 20.1 -20° 38.2	7° 42.7 -20° 41.0	22° 05.2 -20° 43.7	36° 27.7 -20° 46.3	+22.7 -3.2	16.5 60.6
○ Чт 5	252° 00.8 -21° 06.2	266° 22.8 -21° 06.2	280° 44.8 -21° 06.1	295° 06.8 -21° 05.9	309° 28.8 -21° 05.4	323° 50.7 -21° 04.9	338° 12.7 -21° 04.1	352° 34.7 -21° 03.2	6° 56.6 -21° 02.2	21° 18.6 -21° 00.9	35° 40.6 -20° 59.6	+22.0 +0.7	16.6 61.0
Пт 6	251° 12.3 -20° 19.9	265° 34.6 -20° 16.0	279° 57.0 -20° 12.0	294° 19.5 -20° 07.8	308° 41.9 -20° 03.4	323° 04.4 -19° 59.0	337° 27.0 -19° 54.3	351° 49.6 -19° 49.5	6° 12.3 -19° 44.6	20° 35.0 -19° 39.6	34° 57.8 -19° 34.3	+22.5 +4.6	16.6 61.0
Сб 7	250° 47.0 -17° 59.7	265° 10.8 -17° 52.4	279° 34.8 -17° 44.9	293° 58.7 -17° 37.3	308° 22.8 -17° 29.6	322° 47.0 -17° 21.8	337° 11.2 -17° 13.8	351° 35.5 -17° 05.8	5° 59.9 -16° 57.6	20° 24.4 -16° 49.3	34° 48.9 -16° 40.9	+24.2 +7.9	16.6 60.7
Вс 8	251° 07.4 -14° 22.9	265° 33.4 -14° 13.0	279° 59.4 -14° 02.9	294° 25.5 -13° 52.8	308° 51.7 -13° 42.7	323° 18.0 -13° 32.4	337° 44.3 -13° 22.1	352° 10.8 -13° 11.7	6° 37.3 -13° 01.2	21° 03.9 -12° 50.6	35° 30.6 -12° 40.0	+26.3 +10.3	16.4 60.2
Пн 9	252° 21.3 -9° 53.2	266° 49.3 -9° 41.7	281° 17.4 -9° 30.1	295° 45.6 -9° 18.5	310° 13.8 -9° 06.8	324° 42.2 -8° 55.1	339° 10.6 -8° 43.4	353° 39.1 -8° 31.6	8° 07.6 -8° 19.8	22° 36.3 -8° 07.9	37° 05.0 -7° 56.0	+28.4 +11.7	16.2 59.4
Вт 10	254° 23.7 -4° 54.8	268° 53.4 -4° 42.5	283° 23.2 -4° 30.3	297° 53.1 -4° 18.0	312° 23.0 -4° 05.8	326° 53.0 -3° 53.5	341° 23.0 -3° 41.3	355° 53.1 -3° 29.0	10° 23.3 -3° 16.7	24° 53.5 -3° 04.4	39° 23.7 -2° 52.1	+30.0 +12.3	16.0 58.6
Ср 11	257° 02.8 0° 11.5	271° 33.7 0° 23.7	286° 04.7 0° 35.8	300° 35.7 0° 48.0	315° 06.8 1° 00.1	329° 37.8 1° 12.2	344° 08.9 1° 24.2	358° 40.0 1° 36.3	13° 11.2 1° 48.3	27° 42.4 2° 00.3	42° 13.6 2° 12.3	+31.1 +12.1	15.7 57.7
◑ Чт 12	271° 33.7 0° 23.7	286° 04.7 0° 35.8	300° 35.7 0° 48.0	315° 06.8 1° 00.1	329° 37.8 1° 12.2	344° 08.9 1° 24.2	358° 40.0 1° 36.3	13° 11.2 1° 48.3	27° 42.4 2° 00.3	42° 13.6 2° 12.3	56° 44.9 2° 24.3	+31.1 +12.1	15.7 57.7
Пт 13	274° 36.2 5° 20.1	289° 07.7 5° 31.5	303° 39.3 5° 42.9	318° 10.9 5° 54.3	332° 42.5 6° 05.6	347° 14.1 6° 16.9	1° 45.7 6° 28.2	16° 17.3 6° 39.4	30° 49.0 6° 50.6	45° 20.6 7° 01.7	59° 52.3 7° 12.7	+31.6 +11.3	15.5 56.9
Сб 14	277° 47.4 9° 53.0	292° 19.0 10° 03.2	306° 50.7 10° 13.4	321° 22.3 10° 23.6	335° 54.0 10° 33.7	350° 25.6 10° 43.7	4° 57.3 10° 53.7	19° 28.9 11° 03.6	34° 00.5 11° 13.4	48° 32.2 11° 23.2	63° 03.8 11° 32.9	+31.6 +10.0	15.3 56.2
Вс 15	280° 56.6 13° 50.9	295° 28.0 13° 59.6	309° 59.4 14° 08.2	324° 30.8 14° 16.7	339° 02.2 14° 25.1	353° 33.6 14° 33.5	8° 04.9 14° 41.7	22° 36.2 14° 49.9	37° 07.5 14° 58.1	51° 38.8 15° 06.1	66° 10.1 15° 14.1	+31.3 +8.3	15.2 55.6
Пн 16	283° 57.1 17° 04.2	298° 28.1 17° 10.9	312° 59.1 17° 17.5	327° 30.0 17° 24.0	342° 01.0 17° 30.4	356° 31.9 17° 36.7	11° 02.8 17° 43.0	25° 33.7 17° 49.2	40° 04.5 17° 55.2	54° 35.4 18° 01.2	69° 06.2 18° 07.1	+30.9 +6.3	15.0 55.0
Вт 17	286° 46.7 19° 24.6	301° 17.3 19° 29.0	315° 47.9 19° 33.4	330° 18.4 19° 37.6	344° 49.0 19° 41.7	359° 19.5 19° 45.8	13° 50.1 19° 49.7	28° 20.6 19° 53.6	42° 51.1 19° 57.3	57° 21.6 20° 01.0	71° 52.0 20° 04.5	+30.5 +4.0	14.9 54.6
Ср 18	289° 28.4 20° 46.1	303° 58.8 20° 48.1	318° 29.1 20° 49.9	332° 59.5 20° 51.7	347° 29.9 20° 53.4	2° 00.3 20° 55.0	16° 30.7 20° 56.5	31° 01.1 20° 57.8	45° 31.4 20° 59.1	60° 01.8 21° 00.3	74° 32.2 21° 01.4	+30.4 +1.5	14.8 54.3
● Чт 19	292° 08.9 21° 05.5	306° 39.4 21° 05.0	321° 09.9 21° 04.3	335° 40.5 21° 03.6	350° 11.0 21° 02.8	4° 41.6 21° 01.9	19° 12.2 21° 00.9	33° 42.8 20° 59.7	48° 13.4 20° 58.5	62° 44.1 20° 57.2	77° 14.7 20° 55.8	+30.6 -1.0	14.7 54.1
Пт 20	294° 57.0 20° 23.1	309° 28.0 20° 20.2	323° 59.0 20° 17.1	338° 30.1 20° 14.0	353° 01.2 20° 10.8	7° 32.3 20° 07.5	22° 03.4 20° 04.1	36° 34.6 20° 00.6	51° 05.8 19° 57.0	65° 37.0 19° 53.3	80° 08.2 19° 49.6	+31.1 -3.4	14.7 53.9
Сб 21	298° 00.6 18° 42.6	312° 32.4 18° 37.5	327° 04.1 18° 32.2	341° 36.0 18° 26.9	356° 07.8 18° 21.5	10° 39.7 18° 16.1	25° 11.6 18° 10.5	39° 43.5 18° 04.9	54° 15.5 17° 59.2	68° 47.5 17° 53.4	83° 19.6 17° 47.5	+31.9 -5.5	14.7 53.9
Вс 22	301° 24.3 16° 10.4	315° 56.9 16° 03.3	330° 29.5 15° 56.2	345° 02.1 15° 49.0	359° 34.8 15° 41.8	14° 07.5 15° 34.4	28° 40.3 15° 27.0	43° 13.0 15° 19.6	57° 45.9 15° 12.1	72° 18.7 15° 04.5	86° 51.6 14° 56.8	+32.7 -7.4	14.7 54.0
Пн 23	305° 08.2 12° 54.6	319° 41.5 12° 45.9	334° 14.9 12° 37.3	348° 48.3 12° 28.5	3° 21.7 12° 19.8	17° 55.1 12° 10.9	32° 28.5 12° 02.0	47° 02.0 11° 53.1	61° 35.5 11° 44.1	76° 09.0 11° 35.1	90° 42.6 11° 26.0	+33.4 -8.9	14.8 54.1
Вт 24	309° 08.1 9° 03.9	323° 41.9 8° 54.0	338° 15.7 8° 44.2	352° 49.6 8° 34.3	7° 23.4 8° 24.3	21° 57.3 8° 14.3	36° 31.2 8° 04.3	51° 05.1 7° 54.3	65° 39.0 7° 44.2	80° 12.9 7° 34.0	94° 46.8 7° 23.8	+33.9 -10.0	14.9 54.5
Ср 25	313° 15.9 4° 47.3	327° 49.8 4° 36.6	342° 23.7 4° 26.0	356° 57.6 4° 15.2	11° 31.6 4° 04.5	26° 05.5 3° 53.7	40° 39.4 3° 42.9	55° 13.2 3° 32.1	69° 47.1 3° 21.2	84° 21.0 3° 10.4	98° 54.8 2° 59.5	+33.9 -10.8	15.0 54.9
Чт 26	317° 20.7 0° 14.1	331° 54.2 0° 02.9	346° 27.7 -0° 08.2	1° 01.2 -0° 19.4	15° 34.7 -0° 30.5	30° 08.1 -0° 41.7	44° 41.5 -0° 52.9	59° 14.9 -1° 04.1	73° 48.2 -1° 15.3	88° 21.6 -1° 26.5	102° 54.8 -1° 37.7	+33.4 -11.2	15.1 55.5
Пт 27	321° 09.3 -4° 26.0	335° 41.9 -4° 37.1	350° 14.4 -4° 48.3	4° 47.0 -4° 59.5	19° 19.4 -5° 10.7	33° 51.8 -5° 21.8	48° 24.2 -5° 32.9	62° 56.4 -5° 44.1	77° 28.7 -5° 55.2	92° 00.9 -6° 06.3	106° 33.0 -6° 17.4	+32.4 -11.1	15.4 56.3
◐ Сб 28	324° 27.3 -9° 01.2	338° 58.4 -9° 11.9	353° 29.4 -9° 22.6	8° 00.3 -9° 33.3	22° 31.2 -9° 43.9	37° 01.9 -9° 54.5	51° 32.6 -10° 05.1	66° 03.3 -10° 15.6	80° 33.8 -10° 26.1	95° 04.3 -10° 36.5	109° 34.7 -10° 46.9	+30.7 -10.6	15.6 57.2
Вс 29	327° 00.3 -13° 17.4	341° 29.3 -13° 27.0	355° 58.3 -13° 36.5	10° 27.1 -13° 46.0	24° 55.8 -13° 55.4	39° 24.4 -14° 04.8	53° 53.0 -14° 14.1	68° 21.4 -14° 23.3	82° 49.8 -14° 32.4	97° 18.0 -14° 41.5	111° 46.2 -14° 50.5	+28.6 -9.3	15.9 58.2
Пн 30	328° 36.9 -16° 56.4	343° 03.5 -17° 04.0	357° 29.9 -17° 11.6	11° 56.3 -17° 19.2	26° 22.6 -17° 26.6	40° 48.8 -17° 33.9	55° 14.9 -17° 41.1	69° 40.9 -17° 48.2	84° 06.8 -17° 55.2	98° 32.6 -18° 02.1	112° 58.3 -18° 08.9	+26.1 -7.3	16.1 59.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 5 11h58 — Последняя четв.: 12 02h20 — Новолуние: 19 22h24 — Первая четв.: 28 00h19

СОЛНЦЕ

Июль 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	269° 02.5 23° 06.7	284° 02.3 23° 06.5	299° 02.2 23° 06.3	314° 02.1 23° 06.2	329° 02.0 23° 06.0	344° 01.8 23° 05.8	359° 01.7 23° 05.7	14° 01.6 23° 05.5	29° 01.5 23° 05.3	44° 01.4 23° 05.2	59° 01.3 23° 05.0	74° 01.1 23° 04.8	-0.1 -0.2
Ср 2	268° 59.6 23° 02.5	283° 59.5 23° 02.3	298° 59.4 23° 02.1	313° 59.2 23° 01.9	328° 59.1 23° 01.8	343° 59.0 23° 01.6	358° 58.9 23° 01.4	13° 58.8 23° 01.2	28° 58.7 23° 01.0	43° 58.5 23° 00.8	58° 58.4 23° 00.6	73° 58.3 23° 00.4	-0.1 -0.2
Чт 3	268° 56.8 22° 57.9	283° 56.7 22° 57.7	298° 56.6 22° 57.5	313° 56.5 22° 57.3	328° 56.3 22° 57.1	343° 56.2 22° 56.9	358° 56.1 22° 56.7	13° 56.0 22° 56.5	28° 55.9 22° 56.3	43° 55.8 22° 56.1	58° 55.7 22° 55.9	73° 55.6 22° 55.7	-0.1 -0.2
Пт 4	268° 54.1 22° 52.9	283° 54.0 22° 52.7	298° 53.9 22° 52.5	313° 53.8 22° 52.3	328° 53.7 22° 52.1	343° 53.5 22° 51.9	358° 53.4 22° 51.6	13° 53.3 22° 51.4	28° 53.2 22° 51.2	43° 53.1 22° 51.0	58° 53.0 22° 50.8	73° 52.9 22° 50.5	-0.1 -0.2
Сб 5	268° 51.5 22° 47.6	283° 51.4 22° 47.3	298° 51.3 22° 47.1	313° 51.1 22° 46.9	328° 51.0 22° 46.6	343° 50.9 22° 46.4	358° 50.8 22° 46.2	13° 50.7 22° 45.9	28° 50.6 22° 45.7	43° 50.5 22° 45.5	58° 50.4 22° 45.2	73° 50.3 22° 45.0	-0.1 -0.2
Вс 6	268° 48.9 22° 41.8	283° 48.8 22° 41.5	298° 48.7 22° 41.3	313° 48.6 22° 41.0	328° 48.5 22° 40.8	343° 48.4 22° 40.5	358° 48.3 22° 40.3	13° 48.2 22° 40.0	28° 48.1 22° 39.8	43° 48.0 22° 39.5	58° 47.9 22° 39.3	73° 47.8 22° 39.0	-0.1 -0.3
Пн 7	268° 46.5 22° 35.6	283° 46.4 22° 35.4	298° 46.3 22° 35.1	313° 46.2 22° 34.8	328° 46.1 22° 34.6	343° 46.0 22° 34.3	358° 45.9 22° 34.0	13° 45.8 22° 33.8	28° 45.7 22° 33.5	43° 45.6 22° 33.2	58° 45.5 22° 32.9	73° 45.4 22° 32.7	-0.1 -0.3
Вт 8	268° 44.1 22° 29.1	283° 44.0 22° 28.8	298° 43.9 22° 28.5	313° 43.8 22° 28.2	328° 43.7 22° 27.9	343° 43.6 22° 27.7	358° 43.5 22° 27.4	13° 43.4 22° 27.1	28° 43.3 22° 26.8	43° 43.2 22° 26.5	58° 43.1 22° 26.2	73° 43.0 22° 25.9	-0.1 -0.3
Ср 9	268° 41.8 22° 22.1	283° 41.7 22° 21.8	298° 41.6 22° 21.5	313° 41.5 22° 21.2	328° 41.5 22° 20.9	343° 41.4 22° 20.6	358° 41.3 22° 20.3	13° 41.2 22° 20.0	28° 41.1 22° 19.7	43° 41.0 22° 19.4	58° 40.9 22° 19.1	73° 40.8 22° 18.8	-0.1 -0.3
Чт 10	268° 39.6 22° 14.8	283° 39.6 22° 14.5	298° 39.5 22° 14.2	313° 39.4 22° 13.9	328° 39.3 22° 13.5	343° 39.2 22° 13.2	358° 39.1 22° 12.9	13° 39.0 22° 12.6	28° 38.9 22° 12.3	43° 38.9 22° 11.9	58° 38.8 22° 11.6	73° 38.7 22° 11.3	-0.1 -0.3
Пт 11	268° 37.6 22° 07.1	283° 37.5 22° 06.8	298° 37.4 22° 06.4	313° 37.3 22° 06.1	328° 37.2 22° 05.8	343° 37.2 22° 05.4	358° 37.1 22° 05.1	13° 37.0 22° 04.8	28° 36.9 22° 04.4	43° 36.8 22° 04.1	58° 36.7 22° 03.8	73° 36.7 22° 03.4	-0.1 -0.3
Сб 12	268° 35.6 21° 59.0	283° 35.5 21° 58.6	298° 35.4 21° 58.3	313° 35.4 21° 57.9	328° 35.3 21° 57.6	343° 35.2 21° 57.2	358° 35.1 21° 56.9	13° 35.1 21° 56.6	28° 35.0 21° 56.2	43° 34.9 21° 55.8	58° 34.8 21° 55.5	73° 34.7 21° 55.1	-0.1 -0.3
Вс 13	268° 33.8 21° 50.5	283° 33.7 21° 50.1	298° 33.6 21° 49.8	313° 33.5 21° 49.4	328° 33.5 21° 49.1	343° 33.4 21° 48.7	358° 33.3 21° 48.3	13° 33.2 21° 48.0	28° 33.2 21° 47.6	43° 33.1 21° 47.2	58° 33.0 21° 46.9	73° 32.9 21° 46.5	-0.1 -0.4
Пн 14	268° 32.0 21° 41.7	283° 31.9 21° 41.3	298° 31.9 21° 40.9	313° 31.8 21° 40.5	328° 31.7 21° 40.1	343° 31.7 21° 39.8	358° 31.6 21° 39.4	13° 31.5 21° 39.0	28° 31.5 21° 38.6	43° 31.4 21° 38.2	58° 31.3 21° 37.9	73° 31.2 21° 37.5	-0.1 -0.4
Вт 15	268° 30.4 21° 32.4	283° 30.3 21° 32.0	298° 30.3 21° 31.7	313° 30.2 21° 31.3	328° 30.1 21° 30.9	343° 30.1 21° 30.5	358° 30.0 21° 30.1	13° 29.9 21° 29.7	28° 29.9 21° 29.3	43° 29.8 21° 28.9	58° 29.7 21° 28.5	73° 29.7 21° 28.1	-0.1 -0.4
Ср 16	268° 28.9 21° 22.8	283° 28.8 21° 22.4	298° 28.8 21° 22.0	313° 28.7 21° 21.6	328° 28.6 21° 21.2	343° 28.6 21° 20.8	358° 28.5 21° 20.4	13° 28.5 21° 20.0	28° 28.4 21° 19.6	43° 28.4 21° 19.2	58° 28.3 21° 18.7	73° 28.2 21° 18.3	-0.1 -0.4
Чт 17	268° 27.5 21° 12.9	283° 27.5 21° 12.5	298° 27.4 21° 12.0	313° 27.3 21° 11.6	328° 27.3 21° 11.2	343° 27.2 21° 10.8	358° 27.2 21° 10.4	13° 27.1 21° 09.9	28° 27.1 21° 09.5	43° 27.0 21° 09.1	58° 27.0 21° 08.6	73° 26.9 21° 08.2	-0.1 -0.4
Пт 18	268° 26.3 21° 02.6	283° 26.2 21° 02.1	298° 26.2 21° 01.7	313° 26.1 21° 01.3	328° 26.1 21° 00.8	343° 26.0 21° 00.4	358° 26.0 20° 59.9	13° 25.9 20° 59.5	28° 25.9 20° 59.1	43° 25.8 20° 58.6	58° 25.8 20° 58.2	73° 25.7 20° 57.7	-0.0 -0.4
Сб 19	268° 25.1 20° 51.9	283° 25.1 20° 51.5	298° 25.1 20° 51.0	313° 25.0 20° 50.6	328° 25.0 20° 50.1	343° 24.9 20° 49.6	358° 24.9 20° 49.2	13° 24.8 20° 48.7	28° 24.8 20° 48.3	43° 24.8 20° 47.8	58° 24.7 20° 47.4	73° 24.7 20° 46.9	-0.0 -0.5
Вс 20	268° 24.2 20° 40.9	283° 24.1 20° 40.4	298° 24.1 20° 40.0	313° 24.1 20° 39.5	328° 24.0 20° 39.0	343° 24.0 20° 38.6	358° 24.0 20° 38.1	13° 23.9 20° 37.6	28° 23.9 20° 37.1	43° 23.8 20° 36.7	58° 23.8 20° 36.2	73° 23.8 20° 35.7	-0.0 -0.5
Пн 21	268° 23.3 20° 29.5	283° 23.3 20° 29.1	298° 23.3 20° 28.6	313° 23.2 20° 28.1	328° 23.2 20° 27.6	343° 23.2 20° 27.1	358° 23.2 20° 26.6	13° 23.1 20° 26.2	28° 23.1 20° 25.7	43° 23.1 20° 25.2	58° 23.0 20° 24.7	73° 23.0 20° 24.2	-0.0 -0.5
Вт 22	268° 22.6 20° 17.8	283° 22.6 20° 17.3	298° 22.6 20° 16.8	313° 22.6 20° 16.3	328° 22.5 20° 15.8	343° 22.5 20° 15.3	358° 22.5 20° 14.8	13° 22.5 20° 14.3	28° 22.4 20° 13.8	43° 22.4 20° 13.3	58° 22.4 20° 12.8	73° 22.4 20° 12.3	-0.0 -0.5
Ср 23	268° 22.1 20° 05.8	283° 22.1 20° 05.3	298° 22.1 20° 04.8	313° 22.0 20° 04.2	328° 22.0 20° 03.7	343° 22.0 20° 03.2	358° 22.0 20° 02.7	13° 22.0 20° 02.2	28° 21.9 20° 01.7	43° 21.9 20° 01.2	58° 21.9 20° 00.7	73° 21.9 20° 00.1	-0.0 -0.5
Чт 24	268° 21.7 19° 53.4	283° 21.7 19° 52.9	298° 21.7 19° 52.3	313° 21.7 19° 51.8	328° 21.6 19° 51.3	343° 21.6 19° 50.8	358° 21.6 19° 50.2	13° 21.6 19° 49.7	28° 21.6 19° 49.2	43° 21.6 19° 48.7	58° 21.6 19° 48.1	73° 21.6 19° 47.6	-0.0 -0.5
Пт 25	268° 21.5 19° 40.7	283° 21.4 19° 40.1	298° 21.4 19° 39.6	313° 21.4 19° 39.1	328° 21.4 19° 38.5	343° 21.4 19° 38.0	358° 21.4 19° 37.4	13° 21.4 19° 36.9	28° 21.4 19° 36.4	43° 21.4 19° 35.8	58° 21.4 19° 35.3	73° 21.4 19° 34.7	-0.0 -0.5
Сб 26	268° 21.4 19° 27.6	283° 21.4 19° 27.1	298° 21.4 19° 26.5	313° 21.4 19° 26.0	328° 21.4 19° 25.4	343° 21.4 19° 24.9	358° 21.4 19° 24.3	13° 21.4 19° 23.8	28° 21.4 19° 23.2	43° 21.4 19° 22.7	58° 21.4 19° 22.1	73° 21.4 19° 21.6	+0.0 -0.6
Вс 27	268° 21.4 19° 14.3	283° 21.4 19° 13.7	298° 21.4 19° 13.2	313° 21.4 19° 12.6	328° 21.4 19° 12.0	343° 21.4 19° 11.5	358° 21.5 19° 10.9	13° 21.5 19° 10.3	28° 21.5 19° 09.8	43° 21.5 19° 09.2	58° 21.5 19° 08.6	73° 21.5 19° 08.1	+0.0 -0.6
Пн 28	268° 21.6 19° 00.6	283° 21.6 19° 00.0	298° 21.7 18° 59.4	313° 21.7 18° 58.9	328° 21.7 18° 58.3	343° 21.7 18° 57.7	358° 21.7 18° 57.1	13° 21.7 18° 56.6	28° 21.7 18° 56.0	43° 21.7 18° 55.4	58° 21.8 18° 54.8	73° 21.8 18° 54.2	+0.0 -0.6
Вт 29	268° 22.0 18° 46.6	283° 22.0 18° 46.0	298° 22.0 18° 45.4	313° 22.1 18° 44.8	328° 22.1 18° 44.3	343° 22.1 18° 43.7	358° 22.1 18° 43.1	13° 22.1 18° 42.5	28° 22.2 18° 41.9	43° 22.2 18° 41.3	58° 22.2 18° 40.7	73° 22.2 18° 40.1	+0.0 -0.6
Ср 30	268° 22.5 18° 32.3	283° 22.6 18° 31.7	298° 22.6 18° 31.1	313° 22.6 18° 30.5	328° 22.6 18° 29.9	343° 22.7 18° 29.3	358° 22.7 18° 28.7	13° 22.7 18° 28.1	28° 22.7 18° 27.5	43° 22.8 18° 26.9	58° 22.8 18° 26.3	73° 22.8 18° 25.7	+0.0 -0.6
Чт 31	268° 23.2 18° 17.7	283° 23.2 18° 17.1	298° 23.3 18° 16.5	313° 23.3 18° 15.9	328° 23.3 18° 15.3	343° 23.4 18° 14.6	358° 23.4 18° 14.0	13° 23.4 18° 13.4	28° 23.5 18° 12.8	43° 23.5 18° 12.2	58° 23.5 18° 11.6	73° 23.6 18° 10.9	+0.0 -0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2031

Д	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ°/h	R/p
Вт 1	257° 10.1 -19° 10.7	271° 34.8 -19° 16.2	285° 59.4 -19° 21.6	300° 23.9 -19° 26.9	314° 48.3 -19° 32.1	329° 12.6 -19° 37.1	343° 36.8 -19° 42.0	358° 00.9 -19° 46.8	12° 25.0 -19° 51.4	26° 49.0 -19° 56.0	41° 12.9 -20° 00.3	+24.3 -5.0	16.3 59.9
Ср 2	257° 02.3 -20° 49.4	271° 25.1 -20° 51.5	285° 47.8 -20° 53.5	300° 10.4 -20° 55.3	314° 33.1 -20° 56.9	328° 55.6 -20° 58.4	343° 18.1 -20° 59.8	357° 40.6 -21° 01.0	12° 03.0 -21° 02.0	26° 25.3 -21° 02.9	40° 47.7 -21° 03.6	+22.5 -1.4	16.5 60.7
Чт 3	256° 18.9 -20° 55.5	270° 40.9 -20° 53.7	285° 02.8 -20° 51.8	299° 24.7 -20° 49.6	313° 46.7 -20° 47.3	328° 08.6 -20° 44.9	342° 30.5 -20° 42.3	356° 52.5 -20° 39.5	11° 14.4 -20° 36.5	25° 36.4 -20° 33.5	39° 58.3 -20° 30.2	+21.9 +2.5	16.7 61.2
○ Пт 4	255° 30.6 -19° 22.9	269° 53.0 -19° 17.3	284° 15.5 -19° 11.4	298° 38.0 -19° 05.5	313° 00.5 -18° 59.3	327° 23.2 -18° 53.1	341° 45.8 -18° 46.7	356° 08.5 -18° 40.1	10° 31.3 -18° 33.4	24° 54.1 -18° 26.6	39° 17.0 -18° 19.7	+22.6 +6.3	16.7 61.4
Сб 5	255° 07.9 -16° 20.0	269° 31.8 -16° 11.0	283° 55.9 -16° 02.0	298° 20.0 -15° 52.8	312° 44.1 -15° 43.6	327° 08.4 -15° 34.2	341° 32.7 -15° 24.7	355° 57.2 -15° 15.1	10° 21.6 -15° 05.4	24° 46.2 -14° 55.7	39° 10.9 -14° 45.8	+24.3 +9.4	16.7 61.2
Вс 6	255° 30.5 -12° 07.1	269° 56.4 -11° 55.9	284° 22.5 -11° 44.6	298° 48.6 -11° 33.3	313° 14.8 -11° 21.9	327° 41.1 -11° 10.4	342° 07.5 -10° 58.9	356° 34.0 -10° 47.3	11° 00.5 -10° 35.6	25° 27.1 -10° 23.9	39° 53.8 -10° 12.2	+26.3 +11.5	16.5 60.6
Пн 7	256° 43.6 -7° 10.5	271° 11.6 -6° 58.1	285° 39.5 -6° 45.7	300° 07.6 -6° 33.2	314° 35.7 -6° 20.7	329° 03.9 -6° 08.2	343° 32.2 -5° 55.7	358° 00.6 -5° 43.2	12° 29.0 -5° 30.6	26° 57.4 -5° 18.1	41° 26.0 -5° 05.5	+28.2 +12.5	16.3 59.9
Вт 8	258° 41.4 -1° 55.9	273° 10.9 -1° 43.3	287° 40.5 -1° 30.6	302° 10.1 -1° 18.0	316° 39.7 -1° 05.4	331° 09.4 -0° 52.8	345° 39.1 -0° 40.2	0° 08.9 -0° 27.7	14° 38.7 -0° 15.1	29° 08.6 -0° 02.6	43° 38.5 0° 09.9	+29.7 +12.6	16.1 58.9
Ср 9	261° 12.2 3° 14.9	275° 42.8 3° 27.0	290° 13.3 3° 39.1	304° 43.9 3° 51.1	319° 14.5 4° 03.1	333° 45.2 4° 15.1	348° 15.9 4° 27.0	2° 46.6 4° 38.9	17° 17.3 4° 50.7	31° 48.0 5° 02.5	46° 18.8 5° 14.3	+30.7 +11.9	15.8 58.0
Чт 10	264° 02.9 8° 05.0	278° 33.9 8° 16.0	293° 05.0 8° 26.9	307° 36.1 8° 37.8	322° 07.2 8° 48.6	336° 38.3 8° 59.4	351° 09.4 9° 10.1	5° 40.6 9° 20.7	20° 11.7 9° 31.3	34° 42.8 9° 41.8	49° 14.0 9° 52.2	+31.1 +10.7	15.5 57.0
◑ Пт 11	278° 33.9 8° 16.0	293° 05.0 8° 26.9	307° 36.1 8° 37.8	322° 07.2 8° 48.6	336° 38.3 8° 59.4	351° 09.4 9° 10.1	5° 40.6 9° 20.7	20° 11.7 9° 31.3	34° 42.8 9° 41.8	49° 14.0 9° 52.2	63° 45.1 10° 02.6	+31.1 +10.7	15.5 57.0
Сб 12	281° 32.7 12° 30.8	296° 03.9 12° 40.1	310° 35.1 12° 49.4	325° 06.2 12° 58.6	339° 37.4 13° 07.7	354° 08.6 13° 16.7	8° 39.7 13° 25.7	23° 10.9 13° 34.6	37° 42.0 13° 43.4	52° 13.2 13° 52.2	66° 44.3 14° 00.8	+31.2 +9.0	15.3 56.1
Вс 13	284° 30.4 16° 01.5	299° 01.4 16° 08.9	313° 32.4 16° 16.2	328° 03.4 16° 23.4	342° 34.3 16° 30.6	357° 05.3 16° 37.6	11° 36.3 16° 44.6	26° 07.2 16° 51.5	40° 38.1 16° 58.3	55° 09.0 17° 05.0	69° 39.9 17° 11.6	+31.0 +7.0	15.1 55.4
Пн 14	287° 22.2 18° 40.4	301° 52.9 18° 45.6	316° 23.7 18° 50.7	330° 54.4 18° 55.7	345° 25.1 19° 00.6	359° 55.8 19° 05.4	14° 26.4 19° 10.1	28° 57.1 19° 14.8	43° 27.8 19° 19.3	57° 58.4 19° 23.7	72° 29.1 19° 28.1	+30.7 +4.8	15.0 54.8
Вт 15	290° 07.9 20° 21.8	304° 38.4 20° 24.6	319° 09.0 20° 27.3	333° 39.5 20° 29.9	348° 10.0 20° 32.4	2° 40.6 20° 34.8	17° 11.1 20° 37.1	31° 41.6 20° 39.3	46° 12.1 20° 41.4	60° 42.7 20° 43.5	75° 13.2 20° 45.4	+30.5 +2.4	14.8 54.4
Ср 16	292° 51.3 21° 02.2	307° 21.9 21° 02.6	321° 52.5 21° 02.8	336° 23.0 21° 03.0	350° 53.6 21° 03.0	5° 24.3 21° 02.9	19° 54.9 21° 02.8	34° 25.5 21° 02.5	48° 56.1 21° 02.1	63° 26.8 21° 01.7	77° 57.5 21° 01.1	+30.6 -0.1	14.8 54.1
Чт 17	295° 39.0 20° 41.2	310° 09.9 20° 39.0	324° 40.9 20° 36.9	339° 11.8 20° 34.6	353° 42.8 20° 32.2	8° 13.8 20° 29.7	22° 44.8 20° 27.1	37° 15.8 20° 24.5	51° 46.8 20° 21.7	66° 17.9 20° 18.8	80° 49.0 20° 15.9	+31.0 -2.5	14.7 53.9
Пт 18	298° 38.3 19° 20.8	313° 09.8 19° 16.4	327° 41.3 19° 12.0	342° 12.9 19° 07.4	356° 44.4 19° 02.8	11° 16.0 18° 58.0	25° 47.7 18° 53.2	40° 19.3 18° 48.3	54° 51.0 18° 43.4	69° 22.8 18° 38.3	83° 54.5 18° 33.1	+31.6 -4.8	14.7 53.9
● Сб 19	301° 54.5 17° 06.3	316° 26.7 16° 59.9	330° 59.0 16° 53.5	345° 31.3 16° 46.9	0° 03.6 16° 40.3	14° 36.0 16° 33.6	29° 08.4 16° 26.8	43° 40.8 16° 20.0	58° 13.3 16° 13.0	72° 45.8 16° 06.0	87° 18.3 15° 59.0	+32.4 -6.7	14.7 53.9
Вс 20	305° 29.8 14° 05.1	320° 02.8 13° 57.0	334° 35.8 13° 48.8	349° 08.8 13° 40.6	3° 41.9 13° 32.3	18° 15.0 13° 23.9	32° 48.2 13° 15.5	47° 21.3 13° 07.1	61° 54.5 12° 58.6	76° 27.7 12° 50.0	91° 01.0 12° 41.4	+33.1 -8.4	14.7 54.1
Пн 21	309° 22.4 10° 25.7	323° 56.0 10° 16.2	338° 29.6 10° 06.8	353° 03.2 9° 57.2	7° 36.9 9° 47.7	22° 10.5 9° 38.1	36° 44.2 9° 28.4	51° 17.9 9° 18.7	65° 51.7 9° 09.0	80° 25.4 8° 59.2	94° 59.1 8° 49.4	+33.7 -9.6	14.8 54.3
Вт 22	313° 26.8 6° 17.6	328° 00.8 6° 07.2	342° 34.7 5° 56.8	357° 08.6 5° 46.4	11° 42.5 5° 35.9	26° 16.5 5° 25.4	40° 50.4 5° 14.9	55° 24.3 5° 04.3	69° 58.3 4° 53.8	84° 32.2 4° 43.2	99° 06.1 4° 32.5	+33.9 -10.5	14.9 54.6
Ср 23	317° 34.7 1° 50.6	332° 08.6 1° 39.7	346° 42.4 1° 28.8	1° 16.2 1° 17.8	15° 50.0 1° 06.8	30° 23.8 0° 55.9	44° 57.6 0° 44.9	59° 31.3 0° 33.9	74° 05.0 0° 22.9	88° 38.8 0° 11.8	103° 12.5 0° 00.8	+33.8 -11.0	15.0 55.1
Чт 24	321° 35.2 -2° 45.0	336° 08.5 -2° 56.1	350° 41.8 -3° 07.1	5° 15.0 -3° 18.2	19° 48.2 -3° 29.2	34° 21.3 -3° 40.3	48° 54.5 -3° 51.3	63° 27.5 -4° 02.3	78° 00.6 -4° 13.3	92° 33.6 -4° 24.3	107° 06.6 -4° 35.3	+33.1 -11.0	15.2 55.6
Пт 25	325° 15.9 -7° 18.4	339° 48.1 -7° 29.1	354° 20.3 -7° 39.8	8° 52.4 -7° 50.4	23° 24.5 -8° 01.1	37° 56.5 -8° 11.7	52° 28.4 -8° 22.3	67° 00.3 -8° 32.8	81° 32.1 -8° 43.4	96° 03.9 -8° 53.8	110° 35.6 -9° 04.3	+32.0 -10.6	15.3 56.3
Сб 26	328° 23.6 -11° 36.8	342° 54.3 -11° 46.7	357° 24.9 -11° 56.4	11° 55.4 -12° 06.2	26° 25.8 -12° 15.8	40° 56.1 -12° 25.5	55° 26.4 -12° 35.1	69° 56.6 -12° 44.6	84° 26.7 -12° 54.0	98° 56.8 -13° 03.5	113° 26.7 -13° 12.8	+30.3 -9.6	15.6 57.0
◐ Вс 27	330° 46.4 -15° 25.6	345° 15.0 -15° 33.9	359° 43.6 -15° 42.1	14° 12.0 -15° 50.3	28° 40.4 -15° 58.3	43° 08.7 -16° 06.3	57° 36.9 -16° 14.2	72° 05.0 -16° 22.0	86° 33.0 -16° 29.6	101° 01.0 -16° 37.4	115° 28.8 -16° 45.0	+28.2 -7.9	15.8 57.9
Пн 28	332° 15.8 -18° 27.4	346° 42.2 -18° 33.4	1° 08.6 -18° 39.3	15° 34.8 -18° 45.1	30° 01.0 -18° 50.8	44° 27.1 -18° 56.4	58° 53.1 -19° 01.9	73° 19.0 -19° 07.3	87° 44.8 -19° 12.5	102° 10.5 -19° 17.7	116° 36.2 -19° 22.7	+26.0 -5.5	16.0 58.8
Вт 29	332° 51.4 -20° 23.4	347° 15.8 -20° 26.4	1° 40.2 -20° 29.3	16° 04.4 -20° 32.0	30° 28.6 -20° 34.6	44° 52.8 -20° 37.1	59° 16.9 -20° 39.4	73° 40.9 -20° 41.6	88° 04.8 -20° 43.7	102° 28.7 -20° 45.6	116° 52.6 -20° 47.4	+24.1 -2.4	16.3 59.7
Ср 30	332° 43.9 -20° 56.6	347° 07.0 -20° 56.0	1° 30.1 -20° 55.2	15° 53.1 -20° 54.4	30° 16.1 -20° 53.3	44° 39.1 -20° 52.2	59° 02.0 -20° 50.8	73° 24.9 -20° 49.3	87° 47.8 -20° 47.7	102° 10.7 -20° 45.9	116° 33.5 -20° 44.0	+23.0 +1.3	16.5 60.4
Чт 31	332° 15.4 -19° 56.6	346° 38.2 -19° 52.2	1° 01.0 -19° 47.7	15° 23.8 -19° 43.0	29° 46.7 -19° 38.2	44° 09.5 -19° 33.3	58° 32.4 -19° 28.2	72° 55.3 -19° 22.9	87° 18.2 -19° 17.5	101° 41.2 -19° 12.0	116° 04.2 -19° 06.3	+22.9 +5.0	16.6 60.9

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Полнолуние: 4 19h01 — Последняя четв.: 11 11h49 — Новолуние: 19 13h40 — Первая четв.: 27 10h34

СОЛНЦЕ

Август 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	268 ○ 24.0	283 ○ 24.1	298 ○ 24.1	313 ○ 24.2	328 ○ 24.2	343 ○ 24.2	358 ○ 24.3	13 ○ 24.3	28 ○ 24.4	43 ○ 24.4	58 ○ 24.4	73 ○ 24.5	+0.0
	18 ○ 02.8	18 ○ 02.2	18 ○ 01.6	18 ○ 00.9	18 ○ 00.3	17 ○ 59.7	17 ○ 59.1	17 ○ 58.4	17 ○ 57.8	17 ○ 57.2	17 ○ 56.5	17 ○ 55.9	-0.6
Сб 2	268 ○ 25.0	283 ○ 25.1	298 ○ 25.1	313 ○ 25.2	328 ○ 25.2	343 ○ 25.3	358 ○ 25.3	13 ○ 25.4	28 ○ 25.4	43 ○ 25.5	58 ○ 25.5	73 ○ 25.5	+0.0
	17 ○ 47.6	17 ○ 47.0	17 ○ 46.4	17 ○ 45.7	17 ○ 45.1	17 ○ 44.4	17 ○ 43.8	17 ○ 43.2	17 ○ 42.5	17 ○ 41.9	17 ○ 41.2	17 ○ 40.6	-0.6
Вс 3	268 ○ 26.2	283 ○ 26.2	298 ○ 26.3	313 ○ 26.3	328 ○ 26.4	343 ○ 26.4	358 ○ 26.5	13 ○ 26.5	28 ○ 26.6	43 ○ 26.7	58 ○ 26.7	73 ○ 26.8	+0.1
	17 ○ 32.2	17 ○ 31.5	17 ○ 30.9	17 ○ 30.2	17 ○ 29.5	17 ○ 28.9	17 ○ 28.2	17 ○ 27.6	17 ○ 26.9	17 ○ 26.3	17 ○ 25.6	17 ○ 25.0	-0.7
Пн 4	268 ○ 27.5	283 ○ 27.5	298 ○ 27.6	313 ○ 27.7	328 ○ 27.7	343 ○ 27.8	358 ○ 27.8	13 ○ 27.9	28 ○ 27.9	43 ○ 28.0	58 ○ 28.1	73 ○ 28.1	+0.1
	17 ○ 16.4	17 ○ 15.7	17 ○ 15.1	17 ○ 14.4	17 ○ 13.7	17 ○ 13.1	17 ○ 12.4	17 ○ 11.7	17 ○ 11.1	17 ○ 10.4	17 ○ 09.7	17 ○ 09.1	-0.7
Вт 5	268 ○ 28.9	283 ○ 29.0	298 ○ 29.1	313 ○ 29.1	328 ○ 29.2	343 ○ 29.2	358 ○ 29.3	13 ○ 29.4	28 ○ 29.4	43 ○ 29.5	58 ○ 29.6	73 ○ 29.6	+0.1
	17 ○ 00.3	16 ○ 59.7	16 ○ 59.0	16 ○ 58.3	16 ○ 57.6	16 ○ 57.0	16 ○ 56.3	16 ○ 55.6	16 ○ 54.9	16 ○ 54.3	16 ○ 53.6	16 ○ 52.9	-0.7
Ср 6	268 ○ 30.5	283 ○ 30.6	298 ○ 30.7	313 ○ 30.7	328 ○ 30.8	343 ○ 30.9	358 ○ 30.9	13 ○ 31.0	28 ○ 31.1	43 ○ 31.2	58 ○ 31.2	73 ○ 31.3	+0.1
	16 ○ 44.0	16 ○ 43.3	16 ○ 42.7	16 ○ 42.0	16 ○ 41.3	16 ○ 40.6	16 ○ 39.9	16 ○ 39.2	16 ○ 38.5	16 ○ 37.8	16 ○ 37.1	16 ○ 36.5	-0.7
Чт 7	268 ○ 32.3	283 ○ 32.3	298 ○ 32.4	313 ○ 32.5	328 ○ 32.6	343 ○ 32.6	358 ○ 32.7	13 ○ 32.8	28 ○ 32.9	43 ○ 33.0	58 ○ 33.0	73 ○ 33.1	+0.1
	16 ○ 27.4	16 ○ 26.7	16 ○ 26.0	16 ○ 25.3	16 ○ 24.6	16 ○ 23.9	16 ○ 23.2	16 ○ 22.5	16 ○ 21.8	16 ○ 21.1	16 ○ 20.4	16 ○ 19.7	-0.7
Пт 8	268 ○ 34.1	283 ○ 34.2	298 ○ 34.3	313 ○ 34.4	328 ○ 34.5	343 ○ 34.6	358 ○ 34.6	13 ○ 34.7	28 ○ 34.8	43 ○ 34.9	58 ○ 35.0	73 ○ 35.1	+0.1
	16 ○ 10.6	16 ○ 09.9	16 ○ 09.2	16 ○ 08.5	16 ○ 07.7	16 ○ 07.0	16 ○ 06.3	16 ○ 05.6	16 ○ 04.9	16 ○ 04.2	16 ○ 03.5	16 ○ 02.8	-0.7
Сб 9	268 ○ 36.2	283 ○ 36.3	298 ○ 36.3	313 ○ 36.4	328 ○ 36.5	343 ○ 36.6	358 ○ 36.7	13 ○ 36.8	28 ○ 36.9	43 ○ 37.0	58 ○ 37.1	73 ○ 37.1	+0.1
	15 ○ 53.5	15 ○ 52.7	15 ○ 52.0	15 ○ 51.3	15 ○ 50.6	15 ○ 49.9	15 ○ 49.1	15 ○ 48.4	15 ○ 47.7	15 ○ 47.0	15 ○ 46.3	15 ○ 45.5	-0.7
Вс 10	268 ○ 38.3	283 ○ 38.4	298 ○ 38.5	313 ○ 38.6	328 ○ 38.7	343 ○ 38.8	358 ○ 38.9	13 ○ 39.0	28 ○ 39.1	43 ○ 39.2	58 ○ 39.3	73 ○ 39.4	+0.1
	15 ○ 36.1	15 ○ 35.4	15 ○ 34.6	15 ○ 33.9	15 ○ 33.2	15 ○ 32.4	15 ○ 31.7	15 ○ 31.0	15 ○ 30.2	15 ○ 29.5	15 ○ 28.8	15 ○ 28.0	-0.7
Пн 11	268 ○ 40.6	283 ○ 40.7	298 ○ 40.8	313 ○ 40.9	328 ○ 41.0	343 ○ 41.1	358 ○ 41.2	13 ○ 41.3	28 ○ 41.4	43 ○ 41.5	58 ○ 41.6	73 ○ 41.7	+0.1
	15 ○ 18.5	15 ○ 17.7	15 ○ 17.0	15 ○ 16.2	15 ○ 15.5	15 ○ 14.8	15 ○ 14.0	15 ○ 13.3	15 ○ 12.5	15 ○ 11.8	15 ○ 11.0	15 ○ 10.3	-0.7
Вт 12	268 ○ 43.1	283 ○ 43.2	298 ○ 43.3	313 ○ 43.4	328 ○ 43.5	343 ○ 43.6	358 ○ 43.7	13 ○ 43.8	28 ○ 43.9	43 ○ 44.0	58 ○ 44.1	73 ○ 44.3	+0.1
	15 ○ 00.6	14 ○ 59.8	14 ○ 59.1	14 ○ 58.3	14 ○ 57.6	14 ○ 56.8	14 ○ 56.1	14 ○ 55.3	14 ○ 54.6	14 ○ 53.8	14 ○ 53.1	14 ○ 52.3	-0.8
Ср 13	268 ○ 45.7	283 ○ 45.8	298 ○ 45.9	313 ○ 46.0	328 ○ 46.1	343 ○ 46.2	358 ○ 46.3	13 ○ 46.4	28 ○ 46.6	43 ○ 46.7	58 ○ 46.8	73 ○ 46.9	+0.1
	14 ○ 42.5	14 ○ 41.7	14 ○ 41.0	14 ○ 40.2	14 ○ 39.4	14 ○ 38.7	14 ○ 37.9	14 ○ 37.1	14 ○ 36.4	14 ○ 35.6	14 ○ 34.9	14 ○ 34.1	-0.8
Чт 14	268 ○ 48.4	283 ○ 48.5	298 ○ 48.6	313 ○ 48.7	328 ○ 48.8	343 ○ 49.0	358 ○ 49.1	13 ○ 49.2	28 ○ 49.3	43 ○ 49.4	58 ○ 49.6	73 ○ 49.7	+0.1
	14 ○ 24.1	14 ○ 23.4	14 ○ 22.6	14 ○ 21.8	14 ○ 21.0	14 ○ 20.3	14 ○ 19.5	14 ○ 18.7	14 ○ 18.0	14 ○ 17.2	14 ○ 16.4	14 ○ 15.6	-0.8
Пт 15	268 ○ 51.2	283 ○ 51.3	298 ○ 51.5	313 ○ 51.6	328 ○ 51.7	343 ○ 51.8	358 ○ 52.0	13 ○ 52.1	28 ○ 52.2	43 ○ 52.3	58 ○ 52.5	73 ○ 52.6	+0.1
	14 ○ 05.6	14 ○ 04.8	14 ○ 04.0	14 ○ 03.2	14 ○ 02.4	14 ○ 01.7	14 ○ 00.9	14 ○ 00.1	13 ○ 59.3	13 ○ 58.5	13 ○ 57.7	13 ○ 57.0	-0.8
Сб 16	268 ○ 54.2	283 ○ 54.3	298 ○ 54.5	313 ○ 54.6	328 ○ 54.7	343 ○ 54.8	358 ○ 55.0	13 ○ 55.1	28 ○ 55.2	43 ○ 55.4	58 ○ 55.5	73 ○ 55.6	+0.1
	13 ○ 46.8	13 ○ 46.0	13 ○ 45.2	13 ○ 44.4	13 ○ 43.6	13 ○ 42.8	13 ○ 42.0	13 ○ 41.2	13 ○ 40.4	13 ○ 39.6	13 ○ 38.9	13 ○ 38.1	-0.8
Вс 17	268 ○ 57.3	283 ○ 57.4	298 ○ 57.6	313 ○ 57.7	328 ○ 57.8	343 ○ 58.0	358 ○ 58.1	13 ○ 58.2	28 ○ 58.4	43 ○ 58.5	58 ○ 58.6	73 ○ 58.8	+0.1
	13 ○ 27.7	13 ○ 26.9	13 ○ 26.1	13 ○ 25.3	13 ○ 24.5	13 ○ 23.7	13 ○ 22.9	13 ○ 22.1	13 ○ 21.3	13 ○ 20.5	13 ○ 19.7	13 ○ 18.9	-0.8
Пн 18	269 ○ 00.5	284 ○ 00.7	299 ○ 00.8	314 ○ 01.0	329 ○ 01.1	344 ○ 01.2	359 ○ 01.4	14 ○ 01.5	29 ○ 01.7	44 ○ 01.8	59 ○ 01.9	74 ○ 02.1	+0.1
	13 ○ 08.5	13 ○ 07.7	13 ○ 06.9	13 ○ 06.1	13 ○ 05.3	13 ○ 04.5	13 ○ 03.7	13 ○ 02.9	13 ○ 02.0	13 ○ 01.2	13 ○ 00.4	12 ○ 59.6	-0.8
Вт 19	269 ○ 03.9	284 ○ 04.1	299 ○ 04.2	314 ○ 04.3	329 ○ 04.5	344 ○ 04.6	359 ○ 04.8	14 ○ 04.9	29 ○ 05.1	44 ○ 05.2	59 ○ 05.3	74 ○ 05.5	+0.1
	12 ○ 49.1	12 ○ 48.2	12 ○ 47.4	12 ○ 46.6	12 ○ 45.8	12 ○ 45.0	12 ○ 44.2	12 ○ 43.4	12 ○ 42.5	12 ○ 41.7	12 ○ 40.9	12 ○ 40.1	-0.8
Ср 20	269 ○ 07.4	284 ○ 07.5	299 ○ 07.7	314 ○ 07.8	329 ○ 08.0	344 ○ 08.1	359 ○ 08.3	14 ○ 08.4	29 ○ 08.6	44 ○ 08.7	59 ○ 08.9	74 ○ 09.0	+0.1
	12 ○ 29.4	12 ○ 28.6	12 ○ 27.8	12 ○ 26.9	12 ○ 26.1	12 ○ 25.3	12 ○ 24.5	12 ○ 23.7	12 ○ 22.8	12 ○ 22.0	12 ○ 21.2	12 ○ 20.3	-0.8
Чт 21	269 ○ 11.0	284 ○ 11.2	299 ○ 11.3	314 ○ 11.5	329 ○ 11.6	344 ○ 11.8	359 ○ 11.9	14 ○ 12.1	29 ○ 12.2	44 ○ 12.4	59 ○ 12.5	74 ○ 12.7	+0.2
	12 ○ 09.6	12 ○ 08.7	12 ○ 07.9	12 ○ 07.1	12 ○ 06.3	12 ○ 05.4	12 ○ 04.6	12 ○ 03.8	12 ○ 02.9	12 ○ 02.1	12 ○ 01.3	12 ○ 00.4	-0.8
Пт 22	269 ○ 14.7	284 ○ 14.9	299 ○ 15.0	314 ○ 15.2	329 ○ 15.4	344 ○ 15.5	359 ○ 15.7	14 ○ 15.8	29 ○ 16.0	44 ○ 16.1	59 ○ 16.3	74 ○ 16.5	+0.2
	11 ○ 49.5	11 ○ 48.7	11 ○ 47.9	11 ○ 47.0	11 ○ 46.2	11 ○ 45.4	11 ○ 44.5	11 ○ 43.7	11 ○ 42.8	11 ○ 42.0	11 ○ 41.1	11 ○ 40.3	-0.8
Сб 23	269 ○ 18.6	284 ○ 18.7	299 ○ 18.9	314 ○ 19.1	329 ○ 19.2	344 ○ 19.4	359 ○ 19.5	14 ○ 19.7	29 ○ 19.9	44 ○ 20.0	59 ○ 20.2	74 ○ 20.4	+0.2
	11 ○ 29.3	11 ○ 28.5	11 ○ 27.6	11 ○ 26.8	11 ○ 25.9	11 ○ 25.1	11 ○ 24.3	11 ○ 23.4	11 ○ 22.6	11 ○ 21.7	11 ○ 20.9	11 ○ 20.0	-0.8
Вс 24	269 ○ 22.5	284 ○ 22.7	299 ○ 22.9	314 ○ 23.0	329 ○ 23.2	344 ○ 23.4	359 ○ 23.5	14 ○ 23.7	29 ○ 23.9	44 ○ 24.0	59 ○ 24.2	74 ○ 24.4	+0.2
	11 ○ 08.9	11 ○ 08.1	11 ○ 07.2	11 ○ 06.4	11 ○ 05.5	11 ○ 04.7	11 ○ 03.8	11 ○ 03.0	11 ○ 02.1	11 ○ 01.2	11 ○ 00.4	10 ○ 59.5	-0.9
Пн 25	269 ○ 26.6	284 ○ 26.8	299 ○ 26.9	314 ○ 27.1	329 ○ 27.3	344 ○ 27.4	359 ○ 27.6	14 ○ 27.8	29 ○ 28.0	44 ○ 28.1	59 ○ 28.3	74 ○ 28.5	+0.2
	10 ○ 48.4	10 ○ 47.5	10 ○ 46.6	10 ○ 45.8	10 ○ 44.9	10 ○ 44.1	10 ○ 43.2	10 ○ 42.3	10 ○ 41.5	10 ○ 40.6	10 ○ 39.7	10 ○ 38.9	-0.9
Вт 26	269 ○ 30.8	284 ○ 30.9	299 ○ 31.1	314 ○ 31.3	329 ○ 31.5	344 ○ 31.6	359 ○ 31.8	14 ○ 32.0	29 ○ 32.2	44 ○ 32.3	59 ○ 32.5	74 ○ 32.7	+0.2
	10 ○ 27.6	10 ○ 26.8	10 ○ 25.9	10 ○ 25.0	10 ○ 24.2	10 ○ 23.3	10 ○ 22.4	10 ○ 21.5	10 ○ 20.7	10 ○ 19.8	10 ○ 18.9	10 ○ 18.1	-0.9
Ср 27	269 ○ 35.0	284 ○ 35.2	299 ○ 35.4	314 ○ 35.6	329 ○ 35.8	344 ○ 35.9	359 ○ 36.1	14 ○ 36.3	29 ○ 36.5	44 ○ 36.7	59 ○ 36.8	74 ○ 37.0	+0.2
	10 ○ 06.7	10 ○ 05.8	10 ○ 05.0	10 ○ 04.1	10 ○ 03.2	10 ○ 02.3	10 ○ 01.5	10 ○ 00.6	9 ○ 59.7	9 ○ 58.8	9 ○ 58.0	9 ○ 57.1	-0.9
Чт 28	269 ○ 39.4	284 ○ 39.6	299 ○ 39.8	314 ○ 40.0	329 ○ 40.1	344 ○ 40.3	359 ○ 40.5	14 ○ 40.7	29 ○ 40.9	44 ○ 41.1	59 ○ 41.3	74 ○ 41.4	+0.2
	9 ○ 45.7	9 ○ 44.8	9 ○ 43.9	9 ○ 43.0	9 ○ 42.1	9 ○ 41.3	9 ○ 40.4	9 ○ 39.5	9 ○ 38.6	9 ○ 37.7	9 ○ 36.8	9 ○ 36.0	-0.9
Пт 29	269 ○ 43.9	284 ○ 44.1	299 ○ 44.3	314 ○ 44.4	329 ○ 44.6	344 ○ 44.8	359 ○ 45.0	14 ○ 45.2	29 ○ 45.4	44 ○ 45.6	59 ○ 45.8	74 ○ 46.0	+0.2
	9 ○ 24.4	9 ○ 23.6	9 ○ 22.7	9 ○ 21.8	9 ○ 20.9	9 ○ 20.0	9 ○ 19.1	9 ○ 18.2	9 ○ 17.3	9 ○ 16.5	9 ○ 15.6	9 ○ 14.7	-0.9
Сб 30	269 ○ 48.4	284 ○ 48.6	299 ○ 48.8	314 ○ 49.0	329 ○ 49.2	344 ○ 49.4	359 ○ 49.6	14 ○ 49.8	29 ○ 50.0	44 ○ 50.2	59 ○ 50.4	74 ○ 50.6	+0.2
	9 ○ 03.1	9 ○ 02.2	9 ○ 01.3	9 ○ 00.4	8 ○ 59.5	8 ○ 58.6	8 ○ 57.7	8 ○ 56.8	8 ○ 55.9	8 ○ 55.0	8 ○ 54.1	8 ○ 53.2	-0.9
Вс 31	269 ○ 53.1	284 ○ 53.3	299 ○ 53.5	314 ○ 53.7	329 ○ 53.9	344 ○ 54.1	359 ○ 54.3	14 ○ 54.5	29 ○ 54.7	44 ○ 54.9	59 ○ 55.1	74 ○ 55.3	+0.2
	8 ○ 41.6	8 ○ 40.7	8 ○ 39.8	8 ○ 38.9	8 ○ 38.0	8 ○ 37.1	8 ○ 36.2	8 ○ 35.3	8 ○ 34.4	8 ○ 33.5	8 ○ 32.6	8 ○ 31.7	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2031

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Пт 1	245° 32.3	259° 55.6	274° 18.9	288° 42.3	303° 05.7	317° 29.2	331° 52.7	346° 16.3	0° 39.9	15° 03.6	29° 27.3	+23.5	16.7
	-18° 08.8	-18° 01.8	-17° 54.6	-17° 47.2	-17° 39.8	-17° 32.2	-17° 24.5	-17° 16.6	-17° 08.6	-17° 00.5	-16° 52.3	+7.7	61.1
Сб 2	245° 29.6	259° 54.3	274° 19.0	288° 43.7	303° 08.5	317° 33.4	331° 58.4	346° 23.4	0° 48.5	15° 13.7	29° 38.9	+24.9	16.7
	-14° 35.2	-14° 25.2	-14° 15.1	-14° 04.9	-13° 54.6	-13° 44.2	-13° 33.7	-13° 23.2	-13° 12.5	-13° 01.8	-12° 51.0	+10.4	61.1
○ Вс 3	246° 05.2	260° 31.5	274° 57.9	289° 24.3	303° 50.8	318° 17.4	332° 44.0	347° 10.7	1° 37.5	16° 04.3	30° 31.2	+26.6	16.6
	-9° 59.6	-9° 47.7	-9° 35.7	-9° 23.6	-9° 11.5	-8° 59.4	-8° 47.2	-8° 34.9	-8° 22.6	-8° 10.3	-7° 57.9	+12.2	60.7
Пн 4	247° 22.0	261° 49.8	276° 17.8	290° 45.7	305° 13.8	319° 41.9	334° 10.0	348° 38.2	3° 06.4	17° 34.7	32° 03.1	+28.1	16.4
	-4° 48.3	-4° 35.4	-4° 22.6	-4° 09.8	-3° 56.9	-3° 44.0	-3° 31.1	-3° 18.3	-3° 05.4	-2° 52.5	-2° 39.6	+12.9	60.1
Вт 5	249° 14.2	263° 43.3	278° 12.4	292° 41.6	307° 10.8	321° 40.0	336° 09.3	350° 38.6	5° 08.0	19° 37.4	34° 06.8	+29.3	16.1
	0° 33.1	0° 45.8	0° 58.6	1° 11.3	1° 23.9	1° 36.6	1° 49.2	2° 01.8	2° 14.3	2° 26.9	2° 39.4	+12.6	59.2
Ср 6	251° 32.0	266° 01.9	280° 31.8	295° 01.8	309° 31.7	324° 01.7	338° 31.7	353° 01.7	7° 31.8	22° 01.9	36° 31.9	+30.0	15.9
	5° 42.4	5° 54.2	6° 06.0	6° 17.8	6° 29.5	6° 41.1	6° 52.8	7° 04.3	7° 15.8	7° 27.2	7° 38.6	+11.6	58.2
Чт 7	254° 05.0	268° 35.3	283° 05.7	297° 36.0	312° 06.3	326° 36.7	341° 07.0	355° 37.4	10° 07.7	24° 38.1	39° 08.5	+30.3	15.6
	10° 22.1	10° 32.5	10° 42.8	10° 53.0	11° 03.2	11° 13.3	11° 23.4	11° 33.3	11° 43.2	11° 53.0	12° 02.7	+10.1	57.3
Пт 8	256° 44.6	271° 15.0	285° 45.4	300° 15.8	314° 46.3	329° 16.7	343° 47.1	358° 17.5	12° 47.9	27° 18.4	41° 48.8	+30.4	15.4
	14° 19.5	14° 28.0	14° 36.4	14° 44.7	14° 52.9	15° 01.1	15° 09.1	15° 17.1	15° 25.0	15° 32.8	15° 40.5	+8.1	56.3
Сб 9	259° 24.9	273° 55.3	288° 25.7	302° 56.1	317° 26.4	331° 56.8	346° 27.2	0° 57.6	15° 28.0	29° 58.3	44° 28.7	+30.4	15.1
	17° 25.5	17° 31.8	17° 38.0	17° 44.0	17° 50.0	17° 55.9	18° 01.7	18° 07.5	18° 13.1	18° 18.6	18° 24.0	+5.9	55.5
◑ Вс 10	273° 55.3	288° 25.7	302° 56.1	317° 26.4	331° 56.8	346° 27.2	0° 57.6	15° 28.0	29° 58.3	44° 28.7	58° 59.1	+30.4	15.1
	17° 31.8	17° 38.0	17° 44.0	17° 50.0	17° 55.9	18° 01.7	18° 07.5	18° 13.1	18° 18.6	18° 24.0	18° 29.4	+5.8	55.5
Пн 11	276° 34.5	291° 04.8	305° 35.2	320° 05.5	334° 35.9	349° 06.2	3° 36.6	18° 07.0	32° 37.3	47° 07.7	61° 38.1	+30.4	15.0
	19° 37.9	19° 41.7	19° 45.3	19° 48.9	19° 52.4	19° 55.8	19° 59.1	20° 02.3	20° 05.4	20° 08.4	20° 11.3	+3.3	54.9
Вт 12	279° 14.2	293° 44.7	308° 15.2	322° 45.6	337° 16.1	351° 46.6	6° 17.1	20° 47.6	35° 18.2	49° 48.7	64° 19.2	+30.5	14.8
	20° 43.0	20° 44.3	20° 45.5	20° 46.6	20° 47.6	20° 48.5	20° 49.4	20° 50.1	20° 50.7	20° 51.2	20° 51.7	+0.9	54.4
Ср 13	281° 59.0	296° 29.8	311° 00.6	325° 31.4	340° 02.2	354° 33.0	9° 03.9	23° 34.8	38° 05.7	52° 36.6	67° 07.5	+30.9	14.8
	20° 46.3	20° 45.1	20° 43.9	20° 42.6	20° 41.2	20° 39.6	20° 38.0	20° 36.3	20° 34.5	20° 32.6	20° 30.6	-1.6	54.1
Чт 14	284° 54.1	299° 25.4	313° 56.7	328° 28.1	342° 59.4	357° 30.8	12° 02.2	26° 33.7	41° 05.1	55° 36.6	70° 08.1	+31.4	14.7
	19° 49.6	19° 46.1	19° 42.6	19° 38.9	19° 35.2	19° 31.4	19° 27.4	19° 23.4	19° 19.4	19° 15.2	19° 10.9	-3.9	54.0
Пт 15	288° 04.1	302° 36.1	317° 08.0	331° 40.0	346° 12.1	0° 44.1	15° 16.2	29° 48.4	44° 20.5	58° 52.7	73° 24.9	+32.1	14.7
	17° 56.9	17° 51.4	17° 45.7	17° 39.9	17° 34.1	17° 28.2	17° 22.2	17° 16.2	17° 10.0	17° 03.8	16° 57.6	-5.9	54.0
Сб 16	291° 31.2	306° 03.8	320° 36.5	335° 09.2	349° 41.9	4° 14.6	18° 47.4	33° 20.2	47° 53.0	62° 25.9	76° 58.7	+32.8	14.8
	15° 14.5	15° 07.1	14° 59.6	14° 52.1	14° 44.4	14° 36.7	14° 29.0	14° 21.2	14° 13.3	14° 05.3	13° 57.3	-7.7	54.1
Вс 17	295° 14.5	309° 47.8	324° 21.0	338° 54.3	353° 27.6	8° 00.9	22° 34.2	37° 07.5	51° 40.9	66° 14.2	80° 47.6	+33.3	14.8
	11° 50.1	11° 41.2	11° 32.2	11° 23.2	11° 14.1	11° 05.0	10° 55.8	10° 46.5	10° 37.3	10° 27.9	10° 18.5	-9.2	54.3
● Пн 18	299° 10.2	313° 43.8	328° 17.4	342° 51.0	357° 24.6	11° 58.3	26° 31.9	41° 05.6	55° 39.2	70° 12.9	84° 46.5	+33.6	14.9
	7° 52.6	7° 42.6	7° 32.5	7° 22.3	7° 12.2	7° 02.0	6° 51.8	6° 41.5	6° 31.2	6° 20.9	6° 10.5	-10.2	54.6
Вт 19	303° 11.6	317° 45.2	332° 18.9	346° 52.5	1° 26.2	15° 59.8	30° 33.4	45° 07.0	59° 40.6	74° 14.2	88° 47.8	+33.6	15.0
	3° 31.9	3° 21.1	3° 10.3	2° 59.5	2° 48.7	2° 37.9	2° 27.0	2° 16.1	2° 05.2	1° 54.3	1° 43.4	-10.8	55.0
Ср 20	307° 09.9	321° 43.2	336° 16.5	350° 49.8	5° 23.1	19° 56.3	34° 29.5	49° 02.7	63° 35.9	78° 09.0	92° 42.1	+33.2	15.1
	-1° 01.5	-1° 12.5	-1° 23.5	-1° 34.6	-1° 45.6	-1° 56.6	-2° 07.7	-2° 18.7	-2° 29.7	-2° 40.8	-2° 51.8	-11.0	55.4
Чт 21	310° 55.0	325° 27.5	340° 00.1	354° 32.6	9° 05.0	23° 37.4	38° 09.8	52° 42.1	67° 14.4	81° 46.7	96° 18.9	+32.4	15.3
	-5° 35.9	-5° 46.7	-5° 57.5	-6° 08.3	-6° 19.1	-6° 29.8	-6° 40.5	-6° 51.2	-7° 01.9	-7° 12.6	-7° 23.2	-10.7	55.9
Пт 22	314° 15.9	328° 47.3	343° 18.6	357° 49.9	12° 21.1	26° 52.3	41° 23.4	55° 54.4	70° 25.4	84° 56.3	99° 27.2	+31.1	15.4
	-9° 58.8	-10° 08.9	-10° 18.9	-10° 28.9	-10° 38.9	-10° 48.8	-10° 58.7	-11° 08.5	-11° 18.3	-11° 28.0	-11° 37.7	-9.9	56.5
Сб 23	317° 02.3	331° 32.2	346° 01.9	0° 31.6	15° 01.2	29° 30.7	44° 00.2	58° 29.6	72° 58.9	87° 28.2	101° 57.3	+29.5	15.6
	-13° 56.2	-14° 05.0	-14° 13.7	-14° 22.3	-14° 30.8	-14° 39.3	-14° 47.7	-14° 56.1	-15° 04.3	-15° 12.5	-15° 20.7	-8.4	57.1
Вс 24	319° 06.3	333° 34.3	348° 02.3	2° 30.1	16° 57.9	31° 25.6	45° 53.3	60° 20.8	74° 48.3	89° 15.8	103° 43.1	+27.7	15.8
	-17° 12.8	-17° 19.6	-17° 26.3	-17° 32.9	-17° 39.4	-17° 45.8	-17° 52.1	-17° 58.3	-18° 04.5	-18° 10.5	-18° 16.4	-6.4	57.8
◐ Пн 25	320° 24.9	334° 51.1	349° 17.3	3° 43.4	18° 09.5	32° 35.5	47° 01.4	61° 27.2	75° 53.0	90° 18.8	104° 44.4	+26.0	15.9
	-19° 32.4	-19° 36.6	-19° 40.6	-19° 44.6	-19° 48.4	-19° 52.1	-19° 55.7	-19° 59.1	-20° 02.5	-20° 05.7	-20° 08.8	-3.6	58.5
Вт 26	321° 03.0	335° 27.9	349° 52.7	4° 17.4	18° 42.1	33° 06.8	47° 31.5	61° 56.1	76° 20.7	90° 45.2	105° 09.7	+24.7	16.1
	-20° 39.8	-20° 40.8	-20° 41.6	-20° 42.4	-20° 43.0	-20° 43.5	-20° 43.8	-20° 44.0	-20° 44.0	-20° 43.7	-20° 43.2	-0.4	59.2
Ср 27	321° 14.2	335° 38.3	350° 02.4	4° 26.6	18° 50.7	33° 14.8	47° 38.9	62° 03.0	76° 27.1	90° 51.2	105° 15.4	+24.1	16.3
	-20° 23.6	-20° 21.1	-20° 18.5	-20° 15.7	-20° 12.8	-20° 09.8	-20° 06.6	-20° 03.3	-19° 59.9	-19° 56.3	-19° 52.5	+3.1	59.8
Чт 28	321° 17.8	335° 42.1	350° 06.4	4° 30.7	18° 55.1	33° 19.4	47° 43.8	62° 08.2	76° 32.7	90° 57.2	105° 21.7	+24.4	16.4
	-18° 40.0	-18° 34.0	-18° 28.0	-18° 21.8	-18° 15.5	-18° 09.1	-18° 02.5	-17° 55.8	-17° 49.0	-17° 42.0	-17° 35.0	+6.5	60.3
Пт 29	321° 33.4	335° 58.5	350° 23.6	4° 48.8	19° 14.0	33° 39.3	48° 04.6	62° 29.9	76° 55.3	91° 20.8	105° 46.2	+25.3	16.5
	-15° 34.6	-15° 25.7	-15° 16.6	-15° 07.5	-14° 58.3	-14° 48.9	-14° 39.5	-14° 29.9	-14° 20.3	-14° 10.5	-14° 00.7	+9.4	60.5
Сб 30	322° 14.3	336° 40.6	351° 06.9	5° 33.2	19° 59.6	34° 26.1	48° 52.6	63° 19.2	77° 45.8	92° 12.4	106° 39.1	+26.5	16.5
	-11° 22.5	-11° 11.3	-11° 00.0	-10° 48.7	-10° 37.3	-10° 25.9	-10° 14.3	-10° 02.8	-9° 51.1	-9° 39.4	-9° 27.6	+11.5	60.5
Вс 31	323° 25.4	337° 52.9	352° 20.4	6° 47.9	21° 15.5	35° 43.1	50° 10.8	64° 38.5	79° 06.3	93° 34.1	108° 01.9	+27.7	16.4
	-6° 25.1	-6° 12.6	-6° 00.1	-5° 47.5	-5° 34.9	-5° 22.3	-5° 09.7	-4° 57.0	-4° 44.4	-4° 31.6	-4° 18.9	+12.6	60.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 3 01h45 — Последняя четв.: 10 00h23 — Новолуние: 18 04h32 — Первая четв.: 25 18h39

СОЛНЦЕ

Сентябрь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	269° 57.8 8° 19.9	284° 58.0 8° 19.0	299° 58.2 8° 18.1	314° 58.4 8° 17.2	329° 58.6 8° 16.3	344° 58.8 8° 15.4	359° 59.0 8° 14.5	14° 59.2 8° 13.6	29° 59.4 8° 12.7	44° 59.6 8° 11.8	59° 59.8 8° 10.9	75° 00.0 8° 10.0	+0.2 -0.9
Вт 2	270° 02.6 7° 58.1	285° 02.8 7° 57.2	300° 03.0 7° 56.3	315° 03.2 7° 55.4	330° 03.4 7° 54.5	345° 03.6 7° 53.6	0° 03.8 7° 52.7	15° 04.0 7° 51.8	30° 04.3 7° 50.9	45° 04.5 7° 49.9	60° 04.7 7° 49.0	75° 04.9 7° 48.1	+0.2 -0.9
Ср 3	270° 07.5 7° 36.2	285° 07.7 7° 35.3	300° 07.9 7° 34.4	315° 08.1 7° 33.5	330° 08.3 7° 32.6	345° 08.5 7° 31.7	0° 08.7 7° 30.7	15° 08.9 7° 29.8	30° 09.1 7° 28.9	45° 09.4 7° 28.0	60° 09.6 7° 27.1	75° 09.8 7° 26.2	+0.2 -0.9
Чт 4	270° 12.5 7° 14.2	285° 12.7 7° 13.3	300° 12.9 7° 12.4	315° 13.1 7° 11.4	330° 13.3 7° 10.5	345° 13.5 7° 09.6	0° 13.7 7° 08.7	15° 13.9 7° 07.8	30° 14.1 7° 06.8	45° 14.3 7° 05.9	60° 14.5 7° 05.0	75° 14.7 7° 04.1	+0.2 -0.9
Пт 5	270° 17.5 6° 52.1	285° 17.7 6° 51.1	300° 17.9 6° 50.2	315° 18.1 6° 49.3	330° 18.3 6° 48.4	345° 18.5 6° 47.4	0° 18.7 6° 46.5	15° 18.9 6° 45.6	30° 19.1 6° 44.6	45° 19.3 6° 43.7	60° 19.6 6° 42.8	75° 19.8 6° 41.9	+0.2 -0.9
Сб 6	270° 22.5 6° 29.8	285° 22.7 6° 28.9	300° 22.9 6° 27.9	315° 23.1 6° 27.0	330° 23.4 6° 26.1	345° 23.6 6° 25.1	0° 23.8 6° 24.2	15° 24.0 6° 23.3	30° 24.2 6° 22.3	45° 24.4 6° 21.4	60° 24.6 6° 20.5	75° 24.8 6° 19.5	+0.2 -0.9
Вс 7	270° 27.6 6° 07.4	285° 27.8 6° 06.5	300° 28.0 6° 05.5	315° 28.3 6° 04.6	330° 28.5 6° 03.7	345° 28.7 6° 02.7	0° 28.9 6° 01.8	15° 29.1 6° 00.9	30° 29.3 5° 59.9	45° 29.5 5° 59.0	60° 29.8 5° 58.1	75° 30.0 5° 57.1	+0.2 -0.9
Пн 8	270° 32.8 5° 44.9	285° 33.0 5° 44.0	300° 33.2 5° 43.1	315° 33.4 5° 42.1	330° 33.6 5° 41.2	345° 33.8 5° 40.2	0° 34.1 5° 39.3	15° 34.3 5° 38.4	30° 34.5 5° 37.4	45° 34.7 5° 36.5	60° 34.9 5° 35.5	75° 35.1 5° 34.6	+0.2 -0.9
Вт 9	270° 37.9 5° 22.4	285° 38.2 5° 21.4	300° 38.4 5° 20.5	315° 38.6 5° 19.5	330° 38.8 5° 18.6	345° 39.0 5° 17.6	0° 39.3 5° 16.7	15° 39.5 5° 15.8	30° 39.7 5° 14.8	45° 39.9 5° 13.9	60° 40.1 5° 12.9	75° 40.3 5° 12.0	+0.2 -0.9
Ср 10	270° 43.2 4° 59.7	285° 43.4 4° 58.8	300° 43.6 4° 57.8	315° 43.8 4° 56.9	330° 44.0 4° 55.9	345° 44.3 4° 55.0	0° 44.5 4° 54.0	15° 44.7 4° 53.1	30° 44.9 4° 52.1	45° 45.1 4° 51.2	60° 45.4 4° 50.2	75° 45.6 4° 49.3	+0.2 -0.9
Чт 11	270° 48.4 4° 36.9	285° 48.6 4° 36.0	300° 48.9 4° 35.0	315° 49.1 4° 34.1	330° 49.3 4° 33.1	345° 49.5 4° 32.2	0° 49.7 4° 31.2	15° 50.0 4° 30.3	30° 50.2 4° 29.3	45° 50.4 4° 28.4	60° 50.6 4° 27.4	75° 50.8 4° 26.5	+0.2 -1.0
Пт 12	270° 53.7 4° 14.1	285° 53.9 4° 13.2	300° 54.1 4° 12.2	315° 54.4 4° 11.3	330° 54.6 4° 10.3	345° 54.8 4° 09.3	0° 55.0 4° 08.4	15° 55.2 4° 07.4	30° 55.5 4° 06.5	45° 55.7 4° 05.5	60° 55.9 4° 04.6	75° 56.1 4° 03.6	+0.2 -1.0
Сб 13	270° 59.0 3° 51.2	285° 59.2 3° 50.2	300° 59.4 3° 49.3	315° 59.7 3° 48.3	330° 59.9 3° 47.4	346° 00.1 3° 46.4	1° 00.3 3° 45.5	16° 00.6 3° 44.5	31° 00.8 3° 43.6	46° 01.0 3° 42.6	61° 01.2 3° 41.6	76° 01.4 3° 40.7	+0.2 -1.0
Вс 14	271° 04.3 3° 28.2	286° 04.5 3° 27.3	301° 04.8 3° 26.3	316° 05.0 3° 25.4	331° 05.2 3° 24.4	346° 05.4 3° 23.4	1° 05.7 3° 22.5	16° 05.9 3° 21.5	31° 06.1 3° 20.6	46° 06.3 3° 19.6	61° 06.5 3° 18.6	76° 06.8 3° 17.7	+0.2 -1.0
Пн 15	271° 09.7 3° 05.2	286° 09.9 3° 04.2	301° 10.1 3° 03.3	316° 10.3 3° 02.3	331° 10.5 3° 01.3	346° 10.8 3° 00.4	1° 11.0 2° 59.4	16° 11.2 2° 58.5	31° 11.4 2° 57.5	46° 11.7 2° 56.5	61° 11.9 2° 55.6	76° 12.1 2° 54.6	+0.2 -1.0
Вт 16	271° 15.0 2° 42.1	286° 15.2 2° 41.1	301° 15.4 2° 40.2	316° 15.7 2° 39.2	331° 15.9 2° 38.2	346° 16.1 2° 37.3	1° 16.3 2° 36.3	16° 16.6 2° 35.3	31° 16.8 2° 34.4	46° 17.0 2° 33.4	61° 17.2 2° 32.4	76° 17.4 2° 31.5	+0.2 -1.0
Ср 17	271° 20.3 2° 18.9	286° 20.6 2° 18.0	301° 20.8 2° 17.0	316° 21.0 2° 16.0	331° 21.2 2° 15.1	346° 21.5 2° 14.1	1° 21.7 2° 13.1	16° 21.9 2° 12.2	31° 22.1 2° 11.2	46° 22.3 2° 10.2	61° 22.6 2° 09.3	76° 22.8 2° 08.3	+0.2 -1.0
Чт 18	271° 25.7 1° 55.7	286° 25.9 1° 54.8	301° 26.1 1° 53.8	316° 26.4 1° 52.8	331° 26.6 1° 51.9	346° 26.8 1° 50.9	1° 27.0 1° 49.9	16° 27.2 1° 49.0	31° 27.5 1° 48.0	46° 27.7 1° 47.0	61° 27.9 1° 46.1	76° 28.1 1° 45.1	+0.2 -1.0
Пт 19	271° 31.0 1° 32.5	286° 31.3 1° 31.5	301° 31.5 1° 30.6	316° 31.7 1° 29.6	331° 31.9 1° 28.6	346° 32.1 1° 27.7	1° 32.4 1° 26.7	16° 32.6 1° 25.7	31° 32.8 1° 24.8	46° 33.0 1° 23.8	61° 33.3 1° 22.8	76° 33.5 1° 21.8	+0.2 -1.0
Сб 20	271° 36.4 1° 09.2	286° 36.6 1° 08.3	301° 36.8 1° 07.3	316° 37.0 1° 06.3	331° 37.3 1° 05.4	346° 37.5 1° 04.4	1° 37.7 1° 03.4	16° 37.9 1° 02.4	31° 38.1 1° 01.5	46° 38.4 1° 00.5	61° 38.6 0° 59.5	76° 38.8 0° 58.6	+0.2 -1.0
Вс 21	271° 41.7 0° 45.9	286° 41.9 0° 45.0	301° 42.1 0° 44.0	316° 42.4 0° 43.0	331° 42.6 0° 42.1	346° 42.8 0° 41.1	1° 43.0 0° 40.1	16° 43.2 0° 39.1	31° 43.5 0° 38.2	46° 43.7 0° 37.2	61° 43.9 0° 36.2	76° 44.1 0° 35.3	+0.2 -1.0
Пн 22	271° 47.0 0° 22.6	286° 47.2 0° 21.6	301° 47.4 0° 20.7	316° 47.7 0° 19.7	331° 47.9 0° 18.7	346° 48.1 0° 17.8	1° 48.3 0° 16.8	16° 48.5 0° 15.8	31° 48.8 0° 14.8	46° 49.0 0° 13.9	61° 49.2 0° 12.9	76° 49.4 0° 11.9	+0.2 -1.0
Вт 23	271° 52.3 -0° 00.7	286° 52.5 -0° 01.7	301° 52.7 -0° 02.7	316° 52.9 -0° 03.6	331° 53.2 -0° 04.6	346° 53.4 -0° 05.6	1° 53.6 -0° 06.6	16° 53.8 -0° 07.5	31° 54.0 -0° 08.5	46° 54.3 -0° 09.5	61° 54.5 -0° 10.4	76° 54.7 -0° 11.4	+0.2 -1.0
Ср 24	271° 57.5 -0° 24.1	286° 57.8 -0° 25.0	301° 58.0 -0° 26.0	316° 58.2 -0° 27.0	331° 58.4 -0° 28.0	346° 58.6 -0° 28.9	1° 58.9 -0° 29.9	16° 59.1 -0° 30.9	31° 59.3 -0° 31.9	46° 59.5 -0° 32.8	61° 59.7 -0° 33.8	76° 59.9 -0° 34.8	+0.2 -1.0
Чт 25	272° 02.8 -0° 47.4	287° 03.0 -0° 48.4	302° 03.2 -0° 49.4	317° 03.4 -0° 50.3	332° 03.6 -0° 51.3	347° 03.9 -0° 52.3	2° 04.1 -0° 53.3	17° 04.3 -0° 54.2	32° 04.5 -0° 55.2	47° 04.7 -0° 56.2	62° 04.9 -0° 57.2	77° 05.2 -0° 58.1	+0.2 -1.0
Пт 26	272° 08.0 -1° 10.8	287° 08.2 -1° 11.8	302° 08.4 -1° 12.7	317° 08.6 -1° 13.7	332° 08.8 -1° 14.7	347° 09.0 -1° 15.6	2° 09.3 -1° 16.6	17° 09.5 -1° 17.6	32° 09.7 -1° 18.6	47° 09.9 -1° 19.5	62° 10.1 -1° 20.5	77° 10.3 -1° 21.5	+0.2 -1.0
Сб 27	272° 13.1 -1° 34.1	287° 13.3 -1° 35.1	302° 13.5 -1° 36.1	317° 13.8 -1° 37.0	332° 14.0 -1° 38.0	347° 14.2 -1° 39.0	2° 14.4 -1° 40.0	17° 14.6 -1° 40.9	32° 14.8 -1° 41.9	47° 15.0 -1° 42.9	62° 15.3 -1° 43.9	77° 15.5 -1° 44.8	+0.2 -1.0
Вс 28	272° 18.2 -1° 57.5	287° 18.4 -1° 58.4	302° 18.6 -1° 59.4	317° 18.9 -2° 00.4	332° 19.1 -2° 01.4	347° 19.3 -2° 02.3	2° 19.5 -2° 03.3	17° 19.7 -2° 04.3	32° 19.9 -2° 05.2	47° 20.1 -2° 06.2	62° 20.3 -2° 07.2	77° 20.5 -2° 08.2	+0.2 -1.0
Пн 29	272° 23.3 -2° 20.8	287° 23.5 -2° 21.8	302° 23.7 -2° 22.7	317° 23.9 -2° 23.7	332° 24.1 -2° 24.7	347° 24.3 -2° 25.6	2° 24.5 -2° 26.6	17° 24.7 -2° 27.6	32° 25.0 -2° 28.6	47° 25.2 -2° 29.5	62° 25.4 -2° 30.5	77° 25.6 -2° 31.5	+0.2 -1.0
Вт 30	272° 28.3 -2° 44.1	287° 28.5 -2° 45.1	302° 28.7 -2° 46.0	317° 28.9 -2° 47.0	332° 29.1 -2° 48.0	347° 29.3 -2° 48.9	2° 29.5 -2° 49.9	17° 29.7 -2° 50.9	32° 29.9 -2° 51.8	47° 30.1 -2° 52.8	62° 30.3 -2° 53.8	77° 30.5 -2° 54.8	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2031

	Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
○	Пн 1	252° 42.5 -2° 11.0	267° 10.8 -1° 58.1	281° 39.1 -1° 45.3	296° 07.4 -1° 32.4	310° 35.8 -1° 19.6	325° 04.2 -1° 06.8	339° 32.7 -0° 54.0	354° 01.1 -0° 41.1	8° 29.6 -0° 28.3	22° 58.2 -0° 15.5	37° 26.7 -0° 02.7	+28.4 +12.8	16.3 59.8
	Вт 2	254° 38.7 3° 07.0	269° 07.7 3° 19.5	283° 36.7 3° 31.9	298° 05.7 3° 44.2	312° 34.8 3° 56.6	327° 03.9 4° 08.9	341° 33.0 4° 21.2	356° 02.1 4° 33.4	10° 31.3 4° 45.6	25° 00.4 4° 57.7	39° 29.6 5° 09.8	+29.1 +12.3	16.1 59.1
	Ср 3	256° 49.3 8° 05.6	271° 18.7 8° 16.8	285° 48.1 8° 28.1	300° 17.6 8° 39.2	314° 47.0 8° 50.3	329° 16.5 9° 01.3	343° 46.0 9° 12.3	358° 15.5 9° 23.2	12° 44.9 9° 34.1	27° 14.4 9° 44.8	41° 43.9 9° 55.5	+29.5 +11.0	15.9 58.2
	Чт 4	259° 07.3 12° 27.5	273° 36.9 12° 37.0	288° 06.5 12° 46.5	302° 36.2 12° 55.8	317° 05.8 13° 05.1	331° 35.4 13° 14.3	346° 05.0 13° 23.4	0° 34.6 13° 32.4	15° 04.3 13° 41.4	29° 33.9 13° 50.3	44° 03.5 13° 59.0	+29.6 +9.2	15.6 57.3
	Пт 5	261° 28.3 16° 00.1	275° 57.9 16° 07.5	290° 27.6 16° 14.7	304° 57.3 16° 21.9	319° 26.9 16° 29.0	333° 56.6 16° 36.0	348° 26.3 16° 42.8	2° 56.0 16° 49.6	17° 25.7 16° 56.3	31° 55.4 17° 02.9	46° 25.0 17° 09.4	+29.7 +6.9	15.4 56.4
	Сб 6	263° 50.8 18° 35.1	278° 20.6 18° 40.1	292° 50.3 18° 44.9	307° 20.1 18° 49.6	321° 49.9 18° 54.2	336° 19.7 18° 58.8	350° 49.4 19° 03.2	5° 19.2 19° 07.5	19° 49.0 19° 11.7	34° 18.8 19° 15.9	48° 48.7 19° 19.9	+29.8 +4.5	15.2 55.6
	Вс 7	266° 17.0 20° 08.0	280° 47.0 20° 10.4	295° 17.0 20° 12.7	309° 47.0 20° 14.9	324° 17.0 20° 17.0	338° 47.0 20° 19.0	353° 17.0 20° 20.9	7° 47.1 20° 22.7	22° 17.2 20° 24.3	36° 47.3 20° 25.9	51° 17.4 20° 27.4	+30.0 +1.9	15.0 55.0
◑	Пн 8	280° 47.0 20° 10.4	295° 17.0 20° 12.7	309° 47.0 20° 14.9	324° 17.0 20° 17.0	338° 47.0 20° 19.0	353° 17.0 20° 20.9	7° 47.1 20° 22.7	22° 17.2 20° 24.3	36° 47.3 20° 25.9	51° 17.4 20° 27.4	65° 47.5 20° 28.8	+30.0 +1.8	15.0 55.0
	Вт 9	283° 21.3 20° 37.5	297° 51.7 20° 37.3	312° 22.2 20° 37.0	326° 52.6 20° 36.6	341° 23.1 20° 36.1	355° 53.6 20° 35.5	10° 24.1 20° 34.8	24° 54.6 20° 34.0	39° 25.2 20° 33.1	53° 55.8 20° 32.1	68° 26.4 20° 31.0	+30.5 -0.7	14.9 54.5
	Ср 10	286° 08.4 20° 03.3	300° 39.5 20° 00.7	315° 10.5 19° 58.0	329° 41.6 19° 55.3	344° 12.6 19° 52.4	358° 43.8 19° 49.4	13° 14.9 19° 46.4	27° 46.1 19° 43.2	42° 17.3 19° 40.0	56° 48.5 19° 36.7	71° 19.8 19° 33.3	+31.1 -3.0	14.8 54.2
	Чт 11	289° 12.0 18° 31.8	303° 43.8 18° 27.0	318° 15.5 18° 22.2	332° 47.3 18° 17.2	347° 19.1 18° 12.2	1° 50.9 18° 07.1	16° 22.8 18° 01.9	30° 54.7 17° 56.6	45° 26.6 17° 51.3	59° 58.5 17° 45.9	74° 30.5 17° 40.4	+31.8 -5.1	14.7 54.1
	Пт 12	292° 33.5 16° 08.7	307° 05.9 16° 02.0	321° 38.3 15° 55.2	336° 10.8 15° 48.4	350° 43.3 15° 41.5	5° 15.8 15° 34.5	19° 48.4 15° 27.4	34° 21.0 15° 20.3	48° 53.6 15° 13.1	63° 26.2 15° 05.9	77° 58.8 14° 58.5	+32.5 -7.0	14.8 54.1
	Сб 13	296° 11.3 13° 01.0	310° 44.3 12° 52.6	325° 17.3 12° 44.3	339° 50.4 12° 35.8	354° 23.4 12° 27.3	8° 56.5 12° 18.8	23° 29.6 12° 10.1	38° 02.7 12° 01.5	52° 35.8 11° 52.7	67° 09.0 11° 44.0	81° 42.2 11° 35.1	+33.1 -8.6	14.8 54.3
	Вс 14	300° 01.3 9° 16.6	314° 34.6 9° 06.9	329° 08.0 8° 57.3	343° 41.4 8° 47.6	358° 14.8 8° 37.8	12° 48.2 8° 28.0	27° 21.6 8° 18.2	41° 55.0 8° 08.3	56° 28.4 7° 58.4	71° 01.8 7° 48.5	85° 35.3 7° 38.5	+33.4 -9.8	14.9 54.7
	Пн 15	303° 56.8 5° 04.4	318° 30.2 4° 53.9	333° 03.7 4° 43.3	347° 37.1 4° 32.7	2° 10.5 4° 22.1	16° 43.9 4° 11.5	31° 17.3 4° 00.8	45° 50.7 3° 50.1	60° 24.1 3° 39.4	74° 57.4 3° 28.7	89° 30.8 3° 18.0	+33.4 -10.6	15.0 55.1
●	Вт 16	307° 49.6 0° 34.6	322° 22.8 0° 23.6	336° 55.9 0° 12.5	351° 28.9 0° 01.5	6° 02.0 -0° 09.5	20° 35.0 -0° 20.5	35° 08.1 -0° 31.6	49° 41.1 -0° 42.6	64° 14.0 -0° 53.7	78° 47.0 -1° 04.7	93° 19.9 -1° 15.8	+33.0 -11.0	15.1 55.6
	Ср 17	311° 30.3 -4° 01.4	326° 02.7 -4° 12.4	340° 35.1 -4° 23.4	355° 07.5 -4° 34.4	9° 39.8 -4° 45.3	24° 12.1 -4° 56.3	38° 44.3 -5° 07.2	53° 16.5 -5° 18.1	67° 48.7 -5° 29.0	82° 20.8 -5° 39.8	96° 52.9 -5° 50.7	+32.3 -10.9	15.3 56.1
	Чт 18	314° 49.0 -8° 30.6	329° 20.3 -8° 41.0	343° 51.6 -8° 51.4	358° 22.9 -9° 01.7	12° 54.1 -9° 12.0	27° 25.3 -9° 22.3	41° 56.4 -9° 32.5	56° 27.4 -9° 42.7	70° 58.4 -9° 52.9	85° 29.4 -10° 03.0	100° 00.2 -10° 13.0	+31.1 -10.3	15.4 56.6
	Пт 19	317° 36.8 -12° 38.1	332° 06.7 -12° 47.4	346° 36.6 -12° 56.6	1° 06.5 -13° 05.7	15° 36.3 -13° 14.7	30° 06.0 -13° 23.7	44° 35.7 -13° 32.6	59° 05.3 -13° 41.5	73° 34.8 -13° 50.3	88° 04.3 -13° 59.0	102° 33.7 -14° 07.6	+29.7 -9.0	15.6 57.1
	Сб 20	319° 47.2 -16° 08.4	334° 15.6 -16° 15.8	348° 43.9 -16° 23.1	3° 12.2 -16° 30.3	17° 40.4 -16° 37.4	32° 08.6 -16° 44.5	46° 36.6 -16° 51.5	61° 04.6 -16° 58.3	75° 32.6 -17° 05.1	90° 00.5 -17° 11.8	104° 28.3 -17° 18.4	+28.1 -7.0	15.7 57.6
	Вс 21	321° 18.5 -18° 45.1	335° 45.4 -18° 50.1	350° 12.2 -18° 54.9	4° 39.0 -18° 59.6	19° 05.7 -19° 04.3	33° 32.3 -19° 08.8	47° 58.9 -19° 13.1	62° 25.5 -19° 17.4	76° 52.0 -19° 21.6	91° 18.5 -19° 25.6	105° 44.9 -19° 29.5	+26.6 -4.4	15.8 58.1
	Пн 22	322° 15.4 -20° 14.0	336° 41.1 -20° 16.0	351° 06.8 -20° 17.8	5° 32.4 -20° 19.5	19° 58.0 -20° 21.1	34° 23.6 -20° 22.6	48° 49.2 -20° 23.9	63° 14.7 -20° 25.1	77° 40.1 -20° 26.2	92° 05.6 -20° 27.2	106° 31.0 -20° 28.0	+25.6 -1.4	16.0 58.5
	Вт 23	322° 49.8 -20° 24.4	337° 15.0 -20° 23.1	351° 40.1 -20° 21.7	6° 05.2 -20° 20.1	20° 30.3 -20° 18.4	34° 55.4 -20° 16.6	49° 20.5 -20° 14.6	63° 45.6 -20° 12.5	78° 10.7 -20° 10.3	92° 35.8 -20° 07.9	107° 00.9 -20° 05.4	+25.1 +1.9	16.1 58.9
◐	Ср 24	323° 18.1 -19° 12.3	337° 43.4 -19° 07.7	352° 08.6 -19° 03.0	6° 33.9 -18° 58.2	20° 59.2 -18° 53.2	35° 24.5 -18° 48.1	49° 49.9 -18° 42.9	64° 15.2 -18° 37.6	78° 40.6 -18° 32.2	93° 06.0 -18° 26.6	107° 31.5 -18° 20.9	+25.3 +5.1	16.2 59.3
	Чт 25	323° 56.4 -16° 41.2	338° 22.3 -16° 33.7	352° 48.3 -16° 26.0	7° 14.2 -16° 18.3	21° 40.3 -16° 10.4	36° 06.3 -16° 02.4	50° 32.4 -15° 54.3	64° 58.6 -15° 46.1	79° 24.7 -15° 37.8	93° 50.9 -15° 29.5	108° 17.2 -15° 21.0	+26.1 +8.0	16.2 59.6
	Пт 26	324° 55.7 -13° 02.2	339° 22.6 -12° 52.3	353° 49.5 -12° 42.2	8° 16.5 -12° 32.1	22° 43.5 -12° 21.9	37° 10.5 -12° 11.6	51° 37.6 -12° 01.3	66° 04.8 -11° 50.9	80° 31.9 -11° 40.4	94° 59.2 -11° 29.8	109° 26.4 -11° 19.2	+27.1 +10.3	16.3 59.7
	Сб 27	326° 20.0 -8° 31.8	340° 47.8 -8° 20.2	355° 15.7 -8° 08.5	9° 43.7 -7° 56.8	24° 11.7 -7° 45.1	38° 39.7 -7° 33.3	53° 07.7 -7° 21.5	67° 35.8 -7° 09.6	82° 03.9 -6° 57.6	96° 32.1 -6° 45.7	111° 00.3 -6° 33.7	+28.0 +11.8	16.3 59.7
	Вс 28	328° 06.7 -3° 30.0	342° 35.3 -3° 17.6	357° 04.0 -3° 05.2	11° 32.7 -2° 52.7	26° 01.5 -2° 40.3	40° 30.2 -2° 27.8	54° 59.0 -2° 15.3	69° 27.8 -2° 02.8	83° 56.6 -1° 50.3	98° 25.4 -1° 37.8	112° 54.3 -1° 25.3	+28.8 +12.5	16.2 59.4
	Пн 29	330° 09.4 1° 41.8	344° 38.5 1° 54.2	359° 07.7 2° 06.5	13° 36.8 2° 18.9	28° 06.0 2° 31.2	42° 35.2 2° 43.5	57° 04.3 2° 55.8	71° 33.5 3° 08.0	86° 02.7 3° 20.3	100° 32.0 3° 32.5	115° 01.2 3° 44.6	+29.2 +12.3	16.1 59.0
○	Вт 30	332° 20.3 6° 42.9	346° 49.6 6° 54.5	1° 18.9 7° 06.0	15° 48.2 7° 17.4	30° 17.6 7° 28.8	44° 46.9 7° 40.2	59° 16.2 7° 51.5	73° 45.5 8° 02.7	88° 14.8 8° 13.9	102° 44.1 8° 25.0	117° 13.4 8° 36.1	+29.3 +11.3	15.9 58.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 1 09h20 — Последняя четв.: 8 16h14 — Новолуние: 16 18h46 — Первая четв.: 24 01h19 — Полнолуние: 30 18h57

СОЛНЦЕ

Октябрь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	272° 33.2 -3° 07.4	287° 33.4 -3° 08.3	302° 33.6 -3° 09.3	317° 33.8 -3° 10.3	332° 34.0 -3° 11.2	347° 34.2 -3° 12.2	2° 34.4 -3° 13.2	17° 34.6 -3° 14.1	32° 34.8 -3° 15.1	47° 35.0 -3° 16.1	62° 35.2 -3° 17.0	77° 35.4 -3° 18.0	+0.2 -1.0
Чт 2	272° 38.1 -3° 30.6	287° 38.3 -3° 31.6	302° 38.5 -3° 32.5	317° 38.7 -3° 33.5	332° 38.9 -3° 34.5	347° 39.1 -3° 35.4	2° 39.3 -3° 36.4	17° 39.5 -3° 37.4	32° 39.7 -3° 38.3	47° 39.9 -3° 39.3	62° 40.1 -3° 40.3	77° 40.3 -3° 41.2	+0.2 -1.0
Пт 3	272° 42.8 -3° 53.8	287° 43.0 -3° 54.8	302° 43.2 -3° 55.7	317° 43.4 -3° 56.7	332° 43.6 -3° 57.7	347° 43.8 -3° 58.6	2° 44.0 -3° 59.6	17° 44.2 -4° 00.6	32° 44.4 -4° 01.5	47° 44.6 -4° 02.5	62° 44.8 -4° 03.5	77° 45.0 -4° 04.4	+0.2 -1.0
Сб 4	272° 47.5 -4° 17.0	287° 47.7 -4° 17.9	302° 47.9 -4° 18.9	317° 48.1 -4° 19.8	332° 48.3 -4° 20.8	347° 48.5 -4° 21.8	2° 48.7 -4° 22.7	17° 48.9 -4° 23.7	32° 49.1 -4° 24.7	47° 49.3 -4° 25.6	62° 49.5 -4° 26.6	77° 49.7 -4° 27.6	+0.2 -1.0
Вс 5	272° 52.1 -4° 40.1	287° 52.3 -4° 41.0	302° 52.5 -4° 42.0	317° 52.7 -4° 43.0	332° 52.9 -4° 43.9	347° 53.1 -4° 44.9	2° 53.3 -4° 45.8	17° 53.5 -4° 46.8	32° 53.7 -4° 47.8	47° 53.8 -4° 48.7	62° 54.0 -4° 49.7	77° 54.2 -4° 50.6	+0.2 -1.0
Пн 6	272° 56.7 -5° 03.1	287° 56.8 -5° 04.1	302° 57.0 -5° 05.0	317° 57.2 -5° 06.0	332° 57.4 -5° 07.0	347° 57.6 -5° 07.9	2° 57.8 -5° 08.9	17° 58.0 -5° 09.8	32° 58.1 -5° 10.8	47° 58.3 -5° 11.7	62° 58.5 -5° 12.7	77° 58.7 -5° 13.7	+0.2 -1.0
Вт 7	273° 01.1 -5° 26.1	288° 01.2 -5° 27.1	303° 01.4 -5° 28.0	318° 01.6 -5° 29.0	333° 01.8 -5° 29.9	348° 02.0 -5° 30.9	3° 02.2 -5° 31.8	18° 02.3 -5° 32.8	33° 02.5 -5° 33.8	48° 02.7 -5° 34.7	63° 02.9 -5° 35.7	78° 03.1 -5° 36.6	+0.2 -1.0
Ср 8	273° 05.4 -5° 49.0	288° 05.6 -5° 50.0	303° 05.7 -5° 50.9	318° 05.9 -5° 51.9	333° 06.1 -5° 52.8	348° 06.3 -5° 53.8	3° 06.4 -5° 54.8	18° 06.6 -5° 55.7	33° 06.8 -5° 56.7	48° 07.0 -5° 57.6	63° 07.1 -5° 58.6	78° 07.3 -5° 59.5	+0.2 -1.0
Чт 9	273° 09.6 -6° 11.9	288° 09.7 -6° 12.8	303° 09.9 -6° 13.8	318° 10.1 -6° 14.7	333° 10.3 -6° 15.7	348° 10.4 -6° 16.6	3° 10.6 -6° 17.6	18° 10.8 -6° 18.5	33° 10.9 -6° 19.5	48° 11.1 -6° 20.4	63° 11.3 -6° 21.4	78° 11.5 -6° 22.3	+0.2 -0.9
Пт 10	273° 13.7 -6° 34.7	288° 13.8 -6° 35.6	303° 14.0 -6° 36.5	318° 14.2 -6° 37.5	333° 14.3 -6° 38.4	348° 14.5 -6° 39.4	3° 14.7 -6° 40.3	18° 14.8 -6° 41.3	33° 15.0 -6° 42.2	48° 15.2 -6° 43.2	63° 15.3 -6° 44.1	78° 15.5 -6° 45.1	+0.2 -0.9
Сб 11	273° 17.6 -6° 57.3	288° 17.8 -6° 58.3	303° 17.9 -6° 59.2	318° 18.1 -7° 00.2	333° 18.3 -7° 01.1	348° 18.4 -7° 02.0	3° 18.6 -7° 03.0	18° 18.7 -7° 03.9	33° 18.9 -7° 04.9	48° 19.1 -7° 05.8	63° 19.2 -7° 06.8	78° 19.4 -7° 07.7	+0.2 -0.9
Вс 12	273° 21.5 -7° 19.9	288° 21.6 -7° 20.9	303° 21.8 -7° 21.8	318° 21.9 -7° 22.7	333° 22.1 -7° 23.7	348° 22.2 -7° 24.6	3° 22.4 -7° 25.6	18° 22.5 -7° 26.5	33° 22.7 -7° 27.4	48° 22.9 -7° 28.4	63° 23.0 -7° 29.3	78° 23.2 -7° 30.2	+0.2 -0.9
Пн 13	273° 25.2 -7° 42.4	288° 25.3 -7° 43.3	303° 25.5 -7° 44.3	318° 25.6 -7° 45.2	333° 25.8 -7° 46.2	348° 25.9 -7° 47.1	3° 26.1 -7° 48.0	18° 26.2 -7° 49.0	33° 26.4 -7° 49.9	48° 26.5 -7° 50.8	63° 26.7 -7° 51.8	78° 26.8 -7° 52.7	+0.2 -0.9
Вт 14	273° 28.7 -8° 04.8	288° 28.9 -8° 05.7	303° 29.0 -8° 06.7	318° 29.2 -8° 07.6	333° 29.3 -8° 08.5	348° 29.5 -8° 09.4	3° 29.6 -8° 10.4	18° 29.8 -8° 11.3	33° 29.9 -8° 12.2	48° 30.0 -8° 13.2	63° 30.2 -8° 14.1	78° 30.3 -8° 15.0	+0.1 -0.9
Ср 15	273° 32.2 -8° 27.1	288° 32.3 -8° 28.0	303° 32.5 -8° 28.9	318° 32.6 -8° 29.8	333° 32.7 -8° 30.8	348° 32.9 -8° 31.7	3° 33.0 -8° 32.6	18° 33.2 -8° 33.5	33° 33.3 -8° 34.5	48° 33.4 -8° 35.4	63° 33.6 -8° 36.3	78° 33.7 -8° 37.2	+0.1 -0.9
Чт 16	273° 35.5 -8° 49.2	288° 35.6 -8° 50.1	303° 35.7 -8° 51.1	318° 35.9 -8° 52.0	333° 36.0 -8° 52.9	348° 36.1 -8° 53.8	3° 36.3 -8° 54.7	18° 36.4 -8° 55.7	33° 36.5 -8° 56.6	48° 36.7 -8° 57.5	63° 36.8 -8° 58.4	78° 36.9 -8° 59.3	+0.1 -0.9
Пт 17	273° 38.6 -9° 11.3	288° 38.8 -9° 12.2	303° 38.9 -9° 13.1	318° 39.0 -9° 14.0	333° 39.1 -9° 14.9	348° 39.3 -9° 15.8	3° 39.4 -9° 16.7	18° 39.5 -9° 17.7	33° 39.6 -9° 18.6	48° 39.8 -9° 19.5	63° 39.9 -9° 20.4	78° 40.0 -9° 21.3	+0.1 -0.9
Сб 18	273° 41.6 -9° 33.2	288° 41.8 -9° 34.1	303° 41.9 -9° 35.0	318° 42.0 -9° 35.9	333° 42.1 -9° 36.8	348° 42.2 -9° 37.7	3° 42.4 -9° 38.6	18° 42.5 -9° 39.5	33° 42.6 -9° 40.4	48° 42.7 -9° 41.3	63° 42.8 -9° 42.2	78° 43.0 -9° 43.1	+0.1 -0.9
Вс 19	273° 44.5 -9° 54.9	288° 44.6 -9° 55.8	303° 44.7 -9° 56.7	318° 44.8 -9° 57.6	333° 45.0 -9° 58.5	348° 45.1 -9° 59.4	3° 45.2 -10° 00.3	18° 45.3 -10° 01.2	33° 45.4 -10° 02.1	48° 45.5 -10° 03.0	63° 45.6 -10° 03.9	78° 45.8 -10° 04.8	+0.1 -0.9
Пн 20	273° 47.2 -10° 16.5	288° 47.3 -10° 17.4	303° 47.4 -10° 18.3	318° 47.5 -10° 19.2	333° 47.6 -10° 20.1	348° 47.7 -10° 21.0	3° 47.9 -10° 21.9	18° 48.0 -10° 22.8	33° 48.1 -10° 23.7	48° 48.2 -10° 24.6	63° 48.3 -10° 25.5	78° 48.4 -10° 26.4	+0.1 -0.9
Вт 21	273° 49.8 -10° 38.0	288° 49.9 -10° 38.9	303° 50.0 -10° 39.8	318° 50.1 -10° 40.7	333° 50.2 -10° 41.5	348° 50.3 -10° 42.4	3° 50.4 -10° 43.3	18° 50.5 -10° 44.2	33° 50.6 -10° 45.1	48° 50.7 -10° 46.0	63° 50.8 -10° 46.9	78° 50.9 -10° 47.8	+0.1 -0.9
Ср 22	273° 52.1 -10° 59.3	288° 52.2 -11° 00.2	303° 52.3 -11° 01.1	318° 52.4 -11° 01.9	333° 52.5 -11° 02.8	348° 52.6 -11° 03.7	3° 52.7 -11° 04.6	18° 52.8 -11° 05.5	33° 52.9 -11° 06.4	48° 53.0 -11° 07.2	63° 53.1 -11° 08.1	78° 53.2 -11° 09.0	+0.1 -0.9
Чт 23	273° 54.4 -11° 20.4	288° 54.5 -11° 21.3	303° 54.5 -11° 22.2	318° 54.6 -11° 23.1	333° 54.7 -11° 23.9	348° 54.8 -11° 24.8	3° 54.9 -11° 25.7	18° 55.0 -11° 26.6	33° 55.1 -11° 27.4	48° 55.2 -11° 28.3	63° 55.2 -11° 29.2	78° 55.3 -11° 30.1	+0.1 -0.9
Пт 24	273° 56.4 -11° 41.4	288° 56.5 -11° 42.3	303° 56.6 -11° 43.1	318° 56.7 -11° 44.0	333° 56.8 -11° 44.9	348° 56.8 -11° 45.7	3° 56.9 -11° 46.6	18° 57.0 -11° 47.5	33° 57.1 -11° 48.3	48° 57.2 -11° 49.2	63° 57.2 -11° 50.1	78° 57.3 -11° 50.9	+0.1 -0.9
Сб 25	273° 58.3 -12° 02.2	288° 58.4 -12° 03.0	303° 58.5 -12° 03.9	318° 58.5 -12° 04.8	333° 58.6 -12° 05.6	348° 58.7 -12° 06.5	3° 58.8 -12° 07.3	18° 58.8 -12° 08.2	33° 58.9 -12° 09.1	48° 59.0 -12° 09.9	63° 59.1 -12° 10.8	78° 59.1 -12° 11.6	+0.1 -0.9
Вс 26	274° 00.0 -12° 22.8	289° 00.1 -12° 23.6	304° 00.2 -12° 24.5	319° 00.2 -12° 25.3	334° 00.3 -12° 26.2	349° 00.4 -12° 27.0	4° 00.4 -12° 27.9	19° 00.5 -12° 28.8	34° 00.6 -12° 29.6	49° 00.6 -12° 30.5	64° 00.7 -12° 31.3	79° 00.8 -12° 32.2	+0.1 -0.9
Пн 27	274° 01.6 -12° 43.2	289° 01.6 -12° 44.0	304° 01.7 -12° 44.9	319° 01.8 -12° 45.7	334° 01.8 -12° 46.6	349° 01.9 -12° 47.4	4° 01.9 -12° 48.3	19° 02.0 -12° 49.1	34° 02.0 -12° 49.9	49° 02.1 -12° 50.8	64° 02.2 -12° 51.6	79° 02.2 -12° 52.5	+0.1 -0.8
Вт 28	274° 02.9 -13° 03.4	289° 03.0 -13° 04.2	304° 03.0 -13° 05.1	319° 03.1 -13° 05.9	334° 03.1 -13° 06.7	349° 03.2 -13° 07.6	4° 03.2 -13° 08.4	19° 03.3 -13° 09.3	34° 03.3 -13° 10.1	49° 03.4 -13° 10.9	64° 03.4 -13° 11.8	79° 03.5 -13° 12.6	+0.1 -0.8
Ср 29	274° 04.1 -13° 23.4	289° 04.1 -13° 24.2	304° 04.2 -13° 25.1	319° 04.2 -13° 25.9	334° 04.3 -13° 26.7	349° 04.3 -13° 27.6	4° 04.4 -13° 28.4	19° 04.4 -13° 29.2	34° 04.4 -13° 30.0	49° 04.5 -13° 30.9	64° 04.5 -13° 31.7	79° 04.6 -13° 32.5	+0.0 -0.8
Чт 30	274° 05.1 -13° 43.2	289° 05.1 -13° 44.0	304° 05.2 -13° 44.8	319° 05.2 -13° 45.7	334° 05.2 -13° 46.5	349° 05.3 -13° 47.3	4° 05.3 -13° 48.1	19° 05.3 -13° 48.9	34° 05.4 -13° 49.8	49° 05.4 -13° 50.6	64° 05.4 -13° 51.4	79° 05.5 -13° 52.2	+0.0 -0.8
Пт 31	274° 05.9 -14° 02.8	289° 05.9 -14° 03.6	304° 05.9 -14° 04.4	319° 05.9 -14° 05.2	334° 06.0 -14° 06.0	349° 06.0 -14° 06.8	4° 06.0 -14° 07.6	19° 06.1 -14° 08.5	34° 06.1 -14° 09.3	49° 06.1 -14° 10.1	64° 06.1 -14° 10.9	79° 06.2 -14° 11.7	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2031

Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
Ср 1	247° 37.2 10° 13.0	262° 06.5 10° 23.5	276° 35.8 10° 33.9	291° 05.1 10° 44.2	305° 34.4 10° 54.4	320° 03.7 11° 04.6	334° 33.0 11° 14.7	349° 02.2 11° 24.7	3° 31.5 11° 34.7	18° 00.8 11° 44.6	32° 30.0 11° 54.4	+29.3 +10.1	15.8 57.9
Чт 2	249° 48.5 14° 12.0	264° 17.7 14° 20.5	278° 46.9 14° 28.9	293° 16.1 14° 37.2	307° 45.3 14° 45.4	322° 14.5 14° 53.6	336° 43.7 15° 01.7	351° 12.9 15° 09.6	5° 42.0 15° 17.5	20° 11.2 15° 25.3	34° 40.4 15° 33.0	+29.2 +8.1	15.6 57.1
Пт 3	251° 57.8 17° 17.1	266° 26.9 17° 23.3	280° 56.1 17° 29.4	295° 25.3 17° 35.3	309° 54.4 17° 41.2	324° 23.6 17° 47.0	338° 52.8 17° 52.6	353° 21.9 17° 58.2	7° 51.1 18° 03.6	22° 20.3 18° 09.0	36° 49.5 18° 14.3	+29.2 +5.7	15.4 56.4
Сб 4	254° 08.1 19° 20.8	268° 37.4 19° 24.4	283° 06.7 19° 27.9	297° 36.0 19° 31.3	312° 05.4 19° 34.6	326° 34.8 19° 37.8	341° 04.1 19° 40.9	355° 33.5 19° 43.9	10° 02.9 19° 46.8	24° 32.3 19° 49.5	39° 01.8 19° 52.2	+29.4 +3.1	15.2 55.7
Вс 5	256° 25.4 20° 19.8	270° 55.1 20° 20.8	285° 24.9 20° 21.7	299° 54.7 20° 22.5	314° 24.5 20° 23.2	328° 54.3 20° 23.8	343° 24.1 20° 24.3	357° 54.0 20° 24.7	12° 23.9 20° 25.0	26° 53.9 20° 25.2	41° 23.8 20° 25.3	+29.8 +0.6	15.0 55.0
Пн 6	258° 56.5 20° 14.8	273° 26.9 20° 13.3	287° 57.3 20° 11.7	302° 27.8 20° 10.1	316° 58.3 20° 08.3	331° 28.8 20° 06.4	345° 59.4 20° 04.5	0° 30.0 20° 02.4	15° 00.7 20° 00.3	29° 31.3 19° 58.0	44° 02.0 19° 55.7	+30.6 -1.9	14.9 54.6
Вт 7	261° 46.7 19° 09.8	276° 17.9 19° 06.1	290° 49.2 19° 02.2	305° 20.6 18° 58.3	319° 51.9 18° 54.3	334° 23.3 18° 50.2	348° 54.7 18° 46.0	3° 26.2 18° 41.7	17° 57.7 18° 37.3	32° 29.2 18° 32.9	47° 00.8 18° 28.4	+31.4 -4.2	14.8 54.3
◑ Ср 8	263° 17.9 19° 06.1	290° 49.2 19° 02.2	305° 20.6 18° 58.3	319° 51.9 18° 54.3	334° 23.3 18° 50.2	348° 54.7 18° 46.0	3° 26.2 18° 41.7	17° 57.7 18° 37.3	32° 29.2 18° 32.9	47° 00.8 18° 28.4	61° 32.4 18° 23.7	+31.4 -4.2	14.8 54.3
Чт 9	279° 30.6 17° 05.1	294° 02.7 16° 59.2	308° 34.9 16° 53.3	323° 07.1 16° 47.2	337° 39.4 16° 41.2	352° 11.7 16° 35.0	6° 44.0 16° 28.8	21° 16.3 16° 22.5	35° 48.7 16° 16.1	50° 21.1 16° 09.6	64° 53.5 16° 03.1	+32.3 -6.2	14.8 54.2
Пт 10	283° 03.5 14° 17.3	297° 36.3 14° 09.7	312° 09.2 14° 02.0	326° 42.2 13° 54.3	341° 15.1 13° 46.6	355° 48.1 13° 38.7	10° 21.1 13° 30.8	24° 54.1 13° 22.9	39° 27.2 13° 14.9	54° 00.2 13° 06.8	68° 33.3 12° 58.7	+33.0 -7.9	14.8 54.3
Сб 11	286° 51.9 10° 50.2	301° 25.2 10° 41.2	315° 58.6 10° 32.2	330° 32.0 10° 23.1	345° 05.4 10° 13.9	359° 38.8 10° 04.8	14° 12.2 9° 55.5	28° 45.6 9° 46.2	43° 19.1 9° 36.9	57° 52.5 9° 27.5	72° 26.0 9° 18.1	+33.4 -9.2	14.9 54.5
Вс 12	290° 48.4 6° 51.8	305° 21.9 6° 41.7	319° 55.4 6° 31.6	334° 28.9 6° 21.5	349° 02.4 6° 11.3	3° 35.9 6° 01.1	18° 09.4 5° 50.9	32° 42.9 5° 40.6	47° 16.4 5° 30.3	61° 49.9 5° 19.9	76° 23.3 5° 09.6	+33.5 -10.2	15.0 54.9
Пн 13	294° 43.9 2° 30.8	309° 17.2 2° 20.0	323° 50.4 2° 09.2	338° 23.6 1° 58.4	352° 56.8 1° 47.6	7° 30.0 1° 36.7	22° 03.1 1° 25.8	36° 36.3 1° 15.0	51° 09.4 1° 04.1	65° 42.4 0° 53.1	80° 15.5 0° 42.2	+33.2 -10.9	15.1 55.5
Вт 14	298° 27.9 -2° 02.8	313° 00.4 -2° 13.9	327° 33.0 -2° 24.9	342° 05.5 -2° 36.0	356° 37.9 -2° 47.0	11° 10.3 -2° 58.1	25° 42.7 -3° 09.1	40° 15.0 -3° 20.1	54° 47.3 -3° 31.1	69° 19.6 -3° 42.2	83° 51.8 -3° 53.2	+32.4 -11.0	15.3 56.1
Ср 15	301° 49.5 -6° 37.0	316° 21.0 -6° 47.8	330° 52.4 -6° 58.5	345° 23.7 -7° 09.3	359° 55.0 -7° 20.0	14° 26.2 -7° 30.7	28° 57.4 -7° 41.3	43° 28.6 -7° 51.9	57° 59.6 -8° 02.5	72° 30.6 -8° 13.1	87° 01.6 -8° 23.7	+31.2 -10.7	15.5 56.7
● Чт 16	304° 38.8 -10° 57.2	319° 08.8 -11° 07.1	333° 38.7 -11° 17.0	348° 08.6 -11° 26.8	2° 38.4 -11° 36.5	17° 08.1 -11° 46.2	31° 37.8 -11° 55.8	46° 07.4 -12° 05.4	60° 36.9 -12° 14.9	75° 06.4 -12° 24.3	89° 35.7 -12° 33.7	+29.7 -9.7	15.6 57.4
Пт 17	306° 48.5 -14° 46.8	321° 16.9 -14° 55.1	335° 45.1 -15° 03.3	350° 13.3 -15° 11.5	4° 41.4 -15° 19.5	19° 09.4 -15° 27.5	33° 37.4 -15° 35.4	48° 05.3 -15° 43.2	62° 33.1 -15° 50.9	77° 00.9 -15° 58.5	91° 28.6 -16° 06.1	+28.0 -7.9	15.8 57.9
Сб 18	308° 16.4 -17° 47.9	322° 43.1 -17° 53.9	337° 09.7 -17° 59.8	351° 36.3 -18° 05.5	6° 02.8 -18° 11.2	20° 29.2 -18° 16.7	34° 55.6 -18° 22.2	49° 22.0 -18° 27.5	63° 48.3 -18° 32.7	78° 14.5 -18° 37.9	92° 40.7 -18° 42.9	+26.4 -5.5	15.9 58.4
Вс 19	309° 07.6 -19° 43.6	323° 33.1 -19° 46.7	337° 58.5 -19° 49.7	352° 23.9 -19° 52.5	6° 49.2 -19° 55.2	21° 14.6 -19° 57.7	35° 39.8 -20° 00.2	50° 05.1 -20° 02.5	64° 30.3 -20° 04.7	78° 55.5 -20° 06.7	93° 20.7 -20° 08.6	+25.3 -2.5	16.0 58.8
Пн 20	309° 35.7 -20° 21.6	324° 00.6 -20° 21.4	338° 25.5 -20° 21.0	352° 50.4 -20° 20.6	7° 15.3 -20° 20.0	21° 40.1 -20° 19.2	36° 05.0 -20° 18.4	50° 29.9 -20° 17.3	64° 54.8 -20° 16.2	79° 19.7 -20° 14.9	93° 44.6 -20° 13.5	+24.9 +0.8	16.1 59.0
Вт 21	309° 59.3 -19° 36.5	324° 24.4 -19° 33.0	338° 49.6 -19° 29.4	353° 14.8 -19° 25.6	7° 40.0 -19° 21.7	22° 05.2 -19° 17.7	36° 30.4 -19° 13.5	50° 55.7 -19° 09.3	65° 21.0 -19° 04.9	79° 46.4 -19° 00.3	94° 11.8 -18° 55.7	+25.2 +4.1	16.1 59.1
Ср 22	310° 36.8 -17° 31.6	325° 02.8 -17° 25.1	339° 28.8 -17° 18.5	353° 54.9 -17° 11.7	8° 21.0 -17° 04.9	22° 47.2 -16° 57.9	37° 13.4 -16° 50.9	51° 39.7 -16° 43.7	66° 06.0 -16° 36.4	80° 32.4 -16° 29.0	94° 58.8 -16° 21.5	+26.2 +7.0	16.1 59.2
◐ Чт 23	311° 40.6 -14° 17.6	326° 07.8 -14° 08.6	340° 35.0 -13° 59.5	355° 02.3 -13° 50.4	9° 29.6 -13° 41.1	23° 57.0 -13° 31.8	38° 24.4 -13° 22.4	52° 51.9 -13° 12.9	67° 19.4 -13° 03.4	81° 47.0 -12° 53.7	96° 14.6 -12° 44.0	+27.4 +9.4	16.1 59.2
Пт 24	313° 14.6 -10° 10.0	327° 42.9 -9° 59.2	342° 11.3 -9° 48.4	356° 39.8 -9° 37.5	11° 08.3 -9° 26.5	25° 36.8 -9° 15.6	40° 05.4 -9° 04.5	54° 34.0 -8° 53.4	69° 02.6 -8° 42.3	83° 31.3 -8° 31.1	98° 00.1 -8° 19.9	+28.5 +11.0	16.1 59.0
Сб 25	315° 15.3 -5° 26.6	329° 44.6 -5° 14.8	344° 13.9 -5° 03.0	358° 43.2 -4° 51.1	13° 12.6 -4° 39.2	27° 42.0 -4° 27.3	42° 11.4 -4° 15.4	56° 40.9 -4° 03.4	71° 10.3 -3° 51.4	85° 39.8 -3° 39.5	100° 09.3 -3° 27.4	+29.4 +11.9	16.0 58.8
Вс 26	317° 34.6 -0° 26.2	332° 04.4 -0° 14.1	346° 34.2 -0° 02.0	1° 04.1 0° 10.1	15° 33.9 0° 22.2	30° 03.8 0° 34.3	44° 33.7 0° 46.4	59° 03.6 0° 58.5	73° 33.4 1° 10.5	88° 03.4 1° 22.6	102° 33.3 1° 34.6	+29.9 +12.1	16.0 58.5
Пн 27	320° 02.5 4° 33.0	334° 32.5 4° 44.6	349° 02.4 4° 56.3	3° 32.4 5° 07.9	18° 02.3 5° 19.5	32° 32.3 5° 31.1	47° 02.2 5° 42.6	61° 32.2 5° 54.1	76° 02.1 6° 05.5	90° 32.1 6° 16.9	105° 02.0 6° 28.3	+30.0 +11.5	15.9 58.1
Вт 28	322° 30.0 9° 13.2	336° 59.8 9° 23.8	351° 29.6 9° 34.3	5° 59.3 9° 44.8	20° 29.1 9° 55.2	34° 58.8 10° 05.6	49° 28.6 10° 15.9	63° 58.3 10° 26.1	78° 28.0 10° 36.2	92° 57.7 10° 46.3	107° 27.4 10° 56.4	+29.7 +10.3	15.7 57.7
Ср 29	324° 50.9 13° 18.6	339° 20.3 13° 27.4	353° 49.8 13° 36.3	8° 19.2 13° 45.0	22° 48.6 13° 53.6	37° 18.0 14° 02.2	51° 47.4 14° 10.7	66° 16.8 14° 19.1	80° 46.1 14° 27.4	95° 15.5 14° 35.6	109° 44.8 14° 43.8	+29.4 +8.5	15.6 57.1
○ Чт 30	327° 03.3 16° 35.3	341° 32.4 16° 42.0	356° 01.5 16° 48.6	10° 30.7 16° 55.2	24° 59.8 17° 01.6	39° 28.9 17° 07.9	53° 58.0 17° 14.1	68° 27.1 17° 20.3	82° 56.2 17° 26.3	97° 25.3 17° 32.2	111° 54.4 17° 38.0	+29.1 +6.3	15.4 56.5
Пт 31	329° 10.2 18° 53.5	343° 39.2 18° 57.7	358° 08.3 19° 01.8	12° 37.4 19° 05.8	27° 06.4 19° 09.7	41° 35.5 19° 13.5	56° 04.6 19° 17.1	70° 33.7 19° 20.7	85° 02.8 19° 24.2	99° 31.9 19° 27.6	114° 01.0 19° 30.9	+29.1 +3.7	15.2 55.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 8 10h50 — Новолуние: 16 08h20 — Первая четв.: 23 07h36 — Полнолуние: 30 07h32

СОЛНЦЕ

Ноябрь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	274° 06.5	289° 06.5	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.6	79° 06.7	+0.0
	-14° 22.1	-14° 22.9	-14° 23.7	-14° 24.6	-14° 25.4	-14° 26.2	-14° 27.0	-14° 27.7	-14° 28.5	-14° 29.3	-14° 30.1	-14° 30.9	-0.8
Вс 2	274° 06.8	289° 06.9	304° 06.9	319° 06.9	334° 06.9	349° 06.9	4° 06.9	19° 06.9	34° 06.9	49° 06.9	64° 06.9	79° 06.9	+0.0
	-14° 41.3	-14° 42.1	-14° 42.9	-14° 43.6	-14° 44.4	-14° 45.2	-14° 46.0	-14° 46.8	-14° 47.6	-14° 48.4	-14° 49.2	-14° 50.0	-0.8
Пн 3	274° 07.0	289° 07.0	304° 07.0	319° 07.0	334° 07.0	349° 07.0	4° 07.0	19° 07.0	34° 07.0	49° 07.0	64° 07.0	79° 07.0	+0.0
	-15° 00.2	-15° 00.9	-15° 01.7	-15° 02.5	-15° 03.3	-15° 04.1	-15° 04.9	-15° 05.6	-15° 06.4	-15° 07.2	-15° 08.0	-15° 08.7	-0.8
Вт 4	274° 07.0	289° 07.0	304° 07.0	319° 07.0	334° 07.0	349° 07.0	4° 07.0	19° 07.0	34° 06.9	49° 06.9	64° 06.9	79° 06.9	-0.0
	-15° 18.8	-15° 19.6	-15° 20.4	-15° 21.1	-15° 21.9	-15° 22.7	-15° 23.4	-15° 24.2	-15° 25.0	-15° 25.7	-15° 26.5	-15° 27.3	-0.8
Ср 5	274° 06.8	289° 06.8	304° 06.7	319° 06.7	334° 06.7	349° 06.7	4° 06.7	19° 06.7	34° 06.6	49° 06.6	64° 06.6	79° 06.6	-0.0
	-15° 37.2	-15° 38.0	-15° 38.7	-15° 39.5	-15° 40.3	-15° 41.0	-15° 41.8	-15° 42.5	-15° 43.3	-15° 44.0	-15° 44.8	-15° 45.6	-0.8
Чт 6	274° 06.3	289° 06.3	304° 06.3	319° 06.3	334° 06.2	349° 06.2	4° 06.2	19° 06.2	34° 06.1	49° 06.1	64° 06.1	79° 06.0	-0.0
	-15° 55.4	-15° 56.1	-15° 56.9	-15° 57.6	-15° 58.4	-15° 59.1	-15° 59.9	-16° 00.6	-16° 01.3	-16° 02.1	-16° 02.8	-16° 03.6	-0.7
Пт 7	274° 05.7	289° 05.6	304° 05.6	319° 05.6	334° 05.5	349° 05.5	4° 05.5	19° 05.4	34° 05.4	49° 05.4	64° 05.3	79° 05.3	-0.0
	-16° 13.2	-16° 14.0	-16° 14.7	-16° 15.5	-16° 16.2	-16° 16.9	-16° 17.7	-16° 18.4	-16° 19.1	-16° 19.9	-16° 20.6	-16° 21.3	-0.7
Сб 8	274° 04.8	289° 04.8	304° 04.7	319° 04.7	334° 04.6	349° 04.6	4° 04.5	19° 04.5	34° 04.5	49° 04.4	64° 04.4	79° 04.3	-0.0
	-16° 30.8	-16° 31.6	-16° 32.3	-16° 33.0	-16° 33.8	-16° 34.5	-16° 35.2	-16° 35.9	-16° 36.7	-16° 37.4	-16° 38.1	-16° 38.8	-0.7
Вс 9	274° 03.7	289° 03.7	304° 03.6	319° 03.6	334° 03.5	349° 03.5	4° 03.4	19° 03.4	34° 03.3	49° 03.2	64° 03.2	79° 03.1	-0.1
	-16° 48.2	-16° 48.9	-16° 49.6	-16° 50.3	-16° 51.0	-16° 51.8	-16° 52.5	-16° 53.2	-16° 53.9	-16° 54.6	-16° 55.3	-16° 56.0	-0.7
Пн 10	274° 02.4	289° 02.3	304° 02.3	319° 02.2	334° 02.2	349° 02.1	4° 02.0	19° 02.0	34° 01.9	49° 01.9	64° 01.8	79° 01.7	-0.1
	-17° 05.2	-17° 05.9	-17° 06.6	-17° 07.3	-17° 08.0	-17° 08.7	-17° 09.4	-17° 10.1	-17° 10.8	-17° 11.5	-17° 12.2	-17° 12.9	-0.7
Вт 11	274° 00.9	289° 00.8	304° 00.8	319° 00.7	334° 00.6	349° 00.5	4° 00.5	19° 00.4	34° 00.3	49° 00.3	64° 00.2	79° 00.1	-0.1
	-17° 22.0	-17° 22.7	-17° 23.4	-17° 24.1	-17° 24.7	-17° 25.4	-17° 26.1	-17° 26.8	-17° 27.5	-17° 28.2	-17° 28.9	-17° 29.6	-0.7
Ср 12	273° 59.2	288° 59.1	303° 59.0	318° 58.9	333° 58.8	348° 58.8	3° 58.7	18° 58.6	33° 58.5	48° 58.4	63° 58.4	78° 58.3	-0.1
	-17° 38.4	-17° 39.1	-17° 39.8	-17° 40.5	-17° 41.2	-17° 41.8	-17° 42.5	-17° 43.2	-17° 43.9	-17° 44.5	-17° 45.2	-17° 45.9	-0.7
Чт 13	273° 57.2	288° 57.1	303° 57.0	318° 56.9	333° 56.9	348° 56.8	3° 56.7	18° 56.6	33° 56.5	48° 56.4	63° 56.3	78° 56.2	-0.1
	-17° 54.6	-17° 55.3	-17° 55.9	-17° 56.6	-17° 57.3	-17° 57.9	-17° 58.6	-17° 59.2	-17° 59.9	-18° 00.6	-18° 01.2	-18° 01.9	-0.7
Пт 14	273° 55.0	288° 54.9	303° 54.9	318° 54.8	333° 54.7	348° 54.6	3° 54.5	18° 54.4	33° 54.3	48° 54.2	63° 54.1	78° 54.0	-0.1
	-18° 10.4	-18° 11.1	-18° 11.7	-18° 12.4	-18° 13.0	-18° 13.7	-18° 14.3	-18° 15.0	-18° 15.6	-18° 16.3	-18° 16.9	-18° 17.6	-0.7
Сб 15	273° 52.7	288° 52.6	303° 52.5	318° 52.4	333° 52.2	348° 52.1	3° 52.0	18° 51.9	33° 51.8	48° 51.7	63° 51.6	78° 51.5	-0.1
	-18° 26.0	-18° 26.6	-18° 27.2	-18° 27.9	-18° 28.5	-18° 29.2	-18° 29.8	-18° 30.4	-18° 31.1	-18° 31.7	-18° 32.3	-18° 33.0	-0.6
Вс 16	273° 50.1	288° 50.0	303° 49.9	318° 49.7	333° 49.6	348° 49.5	3° 49.4	18° 49.3	33° 49.2	48° 49.1	63° 48.9	78° 48.8	-0.1
	-18° 41.2	-18° 41.8	-18° 42.4	-18° 43.0	-18° 43.7	-18° 44.3	-18° 44.9	-18° 45.5	-18° 46.2	-18° 46.8	-18° 47.4	-18° 48.0	-0.6
Пн 17	273° 47.3	288° 47.2	303° 47.0	318° 46.9	333° 46.8	348° 46.7	3° 46.5	18° 46.4	33° 46.3	48° 46.2	63° 46.1	78° 45.9	-0.1
	-18° 56.0	-18° 56.6	-18° 57.3	-18° 57.9	-18° 58.5	-18° 59.1	-18° 59.7	-19° 00.3	-19° 00.9	-19° 01.5	-19° 02.1	-19° 02.7	-0.6
Вт 18	273° 44.3	288° 44.1	303° 44.0	318° 43.9	333° 43.8	348° 43.6	3° 43.5	18° 43.4	33° 43.2	48° 43.1	63° 43.0	78° 42.8	-0.1
	-19° 10.6	-19° 11.2	-19° 11.8	-19° 12.4	-19° 13.0	-19° 13.6	-19° 14.1	-19° 14.7	-19° 15.3	-19° 15.9	-19° 16.5	-19° 17.1	-0.6
Ср 19	273° 41.1	288° 40.9	303° 40.8	318° 40.7	333° 40.5	348° 40.4	3° 40.2	18° 40.1	33° 40.0	48° 39.8	63° 39.7	78° 39.5	-0.1
	-19° 24.8	-19° 25.3	-19° 25.9	-19° 26.5	-19° 27.1	-19° 27.7	-19° 28.3	-19° 28.8	-19° 29.4	-19° 30.0	-19° 30.6	-19° 31.1	-0.6
Чт 20	273° 37.7	288° 37.5	303° 37.4	318° 37.2	333° 37.1	348° 36.9	3° 36.8	18° 36.6	33° 36.5	48° 36.3	63° 36.2	78° 36.0	-0.1
	-19° 38.6	-19° 39.2	-19° 39.7	-19° 40.3	-19° 40.9	-19° 41.4	-19° 42.0	-19° 42.6	-19° 43.1	-19° 43.7	-19° 44.3	-19° 44.8	-0.6
Пт 21	273° 34.1	288° 33.9	303° 33.7	318° 33.6	333° 33.4	348° 33.3	3° 33.1	18° 33.0	33° 32.8	48° 32.7	63° 32.5	78° 32.3	-0.2
	-19° 52.1	-19° 52.6	-19° 53.2	-19° 53.7	-19° 54.3	-19° 54.8	-19° 55.4	-19° 55.9	-19° 56.5	-19° 57.0	-19° 57.6	-19° 58.1	-0.6
Сб 22	273° 30.3	288° 30.1	303° 29.9	318° 29.8	333° 29.6	348° 29.4	3° 29.3	18° 29.1	33° 28.9	48° 28.8	63° 28.6	78° 28.4	-0.2
	-20° 05.2	-20° 05.7	-20° 06.3	-20° 06.8	-20° 07.4	-20° 07.9	-20° 08.4	-20° 09.0	-20° 09.5	-20° 10.0	-20° 10.6	-20° 11.1	-0.5
Вс 23	273° 26.3	288° 26.1	303° 25.9	318° 25.7	333° 25.6	348° 25.4	3° 25.2	18° 25.1	33° 24.9	48° 24.7	63° 24.5	78° 24.4	-0.2
	-20° 18.0	-20° 18.5	-20° 19.0	-20° 19.5	-20° 20.0	-20° 20.6	-20° 21.1	-20° 21.6	-20° 22.1	-20° 22.6	-20° 23.2	-20° 23.7	-0.5
Пн 24	273° 22.1	288° 21.9	303° 21.7	318° 21.5	333° 21.4	348° 21.2	3° 21.0	18° 20.8	33° 20.6	48° 20.5	63° 20.3	78° 20.1	-0.2
	-20° 30.3	-20° 30.8	-20° 31.3	-20° 31.9	-20° 32.4	-20° 32.9	-20° 33.4	-20° 33.9	-20° 34.4	-20° 34.9	-20° 35.4	-20° 35.9	-0.5
Вт 25	273° 17.7	288° 17.5	303° 17.3	318° 17.1	333° 16.9	348° 16.8	3° 16.6	18° 16.4	33° 16.2	48° 16.0	63° 15.8	78° 15.6	-0.2
	-20° 42.3	-20° 42.8	-20° 43.3	-20° 43.8	-20° 44.3	-20° 44.8	-20° 45.3	-20° 45.8	-20° 46.2	-20° 46.7	-20° 47.2	-20° 47.7	-0.5
Ср 26	273° 13.1	288° 12.9	303° 12.7	318° 12.6	333° 12.4	348° 12.2	3° 12.0	18° 11.8	33° 11.6	48° 11.4	63° 11.2	78° 11.0	-0.2
	-20° 53.9	-20° 54.4	-20° 54.9	-20° 55.4	-20° 55.8	-20° 56.3	-20° 56.8	-20° 57.3	-20° 57.7	-20° 58.2	-20° 58.7	-20° 59.1	-0.5
Чт 27	273° 08.4	288° 08.2	303° 08.0	318° 07.8	333° 07.6	348° 07.4	3° 07.2	18° 07.0	33° 06.8	48° 06.6	63° 06.4	78° 06.2	-0.2
	-21° 05.2	-21° 05.6	-21° 06.1	-21° 06.5	-21° 07.0	-21° 07.5	-21° 07.9	-21° 08.4	-21° 08.8	-21° 09.3	-21° 09.7	-21° 10.2	-0.5
Пт 28	273° 03.5	288° 03.3	303° 03.1	318° 02.8	333° 02.6	348° 02.4	3° 02.2	18° 02.0	33° 01.8	48° 01.6	63° 01.4	78° 01.2	-0.2
	-21° 16.0	-21° 16.4	-21° 16.9	-21° 17.3	-21° 17.8	-21° 18.2	-21° 18.6	-21° 19.1	-21° 19.5	-21° 19.9	-21° 20.4	-21° 20.8	-0.4
Сб 29	272° 58.4	287° 58.2	302° 57.9	317° 57.7	332° 57.5	347° 57.3	2° 57.1	17° 56.8	32° 56.6	47° 56.4	62° 56.2	77° 56.0	-0.2
	-21° 26.4	-21° 26.8	-21° 27.3	-21° 27.7	-21° 28.1	-21° 28.5	-21° 29.0	-21° 29.4	-21° 29.8	-21° 30.2	-21° 30.6	-21° 31.1	-0.4
Вс 30	272° 53.1	287° 52.9	302° 52.6	317° 52.4	332° 52.2	347° 52.0	2° 51.8	17° 51.5	32° 51.3	47° 51.1	62° 50.8	77° 50.6	-0.2
	-21° 36.4	-21° 36.8	-21° 37.3	-21° 37.7	-21° 38.1	-21° 38.5	-21° 38.9	-21° 39.3	-21° 39.7	-21° 40.1	-21° 40.5	-21° 40.9	-0.4

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2031

Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
Сб 1	229° 54.2 19° 53.2	244° 23.4 19° 55.6	258° 52.6 19° 57.8	273° 21.8 19° 59.9	287° 51.1 20° 01.9	302° 20.3 20° 03.8	316° 49.6 20° 05.6	331° 18.9 20° 07.3	345° 48.2 20° 08.9	0° 17.6 20° 10.4	14° 46.9 20° 11.7	+29.3 +1.9	15.1 55.5
Вс 2	232° 09.9 20° 20.0	246° 39.6 20° 19.7	261° 09.4 20° 19.3	275° 39.2 20° 18.9	290° 09.0 20° 18.3	304° 38.9 20° 17.6	319° 08.8 20° 16.8	333° 38.7 20° 16.0	348° 08.6 20° 15.0	2° 38.6 20° 13.9	17° 08.6 20° 12.8	+29.9 -0.7	15.0 54.9
Пн 3	234° 42.9 19° 43.6	249° 13.5 19° 40.9	263° 44.1 19° 38.1	278° 14.8 19° 35.2	292° 45.5 19° 32.2	307° 16.2 19° 29.2	321° 47.0 19° 26.0	336° 17.8 19° 22.8	350° 48.6 19° 19.4	5° 19.5 19° 16.0	19° 50.5 19° 12.5	+30.8 -3.1	14.9 54.5
Вт 4	237° 39.3 18° 09.6	252° 10.9 18° 04.7	266° 42.5 17° 59.8	281° 14.1 17° 54.8	295° 45.8 17° 49.7	310° 17.6 17° 44.5	324° 49.4 17° 39.3	339° 21.2 17° 33.9	353° 53.1 17° 28.5	8° 25.0 17° 23.0	22° 56.9 17° 17.5	+31.8 -5.2	14.8 54.2
Ср 5	241° 00.7 15° 45.4	255° 33.2 15° 38.7	270° 05.8 15° 31.9	284° 38.4 15° 25.1	299° 11.1 15° 18.2	313° 43.8 15° 11.2	328° 16.5 15° 04.2	342° 49.3 14° 57.1	357° 22.1 14° 50.0	11° 54.9 14° 42.7	26° 27.8 14° 35.5	+32.7 -7.0	14.8 54.2
Чт 6	244° 44.3 12° 39.1	259° 17.6 12° 30.8	273° 51.0 12° 22.6	288° 24.4 12° 14.3	302° 57.7 12° 05.9	317° 31.2 11° 57.5	332° 04.6 11° 49.0	346° 38.1 11° 40.4	1° 11.6 11° 31.9	15° 45.1 11° 23.2	30° 18.6 11° 14.5	+33.4 -8.5	14.8 54.2
◑ Пт 7	248° 43.5 8° 58.7	263° 17.2 8° 49.3	277° 51.0 8° 39.8	292° 24.8 8° 30.3	306° 58.6 8° 20.8	321° 32.4 8° 11.2	336° 06.2 8° 01.6	350° 40.0 7° 51.9	5° 13.8 7° 42.2	19° 47.6 7° 32.5	34° 21.5 7° 22.8	+33.8 -9.6	14.9 54.5
Сб 8	263° 17.2 8° 49.3	277° 51.0 8° 39.8	292° 24.8 8° 30.3	306° 58.6 8° 20.8	321° 32.4 8° 11.2	336° 06.2 8° 01.6	350° 40.0 7° 51.9	5° 13.8 7° 42.2	19° 47.6 7° 32.5	34° 21.5 7° 22.8	48° 55.3 7° 13.0	+33.8 -9.6	14.9 54.5
Вс 9	267° 22.5 4° 41.9	281° 56.3 4° 31.6	296° 30.0 4° 21.2	311° 03.8 4° 10.9	325° 37.5 4° 00.5	340° 11.2 3° 50.1	354° 44.9 3° 39.6	9° 18.6 3° 29.1	23° 52.3 3° 18.7	38° 26.0 3° 08.1	52° 59.6 2° 57.6	+33.7 -10.4	15.0 55.0
Пн 10	271° 21.9 0° 17.2	285° 55.2 0° 06.4	300° 28.4 -0° 04.4	315° 01.7 -0° 15.3	329° 34.8 -0° 26.1	344° 08.0 -0° 37.0	358° 41.1 -0° 47.9	13° 14.2 -0° 58.7	27° 47.3 -1° 09.6	42° 20.3 -1° 20.5	56° 53.2 -1° 31.4	+33.1 -10.9	15.2 55.6
Вт 11	275° 02.9 -4° 15.1	289° 35.2 -4° 26.0	304° 07.4 -4° 36.9	318° 39.6 -4° 47.7	333° 11.7 -4° 58.6	347° 43.8 -5° 09.4	2° 15.8 -5° 20.3	16° 47.8 -5° 31.1	31° 19.7 -5° 41.9	45° 51.5 -5° 52.7	60° 23.3 -6° 03.5	+32.0 -10.8	15.4 56.4
Ср 12	278° 12.9 -8° 42.9	292° 43.7 -8° 53.4	307° 14.4 -9° 03.7	321° 45.0 -9° 14.1	336° 15.6 -9° 24.4	350° 46.1 -9° 34.7	5° 16.5 -9° 44.9	19° 46.9 -9° 55.2	34° 17.2 -10° 05.3	48° 47.4 -10° 15.5	63° 17.6 -10° 25.6	+30.5 -10.3	15.6 57.2
Чт 13	280° 40.6 -12° 51.2	295° 09.5 -13° 00.5	309° 38.3 -13° 09.7	324° 07.1 -13° 18.9	338° 35.7 -13° 27.9	353° 04.3 -13° 37.0	7° 32.8 -13° 45.9	22° 01.2 -13° 54.8	36° 29.6 -14° 03.6	50° 57.8 -14° 12.4	65° 26.0 -14° 21.1	+28.5 -9.0	15.8 58.0
● Пт 14	282° 19.0 -16° 21.7	296° 45.9 -16° 29.1	311° 12.7 -16° 36.4	325° 39.4 -16° 43.5	340° 06.0 -16° 50.6	354° 32.6 -16° 57.6	8° 59.1 -17° 04.5	23° 25.5 -17° 11.2	37° 51.9 -17° 17.9	52° 18.1 -17° 24.5	66° 44.3 -17° 31.0	+26.5 -9.6	16.0 58.7
Сб 15	283° 08.7 -18° 54.9	297° 33.8 -18° 59.5	311° 58.8 -19° 04.1	326° 23.8 -19° 08.5	340° 48.7 -19° 12.8	355° 13.6 -19° 16.9	9° 38.4 -19° 21.0	24° 03.2 -19° 24.9	38° 27.9 -19° 28.7	52° 52.5 -19° 32.4	67° 17.1 -19° 35.9	+24.8 -4.1	16.2 59.3
Вс 16	283° 21.0 -20° 12.9	297° 45.0 -20° 14.3	312° 08.9 -20° 15.5	326° 32.9 -20° 16.6	340° 56.8 -20° 17.6	355° 20.7 -20° 18.4	9° 44.6 -20° 19.1	24° 08.4 -20° 19.6	38° 32.3 -20° 20.0	52° 56.1 -20° 20.3	67° 19.9 -20° 20.4	+23.9 -0.7	16.3 59.7
Пн 17	283° 16.8 -20° 05.0	297° 40.7 -20° 02.9	312° 04.6 -20° 00.6	326° 28.4 -19° 58.2	340° 52.3 -19° 55.6	355° 16.3 -19° 52.9	9° 40.2 -19° 50.0	24° 04.2 -19° 47.0	38° 28.2 -19° 43.9	52° 52.2 -19° 40.7	67° 16.2 -19° 37.3	+23.9 +2.8	16.3 59.8
Вт 18	283° 21.1 -18° 30.5	297° 45.8 -18° 25.0	312° 10.5 -18° 19.4	326° 35.3 -18° 13.7	341° 00.1 -18° 07.9	355° 25.0 -18° 01.9	9° 49.9 -17° 55.8	24° 14.8 -17° 49.6	38° 39.9 -17° 43.3	53° 04.9 -17° 36.8	67° 30.1 -17° 30.3	+24.9 +6.0	16.3 59.8
Ср 19	283° 54.1 -15° 39.0	298° 20.2 -15° 30.7	312° 46.4 -15° 22.4	327° 12.6 -15° 14.0	341° 38.9 -15° 05.4	356° 05.2 -14° 56.8	10° 31.7 -14° 48.1	24° 58.1 -14° 39.3	39° 24.7 -14° 30.4	53° 51.3 -14° 21.5	68° 18.0 -14° 12.4	+26.4 +8.7	16.3 59.6
Чт 20	285° 05.8 -11° 47.2	299° 33.5 -11° 37.0	314° 01.2 -11° 26.6	328° 29.0 -11° 16.3	342° 56.9 -11° 05.8	357° 24.8 -10° 55.3	11° 52.8 -10° 44.8	26° 20.9 -10° 34.2	40° 49.0 -10° 23.5	55° 17.2 -10° 12.8	69° 45.4 -10° 02.0	+28.0 +10.5	16.2 59.3
◐ Пт 21	286° 55.5 -7° 14.8	301° 24.5 -7° 03.3	315° 53.7 -6° 51.8	330° 22.8 -6° 40.3	344° 52.1 -6° 28.8	359° 21.3 -6° 17.2	13° 50.6 -6° 05.6	28° 20.0 -5° 53.9	42° 49.4 -5° 42.3	57° 18.8 -5° 30.6	71° 48.3 -5° 18.8	+29.3 +11.6	16.0 58.8
Сб 22	289° 15.1 -2° 21.2	303° 45.2 -2° 09.2	318° 15.3 -1° 57.3	332° 45.4 -1° 45.4	347° 15.5 -1° 33.4	1° 45.7 -1° 21.5	16° 15.8 -1° 09.6	30° 46.1 -0° 57.6	45° 16.3 -0° 45.7	59° 46.5 -0° 33.8	74° 16.8 -0° 21.8	+30.2 +11.9	15.9 58.4
Вс 23	291° 53.2 2° 35.8	306° 23.7 2° 47.5	320° 54.3 2° 59.2	335° 24.8 3° 10.9	349° 55.4 3° 22.5	4° 26.0 3° 34.1	18° 56.5 3° 45.7	33° 27.1 3° 57.3	47° 57.7 4° 08.9	62° 28.3 4° 20.4	76° 58.9 4° 31.8	+30.6 +11.6	15.8 57.9
Пн 24	294° 37.8 7° 19.9	309° 08.3 7° 30.8	323° 38.9 7° 41.7	338° 09.4 7° 52.5	352° 40.0 8° 03.2	7° 10.5 8° 13.9	21° 41.1 8° 24.6	36° 11.6 8° 35.2	50° 42.1 8° 45.7	65° 12.6 8° 56.2	79° 43.1 9° 06.7	+30.5 +10.7	15.6 57.4
Вт 25	297° 18.8 11° 36.6	311° 49.1 11° 46.1	326° 19.4 11° 55.5	340° 49.6 12° 04.9	355° 19.8 12° 14.2	9° 50.0 12° 23.4	24° 20.2 12° 32.6	38° 50.3 12° 41.7	53° 20.5 12° 50.7	67° 50.6 12° 59.6	82° 20.7 13° 08.5	+30.2 +9.2	15.5 56.9
Ср 26	299° 50.2 15° 12.5	314° 20.0 15° 20.1	328° 49.8 15° 27.7	343° 19.6 15° 35.1	357° 49.3 15° 42.5	12° 19.1 15° 49.8	26° 48.8 15° 57.0	41° 18.5 16° 04.1	55° 48.2 16° 11.1	70° 17.8 16° 18.1	84° 47.5 16° 24.9	+29.7 +7.2	15.4 56.4
Чт 27	302° 10.5 17° 56.6	316° 40.0 18° 02.0	331° 09.4 18° 07.3	345° 38.8 18° 12.4	0° 08.2 18° 17.5	14° 37.6 18° 22.5	29° 06.9 18° 27.3	43° 36.3 18° 32.1	58° 05.7 18° 36.8	72° 35.0 18° 41.3	87° 04.4 18° 45.8	+29.4 +4.9	15.2 55.9
○ Пт 28	304° 24.1 19° 40.8	318° 53.4 19° 43.6	333° 22.8 19° 46.4	347° 52.1 19° 49.0	2° 21.4 19° 51.5	16° 50.7 19° 54.0	31° 20.1 19° 56.3	45° 49.4 19° 58.5	60° 18.8 20° 00.6	74° 48.1 20° 02.6	89° 17.5 20° 04.6	+29.3 +2.4	15.1 55.4
Сб 29	306° 39.5 20° 20.8	321° 09.1 20° 21.1	335° 38.7 20° 21.2	350° 08.3 20° 21.3	4° 38.0 20° 21.2	19° 07.7 20° 21.1	33° 37.4 20° 20.8	48° 07.1 20° 20.5	62° 36.9 20° 20.0	77° 06.6 20° 19.4	91° 36.4 20° 18.8	+29.7 -0.2	15.0 54.9
Вс 30	309° 06.9 19° 57.1	323° 37.1 19° 54.9	338° 07.5 19° 52.5	352° 37.8 19° 50.1	7° 08.2 19° 47.6	21° 38.6 19° 45.0	36° 09.1 19° 42.3	50° 39.6 19° 39.5	65° 10.1 19° 36.7	79° 40.7 19° 33.7	94° 11.3 19° 30.6	+30.4 -2.6	14.9 54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 7 07h02 — Новолуние: 14 21h09 — Первая четв.: 21 14h44 — Полнолуние: 28 23h18

СОЛНЦЕ

Декабрь 2031

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	272° 47.7	287° 47.4	302° 47.2	317° 47.0	332° 46.7	347° 46.5	2° 46.3	17° 46.0	32° 45.8	47° 45.6	62° 45.3	77° 45.1	-0.2
	-21° 46.0	-21° 46.4	-21° 46.8	-21° 47.2	-21° 47.6	-21° 48.0	-21° 48.4	-21° 48.8	-21° 49.2	-21° 49.5	-21° 49.9	-21° 50.3	-0.4
Вт 2	272° 42.0	287° 41.8	302° 41.6	317° 41.3	332° 41.1	347° 40.9	2° 40.6	17° 40.4	32° 40.1	47° 39.9	62° 39.7	77° 39.4	-0.2
	-21° 55.2	-21° 55.6	-21° 56.0	-21° 56.4	-21° 56.7	-21° 57.1	-21° 57.5	-21° 57.8	-21° 58.2	-21° 58.6	-21° 58.9	-21° 59.3	-0.4
Ср 3	272° 36.3	287° 36.0	302° 35.8	317° 35.5	332° 35.3	347° 35.1	2° 34.8	17° 34.6	32° 34.3	47° 34.1	62° 33.8	77° 33.6	-0.2
	-22° 04.0	-22° 04.4	-22° 04.7	-22° 05.1	-22° 05.4	-22° 05.8	-22° 06.1	-22° 06.5	-22° 06.8	-22° 07.2	-22° 07.5	-22° 07.9	-0.4
Чт 4	272° 30.4	287° 30.1	302° 29.9	317° 29.6	332° 29.4	347° 29.1	2° 28.9	17° 28.6	32° 28.3	47° 28.1	62° 27.8	77° 27.6	-0.3
	-22° 12.4	-22° 12.7	-22° 13.0	-22° 13.4	-22° 13.7	-22° 14.0	-22° 14.4	-22° 14.7	-22° 15.1	-22° 15.4	-22° 15.7	-22° 16.0	-0.3
Пт 5	272° 24.3	287° 24.0	302° 23.8	317° 23.5	332° 23.3	347° 23.0	2° 22.7	17° 22.5	32° 22.2	47° 22.0	62° 21.7	77° 21.5	-0.3
	-22° 20.3	-22° 20.6	-22° 20.9	-22° 21.2	-22° 21.6	-22° 21.9	-22° 22.2	-22° 22.5	-22° 22.8	-22° 23.1	-22° 23.5	-22° 23.8	-0.3
Сб 6	272° 18.1	287° 17.8	302° 17.5	317° 17.3	332° 17.0	347° 16.8	2° 16.5	17° 16.2	32° 16.0	47° 15.7	62° 15.4	77° 15.2	-0.3
	-22° 27.8	-22° 28.1	-22° 28.4	-22° 28.7	-22° 29.0	-22° 29.3	-22° 29.6	-22° 29.9	-22° 30.2	-22° 30.5	-22° 30.8	-22° 31.1	-0.3
Вс 7	272° 11.7	287° 11.4	302° 11.2	317° 10.9	332° 10.6	347° 10.4	2° 10.1	17° 09.8	32° 09.6	47° 09.3	62° 09.0	77° 08.8	-0.3
	-22° 34.8	-22° 35.1	-22° 35.4	-22° 35.7	-22° 35.9	-22° 36.2	-22° 36.5	-22° 36.8	-22° 37.1	-22° 37.3	-22° 37.6	-22° 37.9	-0.3
Пн 8	272° 05.2	287° 05.0	302° 04.7	317° 04.4	332° 04.1	347° 03.9	2° 03.6	17° 03.3	32° 03.0	47° 02.8	62° 02.5	77° 02.2	-0.3
	-22° 41.4	-22° 41.7	-22° 42.0	-22° 42.2	-22° 42.5	-22° 42.7	-22° 43.0	-22° 43.3	-22° 43.5	-22° 43.8	-22° 44.0	-22° 44.3	-0.3
Вт 9	271° 58.6	286° 58.3	301° 58.1	316° 57.8	331° 57.5	346° 57.2	1° 56.9	16° 56.7	31° 56.4	46° 56.1	61° 55.8	76° 55.5	-0.3
	-22° 47.6	-22° 47.8	-22° 48.1	-22° 48.3	-22° 48.6	-22° 48.8	-22° 49.1	-22° 49.3	-22° 49.5	-22° 49.8	-22° 50.0	-22° 50.3	-0.2
Ср 10	271° 51.9	286° 51.6	301° 51.3	316° 51.0	331° 50.8	346° 50.5	1° 50.2	16° 49.9	31° 49.6	46° 49.3	61° 49.1	76° 48.8	-0.3
	-22° 53.3	-22° 53.5	-22° 53.8	-22° 54.0	-22° 54.2	-22° 54.4	-22° 54.7	-22° 54.9	-22° 55.1	-22° 55.3	-22° 55.5	-22° 55.8	-0.2
Чт 11	271° 45.1	286° 44.8	301° 44.5	316° 44.2	331° 43.9	346° 43.6	1° 43.3	16° 43.0	31° 42.8	46° 42.5	61° 42.2	76° 41.9	-0.3
	-22° 58.6	-22° 58.8	-22° 59.0	-22° 59.2	-22° 59.4	-22° 59.6	-22° 59.8	-23° 00.0	-23° 00.2	-23° 00.4	-23° 00.6	-23° 00.8	-0.2
Пт 12	271° 38.1	286° 37.8	301° 37.5	316° 37.2	331° 36.9	346° 36.7	1° 36.4	16° 36.1	31° 35.8	46° 35.5	61° 35.2	76° 34.9	-0.3
	-23° 03.4	-23° 03.6	-23° 03.7	-23° 03.9	-23° 04.1	-23° 04.3	-23° 04.5	-23° 04.7	-23° 04.9	-23° 05.0	-23° 05.2	-23° 05.4	-0.2
Сб 13	271° 31.1	286° 30.8	301° 30.5	316° 30.2	331° 29.9	346° 29.6	1° 29.3	16° 29.0	31° 28.7	46° 28.4	61° 28.1	76° 27.8	-0.3
	-23° 07.7	-23° 07.9	-23° 08.1	-23° 08.2	-23° 08.4	-23° 08.6	-23° 08.7	-23° 08.9	-23° 09.1	-23° 09.2	-23° 09.4	-23° 09.6	-0.2
Вс 14	271° 24.0	286° 23.7	301° 23.4	316° 23.1	331° 22.8	346° 22.5	1° 22.2	16° 21.9	31° 21.6	46° 21.3	61° 21.0	76° 20.7	-0.3
	-23° 11.6	-23° 11.8	-23° 11.9	-23° 12.1	-23° 12.2	-23° 12.4	-23° 12.5	-23° 12.7	-23° 12.8	-23° 12.9	-23° 13.1	-23° 13.2	-0.1
Пн 15	271° 16.8	286° 16.5	301° 16.2	316° 15.9	331° 15.6	346° 15.3	1° 15.0	16° 14.7	31° 14.4	46° 14.1	61° 13.8	76° 13.5	-0.3
	-23° 15.0	-23° 15.2	-23° 15.3	-23° 15.4	-23° 15.6	-23° 15.7	-23° 15.8	-23° 15.9	-23° 16.1	-23° 16.2	-23° 16.3	-23° 16.5	-0.1
Вт 16	271° 09.5	286° 09.2	301° 08.9	316° 08.6	331° 08.3	346° 08.0	1° 07.7	16° 07.4	31° 07.1	46° 06.8	61° 06.5	76° 06.2	-0.3
	-23° 18.0	-23° 18.1	-23° 18.2	-23° 18.3	-23° 18.4	-23° 18.6	-23° 18.7	-23° 18.8	-23° 18.9	-23° 19.0	-23° 19.1	-23° 19.2	-0.1
Ср 17	271° 02.2	286° 01.9	301° 01.6	316° 01.3	331° 01.0	346° 00.7	1° 00.4	16° 00.1	30° 59.8	45° 59.4	60° 59.1	75° 58.8	-0.3
	-23° 20.5	-23° 20.6	-23° 20.7	-23° 20.8	-23° 20.9	-23° 21.0	-23° 21.1	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.5	-0.1
Чт 18	270° 54.8	285° 54.5	300° 54.2	315° 53.9	330° 53.6	345° 53.3	0° 53.0	15° 52.7	30° 52.4	45° 52.1	60° 51.8	75° 51.5	-0.3
	-23° 22.5	-23° 22.6	-23° 22.7	-23° 22.8	-23° 22.8	-23° 22.9	-23° 23.0	-23° 23.0	-23° 23.1	-23° 23.2	-23° 23.2	-23° 23.3	-0.1
Пт 19	270° 47.4	285° 47.1	300° 46.8	315° 46.5	330° 46.2	345° 45.9	0° 45.6	15° 45.3	30° 45.0	45° 44.7	60° 44.4	75° 44.0	-0.3
	-23° 24.1	-23° 24.2	-23° 24.2	-23° 24.3	-23° 24.3	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-23° 24.7	-0.1
Сб 20	270° 40.0	285° 39.7	300° 39.4	315° 39.1	330° 38.8	345° 38.5	0° 38.2	15° 37.9	30° 37.5	45° 37.2	60° 36.9	75° 36.6	-0.3
	-23° 25.2	-23° 25.2	-23° 25.3	-23° 25.3	-23° 25.3	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-0.0
Вс 21	270° 32.6	285° 32.3	300° 32.0	315° 31.6	330° 31.3	345° 31.0	0° 30.7	15° 30.4	30° 30.1	45° 29.8	60° 29.5	75° 29.2	-0.3
	-23° 25.8	-23° 25.8	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 26.0	-0.0
Пн 22	270° 25.1	285° 24.8	300° 24.5	315° 24.2	330° 23.9	345° 23.6	0° 23.3	15° 22.9	30° 22.6	45° 22.3	60° 22.0	75° 21.7	-0.3
	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	+0.0
Вт 23	270° 17.7	285° 17.4	300° 17.0	315° 16.7	330° 16.4	345° 16.1	0° 15.8	15° 15.5	30° 15.2	45° 14.9	60° 14.6	75° 14.3	-0.3
	-23° 25.7	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.4	-23° 25.4	-23° 25.4	+0.0
Ср 24	270° 10.2	285° 09.9	300° 09.6	315° 09.3	330° 09.0	345° 08.7	0° 08.4	15° 08.0	30° 07.7	45° 07.4	60° 07.1	75° 06.8	-0.3
	-23° 24.9	-23° 24.8	-23° 24.8	-23° 24.8	-23° 24.7	-23° 24.7	-23° 24.6	-23° 24.6	-23° 24.5	-23° 24.5	-23° 24.4	-23° 24.4	+0.0
Чт 25	270° 02.8	285° 02.5	300° 02.2	315° 01.9	330° 01.5	345° 01.2	0° 00.9	15° 00.6	30° 00.3	45° 00.0	59° 59.7	74° 59.4	-0.3
	-23° 23.6	-23° 23.6	-23° 23.5	-23° 23.4	-23° 23.4	-23° 23.3	-23° 23.2	-23° 23.2	-23° 23.1	-23° 23.0	-23° 23.0	-23° 22.9	+0.1
Пт 26	269° 55.4	284° 55.1	299° 54.7	314° 54.4	329° 54.1	344° 53.8	359° 53.5	14° 53.2	29° 52.9	44° 52.6	59° 52.3	74° 52.0	-0.3
	-23° 21.9	-23° 21.8	-23° 21.7	-23° 21.7	-23° 21.6	-23° 21.5	-23° 21.4	-23° 21.3	-23° 21.2	-23° 21.1	-23° 21.0	-23° 21.0	+0.1
Сб 27	269° 48.0	284° 47.7	299° 47.4	314° 47.1	329° 46.8	344° 46.4	359° 46.1	14° 45.8	29° 45.5	44° 45.2	59° 44.9	74° 44.6	-0.3
	-23° 19.7	-23° 19.6	-23° 19.5	-23° 19.4	-23° 19.3	-23° 19.2	-23° 19.1	-23° 19.0	-23° 18.9	-23° 18.8	-23° 18.7	-23° 18.5	+0.1
Вс 28	269° 40.6	284° 40.3	299° 40.0	314° 39.7	329° 39.4	344° 39.1	359° 38.8	14° 38.5	29° 38.2	44° 37.9	59° 37.6	74° 37.3	-0.3
	-23° 17.0	-23° 16.9	-23° 16.8	-23° 16.7	-23° 16.6	-23° 16.4	-23° 16.3	-23° 16.2	-23° 16.1	-23° 15.9	-23° 15.8	-23° 15.7	+0.1
Пн 29	269° 33.3	284° 33.0	299° 32.7	314° 32.4	329° 32.1	344° 31.8	359° 31.5	14° 31.2	29° 30.9	44° 30.6	59° 30.3	74° 30.0	-0.3
	-23° 13.9	-23° 13.8	-23° 13.6	-23° 13.5	-23° 13.4	-23° 13.2	-23° 13.1	-23° 12.9	-23° 12.8	-23° 12.6	-23° 12.5	-23° 12.3	+0.1
Вт 30	269° 26.1	284° 25.8	299° 25.5	314° 25.2	329° 24.9	344° 24.6	359° 24.3	14° 24.0	29° 23.7	44° 23.4	59° 23.1	74° 22.8	-0.3
	-23° 10.3	-23° 10.2	-23° 10.0	-23° 09.8	-23° 09.7	-23° 09.5	-23° 09.4	-23° 09.2	-23° 09.0	-23° 08.9	-23° 08.7	-23° 08.5	+0.2
Ср 31	269° 18.9	284° 18.6	299° 18.3	314° 18.0	329° 17.7	344° 17.4	359° 17.1	14° 16.8	29° 16.5	44° 16.2	59° 15.9	74° 15.6	-0.3
	-23° 06.3	-23° 06.1	-23° 05.9	-23° 05.7	-23° 05.5	-23° 05.4	-23° 05.2	-23° 05.0	-23° 04.8	-23° 04.6	-23° 04.4	-23° 04.3	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Декабрь 2031

Д	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	R/p
Пн 1	239° 19.4	253° 50.5	268° 21.6	282° 52.7	297° 23.8	311° 55.0	326° 26.3	340° 57.6	355° 28.9	10° 00.3	24° 31.7	+31.2	14.8
	18° 55.1	18° 51.0	18° 46.9	18° 42.7	18° 38.4	18° 34.0	18° 29.6	18° 25.0	18° 20.4	18° 15.7	18° 10.9	-4.4	54.3
Вт 2	242° 28.0	257° 00.1	271° 32.2	286° 04.4	300° 36.6	315° 08.9	329° 41.2	344° 13.5	358° 45.9	13° 18.3	27° 50.8	+32.3	14.8
	16° 49.7	16° 43.7	16° 37.6	16° 31.5	16° 25.2	16° 18.9	16° 12.6	16° 06.1	15° 59.6	15° 53.1	15° 46.4	-6.3	54.1
Ср 3	246° 02.4	260° 35.5	275° 08.6	289° 41.8	304° 14.9	318° 48.2	333° 21.4	347° 54.7	2° 28.0	17° 01.4	31° 34.7	+33.2	14.7
	13° 59.2	13° 51.6	13° 43.9	13° 36.1	13° 28.3	13° 20.4	13° 12.5	13° 04.6	12° 56.5	12° 48.5	12° 40.3	-7.9	54.0
Чт 4	249° 58.9	264° 32.7	279° 06.5	293° 40.4	308° 14.3	322° 48.2	337° 22.1	351° 56.0	6° 30.0	21° 04.0	35° 38.0	+33.9	14.8
	10° 32.4	10° 23.5	10° 14.5	10° 05.5	9° 56.5	9° 47.4	9° 38.3	9° 29.1	9° 19.9	9° 10.7	9° 01.4	-9.1	54.1
Пт 5	254° 09.5	268° 43.7	283° 17.9	297° 52.1	312° 26.3	327° 00.5	341° 34.7	356° 08.9	10° 43.1	25° 17.3	39° 51.5	+34.2	14.8
	6° 37.9	6° 28.0	6° 18.1	6° 08.2	5° 58.3	5° 48.4	5° 38.4	5° 28.4	5° 18.3	5° 08.2	4° 58.2	-10.0	54.4
Сб 6	258° 23.8	272° 57.9	287° 31.9	302° 06.0	316° 40.0	331° 14.0	345° 48.0	0° 22.0	14° 55.9	29° 29.9	44° 03.8	+34.0	15.0
	2° 23.9	2° 13.5	2° 03.0	1° 52.5	1° 42.1	1° 31.5	1° 21.0	1° 10.5	0° 59.9	0° 49.4	0° 38.8	-10.5	54.9
◑ Вс 7	272° 57.9	287° 31.9	302° 06.0	316° 40.0	331° 14.0	345° 48.0	0° 22.0	14° 55.9	29° 29.9	44° 03.8	58° 37.6	+34.0	15.0
	2° 13.5	2° 03.0	1° 52.5	1° 42.1	1° 31.5	1° 21.0	1° 10.5	0° 59.9	0° 49.4	0° 38.8	0° 28.2	-10.5	54.9
Пн 8	277° 02.6	291° 36.0	306° 09.3	320° 42.6	335° 15.9	349° 49.2	4° 22.4	18° 55.5	33° 28.6	48° 01.7	62° 34.7	+33.2	15.2
	-2° 11.6	-2° 22.3	-2° 33.0	-2° 43.7	-2° 54.4	-3° 05.1	-3° 15.8	-3° 26.5	-3° 37.2	-3° 47.9	-3° 58.5	-10.7	55.6
Вт 9	280° 44.0	295° 16.1	309° 48.3	324° 20.3	338° 52.3	353° 24.2	7° 56.1	22° 27.9	36° 59.6	51° 31.3	66° 02.9	+31.9	15.4
	-6° 37.7	-6° 48.2	-6° 58.7	-7° 09.1	-7° 19.6	-7° 30.0	-7° 40.4	-7° 50.8	-8° 01.1	-8° 11.5	-8° 21.8	-10.4	56.4
Ср 10	283° 48.2	298° 18.6	312° 48.9	327° 19.2	341° 49.3	356° 19.4	10° 49.4	25° 19.3	39° 49.2	54° 18.9	68° 48.6	+30.0	15.6
	-10° 52.7	-11° 02.5	-11° 12.2	-11° 21.9	-11° 31.5	-11° 41.1	-11° 50.7	-12° 00.2	-12° 09.6	-12° 19.0	-12° 28.4	-9.6	57.3
Чт 11	286° 03.0	300° 31.2	314° 59.3	329° 27.4	343° 55.4	358° 23.2	12° 51.0	27° 18.7	41° 46.3	56° 13.8	70° 41.2	+27.8	15.9
	-14° 41.5	-14° 49.9	-14° 58.2	-15° 06.4	-15° 14.5	-15° 22.6	-15° 30.6	-15° 38.5	-15° 46.3	-15° 54.0	-16° 01.7	-8.0	58.2
Пт 12	287° 21.2	301° 47.2	316° 13.0	330° 38.8	345° 04.5	359° 30.1	13° 55.6	28° 21.0	42° 46.4	57° 11.6	71° 36.8	+25.6	16.1
	-17° 45.6	-17° 51.7	-17° 57.8	-18° 03.7	-18° 09.5	-18° 15.2	-18° 20.8	-18° 26.3	-18° 31.7	-18° 36.9	-18° 42.1	-5.7	59.2
Сб 13	287° 45.3	302° 09.3	316° 33.2	330° 57.1	345° 20.9	359° 44.6	14° 08.3	28° 32.0	42° 55.6	57° 19.1	71° 42.6	+23.7	16.3
	-19° 44.6	-19° 47.8	-19° 50.8	-19° 53.7	-19° 56.4	-19° 59.0	-20° 01.5	-20° 03.8	-20° 06.0	-20° 08.0	-20° 09.9	-2.5	59.9
● Вс 14	287° 30.0	301° 52.9	316° 15.8	330° 38.7	345° 01.6	359° 24.4	13° 47.3	28° 10.1	42° 32.9	56° 55.7	71° 18.5	+22.8	16.5
	-20° 21.2	-20° 20.8	-20° 20.2	-20° 19.5	-20° 18.6	-20° 17.6	-20° 16.5	-20° 15.1	-20° 13.7	-20° 12.1	-20° 10.3	+1.1	60.5
Пн 15	287° 01.4	301° 24.4	315° 47.4	330° 10.5	344° 33.5	358° 56.6	13° 19.8	27° 43.0	42° 06.2	56° 29.4	70° 52.7	+23.1	16.6
	-19° 26.2	-19° 22.1	-19° 17.9	-19° 13.5	-19° 09.0	-19° 04.3	-18° 59.5	-18° 54.6	-18° 49.5	-18° 44.3	-18° 38.9	+4.7	60.7
Вт 16	286° 47.8	301° 11.9	315° 36.1	330° 00.3	344° 24.6	358° 49.0	13° 13.4	27° 37.9	42° 02.4	56° 27.1	70° 51.7	+24.4	16.5
	-17° 03.1	-16° 55.7	-16° 48.2	-16° 40.6	-16° 32.8	-16° 25.0	-16° 17.0	-16° 09.0	-16° 00.8	-15° 52.5	-15° 44.1	+7.9	60.7
Ср 17	287° 10.3	301° 36.2	316° 02.0	330° 28.0	344° 54.0	359° 20.1	13° 46.3	28° 12.6	42° 38.9	57° 05.3	71° 31.7	+26.1	16.5
	-13° 26.6	-13° 16.8	-13° 06.8	-12° 56.7	-12° 46.6	-12° 36.4	-12° 26.2	-12° 15.8	-12° 05.4	-11° 54.9	-11° 44.4	+10.2	60.4
Чт 18	288° 17.3	302° 44.8	317° 12.5	331° 40.2	346° 08.0	0° 35.9	15° 03.8	29° 31.8	43° 59.8	58° 27.9	72° 56.1	+27.9	16.3
	-8° 58.9	-8° 47.4	-8° 35.9	-8° 24.4	-8° 12.8	-8° 01.2	-7° 49.6	-7° 37.9	-7° 26.2	-7° 14.4	-7° 02.7	+11.6	59.8
Пт 19	290° 05.5	304° 34.6	319° 03.7	333° 32.9	348° 02.1	2° 31.3	17° 00.7	31° 30.0	45° 59.4	60° 28.8	74° 58.3	+29.3	16.1
	-4° 03.1	-3° 51.0	-3° 38.9	-3° 26.7	-3° 14.6	-3° 02.5	-2° 50.3	-2° 38.2	-2° 26.0	-2° 13.9	-2° 01.8	+12.1	59.1
Сб 20	292° 25.2	306° 55.2	321° 25.3	335° 55.5	350° 25.6	4° 55.8	19° 26.0	33° 56.2	48° 26.4	62° 56.7	77° 27.0	+30.2	15.9
	0° 59.6	1° 11.6	1° 23.6	1° 35.5	1° 47.4	1° 59.3	2° 11.2	2° 23.1	2° 34.9	2° 46.7	2° 58.5	+11.9	58.4
◐ Вс 21	295° 03.6	309° 34.2	324° 04.7	338° 35.3	353° 05.9	7° 36.5	22° 07.1	36° 37.7	51° 08.3	65° 38.9	80° 09.5	+30.6	15.7
	5° 51.4	6° 02.6	6° 13.8	6° 24.9	6° 36.0	6° 47.1	6° 58.1	7° 09.1	7° 20.0	7° 30.8	7° 41.7	+11.0	57.6
Пн 22	297° 48.8	312° 19.5	326° 50.1	341° 20.6	355° 51.2	10° 21.8	24° 52.4	39° 23.0	53° 53.5	68° 24.1	82° 54.6	+30.6	15.5
	10° 17.6	10° 27.5	10° 37.4	10° 47.2	10° 56.9	11° 06.6	11° 16.2	11° 25.8	11° 35.3	11° 44.7	11° 54.0	+9.7	56.9
Вт 23	300° 31.5	315° 01.9	329° 32.2	344° 02.6	358° 32.9	13° 03.2	27° 33.5	42° 03.8	56° 34.0	71° 04.3	85° 34.5	+30.3	15.4
	14° 05.9	14° 14.1	14° 22.2	14° 30.2	14° 38.2	14° 46.1	14° 53.9	15° 01.6	15° 09.2	15° 16.8	15° 24.3	+7.8	56.3
Ср 24	303° 06.4	317° 36.4	332° 06.4	346° 36.4	1° 06.4	15° 36.4	30° 06.3	44° 36.3	59° 06.2	73° 36.1	88° 06.0	+30.0	15.2
	17° 06.2	17° 12.3	17° 18.3	17° 24.2	17° 30.0	17° 35.7	17° 41.4	17° 46.9	17° 52.4	17° 57.7	18° 03.0	+5.7	55.7
Чт 25	305° 33.4	320° 03.2	334° 33.0	349° 02.7	3° 32.5	18° 02.2	32° 32.0	47° 01.7	61° 31.4	76° 01.2	90° 30.9	+29.7	15.1
	19° 10.4	19° 14.2	19° 17.8	19° 21.3	19° 24.7	19° 28.1	19° 31.3	19° 34.4	19° 37.4	19° 40.4	19° 43.2	+3.3	55.2
Пт 26	307° 57.2	322° 27.0	336° 56.8	351° 26.7	5° 56.5	20° 26.3	34° 56.2	49° 26.0	63° 55.9	78° 25.8	92° 55.7	+29.8	15.0
	20° 13.5	20° 14.7	20° 15.8	20° 16.9	20° 17.8	20° 18.6	20° 19.3	20° 19.9	20° 20.4	20° 20.8	20° 21.1	+0.8	54.8
Сб 27	310° 26.1	324° 56.3	339° 26.5	353° 56.7	8° 27.0	22° 57.3	37° 27.6	51° 57.9	66° 28.3	80° 58.7	95° 29.1	+30.3	14.9
	20° 13.8	20° 12.5	20° 11.1	20° 09.6	20° 08.1	20° 06.4	20° 04.6	20° 02.8	20° 00.8	19° 58.8	19° 56.6	-1.7	54.5
○ Вс 28	313° 09.1	327° 40.0	342° 10.9	356° 41.9	11° 13.0	25° 44.0	40° 15.1	54° 46.3	69° 17.5	83° 48.7	98° 19.9	+31.1	14.8
	19° 13.4	19° 09.8	19° 06.1	19° 02.3	18° 58.4	18° 54.5	18° 50.4	18° 46.3	18° 42.1	18° 37.8	18° 33.4	-4.0	54.2
Пн 29	316° 13.3	330° 45.2	345° 17.1	359° 49.0	14° 21.0	28° 53.0	43° 25.1	57° 57.2	72° 29.4	87° 01.6	101° 33.8	+32.1	14.7
	17° 18.0	17° 12.3	17° 06.6	17° 00.8	16° 54.9	16° 49.0	16° 43.0	16° 36.9	16° 30.7	16° 24.5	16° 18.2	-6.0	54.0
Вт 30	319° 42.0	334° 14.8	348° 47.7	3° 20.7	17° 53.6	32° 26.6	46° 59.7	61° 32.7	76° 05.8	90° 39.0	105° 12.2	+33.0	14.7
	14° 35.5	14° 28.2	14° 20.8	14° 13.3	14° 05.8	13° 58.2	13° 50.5	13° 42.8	13° 35.1	13° 27.3	13° 19.4	-7.6	53.9
Ср 31	334° 14.8	348° 47.7	3° 20.7	17° 53.6	32° 26.6	46° 59.7	61° 32.7	76° 05.8	90° 39.0	105° 12.2	119° 45.4	+33.1	14.7
	14° 28.2	14° 20.8	14° 13.3	14° 05.8	13° 58.2	13° 50.5	13° 42.8	13° 35.1	13° 27.3	13° 19.4	13° 11.5	-7.7	53.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Последняя четв.: 7 03h19 — Новолуние: 14 09h05 — Первая четв.: 21 00h00 — Полнолуние: 28 17h33

СОЛНЦЕ

Январь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 11.7	284° 11.4	299° 11.1	314° 10.8	329° 10.6	344° 10.3	359° 10.0	14° 09.7	29° 09.4	44° 09.1	59° 08.8	74° 08.5	-0.3
	-23° 01.7	-23° 01.6	-23° 01.4	-23° 01.2	-23° 01.0	-23° 00.7	-23° 00.5	-23° 00.3	-23° 00.1	-22° 59.9	-22° 59.7	-22° 59.5	+0.2
Пт 2	269° 04.7	284° 04.4	299° 04.1	314° 03.8	329° 03.5	344° 03.2	359° 02.9	14° 02.6	29° 02.3	44° 02.0	59° 01.8	74° 01.5	-0.3
	-22° 56.8	-22° 56.6	-22° 56.3	-22° 56.1	-22° 55.9	-22° 55.7	-22° 55.5	-22° 55.2	-22° 55.0	-22° 54.8	-22° 54.6	-22° 54.3	+0.2
Сб 3	268° 57.7	283° 57.4	298° 57.1	313° 56.8	328° 56.5	343° 56.3	358° 56.0	13° 55.7	28° 55.4	43° 55.1	58° 54.8	73° 54.5	-0.3
	-22° 51.3	-22° 51.1	-22° 50.9	-22° 50.6	-22° 50.4	-22° 50.1	-22° 49.9	-22° 49.7	-22° 49.4	-22° 49.2	-22° 48.9	-22° 48.7	+0.2
Вс 4	268° 50.8	283° 50.5	298° 50.2	313° 50.0	328° 49.7	343° 49.4	358° 49.1	13° 48.8	28° 48.5	43° 48.2	58° 48.0	73° 47.7	-0.3
	-22° 45.4	-22° 45.2	-22° 44.9	-22° 44.7	-22° 44.4	-22° 44.2	-22° 43.9	-22° 43.6	-22° 43.4	-22° 43.1	-22° 42.8	-22° 42.6	+0.3
Пн 5	268° 44.0	283° 43.7	298° 43.4	313° 43.2	328° 42.9	343° 42.6	358° 42.3	13° 42.0	28° 41.8	43° 41.5	58° 41.2	73° 40.9	-0.3
	-22° 39.1	-22° 38.8	-22° 38.5	-22° 38.3	-22° 38.0	-22° 37.7	-22° 37.4	-22° 37.2	-22° 36.9	-22° 36.6	-22° 36.3	-22° 36.0	+0.3
Вт 6	268° 37.3	283° 37.0	298° 36.8	313° 36.5	328° 36.2	343° 35.9	358° 35.7	13° 35.4	28° 35.1	43° 34.8	58° 34.6	73° 34.3	-0.3
	-22° 32.3	-22° 32.0	-22° 31.7	-22° 31.4	-22° 31.1	-22° 30.8	-22° 30.5	-22° 30.2	-22° 29.9	-22° 29.6	-22° 29.3	-22° 29.0	+0.3
Ср 7	268° 30.7	283° 30.5	298° 30.2	313° 29.9	328° 29.6	343° 29.4	358° 29.1	13° 28.8	28° 28.6	43° 28.3	58° 28.0	73° 27.7	-0.3
	-22° 25.0	-22° 24.7	-22° 24.4	-22° 24.1	-22° 23.8	-22° 23.5	-22° 23.2	-22° 22.9	-22° 22.5	-22° 22.2	-22° 21.9	-22° 21.6	+0.3
Чт 8	268° 24.2	283° 24.0	298° 23.7	313° 23.4	328° 23.2	343° 22.9	358° 22.6	13° 22.4	28° 22.1	43° 21.9	58° 21.6	73° 21.3	-0.3
	-22° 17.4	-22° 17.0	-22° 16.7	-22° 16.4	-22° 16.0	-22° 15.7	-22° 15.4	-22° 15.0	-22° 14.7	-22° 14.4	-22° 14.0	-22° 13.7	+0.3
Пт 9	268° 17.9	283° 17.6	298° 17.4	313° 17.1	328° 16.8	343° 16.6	358° 16.3	13° 16.1	28° 15.8	43° 15.5	58° 15.3	73° 15.0	-0.3
	-22° 09.2	-22° 08.9	-22° 08.5	-22° 08.2	-22° 07.8	-22° 07.5	-22° 07.1	-22° 06.8	-22° 06.4	-22° 06.1	-22° 05.7	-22° 05.4	+0.4
Сб 10	268° 11.7	283° 11.4	298° 11.2	313° 10.9	328° 10.6	343° 10.4	358° 10.1	13° 09.9	28° 09.6	43° 09.4	58° 09.1	73° 08.9	-0.3
	-22° 00.7	-22° 00.3	-21° 59.9	-21° 59.6	-21° 59.2	-21° 58.8	-21° 58.5	-21° 58.1	-21° 57.7	-21° 57.4	-21° 57.0	-21° 56.6	+0.4
Вс 11	268° 05.6	283° 05.3	298° 05.1	313° 04.8	328° 04.6	343° 04.3	358° 04.1	13° 03.8	28° 03.6	43° 03.3	58° 03.1	73° 02.8	-0.2
	-21° 51.7	-21° 51.3	-21° 50.9	-21° 50.5	-21° 50.1	-21° 49.8	-21° 49.4	-21° 49.0	-21° 48.6	-21° 48.2	-21° 47.8	-21° 47.4	+0.4
Пн 12	267° 59.6	282° 59.4	297° 59.1	312° 58.9	327° 58.7	342° 58.4	357° 58.2	12° 57.9	27° 57.7	42° 57.4	57° 57.2	72° 57.0	-0.2
	-21° 42.3	-21° 41.9	-21° 41.5	-21° 41.1	-21° 40.7	-21° 40.3	-21° 39.9	-21° 39.4	-21° 39.0	-21° 38.6	-21° 38.2	-21° 37.8	+0.4
Вт 13	267° 53.8	282° 53.6	297° 53.4	312° 53.1	327° 52.9	342° 52.6	357° 52.4	12° 52.2	27° 51.9	42° 51.7	57° 51.5	72° 51.2	-0.2
	-21° 32.4	-21° 32.0	-21° 31.6	-21° 31.2	-21° 30.8	-21° 30.3	-21° 29.9	-21° 29.5	-21° 29.1	-21° 28.6	-21° 28.2	-21° 27.8	+0.4
Ср 14	267° 48.2	282° 48.0	297° 47.7	312° 47.5	327° 47.3	342° 47.0	357° 46.8	12° 46.6	27° 46.3	42° 46.1	57° 45.9	72° 45.7	-0.2
	-21° 22.2	-21° 21.7	-21° 21.3	-21° 20.9	-21° 20.4	-21° 20.0	-21° 19.6	-21° 19.1	-21° 18.7	-21° 18.2	-21° 17.8	-21° 17.3	+0.4
Чт 15	267° 42.7	282° 42.5	297° 42.3	312° 42.0	327° 41.8	342° 41.6	357° 41.4	12° 41.1	27° 40.9	42° 40.7	57° 40.5	72° 40.3	-0.2
	-21° 11.5	-21° 11.1	-21° 10.6	-21° 10.2	-21° 09.7	-21° 09.2	-21° 08.8	-21° 08.3	-21° 07.9	-21° 07.4	-21° 07.0	-21° 06.5	+0.5
Пт 16	267° 37.4	282° 37.2	297° 37.0	312° 36.7	327° 36.5	342° 36.3	357° 36.1	12° 35.9	27° 35.7	42° 35.5	57° 35.2	72° 35.0	-0.2
	-21° 00.4	-21° 00.0	-20° 59.5	-20° 59.0	-20° 58.6	-20° 58.1	-20° 57.6	-20° 57.1	-20° 56.7	-20° 56.2	-20° 55.7	-20° 55.2	+0.5
Сб 17	267° 32.3	282° 32.1	297° 31.8	312° 31.6	327° 31.4	342° 31.2	357° 31.0	12° 30.8	27° 30.6	42° 30.4	57° 30.2	72° 30.0	-0.2
	-20° 49.0	-20° 48.5	-20° 48.0	-20° 47.5	-20° 47.0	-20° 46.5	-20° 46.0	-20° 45.6	-20° 45.1	-20° 44.6	-20° 44.1	-20° 43.6	+0.5
Вс 18	267° 27.3	282° 27.1	297° 26.9	312° 26.7	327° 26.5	342° 26.3	357° 26.1	12° 25.9	27° 25.7	42° 25.5	57° 25.3	72° 25.1	-0.2
	-20° 37.1	-20° 36.6	-20° 36.1	-20° 35.6	-20° 35.1	-20° 34.6	-20° 34.1	-20° 33.6	-20° 33.1	-20° 32.6	-20° 32.0	-20° 31.5	+0.5
Пн 19	267° 22.5	282° 22.3	297° 22.1	312° 21.9	327° 21.8	342° 21.6	357° 21.4	12° 21.2	27° 21.0	42° 20.8	57° 20.6	72° 20.4	-0.2
	-20° 24.9	-20° 24.3	-20° 23.8	-20° 23.3	-20° 22.8	-20° 22.3	-20° 21.7	-20° 21.2	-20° 20.7	-20° 20.2	-20° 19.6	-20° 19.1	+0.5
Вт 20	267° 17.9	282° 17.8	297° 17.6	312° 17.4	327° 17.2	342° 17.0	357° 16.8	12° 16.6	27° 16.5	42° 16.3	57° 16.1	72° 15.9	-0.2
	-20° 12.2	-20° 11.7	-20° 11.1	-20° 10.6	-20° 10.1	-20° 09.5	-20° 09.0	-20° 08.5	-20° 07.9	-20° 07.4	-20° 06.8	-20° 06.3	+0.5
Ср 21	267° 13.6	282° 13.4	297° 13.2	312° 13.0	327° 12.8	342° 12.7	357° 12.5	12° 12.3	27° 12.1	42° 12.0	57° 11.8	72° 11.6	-0.2
	-19° 59.2	-19° 58.6	-19° 58.1	-19° 57.5	-19° 57.0	-19° 56.4	-19° 55.9	-19° 55.3	-19° 54.8	-19° 54.2	-19° 53.7	-19° 53.1	+0.6
Чт 22	267° 09.3	282° 09.2	297° 09.0	312° 08.8	327° 08.7	342° 08.5	357° 08.3	12° 08.2	27° 08.0	42° 07.8	57° 07.7	72° 07.5	-0.2
	-19° 45.8	-19° 45.2	-19° 44.7	-19° 44.1	-19° 43.5	-19° 43.0	-19° 42.4	-19° 41.8	-19° 41.3	-19° 40.7	-19° 40.1	-19° 39.5	+0.6
Пт 23	267° 05.3	282° 05.2	297° 05.0	312° 04.9	327° 04.7	342° 04.5	357° 04.4	12° 04.2	27° 04.0	42° 03.9	57° 03.7	72° 03.6	-0.2
	-19° 32.0	-19° 31.5	-19° 30.9	-19° 30.3	-19° 29.7	-19° 29.1	-19° 28.5	-19° 28.0	-19° 27.4	-19° 26.8	-19° 26.2	-19° 25.6	+0.6
Сб 24	267° 01.5	282° 01.4	297° 01.2	312° 01.1	327° 00.9	342° 00.8	357° 00.6	12° 00.5	27° 00.3	42° 00.1	57° 00.0	71° 59.8	-0.2
	-19° 17.9	-19° 17.3	-19° 16.7	-19° 16.1	-19° 15.5	-19° 14.9	-19° 14.3	-19° 13.7	-19° 13.1	-19° 12.5	-19° 11.9	-19° 11.3	+0.6
Вс 25	266° 57.9	281° 57.8	296° 57.6	311° 57.5	326° 57.3	341° 57.2	356° 57.0	11° 56.9	26° 56.8	41° 56.6	56° 56.5	71° 56.3	-0.1
	-19° 03.4	-19° 02.8	-19° 02.2	-19° 01.6	-19° 01.0	-19° 00.4	-18° 59.8	-18° 59.2	-18° 58.5	-18° 57.9	-18° 57.3	-18° 56.7	+0.6
Пн 26	266° 54.5	281° 54.4	296° 54.2	311° 54.1	326° 54.0	341° 53.8	356° 53.7	11° 53.5	26° 53.4	41° 53.3	56° 53.1	71° 53.0	-0.1
	-18° 48.6	-18° 48.0	-18° 47.4	-18° 46.7	-18° 46.1	-18° 45.5	-18° 44.9	-18° 44.2	-18° 43.6	-18° 43.0	-18° 42.3	-18° 41.7	+0.6
Вт 27	266° 51.3	281° 51.2	296° 51.0	311° 50.9	326° 50.8	341° 50.6	356° 50.5	11° 50.4	26° 50.3	41° 50.1	56° 50.0	71° 49.9	-0.1
	-18° 33.5	-18° 32.8	-18° 32.2	-18° 31.5	-18° 30.9	-18° 30.3	-18° 29.6	-18° 29.0	-18° 28.3	-18° 27.7	-18° 27.0	-18° 26.4	+0.6
Ср 28	266° 48.3	281° 48.2	296° 48.0	311° 47.9	326° 47.8	341° 47.7	356° 47.6	11° 47.4	26° 47.3	41° 47.2	56° 47.1	71° 47.0	-0.1
	-18° 18.0	-18° 17.3	-18° 16.6	-18° 16.0	-18° 15.3	-18° 14.7	-18° 14.0	-18° 13.4	-18° 12.7	-18° 12.1	-18° 11.4	-18° 10.7	+0.7
Чт 29	266° 45.5	281° 45.4	296° 45.2	311° 45.1	326° 45.0	341° 44.9	356° 44.8	11° 44.7	26° 44.6	41° 44.5	56° 44.4	71° 44.2	-0.1
	-18° 02.1	-18° 01.4	-18° 00.8	-18° 00.1	-17° 59.4	-17° 58.8	-17° 58.1	-17° 57.4	-17° 56.8	-17° 56.1	-17° 55.4	-17° 54.7	+0.7
Пт 30	266° 42.9	281° 42.8	296° 42.7	311° 42.6	326° 42.4	341° 42.3	356° 42.2	11° 42.1	26° 42.0	41° 41.9	56° 41.8	71° 41.7	-0.1
	-17° 46.0	-17° 45.3	-17° 44.6	-17° 43.9	-17° 43.2	-17° 42.6	-17° 41.9	-17° 41.2	-17° 40.5	-17° 39.8	-17° 39.1	-17° 38.4	+0.7
Сб 31	266° 40.5	281° 40.4	296° 40.3	311° 40.2	326° 40.1	341° 40.0	356° 39.9	11° 39.8	26° 39.7	41° 39.6	56° 39.5	71° 39.4	-0.1
	-17° 29.5	-17° 28.8	-17° 28.1	-17° 27.4	-17° 26.7	-17° 26.0	-17° 25.3	-17° 24.6	-17° 23.9	-17° 23.2	-17° 22.5	-17° 21.8	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2032

Д	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	R/p
Чт 1	240° 18.5	254° 52.7	269° 26.8	284° 01.0	298° 35.2	313° 09.4	327° 43.7	342° 17.9	356° 52.2	11° 26.5	26° 00.8	+34.2	14.7
	8° 23.2	8° 13.8	8° 04.3	7° 54.8	7° 45.3	7° 35.7	7° 26.1	7° 16.5	7° 06.9	6° 57.2	6° 47.5	-9.6	54.0
Пт 2	244° 36.3	259° 10.7	273° 45.1	288° 19.5	302° 53.9	317° 28.3	332° 02.7	346° 37.1	1° 11.6	15° 46.0	30° 20.3	+34.4	14.8
	4° 18.5	4° 08.4	3° 58.3	3° 48.1	3° 38.0	3° 27.8	3° 17.6	3° 07.3	2° 57.1	2° 46.8	2° 36.6	-10.2	54.3
Сб 3	248° 55.2	263° 29.4	278° 03.6	292° 37.8	307° 11.9	321° 46.0	336° 20.2	350° 54.2	5° 28.3	20° 02.3	34° 36.4	+34.1	14.9
	0° 01.0	-0° 09.5	-0° 19.9	-0° 30.4	-0° 40.9	-0° 51.3	-1° 01.8	-1° 12.3	-1° 22.7	-1° 33.2	-1° 43.7	-10.5	54.7
Вс 4	253° 03.0	267° 36.5	282° 09.9	296° 43.3	311° 16.7	325° 50.0	340° 23.3	354° 56.5	9° 29.7	24° 02.9	38° 36.0	+33.3	15.1
	-4° 20.6	-4° 31.0	-4° 41.4	-4° 51.8	-5° 02.1	-5° 12.5	-5° 22.8	-5° 33.2	-5° 43.5	-5° 53.8	-6° 04.1	-10.4	55.3
◑ Пн 5	256° 46.2	271° 18.4	285° 50.6	300° 22.7	314° 54.7	329° 26.7	343° 58.6	358° 30.5	13° 02.2	27° 33.9	42° 05.6	+31.9	15.3
	-8° 36.2	-8° 46.1	-8° 56.0	-9° 05.9	-9° 15.8	-9° 25.6	-9° 35.4	-9° 45.2	-9° 54.9	-10° 04.6	-10° 14.2	-9.8	56.1
Вт 6	271° 18.4	285° 50.6	300° 22.7	314° 54.7	329° 26.7	343° 58.6	358° 30.5	13° 02.2	27° 33.9	42° 05.6	56° 37.2	+31.9	15.3
	-8° 46.1	-8° 56.0	-9° 05.9	-9° 15.8	-9° 25.6	-9° 35.4	-9° 45.2	-9° 54.9	-10° 04.6	-10° 14.2	-10° 23.9	-9.8	56.1
Ср 7	274° 21.8	288° 52.2	303° 22.5	317° 52.6	332° 22.7	346° 52.8	1° 22.7	15° 52.6	30° 22.3	44° 52.0	59° 21.6	+30.0	15.5
	-12° 43.1	-12° 52.0	-13° 00.9	-13° 09.7	-13° 18.4	-13° 27.1	-13° 35.8	-13° 44.3	-13° 52.8	-14° 01.3	-14° 09.7	-8.7	57.0
Чт 8	276° 34.9	291° 03.1	305° 31.1	319° 59.1	334° 27.0	348° 54.8	3° 22.4	17° 50.0	32° 17.6	46° 45.0	61° 12.3	+27.7	15.8
	-16° 07.4	-16° 14.6	-16° 21.8	-16° 28.9	-16° 35.9	-16° 42.8	-16° 49.6	-16° 56.4	-17° 03.0	-17° 09.6	-17° 16.1	-6.9	58.0
Пт 9	277° 51.1	292° 16.9	306° 42.7	321° 08.4	335° 34.0	349° 59.5	4° 24.9	18° 50.3	33° 15.5	47° 40.7	62° 05.8	+25.5	16.1
	-18° 41.4	-18° 46.2	-18° 50.9	-18° 55.6	-19° 00.1	-19° 04.5	-19° 08.8	-19° 12.9	-19° 17.0	-19° 20.9	-19° 24.7	-4.3	59.0
Сб 10	278° 13.0	292° 37.0	307° 00.8	321° 24.6	335° 48.3	350° 12.0	4° 35.6	18° 59.2	33° 22.7	47° 46.2	62° 09.6	+23.6	16.4
	-20° 06.4	-20° 08.2	-20° 09.8	-20° 11.2	-20° 12.5	-20° 13.7	-20° 14.7	-20° 15.6	-20° 16.4	-20° 17.0	-20° 17.4	-1.1	60.0
Вс 11	277° 55.7	292° 18.6	306° 41.4	321° 04.2	335° 26.9	349° 49.7	4° 12.4	18° 35.1	32° 57.9	47° 20.6	61° 43.3	+22.7	16.6
	-20° 06.9	-20° 05.0	-20° 02.9	-20° 00.8	-19° 58.4	-19° 55.9	-19° 53.3	-19° 50.5	-19° 47.6	-19° 44.5	-19° 41.3	+2.6	60.7
● Пн 12	277° 24.3	291° 47.1	306° 10.0	320° 32.9	334° 55.8	349° 18.8	3° 41.7	18° 04.8	32° 27.8	46° 50.9	61° 14.0	+23.0	16.7
	-18° 35.4	-18° 29.8	-18° 24.1	-18° 18.3	-18° 12.3	-18° 06.2	-18° 00.0	-17° 53.6	-17° 47.1	-17° 40.5	-17° 33.7	+6.2	61.2
Вт 13	277° 05.9	291° 29.7	305° 53.6	320° 17.6	334° 41.6	349° 05.7	3° 29.8	17° 54.0	32° 18.3	46° 42.6	61° 07.0	+24.1	16.7
	-15° 37.1	-15° 28.4	-15° 19.6	-15° 10.6	-15° 01.6	-14° 52.4	-14° 43.2	-14° 33.8	-14° 24.3	-14° 14.8	-14° 05.1	+9.2	61.3
Ср 14	277° 20.3	291° 45.7	306° 11.2	320° 36.7	335° 02.3	349° 28.0	3° 53.8	18° 19.6	32° 45.5	47° 11.4	61° 37.4	+25.7	16.7
	-11° 29.4	-11° 18.4	-11° 07.3	-10° 56.1	-10° 44.9	-10° 33.6	-10° 22.3	-10° 10.8	-9° 59.4	-9° 47.8	-9° 36.2	+11.3	61.1
Чт 15	278° 15.5	292° 42.5	307° 09.6	321° 36.8	336° 04.0	350° 31.3	4° 58.7	19° 26.1	33° 53.5	48° 21.1	62° 48.6	+27.3	16.5
	-6° 36.7	-6° 24.4	-6° 12.1	-5° 59.8	-5° 47.4	-5° 35.0	-5° 22.6	-5° 10.2	-4° 57.8	-4° 45.3	-4° 32.8	+12.4	60.5
Пт 16	279° 48.8	294° 17.2	308° 45.7	323° 14.2	337° 42.7	352° 11.3	6° 40.0	21° 08.6	35° 37.4	50° 06.1	64° 34.9	+28.6	16.3
	-1° 24.8	-1° 12.3	-0° 59.8	-0° 47.3	-0° 34.8	-0° 22.3	-0° 09.8	0° 02.7	0° 15.1	0° 27.5	0° 40.0	+12.5	59.7
Сб 17	281° 51.4	296° 20.7	310° 50.1	325° 19.5	339° 48.9	354° 18.4	8° 47.9	23° 17.4	37° 47.0	52° 16.5	66° 46.1	+29.5	16.0
	3° 43.0	3° 55.0	4° 06.9	4° 18.8	4° 30.6	4° 42.4	4° 54.2	5° 05.9	5° 17.5	5° 29.2	5° 40.7	+11.8	58.8
Вс 18	284° 12.2	298° 42.1	313° 12.0	327° 41.9	342° 11.8	356° 41.7	11° 11.6	25° 41.6	40° 11.5	54° 41.5	69° 11.4	+29.9	15.8
	8° 28.3	8° 39.0	8° 49.6	9° 00.2	9° 10.8	9° 21.3	9° 31.7	9° 42.0	9° 52.3	10° 02.5	10° 12.7	+10.4	57.9
◐ Пн 19	286° 41.6	301° 11.6	315° 41.7	330° 11.7	344° 41.7	359° 11.8	13° 41.8	28° 11.8	42° 41.9	57° 11.9	71° 42.0	+30.0	15.5
	12° 36.6	12° 45.6	12° 54.5	13° 03.4	13° 12.2	13° 20.9	13° 29.5	13° 38.0	13° 46.5	13° 54.8	14° 03.1	+8.7	57.0
Вт 20	289° 12.3	303° 42.3	318° 12.3	332° 42.3	347° 12.3	1° 42.3	16° 12.2	30° 42.2	45° 12.2	59° 42.2	74° 12.1	+30.0	15.3
	15° 57.5	16° 04.4	16° 11.3	16° 18.0	16° 24.7	16° 31.3	16° 37.8	16° 44.2	16° 50.5	16° 56.7	17° 02.8	+6.5	56.2
Ср 21	291° 41.3	306° 11.3	320° 41.2	335° 11.1	349° 41.0	4° 11.0	18° 40.9	33° 10.8	47° 40.7	62° 10.7	76° 40.6	+29.9	15.1
	18° 23.4	18° 28.1	18° 32.6	18° 37.0	18° 41.3	18° 45.6	18° 49.7	18° 53.7	18° 57.7	19° 01.5	19° 05.2	+4.2	55.5
Чт 22	294° 09.8	308° 39.8	323° 09.8	337° 39.8	352° 09.8	6° 39.8	21° 09.8	35° 39.9	50° 09.9	64° 40.0	79° 10.0	+30.0	15.0
	19° 49.6	19° 51.8	19° 53.8	19° 55.8	19° 57.7	19° 59.4	20° 01.1	20° 02.7	20° 04.2	20° 05.5	20° 06.8	+1.7	54.9
Пт 23	296° 42.5	311° 12.8	325° 43.1	340° 13.4	354° 43.7	9° 14.1	23° 44.4	38° 14.8	52° 45.2	67° 15.7	81° 46.1	+30.4	14.9
	20° 14.1	20° 13.8	20° 13.4	20° 12.9	20° 12.3	20° 11.6	20° 10.8	20° 10.0	20° 09.0	20° 07.9	20° 06.8	-0.7	54.5
Сб 24	299° 25.8	313° 56.6	328° 27.5	342° 58.4	357° 29.4	12° 00.3	26° 31.3	41° 02.3	55° 33.4	70° 04.5	84° 35.6	+31.0	14.8
	19° 38.0	19° 35.3	19° 32.6	19° 29.7	19° 26.8	19° 23.8	19° 20.7	19° 17.5	19° 14.2	19° 10.9	19° 07.4	-3.1	54.2
Вс 25	302° 26.0	316° 57.6	331° 29.3	346° 01.0	0° 32.7	15° 04.5	29° 36.3	44° 08.1	58° 40.0	73° 11.9	87° 43.8	+31.8	14.7
	18° 05.3	18° 00.5	17° 55.6	17° 50.7	17° 45.6	17° 40.5	17° 35.3	17° 30.1	17° 24.7	17° 19.3	17° 13.8	-5.2	54.0
Пн 26	305° 47.1	320° 19.6	334° 52.1	349° 24.7	3° 57.3	18° 29.9	33° 02.6	47° 35.3	62° 08.1	76° 40.8	91° 13.6	+32.7	14.7
	15° 42.6	15° 35.9	15° 29.2	15° 22.4	15° 15.6	15° 08.7	15° 01.7	14° 54.7	14° 47.6	14° 40.5	14° 33.2	-6.9	53.9
○ Вт 27	309° 29.7	324° 03.0	338° 36.4	353° 09.8	7° 43.2	22° 16.6	36° 50.1	51° 23.6	65° 57.1	80° 30.7	95° 04.2	+33.5	14.7
	12° 37.9	12° 29.8	12° 21.6	12° 13.4	12° 05.1	11° 56.8	11° 48.4	11° 40.0	11° 31.5	11° 22.9	11° 14.4	-8.4	53.9
Ср 28	313° 31.0	328° 04.9	342° 38.9	357° 12.9	11° 46.9	26° 21.0	40° 55.0	55° 29.1	70° 03.2	84° 37.3	99° 11.4	+34.1	14.7
	9° 00.5	8° 51.3	8° 42.0	8° 32.7	8° 23.4	8° 14.0	8° 04.6	7° 55.1	7° 45.6	7° 36.1	7° 26.5	-9.4	54.0
Чт 29	317° 44.9	332° 19.3	346° 53.6	1° 27.9	16° 02.2	30° 36.6	45° 10.9	59° 45.2	74° 19.6	88° 53.9	103° 28.3	+34.3	14.8
	4° 59.9	4° 49.9	4° 39.9	4° 29.9	4° 19.9	4° 09.8	3° 59.7	3° 49.6	3° 39.5	3° 29.4	3° 19.2	-10.1	54.2
Пт 30	322° 19.3	336° 53.6	1° 27.9	16° 02.2	30° 36.6	45° 10.9	59° 45.2	74° 19.6	88° 53.9	103° 28.3	118° 02.7	+34.3	14.8
	4° 49.9	4° 39.9	4° 29.9	4° 19.9	4° 09.8	3° 59.7	3° 49.6	3° 39.5	3° 29.4	3° 19.2	3° 09.1	-10.1	54.2
Сб 31	336° 37.6	351° 11.9	5° 46.2	20° 20.4	34° 54.7	49° 28.9	64° 03.1	78° 37.3	93° 11.5	107° 45.7	122° 19.9	+34.2	14.9
	0° 35.1	0° 24.8	0° 14.5	0° 04.1	-0° 06.2	-0° 16.6	-0° 26.9	-0° 37.3	-0° 47.7	-0° 58.0	-1° 08.4	-10.4	54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 5 22h04 — Новолуние: 12 20h06 — Первая четв.: 19 12h14 — Полнолуние: 27 12h52

СОЛНЦЕ

Февраль 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	266° 38.3	281° 38.2	296° 38.1	311° 38.0	326° 37.9	341° 37.8	356° 37.7	11° 37.6	26° 37.6	41° 37.5	56° 37.4	71° 37.3	-0.1
	-17° 12.7	-17° 12.0	-17° 11.3	-17° 10.6	-17° 09.9	-17° 09.2	-17° 08.4	-17° 07.7	-17° 07.0	-17° 06.3	-17° 05.6	-17° 04.9	+0.7
Пн 2	266° 36.2	281° 36.2	296° 36.1	311° 36.0	326° 35.9	341° 35.9	356° 35.8	11° 35.7	26° 35.6	41° 35.5	56° 35.5	71° 35.4	-0.1
	-16° 55.6	-16° 54.9	-16° 54.2	-16° 53.4	-16° 52.7	-16° 52.0	-16° 51.3	-16° 50.6	-16° 49.8	-16° 49.1	-16° 48.4	-16° 47.7	+0.7
Вт 3	266° 34.4	281° 34.4	296° 34.3	311° 34.2	326° 34.2	341° 34.1	356° 34.0	11° 34.0	26° 33.9	41° 33.8	56° 33.8	71° 33.7	-0.1
	-16° 38.2	-16° 37.5	-16° 36.7	-16° 36.0	-16° 35.3	-16° 34.5	-16° 33.8	-16° 33.1	-16° 32.3	-16° 31.6	-16° 30.9	-16° 30.1	+0.7
Ср 4	266° 32.8	281° 32.8	296° 32.7	311° 32.7	326° 32.6	341° 32.5	356° 32.5	11° 32.4	26° 32.3	41° 32.3	56° 32.2	71° 32.2	-0.1
	-16° 20.5	-16° 19.8	-16° 19.0	-16° 18.3	-16° 17.5	-16° 16.8	-16° 16.1	-16° 15.3	-16° 14.6	-16° 13.8	-16° 13.1	-16° 12.3	+0.7
Чт 5	266° 31.4	281° 31.4	296° 31.3	311° 31.3	326° 31.2	341° 31.2	356° 31.1	11° 31.1	26° 31.0	41° 31.0	56° 30.9	71° 30.9	-0.1
	-16° 02.6	-16° 01.8	-16° 01.0	-16° 00.3	-15° 59.5	-15° 58.8	-15° 58.0	-15° 57.3	-15° 56.5	-15° 55.7	-15° 55.0	-15° 54.2	+0.8
Пт 6	266° 30.2	281° 30.2	296° 30.1	311° 30.1	326° 30.0	341° 30.0	356° 29.9	11° 29.9	26° 29.9	41° 29.8	56° 29.8	71° 29.7	-0.0
	-15° 44.3	-15° 43.5	-15° 42.8	-15° 42.0	-15° 41.2	-15° 40.5	-15° 39.7	-15° 38.9	-15° 38.2	-15° 37.4	-15° 36.6	-15° 35.9	+0.8
Сб 7	266° 29.2	281° 29.2	296° 29.1	311° 29.1	326° 29.1	341° 29.0	356° 29.0	11° 28.9	26° 28.9	41° 28.9	56° 28.8	71° 28.8	-0.0
	-15° 25.8	-15° 25.0	-15° 24.2	-15° 23.5	-15° 22.7	-15° 21.9	-15° 21.1	-15° 20.3	-15° 19.6	-15° 18.8	-15° 18.0	-15° 17.2	+0.8
Вс 8	266° 28.4	281° 28.4	296° 28.3	311° 28.3	326° 28.3	341° 28.2	356° 28.2	11° 28.2	26° 28.2	41° 28.1	56° 28.1	71° 28.1	-0.0
	-15° 07.0	-15° 06.2	-15° 05.4	-15° 04.6	-15° 03.9	-15° 03.1	-15° 02.3	-15° 01.5	-15° 00.7	-14° 59.9	-14° 59.1	-14° 58.3	+0.8
Пн 9	266° 27.8	281° 27.7	296° 27.7	311° 27.7	326° 27.7	341° 27.7	356° 27.6	11° 27.6	26° 27.6	41° 27.6	56° 27.6	71° 27.5	-0.0
	-14° 48.0	-14° 47.2	-14° 46.4	-14° 45.6	-14° 44.8	-14° 44.0	-14° 43.2	-14° 42.4	-14° 41.6	-14° 40.8	-14° 40.0	-14° 39.2	+0.8
Вт 10	266° 27.3	281° 27.3	296° 27.3	311° 27.3	326° 27.3	341° 27.3	356° 27.3	11° 27.2	26° 27.2	41° 27.2	56° 27.2	71° 27.2	-0.0
	-14° 28.7	-14° 27.9	-14° 27.1	-14° 26.3	-14° 25.4	-14° 24.6	-14° 23.8	-14° 23.0	-14° 22.2	-14° 21.4	-14° 20.6	-14° 19.8	+0.8
Ср 11	266° 27.1	281° 27.1	296° 27.1	311° 27.1	326° 27.1	341° 27.1	356° 27.1	11° 27.1	26° 27.1	41° 27.1	56° 27.1	71° 27.1	-0.0
	-14° 09.2	-14° 08.3	-14° 07.5	-14° 06.7	-14° 05.9	-14° 05.1	-14° 04.2	-14° 03.4	-14° 02.6	-14° 01.8	-14° 00.9	-14° 00.1	+0.8
Чт 12	266° 27.0	281° 27.1	296° 27.1	311° 27.1	326° 27.1	341° 27.1	356° 27.1	11° 27.1	26° 27.1	41° 27.1	56° 27.1	71° 27.1	+0.0
	-13° 49.4	-13° 48.6	-13° 47.7	-13° 46.9	-13° 46.1	-13° 45.2	-13° 44.4	-13° 43.6	-13° 42.8	-13° 41.9	-13° 41.1	-13° 40.3	+0.8
Пт 13	266° 27.2	281° 27.2	296° 27.2	311° 27.2	326° 27.2	341° 27.2	356° 27.3	11° 27.3	26° 27.3	41° 27.3	56° 27.3	71° 27.3	+0.0
	-13° 29.4	-13° 28.6	-13° 27.7	-13° 26.9	-13° 26.0	-13° 25.2	-13° 24.4	-13° 23.5	-13° 22.7	-13° 21.8	-13° 21.0	-13° 20.2	+0.8
Сб 14	266° 27.5	281° 27.5	296° 27.6	311° 27.6	326° 27.6	341° 27.6	356° 27.6	11° 27.7	26° 27.7	41° 27.7	56° 27.7	71° 27.7	+0.0
	-13° 09.2	-13° 08.3	-13° 07.5	-13° 06.6	-13° 05.8	-13° 05.0	-13° 04.1	-13° 03.3	-13° 02.4	-13° 01.6	-13° 00.7	-12° 59.9	+0.8
Вс 15	266° 28.1	281° 28.1	296° 28.1	311° 28.1	326° 28.2	341° 28.2	356° 28.2	11° 28.2	26° 28.3	41° 28.3	56° 28.3	71° 28.4	+0.0
	-12° 48.8	-12° 47.9	-12° 47.1	-12° 46.2	-12° 45.3	-12° 44.5	-12° 43.6	-12° 42.8	-12° 41.9	-12° 41.1	-12° 40.2	-12° 39.3	+0.9
Пн 16	266° 28.8	281° 28.8	296° 28.8	311° 28.9	326° 28.9	341° 28.9	356° 29.0	11° 29.0	26° 29.0	41° 29.1	56° 29.1	71° 29.2	+0.0
	-12° 28.1	-12° 27.3	-12° 26.4	-12° 25.5	-12° 24.7	-12° 23.8	-12° 22.9	-12° 22.1	-12° 21.2	-12° 20.3	-12° 19.5	-12° 18.6	+0.9
Вт 17	266° 29.7	281° 29.7	296° 29.7	311° 29.8	326° 29.8	341° 29.9	356° 29.9	11° 30.0	26° 30.0	41° 30.0	56° 30.1	71° 30.1	+0.0
	-12° 07.3	-12° 06.4	-12° 05.6	-12° 04.7	-12° 03.8	-12° 02.9	-12° 02.1	-12° 01.2	-12° 00.3	-11° 59.4	-11° 58.6	-11° 57.7	+0.9
Ср 18	266° 30.7	281° 30.8	296° 30.8	311° 30.9	326° 30.9	341° 31.0	356° 31.0	11° 31.1	26° 31.1	41° 31.2	56° 31.2	71° 31.3	+0.1
	-11° 46.3	-11° 45.4	-11° 44.5	-11° 43.6	-11° 42.8	-11° 41.9	-11° 41.0	-11° 40.1	-11° 39.2	-11° 38.4	-11° 37.5	-11° 36.6	+0.9
Чт 19	266° 32.0	281° 32.0	296° 32.1	311° 32.2	326° 32.2	341° 32.3	356° 32.3	11° 32.4	26° 32.4	41° 32.5	56° 32.6	71° 32.6	+0.1
	-11° 25.1	-11° 24.2	-11° 23.3	-11° 22.4	-11° 21.5	-11° 20.6	-11° 19.8	-11° 18.9	-11° 18.0	-11° 17.1	-11° 16.2	-11° 15.3	+0.9
Пт 20	266° 33.4	281° 33.5	296° 33.5	311° 33.6	326° 33.7	341° 33.7	356° 33.8	11° 33.9	26° 33.9	41° 34.0	56° 34.1	71° 34.1	+0.1
	-11° 03.7	-11° 02.8	-11° 01.9	-11° 01.0	-11° 00.1	-10° 59.2	-10° 58.3	-10° 57.4	-10° 56.5	-10° 55.6	-10° 54.7	-10° 53.8	+0.9
Сб 21	266° 35.0	281° 35.1	296° 35.1	311° 35.2	326° 35.3	341° 35.4	356° 35.4	11° 35.5	26° 35.6	41° 35.6	56° 35.7	71° 35.8	+0.1
	-10° 42.1	-10° 41.2	-10° 40.3	-10° 39.4	-10° 38.5	-10° 37.6	-10° 36.7	-10° 35.8	-10° 34.9	-10° 34.0	-10° 33.1	-10° 32.2	+0.9
Вс 22	266° 36.8	281° 36.8	296° 36.9	311° 37.0	326° 37.1	341° 37.2	356° 37.2	11° 37.3	26° 37.4	41° 37.5	56° 37.5	71° 37.6	+0.1
	-10° 20.4	-10° 19.5	-10° 18.6	-10° 17.7	-10° 16.8	-10° 15.9	-10° 15.0	-10° 14.1	-10° 13.1	-10° 12.2	-10° 11.3	-10° 10.4	+0.9
Пн 23	266° 38.7	281° 38.8	296° 38.9	311° 38.9	326° 39.0	341° 39.1	356° 39.2	11° 39.3	26° 39.4	41° 39.5	56° 39.5	71° 39.6	+0.1
	-9° 58.5	-9° 57.6	-9° 56.7	-9° 55.8	-9° 54.9	-9° 54.0	-9° 53.1	-9° 52.1	-9° 51.2	-9° 50.3	-9° 49.4	-9° 48.5	+0.9
Вт 24	266° 40.8	281° 40.9	296° 40.9	311° 41.0	326° 41.1	341° 41.2	356° 41.3	11° 41.4	26° 41.5	41° 41.6	56° 41.7	71° 41.8	+0.1
	-9° 36.5	-9° 35.6	-9° 34.7	-9° 33.8	-9° 32.8	-9° 31.9	-9° 31.0	-9° 30.1	-9° 29.1	-9° 28.2	-9° 27.3	-9° 26.4	+0.9
Ср 25	266° 43.0	281° 43.1	296° 43.2	311° 43.3	326° 43.4	341° 43.5	356° 43.6	11° 43.7	26° 43.8	41° 43.9	56° 44.0	71° 44.1	+0.1
	-9° 14.3	-9° 13.4	-9° 12.5	-9° 11.6	-9° 10.6	-9° 09.7	-9° 08.8	-9° 07.8	-9° 06.9	-9° 06.0	-9° 05.1	-9° 04.1	+0.9
Чт 26	266° 45.4	281° 45.5	296° 45.6	311° 45.7	326° 45.8	341° 45.9	356° 46.0	11° 46.1	26° 46.2	41° 46.3	56° 46.4	71° 46.5	+0.1
	-8° 52.0	-8° 51.1	-8° 50.2	-8° 49.2	-8° 48.3	-8° 47.4	-8° 46.4	-8° 45.5	-8° 44.6	-8° 43.6	-8° 42.7	-8° 41.8	+0.9
Пт 27	266° 47.9	281° 48.0	296° 48.1	311° 48.2	326° 48.3	341° 48.4	356° 48.5	11° 48.7	26° 48.8	41° 48.9	56° 49.0	71° 49.1	+0.1
	-8° 29.6	-8° 28.6	-8° 27.7	-8° 26.8	-8° 25.8	-8° 24.9	-8° 24.0	-8° 23.0	-8° 22.1	-8° 21.1	-8° 20.2	-8° 19.3	+0.9
Сб 28	266° 50.5	281° 50.7	296° 50.8	311° 50.9	326° 51.0	341° 51.1	356° 51.2	11° 51.3	26° 51.5	41° 51.6	56° 51.7	71° 51.8	+0.1
	-8° 07.0	-8° 06.1	-8° 05.1	-8° 04.2	-8° 03.2	-8° 02.3	-8° 01.4	-8° 00.4	-7° 59.5	-7° 58.5	-7° 57.6	-7° 56.6	+0.9
Вс 29	266° 53.3	281° 53.5	296° 53.6	311° 53.7	326° 53.8	341° 53.9	356° 54.1	11° 54.2	26° 54.3	41° 54.4	56° 54.5	71° 54.7	+0.1
	-7° 44.3	-7° 43.4	-7° 42.4	-7° 41.5	-7° 40.5	-7° 39.6	-7° 38.6	-7° 37.7	-7° 36.7	-7° 35.8	-7° 34.8	-7° 33.9	+0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2032

Д	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ'/h	R/p
Вс 1	242° 53.4	257° 26.5	271° 59.7	286° 32.8	301° 05.8	315° 38.8	330° 11.8	344° 44.7	359° 17.5	13° 50.3	28° 23.1	+33.0	15.1
	-6° 46.4	-6° 56.4	-7° 06.3	-7° 16.3	-7° 26.2	-7° 36.1	-7° 46.0	-7° 55.8	-8° 05.6	-8° 15.4	-8° 25.2	-9.9	55.3
Пн 2	246° 28.4	261° 00.3	275° 32.1	290° 03.9	304° 35.6	319° 07.2	333° 38.8	348° 10.3	2° 41.8	17° 13.2	31° 44.5	+31.6	15.2
	-10° 47.5	-10° 56.7	-11° 05.9	-11° 15.0	-11° 24.0	-11° 33.1	-11° 42.0	-11° 51.0	-11° 59.8	-12° 08.7	-12° 17.4	-9.0	55.9
Вт 3	249° 26.2	263° 56.4	278° 26.6	292° 56.6	307° 26.6	321° 56.5	336° 26.3	350° 56.1	5° 25.7	19° 55.3	34° 24.8	+29.9	15.5
	-14° 22.6	-14° 30.5	-14° 38.3	-14° 46.0	-14° 53.7	-15° 01.3	-15° 08.8	-15° 16.3	-15° 23.7	-15° 31.0	-15° 38.3	-7.6	56.7
◑ Ср 4	251° 38.0	266° 06.2	280° 34.4	295° 02.5	309° 30.5	323° 58.4	338° 26.2	352° 53.9	7° 21.6	21° 49.2	36° 16.7	+27.9	15.7
	-17° 17.7	-17° 23.6	-17° 29.5	-17° 35.3	-17° 41.0	-17° 46.5	-17° 52.0	-17° 57.4	-18° 02.7	-18° 08.0	-18° 13.1	-5.5	57.6
Чт 5	266° 06.2	280° 34.4	295° 02.5	309° 30.5	323° 58.4	338° 26.2	352° 53.9	7° 21.6	21° 49.2	36° 16.7	50° 44.1	+27.8	15.7
	-17° 23.6	-17° 29.5	-17° 35.3	-17° 41.0	-17° 46.5	-17° 52.0	-17° 57.4	-18° 02.7	-18° 08.0	-18° 13.1	-18° 18.1	-5.4	57.6
Пт 6	267° 26.0	281° 52.2	296° 18.3	310° 44.3	325° 10.3	339° 36.2	354° 02.0	8° 27.7	22° 53.4	37° 19.0	51° 44.5	+25.9	16.0
	-19° 20.7	-19° 24.0	-19° 27.1	-19° 30.2	-19° 33.1	-19° 36.0	-19° 38.7	-19° 41.2	-19° 43.7	-19° 46.1	-19° 48.3	-2.8	58.6
Сб 7	268° 00.1	282° 24.7	296° 49.2	311° 13.7	325° 38.1	340° 02.5	354° 26.9	8° 51.1	23° 15.4	37° 39.6	52° 03.8	+24.4	16.2
	-20° 06.3	-20° 06.4	-20° 06.5	-20° 06.3	-20° 06.1	-20° 05.7	-20° 05.2	-20° 04.5	-20° 03.7	-20° 02.8	-20° 01.7	+0.5	59.5
Вс 8	268° 02.4	282° 26.1	296° 49.8	311° 13.5	325° 37.1	340° 00.8	354° 24.4	8° 48.0	23° 11.7	37° 35.3	51° 58.9	+23.6	16.5
	-19° 28.8	-19° 25.5	-19° 22.0	-19° 18.4	-19° 14.7	-19° 10.8	-19° 06.8	-19° 02.6	-18° 58.3	-18° 53.9	-18° 49.3	+3.9	60.4
Пн 9	267° 53.4	282° 17.1	296° 40.8	311° 04.5	325° 28.3	339° 52.1	354° 15.9	8° 39.7	23° 03.6	37° 27.5	51° 51.4	+23.8	16.6
	-17° 24.4	-17° 17.6	-17° 10.8	-17° 03.8	-16° 56.7	-16° 49.4	-16° 42.1	-16° 34.6	-16° 27.0	-16° 19.2	-16° 11.4	+7.3	61.0
Вт 10	267° 53.8	282° 18.3	296° 42.7	311° 07.3	325° 31.9	339° 56.5	354° 21.1	8° 45.8	23° 10.6	37° 35.4	52° 00.2	+24.6	16.7
	-13° 59.8	-13° 50.1	-13° 40.4	-13° 30.6	-13° 20.6	-13° 10.6	-13° 00.5	-12° 50.3	-12° 40.0	-12° 29.6	-12° 19.1	+10.1	61.3
● Ср 11	268° 18.3	282° 43.9	297° 09.6	311° 35.2	326° 01.0	340° 26.8	354° 52.6	9° 18.5	23° 44.4	38° 10.4	52° 36.4	+25.8	16.7
	-9° 32.3	-9° 20.6	-9° 08.9	-8° 57.1	-8° 45.2	-8° 33.3	-8° 21.4	-8° 09.4	-7° 57.3	-7° 45.2	-7° 33.0	+11.9	61.3
Чт 12	269° 12.5	283° 39.2	298° 06.1	312° 32.9	326° 59.8	341° 26.8	355° 53.8	10° 20.8	24° 47.9	39° 15.0	53° 42.1	+27.0	16.6
	-4° 26.1	-4° 13.5	-4° 00.8	-3° 48.1	-3° 35.3	-3° 22.6	-3° 09.8	-2° 57.1	-2° 44.3	-2° 31.5	-2° 18.8	+12.7	60.9
Пт 13	270° 34.1	285° 01.9	299° 29.7	313° 57.5	328° 25.3	342° 53.2	357° 21.1	11° 49.1	26° 17.1	40° 45.1	55° 13.1	+27.9	16.4
	0° 52.4	1° 05.1	1° 17.7	1° 30.3	1° 42.9	1° 55.4	2° 08.0	2° 20.5	2° 32.9	2° 45.4	2° 57.8	+12.5	60.2
Сб 14	272° 16.8	286° 45.3	301° 13.7	315° 42.2	330° 10.7	344° 39.2	359° 07.8	13° 36.3	28° 04.9	42° 33.5	57° 02.1	+28.5	16.2
	5° 59.2	6° 10.9	6° 22.6	6° 34.2	6° 45.8	6° 57.3	7° 08.8	7° 20.2	7° 31.5	7° 42.8	7° 54.0	+11.5	59.3
Вс 15	274° 13.2	288° 42.1	303° 10.9	317° 39.8	332° 08.7	346° 37.6	1° 06.5	15° 35.4	30° 04.3	44° 33.3	59° 02.2	+28.9	15.9
	10° 34.4	10° 44.5	10° 54.6	11° 04.5	11° 14.4	11° 24.3	11° 34.0	11° 43.7	11° 53.3	12° 02.8	12° 12.2	+9.8	58.3
Пн 16	276° 17.5	290° 46.6	305° 15.7	319° 44.8	334° 13.9	348° 43.0	3° 12.1	17° 41.3	32° 10.4	46° 39.5	61° 08.7	+29.1	15.6
	14° 23.4	14° 31.5	14° 39.4	14° 47.3	14° 55.1	15° 02.8	15° 10.4	15° 17.9	15° 25.3	15° 32.6	15° 39.8	+7.6	57.3
Вт 17	278° 26.8	292° 56.1	307° 25.4	321° 54.7	336° 24.0	350° 53.3	5° 22.6	19° 51.9	34° 21.3	48° 50.6	63° 20.0	+29.3	15.4
	17° 16.7	17° 22.4	17° 28.0	17° 33.4	17° 38.8	17° 44.1	17° 49.3	17° 54.4	17° 59.4	18° 04.3	18° 09.0	+5.2	56.4
◐ Ср 18	280° 41.7	295° 11.2	309° 40.8	324° 10.4	338° 39.9	353° 09.6	7° 39.2	22° 08.8	36° 38.5	51° 08.1	65° 37.8	+29.6	15.2
	19° 08.8	19° 12.0	19° 15.0	19° 18.0	19° 20.9	19° 23.6	19° 26.3	19° 28.9	19° 31.3	19° 33.7	19° 36.0	+2.7	55.6
Чт 19	283° 05.3	297° 35.3	312° 05.3	326° 35.4	341° 05.4	355° 35.5	10° 05.6	24° 35.7	39° 05.9	53° 36.1	68° 06.3	+30.1	15.0
	19° 57.9	19° 58.6	19° 59.1	19° 59.6	20° 00.0	20° 00.3	20° 00.4	20° 00.5	20° 00.5	20° 00.4	20° 00.1	+0.2	54.9
Пт 20	285° 42.4	300° 13.1	314° 43.7	329° 14.4	343° 45.1	358° 15.9	12° 46.7	27° 17.5	41° 48.3	56° 19.2	70° 50.1	+30.8	14.8
	19° 45.4	19° 43.7	19° 41.9	19° 39.9	19° 37.9	19° 35.8	19° 33.6	19° 31.4	19° 29.0	19° 26.5	19° 24.0	-2.1	54.4
Сб 21	288° 37.5	303° 08.9	317° 40.3	332° 11.8	346° 43.3	1° 14.9	15° 46.5	30° 18.1	44° 49.8	59° 21.5	73° 53.2	+31.6	14.8
	18° 35.2	18° 31.2	18° 27.2	18° 23.1	18° 18.9	18° 14.7	18° 10.3	18° 05.9	18° 01.4	17° 56.8	17° 52.1	-4.3	54.1
Вс 22	291° 53.1	306° 25.4	320° 57.6	335° 30.0	350° 02.3	4° 34.7	19° 07.2	33° 39.6	48° 12.1	62° 44.7	77° 17.2	+32.4	14.7
	16° 33.0	16° 27.1	16° 21.1	16° 15.1	16° 09.0	16° 02.9	15° 56.7	15° 50.4	15° 44.0	15° 37.6	15° 31.1	-6.2	53.9
Пн 23	295° 29.4	310° 02.4	324° 35.5	339° 08.6	353° 41.8	8° 14.9	22° 48.1	37° 21.3	51° 54.6	66° 27.9	81° 01.2	+33.2	14.7
	13° 46.1	13° 38.6	13° 31.0	13° 23.4	13° 15.8	13° 08.1	13° 00.3	12° 52.5	12° 44.6	12° 36.6	12° 28.6	-7.7	53.9
Вт 24	299° 23.6	313° 57.3	328° 31.0	343° 04.7	357° 38.5	12° 12.2	26° 46.0	41° 19.8	55° 53.6	70° 27.5	85° 01.3	+33.8	14.7
	10° 22.8	10° 14.0	10° 05.2	9° 56.3	9° 47.4	9° 38.5	9° 29.5	9° 20.5	9° 11.5	9° 02.4	8° 53.2	-9.0	54.0
Ср 25	303° 30.7	318° 04.8	332° 38.9	347° 12.9	1° 47.0	16° 21.1	30° 55.2	45° 29.3	60° 03.4	74° 37.5	89° 11.6	+34.1	14.8
	6° 31.9	6° 22.2	6° 12.5	6° 02.8	5° 53.0	5° 43.3	5° 33.4	5° 23.6	5° 13.7	5° 03.9	4° 54.0	-9.8	54.2
○ Чт 26	307° 43.6	322° 17.7	336° 51.8	351° 25.9	6° 00.0	20° 34.1	35° 08.2	49° 42.3	64° 16.4	78° 50.4	93° 24.5	+34.1	14.8
	2° 22.9	2° 12.7	2° 02.5	1° 52.3	1° 42.0	1° 31.8	1° 21.5	1° 11.3	1° 01.0	0° 50.7	0° 40.4	-10.3	54.4
Пт 27	311° 53.7	326° 27.5	341° 01.3	355° 35.1	10° 08.9	24° 42.6	39° 16.3	53° 50.0	68° 23.7	82° 57.3	97° 30.9	+33.7	14.9
	-1° 54.4	-2° 04.7	-2° 15.0	-2° 25.3	-2° 35.6	-2° 45.9	-2° 56.2	-3° 06.5	-3° 16.7	-3° 27.0	-3° 37.3	-10.3	54.7
Сб 28	315° 51.8	330° 24.9	344° 58.0	359° 31.1	14° 04.1	28° 37.1	43° 10.0	57° 43.0	72° 15.8	86° 48.7	101° 21.5	+33.0	15.0
	-6° 09.4	-6° 19.4	-6° 29.4	-6° 39.3	-6° 49.3	-6° 59.2	-7° 09.0	-7° 18.9	-7° 28.7	-7° 38.5	-7° 48.3	-9.9	55.2
Вс 29	330° 24.9	344° 58.0	359° 31.1	14° 04.1	28° 37.1	43° 10.0	57° 43.0	72° 15.8	86° 48.7	101° 21.5	115° 54.2	+32.9	15.0
	-6° 19.4	-6° 29.4	-6° 39.3	-6° 49.3	-6° 59.2	-7° 09.0	-7° 18.9	-7° 28.7	-7° 38.5	-7° 48.3	-7° 58.0	-9.9	55.2

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Последняя четв.: 4 13h48 — Новолуние: 11 06h24 — Первая четв.: 18 03h29 — Полнолуние: 26 07h43

СОЛНЦЕ

Март 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	266 ° 56.3 -7 ° 21.5	281 ° 56.4 -7 ° 20.6	296 ° 56.5 -7 ° 19.6	311 ° 56.6 -7 ° 18.7	326 ° 56.7 -7 ° 17.7	341 ° 56.9 -7 ° 16.8	356 ° 57.0 -7 ° 15.8	11 ° 57.1 -7 ° 14.8	26 ° 57.2 -7 ° 13.9	41 ° 57.4 -7 ° 12.9	56 ° 57.5 -7 ° 12.0	71 ° 57.6 -7 ° 11.0	+0.1 +1.0
Вт 2	266 ° 59.3 -6 ° 58.6	281 ° 59.4 -6 ° 57.7	296 ° 59.5 -6 ° 56.7	311 ° 59.7 -6 ° 55.7	326 ° 59.8 -6 ° 54.8	341 ° 59.9 -6 ° 53.8	357 ° 00.1 -6 ° 52.9	12 ° 00.2 -6 ° 51.9	27 ° 00.3 -6 ° 50.9	42 ° 00.5 -6 ° 50.0	57 ° 00.6 -6 ° 49.0	72 ° 00.7 -6 ° 48.1	+0.1 +1.0
Ср 3	267 ° 02.4 -6 ° 35.6	282 ° 02.6 -6 ° 34.6	297 ° 02.7 -6 ° 33.7	312 ° 02.8 -6 ° 32.7	327 ° 03.0 -6 ° 31.8	342 ° 03.1 -6 ° 30.8	357 ° 03.2 -6 ° 29.8	12 ° 03.4 -6 ° 28.9	27 ° 03.5 -6 ° 27.9	42 ° 03.6 -6 ° 26.9	57 ° 03.8 -6 ° 26.0	72 ° 03.9 -6 ° 25.0	+0.1 +1.0
Чт 4	267 ° 05.7 -6 ° 12.5	282 ° 05.8 -6 ° 11.5	297 ° 06.0 -6 ° 10.6	312 ° 06.1 -6 ° 09.6	327 ° 06.3 -6 ° 08.6	342 ° 06.4 -6 ° 07.7	357 ° 06.5 -6 ° 06.7	12 ° 06.7 -6 ° 05.7	27 ° 06.8 -6 ° 04.8	42 ° 06.9 -6 ° 03.8	57 ° 07.1 -6 ° 02.8	72 ° 07.2 -6 ° 01.9	+0.1 +1.0
Пт 5	267 ° 09.1 -5 ° 49.3	282 ° 09.2 -5 ° 48.3	297 ° 09.4 -5 ° 47.4	312 ° 09.5 -5 ° 46.4	327 ° 09.6 -5 ° 45.4	342 ° 09.8 -5 ° 44.5	357 ° 09.9 -5 ° 43.5	12 ° 10.1 -5 ° 42.5	27 ° 10.2 -5 ° 41.6	42 ° 10.4 -5 ° 40.6	57 ° 10.5 -5 ° 39.6	72 ° 10.6 -5 ° 38.6	+0.1 +1.0
Сб 6	267 ° 12.5 -5 ° 26.0	282 ° 12.7 -5 ° 25.1	297 ° 12.8 -5 ° 24.1	312 ° 13.0 -5 ° 23.1	327 ° 13.1 -5 ° 22.1	342 ° 13.3 -5 ° 21.2	357 ° 13.4 -5 ° 20.2	12 ° 13.6 -5 ° 19.2	27 ° 13.7 -5 ° 18.3	42 ° 13.9 -5 ° 17.3	57 ° 14.0 -5 ° 16.3	72 ° 14.2 -5 ° 15.3	+0.1 +1.0
Вс 7	267 ° 16.1 -5 ° 02.7	282 ° 16.2 -5 ° 01.7	297 ° 16.4 -5 ° 00.7	312 ° 16.5 -4 ° 59.8	327 ° 16.7 -4 ° 58.8	342 ° 16.8 -4 ° 57.8	357 ° 17.0 -4 ° 56.8	12 ° 17.2 -4 ° 55.9	27 ° 17.3 -4 ° 54.9	42 ° 17.5 -4 ° 53.9	57 ° 17.6 -4 ° 52.9	72 ° 17.8 -4 ° 52.0	+0.2 +1.0
Пн 8	267 ° 19.7 -4 ° 39.3	282 ° 19.9 -4 ° 38.3	297 ° 20.1 -4 ° 37.3	312 ° 20.2 -4 ° 36.3	327 ° 20.4 -4 ° 35.4	342 ° 20.5 -4 ° 34.4	357 ° 20.7 -4 ° 33.4	12 ° 20.8 -4 ° 32.4	27 ° 21.0 -4 ° 31.4	42 ° 21.1 -4 ° 30.5	57 ° 21.3 -4 ° 29.5	72 ° 21.5 -4 ° 28.5	+0.2 +1.0
Вт 9	267 ° 23.5 -4 ° 15.8	282 ° 23.6 -4 ° 14.8	297 ° 23.8 -4 ° 13.8	312 ° 24.0 -4 ° 12.8	327 ° 24.1 -4 ° 11.9	342 ° 24.3 -4 ° 10.9	357 ° 24.4 -4 ° 09.9	12 ° 24.6 -4 ° 08.9	27 ° 24.8 -4 ° 07.9	42 ° 24.9 -4 ° 07.0	57 ° 25.1 -4 ° 06.0	72 ° 25.2 -4 ° 05.0	+0.2 +1.0
Ср 10	267 ° 27.3 -3 ° 52.3	282 ° 27.5 -3 ° 51.3	297 ° 27.6 -3 ° 50.3	312 ° 27.8 -3 ° 49.3	327 ° 28.0 -3 ° 48.3	342 ° 28.1 -3 ° 47.3	357 ° 28.3 -3 ° 46.4	12 ° 28.4 -3 ° 45.4	27 ° 28.6 -3 ° 44.4	42 ° 28.8 -3 ° 43.4	57 ° 28.9 -3 ° 42.4	72 ° 29.1 -3 ° 41.5	+0.2 +1.0
Чт 11	267 ° 31.2 -3 ° 28.7	282 ° 31.4 -3 ° 27.7	297 ° 31.5 -3 ° 26.7	312 ° 31.7 -3 ° 25.7	327 ° 31.9 -3 ° 24.7	342 ° 32.0 -3 ° 23.8	357 ° 32.2 -3 ° 22.8	12 ° 32.4 -3 ° 21.8	27 ° 32.5 -3 ° 20.8	42 ° 32.7 -3 ° 19.8	57 ° 32.9 -3 ° 18.8	72 ° 33.0 -3 ° 17.9	+0.2 +1.0
Пт 12	267 ° 35.2 -3 ° 05.1	282 ° 35.4 -3 ° 04.1	297 ° 35.5 -3 ° 03.1	312 ° 35.7 -3 ° 02.1	327 ° 35.9 -3 ° 01.1	342 ° 36.0 -3 ° 00.1	357 ° 36.2 -2 ° 59.2	12 ° 36.4 -2 ° 58.2	27 ° 36.5 -2 ° 57.2	42 ° 36.7 -2 ° 56.2	57 ° 36.9 -2 ° 55.2	72 ° 37.0 -2 ° 54.2	+0.2 +1.0
Сб 13	267 ° 39.2 -2 ° 41.4	282 ° 39.4 -2 ° 40.4	297 ° 39.6 -2 ° 39.4	312 ° 39.8 -2 ° 38.5	327 ° 39.9 -2 ° 37.5	342 ° 40.1 -2 ° 36.5	357 ° 40.3 -2 ° 35.5	12 ° 40.4 -2 ° 34.5	27 ° 40.6 -2 ° 33.5	42 ° 40.8 -2 ° 32.5	57 ° 40.9 -2 ° 31.5	72 ° 41.1 -2 ° 30.6	+0.2 +1.0
Вс 14	267 ° 43.4 -2 ° 17.7	282 ° 43.5 -2 ° 16.7	297 ° 43.7 -2 ° 15.8	312 ° 43.9 -2 ° 14.8	327 ° 44.0 -2 ° 13.8	342 ° 44.2 -2 ° 12.8	357 ° 44.4 -2 ° 11.8	12 ° 44.6 -2 ° 10.8	27 ° 44.7 -2 ° 09.8	42 ° 44.9 -2 ° 08.8	57 ° 45.1 -2 ° 07.9	72 ° 45.3 -2 ° 06.9	+0.2 +1.0
Пн 15	267 ° 47.5 -1 ° 54.0	282 ° 47.7 -1 ° 53.0	297 ° 47.9 -1 ° 52.1	312 ° 48.1 -1 ° 51.1	327 ° 48.2 -1 ° 50.1	342 ° 48.4 -1 ° 49.1	357 ° 48.6 -1 ° 48.1	12 ° 48.8 -1 ° 47.1	27 ° 48.9 -1 ° 46.1	42 ° 49.1 -1 ° 45.1	57 ° 49.3 -1 ° 44.1	72 ° 49.5 -1 ° 43.2	+0.2 +1.0
Вт 16	267 ° 51.8 -1 ° 30.3	282 ° 51.9 -1 ° 29.3	297 ° 52.1 -1 ° 28.3	312 ° 52.3 -1 ° 27.3	327 ° 52.5 -1 ° 26.4	342 ° 52.7 -1 ° 25.4	357 ° 52.8 -1 ° 24.4	12 ° 53.0 -1 ° 23.4	27 ° 53.2 -1 ° 22.4	42 ° 53.4 -1 ° 21.4	57 ° 53.6 -1 ° 20.4	72 ° 53.7 -1 ° 19.4	+0.2 +1.0
Ср 17	267 ° 56.1 -1 ° 06.6	282 ° 56.2 -1 ° 05.6	297 ° 56.4 -1 ° 04.6	312 ° 56.6 -1 ° 03.6	327 ° 56.8 -1 ° 02.6	342 ° 57.0 -1 ° 01.6	357 ° 57.1 -1 ° 00.7	12 ° 57.3 -0 ° 59.7	27 ° 57.5 -0 ° 58.7	42 ° 57.7 -0 ° 57.7	57 ° 57.9 -0 ° 56.7	72 ° 58.0 -0 ° 55.7	+0.2 +1.0
Чт 18	268 ° 00.4 -0 ° 42.9	283 ° 00.6 -0 ° 41.9	298 ° 00.8 -0 ° 40.9	313 ° 01.0 -0 ° 39.9	328 ° 01.1 -0 ° 38.9	343 ° 01.3 -0 ° 37.9	358 ° 01.5 -0 ° 36.9	13 ° 01.7 -0 ° 35.9	28 ° 01.9 -0 ° 35.0	43 ° 02.0 -0 ° 34.0	58 ° 02.2 -0 ° 33.0	73 ° 02.4 -0 ° 32.0	+0.2 +1.0
Пт 19	268 ° 04.8 -0 ° 19.1	283 ° 05.0 -0 ° 18.2	298 ° 05.2 -0 ° 17.2	313 ° 05.3 -0 ° 16.2	328 ° 05.5 -0 ° 15.2	343 ° 05.7 -0 ° 14.2	358 ° 05.9 -0 ° 13.2	13 ° 06.1 -0 ° 12.2	28 ° 06.3 -0 ° 11.2	43 ° 06.4 -0 ° 10.2	58 ° 06.6 -0 ° 09.3	73 ° 06.8 -0 ° 08.3	+0.2 +1.0
Сб 20	268 ° 09.2 0 ° 04.6	283 ° 09.4 0 ° 05.6	298 ° 09.6 0 ° 06.5	313 ° 09.8 0 ° 07.5	328 ° 10.0 0 ° 08.5	343 ° 10.1 0 ° 09.5	358 ° 10.3 0 ° 10.5	13 ° 10.5 0 ° 11.5	28 ° 10.7 0 ° 12.5	43 ° 10.9 0 ° 13.5	58 ° 11.1 0 ° 14.5	73 ° 11.3 0 ° 15.4	+0.2 +1.0
Вс 21	268 ° 13.7 0 ° 28.3	283 ° 13.9 0 ° 29.3	298 ° 14.0 0 ° 30.2	313 ° 14.2 0 ° 31.2	328 ° 14.4 0 ° 32.2	343 ° 14.6 0 ° 33.2	358 ° 14.8 0 ° 34.2	13 ° 15.0 0 ° 35.2	28 ° 15.2 0 ° 36.2	43 ° 15.4 0 ° 37.2	58 ° 15.5 0 ° 38.1	73 ° 15.7 0 ° 39.1	+0.2 +1.0
Пн 22	268 ° 18.2 0 ° 51.9	283 ° 18.3 0 ° 52.9	298 ° 18.5 0 ° 53.9	313 ° 18.7 0 ° 54.9	328 ° 18.9 0 ° 55.9	343 ° 19.1 0 ° 56.9	358 ° 19.3 0 ° 57.9	13 ° 19.5 0 ° 58.8	28 ° 19.7 0 ° 59.8	43 ° 19.8 1 ° 00.8	58 ° 20.0 1 ° 01.8	73 ° 20.2 1 ° 02.8	+0.2 +1.0
Вт 23	268 ° 22.7 1 ° 15.6	283 ° 22.9 1 ° 16.6	298 ° 23.0 1 ° 17.6	313 ° 23.2 1 ° 18.5	328 ° 23.4 1 ° 19.5	343 ° 23.6 1 ° 20.5	358 ° 23.8 1 ° 21.5	13 ° 24.0 1 ° 22.5	28 ° 24.2 1 ° 23.5	43 ° 24.4 1 ° 24.5	58 ° 24.6 1 ° 25.4	73 ° 24.7 1 ° 26.4	+0.2 +1.0
Ср 24	268 ° 27.2 1 ° 39.2	283 ° 27.4 1 ° 40.2	298 ° 27.6 1 ° 41.2	313 ° 27.8 1 ° 42.2	328 ° 28.0 1 ° 43.1	343 ° 28.1 1 ° 44.1	358 ° 28.3 1 ° 45.1	13 ° 28.5 1 ° 46.1	28 ° 28.7 1 ° 47.1	43 ° 28.9 1 ° 48.1	58 ° 29.1 1 ° 49.0	73 ° 29.3 1 ° 50.0	+0.2 +1.0
Чт 25	268 ° 31.7 2 ° 02.8	283 ° 31.9 2 ° 03.8	298 ° 32.1 2 ° 04.7	313 ° 32.3 2 ° 05.7	328 ° 32.5 2 ° 06.7	343 ° 32.7 2 ° 07.7	358 ° 32.9 2 ° 08.7	13 ° 33.1 2 ° 09.6	28 ° 33.3 2 ° 10.6	43 ° 33.4 2 ° 11.6	58 ° 33.6 2 ° 12.6	73 ° 33.8 2 ° 13.6	+0.2 +1.0
Пт 26	268 ° 36.3 2 ° 26.3	283 ° 36.5 2 ° 27.3	298 ° 36.7 2 ° 28.3	313 ° 36.9 2 ° 29.2	328 ° 37.0 2 ° 30.2	343 ° 37.2 2 ° 31.2	358 ° 37.4 2 ° 32.2	13 ° 37.6 2 ° 33.2	28 ° 37.8 2 ° 34.1	43 ° 38.0 2 ° 35.1	58 ° 38.2 2 ° 36.1	73 ° 38.4 2 ° 37.1	+0.2 +1.0
Сб 27	268 ° 40.8 2 ° 49.8	283 ° 41.0 2 ° 50.8	298 ° 41.2 2 ° 51.7	313 ° 41.4 2 ° 52.7	328 ° 41.6 2 ° 53.7	343 ° 41.8 2 ° 54.7	358 ° 42.0 2 ° 55.7	13 ° 42.2 2 ° 56.6	28 ° 42.3 2 ° 57.6	43 ° 42.5 2 ° 58.6	58 ° 42.7 2 ° 59.6	73 ° 42.9 3 ° 00.5	+0.2 +1.0
Вс 28	268 ° 45.4 3 ° 13.2	283 ° 45.6 3 ° 14.2	298 ° 45.7 3 ° 15.2	313 ° 45.9 3 ° 16.1	328 ° 46.1 3 ° 17.1	343 ° 46.3 3 ° 18.1	358 ° 46.5 3 ° 19.1	13 ° 46.7 3 ° 20.0	28 ° 46.9 3 ° 21.0	43 ° 47.1 3 ° 22.0	58 ° 47.3 3 ° 23.0	73 ° 47.4 3 ° 23.9	+0.2 +1.0
Пн 29	268 ° 49.9 3 ° 36.6	283 ° 50.1 3 ° 37.5	298 ° 50.3 3 ° 38.5	313 ° 50.5 3 ° 39.5	328 ° 50.7 3 ° 40.5	343 ° 50.8 3 ° 41.4	358 ° 51.0 3 ° 42.4	13 ° 51.2 3 ° 43.4	28 ° 51.4 3 ° 44.4	43 ° 51.6 3 ° 45.3	58 ° 51.8 3 ° 46.3	73 ° 52.0 3 ° 47.3	+0.2 +1.0
Вт 30	268 ° 54.4 3 ° 59.9	283 ° 54.6 4 ° 00.8	298 ° 54.8 4 ° 01.8	313 ° 55.0 4 ° 02.8	328 ° 55.2 4 ° 03.7	343 ° 55.3 4 ° 04.7	358 ° 55.5 4 ° 05.7	13 ° 55.7 4 ° 06.7	28 ° 55.9 4 ° 07.6	43 ° 56.1 4 ° 08.6	58 ° 56.3 4 ° 09.6	73 ° 56.5 4 ° 10.5	+0.2 +1.0
Ср 31	268 ° 58.9 4 ° 23.1	283 ° 59.1 4 ° 24.1	298 ° 59.3 4 ° 25.0	313 ° 59.5 4 ° 26.0	328 ° 59.6 4 ° 27.0	343 ° 59.8 4 ° 27.9	359 ° 00.0 4 ° 28.9	14 ° 00.2 4 ° 29.9	29 ° 00.4 4 ° 30.8	44 ° 00.6 4 ° 31.8	59 ° 00.8 4 ° 32.7	74 ° 00.9 4 ° 33.7	+0.2 +1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2032

Д	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	R/p
Пн 1	235° 28.6	249° 59.6	264° 30.6	279° 01.6	293° 32.4	308° 03.2	322° 34.0	337° 04.7	351° 35.3	6° 05.9	20° 36.4	+30.8	15.3
	-12° 58.0	-13° 06.3	-13° 14.5	-13° 22.7	-13° 30.8	-13° 38.8	-13° 46.8	-13° 54.7	-14° 02.6	-14° 10.4	-14° 18.1	-8.0	56.1
Вт 2	238° 06.5	252° 35.9	267° 05.4	281° 34.7	296° 04.0	310° 33.3	325° 02.4	339° 31.5	354° 00.6	8° 29.5	22° 58.4	+29.2	15.5
	-16° 05.7	-16° 12.2	-16° 18.7	-16° 25.1	-16° 31.5	-16° 37.7	-16° 43.9	-16° 50.0	-16° 56.0	-17° 01.9	-17° 07.7	-6.2	56.7
Ср 3	240° 04.2	254° 32.1	268° 59.9	283° 27.6	297° 55.3	312° 23.0	326° 50.5	341° 18.0	355° 45.5	10° 12.8	24° 40.2	+27.6	15.7
	-18° 24.2	-18° 28.5	-18° 32.7	-18° 36.9	-18° 40.9	-18° 44.8	-18° 48.6	-18° 52.4	-18° 56.0	-18° 59.5	-19° 02.9	-3.9	57.4
Чт 4	241° 23.2	255° 49.6	270° 16.0	284° 42.4	299° 08.6	313° 34.9	328° 01.1	342° 27.2	356° 53.4	11° 19.4	25° 45.4	+26.2	15.9
	-19° 40.5	-19° 42.0	-19° 43.5	-19° 44.9	-19° 46.1	-19° 47.2	-19° 48.2	-19° 49.1	-19° 49.8	-19° 50.4	-19° 50.9	-1.1	58.2
◑ Пт 5	242° 11.1	256° 36.5	271° 02.0	285° 27.3	299° 52.7	314° 18.0	328° 43.4	343° 08.7	357° 33.9	11° 59.2	26° 24.4	+25.3	16.1
	-19° 43.5	-19° 42.0	-19° 40.4	-19° 38.6	-19° 36.7	-19° 34.7	-19° 32.5	-19° 30.2	-19° 27.8	-19° 25.3	-19° 22.6	+2.1	58.9
Сб 6	256° 36.5	271° 02.0	285° 27.3	299° 52.7	314° 18.0	328° 43.4	343° 08.7	357° 33.9	11° 59.2	26° 24.4	40° 49.6	+25.3	16.1
	-19° 42.0	-19° 40.4	-19° 38.6	-19° 36.7	-19° 34.7	-19° 32.5	-19° 30.2	-19° 27.8	-19° 25.3	-19° 22.6	-19° 19.8	+2.2	59.0
Вс 7	257° 06.2	271° 31.2	285° 56.2	300° 21.3	314° 46.3	329° 11.4	343° 36.4	358° 01.5	12° 26.5	26° 51.5	41° 16.6	+25.0	16.3
	-18° 22.4	-18° 17.6	-18° 12.6	-18° 07.5	-18° 02.3	-17° 56.9	-17° 51.4	-17° 45.8	-17° 40.1	-17° 34.3	-17° 28.3	+5.4	59.7
Пн 8	257° 33.6	271° 58.8	286° 24.1	300° 49.4	315° 14.7	329° 40.0	344° 05.3	358° 30.7	12° 56.1	27° 21.5	41° 46.9	+25.3	16.4
	-15° 44.5	-15° 36.6	-15° 28.7	-15° 20.6	-15° 12.4	-15° 04.2	-14° 55.8	-14° 47.3	-14° 38.7	-14° 30.0	-14° 21.2	+8.3	60.3
Вт 9	258° 11.2	272° 37.1	287° 02.9	301° 28.8	315° 54.7	330° 20.7	344° 46.6	359° 12.6	13° 38.7	28° 04.7	42° 30.8	+26.0	16.6
	-11° 57.6	-11° 47.3	-11° 36.9	-11° 26.4	-11° 15.9	-11° 05.3	-10° 54.6	-10° 43.8	-10° 33.0	-10° 22.0	-10° 11.1	+10.7	60.7
Ср 10	259° 05.7	273° 32.2	287° 58.8	302° 25.4	316° 52.0	331° 18.7	345° 45.4	0° 12.1	14° 38.9	29° 05.6	43° 32.4	+26.7	16.6
	-7° 18.6	-7° 06.6	-6° 54.6	-6° 42.6	-6° 30.5	-6° 18.4	-6° 06.2	-5° 54.0	-5° 41.8	-5° 29.5	-5° 17.2	+12.1	60.8
● Чт 11	260° 17.5	274° 44.7	289° 11.9	303° 39.1	318° 06.4	332° 33.6	347° 00.9	1° 28.3	15° 55.6	30° 22.9	44° 50.3	+27.3	16.5
	-2° 09.6	-1° 57.0	-1° 44.3	-1° 31.7	-1° 19.0	-1° 06.4	-0° 53.7	-0° 41.1	-0° 28.4	-0° 15.8	-0° 03.1	+12.7	60.7
Пт 12	261° 43.0	276° 10.6	290° 38.3	305° 05.9	319° 33.6	334° 01.3	348° 29.0	2° 56.7	17° 24.4	31° 52.2	46° 19.9	+27.7	16.4
	3° 04.9	3° 17.3	3° 29.6	3° 41.9	3° 54.2	4° 06.4	4° 18.6	4° 30.8	4° 42.9	4° 54.9	5° 07.0	+12.2	60.2
Сб 13	263° 17.2	277° 45.0	292° 12.9	306° 40.8	321° 08.7	335° 36.6	350° 04.6	4° 32.5	19° 00.4	33° 28.3	47° 56.3	+27.9	16.2
	8° 01.7	8° 12.9	8° 24.0	8° 35.1	8° 46.1	8° 57.0	9° 07.9	9° 18.7	9° 29.5	9° 40.1	9° 50.7	+10.9	59.4
Вс 14	264° 56.0	279° 24.0	293° 52.0	308° 20.0	322° 48.1	337° 16.1	351° 44.2	6° 12.2	20° 40.3	35° 08.3	49° 36.4	+28.0	16.0
	12° 20.6	12° 30.0	12° 39.3	12° 48.4	12° 57.5	13° 06.5	13° 15.4	13° 24.2	13° 33.0	13° 41.6	13° 50.1	+9.0	58.5
Пн 15	266° 38.3	281° 06.4	295° 34.6	310° 02.8	324° 31.1	338° 59.3	353° 27.5	7° 55.8	22° 24.0	36° 52.3	51° 20.6	+28.2	15.7
	15° 47.0	15° 54.0	16° 00.9	16° 07.7	16° 14.4	16° 21.0	16° 27.5	16° 33.9	16° 40.2	16° 46.4	16° 52.5	+6.6	57.6
Вт 16	268° 26.4	282° 54.9	297° 23.4	311° 51.9	326° 20.5	340° 49.1	355° 17.7	9° 46.3	24° 15.0	38° 43.6	53° 12.3	+28.6	15.4
	18° 11.5	18° 15.9	18° 20.2	18° 24.4	18° 28.5	18° 32.5	18° 36.4	18° 40.2	18° 43.9	18° 47.4	18° 50.9	+3.9	56.6
Ср 17	270° 25.3	284° 54.4	299° 23.5	313° 52.6	328° 21.8	342° 51.0	357° 20.2	11° 49.4	26° 18.7	40° 48.0	55° 17.3	+29.2	15.2
	19° 30.2	19° 32.0	19° 33.7	19° 35.2	19° 36.7	19° 38.1	19° 39.3	19° 40.5	19° 41.5	19° 42.5	19° 43.3	+1.3	55.8
◐ Чт 18	272° 41.3	287° 11.2	301° 41.1	316° 11.0	330° 41.0	345° 11.0	359° 41.1	14° 11.2	28° 41.3	43° 11.5	57° 41.7	+30.0	15.0
	19° 43.9	19° 43.2	19° 42.3	19° 41.4	19° 40.4	19° 39.2	19° 38.0	19° 36.7	19° 35.2	19° 33.7	19° 32.1	-1.2	55.1
Пт 19	275° 19.5	289° 50.3	304° 21.2	318° 52.1	333° 23.1	347° 54.1	2° 25.1	16° 56.2	31° 27.3	45° 58.5	60° 29.7	+31.0	14.9
	18° 56.8	18° 53.8	18° 50.6	18° 47.4	18° 44.1	18° 40.7	18° 37.2	18° 33.6	18° 29.9	18° 26.2	18° 22.3	-3.5	54.5
Сб 20	278° 22.6	292° 54.4	307° 26.3	321° 58.2	336° 30.2	351° 02.2	5° 34.2	20° 06.3	34° 38.4	49° 10.5	63° 42.7	+32.0	14.8
	17° 15.2	17° 10.1	17° 04.9	16° 59.7	16° 54.4	16° 49.0	16° 43.5	16° 38.0	16° 32.4	16° 26.7	16° 20.9	-5.4	54.2
Вс 21	281° 50.0	296° 22.7	310° 55.5	325° 28.3	340° 01.2	354° 34.1	9° 07.0	23° 40.0	38° 13.0	52° 46.0	67° 19.0	+32.9	14.7
	14° 46.5	14° 39.7	14° 32.8	14° 25.9	14° 18.9	14° 11.8	14° 04.7	13° 57.5	13° 50.3	13° 43.0	13° 35.6	-7.1	54.0
Пн 22	285° 38.1	300° 11.6	314° 45.1	329° 18.6	343° 52.2	358° 25.8	12° 59.4	27° 33.0	42° 06.6	56° 40.3	71° 13.9	+33.6	14.7
	11° 38.7	11° 30.5	11° 22.2	11° 13.9	11° 05.5	10° 57.1	10° 48.7	10° 40.2	10° 31.6	10° 23.1	10° 14.4	-8.4	54.0
Вт 23	289° 41.1	304° 15.0	318° 48.9	333° 22.8	347° 56.8	2° 30.8	17° 04.7	31° 38.7	46° 12.7	60° 46.7	75° 20.7	+34.0	14.8
	8° 00.0	7° 50.7	7° 41.4	7° 32.1	7° 22.7	7° 13.3	7° 03.8	6° 54.4	6° 44.8	6° 35.3	6° 25.7	-9.4	54.2
Ср 24	293° 51.0	308° 25.0	322° 59.0	337° 33.0	352° 07.0	6° 41.0	21° 15.0	35° 49.0	50° 23.0	64° 57.0	79° 31.0	+34.0	14.8
	3° 59.0	3° 49.0	3° 39.0	3° 29.0	3° 18.9	3° 08.9	2° 58.8	2° 48.7	2° 38.6	2° 28.5	2° 18.4	-10.1	54.4
Чт 25	297° 59.0	312° 32.8	327° 06.5	341° 40.2	356° 13.9	10° 47.6	25° 21.3	39° 54.9	54° 28.5	69° 02.1	83° 35.7	+33.7	14.9
	-0° 15.1	-0° 25.4	-0° 35.7	-0° 46.0	-0° 56.3	-1° 06.6	-1° 17.0	-1° 27.3	-1° 37.6	-1° 47.9	-1° 58.2	-10.3	54.8
Пт 26	301° 55.9	316° 29.0	331° 02.1	345° 35.1	0° 08.1	14° 41.1	29° 14.0	43° 46.9	58° 19.8	72° 52.6	87° 25.4	+33.0	15.1
	-4° 32.1	-4° 42.3	-4° 52.5	-5° 02.7	-5° 12.8	-5° 22.9	-5° 33.0	-5° 43.1	-5° 53.2	-6° 03.2	-6° 13.3	-10.1	55.2
○ Сб 27	305° 32.3	320° 04.4	334° 36.4	349° 08.5	3° 40.4	18° 12.4	32° 44.2	47° 16.0	61° 47.8	76° 19.5	90° 51.2	+31.9	15.2
	-8° 40.7	-8° 50.3	-8° 59.8	-9° 09.3	-9° 18.8	-9° 28.3	-9° 37.7	-9° 47.0	-9° 56.4	-10° 05.7	-10° 14.9	-9.4	55.7
Вс 28	308° 40.1	323° 10.9	337° 41.7	352° 12.4	6° 43.0	21° 13.6	35° 44.2	50° 14.6	64° 45.1	79° 15.4	93° 45.8	+30.6	15.3
	-12° 28.0	-12° 36.5	-12° 44.9	-12° 53.2	-13° 01.5	-13° 09.7	-13° 17.9	-13° 26.0	-13° 34.0	-13° 42.0	-13° 49.9	-8.2	56.2
Пн 29	311° 13.4	325° 42.8	340° 12.1	354° 41.4	9° 10.6	23° 39.8	38° 08.8	52° 37.9	67° 06.8	81° 35.7	96° 04.6	+29.1	15.5
	-15° 40.4	-15° 47.2	-15° 53.8	-16° 00.5	-16° 07.0	-16° 13.4	-16° 19.8	-16° 26.1	-16° 32.3	-16° 38.4	-16° 44.4	-6.4	56.7
Вт 30	325° 42.8	340° 12.1	354° 41.4	9° 10.6	23° 39.8	38° 08.8	52° 37.9	67° 06.8	81° 35.7	96° 04.6	110° 33.4	+29.1	15.5
	-15° 47.2	-15° 53.8	-16° 00.5	-16° 07.0	-16° 13.4	-16° 19.8	-16° 26.1	-16° 32.3	-16° 38.4	-16° 44.4	-16° 50.4	-6.3	56.7
Ср 31	327° 38.6	342° 06.5	356° 34.4	11° 02.2	25° 30.0	39° 57.7	54° 25.3	68° 52.9	83° 20.5	97° 48.0	112° 15.5	+27.7	15.6
	-18° 08.4	-18° 12.9	-18° 17.2	-18° 21.4	-18° 25.6	-18° 29.6	-18° 33.5	-18° 37.3	-18° 41.1	-18° 44.7	-18° 48.2	-4.0	57.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 5 01h47 — Новолуние: 11 16h24 — Первая четв.: 18 20h56 — Полнолуние: 27 00h46

СОЛНЦЕ

Апрель 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 03.4 4° 46.2	284° 03.5 4° 47.2	299° 03.7 4° 48.2	314° 03.9 4° 49.1	329° 04.1 4° 50.1	344° 04.3 4° 51.1	359° 04.5 4° 52.0	14° 04.7 4° 53.0	29° 04.8 4° 53.9	44° 05.0 4° 54.9	59° 05.2 4° 55.9	74° 05.4 4° 56.8	+0.2 +1.0
Пт 2	269° 07.8 5° 09.3	284° 08.0 5° 10.3	299° 08.1 5° 11.2	314° 08.3 5° 12.2	329° 08.5 5° 13.1	344° 08.7 5° 14.1	359° 08.9 5° 15.1	14° 09.1 5° 16.0	29° 09.2 5° 17.0	44° 09.4 5° 17.9	59° 09.6 5° 18.9	74° 09.8 5° 19.8	+0.2 +1.0
Сб 3	269° 12.2 5° 32.3	284° 12.4 5° 33.2	299° 12.5 5° 34.2	314° 12.7 5° 35.1	329° 12.9 5° 36.1	344° 13.1 5° 37.0	359° 13.3 5° 38.0	14° 13.4 5° 39.0	29° 13.6 5° 39.9	44° 13.8 5° 40.9	59° 14.0 5° 41.8	74° 14.2 5° 42.8	+0.2 +1.0
Вс 4	269° 16.5 5° 55.2	284° 16.7 5° 56.1	299° 16.9 5° 57.1	314° 17.1 5° 58.0	329° 17.2 5° 59.0	344° 17.4 5° 59.9	359° 17.6 6° 00.9	14° 17.8 6° 01.8	29° 17.9 6° 02.8	44° 18.1 6° 03.7	59° 18.3 6° 04.7	74° 18.5 6° 05.6	+0.2 +1.0
Пн 5	269° 20.8 6° 17.9	284° 21.0 6° 18.9	299° 21.2 6° 19.8	314° 21.3 6° 20.8	329° 21.5 6° 21.7	344° 21.7 6° 22.7	359° 21.9 6° 23.6	14° 22.0 6° 24.5	29° 22.2 6° 25.5	44° 22.4 6° 26.4	59° 22.6 6° 27.4	74° 22.8 6° 28.3	+0.2 +0.9
Вт 6	269° 25.0 6° 40.6	284° 25.2 6° 41.5	299° 25.4 6° 42.5	314° 25.6 6° 43.4	329° 25.7 6° 44.4	344° 25.9 6° 45.3	359° 26.1 6° 46.2	14° 26.3 6° 47.2	29° 26.4 6° 48.1	44° 26.6 6° 49.1	59° 26.8 6° 50.0	74° 27.0 6° 50.9	+0.2 +0.9
Ср 7	269° 29.2 7° 03.1	284° 29.4 7° 04.1	299° 29.6 7° 05.0	314° 29.7 7° 06.0	329° 29.9 7° 06.9	344° 30.1 7° 07.8	359° 30.3 7° 08.8	14° 30.4 7° 09.7	29° 30.6 7° 10.6	44° 30.8 7° 11.6	59° 31.0 7° 12.5	74° 31.1 7° 13.4	+0.2 +0.9
Чт 8	269° 33.3 7° 25.6	284° 33.5 7° 26.5	299° 33.7 7° 27.4	314° 33.9 7° 28.4	329° 34.0 7° 29.3	344° 34.2 7° 30.2	359° 34.4 7° 31.2	14° 34.5 7° 32.1	29° 34.7 7° 33.0	44° 34.9 7° 34.0	59° 35.0 7° 34.9	74° 35.2 7° 35.8	+0.2 +0.9
Пт 9	269° 37.4 7° 47.9	284° 37.6 7° 48.8	299° 37.7 7° 49.7	314° 37.9 7° 50.7	329° 38.1 7° 51.6	344° 38.2 7° 52.5	359° 38.4 7° 53.4	14° 38.6 7° 54.4	29° 38.7 7° 55.3	44° 38.9 7° 56.2	59° 39.1 7° 57.1	74° 39.2 7° 58.1	+0.2 +0.9
Сб 10	269° 41.4 8° 10.1	284° 41.6 8° 11.0	299° 41.7 8° 11.9	314° 41.9 8° 12.8	329° 42.1 8° 13.7	344° 42.2 8° 14.7	359° 42.4 8° 15.6	14° 42.5 8° 16.5	29° 42.7 8° 17.4	44° 42.9 8° 18.3	59° 43.0 8° 19.3	74° 43.2 8° 20.2	+0.2 +0.9
Вс 11	269° 45.3 8° 32.1	284° 45.5 8° 33.0	299° 45.6 8° 33.9	314° 45.8 8° 34.9	329° 46.0 8° 35.8	344° 46.1 8° 36.7	359° 46.3 8° 37.6	14° 46.4 8° 38.5	29° 46.6 8° 39.4	44° 46.8 8° 40.3	59° 46.9 8° 41.2	74° 47.1 8° 42.2	+0.2 +0.9
Пн 12	269° 49.2 8° 54.0	284° 49.3 8° 54.9	299° 49.5 8° 55.8	314° 49.6 8° 56.7	329° 49.8 8° 57.6	344° 50.0 8° 58.5	359° 50.1 8° 59.5	14° 50.3 9° 00.4	29° 50.4 9° 01.3	44° 50.6 9° 02.2	59° 50.7 9° 03.1	74° 50.9 9° 04.0	+0.2 +0.9
Вт 13	269° 52.9 9° 15.8	284° 53.1 9° 16.7	299° 53.2 9° 17.6	314° 53.4 9° 18.5	329° 53.6 9° 19.4	344° 53.7 9° 20.3	359° 53.9 9° 21.2	14° 54.0 9° 22.1	29° 54.2 9° 23.0	44° 54.3 9° 23.9	59° 54.5 9° 24.8	74° 54.6 9° 25.7	+0.2 +0.9
Ср 14	269° 56.6 9° 37.3	284° 56.8 9° 38.2	299° 56.9 9° 39.1	314° 57.1 9° 40.0	329° 57.2 9° 40.9	344° 57.4 9° 41.8	359° 57.5 9° 42.7	14° 57.7 9° 43.6	29° 57.8 9° 44.5	44° 58.0 9° 45.4	59° 58.1 9° 46.3	74° 58.3 9° 47.2	+0.2 +0.9
Чт 15	270° 00.2 9° 58.8	285° 00.4 9° 59.7	300° 00.5 10° 00.6	315° 00.7 10° 01.4	330° 00.8 10° 02.3	345° 01.0 10° 03.2	0° 01.1 10° 04.1	15° 01.3 10° 05.0	30° 01.4 10° 05.9	45° 01.6 10° 06.8	60° 01.7 10° 07.7	75° 01.9 10° 08.5	+0.1 +0.9
Пт 16	270° 03.8 10° 20.0	285° 03.9 10° 20.9	300° 04.0 10° 21.8	315° 04.2 10° 22.7	330° 04.3 10° 23.6	345° 04.5 10° 24.5	0° 04.6 10° 25.3	15° 04.8 10° 26.2	30° 04.9 10° 27.1	45° 05.1 10° 28.0	60° 05.2 10° 28.9	75° 05.3 10° 29.7	+0.1 +0.9
Сб 17	270° 07.2 10° 41.1	285° 07.3 10° 42.0	300° 07.5 10° 42.9	315° 07.6 10° 43.8	330° 07.7 10° 44.6	345° 07.9 10° 45.5	0° 08.0 10° 46.4	15° 08.2 10° 47.3	30° 08.3 10° 48.1	45° 08.4 10° 49.0	60° 08.6 10° 49.9	75° 08.7 10° 50.7	+0.1 +0.9
Вс 18	270° 10.5 11° 02.1	285° 10.7 11° 02.9	300° 10.8 11° 03.8	315° 10.9 11° 04.7	330° 11.1 11° 05.5	345° 11.2 11° 06.4	0° 11.3 11° 07.3	15° 11.5 11° 08.1	30° 11.6 11° 09.0	45° 11.8 11° 09.8	60° 11.9 11° 10.7	75° 12.0 11° 11.6	+0.1 +0.9
Пн 19	270° 13.8 11° 22.8	285° 13.9 11° 23.6	300° 14.0 11° 24.5	315° 14.2 11° 25.4	330° 14.3 11° 26.2	345° 14.4 11° 27.1	0° 14.6 11° 27.9	15° 14.7 11° 28.8	30° 14.8 11° 29.7	45° 15.0 11° 30.5	60° 15.1 11° 31.4	75° 15.2 11° 32.2	+0.1 +0.9
Вт 20	270° 16.9 11° 43.3	285° 17.0 11° 44.2	300° 17.2 11° 45.0	315° 17.3 11° 45.9	330° 17.4 11° 46.7	345° 17.6 11° 47.6	0° 17.7 11° 48.4	15° 17.8 11° 49.3	30° 17.9 11° 50.1	45° 18.1 11° 51.0	60° 18.2 11° 51.8	75° 18.3 11° 52.7	+0.1 +0.8
Ср 21	270° 19.9 12° 03.7	285° 20.1 12° 04.5	300° 20.2 12° 05.4	315° 20.3 12° 06.2	330° 20.4 12° 07.1	345° 20.6 12° 07.9	0° 20.7 12° 08.7	15° 20.8 12° 09.6	30° 20.9 12° 10.4	45° 21.1 12° 11.3	60° 21.2 12° 12.1	75° 21.3 12° 12.9	+0.1 +0.8
Чт 22	270° 22.9 12° 23.8	285° 23.0 12° 24.7	300° 23.1 12° 25.5	315° 23.2 12° 26.3	330° 23.4 12° 27.2	345° 23.5 12° 28.0	0° 23.6 12° 28.8	15° 23.7 12° 29.7	30° 23.8 12° 30.5	45° 23.9 12° 31.3	60° 24.1 12° 32.2	75° 24.2 12° 33.0	+0.1 +0.8
Пт 23	270° 25.7 12° 43.8	285° 25.8 12° 44.6	300° 25.9 12° 45.4	315° 26.0 12° 46.3	330° 26.2 12° 47.1	345° 26.3 12° 47.9	0° 26.4 12° 48.7	15° 26.5 12° 49.6	30° 26.6 12° 50.4	45° 26.7 12° 51.2	60° 26.8 12° 52.0	75° 27.0 12° 52.8	+0.1 +0.8
Сб 24	270° 28.4 13° 03.5	285° 28.5 13° 04.3	300° 28.6 13° 05.1	315° 28.7 13° 06.0	330° 28.8 13° 06.8	345° 28.9 13° 07.6	0° 29.1 13° 08.4	15° 29.2 13° 09.2	30° 29.3 13° 10.0	45° 29.4 13° 10.9	60° 29.5 13° 11.7	75° 29.6 13° 12.5	+0.1 +0.8
Вс 25	270° 31.0 13° 23.0	285° 31.1 13° 23.8	300° 31.2 13° 24.7	315° 31.3 13° 25.5	330° 31.4 13° 26.3	345° 31.5 13° 27.1	0° 31.6 13° 27.9	15° 31.7 13° 28.7	30° 31.8 13° 29.5	45° 31.9 13° 30.3	60° 32.0 13° 31.1	75° 32.1 13° 31.9	+0.1 +0.8
Пн 26	270° 33.5 13° 42.3	285° 33.6 13° 43.1	300° 33.7 13° 43.9	315° 33.8 13° 44.7	330° 33.9 13° 45.5	345° 34.0 13° 46.3	0° 34.0 13° 47.1	15° 34.1 13° 47.9	30° 34.2 13° 48.7	45° 34.3 13° 49.5	60° 34.4 13° 50.3	75° 34.5 13° 51.1	+0.1 +0.8
Вт 27	270° 35.8 14° 01.4	285° 35.9 14° 02.2	300° 36.0 14° 03.0	315° 36.1 14° 03.8	330° 36.2 14° 04.6	345° 36.3 14° 05.4	0° 36.4 14° 06.1	15° 36.5 14° 06.9	30° 36.5 14° 07.7	45° 36.6 14° 08.5	60° 36.7 14° 09.3	75° 36.8 14° 10.1	+0.1 +0.8
Ср 28	270° 38.0 14° 20.3	285° 38.1 14° 21.0	300° 38.2 14° 21.8	315° 38.3 14° 22.6	330° 38.4 14° 23.4	345° 38.4 14° 24.2	0° 38.5 14° 24.9	15° 38.6 14° 25.7	30° 38.7 14° 26.5	45° 38.8 14° 27.3	60° 38.9 14° 28.0	75° 39.0 14° 28.8	+0.1 +0.8
Чт 29	270° 40.1 14° 38.9	285° 40.2 14° 39.6	300° 40.2 14° 40.4	315° 40.3 14° 41.2	330° 40.4 14° 41.9	345° 40.5 14° 42.7	0° 40.6 14° 43.5	15° 40.7 14° 44.3	30° 40.7 14° 45.0	45° 40.8 14° 45.8	60° 40.9 14° 46.6	75° 41.0 14° 47.3	+0.1 +0.8
Пт 30	270° 42.0 14° 57.2	285° 42.1 14° 58.0	300° 42.2 14° 58.8	315° 42.3 14° 59.5	330° 42.3 15° 00.3	345° 42.4 15° 01.0	0° 42.5 15° 01.8	15° 42.6 15° 02.5	30° 42.6 15° 03.3	45° 42.7 15° 04.1	60° 42.8 15° 04.8	75° 42.9 15° 05.6	+0.1 +0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2032

Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	R/p
Чт 1	243° 25.5 -19° 40.3	257° 51.7 -19° 39.8	272° 17.9 -19° 39.1	286° 44.1 -19° 38.3	301° 10.3 -19° 37.4	315° 36.4 -19° 36.4	330° 02.6 -19° 35.3	344° 28.7 -19° 34.0	358° 54.8 -19° 32.6	13° 20.9 -19° 31.1	27° 47.0 -19° 29.5	+26.1 +1.1	15.9 58.2
Пт 2	244° 17.2 -18° 50.4	258° 43.2 -18° 46.8	273° 09.2 -18° 43.1	287° 35.1 -18° 39.3	302° 01.1 -18° 35.4	316° 27.1 -18° 31.3	330° 53.1 -18° 27.1	345° 19.1 -18° 22.8	359° 45.2 -18° 18.4	14° 11.2 -18° 13.9	28° 37.2 -18° 09.2	+26.0 +4.1	16.0 58.7
◑ Сб 3	245° 08.9 -16° 45.6	259° 35.2 -16° 39.1	274° 01.4 -16° 32.5	288° 27.7 -16° 25.8	302° 54.0 -16° 19.0	317° 20.3 -16° 12.1	331° 46.6 -16° 05.1	346° 13.0 -15° 58.0	0° 39.3 -15° 50.8	15° 05.7 -15° 43.5	29° 32.1 -15° 36.0	+26.3 +7.0	16.1 59.2
Вс 4	259° 35.2 -16° 39.1	274° 01.4 -16° 32.5	288° 27.7 -16° 25.8	302° 54.0 -16° 19.0	317° 20.3 -16° 12.1	331° 46.6 -16° 05.1	346° 13.0 -15° 58.0	0° 39.3 -15° 50.8	15° 05.7 -15° 43.5	29° 32.1 -15° 36.0	43° 58.6 -15° 28.5	+26.3 +7.1	16.2 59.2
Пн 5	260° 37.8 -13° 23.8	275° 04.7 -13° 14.8	289° 31.5 -13° 05.6	303° 58.4 -12° 56.4	318° 25.3 -12° 47.1	332° 52.2 -12° 37.7	347° 19.1 -12° 28.2	1° 46.1 -12° 18.6	16° 13.1 -12° 09.0	30° 40.1 -11° 59.3	45° 07.1 -11° 49.5	+26.9 +9.4	16.3 59.6
Вт 6	261° 55.7 -9° 13.7	276° 23.1 -9° 02.8	290° 50.6 -8° 51.9	305° 18.1 -8° 40.8	319° 45.6 -8° 29.7	334° 13.1 -8° 18.6	348° 40.6 -8° 07.4	3° 08.2 -7° 56.2	17° 35.8 -7° 44.9	32° 03.4 -7° 33.5	46° 31.0 -7° 22.1	+27.5 +11.2	16.3 59.9
Ср 7	263° 27.7 -4° 26.1	277° 55.6 -4° 14.1	292° 23.5 -4° 02.1	306° 51.4 -3° 50.0	321° 19.4 -3° 37.9	335° 47.3 -3° 25.8	350° 15.3 -3° 13.7	4° 43.3 -3° 01.5	19° 11.3 -2° 49.4	33° 39.3 -2° 37.2	48° 07.3 -2° 25.0	+28.0 +12.1	16.4 60.0
Чт 8	265° 08.6 0° 38.9	279° 36.8 0° 51.2	294° 04.9 1° 03.5	308° 33.0 1° 15.7	323° 01.2 1° 27.9	337° 29.3 1° 40.2	351° 57.5 1° 52.4	6° 25.6 2° 04.6	20° 53.8 2° 16.8	35° 21.9 2° 28.9	49° 50.1 2° 41.1	+28.1 +12.2	16.3 59.9
Пт 9	266° 52.1 5° 40.0	281° 20.2 5° 51.7	295° 48.3 6° 03.3	310° 16.4 6° 14.9	324° 44.5 6° 26.4	339° 12.5 6° 37.9	353° 40.6 6° 49.4	8° 08.7 7° 00.8	22° 36.8 7° 12.1	37° 04.8 7° 23.4	51° 32.9 7° 34.6	+28.1 +11.5	16.2 59.5
● Сб 10	268° 32.6 10° 16.3	283° 00.5 10° 26.6	297° 28.4 10° 36.8	311° 56.3 10° 46.9	326° 24.2 10° 56.9	340° 52.1 11° 06.9	355° 20.0 11° 16.8	9° 47.8 11° 26.6	24° 15.7 11° 36.4	38° 43.5 11° 46.1	53° 11.4 11° 55.6	+27.9 +9.9	16.1 59.0
Вс 11	270° 08.1 14° 09.4	284° 35.8 14° 17.7	299° 03.5 14° 25.8	313° 31.2 14° 33.8	327° 59.0 14° 41.7	342° 26.7 14° 49.6	356° 54.4 14° 57.3	11° 22.1 15° 04.9	25° 49.8 15° 12.5	40° 17.5 15° 19.9	54° 45.2 15° 27.3	+27.7 +7.8	15.9 58.2
Пн 12	271° 40.9 17° 05.4	286° 08.7 17° 11.1	300° 36.4 17° 16.7	315° 04.2 17° 22.2	329° 31.9 17° 27.6	343° 59.7 17° 32.9	358° 27.5 17° 38.1	12° 55.3 17° 43.1	27° 23.1 17° 48.1	41° 50.9 17° 53.0	56° 18.7 17° 57.7	+27.8 +5.2	15.7 57.4
Вт 13	273° 18.0 18° 55.8	287° 46.1 18° 58.9	302° 14.2 19° 01.7	316° 42.3 19° 04.5	331° 10.5 19° 07.2	345° 38.7 19° 09.8	0° 06.9 19° 12.2	14° 35.1 19° 14.6	29° 03.4 19° 16.8	43° 31.7 19° 18.9	58° 00.0 19° 21.0	+28.2 +2.5	15.4 56.6
Ср 14	275° 08.5 19° 38.4	289° 37.3 19° 38.7	304° 06.2 19° 38.9	318° 35.1 19° 39.0	333° 04.1 19° 39.0	347° 33.0 19° 38.9	2° 02.1 19° 38.7	16° 31.1 19° 38.4	31° 00.2 19° 38.0	45° 29.4 19° 37.5	59° 58.6 19° 36.8	+29.0 -0.2	15.2 55.8
Чт 15	277° 21.4 19° 15.7	291° 51.3 19° 13.6	306° 21.2 19° 11.3	320° 51.2 19° 08.9	335° 21.2 19° 06.5	349° 51.3 19° 03.9	4° 21.4 19° 01.3	18° 51.6 18° 58.5	33° 21.8 18° 55.7	47° 52.0 18° 52.8	62° 22.3 18° 49.8	+30.1 -2.6	15.0 55.2
Пт 16	280° 02.6 17° 54.3	294° 33.7 17° 49.9	309° 04.8 17° 45.5	323° 36.0 17° 41.0	338° 07.2 17° 36.4	352° 38.5 17° 31.7	7° 09.8 17° 26.9	21° 41.1 17° 22.1	36° 12.5 17° 17.2	50° 44.0 17° 12.2	65° 15.5 17° 07.1	+31.3 -4.7	14.9 54.6
◐ Сб 17	283° 13.5 15° 42.4	297° 45.7 15° 36.2	312° 18.0 15° 29.9	326° 50.3 15° 23.6	341° 22.7 15° 17.1	355° 55.1 15° 10.7	10° 27.5 15° 04.2	25° 00.0 14° 57.6	39° 32.5 14° 50.9	54° 05.1 14° 44.2	68° 37.7 14° 37.4	+32.4 -6.5	14.8 54.3
Вс 18	286° 51.2 12° 48.6	301° 24.4 12° 40.9	315° 57.6 12° 33.2	330° 30.9 12° 25.4	345° 04.2 12° 17.5	359° 37.5 12° 09.6	14° 10.8 12° 01.7	28° 44.2 11° 53.7	43° 17.6 11° 45.6	57° 51.0 11° 37.5	72° 24.5 11° 29.4	+33.3 -7.9	14.8 54.1
Пн 19	290° 49.4 9° 21.7	305° 23.2 9° 12.8	319° 57.0 9° 04.0	334° 30.9 8° 55.0	349° 04.8 8° 46.1	3° 38.7 8° 37.1	18° 12.6 8° 28.0	32° 46.5 8° 18.9	47° 20.5 8° 09.8	61° 54.4 8° 00.7	76° 28.4 7° 51.5	+33.9 -9.0	14.8 54.2
Вт 20	294° 59.2 5° 29.8	309° 33.3 5° 20.1	324° 07.4 5° 10.4	338° 41.5 5° 00.7	353° 15.6 4° 50.9	7° 49.7 4° 41.2	22° 23.8 4° 31.4	36° 57.8 4° 21.5	51° 31.9 4° 11.7	66° 06.0 4° 01.8	80° 40.1 3° 51.9	+34.1 -9.8	14.8 54.4
Ср 21	299° 10.5 1° 21.3	313° 44.4 1° 11.2	328° 18.4 1° 01.0	342° 52.3 0° 50.8	357° 26.1 0° 40.6	12° 00.0 0° 30.4	26° 33.9 0° 20.2	41° 07.7 0° 10.0	55° 41.5 -0° 00.3	70° 15.3 -0° 10.5	84° 49.0 -0° 20.7	+33.9 -10.2	14.9 54.7
Чт 22	303° 12.5 -2° 54.7	317° 45.9 -3° 05.0	332° 19.2 -3° 15.3	346° 52.4 -3° 25.5	1° 25.7 -3° 35.7	15° 58.8 -3° 46.0	30° 32.0 -3° 56.2	45° 05.1 -4° 06.4	59° 38.2 -4° 16.6	74° 11.3 -4° 26.8	88° 44.3 -4° 37.0	+33.2 -10.2	15.1 55.2
Пт 23	306° 54.4 -7° 07.9	321° 26.7 -7° 17.9	335° 59.0 -7° 27.7	350° 31.2 -7° 37.6	5° 03.4 -7° 47.4	19° 35.5 -7° 57.2	34° 07.6 -8° 07.0	48° 39.6 -8° 16.7	63° 11.5 -8° 26.4	77° 43.5 -8° 36.1	92° 15.3 -8° 45.8	+32.1 -9.8	15.2 55.8
Сб 24	310° 06.4 -11° 06.1	324° 37.4 -11° 15.1	339° 08.3 -11° 24.0	353° 39.1 -11° 33.0	8° 09.9 -11° 41.8	22° 40.6 -11° 50.7	37° 11.2 -11° 59.4	51° 41.8 -12° 08.1	66° 12.3 -12° 16.8	80° 42.7 -12° 25.4	95° 13.1 -12° 34.0	+30.7 -8.8	15.4 56.4
○ Вс 25	312° 41.3 -14° 34.9	327° 10.7 -14° 42.5	341° 40.0 -14° 49.9	356° 09.2 -14° 57.3	10° 38.4 -15° 04.6	25° 07.5 -15° 11.9	39° 36.5 -15° 19.0	54° 05.5 -15° 26.1	68° 34.4 -15° 33.1	83° 03.2 -15° 40.0	97° 32.0 -15° 46.9	+29.1 -7.2	15.5 56.9
Пн 26	314° 36.2 -17° 19.2	329° 04.0 -17° 24.7	343° 31.7 -17° 30.0	357° 59.4 -17° 35.2	12° 27.0 -17° 40.4	26° 54.6 -17° 45.4	41° 22.1 -17° 50.3	55° 49.5 -17° 55.2	70° 16.9 -17° 59.9	84° 44.2 -18° 04.5	99° 11.5 -18° 09.1	+27.5 -5.0	15.7 57.5
Вт 27	315° 54.7 -19° 04.2	330° 21.3 -19° 07.0	344° 47.7 -19° 09.6	359° 14.2 -19° 12.2	13° 40.6 -19° 14.6	28° 06.9 -19° 17.0	42° 33.3 -19° 19.2	56° 59.5 -19° 21.2	71° 25.8 -19° 23.2	85° 52.0 -19° 25.1	100° 18.2 -19° 26.8	+26.3 -2.3	15.8 58.0
Ср 28	330° 21.3 -19° 07.0	344° 47.7 -19° 09.6	359° 14.2 -19° 12.2	13° 40.6 -19° 14.6	28° 06.9 -19° 17.0	42° 33.3 -19° 19.2	56° 59.5 -19° 21.2	71° 25.8 -19° 23.2	85° 52.0 -19° 25.1	100° 18.2 -19° 26.8	114° 44.3 -19° 28.4	+26.3 -2.1	15.8 58.0
Чт 29	331° 13.5 -19° 38.0	345° 39.3 -19° 37.7	0° 05.1 -19° 37.2	14° 30.8 -19° 36.6	28° 56.6 -19° 35.9	43° 22.3 -19° 35.1	57° 48.0 -19° 34.1	72° 13.8 -19° 33.0	86° 39.5 -19° 31.8	101° 05.2 -19° 30.4	115° 30.9 -19° 29.0	+25.7 +0.9	15.9 58.4
Пт 30	331° 56.6 -18° 52.2	346° 22.3 -18° 48.8	0° 48.1 -18° 45.2	15° 13.9 -18° 41.6	29° 39.7 -18° 37.8	44° 05.6 -18° 33.9	58° 31.4 -18° 29.8	72° 57.3 -18° 25.7	87° 23.1 -18° 21.4	101° 49.0 -18° 17.0	116° 15.0 -18° 12.5	+25.8 +4.0	16.0 58.8

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 3 10h10 — Новолуние: 10 02h39 — Первая четв.: 17 15h24 — Полнолуние: 25 15h09

СОЛНЦЕ

Май 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	270° 43.8	285° 43.9	300° 44.0	315° 44.0	330° 44.1	345° 44.2	0° 44.3	15° 44.3	30° 44.4	45° 44.5	60° 44.5	75° 44.6	+0.1
	15° 15.4	15° 16.1	15° 16.9	15° 17.6	15° 18.4	15° 19.1	15° 19.9	15° 20.6	15° 21.3	15° 22.1	15° 22.8	15° 23.6	+0.7
Вс 2	270° 45.5	285° 45.6	300° 45.6	315° 45.7	330° 45.8	345° 45.8	0° 45.9	15° 46.0	30° 46.0	45° 46.1	60° 46.2	75° 46.2	+0.1
	15° 33.2	15° 34.0	15° 34.7	15° 35.4	15° 36.2	15° 36.9	15° 37.7	15° 38.4	15° 39.1	15° 39.9	15° 40.6	15° 41.3	+0.7
Пн 3	270° 47.0	285° 47.1	300° 47.1	315° 47.2	330° 47.3	345° 47.3	0° 47.4	15° 47.4	30° 47.5	45° 47.6	60° 47.6	75° 47.7	+0.1
	15° 50.8	15° 51.6	15° 52.3	15° 53.0	15° 53.8	15° 54.5	15° 55.2	15° 55.9	15° 56.7	15° 57.4	15° 58.1	15° 58.8	+0.7
Вт 4	270° 48.4	285° 48.5	300° 48.5	315° 48.6	330° 48.6	345° 48.7	0° 48.7	15° 48.8	30° 48.8	45° 48.9	60° 48.9	75° 49.0	+0.1
	16° 08.2	16° 08.9	16° 09.6	16° 10.3	16° 11.1	16° 11.8	16° 12.5	16° 13.2	16° 13.9	16° 14.6	16° 15.4	16° 16.1	+0.7
Ср 5	270° 49.6	285° 49.7	300° 49.7	315° 49.8	330° 49.8	345° 49.9	0° 49.9	15° 50.0	30° 50.0	45° 50.1	60° 50.1	75° 50.2	+0.0
	16° 25.3	16° 26.0	16° 26.7	16° 27.4	16° 28.1	16° 28.8	16° 29.5	16° 30.2	16° 30.9	16° 31.6	16° 32.3	16° 33.0	+0.7
Чт 6	270° 50.7	285° 50.8	300° 50.8	315° 50.9	330° 50.9	345° 50.9	0° 51.0	15° 51.0	30° 51.1	45° 51.1	60° 51.1	75° 51.2	+0.0
	16° 42.1	16° 42.8	16° 43.5	16° 44.2	16° 44.9	16° 45.6	16° 46.3	16° 46.9	16° 47.6	16° 48.3	16° 49.0	16° 49.7	+0.7
Пт 7	270° 51.7	285° 51.7	300° 51.8	315° 51.8	330° 51.8	345° 51.9	0° 51.9	15° 51.9	30° 52.0	45° 52.0	60° 52.0	75° 52.1	+0.0
	16° 58.6	16° 59.3	17° 00.0	17° 00.7	17° 01.4	17° 02.0	17° 02.7	17° 03.4	17° 04.1	17° 04.8	17° 05.4	17° 06.1	+0.7
Сб 8	270° 52.5	285° 52.5	300° 52.5	315° 52.6	330° 52.6	345° 52.6	0° 52.7	15° 52.7	30° 52.7	45° 52.7	60° 52.8	75° 52.8	+0.0
	17° 14.9	17° 15.6	17° 16.2	17° 16.9	17° 17.6	17° 18.2	17° 18.9	17° 19.6	17° 20.2	17° 20.9	17° 21.6	17° 22.2	+0.7
Вс 9	270° 53.1	285° 53.2	300° 53.2	315° 53.2	330° 53.2	345° 53.3	0° 53.3	15° 53.3	30° 53.3	45° 53.4	60° 53.4	75° 53.4	+0.0
	17° 30.8	17° 31.5	17° 32.2	17° 32.8	17° 33.5	17° 34.1	17° 34.8	17° 35.4	17° 36.1	17° 36.8	17° 37.4	17° 38.1	+0.7
Пн 10	270° 53.7	285° 53.7	300° 53.7	315° 53.7	330° 53.7	345° 53.7	0° 53.8	15° 53.8	30° 53.8	45° 53.8	60° 53.8	75° 53.8	+0.0
	17° 46.5	17° 47.2	17° 47.8	17° 48.5	17° 49.1	17° 49.7	17° 50.4	17° 51.0	17° 51.7	17° 52.3	17° 53.0	17° 53.6	+0.6
Вт 11	270° 54.0	285° 54.0	300° 54.1	315° 54.1	330° 54.1	345° 54.1	0° 54.1	15° 54.1	30° 54.1	45° 54.1	60° 54.1	75° 54.2	+0.0
	18° 01.9	18° 02.5	18° 03.2	18° 03.8	18° 04.4	18° 05.1	18° 05.7	18° 06.3	18° 06.9	18° 07.6	18° 08.2	18° 08.8	+0.6
Ср 12	270° 54.3	285° 54.3	300° 54.3	315° 54.3	330° 54.3	345° 54.3	0° 54.3	15° 54.3	30° 54.3	45° 54.3	60° 54.3	75° 54.3	+0.0
	18° 17.0	18° 17.6	18° 18.2	18° 18.8	18° 19.4	18° 20.1	18° 20.7	18° 21.3	18° 21.9	18° 22.5	18° 23.1	18° 23.8	+0.6
Чт 13	270° 54.4	285° 54.4	300° 54.4	315° 54.4	330° 54.4	345° 54.4	0° 54.4	15° 54.4	30° 54.4	45° 54.4	60° 54.3	75° 54.3	-0.0
	18° 31.7	18° 32.3	18° 32.9	18° 33.5	18° 34.1	18° 34.8	18° 35.4	18° 36.0	18° 36.6	18° 37.2	18° 37.8	18° 38.4	+0.6
Пт 14	270° 54.3	285° 54.3	300° 54.3	315° 54.3	330° 54.3	345° 54.3	0° 54.3	15° 54.3	30° 54.3	45° 54.3	60° 54.2	75° 54.2	-0.0
	18° 46.2	18° 46.8	18° 47.4	18° 47.9	18° 48.5	18° 49.1	18° 49.7	18° 50.3	18° 50.9	18° 51.5	18° 52.1	18° 52.7	+0.6
Сб 15	270° 54.1	285° 54.1	300° 54.1	315° 54.1	330° 54.1	345° 54.1	0° 54.1	15° 54.0	30° 54.0	45° 54.0	60° 54.0	75° 54.0	-0.0
	19° 00.3	19° 00.9	19° 01.5	19° 02.0	19° 02.6	19° 03.2	19° 03.8	19° 04.4	19° 04.9	19° 05.5	19° 06.1	19° 06.7	+0.6
Вс 16	270° 53.8	285° 53.8	300° 53.8	315° 53.7	330° 53.7	345° 53.7	0° 53.7	15° 53.7	30° 53.7	45° 53.6	60° 53.6	75° 53.6	-0.0
	19° 14.1	19° 14.7	19° 15.2	19° 15.8	19° 16.4	19° 16.9	19° 17.5	19° 18.1	19° 18.6	19° 19.2	19° 19.8	19° 20.3	+0.6
Пн 17	270° 53.3	285° 53.3	300° 53.3	315° 53.3	330° 53.2	345° 53.2	0° 53.2	15° 53.2	30° 53.2	45° 53.1	60° 53.1	75° 53.1	-0.0
	19° 27.6	19° 28.1	19° 28.7	19° 29.2	19° 29.8	19° 30.4	19° 30.9	19° 31.5	19° 32.0	19° 32.6	19° 33.1	19° 33.7	+0.6
Вт 18	270° 52.7	285° 52.7	300° 52.7	315° 52.7	330° 52.6	345° 52.6	0° 52.6	15° 52.5	30° 52.5	45° 52.5	60° 52.5	75° 52.4	-0.0
	19° 40.7	19° 41.3	19° 41.8	19° 42.4	19° 42.9	19° 43.4	19° 44.0	19° 44.5	19° 45.0	19° 45.6	19° 46.1	19° 46.6	+0.5
Ср 19	270° 52.0	285° 52.0	300° 52.0	315° 51.9	330° 51.9	345° 51.9	0° 51.8	15° 51.8	30° 51.8	45° 51.7	60° 51.7	75° 51.6	-0.0
	19° 53.5	19° 54.1	19° 54.6	19° 55.1	19° 55.6	19° 56.2	19° 56.7	19° 57.2	19° 57.7	19° 58.3	19° 58.8	19° 59.3	+0.5
Чт 20	270° 51.2	285° 51.1	300° 51.1	315° 51.1	330° 51.0	345° 51.0	0° 50.9	15° 50.9	30° 50.9	45° 50.8	60° 50.8	75° 50.7	-0.0
	20° 06.0	20° 06.5	20° 07.0	20° 07.6	20° 08.1	20° 08.6	20° 09.1	20° 09.6	20° 10.1	20° 10.6	20° 11.1	20° 11.6	+0.5
Пт 21	270° 50.2	285° 50.1	300° 50.1	315° 50.0	330° 50.0	345° 50.0	0° 49.9	15° 49.9	30° 49.8	45° 49.8	60° 49.7	75° 49.7	-0.0
	20° 18.1	20° 18.6	20° 19.1	20° 19.6	20° 20.1	20° 20.6	20° 21.1	20° 21.6	20° 22.1	20° 22.6	20° 23.1	20° 23.6	+0.5
Сб 22	270° 49.1	285° 49.0	300° 49.0	315° 48.9	330° 48.9	345° 48.8	0° 48.8	15° 48.7	30° 48.7	45° 48.6	60° 48.6	75° 48.5	-0.1
	20° 29.9	20° 30.4	20° 30.9	20° 31.4	20° 31.9	20° 32.3	20° 32.8	20° 33.3	20° 33.8	20° 34.3	20° 34.7	20° 35.2	+0.5
Вс 23	270° 47.8	285° 47.8	300° 47.7	315° 47.7	330° 47.6	345° 47.6	0° 47.5	15° 47.4	30° 47.4	45° 47.3	60° 47.3	75° 47.2	-0.1
	20° 41.4	20° 41.8	20° 42.3	20° 42.8	20° 43.2	20° 43.7	20° 44.2	20° 44.6	20° 45.1	20° 45.6	20° 46.0	20° 46.5	+0.5
Пн 24	270° 46.5	285° 46.4	300° 46.3	315° 46.3	330° 46.2	345° 46.2	0° 46.1	15° 46.0	30° 46.0	45° 45.9	60° 45.9	75° 45.8	-0.1
	20° 52.4	20° 52.9	20° 53.3	20° 53.8	20° 54.2	20° 54.7	20° 55.1	20° 55.6	20° 56.0	20° 56.5	20° 56.9	20° 57.4	+0.5
Вт 25	270° 45.0	285° 44.9	300° 44.8	315° 44.8	330° 44.7	345° 44.6	0° 44.6	15° 44.5	30° 44.5	45° 44.4	60° 44.3	75° 44.3	-0.1
	21° 03.1	21° 03.6	21° 04.0	21° 04.5	21° 04.9	21° 05.3	21° 05.8	21° 06.2	21° 06.6	21° 07.1	21° 07.5	21° 07.9	+0.4
Ср 26	270° 43.4	285° 43.3	300° 43.2	315° 43.2	330° 43.1	345° 43.0	0° 42.9	15° 42.9	30° 42.8	45° 42.7	60° 42.7	75° 42.6	-0.1
	21° 13.5	21° 13.9	21° 14.3	21° 14.8	21° 15.2	21° 15.6	21° 16.0	21° 16.4	21° 16.9	21° 17.3	21° 17.7	21° 18.1	+0.4
Чт 27	270° 41.6	285° 41.6	300° 41.5	315° 41.4	330° 41.3	345° 41.3	0° 41.2	15° 41.1	30° 41.0	45° 41.0	60° 40.9	75° 40.8	-0.1
	21° 23.5	21° 23.9	21° 24.3	21° 24.7	21° 25.1	21° 25.5	21° 25.9	21° 26.3	21° 26.7	21° 27.1	21° 27.5	21° 27.9	+0.4
Пт 28	270° 39.8	285° 39.7	300° 39.6	315° 39.5	330° 39.5	345° 39.4	0° 39.3	15° 39.2	30° 39.1	45° 39.1	60° 39.0	75° 38.9	-0.1
	21° 33.1	21° 33.5	21° 33.9	21° 34.3	21° 34.7	21° 35.1	21° 35.4	21° 35.8	21° 36.2	21° 36.6	21° 37.0	21° 37.4	+0.4
Сб 29	270° 37.8	285° 37.7	300° 37.7	315° 37.6	330° 37.5	345° 37.4	0° 37.3	15° 37.2	30° 37.1	45° 37.1	60° 37.0	75° 36.9	-0.1
	21° 42.3	21° 42.7	21° 43.1	21° 43.5	21° 43.8	21° 44.2	21° 44.6	21° 45.0	21° 45.3	21° 45.7	21° 46.1	21° 46.4	+0.4
Вс 30	270° 35.7	285° 35.7	300° 35.6	315° 35.5	330° 35.4	345° 35.3	0° 35.2	15° 35.1	30° 35.0	45° 34.9	60° 34.8	75° 34.8	-0.1
	21° 51.2	21° 51.6	21° 51.9	21° 52.3	21° 52.6	21° 53.0	21° 53.4	21° 53.7	21° 54.1	21° 54.4	21° 54.8	21° 55.1	+0.4
Пн 31	270° 33.6	285° 33.5	300° 33.4	315° 33.3	330° 33.2	345° 33.1	0° 33.0	15° 32.9	30° 32.8	45° 32.7	60° 32.6	75° 32.5	-0.1
	21° 59.7	22° 00.0	22° 00.4	22° 00.7	22° 01.1	22° 01.4	22° 01.7	22° 02.1	22° 02.4	22° 02.8	22° 03.1	22° 03.4	+0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2032

	Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ°/h	R/p
	Сб 1	232° 45.5 -14° 42.4	247° 12.5 -14° 34.3	261° 39.4 -14° 26.1	276° 06.4 -14° 17.9	290° 33.5 -14° 09.5	305° 00.6 -14° 01.1	319° 27.7 -13° 52.5	333° 54.9 -13° 43.9	348° 22.1 -13° 35.2	2° 49.3 -13° 26.4	17° 16.6 -13° 17.6	+27.1 +8.5	16.1 59.1
◑	Вс 2	234° 10.1 -10° 55.3	248° 38.0 -10° 45.2	263° 05.8 -10° 35.1	277° 33.8 -10° 24.9	292° 01.7 -10° 14.7	306° 29.7 -10° 04.4	320° 57.7 -9° 54.0	335° 25.8 -9° 43.6	349° 53.9 -9° 33.1	4° 22.0 -9° 22.6	18° 50.1 -9° 12.0	+28.0 +10.3	16.2 59.3
	Пн 3	235° 55.9 -6° 27.0	250° 24.5 -6° 15.7	264° 53.1 -6° 04.3	279° 21.8 -5° 52.9	293° 50.5 -5° 41.4	308° 19.2 -5° 30.0	322° 47.9 -5° 18.5	337° 16.6 -5° 06.9	351° 45.3 -4° 55.3	6° 14.1 -4° 43.7	20° 42.9 -4° 32.1	+28.7 +11.5	16.2 59.3
	Вт 4	250° 24.5 -6° 15.7	264° 53.1 -6° 04.3	279° 21.8 -5° 52.9	293° 50.5 -5° 41.4	308° 19.2 -5° 30.0	322° 47.9 -5° 18.5	337° 16.6 -5° 06.9	351° 45.3 -4° 55.3	6° 14.1 -4° 43.7	20° 42.9 -4° 32.1	35° 11.7 -4° 20.5	+28.7 +11.5	16.2 59.3
	Ср 5	252° 25.7 -1° 23.4	266° 54.7 -1° 11.5	281° 23.8 -0° 59.6	295° 52.8 -0° 47.7	310° 21.9 -0° 35.8	324° 50.9 -0° 23.9	339° 20.0 -0° 11.9	353° 49.1 -0° 00.0	8° 18.1 0° 11.9	22° 47.2 0° 23.8	37° 16.3 0° 35.7	+29.1 +11.9	16.1 59.2
	Чт 6	254° 32.5 3° 33.1	269° 01.6 3° 44.7	283° 30.6 3° 56.4	297° 59.7 4° 08.0	312° 28.7 4° 19.6	326° 57.8 4° 31.2	341° 26.8 4° 42.8	355° 55.8 4° 54.3	10° 24.8 5° 05.8	24° 53.8 5° 17.2	39° 22.8 5° 28.7	+29.0 +11.6	16.1 59.0
	Пт 7	256° 36.2 8° 15.2	271° 04.9 8° 25.9	285° 33.7 8° 36.6	300° 02.4 8° 47.2	314° 31.2 8° 57.8	328° 59.9 9° 08.3	343° 28.6 9° 18.8	357° 57.3 9° 29.2	12° 25.9 9° 39.5	26° 54.6 9° 49.8	41° 23.2 10° 00.0	+28.7 +10.5	16.0 58.6
	Сб 8	258° 30.4 12° 25.2	272° 58.8 12° 34.3	287° 27.1 12° 43.4	301° 55.4 12° 52.3	316° 23.7 13° 01.2	330° 51.9 13° 10.0	345° 20.2 13° 18.7	359° 48.4 13° 27.3	14° 16.6 13° 35.8	28° 44.8 13° 44.3	43° 13.0 13° 52.7	+28.3 +8.7	15.9 58.2
●	Вс 9	260° 13.8 15° 47.5	274° 41.8 15° 54.4	289° 09.7 16° 01.3	303° 37.7 16° 08.0	318° 05.6 16° 14.6	332° 33.5 16° 21.1	347° 01.4 16° 27.5	1° 29.3 16° 33.9	15° 57.2 16° 40.1	30° 25.0 16° 46.2	44° 52.9 16° 52.2	+27.9 +6.5	15.7 57.6
	Пн 10	261° 50.6 18° 10.1	276° 18.4 18° 14.4	290° 46.3 18° 18.6	305° 14.1 18° 22.8	319° 42.0 18° 26.8	334° 09.9 18° 30.7	348° 37.7 18° 34.5	3° 05.6 18° 38.2	17° 33.5 18° 41.8	32° 01.4 18° 45.3	46° 29.3 18° 48.6	+27.9 +3.9	15.5 57.0
	Вт 11	263° 29.8 19° 26.0	277° 58.0 19° 27.6	292° 26.2 19° 29.1	306° 54.4 19° 30.5	321° 22.7 19° 31.8	335° 50.9 19° 33.0	350° 19.3 19° 34.1	4° 47.6 19° 35.1	19° 16.0 19° 35.9	33° 44.3 19° 36.7	48° 12.8 19° 37.3	+28.3 +1.1	15.4 56.3
	Ср 12	265° 23.1 19° 34.3	279° 52.1 19° 33.3	294° 21.1 19° 32.2	308° 50.1 19° 30.9	323° 19.2 19° 29.6	337° 48.4 19° 28.2	352° 17.6 19° 26.6	6° 46.8 19° 25.0	21° 16.1 19° 23.3	35° 45.4 19° 21.4	50° 14.8 19° 19.5	+29.2 -1.5	15.2 55.6
	Чт 13	267° 40.8 18° 39.2	282° 10.9 18° 35.8	296° 41.1 18° 32.3	311° 11.3 18° 28.7	325° 41.6 18° 25.0	340° 11.9 18° 21.2	354° 42.3 18° 17.3	9° 12.7 18° 13.4	23° 43.1 18° 09.4	38° 13.7 18° 05.2	52° 44.3 18° 01.0	+30.3 -3.8	15.0 55.1
	Пт 14	270° 29.1 16° 48.4	285° 00.5 16° 42.9	299° 31.9 16° 37.4	314° 03.4 16° 31.8	328° 35.0 16° 26.1	343° 06.6 16° 20.3	357° 38.2 16° 14.5	12° 09.9 16° 08.6	26° 41.7 16° 02.7	41° 13.5 15° 56.6	55° 45.3 15° 50.5	+31.6 -5.8	14.9 54.6
	Сб 15	273° 48.8 14° 11.3	288° 21.4 14° 04.2	302° 54.0 13° 57.0	317° 26.7 13° 49.8	331° 59.5 13° 42.5	346° 32.2 13° 35.1	1° 05.0 13° 27.7	15° 37.9 13° 20.3	30° 10.8 13° 12.8	44° 43.7 13° 05.2	59° 16.7 12° 57.6	+32.8 -7.4	14.8 54.3
	Вс 16	277° 35.8 10° 57.5	292° 09.4 10° 49.1	306° 42.9 10° 40.7	321° 16.5 10° 32.2	335° 50.2 10° 23.7	350° 23.8 10° 15.1	4° 57.5 10° 06.5	19° 31.3 9° 57.9	34° 05.0 9° 49.2	48° 38.8 9° 40.5	63° 12.6 9° 31.7	+33.7 -8.6	14.8 54.2
◐	Пн 17	281° 42.2 7° 16.0	296° 16.4 7° 06.7	310° 50.5 6° 57.3	325° 24.6 6° 47.9	339° 58.8 6° 38.5	354° 33.0 6° 29.1	9° 07.2 6° 19.6	23° 41.4 6° 10.1	38° 15.6 6° 00.6	52° 49.8 5° 51.1	67° 24.0 5° 41.5	+34.2 -9.4	14.8 54.2
	Вт 18	285° 57.8 3° 15.2	300° 32.0 3° 05.2	315° 06.3 2° 55.3	329° 40.5 2° 45.3	344° 14.8 2° 35.4	358° 49.0 2° 25.4	13° 23.2 2° 15.4	27° 57.4 2° 05.4	42° 31.6 1° 55.3	57° 05.8 1° 45.3	71° 40.0 1° 35.2	+34.2 -10.0	14.9 54.5
	Ср 19	290° 10.8 -0° 56.8	304° 44.6 -1° 06.9	319° 18.5 -1° 17.1	333° 52.4 -1° 27.3	348° 26.2 -1° 37.5	3° 00.0 -1° 47.7	17° 33.7 -1° 57.9	32° 07.4 -2° 08.1	46° 41.1 -2° 18.3	61° 14.8 -2° 28.5	75° 48.5 -2° 38.7	+33.8 -10.2	15.0 54.9
	Чт 20	294° 08.8 -5° 10.8	308° 41.8 -5° 20.9	323° 14.8 -5° 31.0	337° 47.7 -5° 41.0	352° 20.6 -5° 51.0	6° 53.5 -6° 01.0	21° 26.3 -6° 11.0	35° 59.1 -6° 21.0	50° 31.8 -6° 31.0	65° 04.4 -6° 40.9	79° 37.0 -6° 50.8	+32.8 -10.0	15.1 55.5
	Пт 21	297° 39.6 -9° 16.6	312° 11.4 -9° 26.1	326° 43.0 -9° 35.6	341° 14.6 -9° 45.0	355° 46.1 -9° 54.4	10° 17.6 -10° 03.7	24° 49.0 -10° 13.0	39° 20.3 -10° 22.3	53° 51.6 -10° 31.5	68° 22.8 -10° 40.7	82° 53.9 -10° 49.9	+31.4 -9.3	15.3 56.1
	Сб 22	300° 32.7 -13° 01.4	315° 02.7 -13° 09.8	329° 32.6 -13° 18.1	344° 02.5 -13° 26.3	358° 32.3 -13° 34.5	13° 02.0 -13° 42.6	27° 31.7 -13° 50.6	42° 01.3 -13° 58.6	56° 30.8 -14° 06.5	71° 00.2 -14° 14.4	85° 29.5 -14° 22.2	+29.7 -8.1	15.5 56.9
	Вс 23	302° 40.7 -16° 10.1	317° 08.9 -16° 16.7	331° 37.0 -16° 23.2	346° 05.0 -16° 29.6	0° 32.9 -16° 35.9	15° 00.7 -16° 42.1	29° 28.5 -16° 48.2	43° 56.2 -16° 54.3	58° 23.9 -17° 00.2	72° 51.4 -17° 06.1	87° 18.9 -17° 11.8	+27.8 -6.2	15.7 57.6
	Пн 24	304° 03.0 -18° 26.3	318° 29.4 -18° 30.4	332° 55.8 -18° 34.4	347° 22.0 -18° 38.3	1° 48.3 -18° 42.1	16° 14.5 -18° 45.8	30° 40.6 -18° 49.3	45° 06.6 -18° 52.8	59° 32.7 -18° 56.1	73° 58.6 -18° 59.3	88° 24.5 -19° 02.4	+26.1 -3.6	15.9 58.3
○	Вт 25	304° 47.3 -19° 34.5	319° 12.5 -19° 35.7	333° 37.6 -19° 36.7	348° 02.8 -19° 37.6	2° 27.9 -19° 38.4	16° 52.9 -19° 39.0	31° 18.0 -19° 39.5	45° 43.0 -19° 39.9	60° 08.0 -19° 40.1	74° 32.9 -19° 40.3	88° 57.9 -19° 40.2	+25.1 -0.6	16.1 58.9
	Ср 26	305° 10.1 -19° 24.5	319° 34.9 -19° 22.4	333° 59.6 -19° 20.2	348° 24.4 -19° 17.8	2° 49.2 -19° 15.3	17° 13.9 -19° 12.7	31° 38.7 -19° 10.0	46° 03.5 -19° 07.1	60° 28.3 -19° 04.1	74° 53.1 -19° 01.0	89° 17.9 -18° 57.7	+24.8 +2.7	16.2 59.3
	Чт 27	305° 32.3 -17° 53.8	319° 57.4 -17° 48.6	334° 22.6 -17° 43.2	348° 47.8 -17° 37.7	3° 13.1 -17° 32.1	17° 38.3 -17° 26.4	32° 03.7 -17° 20.6	46° 29.0 -17° 14.7	60° 54.4 -17° 08.6	75° 19.8 -17° 02.4	89° 45.3 -16° 56.2	+25.3 +5.8	16.2 59.5
	Пт 28	319° 57.4 -17° 48.6	334° 22.6 -17° 43.2	348° 47.8 -17° 37.7	3° 13.1 -17° 32.1	17° 38.3 -17° 26.4	32° 03.7 -17° 20.6	46° 29.0 -17° 14.7	60° 54.4 -17° 08.6	75° 19.8 -17° 02.4	89° 45.3 -16° 56.2	104° 10.8 -16° 49.8	+25.3 +5.9	16.2 59.5
	Сб 29	320° 38.3 -15° 01.2	335° 04.5 -14° 53.2	349° 30.8 -14° 45.1	3° 57.1 -14° 36.9	18° 23.4 -14° 28.5	32° 49.8 -14° 20.1	47° 16.3 -14° 11.6	61° 42.7 -14° 03.0	76° 09.3 -13° 54.4	90° 35.9 -13° 45.6	105° 02.5 -13° 36.8	+26.4 +8.5	16.2 59.6
	Вс 30	321° 48.0 -11° 14.7	336° 15.4 -11° 04.6	350° 42.9 -10° 54.5	5° 10.4 -10° 44.3	19° 37.9 -10° 34.1	34° 05.6 -10° 23.8	48° 33.2 -10° 13.4	63° 00.9 -10° 03.0	77° 28.7 -9° 52.5	91° 56.5 -9° 42.0	106° 24.3 -9° 31.4	+27.6 +10.3	16.2 59.5
◑	Пн 31	323° 27.3 -6° 46.9	337° 55.8 -6° 35.6	352° 24.4 -6° 24.3	6° 53.0 -6° 12.9	21° 21.6 -6° 01.5	35° 50.3 -5° 50.1	50° 19.0 -5° 38.6	64° 47.8 -5° 27.1	79° 16.5 -5° 15.6	93° 45.3 -5° 04.1	108° 14.2 -4° 52.5	+28.7 +11.4	16.2 59.3

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 2 16h01 — Новолуние: 9 13h35 — Первая четв.: 17 09h43 — Полнолуние: 25 02h37 — Последняя четв.: 31 20h51

СОЛНЦЕ

Июнь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	270° 31.3	285° 31.2	300° 31.1	315° 31.0	330° 30.9	345° 30.8	0° 30.7	15° 30.6	30° 30.5	45° 30.4	60° 30.3	75° 30.2	-0.1
	22° 07.8	22° 08.1	22° 08.4	22° 08.8	22° 09.1	22° 09.4	22° 09.8	22° 10.1	22° 10.4	22° 10.7	22° 11.0	22° 11.4	+0.3
Ср 2	270° 28.9	285° 28.8	300° 28.7	315° 28.6	330° 28.5	345° 28.4	0° 28.3	15° 28.2	30° 28.1	45° 27.9	60° 27.8	75° 27.7	-0.1
	22° 15.5	22° 15.8	22° 16.1	22° 16.4	22° 16.8	22° 17.1	22° 17.4	22° 17.7	22° 18.0	22° 18.3	22° 18.6	22° 18.9	+0.3
Чт 3	270° 26.4	285° 26.3	300° 26.2	315° 26.1	330° 26.0	345° 25.8	0° 25.7	15° 25.6	30° 25.5	45° 25.4	60° 25.3	75° 25.2	-0.1
	22° 22.8	22° 23.1	22° 23.4	22° 23.7	22° 24.0	22° 24.3	22° 24.6	22° 24.9	22° 25.2	22° 25.5	22° 25.8	22° 26.1	+0.3
Пт 4	270° 23.8	285° 23.7	300° 23.6	315° 23.5	330° 23.4	345° 23.2	0° 23.1	15° 23.0	30° 22.9	45° 22.8	60° 22.7	75° 22.6	-0.1
	22° 29.8	22° 30.0	22° 30.3	22° 30.6	22° 30.9	22° 31.2	22° 31.4	22° 31.7	22° 32.0	22° 32.3	22° 32.5	22° 32.8	+0.3
Сб 5	270° 21.1	285° 21.0	300° 20.9	315° 20.8	330° 20.7	345° 20.6	0° 20.4	15° 20.3	30° 20.2	45° 20.1	60° 20.0	75° 19.9	-0.1
	22° 36.3	22° 36.6	22° 36.8	22° 37.1	22° 37.4	22° 37.6	22° 37.9	22° 38.1	22° 38.4	22° 38.7	22° 38.9	22° 39.2	+0.3
Вс 6	270° 18.4	285° 18.3	300° 18.1	315° 18.0	330° 17.9	345° 17.8	0° 17.7	15° 17.5	30° 17.4	45° 17.3	60° 17.2	75° 17.1	-0.1
	22° 42.5	22° 42.7	22° 42.9	22° 43.2	22° 43.4	22° 43.7	22° 43.9	22° 44.2	22° 44.4	22° 44.7	22° 44.9	22° 45.1	+0.2
Пн 7	270° 15.5	285° 15.4	300° 15.3	315° 15.2	330° 15.1	345° 14.9	0° 14.8	15° 14.7	30° 14.6	45° 14.5	60° 14.3	75° 14.2	-0.1
	22° 48.2	22° 48.4	22° 48.7	22° 48.9	22° 49.1	22° 49.3	22° 49.6	22° 49.8	22° 50.0	22° 50.2	22° 50.5	22° 50.7	+0.2
Вт 8	270° 12.6	285° 12.5	300° 12.4	315° 12.3	330° 12.2	345° 12.0	0° 11.9	15° 11.8	30° 11.7	45° 11.5	60° 11.4	75° 11.3	-0.1
	22° 53.5	22° 53.8	22° 54.0	22° 54.2	22° 54.4	22° 54.6	22° 54.8	22° 55.0	22° 55.2	22° 55.4	22° 55.7	22° 55.9	+0.2
Ср 9	270° 09.7	285° 09.6	300° 09.4	315° 09.3	330° 09.2	345° 09.1	0° 08.9	15° 08.8	30° 08.7	45° 08.6	60° 08.4	75° 08.3	-0.1
	22° 58.5	22° 58.7	22° 58.9	22° 59.1	22° 59.3	22° 59.5	22° 59.7	22° 59.9	23° 00.0	23° 00.2	23° 00.4	23° 00.6	+0.2
Чт 10	270° 06.7	285° 06.5	300° 06.4	315° 06.3	330° 06.2	345° 06.0	0° 05.9	15° 05.8	30° 05.6	45° 05.5	60° 05.4	75° 05.3	-0.1
	23° 03.0	23° 03.2	23° 03.4	23° 03.6	23° 03.7	23° 03.9	23° 04.1	23° 04.3	23° 04.5	23° 04.6	23° 04.8	23° 05.0	+0.2
Пт 11	270° 03.6	285° 03.5	300° 03.3	315° 03.2	330° 03.1	345° 02.9	0° 02.8	15° 02.7	30° 02.6	45° 02.4	60° 02.3	75° 02.2	-0.1
	23° 07.2	23° 07.3	23° 07.5	23° 07.7	23° 07.8	23° 08.0	23° 08.1	23° 08.3	23° 08.4	23° 08.6	23° 08.8	23° 08.9	+0.2
Сб 12	270° 00.5	285° 00.3	300° 00.2	315° 00.1	330° 00.0	344° 59.8	359° 59.7	14° 59.6	29° 59.4	44° 59.3	59° 59.2	74° 59.0	-0.1
	23° 10.9	23° 11.0	23° 11.2	23° 11.3	23° 11.5	23° 11.6	23° 11.8	23° 11.9	23° 12.0	23° 12.2	23° 12.3	23° 12.5	+0.1
Вс 13	269° 57.3	284° 57.2	299° 57.1	314° 56.9	329° 56.8	344° 56.7	359° 56.5	14° 56.4	29° 56.3	44° 56.1	59° 56.0	74° 55.9	-0.1
	23° 14.2	23° 14.3	23° 14.5	23° 14.6	23° 14.7	23° 14.8	23° 15.0	23° 15.1	23° 15.2	23° 15.3	23° 15.5	23° 15.6	+0.1
Пн 14	269° 54.1	284° 54.0	299° 53.9	314° 53.7	329° 53.6	344° 53.5	359° 53.3	14° 53.2	29° 53.1	44° 52.9	59° 52.8	74° 52.7	-0.1
	23° 17.1	23° 17.2	23° 17.3	23° 17.5	23° 17.6	23° 17.7	23° 17.8	23° 17.9	23° 18.0	23° 18.1	23° 18.2	23° 18.3	+0.1
Вт 15	269° 50.9	284° 50.8	299° 50.7	314° 50.5	329° 50.4	344° 50.3	359° 50.1	14° 50.0	29° 49.9	44° 49.7	59° 49.6	74° 49.5	-0.1
	23° 19.6	23° 19.7	23° 19.8	23° 19.9	23° 20.0	23° 20.1	23° 20.2	23° 20.3	23° 20.4	23° 20.4	23° 20.5	23° 20.6	+0.1
Ср 16	269° 47.7	284° 47.6	299° 47.4	314° 47.3	329° 47.2	344° 47.0	359° 46.9	14° 46.8	29° 46.6	44° 46.5	59° 46.4	74° 46.2	-0.1
	23° 21.7	23° 21.8	23° 21.9	23° 21.9	23° 22.0	23° 22.1	23° 22.2	23° 22.2	23° 22.3	23° 22.4	23° 22.4	23° 22.5	+0.1
Чт 17	269° 44.5	284° 44.3	299° 44.2	314° 44.1	329° 43.9	344° 43.8	359° 43.6	14° 43.5	29° 43.4	44° 43.2	59° 43.1	74° 43.0	-0.1
	23° 23.4	23° 23.4	23° 23.5	23° 23.6	23° 23.6	23° 23.7	23° 23.7	23° 23.8	23° 23.8	23° 23.9	23° 23.9	23° 24.0	+0.1
Пт 18	269° 41.2	284° 41.1	299° 40.9	314° 40.8	329° 40.7	344° 40.5	359° 40.4	14° 40.3	29° 40.1	44° 40.0	59° 39.9	74° 39.7	-0.1
	23° 24.6	23° 24.7	23° 24.7	23° 24.8	23° 24.8	23° 24.8	23° 24.9	23° 24.9	23° 25.0	23° 25.0	23° 25.0	23° 25.1	+0.0
Сб 19	269° 38.0	284° 37.8	299° 37.7	314° 37.6	329° 37.4	344° 37.3	359° 37.1	14° 37.0	29° 36.9	44° 36.7	59° 36.6	74° 36.5	-0.1
	23° 25.5	23° 25.5	23° 25.5	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.7	23° 25.7	23° 25.7	+0.0
Вс 20	269° 34.7	284° 34.6	299° 34.4	314° 34.3	329° 34.2	344° 34.0	359° 33.9	14° 33.8	29° 33.6	44° 33.5	59° 33.4	74° 33.2	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	23° 26.0	+0.0
Пн 21	269° 31.5	284° 31.3	299° 31.2	314° 31.1	329° 30.9	344° 30.8	359° 30.7	14° 30.5	29° 30.4	44° 30.3	59° 30.1	74° 30.0	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.8	23° 25.8	23° 25.8	-0.0
Вт 22	269° 28.2	284° 28.1	299° 28.0	314° 27.8	329° 27.7	344° 27.6	359° 27.4	14° 27.3	29° 27.2	44° 27.0	59° 26.9	74° 26.8	-0.1
	23° 25.5	23° 25.5	23° 25.5	23° 25.5	23° 25.4	23° 25.4	23° 25.4	23° 25.4	23° 25.3	23° 25.3	23° 25.3	23° 25.2	-0.0
Ср 23	269° 25.0	284° 24.9	299° 24.8	314° 24.6	329° 24.5	344° 24.4	359° 24.2	14° 24.1	29° 24.0	44° 23.8	59° 23.7	74° 23.6	-0.1
	23° 24.7	23° 24.7	23° 24.7	23° 24.6	23° 24.6	23° 24.5	23° 24.5	23° 24.4	23° 24.4	23° 24.3	23° 24.3	23° 24.2	-0.0
Чт 24	269° 21.8	284° 21.7	299° 21.6	314° 21.4	329° 21.3	344° 21.2	359° 21.0	14° 20.9	29° 20.8	44° 20.7	59° 20.5	74° 20.4	-0.1
	23° 23.5	23° 23.5	23° 23.4	23° 23.3	23° 23.3	23° 23.2	23° 23.2	23° 23.1	23° 23.0	23° 23.0	23° 22.9	23° 22.8	-0.1
Пт 25	269° 18.7	284° 18.6	299° 18.4	314° 18.3	329° 18.2	344° 18.0	359° 17.9	14° 17.8	29° 17.6	44° 17.5	59° 17.4	74° 17.2	-0.1
	23° 21.9	23° 21.8	23° 21.7	23° 21.7	23° 21.6	23° 21.5	23° 21.4	23° 21.3	23° 21.3	23° 21.2	23° 21.1	23° 21.0	-0.1
Сб 26	269° 15.6	284° 15.4	299° 15.3	314° 15.2	329° 15.0	344° 14.9	359° 14.8	14° 14.6	29° 14.5	44° 14.4	59° 14.3	74° 14.1	-0.1
	23° 19.9	23° 19.8	23° 19.7	23° 19.6	23° 19.5	23° 19.4	23° 19.3	23° 19.2	23° 19.1	23° 19.0	23° 18.9	23° 18.8	-0.1
Вс 27	269° 12.5	284° 12.3	299° 12.2	314° 12.1	329° 12.0	344° 11.8	359° 11.7	14° 11.6	29° 11.4	44° 11.3	59° 11.2	74° 11.1	-0.1
	23° 17.4	23° 17.3	23° 17.2	23° 17.1	23° 17.0	23° 16.8	23° 16.7	23° 16.6	23° 16.5	23° 16.4	23° 16.3	23° 16.1	-0.1
Пн 28	269° 09.4	284° 09.3	299° 09.2	314° 09.0	329° 08.9	344° 08.8	359° 08.7	14° 08.5	29° 08.4	44° 08.3	59° 08.2	74° 08.0	-0.1
	23° 14.5	23° 14.4	23° 14.3	23° 14.2	23° 14.0	23° 13.9	23° 13.8	23° 13.6	23° 13.5	23° 13.4	23° 13.2	23° 13.1	-0.1
Вт 29	269° 06.4	284° 06.3	299° 06.2	314° 06.0	329° 05.9	344° 05.8	359° 05.7	14° 05.5	29° 05.4	44° 05.3	59° 05.2	74° 05.1	-0.1
	23° 11.3	23° 11.1	23° 11.0	23° 10.8	23° 10.7	23° 10.5	23° 10.4	23° 10.2	23° 10.1	23° 09.9	23° 09.8	23° 09.6	-0.1
Ср 30	269° 03.5	284° 03.3	299° 03.2	314° 03.1	329° 03.0	344° 02.9	359° 02.7	14° 02.6	29° 02.5	44° 02.4	59° 02.2	74° 02.1	-0.1
	23° 07.6	23° 07.4	23° 07.3	23° 07.1	23° 07.0	23° 06.8	23° 06.6	23° 06.5	23° 06.3	23° 06.1	23° 06.0	23° 05.8	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июнь 2032

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Вт 1	240° 49.5	255° 19.1	269° 48.6	284° 18.2	298° 47.8	313° 17.4	327° 47.0	342° 16.6	356° 46.2	11° 15.8	25° 45.4	+29.6	16.0
	1° 46.9	1° 58.6	2° 10.3	2° 21.9	2° 33.6	2° 45.2	2° 56.8	3° 08.4	3° 19.9	3° 31.5	3° 43.0	+11.6	58.7
Ср 2	255° 19.1	269° 48.6	284° 18.2	298° 47.8	313° 17.4	327° 47.0	342° 16.6	356° 46.2	11° 15.8	25° 45.4	40° 15.0	+29.6	16.0
	1° 58.6	2° 10.3	2° 21.9	2° 33.6	2° 45.2	2° 56.8	3° 08.4	3° 19.9	3° 31.5	3° 43.0	3° 54.4	+11.6	58.7
Чт 3	257° 38.9	272° 08.5	286° 38.0	301° 07.6	315° 37.1	330° 06.6	344° 36.1	359° 05.6	13° 35.1	28° 04.6	42° 34.0	+29.5	15.9
	6° 42.9	6° 53.8	7° 04.7	7° 15.5	7° 26.3	7° 37.1	7° 47.8	7° 58.4	8° 09.1	8° 19.6	8° 30.1	+10.7	58.3
Пт 4	259° 54.3	274° 23.6	288° 52.8	303° 22.0	317° 51.1	332° 20.3	346° 49.4	1° 18.5	15° 47.6	30° 16.7	44° 45.8	+29.1	15.8
	11° 01.0	11° 10.5	11° 20.0	11° 29.5	11° 38.8	11° 48.1	11° 57.3	12° 06.5	12° 15.6	12° 24.6	12° 33.5	+9.3	57.8
Сб 5	261° 59.5	276° 28.2	290° 57.0	305° 25.7	319° 54.4	334° 23.1	348° 51.8	3° 20.4	17° 49.1	32° 17.7	46° 46.3	+28.7	15.6
	14° 38.3	14° 45.9	14° 53.5	15° 01.0	15° 08.4	15° 15.7	15° 22.9	15° 30.0	15° 37.1	15° 44.0	15° 50.9	+7.3	57.3
Вс 6	263° 53.7	278° 22.1	292° 50.5	307° 18.9	321° 47.2	336° 15.6	350° 43.9	5° 12.3	19° 40.6	34° 09.0	48° 37.3	+28.4	15.5
	17° 22.5	17° 27.8	17° 33.1	17° 38.2	17° 43.2	17° 48.1	17° 52.9	17° 57.7	18° 02.3	18° 06.8	18° 11.2	+4.9	56.8
Пн 7	265° 42.2	280° 10.5	294° 38.9	309° 07.2	323° 35.6	338° 04.0	352° 32.4	7° 00.8	21° 29.2	35° 57.6	50° 26.0	+28.4	15.3
	19° 04.9	19° 07.6	19° 10.2	19° 12.7	19° 15.1	19° 17.4	19° 19.6	19° 21.7	19° 23.7	19° 25.6	19° 27.4	+2.3	56.3
● Вт 8	267° 34.7	282° 03.4	296° 32.2	311° 01.0	325° 29.8	339° 58.7	354° 27.5	8° 56.5	23° 25.4	37° 54.4	52° 23.4	+28.9	15.2
	19° 41.2	19° 41.2	19° 41.2	19° 41.1	19° 40.8	19° 40.5	19° 40.0	19° 39.5	19° 38.8	19° 38.1	19° 37.2	-0.4	55.7
Ср 9	269° 42.6	284° 12.2	298° 41.9	313° 11.5	327° 41.2	342° 11.0	356° 40.8	11° 10.7	25° 40.5	40° 10.5	54° 40.4	+29.8	15.1
	19° 12.4	19° 09.9	19° 07.4	19° 04.8	19° 02.0	18° 59.2	18° 56.3	18° 53.3	18° 50.2	18° 47.0	18° 43.7	-2.9	55.2
Чт 10	272° 15.7	286° 46.4	301° 17.2	315° 48.1	330° 18.9	344° 49.9	359° 20.8	13° 51.9	28° 23.0	42° 54.1	57° 25.3	+31.0	14.9
	17° 44.0	17° 39.4	17° 34.6	17° 29.8	17° 24.9	17° 19.9	17° 14.9	17° 09.7	17° 04.5	16° 59.2	16° 53.9	-5.0	54.8
Пт 11	275° 19.0	289° 50.9	304° 23.0	318° 55.0	333° 27.1	347° 59.3	2° 31.5	17° 03.8	31° 36.1	46° 08.4	60° 40.8	+32.2	14.8
	15° 24.7	15° 18.2	15° 11.7	15° 05.1	14° 58.4	14° 51.6	14° 44.8	14° 38.0	14° 31.0	14° 24.0	14° 17.0	-6.8	54.4
Сб 12	278° 52.2	293° 25.3	307° 58.4	322° 31.6	337° 04.8	351° 38.1	6° 11.4	20° 44.7	35° 18.1	49° 51.5	64° 24.9	+33.3	14.8
	12° 24.5	12° 16.6	12° 08.6	12° 00.6	11° 52.5	11° 44.4	11° 36.2	11° 28.0	11° 19.8	11° 11.5	11° 03.1	-8.1	54.2
Вс 13	282° 50.4	297° 24.4	311° 58.4	326° 32.3	341° 06.4	355° 40.4	10° 14.5	24° 48.6	39° 22.7	53° 56.8	68° 31.0	+34.1	14.8
	8° 53.2	8° 44.2	8° 35.2	8° 26.1	8° 17.1	8° 08.0	7° 58.8	7° 49.7	7° 40.5	7° 31.3	7° 22.0	-9.1	54.1
Пн 14	287° 05.3	301° 39.7	316° 14.1	330° 48.5	345° 22.9	359° 57.3	14° 31.7	29° 06.2	43° 40.6	58° 15.0	72° 49.5	+34.4	14.8
	5° 00.0	4° 50.3	4° 40.6	4° 30.9	4° 21.2	4° 11.5	4° 01.7	3° 51.9	3° 42.1	3° 32.3	3° 22.5	-9.7	54.2
Вт 15	291° 25.9	306° 00.2	320° 34.6	335° 09.0	349° 43.3	4° 17.6	18° 51.9	33° 26.2	48° 00.5	62° 34.8	77° 09.0	+34.3	14.8
	0° 53.4	0° 43.4	0° 33.4	0° 23.4	0° 13.3	0° 03.3	-0° 06.8	-0° 16.8	-0° 26.9	-0° 37.0	-0° 47.0	-10.1	54.4
◐ Ср 16	295° 40.0	310° 13.9	324° 47.7	339° 21.5	353° 55.2	8° 28.9	23° 02.6	37° 36.3	52° 09.9	66° 43.5	81° 17.0	+33.7	15.0
	-3° 18.1	-3° 28.1	-3° 38.2	-3° 48.2	-3° 58.2	-4° 08.2	-4° 18.2	-4° 28.2	-4° 38.2	-4° 48.2	-4° 58.1	-10.0	54.9
Чт 17	299° 34.8	314° 07.6	328° 40.3	343° 13.0	357° 45.7	12° 18.3	26° 50.8	41° 23.3	55° 55.7	70° 28.1	85° 00.4	+32.6	15.1
	-7° 25.6	-7° 35.3	-7° 45.0	-7° 54.6	-8° 04.2	-8° 13.8	-8° 23.3	-8° 32.8	-8° 42.3	-8° 51.8	-9° 01.2	-9.6	55.5
Пт 18	302° 57.4	317° 28.7	331° 59.9	346° 31.0	1° 02.1	15° 33.1	30° 04.0	44° 34.8	59° 05.6	73° 36.3	88° 06.9	+30.9	15.3
	-11° 18.7	-11° 27.5	-11° 36.3	-11° 45.1	-11° 53.8	-12° 02.5	-12° 11.1	-12° 19.6	-12° 28.2	-12° 36.6	-12° 45.0	-8.6	56.3
Сб 19	305° 36.8	320° 06.2	334° 35.5	349° 04.7	3° 33.8	18° 02.8	32° 31.8	47° 00.6	61° 29.4	75° 58.1	90° 26.7	+29.0	15.6
	-14° 44.3	-14° 51.8	-14° 59.2	-15° 06.5	-15° 13.7	-15° 20.9	-15° 28.0	-15° 35.0	-15° 41.9	-15° 48.8	-15° 55.6	-7.1	57.1
Вс 20	307° 26.2	321° 53.5	336° 20.7	350° 47.9	5° 14.9	19° 41.9	34° 08.8	48° 35.7	63° 02.4	77° 29.1	91° 55.7	+27.0	15.8
	-17° 27.2	-17° 32.6	-17° 37.9	-17° 43.1	-17° 48.2	-17° 53.2	-17° 58.1	-18° 02.9	-18° 07.6	-18° 12.2	-18° 16.7	-4.9	58.0
Пн 21	308° 26.1	322° 51.5	337° 17.0	351° 42.3	6° 07.6	20° 32.8	34° 58.0	49° 23.1	63° 48.2	78° 13.2	92° 38.2	+25.2	16.1
	-19° 10.7	-19° 13.4	-19° 15.9	-19° 18.4	-19° 20.7	-19° 22.9	-19° 25.0	-19° 26.9	-19° 28.7	-19° 30.4	-19° 32.0	-2.1	58.9
Вт 22	308° 47.0	323° 11.3	337° 35.6	351° 59.8	6° 24.0	20° 48.2	35° 12.4	49° 36.5	64° 00.6	78° 24.7	92° 48.8	+24.2	16.3
	-19° 39.9	-19° 39.3	-19° 38.7	-19° 37.9	-19° 36.9	-19° 35.9	-19° 34.7	-19° 33.3	-19° 31.8	-19° 30.2	-19° 28.5	+1.1	59.6
○ Ср 23	308° 48.8	323° 12.8	337° 36.9	352° 00.9	6° 24.9	20° 49.0	35° 13.0	49° 37.1	64° 01.2	78° 25.3	92° 49.4	+24.1	16.4
	-18° 45.9	-18° 42.0	-18° 38.0	-18° 33.8	-18° 29.5	-18° 25.1	-18° 20.5	-18° 15.8	-18° 11.0	-18° 06.0	-18° 00.9	+4.5	60.1
Чт 24	308° 54.6	323° 19.3	337° 43.9	352° 08.6	6° 33.3	20° 58.1	35° 22.9	49° 47.8	64° 12.7	78° 37.6	93° 02.6	+24.8	16.5
	-16° 29.8	-16° 22.8	-16° 15.7	-16° 08.4	-16° 01.0	-15° 53.6	-15° 46.0	-15° 38.3	-15° 30.5	-15° 22.6	-15° 14.6	+7.5	60.4
Пт 25	309° 23.4	323° 49.2	338° 15.0	352° 40.9	7° 06.9	21° 32.9	35° 58.9	50° 25.1	64° 51.2	79° 17.5	93° 43.7	+26.0	16.5
	-13° 02.7	-12° 53.2	-12° 43.6	-12° 33.9	-12° 24.2	-12° 14.3	-12° 04.4	-11° 54.4	-11° 44.4	-11° 34.2	-11° 24.0	+9.9	60.4
Сб 26	323° 49.2	338° 15.0	352° 40.9	7° 06.9	21° 32.9	35° 58.9	50° 25.1	64° 51.2	79° 17.5	93° 43.7	108° 10.1	+26.1	16.5
	-12° 53.2	-12° 43.6	-12° 33.9	-12° 24.2	-12° 14.3	-12° 04.4	-11° 54.4	-11° 44.4	-11° 34.2	-11° 24.0	-11° 13.7	+10.0	60.4
Вс 27	324° 51.6	339° 18.8	353° 46.0	8° 13.3	22° 40.7	37° 08.1	51° 35.5	66° 03.0	80° 30.6	94° 58.2	109° 25.8	+27.4	16.4
	-8° 32.1	-8° 20.9	-8° 09.6	-7° 58.3	-7° 47.0	-7° 35.6	-7° 24.1	-7° 12.7	-7° 01.2	-6° 49.6	-6° 38.1	+11.4	60.1
Пн 28	326° 25.9	340° 54.2	355° 22.6	9° 51.0	24° 19.5	38° 48.0	53° 16.5	67° 45.1	82° 13.7	96° 42.3	111° 11.0	+28.5	16.3
	-3° 41.2	-3° 29.3	-3° 17.3	-3° 05.4	-2° 53.4	-2° 41.4	-2° 29.4	-2° 17.4	-2° 05.4	-1° 53.4	-1° 41.4	+12.0	59.7
Вт 29	328° 24.6	342° 53.7	357° 22.9	11° 52.0	26° 21.2	40° 50.4	55° 19.6	69° 48.9	84° 18.1	98° 47.4	113° 16.7	+29.2	16.1
	1° 18.0	1° 29.9	1° 41.7	1° 53.5	2° 05.4	2° 17.1	2° 28.9	2° 40.6	2° 52.3	3° 04.0	3° 15.7	+11.8	59.1
◑ Ср 30	330° 37.5	345° 07.0	359° 36.4	14° 05.9	28° 35.4	43° 04.9	57° 34.3	72° 03.8	86° 33.3	101° 02.8	115° 32.3	+29.5	15.9
	6° 06.6	6° 17.7	6° 28.8	6° 39.8	6° 50.7	7° 01.6	7° 12.5	7° 23.3	7° 34.0	7° 44.7	7° 55.4	+10.9	58.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 8 01h32 — Первая четв.: 16 02h59 — Полнолуние: 23 11h32 — Последняя четв.: 30 02h11

СОЛНЦЕ

Июль 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 00.6	284° 00.4	299° 00.3	314° 00.2	329° 00.1	344° 00.0	358° 59.9	13° 59.7	28° 59.6	43° 59.5	58° 59.4	73° 59.3	-0.1
	23° 03.5	23° 03.3	23° 03.2	23° 03.0	23° 02.8	23° 02.6	23° 02.4	23° 02.3	23° 02.1	23° 01.9	23° 01.7	23° 01.5	-0.2
Пт 2	268° 57.7	283° 57.6	298° 57.5	313° 57.4	328° 57.3	343° 57.2	358° 57.0	13° 56.9	28° 56.8	43° 56.7	58° 56.6	73° 56.5	-0.1
	22° 59.0	22° 58.8	22° 58.6	22° 58.5	22° 58.3	22° 58.1	22° 57.9	22° 57.7	22° 57.5	22° 57.3	22° 57.1	22° 56.9	-0.2
Сб 3	268° 55.0	283° 54.9	298° 54.7	313° 54.6	328° 54.5	343° 54.4	358° 54.3	13° 54.2	28° 54.1	43° 54.0	58° 53.8	73° 53.7	-0.1
	22° 54.2	22° 53.9	22° 53.7	22° 53.5	22° 53.3	22° 53.1	22° 52.9	22° 52.7	22° 52.4	22° 52.2	22° 52.0	22° 51.8	-0.2
Вс 4	268° 52.3	283° 52.2	298° 52.1	313° 51.9	328° 51.8	343° 51.7	358° 51.6	13° 51.5	28° 51.4	43° 51.3	58° 51.2	73° 51.1	-0.1
	22° 48.9	22° 48.6	22° 48.4	22° 48.2	22° 48.0	22° 47.7	22° 47.5	22° 47.3	22° 47.0	22° 46.8	22° 46.6	22° 46.3	-0.2
Пн 5	268° 49.7	283° 49.6	298° 49.5	313° 49.3	328° 49.2	343° 49.1	358° 49.0	13° 48.9	28° 48.8	43° 48.7	58° 48.6	73° 48.5	-0.1
	22° 43.2	22° 42.9	22° 42.7	22° 42.5	22° 42.2	22° 42.0	22° 41.7	22° 41.5	22° 41.2	22° 41.0	22° 40.7	22° 40.5	-0.2
Вт 6	268° 47.1	283° 47.0	298° 46.9	313° 46.8	328° 46.7	343° 46.6	358° 46.5	13° 46.4	28° 46.3	43° 46.2	58° 46.1	73° 46.0	-0.1
	22° 37.1	22° 36.9	22° 36.6	22° 36.3	22° 36.1	22° 35.8	22° 35.5	22° 35.3	22° 35.0	22° 34.7	22° 34.5	22° 34.2	-0.3
Ср 7	268° 44.7	283° 44.6	298° 44.5	313° 44.4	328° 44.3	343° 44.2	358° 44.1	13° 44.0	28° 43.9	43° 43.8	58° 43.7	73° 43.6	-0.1
	22° 30.6	22° 30.4	22° 30.1	22° 29.8	22° 29.5	22° 29.3	22° 29.0	22° 28.7	22° 28.4	22° 28.1	22° 27.8	22° 27.6	-0.3
Чт 8	268° 42.4	283° 42.3	298° 42.2	313° 42.1	328° 42.0	343° 41.9	358° 41.8	13° 41.7	28° 41.6	43° 41.5	58° 41.4	73° 41.3	-0.1
	22° 23.8	22° 23.5	22° 23.2	22° 22.9	22° 22.6	22° 22.3	22° 22.0	22° 21.7	22° 21.4	22° 21.1	22° 20.8	22° 20.5	-0.3
Пт 9	268° 40.1	283° 40.1	298° 40.0	313° 39.9	328° 39.8	343° 39.7	358° 39.6	13° 39.5	28° 39.4	43° 39.3	58° 39.2	73° 39.2	-0.1
	22° 16.6	22° 16.2	22° 15.9	22° 15.6	22° 15.3	22° 15.0	22° 14.7	22° 14.4	22° 14.1	22° 13.7	22° 13.4	22° 13.1	-0.3
Сб 10	268° 38.0	283° 37.9	298° 37.8	313° 37.8	328° 37.7	343° 37.6	358° 37.5	13° 37.4	28° 37.3	43° 37.3	58° 37.2	73° 37.1	-0.1
	22° 08.9	22° 08.6	22° 08.3	22° 07.9	22° 07.6	22° 07.3	22° 07.0	22° 06.6	22° 06.3	22° 06.0	22° 05.6	22° 05.3	-0.3
Вс 11	268° 36.0	283° 35.9	298° 35.8	313° 35.8	328° 35.7	343° 35.6	358° 35.5	13° 35.4	28° 35.4	43° 35.3	58° 35.2	73° 35.1	-0.1
	22° 00.9	22° 00.6	22° 00.2	21° 59.9	21° 59.6	21° 59.2	21° 58.9	21° 58.5	21° 58.2	21° 57.8	21° 57.5	21° 57.1	-0.3
Пн 12	268° 34.1	283° 34.0	298° 34.0	313° 33.9	328° 33.8	343° 33.7	358° 33.7	13° 33.6	28° 33.5	43° 33.4	58° 33.4	73° 33.3	-0.1
	21° 52.5	21° 52.2	21° 51.8	21° 51.5	21° 51.1	21° 50.7	21° 50.4	21° 50.0	21° 49.7	21° 49.3	21° 48.9	21° 48.6	-0.4
Вт 13	268° 32.3	283° 32.3	298° 32.2	313° 32.1	328° 32.1	343° 32.0	358° 31.9	13° 31.8	28° 31.8	43° 31.7	58° 31.6	73° 31.6	-0.1
	21° 43.8	21° 43.4	21° 43.0	21° 42.7	21° 42.3	21° 41.9	21° 41.5	21° 41.2	21° 40.8	21° 40.4	21° 40.0	21° 39.6	-0.4
Ср 14	268° 30.7	283° 30.6	298° 30.6	313° 30.5	328° 30.4	343° 30.4	358° 30.3	13° 30.2	28° 30.2	43° 30.1	58° 30.0	73° 30.0	-0.1
	21° 34.7	21° 34.3	21° 33.9	21° 33.5	21° 33.1	21° 32.7	21° 32.3	21° 31.9	21° 31.5	21° 31.1	21° 30.7	21° 30.4	-0.4
Чт 15	268° 29.2	283° 29.1	298° 29.0	313° 29.0	328° 28.9	343° 28.9	358° 28.8	13° 28.8	28° 28.7	43° 28.6	58° 28.6	73° 28.5	-0.1
	21° 25.2	21° 24.8	21° 24.4	21° 24.0	21° 23.5	21° 23.1	21° 22.7	21° 22.3	21° 21.9	21° 21.5	21° 21.1	21° 20.7	-0.4
Пт 16	268° 27.8	283° 27.7	298° 27.7	313° 27.6	328° 27.6	343° 27.5	358° 27.5	13° 27.4	28° 27.3	43° 27.3	58° 27.2	73° 27.2	-0.1
	21° 15.3	21° 14.9	21° 14.5	21° 14.0	21° 13.6	21° 13.2	21° 12.8	21° 12.4	21° 11.9	21° 11.5	21° 11.1	21° 10.7	-0.4
Сб 17	268° 26.5	283° 26.5	298° 26.4	313° 26.4	328° 26.3	343° 26.3	358° 26.2	13° 26.2	28° 26.1	43° 26.1	58° 26.0	73° 26.0	-0.0
	21° 05.1	21° 04.7	21° 04.2	21° 03.8	21° 03.4	21° 02.9	21° 02.5	21° 02.0	21° 01.6	21° 01.2	21° 00.7	21° 00.3	-0.4
Вс 18	268° 25.4	283° 25.4	298° 25.3	313° 25.3	328° 25.2	343° 25.2	358° 25.2	13° 25.1	28° 25.1	43° 25.0	58° 25.0	73° 25.0	-0.0
	20° 54.5	20° 54.1	20° 53.6	20° 53.2	20° 52.7	20° 52.3	20° 51.8	20° 51.4	20° 50.9	20° 50.5	20° 50.0	20° 49.6	-0.5
Пн 19	268° 24.4	283° 24.4	298° 24.4	313° 24.3	328° 24.3	343° 24.3	358° 24.2	13° 24.2	28° 24.2	43° 24.1	58° 24.1	73° 24.0	-0.0
	20° 43.6	20° 43.1	20° 42.7	20° 42.2	20° 41.7	20° 41.3	20° 40.8	20° 40.3	20° 39.9	20° 39.4	20° 38.9	20° 38.5	-0.5
Вт 20	268° 23.6	283° 23.6	298° 23.6	313° 23.5	328° 23.5	343° 23.5	358° 23.4	13° 23.4	28° 23.4	43° 23.3	58° 23.3	73° 23.3	-0.0
	20° 32.3	20° 31.8	20° 31.4	20° 30.9	20° 30.4	20° 29.9	20° 29.4	20° 29.0	20° 28.5	20° 28.0	20° 27.5	20° 27.0	-0.5
Ср 21	268° 22.9	283° 22.9	298° 22.9	313° 22.9	328° 22.8	343° 22.8	358° 22.8	13° 22.8	28° 22.7	43° 22.7	58° 22.7	73° 22.7	-0.0
	20° 20.7	20° 20.2	20° 19.7	20° 19.2	20° 18.7	20° 18.2	20° 17.7	20° 17.3	20° 16.8	20° 16.3	20° 15.8	20° 15.3	-0.5
Чт 22	268° 22.4	283° 22.4	298° 22.4	313° 22.3	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.2	43° 22.2	58° 22.2	73° 22.2	-0.0
	20° 08.7	20° 08.2	20° 07.7	20° 07.2	20° 06.7	20° 06.2	20° 05.7	20° 05.2	20° 04.7	20° 04.2	20° 03.7	20° 03.2	-0.5
Пт 23	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 21.9	343° 21.9	358° 21.9	13° 21.9	28° 21.9	43° 21.9	58° 21.9	73° 21.9	-0.0
	19° 56.5	19° 55.9	19° 55.4	19° 54.9	19° 54.4	19° 53.9	19° 53.3	19° 52.8	19° 52.3	19° 51.8	19° 51.2	19° 50.7	-0.5
Сб 24	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	-0.0
	19° 43.8	19° 43.3	19° 42.8	19° 42.2	19° 41.7	19° 41.2	19° 40.6	19° 40.1	19° 39.5	19° 39.0	19° 38.5	19° 37.9	-0.5
Вс 25	268° 21.6	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.6	13° 21.6	28° 21.6	43° 21.6	58° 21.6	73° 21.6	+0.0
	19° 30.9	19° 30.3	19° 29.8	19° 29.2	19° 28.7	19° 28.1	19° 27.6	19° 27.0	19° 26.5	19° 25.9	19° 25.4	19° 24.8	-0.5
Пн 26	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.7	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.8	+0.0
	19° 17.6	19° 17.0	19° 16.5	19° 15.9	19° 15.4	19° 14.8	19° 14.2	19° 13.7	19° 13.1	19° 12.5	19° 12.0	19° 11.4	-0.6
Вт 27	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.9	358° 21.9	13° 22.0	28° 22.0	43° 22.0	58° 22.0	73° 22.0	+0.0
	19° 04.0	19° 03.4	19° 02.9	19° 02.3	19° 01.7	19° 01.1	19° 00.6	19° 00.0	18° 59.4	18° 58.8	18° 58.2	18° 57.7	-0.6
Ср 28	268° 22.2	283° 22.2	298° 22.2	313° 22.3	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.4	43° 22.4	58° 22.4	73° 22.4	+0.0
	18° 50.1	18° 49.5	18° 48.9	18° 48.3	18° 47.7	18° 47.1	18° 46.6	18° 46.0	18° 45.4	18° 44.8	18° 44.2	18° 43.6	-0.6
Чт 29	268° 22.7	283° 22.7	298° 22.7	313° 22.8	328° 22.8	343° 22.8	358° 22.8	13° 22.9	28° 22.9	43° 22.9	58° 22.9	73° 23.0	+0.0
	18° 35.9	18° 35.3	18° 34.7	18° 34.1	18° 33.5	18° 32.9	18° 32.3	18° 31.7	18° 31.1	18° 30.4	18° 29.8	18° 29.2	-0.6
Пт 30	268° 23.3	283° 23.3	298° 23.4	313° 23.4	328° 23.4	343° 23.5	358° 23.5	13° 23.5	28° 23.6	43° 23.6	58° 23.6	73° 23.7	+0.0
	18° 21.3	18° 20.7	18° 20.1	18° 19.5	18° 18.9	18° 18.3	18° 17.7	18° 17.0	18° 16.4	18° 15.8	18° 15.2	18° 14.6	-0.6
Сб 31	268° 24.1	283° 24.1	298° 24.2	313° 24.2	328° 24.2	343° 24.3	358° 24.3	13° 24.3	28° 24.4	43° 24.4	58° 24.5	73° 24.5	+0.0
	18° 06.5	18° 05.9	18° 05.2	18° 04.6	18° 04.0	18° 03.4	18° 02.7	18° 02.1	18° 01.5	18° 00.9	18° 00.2	17° 59.6	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2032

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Чт 1	233° 43.1 13° 12.6	248° 12.3 13° 21.0	262° 41.6 13° 29.4	277° 10.9 13° 37.6	291° 40.1 13° 45.8	306° 09.3 13° 53.9	320° 38.6 14° 01.9	335° 07.8 14° 09.9	349° 37.0 14° 17.7	4° 06.1 14° 25.5	18° 35.3 14° 33.2	+29.2 +8.1	15.6 57.4
Пт 2	248° 12.3 13° 21.0	262° 41.6 13° 29.4	277° 10.9 13° 37.6	291° 40.1 13° 45.8	306° 09.3 13° 53.9	320° 38.6 14° 01.9	335° 07.8 14° 09.9	349° 37.0 14° 17.7	4° 06.1 14° 25.5	18° 35.3 14° 33.2	33° 04.5 14° 40.8	+29.2 +8.0	15.6 57.3
Сб 3	250° 20.6 16° 24.3	264° 49.5 16° 30.5	279° 18.5 16° 36.5	293° 47.5 16° 42.5	308° 16.4 16° 48.4	322° 45.4 16° 54.2	337° 14.3 16° 59.9	351° 43.3 17° 05.5	6° 12.2 17° 11.1	20° 41.1 17° 16.5	35° 10.0 17° 21.8	+28.9 +5.8	15.5 56.7
Вс 4	252° 22.9 18° 29.8	266° 51.8 18° 33.5	281° 20.6 18° 37.2	295° 49.4 18° 40.7	310° 18.3 18° 44.1	324° 47.1 18° 47.4	339° 15.9 18° 50.7	353° 44.8 18° 53.8	8° 13.6 18° 56.8	22° 42.5 18° 59.7	37° 11.3 19° 02.5	+28.8 +3.3	15.3 56.2
Пн 5	254° 24.9 19° 32.3	268° 53.9 19° 33.5	283° 22.9 19° 34.5	297° 52.0 19° 35.5	312° 21.0 19° 36.3	326° 50.1 19° 37.1	341° 19.1 19° 37.7	355° 48.2 19° 38.3	10° 17.3 19° 38.7	24° 46.5 19° 39.1	39° 15.6 19° 39.3	+29.1 +0.7	15.2 55.6
Вт 6	256° 35.5 19° 30.7	271° 05.0 19° 29.4	285° 34.6 19° 27.9	300° 04.2 19° 26.3	314° 33.8 19° 24.7	329° 03.5 19° 22.9	343° 33.2 19° 21.0	358° 02.9 19° 19.1	12° 32.6 19° 17.1	27° 02.4 19° 14.9	41° 32.2 19° 12.7	+29.7 -1.8	15.0 55.2
● Ср 7	259° 03.9 18° 28.1	273° 34.3 18° 24.4	288° 04.8 18° 20.6	302° 35.3 18° 16.7	317° 05.8 18° 12.8	331° 36.4 18° 08.7	346° 07.1 18° 04.6	0° 37.7 18° 00.4	15° 08.4 17° 56.1	29° 39.2 17° 51.7	44° 10.0 17° 47.3	+30.6 -4.1	14.9 54.8
Чт 8	261° 57.3 16° 30.9	276° 28.8 16° 25.3	291° 00.4 16° 19.5	305° 32.0 16° 13.6	320° 03.6 16° 07.7	334° 35.3 16° 01.8	349° 07.0 15° 55.7	3° 38.8 15° 49.6	18° 10.7 15° 43.4	32° 42.5 15° 37.1	47° 14.4 15° 30.8	+31.7 -6.0	14.8 54.4
Пт 9	265° 18.6 13° 48.4	279° 51.2 13° 41.0	294° 23.9 13° 33.7	308° 56.6 13° 26.3	323° 29.3 13° 18.8	338° 02.1 13° 11.2	352° 35.0 13° 03.7	7° 07.8 12° 56.0	21° 40.7 12° 48.3	36° 13.7 12° 40.6	50° 46.7 12° 32.8	+32.8 -7.6	14.8 54.2
Сб 10	269° 06.2 10° 30.2	283° 39.8 10° 21.7	298° 13.4 10° 13.1	312° 47.1 10° 04.5	327° 20.7 9° 55.9	341° 54.5 9° 47.2	356° 28.2 9° 38.5	11° 02.0 9° 29.7	25° 35.8 9° 20.9	40° 09.6 9° 12.1	54° 43.5 9° 03.2	+33.7 -8.7	14.7 54.0
Вс 11	273° 14.7 6° 46.4	287° 48.9 6° 37.0	302° 23.2 6° 27.6	316° 57.5 6° 18.2	331° 31.8 6° 08.8	346° 06.2 5° 59.3	0° 40.5 5° 49.9	15° 14.9 5° 40.4	29° 49.3 5° 30.8	44° 23.7 5° 21.3	58° 58.1 5° 11.7	+34.3 -9.5	14.7 54.0
Пн 12	277° 35.6 2° 46.2	292° 10.2 2° 36.3	306° 44.7 2° 26.5	321° 19.3 2° 16.6	335° 53.9 2° 06.8	350° 28.4 1° 56.9	5° 03.0 1° 47.0	19° 37.6 1° 37.2	34° 12.1 1° 27.3	48° 46.7 1° 17.4	63° 21.2 1° 07.5	+34.6 -9.9	14.7 54.1
Вт 13	281° 58.7 -1° 21.7	296° 33.1 -1° 31.6	311° 07.5 -1° 41.6	325° 41.8 -1° 51.5	340° 16.2 -2° 01.4	354° 50.5 -2° 11.4	9° 24.8 -2° 21.3	23° 59.1 -2° 31.2	38° 33.4 -2° 41.2	53° 07.6 -2° 51.1	67° 41.9 -3° 01.0	+34.3 -9.9	14.8 54.3
Ср 14	286° 12.1 -5° 28.4	300° 45.9 -5° 38.2	315° 19.6 -5° 47.9	329° 53.3 -5° 57.6	344° 26.9 -6° 07.2	359° 00.6 -6° 16.9	13° 34.1 -6° 26.5	28° 07.7 -6° 36.1	42° 41.2 -6° 45.7	57° 14.6 -6° 55.3	71° 48.0 -7° 04.8	+33.6 -9.6	14.9 54.8
◐ Чт 15	290° 03.6 -9° 25.0	304° 36.2 -9° 34.1	319° 08.8 -9° 43.1	333° 41.3 -9° 52.2	348° 13.8 -10° 01.2	2° 46.2 -10° 10.2	17° 18.5 -10° 19.1	31° 50.8 -10° 28.0	46° 23.1 -10° 36.8	60° 55.2 -10° 45.6	75° 27.3 -10° 54.4	+32.4 -8.9	15.1 55.4
Пт 16	293° 21.1 -13° 00.7	307° 52.1 -13° 08.7	322° 23.1 -13° 16.7	336° 54.0 -13° 24.6	351° 24.8 -13° 32.4	5° 55.6 -13° 40.2	20° 26.2 -13° 48.0	34° 56.8 -13° 55.7	49° 27.4 -14° 03.3	63° 57.8 -14° 10.9	78° 28.2 -14° 18.4	+30.7 -7.8	15.3 56.2
Сб 17	295° 54.4 -16° 02.9	310° 23.5 -16° 09.3	324° 52.5 -16° 15.6	339° 21.4 -16° 21.9	353° 50.3 -16° 28.0	8° 19.1 -16° 34.1	22° 47.8 -16° 40.1	37° 16.4 -16° 46.0	51° 44.9 -16° 51.8	66° 13.4 -16° 57.6	80° 41.7 -17° 03.2	+28.7 -6.0	15.6 57.1
Вс 18	297° 37.5 -18° 17.1	312° 04.5 -18° 21.2	326° 31.5 -18° 25.2	340° 58.4 -18° 29.2	355° 25.3 -18° 33.0	9° 52.0 -18° 36.7	24° 18.7 -18° 40.4	38° 45.3 -18° 43.9	53° 11.9 -18° 47.3	67° 38.3 -18° 50.6	82° 04.7 -18° 53.7	+26.7 -3.7	15.8 58.1
Пн 19	298° 31.9 -19° 27.6	312° 57.2 -19° 28.9	327° 22.4 -19° 30.0	341° 47.6 -19° 31.1	356° 12.7 -19° 32.0	10° 37.7 -19° 32.8	25° 02.7 -19° 33.5	39° 27.7 -19° 34.0	53° 52.6 -19° 34.4	68° 17.4 -19° 34.7	82° 42.2 -19° 34.8	+25.0 -0.7	16.1 59.0
Вт 20	298° 48.6 -19° 21.2	313° 12.7 -19° 19.2	327° 36.8 -19° 17.1	342° 00.9 -19° 14.9	356° 25.0 -19° 12.5	10° 49.0 -19° 09.9	25° 13.0 -19° 07.3	39° 37.0 -19° 04.5	54° 01.0 -19° 01.6	68° 24.9 -18° 58.5	82° 48.8 -18° 55.3	+24.0 +2.6	16.3 59.9
Ср 21	298° 46.8 -17° 51.1	313° 10.6 -17° 45.7	327° 34.5 -17° 40.3	341° 58.3 -17° 34.7	356° 22.2 -17° 29.0	10° 46.1 -17° 23.1	25° 10.0 -17° 17.1	39° 33.9 -17° 11.0	53° 57.9 -17° 04.8	68° 21.8 -16° 58.4	82° 45.8 -16° 51.9	+23.9 +5.9	16.5 60.6
○ Чт 22	298° 48.1 -15° 00.3	313° 12.5 -14° 51.9	327° 36.9 -14° 43.5	342° 01.4 -14° 34.9	356° 25.9 -14° 26.3	10° 50.4 -14° 17.5	25° 15.0 -14° 08.6	39° 39.6 -13° 59.6	54° 04.2 -13° 50.6	68° 28.9 -13° 41.4	82° 53.7 -13° 32.1	+24.6 +8.8	16.6 61.0
Пт 23	299° 09.8 -11° 02.4	313° 35.3 -10° 51.8	328° 00.8 -10° 41.1	342° 26.3 -10° 30.3	356° 51.9 -10° 19.4	11° 17.5 -10° 08.5	25° 43.2 -9° 57.6	40° 08.9 -9° 46.5	54° 34.7 -9° 35.4	69° 00.5 -9° 24.3	83° 26.4 -9° 13.0	+25.7 +10.9	16.7 61.1
Сб 24	300° 00.3 -6° 18.6	314° 26.9 -6° 06.6	328° 53.6 -5° 54.6	343° 20.3 -5° 42.6	357° 47.1 -5° 30.5	12° 13.9 -5° 18.4	26° 40.8 -5° 06.3	41° 07.7 -4° 54.2	55° 34.6 -4° 42.0	70° 01.6 -4° 29.9	84° 28.6 -4° 17.7	+26.8 +12.1	16.6 60.8
Вс 25	301° 19.0 -1° 13.2	315° 46.6 -1° 00.9	330° 14.3 -0° 48.6	344° 42.1 -0° 36.3	359° 09.8 -0° 24.0	13° 37.6 -0° 11.7	28° 05.4 0° 00.6	42° 33.3 0° 12.9	57° 01.2 0° 25.1	71° 29.1 0° 37.4	85° 57.1 0° 49.6	+27.8 +12.3	16.4 60.3
Пн 26	315° 46.6 -1° 00.9	330° 14.3 -0° 48.6	344° 42.1 -0° 36.3	359° 09.8 -0° 24.0	13° 37.6 -0° 11.7	28° 05.4 0° 00.6	42° 33.3 0° 12.9	57° 01.2 0° 25.1	71° 29.1 0° 37.4	85° 57.1 0° 49.6	100° 25.1 1° 01.8	+27.8 +12.3	16.4 60.3
Вт 27	317° 28.1 4° 02.0	331° 56.4 4° 13.8	346° 24.9 4° 25.5	0° 53.3 4° 37.2	15° 21.7 4° 48.8	29° 50.2 5° 00.5	44° 18.7 5° 12.0	58° 47.2 5° 23.5	73° 15.7 5° 35.0	87° 44.3 5° 46.4	102° 12.8 5° 57.8	+28.5 +11.6	16.2 59.5
Ср 28	319° 22.8 8° 42.2	333° 51.5 8° 52.7	348° 20.3 9° 03.2	2° 49.0 9° 13.5	17° 17.8 9° 23.8	31° 46.6 9° 34.1	46° 15.4 9° 44.2	60° 44.2 9° 54.4	75° 13.0 10° 04.4	89° 41.8 10° 14.4	104° 10.6 10° 24.3	+28.8 +10.2	16.0 58.7
◑ Чт 29	321° 23.2 12° 43.9	335° 52.1 12° 52.6	350° 20.9 13° 01.2	4° 49.8 13° 09.7	19° 18.6 13° 18.1	33° 47.5 13° 26.5	48° 16.4 13° 34.8	62° 45.2 13° 42.9	77° 14.1 13° 51.0	91° 43.0 13° 59.1	106° 11.8 14° 07.0	+28.9 +8.3	15.8 57.8
Пт 30	323° 24.8 15° 55.2	337° 53.6 16° 01.7	352° 22.5 16° 08.1	6° 51.4 16° 14.4	21° 20.2 16° 20.6	35° 49.1 16° 26.7	50° 18.0 16° 32.7	64° 46.8 16° 38.6	79° 15.7 16° 44.4	93° 44.6 16° 50.2	108° 13.4 16° 55.8	+28.9 +6.1	15.5 57.0
Сб 31	325° 26.9 18° 08.3	339° 55.8 18° 12.4	354° 24.7 18° 16.3	8° 53.7 18° 20.2	23° 22.6 18° 23.9	37° 51.6 18° 27.5	52° 20.6 18° 31.1	66° 49.5 18° 34.5	81° 18.5 18° 37.8	95° 47.5 18° 41.1	110° 16.5 18° 44.2	+29.0 +3.6	15.3 56.3

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Новолуние: 7 14h41 — Первая четв.: 15 18h32 — Полнолуние: 22 18h51 — Последняя четв.: 29 09h25

СОЛНЦЕ

Август 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	268° 25.0	283° 25.1	298° 25.1	313° 25.1	328° 25.2	343° 25.2	358° 25.3	13° 25.3	28° 25.4	43° 25.4	58° 25.4	73° 25.5	+0.0
	17° 51.4	17° 50.7	17° 50.1	17° 49.5	17° 48.8	17° 48.2	17° 47.5	17° 46.9	17° 46.3	17° 45.6	17° 45.0	17° 44.3	-0.6
Пн 2	268° 26.1	283° 26.1	298° 26.2	313° 26.2	328° 26.3	343° 26.3	358° 26.4	13° 26.4	28° 26.5	43° 26.5	58° 26.6	73° 26.6	+0.0
	17° 35.9	17° 35.3	17° 34.7	17° 34.0	17° 33.4	17° 32.7	17° 32.0	17° 31.4	17° 30.7	17° 30.1	17° 29.4	17° 28.8	-0.7
Вт 3	268° 27.3	283° 27.4	298° 27.4	313° 27.5	328° 27.5	343° 27.6	358° 27.6	13° 27.7	28° 27.7	43° 27.8	58° 27.9	73° 27.9	+0.1
	17° 20.2	17° 19.6	17° 18.9	17° 18.3	17° 17.6	17° 16.9	17° 16.3	17° 15.6	17° 14.9	17° 14.3	17° 13.6	17° 12.9	-0.7
Ср 4	268° 28.7	283° 28.7	298° 28.8	313° 28.8	328° 28.9	343° 29.0	358° 29.0	13° 29.1	28° 29.2	43° 29.2	58° 29.3	73° 29.3	+0.1
	17° 04.3	17° 03.6	17° 02.9	17° 02.2	17° 01.6	17° 00.9	17° 00.2	16° 59.5	16° 58.9	16° 58.2	16° 57.5	16° 56.8	-0.7
Чт 5	268° 30.2	283° 30.2	298° 30.3	313° 30.4	328° 30.4	343° 30.5	358° 30.6	13° 30.7	28° 30.7	43° 30.8	58° 30.9	73° 30.9	+0.1
	16° 48.0	16° 47.3	16° 46.6	16° 45.9	16° 45.3	16° 44.6	16° 43.9	16° 43.2	16° 42.5	16° 41.8	16° 41.1	16° 40.4	-0.7
Пт 6	268° 31.8	283° 31.9	298° 32.0	313° 32.1	328° 32.1	343° 32.2	358° 32.3	13° 32.4	28° 32.4	43° 32.5	58° 32.6	73° 32.7	+0.1
	16° 31.5	16° 30.8	16° 30.1	16° 29.4	16° 28.7	16° 28.0	16° 27.3	16° 26.6	16° 25.9	16° 25.2	16° 24.5	16° 23.8	-0.7
Сб 7	268° 33.7	283° 33.7	298° 33.8	313° 33.9	328° 34.0	343° 34.1	358° 34.1	13° 34.2	28° 34.3	43° 34.4	58° 34.5	73° 34.5	+0.1
	16° 14.7	16° 13.9	16° 13.2	16° 12.5	16° 11.8	16° 11.1	16° 10.4	16° 09.7	16° 09.0	16° 08.3	16° 07.6	16° 06.9	-0.7
Вс 8	268° 35.6	283° 35.7	298° 35.8	313° 35.9	328° 36.0	343° 36.0	358° 36.1	13° 36.2	28° 36.3	43° 36.4	58° 36.5	73° 36.6	+0.1
	15° 57.6	15° 56.9	15° 56.2	15° 55.4	15° 54.7	15° 54.0	15° 53.3	15° 52.6	15° 51.8	15° 51.1	15° 50.4	15° 49.7	-0.7
Пн 9	268° 37.7	283° 37.8	298° 37.9	313° 38.0	328° 38.1	343° 38.2	358° 38.3	13° 38.4	28° 38.5	43° 38.6	58° 38.6	73° 38.7	+0.1
	15° 40.3	15° 39.5	15° 38.8	15° 38.1	15° 37.4	15° 36.6	15° 35.9	15° 35.2	15° 34.4	15° 33.7	15° 33.0	15° 32.3	-0.7
Вт 10	268° 40.0	283° 40.1	298° 40.2	313° 40.3	328° 40.4	343° 40.5	358° 40.6	13° 40.7	28° 40.8	43° 40.9	58° 41.0	73° 41.1	+0.1
	15° 22.7	15° 22.0	15° 21.2	15° 20.5	15° 19.8	15° 19.0	15° 18.3	15° 17.5	15° 16.8	15° 16.1	15° 15.3	15° 14.6	-0.7
Ср 11	268° 42.4	283° 42.5	298° 42.6	313° 42.7	328° 42.8	343° 42.9	358° 43.0	13° 43.1	28° 43.2	43° 43.3	58° 43.4	73° 43.5	+0.1
	15° 04.9	15° 04.2	15° 03.4	15° 02.7	15° 01.9	15° 01.2	15° 00.4	14° 59.7	14° 58.9	14° 58.2	14° 57.4	14° 56.7	-0.7
Чт 12	268° 44.9	283° 45.0	298° 45.1	313° 45.3	328° 45.4	343° 45.5	358° 45.6	13° 45.7	28° 45.8	43° 45.9	58° 46.0	73° 46.1	+0.1
	14° 46.8	14° 46.1	14° 45.3	14° 44.6	14° 43.8	14° 43.1	14° 42.3	14° 41.5	14° 40.8	14° 40.0	14° 39.3	14° 38.5	-0.8
Пт 13	268° 47.6	283° 47.7	298° 47.8	313° 48.0	328° 48.1	343° 48.2	358° 48.3	13° 48.4	28° 48.5	43° 48.7	58° 48.8	73° 48.9	+0.1
	14° 28.6	14° 27.8	14° 27.0	14° 26.3	14° 25.5	14° 24.7	14° 24.0	14° 23.2	14° 22.4	14° 21.6	14° 20.9	14° 20.1	-0.8
Сб 14	268° 50.4	283° 50.6	298° 50.7	313° 50.8	328° 50.9	343° 51.0	358° 51.2	13° 51.3	28° 51.4	43° 51.5	58° 51.7	73° 51.8	+0.1
	14° 10.1	14° 09.3	14° 08.5	14° 07.7	14° 06.9	14° 06.2	14° 05.4	14° 04.6	14° 03.8	14° 03.0	14° 02.3	14° 01.5	-0.8
Вс 15	268° 53.4	283° 53.5	298° 53.7	313° 53.8	328° 53.9	343° 54.0	358° 54.2	13° 54.3	28° 54.4	43° 54.6	58° 54.7	73° 54.8	+0.1
	13° 51.3	13° 50.5	13° 49.7	13° 49.0	13° 48.2	13° 47.4	13° 46.6	13° 45.8	13° 45.0	13° 44.2	13° 43.4	13° 42.7	-0.8
Пн 16	268° 56.5	283° 56.6	298° 56.8	313° 56.9	328° 57.0	343° 57.2	358° 57.3	13° 57.4	28° 57.6	43° 57.7	58° 57.8	73° 58.0	+0.1
	13° 32.4	13° 31.6	13° 30.8	13° 30.0	13° 29.2	13° 28.4	13° 27.6	13° 26.8	13° 26.0	13° 25.2	13° 24.4	13° 23.6	-0.8
Вт 17	268° 59.7	283° 59.9	299° 00.0	314° 00.2	329° 00.3	344° 00.4	359° 00.6	14° 00.7	29° 00.8	44° 01.0	59° 01.1	74° 01.3	+0.1
	13° 13.2	13° 12.4	13° 11.6	13° 10.8	13° 10.0	13° 09.2	13° 08.4	13° 07.6	13° 06.8	13° 05.9	13° 05.1	13° 04.3	-0.8
Ср 18	269° 03.1	284° 03.3	299° 03.4	314° 03.5	329° 03.7	344° 03.8	359° 04.0	14° 04.1	29° 04.3	44° 04.4	59° 04.5	74° 04.7	+0.1
	12° 53.8	12° 53.0	12° 52.2	12° 51.4	12° 50.6	12° 49.7	12° 48.9	12° 48.1	12° 47.3	12° 46.5	12° 45.7	12° 44.9	-0.8
Чт 19	269° 06.6	284° 06.7	299° 06.9	314° 07.0	329° 07.2	344° 07.3	359° 07.5	14° 07.6	29° 07.8	44° 07.9	59° 08.1	74° 08.2	+0.1
	12° 34.2	12° 33.4	12° 32.6	12° 31.8	12° 30.9	12° 30.1	12° 29.3	12° 28.5	12° 27.7	12° 26.8	12° 26.0	12° 25.2	-0.8
Пт 20	269° 10.2	284° 10.4	299° 10.5	314° 10.7	329° 10.8	344° 11.0	359° 11.1	14° 11.3	29° 11.4	44° 11.6	59° 11.8	74° 11.9	+0.2
	12° 14.5	12° 13.6	12° 12.8	12° 12.0	12° 11.1	12° 10.3	12° 09.5	12° 08.6	12° 07.8	12° 07.0	12° 06.2	12° 05.3	-0.8
Сб 21	269° 13.9	284° 14.1	299° 14.3	314° 14.4	329° 14.6	344° 14.7	359° 14.9	14° 15.1	29° 15.2	44° 15.4	59° 15.5	74° 15.7	+0.2
	11° 54.5	11° 53.6	11° 52.8	11° 52.0	11° 51.1	11° 50.3	11° 49.5	11° 48.6	11° 47.8	11° 46.9	11° 46.1	11° 45.3	-0.8
Вс 22	269° 17.8	284° 18.0	299° 18.1	314° 18.3	329° 18.4	344° 18.6	359° 18.8	14° 18.9	29° 19.1	44° 19.3	59° 19.4	74° 19.6	+0.2
	11° 34.3	11° 33.5	11° 32.6	11° 31.8	11° 30.9	11° 30.1	11° 29.3	11° 28.4	11° 27.6	11° 26.7	11° 25.9	11° 25.0	-0.8
Пн 23	269° 21.8	284° 21.9	299° 22.1	314° 22.3	329° 22.4	344° 22.6	359° 22.8	14° 22.9	29° 23.1	44° 23.3	59° 23.4	74° 23.6	+0.2
	11° 14.0	11° 13.1	11° 12.3	11° 11.4	11° 10.6	11° 09.7	11° 08.9	11° 08.0	11° 07.2	11° 06.3	11° 05.4	11° 04.6	-0.9
Вт 24	269° 25.8	284° 26.0	299° 26.2	314° 26.3	329° 26.5	344° 26.7	359° 26.8	14° 27.0	29° 27.2	44° 27.4	59° 27.5	74° 27.7	+0.2
	10° 53.5	10° 52.6	10° 51.7	10° 50.9	10° 50.0	10° 49.2	10° 48.3	10° 47.4	10° 46.6	10° 45.7	10° 44.9	10° 44.0	-0.9
Ср 25	269° 30.0	284° 30.2	299° 30.3	314° 30.5	329° 30.7	344° 30.9	359° 31.0	14° 31.2	29° 31.4	44° 31.6	59° 31.7	74° 31.9	+0.2
	10° 32.8	10° 31.9	10° 31.0	10° 30.2	10° 29.3	10° 28.4	10° 27.6	10° 26.7	10° 25.8	10° 25.0	10° 24.1	10° 23.2	-0.9
Чт 26	269° 34.2	284° 34.4	299° 34.6	314° 34.8	329° 35.0	344° 35.1	359° 35.3	14° 35.5	29° 35.7	44° 35.9	59° 36.0	74° 36.2	+0.2
	10° 11.9	10° 11.0	10° 10.1	10° 09.3	10° 08.4	10° 07.5	10° 06.7	10° 05.8	10° 04.9	10° 04.0	10° 03.2	10° 02.3	-0.9
Пт 27	269° 38.6	284° 38.8	299° 39.0	314° 39.1	329° 39.3	344° 39.5	359° 39.7	14° 39.9	29° 40.1	44° 40.2	59° 40.4	74° 40.6	+0.2
	9° 50.9	9° 50.0	9° 49.1	9° 48.2	9° 47.3	9° 46.5	9° 45.6	9° 44.7	9° 43.8	9° 42.9	9° 42.1	9° 41.2	-0.9
Сб 28	269° 43.0	284° 43.2	299° 43.4	314° 43.6	329° 43.8	344° 44.0	359° 44.1	14° 44.3	29° 44.5	44° 44.7	59° 44.9	74° 45.1	+0.2
	9° 29.7	9° 28.8	9° 27.9	9° 27.0	9° 26.1	9° 25.2	9° 24.4	9° 23.5	9° 22.6	9° 21.7	9° 20.8	9° 19.9	-0.9
Вс 29	269° 47.5	284° 47.7	299° 47.9	314° 48.1	329° 48.3	344° 48.5	359° 48.7	14° 48.9	29° 49.1	44° 49.3	59° 49.4	74° 49.6	+0.2
	9° 08.3	9° 07.5	9° 06.6	9° 05.7	9° 04.8	9° 03.9	9° 03.0	9° 02.1	9° 01.2	9° 00.3	8° 59.4	8° 58.5	-0.9
Пн 30	269° 52.1	284° 52.3	299° 52.5	314° 52.7	329° 52.9	344° 53.1	359° 53.3	14° 53.5	29° 53.7	44° 53.9	59° 54.1	74° 54.3	+0.2
	8° 46.9	8° 46.0	8° 45.1	8° 44.2	8° 43.3	8° 42.4	8° 41.5	8° 40.6	8° 39.7	8° 38.8	8° 37.9	8° 37.0	-0.9
Вт 31	269° 56.8	284° 57.0	299° 57.2	314° 57.4	329° 57.6	344° 57.8	359° 58.0	14° 58.2	29° 58.4	44° 58.6	59° 58.8	74° 59.0	+0.2
	8° 25.2	8° 24.3	8° 23.4	8° 22.5	8° 21.6	8° 20.7	8° 19.8	8° 18.9	8° 18.0	8° 17.1	8° 16.2	8° 15.3	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

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	Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
	Вс 1	240° 38.0	255° 07.1	269° 36.2	284° 05.4	298° 34.5	313° 03.7	327° 32.9	342° 02.1	356° 31.3	11° 00.6	25° 29.8	+29.2	15.2
		19° 07.8	19° 09.9	19° 11.9	19° 13.8	19° 15.6	19° 17.3	19° 18.9	19° 20.4	19° 21.8	19° 23.1	19° 24.3	+1.7	55.8
	Пн 2	242° 51.1	257° 20.7	271° 50.3	286° 19.9	300° 49.6	315° 19.3	329° 49.0	344° 18.8	358° 48.6	13° 18.4	27° 48.2	+29.7	15.1
		19° 30.2	19° 29.8	19° 29.3	19° 28.7	19° 28.1	19° 27.3	19° 26.4	19° 25.4	19° 24.3	19° 23.1	19° 21.8	-0.8	55.2
	Вт 3	245° 19.6	259° 49.9	274° 20.3	288° 50.7	303° 21.2	317° 51.7	332° 22.2	346° 52.8	1° 23.4	15° 54.1	30° 24.7	+30.5	14.9
		18° 51.5	18° 48.7	18° 45.8	18° 42.9	18° 39.9	18° 36.8	18° 33.6	18° 30.3	18° 26.9	18° 23.4	18° 19.9	-3.2	54.8
	Ср 4	248° 09.6	262° 40.9	277° 12.3	291° 43.7	306° 15.1	320° 46.6	335° 18.1	349° 49.6	4° 21.2	18° 52.9	33° 24.5	+31.5	14.8
		17° 16.6	17° 11.8	17° 06.8	17° 01.8	16° 56.7	16° 51.6	16° 46.3	16° 41.0	16° 35.6	16° 30.2	16° 24.7	-5.2	54.4
	Чт 5	251° 24.6	265° 56.9	280° 29.3	295° 01.7	309° 34.1	324° 06.6	338° 39.1	353° 11.7	7° 44.3	22° 16.9	36° 49.6	+32.5	14.8
		14° 53.3	14° 46.7	14° 40.0	14° 33.3	14° 26.5	14° 19.6	14° 12.7	14° 05.7	13° 58.7	13° 51.6	13° 44.4	-6.9	54.1
●	Пт 6	255° 04.3	269° 37.6	284° 10.9	298° 44.2	313° 17.6	327° 51.0	342° 24.4	356° 57.9	11° 31.4	26° 04.9	40° 38.5	+33.4	14.7
		11° 50.6	11° 42.6	11° 34.6	11° 26.5	11° 18.3	11° 10.2	11° 01.9	10° 53.7	10° 45.3	10° 37.0	10° 28.6	-8.2	54.0
	Сб 7	259° 05.4	273° 39.4	288° 13.4	302° 47.4	317° 21.5	331° 55.6	346° 29.7	1° 03.9	15° 38.0	30° 12.2	44° 46.4	+34.1	14.7
		8° 18.0	8° 09.0	8° 00.0	7° 50.9	7° 41.8	7° 32.7	7° 23.6	7° 14.4	7° 05.2	6° 56.0	6° 46.8	-9.1	53.9
	Вс 8	263° 21.5	277° 56.0	292° 30.4	307° 04.9	321° 39.4	336° 13.9	350° 48.4	5° 22.9	19° 57.4	34° 31.9	49° 06.4	+34.5	14.7
		4° 25.1	4° 15.5	4° 05.9	3° 56.3	3° 46.6	3° 37.0	3° 27.3	3° 17.6	3° 07.9	2° 58.2	2° 48.4	-9.7	53.9
	Пн 9	267° 44.6	282° 19.1	296° 53.6	311° 28.2	326° 02.7	340° 37.2	355° 11.7	9° 46.2	24° 20.7	38° 55.1	53° 29.6	+34.5	14.7
		0° 21.4	0° 11.5	0° 01.7	-0° 08.2	-0° 18.0	-0° 27.9	-0° 37.7	-0° 47.6	-0° 57.5	-1° 07.3	-1° 17.2	-9.9	54.0
	Вт 10	272° 04.9	286° 39.1	301° 13.3	315° 47.4	330° 21.6	344° 55.7	359° 29.8	14° 03.8	28° 37.9	43° 11.9	57° 45.9	+34.1	14.8
		-3° 44.2	-3° 53.9	-4° 03.7	-4° 13.4	-4° 23.1	-4° 32.7	-4° 42.4	-4° 52.0	-5° 01.7	-5° 11.3	-5° 20.9	-9.7	54.3
	Ср 11	276° 11.9	290° 45.4	305° 18.8	319° 52.2	334° 25.5	348° 58.8	3° 32.1	18° 05.3	32° 38.5	47° 11.6	61° 44.7	+33.3	14.9
		-7° 42.4	-7° 51.6	-8° 00.8	-8° 10.0	-8° 19.2	-8° 28.3	-8° 37.4	-8° 46.5	-8° 55.5	-9° 04.5	-9° 13.4	-9.1	54.7
	Чт 12	279° 55.1	294° 27.4	308° 59.7	323° 31.8	338° 04.0	352° 36.0	7° 08.0	21° 40.0	36° 11.9	50° 43.7	65° 15.5	+32.0	15.1
		-11° 23.5	-11° 31.8	-11° 40.1	-11° 48.3	-11° 56.5	-12° 04.7	-12° 12.8	-12° 20.9	-12° 28.9	-12° 36.8	-12° 44.7	-8.1	55.3
	Пт 13	283° 04.5	297° 35.2	312° 05.9	326° 36.5	341° 07.1	355° 37.6	10° 08.0	24° 38.3	39° 08.6	53° 38.8	68° 08.9	+30.4	15.3
		-14° 36.6	-14° 43.6	-14° 50.5	-14° 57.4	-15° 04.1	-15° 10.9	-15° 17.5	-15° 24.1	-15° 30.6	-15° 37.0	-15° 43.4	-6.7	56.0
◐	Сб 14	285° 32.2	300° 01.2	314° 30.1	328° 59.0	343° 27.7	357° 56.4	12° 25.0	26° 53.5	41° 22.0	55° 50.4	70° 18.7	+28.6	15.5
		-17° 09.7	-17° 14.8	-17° 19.8	-17° 24.8	-17° 29.6	-17° 34.4	-17° 39.0	-17° 43.6	-17° 48.1	-17° 52.5	-17° 56.8	-4.7	56.8
	Вс 15	287° 15.0	301° 42.2	316° 09.3	330° 36.3	345° 03.3	359° 30.2	13° 57.1	28° 23.9	42° 50.6	57° 17.3	71° 43.9	+26.9	15.8
		-18° 49.5	-18° 52.2	-18° 54.8	-18° 57.3	-18° 59.6	-19° 01.9	-19° 04.1	-19° 06.1	-19° 08.0	-19° 09.8	-19° 11.5	-2.2	57.8
	Пн 16	288° 15.7	302° 41.4	317° 07.1	331° 32.6	345° 58.2	0° 23.7	14° 49.1	29° 14.5	43° 39.8	58° 05.2	72° 30.4	+25.5	16.0
		-19° 23.0	-19° 22.8	-19° 22.5	-19° 22.1	-19° 21.5	-19° 20.8	-19° 20.0	-19° 19.1	-19° 18.0	-19° 16.8	-19° 15.5	+0.8	58.8
	Вт 17	288° 45.0	303° 09.7	317° 34.4	331° 59.1	346° 23.8	0° 48.4	15° 13.1	29° 37.7	44° 02.2	58° 26.8	72° 51.4	+24.6	16.3
		-18° 40.2	-18° 36.8	-18° 33.3	-18° 29.7	-18° 25.9	-18° 22.0	-18° 18.0	-18° 13.8	-18° 09.5	-18° 05.1	-18° 00.5	+4.0	59.7
	Ср 18	288° 58.7	303° 23.2	317° 47.6	332° 12.1	346° 36.6	1° 01.1	15° 25.6	29° 50.1	44° 14.6	58° 39.1	73° 03.6	+24.5	16.5
		-16° 37.1	-16° 30.6	-16° 23.9	-16° 17.1	-16° 10.2	-16° 03.1	-15° 56.0	-15° 48.7	-15° 41.3	-15° 33.8	-15° 26.2	+7.1	60.6
	Чт 19	289° 13.5	303° 38.3	318° 03.2	332° 28.0	346° 52.9	1° 17.8	15° 42.8	30° 07.7	44° 32.7	58° 57.7	73° 22.8	+24.9	16.7
		-13° 18.8	-13° 09.5	-13° 00.1	-12° 50.6	-12° 40.9	-12° 31.2	-12° 21.4	-12° 11.6	-12° 01.6	-11° 51.5	-11° 41.4	+9.7	61.1
	Пт 20	289° 42.0	304° 07.5	318° 33.0	332° 58.6	347° 24.2	1° 49.9	16° 15.6	30° 41.3	45° 07.1	59° 32.8	73° 58.6	+25.7	16.7
		-8° 59.7	-8° 48.4	-8° 37.0	-8° 25.5	-8° 14.0	-8° 02.4	-7° 50.8	-7° 39.1	-7° 27.4	-7° 15.6	-7° 03.7	+11.6	61.4
○	Сб 21	290° 29.7	304° 56.0	319° 22.3	333° 48.7	348° 15.1	2° 41.5	17° 08.0	31° 34.5	46° 01.0	60° 27.6	74° 54.1	+26.4	16.7
		-4° 01.5	-3° 49.1	-3° 36.7	-3° 24.3	-3° 11.8	-2° 59.4	-2° 46.9	-2° 34.4	-2° 21.9	-2° 09.4	-1° 56.9	+12.5	61.2
	Вс 22	291° 36.0	306° 02.9	320° 29.9	334° 57.0	349° 24.0	3° 51.1	18° 18.2	32° 45.3	47° 12.4	61° 39.6	76° 06.8	+27.1	16.6
		1° 10.6	1° 23.0	1° 35.4	1° 47.8	2° 00.1	2° 12.4	2° 24.7	2° 37.0	2° 49.3	3° 01.5	3° 13.7	+12.3	60.8
	Пн 23	292° 56.5	307° 23.9	321° 51.4	336° 18.9	350° 46.3	5° 13.8	19° 41.3	34° 08.9	48° 36.4	63° 04.0	77° 31.5	+27.5	16.4
		6° 11.9	6° 23.4	6° 34.9	6° 46.3	6° 57.6	7° 08.9	7° 20.1	7° 31.3	7° 42.4	7° 53.5	8° 04.5	+11.3	60.0
	Вт 24	294° 26.2	308° 53.9	323° 21.7	337° 49.4	352° 17.2	6° 44.9	21° 12.7	35° 40.5	50° 08.3	64° 36.0	79° 03.8	+27.8	16.1
		10° 41.2	10° 51.1	11° 00.9	11° 10.6	11° 20.2	11° 29.8	11° 39.2	11° 48.6	11° 57.9	12° 07.1	12° 16.3	+9.5	59.1
	Ср 25	308° 53.9	323° 21.7	337° 49.4	352° 17.2	6° 44.9	21° 12.7	35° 40.5	50° 08.3	64° 36.0	79° 03.8	93° 31.7	+27.8	16.1
		10° 51.1	11° 00.9	11° 10.6	11° 20.2	11° 29.8	11° 39.2	11° 48.6	11° 57.9	12° 07.1	12° 16.3	12° 25.3	+9.4	59.1
	Чт 26	310° 29.8	324° 57.7	339° 25.7	353° 53.6	8° 21.6	22° 49.6	37° 17.6	51° 45.6	66° 13.6	80° 41.6	95° 09.6	+28.0	15.8
		14° 30.3	14° 37.9	14° 45.4	14° 52.8	15° 00.1	15° 07.3	15° 14.4	15° 21.4	15° 28.3	15° 35.1	15° 41.9	+7.2	58.1
◑	Пт 27	312° 11.4	326° 39.6	341° 07.9	355° 36.1	10° 04.4	24° 32.7	39° 01.0	53° 29.3	67° 57.6	82° 25.9	96° 54.3	+28.3	15.6
		17° 10.5	17° 15.6	17° 20.6	17° 25.5	17° 30.3	17° 35.0	17° 39.6	17° 44.0	17° 48.4	17° 52.7	17° 56.8	+4.6	57.1
	Сб 28	314° 02.0	328° 30.7	342° 59.4	357° 28.1	11° 56.9	26° 25.6	40° 54.4	55° 23.3	69° 52.1	84° 21.0	98° 49.9	+28.8	15.3
		18° 46.7	18° 49.2	18° 51.5	18° 53.8	18° 56.0	18° 58.1	19° 00.0	19° 01.9	19° 03.7	19° 05.3	19° 06.9	+2.0	56.3
	Вс 29	316° 06.8	330° 36.2	345° 05.6	359° 35.1	14° 04.5	28° 34.0	43° 03.6	57° 33.2	72° 02.8	86° 32.4	101° 02.1	+29.5	15.1
		19° 18.0	19° 17.9	19° 17.8	19° 17.5	19° 17.1	19° 16.7	19° 16.1	19° 15.5	19° 14.7	19° 13.9	19° 12.9	-0.5	55.5
	Пн 30	318° 31.7	333° 01.9	347° 32.2	2° 02.6	16° 33.0	31° 03.4	45° 33.9	60° 04.4	74° 35.0	89° 05.6	103° 36.2	+30.5	15.0
		18° 47.4	18° 45.0	18° 42.5	18° 39.9	18° 37.2	18° 34.4	18° 31.5	18° 28.5	18° 25.5	18° 22.3	18° 19.1	-2.8	54.9
	Вт 31	321° 20.7	335° 52.0	350° 23.3	4° 54.7	19° 26.1	33° 57.6	48° 29.1	63° 00.6	77° 32.2	92° 03.9	106° 35.5	+31.5	14.9
		17° 20.7	17° 16.2	17° 11.6	17° 06.9	17° 02.1	16° 57.3	16° 52.4	16° 47.4	16° 42.3	16° 37.2	16° 32.0	-4.9	54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 6 05h11 — Первая четв.: 14 07h51 — Полнолуние: 21 01h46 — Последняя четв.: 27 19h33

СОЛНЦЕ

Сентябрь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	270° 01.6	285° 01.8	300° 02.0	315° 02.2	330° 02.4	345° 02.6	0° 02.8	15° 03.0	30° 03.2	45° 03.4	60° 03.6	75° 03.8	+0.2
	8° 03.5	8° 02.6	8° 01.6	8° 00.7	7° 59.8	7° 58.9	7° 58.0	7° 57.1	7° 56.2	7° 55.3	7° 54.4	7° 53.5	-0.9
Чт 2	270° 06.4	285° 06.6	300° 06.8	315° 07.0	330° 07.2	345° 07.4	0° 07.6	15° 07.8	30° 08.0	45° 08.2	60° 08.4	75° 08.6	+0.2
	7° 41.6	7° 40.7	7° 39.7	7° 38.8	7° 37.9	7° 37.0	7° 36.1	7° 35.2	7° 34.3	7° 33.3	7° 32.4	7° 31.5	-0.9
Пт 3	270° 11.3	285° 11.5	300° 11.7	315° 11.9	330° 12.1	345° 12.3	0° 12.5	15° 12.7	30° 12.9	45° 13.1	60° 13.3	75° 13.5	+0.2
	7° 19.6	7° 18.6	7° 17.7	7° 16.8	7° 15.9	7° 15.0	7° 14.0	7° 13.1	7° 12.2	7° 11.3	7° 10.4	7° 09.4	-0.9
Сб 4	270° 16.2	285° 16.4	300° 16.6	315° 16.8	330° 17.1	345° 17.3	0° 17.5	15° 17.7	30° 17.9	45° 18.1	60° 18.3	75° 18.5	+0.2
	6° 57.4	6° 56.5	6° 55.6	6° 54.7	6° 53.7	6° 52.8	6° 51.9	6° 50.9	6° 50.0	6° 49.1	6° 48.2	6° 47.2	-0.9
Вс 5	270° 21.2	285° 21.4	300° 21.6	315° 21.9	330° 22.1	345° 22.3	0° 22.5	15° 22.7	30° 22.9	45° 23.1	60° 23.3	75° 23.5	+0.2
	6° 35.2	6° 34.2	6° 33.3	6° 32.4	6° 31.5	6° 30.5	6° 29.6	6° 28.7	6° 27.7	6° 26.8	6° 25.9	6° 24.9	-0.9
Пн 6	270° 26.3	285° 26.5	300° 26.7	315° 26.9	330° 27.1	345° 27.4	0° 27.6	15° 27.8	30° 28.0	45° 28.2	60° 28.4	75° 28.6	+0.2
	6° 12.8	6° 11.9	6° 11.0	6° 10.0	6° 09.1	6° 08.2	6° 07.2	6° 06.3	6° 05.3	6° 04.4	6° 03.5	6° 02.5	-0.9
Вт 7	270° 31.4	285° 31.6	300° 31.8	315° 32.0	330° 32.3	345° 32.5	0° 32.7	15° 32.9	30° 33.1	45° 33.3	60° 33.5	75° 33.8	+0.2
	5° 50.4	5° 49.4	5° 48.5	5° 47.5	5° 46.6	5° 45.7	5° 44.7	5° 43.8	5° 42.9	5° 41.9	5° 41.0	5° 40.0	-0.9
Ср 8	270° 36.6	285° 36.8	300° 37.0	315° 37.2	330° 37.4	345° 37.6	0° 37.9	15° 38.1	30° 38.3	45° 38.5	60° 38.7	75° 38.9	+0.2
	5° 27.8	5° 26.9	5° 25.9	5° 25.0	5° 24.0	5° 23.1	5° 22.2	5° 21.2	5° 20.3	5° 19.3	5° 18.4	5° 17.4	-0.9
Чт 9	270° 41.8	285° 42.0	300° 42.2	315° 42.4	330° 42.6	345° 42.9	0° 43.1	15° 43.3	30° 43.5	45° 43.7	60° 43.9	75° 44.2	+0.2
	5° 05.2	5° 04.2	5° 03.3	5° 02.3	5° 01.4	5° 00.4	4° 59.5	4° 58.5	4° 57.6	4° 56.6	4° 55.7	4° 54.8	-0.9
Пт 10	270° 47.0	285° 47.2	300° 47.4	315° 47.7	330° 47.9	345° 48.1	0° 48.3	15° 48.5	30° 48.8	45° 49.0	60° 49.2	75° 49.4	+0.2
	4° 42.4	4° 41.5	4° 40.5	4° 39.6	4° 38.6	4° 37.7	4° 36.7	4° 35.8	4° 34.8	4° 33.9	4° 32.9	4° 32.0	-0.9
Сб 11	270° 52.3	285° 52.5	300° 52.7	315° 52.9	330° 53.2	345° 53.4	0° 53.6	15° 53.8	30° 54.0	45° 54.3	60° 54.5	75° 54.7	+0.2
	4° 19.6	4° 18.7	4° 17.7	4° 16.8	4° 15.8	4° 14.9	4° 13.9	4° 13.0	4° 12.0	4° 11.1	4° 10.1	4° 09.1	-1.0
Вс 12	270° 57.6	285° 57.8	300° 58.0	315° 58.2	330° 58.5	345° 58.7	0° 58.9	15° 59.1	30° 59.4	45° 59.6	60° 59.8	76° 00.0	+0.2
	3° 56.7	3° 55.8	3° 54.8	3° 53.9	3° 52.9	3° 52.0	3° 51.0	3° 50.1	3° 49.1	3° 48.1	3° 47.2	3° 46.2	-1.0
Пн 13	271° 02.9	286° 03.1	301° 03.4	316° 03.6	331° 03.8	346° 04.0	1° 04.3	16° 04.5	31° 04.7	46° 04.9	61° 05.1	76° 05.4	+0.2
	3° 33.8	3° 32.8	3° 31.9	3° 30.9	3° 30.0	3° 29.0	3° 28.0	3° 27.1	3° 26.1	3° 25.2	3° 24.2	3° 23.2	-1.0
Вт 14	271° 08.3	286° 08.5	301° 08.7	316° 08.9	331° 09.2	346° 09.4	1° 09.6	16° 09.8	31° 10.1	46° 10.3	61° 10.5	76° 10.7	+0.2
	3° 10.8	3° 09.8	3° 08.9	3° 07.9	3° 06.9	3° 06.0	3° 05.0	3° 04.0	3° 03.1	3° 02.1	3° 01.2	3° 00.2	-1.0
Ср 15	271° 13.6	286° 13.9	301° 14.1	316° 14.3	331° 14.5	346° 14.8	1° 15.0	16° 15.2	31° 15.4	46° 15.7	61° 15.9	76° 16.1	+0.2
	2° 47.7	2° 46.7	2° 45.8	2° 44.8	2° 43.9	2° 42.9	2° 41.9	2° 41.0	2° 40.0	2° 39.0	2° 38.1	2° 37.1	-1.0
Чт 16	271° 19.0	286° 19.2	301° 19.5	316° 19.7	331° 19.9	346° 20.1	1° 20.4	16° 20.6	31° 20.8	46° 21.0	61° 21.3	76° 21.5	+0.2
	2° 24.6	2° 23.6	2° 22.6	2° 21.7	2° 20.7	2° 19.8	2° 18.8	2° 17.8	2° 16.9	2° 15.9	2° 14.9	2° 14.0	-1.0
Пт 17	271° 24.4	286° 24.6	301° 24.8	316° 25.1	331° 25.3	346° 25.5	1° 25.7	16° 26.0	31° 26.2	46° 26.4	61° 26.6	76° 26.9	+0.2
	2° 01.4	2° 00.4	1° 59.5	1° 58.5	1° 57.5	1° 56.6	1° 55.6	1° 54.6	1° 53.7	1° 52.7	1° 51.7	1° 50.8	-1.0
Сб 18	271° 29.8	286° 30.0	301° 30.2	316° 30.5	331° 30.7	346° 30.9	1° 31.1	16° 31.4	31° 31.6	46° 31.8	61° 32.0	76° 32.3	+0.2
	1° 38.2	1° 37.2	1° 36.3	1° 35.3	1° 34.3	1° 33.4	1° 32.4	1° 31.4	1° 30.4	1° 29.5	1° 28.5	1° 27.5	-1.0
Вс 19	271° 35.2	286° 35.4	301° 35.6	316° 35.8	331° 36.1	346° 36.3	1° 36.5	16° 36.7	31° 37.0	46° 37.2	61° 37.4	76° 37.6	+0.2
	1° 14.9	1° 14.0	1° 13.0	1° 12.0	1° 11.1	1° 10.1	1° 09.1	1° 08.2	1° 07.2	1° 06.2	1° 05.2	1° 04.3	-1.0
Пн 20	271° 40.5	286° 40.7	301° 41.0	316° 41.2	331° 41.4	346° 41.6	1° 41.9	16° 42.1	31° 42.3	46° 42.5	61° 42.8	76° 43.0	+0.2
	0° 51.7	0° 50.7	0° 49.7	0° 48.8	0° 47.8	0° 46.8	0° 45.8	0° 44.9	0° 43.9	0° 42.9	0° 42.0	0° 41.0	-1.0
Вт 21	271° 45.9	286° 46.1	301° 46.3	316° 46.5	331° 46.8	346° 47.0	1° 47.2	16° 47.4	31° 47.6	46° 47.9	61° 48.1	76° 48.3	+0.2
	0° 28.4	0° 27.4	0° 26.4	0° 25.4	0° 24.5	0° 23.5	0° 22.5	0° 21.6	0° 20.6	0° 19.6	0° 18.6	0° 17.7	-1.0
Ср 22	271° 51.2	286° 51.4	301° 51.6	316° 51.9	331° 52.1	346° 52.3	1° 52.5	16° 52.7	31° 53.0	46° 53.2	61° 53.4	76° 53.6	+0.2
	0° 05.0	0° 04.1	0° 03.1	0° 02.1	0° 01.1	0° 00.2	-0° 00.8	-0° 01.8	-0° 02.7	-0° 03.7	-0° 04.7	-0° 05.7	-1.0
Чт 23	271° 56.5	286° 56.7	301° 56.9	316° 57.1	331° 57.4	346° 57.6	1° 57.8	16° 58.0	31° 58.2	46° 58.4	61° 58.7	76° 58.9	+0.2
	-0° 18.3	-0° 19.3	-0° 20.3	-0° 21.2	-0° 22.2	-0° 23.2	-0° 24.1	-0° 25.1	-0° 26.1	-0° 27.1	-0° 28.0	-0° 29.0	-1.0
Пт 24	272° 01.7	287° 01.9	302° 02.2	317° 02.4	332° 02.6	347° 02.8	2° 03.0	17° 03.2	32° 03.5	47° 03.7	62° 03.9	77° 04.1	+0.2
	-0° 41.7	-0° 42.6	-0° 43.6	-0° 44.6	-0° 45.6	-0° 46.5	-0° 47.5	-0° 48.5	-0° 49.4	-0° 50.4	-0° 51.4	-0° 52.4	-1.0
Сб 25	272° 06.9	287° 07.1	302° 07.4	317° 07.6	332° 07.8	347° 08.0	2° 08.2	17° 08.4	32° 08.7	47° 08.9	62° 09.1	77° 09.3	+0.2
	-1° 05.0	-1° 06.0	-1° 07.0	-1° 07.9	-1° 08.9	-1° 09.9	-1° 10.9	-1° 11.8	-1° 12.8	-1° 13.8	-1° 14.8	-1° 15.7	-1.0
Вс 26	272° 12.1	287° 12.3	302° 12.5	317° 12.7	332° 12.9	347° 13.2	2° 13.4	17° 13.6	32° 13.8	47° 14.0	62° 14.2	77° 14.4	+0.2
	-1° 28.4	-1° 29.3	-1° 30.3	-1° 31.3	-1° 32.3	-1° 33.2	-1° 34.2	-1° 35.2	-1° 36.2	-1° 37.1	-1° 38.1	-1° 39.1	-1.0
Пн 27	272° 17.2	287° 17.4	302° 17.6	317° 17.8	332° 18.0	347° 18.2	2° 18.5	17° 18.7	32° 18.9	47° 19.1	62° 19.3	77° 19.5	+0.2
	-1° 51.7	-1° 52.7	-1° 53.7	-1° 54.6	-1° 55.6	-1° 56.6	-1° 57.6	-1° 58.5	-1° 59.5	-2° 00.5	-2° 01.4	-2° 02.4	-1.0
Вт 28	272° 22.2	287° 22.4	302° 22.6	317° 22.9	332° 23.1	347° 23.3	2° 23.5	17° 23.7	32° 23.9	47° 24.1	62° 24.3	77° 24.5	+0.2
	-2° 15.1	-2° 16.0	-2° 17.0	-2° 18.0	-2° 18.9	-2° 19.9	-2° 20.9	-2° 21.9	-2° 22.8	-2° 23.8	-2° 24.8	-2° 25.7	-1.0
Ср 29	272° 27.2	287° 27.4	302° 27.6	317° 27.8	332° 28.0	347° 28.2	2° 28.4	17° 28.7	32° 28.9	47° 29.1	62° 29.3	77° 29.5	+0.2
	-2° 38.4	-2° 39.3	-2° 40.3	-2° 41.3	-2° 42.3	-2° 43.2	-2° 44.2	-2° 45.2	-2° 46.1	-2° 47.1	-2° 48.1	-2° 49.1	-1.0
Чт 30	272° 32.1	287° 32.3	302° 32.5	317° 32.7	332° 32.9	347° 33.1	2° 33.3	17° 33.5	32° 33.7	47° 33.9	62° 34.1	77° 34.4	+0.2
	-3° 01.7	-3° 02.6	-3° 03.6	-3° 04.6	-3° 05.5	-3° 06.5	-3° 07.5	-3° 08.5	-3° 09.4	-3° 10.4	-3° 11.4	-3° 12.3	-1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2032

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	R/p
Ср 1	251° 54.5 15° 36.0	266° 26.6 15° 30.0	280° 58.8 15° 23.9	295° 31.0 15° 17.8	310° 03.3 15° 11.7	324° 35.5 15° 05.4	339° 07.9 14° 59.1	353° 40.2 14° 52.7	8° 12.6 14° 46.3	22° 45.1 14° 39.8	37° 17.5 14° 33.3	+32.3 -6.3	14.8 54.2
Чт 2	255° 29.1 12° 47.9	270° 02.2 12° 40.4	284° 35.3 12° 32.9	299° 08.4 12° 25.3	313° 41.6 12° 17.7	328° 14.8 12° 10.0	342° 48.0 12° 02.3	357° 21.3 11° 54.5	11° 54.6 11° 46.7	26° 27.9 11° 38.8	41° 01.3 11° 30.9	+33.2 -7.7	14.7 54.0
Пт 3	259° 25.1 9° 26.8	273° 58.9 9° 18.2	288° 32.7 9° 09.6	303° 06.6 9° 00.9	317° 40.5 8° 52.2	332° 14.4 8° 43.5	346° 48.3 8° 34.7	1° 22.2 8° 25.9	15° 56.2 8° 17.1	30° 30.2 8° 08.2	45° 04.2 7° 59.3	+33.9 -8.8	14.7 53.9
● Сб 4	263° 36.5 5° 42.1	278° 10.8 5° 32.7	292° 45.1 5° 23.3	307° 19.4 5° 13.9	321° 53.7 5° 04.5	336° 28.0 4° 55.1	351° 02.4 4° 45.6	5° 36.7 4° 36.1	20° 11.1 4° 26.6	34° 45.4 4° 17.1	49° 19.8 4° 07.6	+34.3 -9.5	14.7 53.9
Вс 5	267° 56.0 1° 42.8	282° 30.5 1° 33.0	297° 04.9 1° 23.3	311° 39.3 1° 13.5	326° 13.8 1° 03.8	340° 48.2 0° 54.0	355° 22.6 0° 44.2	9° 57.0 0° 34.5	24° 31.4 0° 24.7	39° 05.8 0° 14.9	53° 40.2 0° 05.1	+34.4 -9.8	14.7 54.0
Пн 6	272° 15.2 -2° 21.7	286° 49.4 -2° 31.4	301° 23.7 -2° 41.2	315° 57.9 -2° 50.9	330° 32.0 -3° 00.6	345° 06.2 -3° 10.3	359° 40.4 -3° 20.0	14° 14.5 -3° 29.7	28° 48.6 -3° 39.4	43° 22.7 -3° 49.1	57° 56.8 -3° 58.7	+34.2 -9.7	14.8 54.2
Вт 7	276° 25.1 -6° 21.7	290° 58.8 -6° 31.0	305° 32.4 -6° 40.4	320° 06.0 -6° 49.7	334° 39.6 -6° 59.0	349° 13.2 -7° 08.3	3° 46.7 -7° 17.5	18° 20.2 -7° 26.7	32° 53.6 -7° 35.9	47° 27.0 -7° 45.1	62° 00.4 -7° 54.2	+33.5 -9.3	14.9 54.5
Ср 8	280° 16.7 -10° 07.3	294° 49.5 -10° 15.8	309° 22.2 -10° 24.4	323° 54.9 -10° 32.9	338° 27.5 -10° 41.3	353° 00.1 -10° 49.7	7° 32.7 -10° 58.1	22° 05.2 -11° 06.4	36° 37.6 -11° 14.7	51° 10.0 -11° 22.9	65° 42.4 -11° 31.1	+32.6 -8.4	15.0 54.9
Чт 9	283° 41.9 -13° 27.8	298° 13.4 -13° 35.2	312° 44.9 -13° 42.5	327° 16.4 -13° 49.7	341° 47.8 -13° 56.9	356° 19.1 -14° 04.0	10° 50.4 -14° 11.0	25° 21.6 -14° 18.0	39° 52.8 -14° 24.9	54° 23.9 -14° 31.8	68° 55.0 -14° 38.6	+31.3 -7.1	15.1 55.4
Пт 10	286° 34.0 -16° 12.2	301° 04.1 -16° 17.8	315° 34.2 -16° 23.4	330° 04.2 -16° 28.9	344° 34.2 -16° 34.3	359° 04.1 -16° 39.7	13° 33.9 -16° 45.0	28° 03.7 -16° 50.1	42° 33.4 -16° 55.2	57° 03.1 -17° 00.3	71° 32.7 -17° 05.2	+29.9 -5.3	15.3 56.0
Сб 11	288° 49.6 -18° 08.7	303° 18.2 -18° 12.2	317° 46.8 -18° 15.6	332° 15.4 -18° 19.0	346° 43.9 -18° 22.2	1° 12.3 -18° 25.3	15° 40.7 -18° 28.3	30° 09.0 -18° 31.2	44° 37.2 -18° 34.1	59° 05.4 -18° 36.8	73° 33.6 -18° 39.4	+28.4 -3.1	15.5 56.7
◐ Вс 12	290° 29.5 -19° 06.3	304° 56.8 -19° 07.2	319° 24.1 -19° 08.0	333° 51.3 -19° 08.7	348° 18.5 -19° 09.4	2° 45.6 -19° 09.8	17° 12.7 -19° 10.2	31° 39.7 -19° 10.5	46° 06.7 -19° 10.6	60° 33.7 -19° 10.7	75° 00.6 -19° 10.6	+27.1 -0.4	15.7 57.5
Пн 13	291° 39.6 -18° 55.5	306° 06.0 -18° 53.6	320° 32.2 -18° 51.5	334° 58.5 -18° 49.3	349° 24.7 -18° 47.0	3° 50.9 -18° 44.6	18° 17.1 -18° 42.1	32° 43.3 -18° 39.4	47° 09.4 -18° 36.6	61° 35.5 -18° 33.7	76° 01.6 -18° 30.7	+26.2 +2.5	15.9 58.4
Вт 14	292° 30.2 -17° 31.0	306° 56.0 -17° 26.1	321° 21.7 -17° 21.0	335° 47.5 -17° 15.9	350° 13.3 -17° 10.6	4° 39.0 -17° 05.2	19° 04.7 -16° 59.7	33° 30.4 -16° 54.0	47° 56.2 -16° 48.3	62° 21.9 -16° 42.4	76° 47.6 -16° 36.5	+25.7 +5.5	16.2 59.3
Ср 15	293° 12.8 -14° 53.3	307° 38.5 -14° 45.5	322° 04.2 -14° 37.7	336° 29.9 -14° 29.7	350° 55.6 -14° 21.6	5° 21.3 -14° 13.5	19° 47.0 -14° 05.2	34° 12.8 -13° 56.8	48° 38.5 -13° 48.4	63° 04.2 -13° 39.8	77° 30.0 -13° 31.1	+25.7 +8.2	16.4 60.1
Чт 16	293° 57.3 -11° 09.9	308° 23.2 -10° 59.8	322° 49.2 -10° 49.6	337° 15.1 -10° 39.4	351° 41.1 -10° 29.0	6° 07.0 -10° 18.6	20° 33.0 -10° 08.1	34° 59.0 -9° 57.5	49° 25.0 -9° 46.9	63° 51.0 -9° 36.2	78° 17.1 -9° 25.4	+26.0 +10.5	16.6 60.7
Пт 17	294° 49.3 -6° 36.0	309° 15.5 -6° 24.3	323° 41.8 -6° 12.5	338° 08.1 -6° 00.7	352° 34.4 -5° 48.8	7° 00.7 -5° 36.9	21° 27.0 -5° 24.9	35° 53.4 -5° 12.9	50° 19.7 -5° 00.9	64° 46.1 -4° 48.8	79° 12.4 -4° 36.8	+26.3 +11.9	16.7 61.1
Сб 18	295° 49.5 -1° 32.3	310° 16.0 -1° 19.8	324° 42.6 -1° 07.4	339° 09.1 -0° 54.9	353° 35.7 -0° 42.5	8° 02.3 -0° 30.0	22° 28.9 -0° 17.6	36° 55.5 -0° 05.1	51° 22.1 0° 07.3	65° 48.7 0° 19.8	80° 15.3 0° 32.2	+26.6 +12.5	16.7 61.1
○ Вс 19	296° 55.4 3° 37.1	311° 22.1 3° 49.2	325° 48.8 4° 01.3	340° 15.6 4° 13.4	354° 42.3 4° 25.4	9° 09.0 4° 37.4	23° 35.7 4° 49.4	38° 02.5 5° 01.3	52° 29.2 5° 13.2	66° 55.9 5° 25.0	81° 22.7 5° 36.8	+26.7 +12.0	16.6 60.8
Пн 20	298° 03.9 8° 27.6	312° 30.7 8° 38.5	326° 57.4 8° 49.4	341° 24.2 9° 00.2	355° 50.9 9° 10.9	10° 17.7 9° 21.5	24° 44.5 9° 32.1	39° 11.2 9° 42.6	53° 38.0 9° 53.0	68° 04.8 10° 03.4	82° 31.5 10° 13.7	+26.8 +10.6	16.4 60.2
Вт 21	299° 13.3 12° 38.1	313° 40.1 12° 47.0	328° 06.9 12° 55.9	342° 33.7 13° 04.6	357° 00.6 13° 13.3	11° 27.4 13° 21.9	25° 54.2 13° 30.3	40° 21.0 13° 38.7	54° 47.9 13° 47.0	69° 14.7 13° 55.2	83° 41.6 14° 03.3	+26.8 +8.5	16.2 59.4
Ср 22	300° 25.4 15° 52.5	314° 52.4 15° 58.9	329° 19.4 16° 05.3	343° 46.4 16° 11.5	358° 13.5 16° 17.7	12° 40.5 16° 23.7	27° 07.6 16° 29.6	41° 34.7 16° 35.4	56° 01.8 16° 41.1	70° 28.9 16° 46.7	84° 56.1 16° 52.2	+27.1 +6.0	15.9 58.4
Чт 23	314° 52.4 15° 58.9	329° 19.4 16° 05.3	343° 46.4 16° 11.5	358° 13.5 16° 17.7	12° 40.5 16° 23.7	27° 07.6 16° 29.6	41° 34.7 16° 35.4	56° 01.8 16° 41.1	70° 28.9 16° 46.7	84° 56.1 16° 52.2	99° 23.2 16° 57.6	+27.1 +5.9	15.9 58.4
Пт 24	316° 13.1 18° 05.1	330° 40.6 18° 08.7	345° 08.1 18° 12.2	359° 35.7 18° 15.6	14° 03.3 18° 18.9	28° 30.9 18° 22.0	42° 58.5 18° 25.1	57° 26.2 18° 28.1	71° 53.9 18° 30.9	86° 21.7 18° 33.7	100° 49.4 18° 36.3	+27.6 +3.1	15.6 57.4
Сб 25	317° 50.0 19° 02.7	332° 18.3 19° 03.6	346° 46.7 19° 04.4	1° 15.1 19° 05.0	15° 43.5 19° 05.6	30° 12.0 19° 06.1	44° 40.6 19° 06.5	59° 09.1 19° 06.8	73° 37.7 19° 06.9	88° 06.4 19° 07.0	102° 35.1 19° 06.9	+28.5 +0.4	15.4 56.4
◑ Вс 26	319° 50.9 18° 54.3	334° 20.3 18° 52.7	348° 49.7 18° 51.0	3° 19.3 18° 49.2	17° 48.8 18° 47.3	32° 18.4 18° 45.2	46° 48.1 18° 43.2	61° 17.8 18° 41.0	75° 47.6 18° 38.7	90° 17.4 18° 36.3	104° 47.2 18° 33.8	+29.6 -2.0	15.2 55.6
Пн 27	322° 21.0 17° 46.3	336° 51.7 17° 42.5	351° 22.4 17° 38.5	5° 53.1 17° 34.5	20° 23.9 17° 30.4	34° 54.8 17° 26.2	49° 25.7 17° 22.0	63° 56.6 17° 17.7	78° 27.6 17° 13.2	92° 58.7 17° 08.8	107° 29.8 17° 04.2	+30.9 -4.2	15.0 55.0
Вт 28	325° 22.1 15° 46.8	339° 53.9 15° 41.1	354° 25.9 15° 35.3	8° 57.8 15° 29.5	23° 29.8 15° 23.5	38° 01.9 15° 17.6	52° 34.0 15° 11.5	67° 06.1 15° 05.4	81° 38.3 14° 59.2	96° 10.5 14° 53.0	110° 42.8 14° 46.6	+32.1 -6.0	14.9 54.5
Ср 29	328° 52.0 13° 04.9	343° 24.9 12° 57.6	357° 57.9 12° 50.4	12° 30.9 12° 43.0	27° 03.9 12° 35.6	41° 37.0 12° 28.2	56° 10.1 12° 20.7	70° 43.2 12° 13.1	85° 16.4 12° 05.5	99° 49.6 11° 57.9	114° 22.9 11° 50.2	+33.1 -7.5	14.8 54.1
Чт 30	332° 45.5 9° 49.4	347° 19.2 9° 41.0	1° 53.0 9° 32.6	16° 26.8 9° 24.1	31° 00.6 9° 15.6	45° 34.4 9° 07.0	60° 08.3 8° 58.5	74° 42.2 8° 49.8	89° 16.1 8° 41.2	103° 50.0 8° 32.5	118° 24.0 8° 23.8	+33.8 -8.6	14.7 54.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 4 20h56 — Первая четв.: 12 18h49 — Полнолуние: 19 09h30 — Последняя четв.: 26 09h12

СОЛНЦЕ

Октябрь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	272° 37.0	287° 37.2	302° 37.4	317° 37.6	332° 37.8	347° 38.0	2° 38.2	17° 38.4	32° 38.6	47° 38.8	62° 39.0	77° 39.2	+0.2
	-3° 24.9	-3° 25.9	-3° 26.9	-3° 27.8	-3° 28.8	-3° 29.8	-3° 30.7	-3° 31.7	-3° 32.7	-3° 33.6	-3° 34.6	-3° 35.6	-1.0
Сб 2	272° 41.7	287° 41.9	302° 42.1	317° 42.3	332° 42.5	347° 42.7	2° 42.9	17° 43.1	32° 43.3	47° 43.5	62° 43.7	77° 43.9	+0.2
	-3° 48.1	-3° 49.1	-3° 50.1	-3° 51.0	-3° 52.0	-3° 53.0	-3° 53.9	-3° 54.9	-3° 55.9	-3° 56.8	-3° 57.8	-3° 58.8	-1.0
Вс 3	272° 46.4	287° 46.6	302° 46.8	317° 47.0	332° 47.2	347° 47.4	2° 47.6	17° 47.8	32° 47.9	47° 48.1	62° 48.3	77° 48.5	+0.2
	-4° 11.3	-4° 12.3	-4° 13.3	-4° 14.2	-4° 15.2	-4° 16.2	-4° 17.1	-4° 18.1	-4° 19.0	-4° 20.0	-4° 21.0	-4° 21.9	-1.0
Пн 4	272° 51.0	287° 51.2	302° 51.4	317° 51.6	332° 51.8	347° 51.9	2° 52.1	17° 52.3	32° 52.5	47° 52.7	62° 52.9	77° 53.1	+0.2
	-4° 34.5	-4° 35.4	-4° 36.4	-4° 37.3	-4° 38.3	-4° 39.3	-4° 40.2	-4° 41.2	-4° 42.2	-4° 43.1	-4° 44.1	-4° 45.0	-1.0
Вт 5	272° 55.5	287° 55.7	302° 55.9	317° 56.1	332° 56.2	347° 56.4	2° 56.6	17° 56.8	32° 57.0	47° 57.2	62° 57.3	77° 57.5	+0.2
	-4° 57.5	-4° 58.5	-4° 59.5	-5° 00.4	-5° 01.4	-5° 02.3	-5° 03.3	-5° 04.3	-5° 05.2	-5° 06.2	-5° 07.1	-5° 08.1	-1.0
Ср 6	272° 59.9	288° 00.1	303° 00.3	318° 00.5	333° 00.6	348° 00.8	3° 01.0	18° 01.2	33° 01.4	48° 01.5	63° 01.7	78° 01.9	+0.2
	-5° 20.5	-5° 21.5	-5° 22.5	-5° 23.4	-5° 24.4	-5° 25.3	-5° 26.3	-5° 27.2	-5° 28.2	-5° 29.2	-5° 30.1	-5° 31.1	-1.0
Чт 7	273° 04.2	288° 04.4	303° 04.6	318° 04.7	333° 04.9	348° 05.1	3° 05.3	18° 05.5	33° 05.6	48° 05.8	63° 06.0	78° 06.2	+0.2
	-5° 43.5	-5° 44.4	-5° 45.4	-5° 46.4	-5° 47.3	-5° 48.3	-5° 49.2	-5° 50.2	-5° 51.1	-5° 52.1	-5° 53.0	-5° 54.0	-1.0
Пт 8	273° 08.4	288° 08.6	303° 08.8	318° 08.9	333° 09.1	348° 09.3	3° 09.5	18° 09.6	33° 09.8	48° 10.0	63° 10.1	78° 10.3	+0.2
	-6° 06.4	-6° 07.3	-6° 08.3	-6° 09.2	-6° 10.2	-6° 11.1	-6° 12.1	-6° 13.0	-6° 14.0	-6° 14.9	-6° 15.9	-6° 16.8	-1.0
Сб 9	273° 12.5	288° 12.7	303° 12.9	318° 13.0	333° 13.2	348° 13.4	3° 13.5	18° 13.7	33° 13.9	48° 14.0	63° 14.2	78° 14.4	+0.2
	-6° 29.1	-6° 30.1	-6° 31.0	-6° 32.0	-6° 32.9	-6° 33.9	-6° 34.8	-6° 35.8	-6° 36.7	-6° 37.7	-6° 38.6	-6° 39.6	-0.9
Вс 10	273° 16.5	288° 16.7	303° 16.8	318° 17.0	333° 17.2	348° 17.3	3° 17.5	18° 17.7	33° 17.8	48° 18.0	63° 18.1	78° 18.3	+0.2
	-6° 51.8	-6° 52.8	-6° 53.7	-6° 54.7	-6° 55.6	-6° 56.6	-6° 57.5	-6° 58.5	-6° 59.4	-7° 00.3	-7° 01.3	-7° 02.2	-0.9
Пн 11	273° 20.4	288° 20.5	303° 20.7	318° 20.9	333° 21.0	348° 21.2	3° 21.3	18° 21.5	33° 21.7	48° 21.8	63° 22.0	78° 22.1	+0.2
	-7° 14.5	-7° 15.4	-7° 16.3	-7° 17.3	-7° 18.2	-7° 19.2	-7° 20.1	-7° 21.0	-7° 22.0	-7° 22.9	-7° 23.8	-7° 24.8	-0.9
Вт 12	273° 24.1	288° 24.3	303° 24.5	318° 24.6	333° 24.8	348° 24.9	3° 25.1	18° 25.2	33° 25.4	48° 25.5	63° 25.7	78° 25.8	+0.2
	-7° 37.0	-7° 37.9	-7° 38.8	-7° 39.8	-7° 40.7	-7° 41.6	-7° 42.6	-7° 43.5	-7° 44.4	-7° 45.4	-7° 46.3	-7° 47.2	-0.9
Ср 13	273° 27.8	288° 27.9	303° 28.1	318° 28.2	333° 28.4	348° 28.5	3° 28.7	18° 28.8	33° 29.0	48° 29.1	63° 29.3	78° 29.4	+0.1
	-7° 59.4	-8° 00.3	-8° 01.2	-8° 02.2	-8° 03.1	-8° 04.0	-8° 05.0	-8° 05.9	-8° 06.8	-8° 07.7	-8° 08.7	-8° 09.6	-0.9
Чт 14	273° 31.3	288° 31.4	303° 31.6	318° 31.7	333° 31.9	348° 32.0	3° 32.1	18° 32.3	33° 32.4	48° 32.6	63° 32.7	78° 32.8	+0.1
	-8° 21.7	-8° 22.6	-8° 23.5	-8° 24.4	-8° 25.4	-8° 26.3	-8° 27.2	-8° 28.1	-8° 29.1	-8° 30.0	-8° 30.9	-8° 31.8	-0.9
Пт 15	273° 34.7	288° 34.8	303° 34.9	318° 35.1	333° 35.2	348° 35.3	3° 35.5	18° 35.6	33° 35.7	48° 35.9	63° 36.0	78° 36.2	+0.1
	-8° 43.8	-8° 44.8	-8° 45.7	-8° 46.6	-8° 47.5	-8° 48.4	-8° 49.4	-8° 50.3	-8° 51.2	-8° 52.1	-8° 53.0	-8° 54.0	-0.9
Сб 16	273° 37.9	288° 38.0	303° 38.1	318° 38.3	333° 38.4	348° 38.5	3° 38.7	18° 38.8	33° 38.9	48° 39.1	63° 39.2	78° 39.3	+0.1
	-9° 05.9	-9° 06.8	-9° 07.7	-9° 08.6	-9° 09.5	-9° 10.5	-9° 11.4	-9° 12.3	-9° 13.2	-9° 14.1	-9° 15.0	-9° 15.9	-0.9
Вс 17	273° 41.0	288° 41.1	303° 41.2	318° 41.3	333° 41.5	348° 41.6	3° 41.7	18° 41.8	33° 42.0	48° 42.1	63° 42.2	78° 42.3	+0.1
	-9° 27.8	-9° 28.7	-9° 29.6	-9° 30.5	-9° 31.4	-9° 32.3	-9° 33.3	-9° 34.2	-9° 35.1	-9° 36.0	-9° 36.9	-9° 37.8	-0.9
Пн 18	273° 43.9	288° 44.0	303° 44.2	318° 44.3	333° 44.4	348° 44.5	3° 44.6	18° 44.7	33° 44.9	48° 45.0	63° 45.1	78° 45.2	+0.1
	-9° 49.6	-9° 50.5	-9° 51.4	-9° 52.3	-9° 53.2	-9° 54.1	-9° 55.0	-9° 55.9	-9° 56.8	-9° 57.7	-9° 58.6	-9° 59.5	-0.9
Вт 19	273° 46.7	288° 46.8	303° 46.9	318° 47.0	333° 47.1	348° 47.3	3° 47.4	18° 47.5	33° 47.6	48° 47.7	63° 47.8	78° 47.9	+0.1
	-10° 11.2	-10° 12.1	-10° 13.0	-10° 13.9	-10° 14.8	-10° 15.7	-10° 16.6	-10° 17.5	-10° 18.4	-10° 19.3	-10° 20.2	-10° 21.1	-0.9
Ср 20	273° 49.3	288° 49.4	303° 49.5	318° 49.6	333° 49.7	348° 49.9	3° 50.0	18° 50.1	33° 50.2	48° 50.3	63° 50.4	78° 50.5	+0.1
	-10° 32.7	-10° 33.6	-10° 34.5	-10° 35.4	-10° 36.3	-10° 37.2	-10° 38.0	-10° 38.9	-10° 39.8	-10° 40.7	-10° 41.6	-10° 42.5	-0.9
Чт 21	273° 51.8	288° 51.9	303° 52.0	318° 52.1	333° 52.2	348° 52.3	3° 52.4	18° 52.5	33° 52.6	48° 52.7	63° 52.8	78° 52.9	+0.1
	-10° 54.0	-10° 54.9	-10° 55.8	-10° 56.7	-10° 57.6	-10° 58.5	-10° 59.3	-11° 00.2	-11° 01.1	-11° 02.0	-11° 02.9	-11° 03.8	-0.9
Пт 22	273° 54.1	288° 54.2	303° 54.3	318° 54.4	333° 54.4	348° 54.5	3° 54.6	18° 54.7	33° 54.8	48° 54.9	63° 55.0	78° 55.1	+0.1
	-11° 15.2	-11° 16.1	-11° 17.0	-11° 17.8	-11° 18.7	-11° 19.6	-11° 20.5	-11° 21.3	-11° 22.2	-11° 23.1	-11° 24.0	-11° 24.9	-0.9
Сб 23	273° 56.2	288° 56.3	303° 56.4	318° 56.4	333° 56.5	348° 56.6	3° 56.7	18° 56.8	33° 56.9	48° 56.9	63° 57.0	78° 57.1	+0.1
	-11° 36.2	-11° 37.1	-11° 38.0	-11° 38.8	-11° 39.7	-11° 40.6	-11° 41.4	-11° 42.3	-11° 43.2	-11° 44.0	-11° 44.9	-11° 45.8	-0.9
Вс 24	273° 58.1	288° 58.2	303° 58.3	318° 58.4	333° 58.4	348° 58.5	3° 58.6	18° 58.7	33° 58.7	48° 58.8	63° 58.9	78° 59.0	+0.1
	-11° 57.0	-11° 57.9	-11° 58.8	-11° 59.6	-12° 00.5	-12° 01.4	-12° 02.2	-12° 03.1	-12° 03.9	-12° 04.8	-12° 05.7	-12° 06.5	-0.9
Пн 25	273° 59.9	289° 00.0	304° 00.0	319° 00.1	334° 00.2	349° 00.2	4° 00.3	19° 00.4	34° 00.4	49° 00.5	64° 00.6	79° 00.6	+0.1
	-12° 17.7	-12° 18.5	-12° 19.4	-12° 20.3	-12° 21.1	-12° 22.0	-12° 22.8	-12° 23.7	-12° 24.5	-12° 25.4	-12° 26.2	-12° 27.1	-0.9
Вт 26	274° 01.5	289° 01.5	304° 01.6	319° 01.6	334° 01.7	349° 01.8	4° 01.8	19° 01.9	34° 01.9	49° 02.0	64° 02.1	79° 02.1	+0.1
	-12° 38.1	-12° 39.0	-12° 39.8	-12° 40.7	-12° 41.5	-12° 42.4	-12° 43.2	-12° 44.1	-12° 44.9	-12° 45.8	-12° 46.6	-12° 47.5	-0.8
Ср 27	274° 02.8	289° 02.9	304° 03.0	319° 03.0	334° 03.1	349° 03.1	4° 03.2	19° 03.2	34° 03.3	49° 03.3	64° 03.4	79° 03.4	+0.1
	-12° 58.4	-12° 59.3	-13° 00.1	-13° 00.9	-13° 01.8	-13° 02.6	-13° 03.5	-13° 04.3	-13° 05.1	-13° 06.0	-13° 06.8	-13° 07.6	-0.8
Чт 28	274° 04.0	289° 04.1	304° 04.1	319° 04.2	334° 04.2	349° 04.3	4° 04.3	19° 04.4	34° 04.4	49° 04.4	64° 04.5	79° 04.5	+0.0
	-13° 18.5	-13° 19.3	-13° 20.1	-13° 21.0	-13° 21.8	-13° 22.6	-13° 23.5	-13° 24.3	-13° 25.1	-13° 26.0	-13° 26.8	-13° 27.6	-0.8
Пт 29	274° 05.0	289° 05.1	304° 05.1	319° 05.1	334° 05.2	349° 05.2	4° 05.3	19° 05.3	34° 05.3	49° 05.4	64° 05.4	79° 05.4	+0.0
	-13° 38.3	-13° 39.2	-13° 40.0	-13° 40.8	-13° 41.6	-13° 42.4	-13° 43.3	-13° 44.1	-13° 44.9	-13° 45.7	-13° 46.6	-13° 47.4	-0.8
Сб 30	274° 05.8	289° 05.9	304° 05.9	319° 05.9	334° 05.9	349° 06.0	4° 06.0	19° 06.0	34° 06.1	49° 06.1	64° 06.1	79° 06.1	+0.0
	-13° 58.0	-13° 58.8	-13° 59.6	-14° 00.4	-14° 01.2	-14° 02.0	-14° 02.9	-14° 03.7	-14° 04.5	-14° 05.3	-14° 06.1	-14° 06.9	-0.8
Вс 31	274° 06.4	289° 06.5	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.6	19° 06.6	34° 06.6	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 17.4	-14° 18.2	-14° 19.0	-14° 19.8	-14° 20.6	-14° 21.4	-14° 22.2	-14° 23.0	-14° 23.8	-14° 24.6	-14° 25.4	-14° 26.2	-0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2032

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	R/p
Пт 1	249° 30.4 7° 03.8	264° 04.5 6° 54.7	278° 38.7 6° 45.7	293° 12.9 6° 36.6	307° 47.0 6° 27.4	322° 21.2 6° 18.3	336° 55.4 6° 09.1	351° 29.7 5° 59.9	6° 03.9 5° 50.7	20° 38.1 5° 41.4	35° 12.4 5° 32.2	+34.2 -9.2	14.7 54.0
Сб 2	253° 47.2 3° 10.5	268° 21.5 3° 00.9	282° 55.9 2° 51.3	297° 30.3 2° 41.7	312° 04.6 2° 32.1	326° 39.0 2° 22.5	341° 13.3 2° 12.8	355° 47.7 2° 03.1	10° 22.0 1° 53.5	24° 56.4 1° 43.8	39° 30.7 1° 34.1	+34.4 -9.6	14.7 54.0
Вс 3	258° 05.1 -0° 52.0	272° 39.3 -1° 01.8	287° 13.5 -1° 11.6	301° 47.6 -1° 21.3	316° 21.8 -1° 31.1	330° 56.0 -1° 40.8	345° 30.1 -1° 50.6	0° 04.2 -2° 00.3	14° 38.3 -2° 10.1	29° 12.4 -2° 19.8	43° 46.5 -2° 29.6	+34.1 -9.8	14.8 54.2
● Пн 4	262° 14.9 -4° 54.5	276° 48.6 -5° 04.0	291° 22.3 -5° 13.6	305° 55.9 -5° 23.1	320° 29.6 -5° 32.6	335° 03.2 -5° 42.1	349° 36.7 -5° 51.5	4° 10.2 -6° 01.0	18° 43.7 -6° 10.4	33° 17.2 -6° 19.8	47° 50.6 -6° 29.2	+33.6 -9.5	14.9 54.5
Вт 5	266° 08.1 -8° 46.7	280° 40.9 -8° 55.6	295° 13.8 -9° 04.5	309° 46.5 -9° 13.3	324° 19.3 -9° 22.1	338° 52.0 -9° 30.9	353° 24.7 -9° 39.7	7° 57.3 -9° 48.4	22° 29.9 -9° 57.0	37° 02.4 -10° 05.6	51° 34.9 -10° 14.2	+32.7 -8.8	15.0 54.9
Ср 6	269° 36.9 -12° 17.6	284° 08.7 -12° 25.4	298° 40.4 -12° 33.2	313° 12.0 -12° 40.9	327° 43.6 -12° 48.6	342° 15.2 -12° 56.2	356° 46.7 -13° 03.8	11° 18.2 -13° 11.3	25° 49.6 -13° 18.7	40° 21.0 -13° 26.1	54° 52.3 -13° 33.4	+31.5 -7.6	15.1 55.3
Чт 7	272° 35.9 -15° 15.7	287° 06.4 -15° 21.9	301° 36.8 -15° 28.1	316° 07.2 -15° 34.3	330° 37.5 -15° 40.3	345° 07.8 -15° 46.3	359° 38.0 -15° 52.2	14° 08.2 -15° 58.0	28° 38.4 -16° 03.8	43° 08.4 -16° 09.5	57° 38.5 -16° 15.0	+30.3 -5.9	15.2 55.7
Пт 8	275° 02.6 -17° 29.1	289° 31.9 -17° 33.4	304° 01.0 -17° 37.5	318° 30.1 -17° 41.6	332° 59.2 -17° 45.6	347° 28.2 -17° 49.4	1° 57.2 -17° 53.2	16° 26.1 -17° 56.9	30° 55.0 -18° 00.5	45° 23.8 -18° 04.1	59° 52.6 -18° 07.5	+29.0 -3.8	15.3 56.3
Сб 9	276° 59.0 -18° 47.0	291° 27.1 -18° 48.8	305° 55.1 -18° 50.6	320° 23.2 -18° 52.2	334° 51.1 -18° 53.7	349° 19.1 -18° 55.1	3° 47.0 -18° 56.4	18° 14.9 -18° 57.6	32° 42.7 -18° 58.7	47° 10.5 -18° 59.7	61° 38.2 -19° 00.6	+27.9 -1.4	15.5 56.9
Вс 10	278° 31.0 -19° 00.7	292° 58.3 -18° 59.8	307° 25.6 -18° 58.8	321° 52.8 -18° 57.7	336° 20.1 -18° 56.5	350° 47.3 -18° 55.2	5° 14.5 -18° 53.8	19° 41.6 -18° 52.2	34° 08.8 -18° 50.5	48° 35.9 -18° 48.8	63° 03.0 -18° 46.9	+27.2 +1.4	15.7 57.5
Пн 11	279° 48.0 -18° 05.1	294° 14.9 -18° 01.4	308° 41.8 -17° 57.6	323° 08.7 -17° 53.7	337° 35.6 -17° 49.7	352° 02.4 -17° 45.6	6° 29.3 -17° 41.3	20° 56.2 -17° 37.0	35° 23.1 -17° 32.5	49° 49.9 -17° 28.0	64° 16.8 -17° 23.3	+26.9 +4.2	15.9 58.2
◐ Вт 12	280° 59.7 -16° 00.1	295° 26.6 -15° 53.7	309° 52.5 -15° 47.2	324° 20.4 -15° 40.6	338° 47.3 -15° 33.9	353° 14.2 -15° 27.1	7° 41.1 -15° 20.2	22° 08.0 -15° 13.2	36° 34.9 -15° 06.1	51° 01.8 -14° 58.9	65° 28.8 -14° 51.6	+26.9 +6.8	16.0 58.8
Ср 13	282° 13.8 -12° 50.9	296° 40.9 -12° 42.1	311° 08.0 -12° 33.2	325° 35.1 -12° 24.3	340° 02.2 -12° 15.2	354° 29.3 -12° 06.1	8° 56.4 -11° 56.9	23° 23.6 -11° 47.7	37° 50.7 -11° 38.3	52° 17.9 -11° 28.9	66° 45.0 -11° 19.3	+27.1 +9.2	16.2 59.5
Чт 14	283° 33.7 -8° 47.8	298° 01.0 -8° 37.2	312° 28.3 -8° 26.5	326° 55.6 -8° 15.8	341° 23.0 -8° 04.9	355° 50.3 -7° 54.1	10° 17.7 -7° 43.1	24° 45.0 -7° 32.2	39° 12.4 -7° 21.1	53° 39.8 -7° 10.0	68° 07.1 -6° 58.9	+27.3 +10.9	16.4 60.0
Пт 15	284° 58.2 -4° 06.4	299° 25.6 -3° 54.6	313° 53.1 -3° 42.8	328° 20.5 -3° 30.9	342° 47.9 -3° 19.0	357° 15.3 -3° 07.1	11° 42.8 -2° 55.2	26° 10.2 -2° 43.3	40° 37.6 -2° 31.3	55° 05.0 -2° 19.3	69° 32.4 -2° 07.3	+27.4 +11.9	16.5 60.4
Сб 16	286° 23.1 0° 54.2	300° 50.4 1° 06.3	315° 17.7 1° 18.5	329° 45.0 1° 30.6	344° 12.3 1° 42.7	358° 39.6 1° 54.7	13° 06.9 2° 06.8	27° 34.1 2° 18.9	42° 01.4 2° 30.9	56° 28.6 2° 43.0	70° 55.9 2° 55.0	+27.3 +12.1	16.5 60.5
Вс 17	287° 42.8 5° 52.2	302° 09.9 6° 03.7	316° 36.9 6° 15.2	331° 03.9 6° 26.7	345° 30.8 6° 38.1	359° 57.8 6° 49.5	14° 24.7 7° 00.8	28° 51.7 7° 12.0	43° 18.6 7° 23.3	57° 45.5 7° 34.4	72° 12.4 7° 45.5	+27.0 +11.3	16.5 60.4
○ Пн 18	288° 53.7 10° 25.1	303° 20.4 10° 35.1	317° 47.0 10° 45.2	332° 13.6 10° 55.1	346° 40.2 11° 05.0	1° 06.8 11° 14.8	15° 33.3 11° 24.5	29° 59.9 11° 34.1	44° 26.4 11° 43.7	58° 53.0 11° 53.1	73° 19.5 12° 02.5	+26.6 +9.7	16.3 59.9
Вт 19	289° 55.9 14° 12.6	304° 22.3 14° 20.5	318° 48.7 14° 28.3	333° 15.0 14° 36.0	347° 41.4 14° 43.6	2° 07.7 14° 51.1	16° 34.1 14° 58.6	31° 00.4 15° 05.9	45° 26.8 15° 13.1	59° 53.1 15° 20.2	74° 19.5 15° 27.2	+26.3 +7.5	16.2 59.3
Ср 20	290° 55.0 16° 59.2	305° 21.5 17° 04.5	319° 47.9 17° 09.6	334° 14.4 17° 14.6	348° 40.8 17° 19.6	3° 07.3 17° 24.4	17° 33.8 17° 29.0	32° 00.3 17° 33.6	46° 26.8 17° 38.1	60° 53.4 17° 42.4	75° 20.0 17° 46.7	+26.5 +4.7	15.9 58.4
Чт 21	292° 01.2 18° 36.4	306° 28.2 18° 38.8	320° 55.2 18° 41.1	335° 22.2 18° 43.2	349° 49.3 18° 45.3	4° 16.4 18° 47.2	18° 43.5 18° 49.0	33° 10.7 18° 50.8	47° 37.9 18° 52.4	62° 05.1 18° 53.9	76° 32.4 18° 55.2	+27.1 +1.9	15.7 57.5
Пт 22	293° 26.7 19° 02.6	307° 54.6 19° 02.2	322° 22.7 19° 01.8	336° 50.7 19° 01.2	351° 18.9 19° 00.5	5° 47.0 18° 59.7	20° 15.3 18° 58.8	34° 43.6 18° 57.8	49° 11.9 18° 56.7	63° 40.3 18° 55.5	78° 08.7 18° 54.2	+28.2 -0.8	15.4 56.6
Сб 23	307° 54.6 19° 02.2	322° 22.7 19° 01.8	336° 50.7 19° 01.2	351° 18.9 19° 00.5	5° 47.0 18° 59.7	20° 15.3 18° 58.8	34° 43.6 18° 57.8	49° 11.9 18° 56.7	63° 40.3 18° 55.5	78° 08.7 18° 54.2	92° 37.2 18° 52.8	+28.3 -1.0	15.4 56.6
Вс 24	309° 51.2 18° 19.8	324° 20.6 18° 16.9	338° 50.0 18° 13.8	353° 19.5 18° 10.7	7° 49.1 18° 07.5	22° 18.7 18° 04.2	36° 48.3 18° 00.8	51° 18.1 17° 57.3	65° 47.9 17° 53.7	80° 17.7 17° 50.0	94° 47.6 17° 46.3	+29.6 -3.4	15.2 55.8
Пн 25	312° 23.4 16° 40.2	326° 54.2 16° 35.2	341° 25.1 16° 30.0	355° 56.1 16° 24.9	10° 27.1 16° 19.6	24° 58.2 16° 14.3	39° 29.3 16° 08.9	54° 00.5 16° 03.4	68° 31.8 15° 57.9	83° 03.1 15° 52.3	97° 34.4 15° 46.6	+31.1 -5.4	15.0 55.1
◑ Вт 26	315° 31.3 14° 13.5	330° 03.6 14° 06.8	344° 35.8 14° 00.0	359° 08.1 13° 53.2	13° 40.5 13° 46.3	28° 12.9 13° 39.4	42° 45.3 13° 32.4	57° 17.8 13° 25.4	71° 50.4 13° 18.3	86° 23.0 13° 11.1	100° 55.6 13° 03.9	+32.4 -7.0	14.9 54.6
Ср 27	319° 10.5 11° 09.9	333° 43.8 11° 01.9	348° 17.1 10° 53.9	2° 50.5 10° 45.8	17° 23.9 10° 37.7	31° 57.4 10° 29.5	46° 30.9 10° 21.3	61° 04.4 10° 13.1	75° 37.9 10° 04.8	90° 11.5 9° 56.5	104° 45.2 9° 48.2	+33.5 -8.2	14.8 54.2
Чт 28	323° 12.9 7° 38.6	337° 46.9 7° 29.7	352° 21.0 7° 20.8	6° 55.1 7° 11.8	21° 29.2 7° 02.8	36° 03.3 6° 53.8	50° 37.5 6° 44.8	65° 11.6 6° 35.7	79° 45.8 6° 26.6	94° 20.0 6° 17.5	108° 54.2 6° 08.3	+34.1 -9.0	14.8 54.1
Пт 29	327° 28.8 3° 48.3	342° 03.2 3° 38.9	356° 37.6 3° 29.4	11° 12.0 3° 19.8	25° 46.3 3° 10.3	40° 20.7 3° 00.7	54° 55.1 2° 51.2	69° 29.5 2° 41.6	84° 03.9 2° 32.0	98° 38.3 2° 22.4	113° 12.6 2° 12.8	+34.4 -9.6	14.8 54.1
Сб 30	331° 47.7 -0° 12.6	346° 22.0 -0° 22.3	0° 56.3 -0° 32.1	15° 30.5 -0° 41.8	30° 04.7 -0° 51.5	44° 38.9 -1° 01.3	59° 13.1 -1° 11.0	73° 47.3 -1° 20.8	88° 21.5 -1° 30.5	102° 55.6 -1° 40.3	117° 29.7 -1° 50.0	+34.2 -9.7	14.8 54.3
Вс 31	335° 58.9 -4° 15.5	350° 32.6 -4° 25.1	5° 06.4 -4° 34.7	19° 40.0 -4° 44.3	34° 13.7 -4° 53.9	48° 47.3 -5° 03.5	63° 20.9 -5° 13.0	77° 54.4 -5° 22.6	92° 28.0 -5° 32.1	107° 01.4 -5° 41.6	121° 34.9 -5° 51.1	+33.6 -9.6	14.9 54.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 4 13h26 — Первая четв.: 12 03h47 — Полнолуние: 18 18h58 — Последняя четв.: 26 02h28

СОЛНЦЕ

Ноябрь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	274° 06.8	289° 06.8	304° 06.9	319° 06.9	334° 06.9	349° 06.9	4° 06.9	19° 06.9	34° 06.9	49° 06.9	64° 06.9	79° 06.9	+0.0
	-14° 36.6	-14° 37.4	-14° 38.2	-14° 39.0	-14° 39.8	-14° 40.6	-14° 41.4	-14° 42.1	-14° 42.9	-14° 43.7	-14° 44.5	-14° 45.3	-0.8
Вт 2	274° 07.0	289° 07.0	304° 07.0	319° 07.0	334° 07.0	349° 07.0	4° 07.0	19° 07.0	34° 07.0	49° 07.0	64° 07.0	79° 07.0	+0.0
	-14° 55.6	-14° 56.3	-14° 57.1	-14° 57.9	-14° 58.7	-14° 59.5	-15° 00.3	-15° 01.0	-15° 01.8	-15° 02.6	-15° 03.4	-15° 04.2	-0.8
Ср 3	274° 07.0	289° 07.0	304° 07.0	319° 07.0	334° 07.0	349° 07.0	4° 07.0	19° 07.0	34° 07.0	49° 07.0	64° 07.0	79° 06.9	-0.0
	-15° 14.3	-15° 15.0	-15° 15.8	-15° 16.6	-15° 17.4	-15° 18.1	-15° 18.9	-15° 19.7	-15° 20.5	-15° 21.2	-15° 22.0	-15° 22.8	-0.8
Чт 4	274° 06.8	289° 06.8	304° 06.8	319° 06.8	334° 06.8	349° 06.7	4° 06.7	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.6	-0.0
	-15° 32.7	-15° 33.5	-15° 34.3	-15° 35.0	-15° 35.8	-15° 36.5	-15° 37.3	-15° 38.1	-15° 38.8	-15° 39.6	-15° 40.4	-15° 41.1	-0.8
Пт 5	274° 06.4	289° 06.4	304° 06.3	319° 06.3	334° 06.3	349° 06.3	4° 06.3	19° 06.2	34° 06.2	49° 06.2	64° 06.2	79° 06.1	-0.0
	-15° 50.9	-15° 51.7	-15° 52.4	-15° 53.2	-15° 54.0	-15° 54.7	-15° 55.5	-15° 56.2	-15° 57.0	-15° 57.7	-15° 58.5	-15° 59.2	-0.8
Сб 6	274° 05.8	289° 05.7	304° 05.7	319° 05.7	334° 05.6	349° 05.6	4° 05.6	19° 05.5	34° 05.5	49° 05.5	64° 05.4	79° 05.4	-0.0
	-16° 08.9	-16° 09.6	-16° 10.4	-16° 11.1	-16° 11.9	-16° 12.6	-16° 13.3	-16° 14.1	-16° 14.8	-16° 15.5	-16° 16.3	-16° 17.0	-0.7
Вс 7	274° 04.9	289° 04.9	304° 04.9	319° 04.8	334° 04.8	349° 04.7	4° 04.7	19° 04.6	34° 04.6	49° 04.6	64° 04.5	79° 04.5	-0.0
	-16° 26.6	-16° 27.3	-16° 28.0	-16° 28.8	-16° 29.5	-16° 30.2	-16° 30.9	-16° 31.7	-16° 32.4	-16° 33.1	-16° 33.8	-16° 34.6	-0.7
Пн 8	274° 03.9	289° 03.8	304° 03.8	319° 03.7	334° 03.7	349° 03.7	4° 03.6	19° 03.6	34° 03.5	49° 03.5	64° 03.4	79° 03.3	-0.0
	-16° 44.0	-16° 44.7	-16° 45.4	-16° 46.1	-16° 46.8	-16° 47.6	-16° 48.3	-16° 49.0	-16° 49.7	-16° 50.4	-16° 51.1	-16° 51.8	-0.7
Вт 9	274° 02.6	289° 02.6	304° 02.5	319° 02.5	334° 02.4	349° 02.4	4° 02.3	19° 02.2	34° 02.2	49° 02.1	64° 02.1	79° 02.0	-0.1
	-17° 01.1	-17° 01.8	-17° 02.5	-17° 03.2	-17° 03.9	-17° 04.6	-17° 05.3	-17° 06.0	-17° 06.7	-17° 07.4	-17° 08.1	-17° 08.8	-0.7
Ср 10	274° 01.2	289° 01.1	304° 01.1	319° 01.0	334° 00.9	349° 00.9	4° 00.8	19° 00.7	34° 00.7	49° 00.6	64° 00.5	79° 00.5	-0.1
	-17° 17.9	-17° 18.6	-17° 19.3	-17° 20.0	-17° 20.7	-17° 21.4	-17° 22.1	-17° 22.8	-17° 23.5	-17° 24.1	-17° 24.8	-17° 25.5	-0.7
Чт 11	273° 59.5	288° 59.5	303° 59.4	318° 59.3	333° 59.2	348° 59.2	3° 59.1	18° 59.0	33° 58.9	48° 58.9	63° 58.8	78° 58.7	-0.1
	-17° 34.4	-17° 35.1	-17° 35.8	-17° 36.5	-17° 37.2	-17° 37.8	-17° 38.5	-17° 39.2	-17° 39.9	-17° 40.6	-17° 41.2	-17° 41.9	-0.7
Пт 12	273° 57.7	288° 57.6	303° 57.5	318° 57.4	333° 57.3	348° 57.3	3° 57.2	18° 57.1	33° 57.0	48° 56.9	63° 56.8	78° 56.7	-0.1
	-17° 50.7	-17° 51.3	-17° 52.0	-17° 52.7	-17° 53.3	-17° 54.0	-17° 54.7	-17° 55.3	-17° 56.0	-17° 56.7	-17° 57.3	-17° 58.0	-0.7
Сб 13	273° 55.6	288° 55.5	303° 55.4	318° 55.3	333° 55.2	348° 55.1	3° 55.0	18° 55.0	33° 54.9	48° 54.8	63° 54.7	78° 54.6	-0.1
	-18° 06.6	-18° 07.2	-18° 07.9	-18° 08.5	-18° 09.2	-18° 09.8	-18° 10.5	-18° 11.2	-18° 11.8	-18° 12.5	-18° 13.1	-18° 13.8	-0.7
Вс 14	273° 53.3	288° 53.2	303° 53.1	318° 53.0	333° 52.9	348° 52.8	3° 52.7	18° 52.6	33° 52.5	48° 52.4	63° 52.3	78° 52.2	-0.1
	-18° 22.2	-18° 22.8	-18° 23.5	-18° 24.1	-18° 24.7	-18° 25.4	-18° 26.0	-18° 26.7	-18° 27.3	-18° 27.9	-18° 28.6	-18° 29.2	-0.6
Пн 15	273° 50.8	288° 50.7	303° 50.6	318° 50.5	333° 50.4	348° 50.3	3° 50.2	18° 50.1	33° 50.0	48° 49.8	63° 49.7	78° 49.6	-0.1
	-18° 37.4	-18° 38.1	-18° 38.7	-18° 39.3	-18° 40.0	-18° 40.6	-18° 41.2	-18° 41.8	-18° 42.5	-18° 43.1	-18° 43.7	-18° 44.3	-0.6
Вт 16	273° 48.1	288° 48.0	303° 47.9	318° 47.8	333° 47.7	348° 47.5	3° 47.4	18° 47.3	33° 47.2	48° 47.1	63° 47.0	78° 46.8	-0.1
	-18° 52.4	-18° 53.0	-18° 53.6	-18° 54.2	-18° 54.8	-18° 55.5	-18° 56.1	-18° 56.7	-18° 57.3	-18° 57.9	-18° 58.5	-18° 59.1	-0.6
Ср 17	273° 45.2	288° 45.1	303° 45.0	318° 44.9	333° 44.7	348° 44.6	3° 44.5	18° 44.3	33° 44.2	48° 44.1	63° 44.0	78° 43.8	-0.1
	-19° 07.0	-19° 07.6	-19° 08.2	-19° 08.8	-19° 09.4	-19° 10.0	-19° 10.6	-19° 11.2	-19° 11.8	-19° 12.4	-19° 13.0	-19° 13.6	-0.6
Чт 18	273° 42.1	288° 42.0	303° 41.9	318° 41.7	333° 41.6	348° 41.4	3° 41.3	18° 41.2	33° 41.0	48° 40.9	63° 40.8	78° 40.6	-0.1
	-19° 21.3	-19° 21.9	-19° 22.4	-19° 23.0	-19° 23.6	-19° 24.2	-19° 24.8	-19° 25.4	-19° 25.9	-19° 26.5	-19° 27.1	-19° 27.7	-0.6
Пт 19	273° 38.8	288° 38.7	303° 38.5	318° 38.4	333° 38.2	348° 38.1	3° 37.9	18° 37.8	33° 37.6	48° 37.5	63° 37.4	78° 37.2	-0.1
	-19° 35.2	-19° 35.8	-19° 36.3	-19° 36.9	-19° 37.5	-19° 38.0	-19° 38.6	-19° 39.2	-19° 39.7	-19° 40.3	-19° 40.9	-19° 41.4	-0.6
Сб 20	273° 35.3	288° 35.1	303° 35.0	318° 34.8	333° 34.7	348° 34.5	3° 34.4	18° 34.2	33° 34.1	48° 33.9	63° 33.7	78° 33.6	-0.2
	-19° 48.8	-19° 49.3	-19° 49.9	-19° 50.4	-19° 51.0	-19° 51.5	-19° 52.1	-19° 52.6	-19° 53.2	-19° 53.7	-19° 54.3	-19° 54.8	-0.6
Вс 21	273° 31.5	288° 31.4	303° 31.2	318° 31.1	333° 30.9	348° 30.7	3° 30.6	18° 30.4	33° 30.3	48° 30.1	63° 29.9	78° 29.8	-0.2
	-20° 02.0	-20° 02.5	-20° 03.0	-20° 03.6	-20° 04.1	-20° 04.7	-20° 05.2	-20° 05.7	-20° 06.3	-20° 06.8	-20° 07.4	-20° 07.9	-0.5
Пн 22	273° 27.6	288° 27.4	303° 27.3	318° 27.1	333° 26.9	348° 26.8	3° 26.6	18° 26.4	33° 26.3	48° 26.1	63° 25.9	78° 25.7	-0.2
	-20° 14.8	-20° 15.3	-20° 15.9	-20° 16.4	-20° 16.9	-20° 17.4	-20° 18.0	-20° 18.5	-20° 19.0	-20° 19.5	-20° 20.0	-20° 20.6	-0.5
Вт 23	273° 23.5	288° 23.3	303° 23.1	318° 22.9	333° 22.8	348° 22.6	3° 22.4	18° 22.2	33° 22.1	48° 21.9	63° 21.7	78° 21.5	-0.2
	-20° 27.3	-20° 27.8	-20° 28.3	-20° 28.8	-20° 29.3	-20° 29.8	-20° 30.3	-20° 30.8	-20° 31.3	-20° 31.8	-20° 32.4	-20° 32.9	-0.5
Ср 24	273° 19.1	288° 19.0	303° 18.8	318° 18.6	333° 18.4	348° 18.2	3° 18.0	18° 17.8	33° 17.7	48° 17.5	63° 17.3	78° 17.1	-0.2
	-20° 39.4	-20° 39.9	-20° 40.4	-20° 40.8	-20° 41.3	-20° 41.8	-20° 42.3	-20° 42.8	-20° 43.3	-20° 43.8	-20° 44.3	-20° 44.8	-0.5
Чт 25	273° 14.6	288° 14.4	303° 14.2	318° 14.0	333° 13.8	348° 13.6	3° 13.4	18° 13.3	33° 13.1	48° 12.9	63° 12.7	78° 12.5	-0.2
	-20° 51.1	-20° 51.6	-20° 52.0	-20° 52.5	-20° 53.0	-20° 53.5	-20° 53.9	-20° 54.4	-20° 54.9	-20° 55.4	-20° 55.8	-20° 56.3	-0.5
Пт 26	273° 09.9	288° 09.7	303° 09.5	318° 09.3	333° 09.1	348° 08.9	3° 08.7	18° 08.5	33° 08.3	48° 08.1	63° 07.9	78° 07.7	-0.2
	-21° 02.4	-21° 02.9	-21° 03.3	-21° 03.8	-21° 04.2	-21° 04.7	-21° 05.2	-21° 05.6	-21° 06.1	-21° 06.5	-21° 07.0	-21° 07.4	-0.5
Сб 27	273° 05.0	288° 04.8	303° 04.6	318° 04.4	333° 04.1	348° 03.9	3° 03.7	18° 03.5	33° 03.3	48° 03.1	63° 02.9	78° 02.7	-0.2
	-21° 13.3	-21° 13.8	-21° 14.2	-21° 14.7	-21° 15.1	-21° 15.5	-21° 16.0	-21° 16.4	-21° 16.9	-21° 17.3	-21° 17.8	-21° 18.2	-0.4
Вс 28	272° 59.9	287° 59.7	302° 59.5	317° 59.2	332° 59.0	347° 58.8	2° 58.6	17° 58.4	32° 58.2	47° 57.9	62° 57.7	77° 57.5	-0.2
	-21° 23.8	-21° 24.3	-21° 24.7	-21° 25.1	-21° 25.6	-21° 26.0	-21° 26.4	-21° 26.8	-21° 27.3	-21° 27.7	-21° 28.1	-21° 28.5	-0.4
Пн 29	272° 54.6	287° 54.4	302° 54.2	317° 54.0	332° 53.7	347° 53.5	2° 53.3	17° 53.1	32° 52.8	47° 52.6	62° 52.4	77° 52.2	-0.2
	-21° 34.0	-21° 34.4	-21° 34.8	-21° 35.2	-21° 35.6	-21° 36.0	-21° 36.4	-21° 36.8	-21° 37.3	-21° 37.7	-21° 38.1	-21° 38.5	-0.4
Вт 30	272° 49.2	287° 49.0	302° 48.7	317° 48.5	332° 48.3	347° 48.0	2° 47.8	17° 47.6	32° 47.3	47° 47.1	62° 46.9	77° 46.6	-0.2
	-21° 43.7	-21° 44.1	-21° 44.5	-21° 44.9	-21° 45.3	-21° 45.7	-21° 46.0	-21° 46.4	-21° 46.8	-21° 47.2	-21° 47.6	-21° 48.0	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

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Д	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	R/p
Пн 1	252° 34.3	267° 07.4	281° 40.4	296° 13.4	310° 46.4	325° 19.3	339° 52.2	354° 25.0	8° 57.8	23° 30.5	38° 03.2	+32.9	15.0
	-7° 15.5	-7° 24.8	-7° 34.1	-7° 43.3	-7° 52.5	-8° 01.6	-8° 10.7	-8° 19.8	-8° 28.9	-8° 38.0	-8° 47.0	-9.1	54.9
Вт 2	256° 08.0	270° 39.9	285° 11.8	299° 43.6	314° 15.4	328° 47.1	343° 18.8	357° 50.4	12° 22.0	26° 53.5	41° 24.9	+31.7	15.1
	-10° 57.7	-11° 06.1	-11° 14.5	-11° 22.8	-11° 31.0	-11° 39.3	-11° 47.4	-11° 55.5	-12° 03.6	-12° 11.6	-12° 19.5	-8.2	55.4
● Ср 3	259° 10.1	273° 40.6	288° 11.2	302° 41.6	317° 12.0	331° 42.3	346° 12.6	0° 42.8	15° 13.0	29° 43.1	44° 13.2	+30.3	15.2
	-14° 12.1	-14° 19.2	-14° 26.1	-14° 33.0	-14° 39.8	-14° 46.6	-14° 53.2	-14° 59.9	-15° 06.4	-15° 12.9	-15° 19.3	-6.7	55.9
Чт 4	261° 37.3	276° 06.5	290° 35.6	305° 04.7	319° 33.7	334° 02.6	348° 31.5	3° 00.4	17° 29.2	31° 58.0	46° 26.7	+28.9	15.4
	-16° 45.9	-16° 51.1	-16° 56.1	-17° 01.0	-17° 05.9	-17° 10.7	-17° 15.4	-17° 20.0	-17° 24.5	-17° 28.9	-17° 33.2	-4.7	56.4
Пт 5	263° 31.6	277° 59.5	292° 27.5	306° 55.4	321° 23.2	335° 51.0	350° 18.8	4° 46.6	19° 14.3	33° 41.9	48° 09.6	+27.8	15.5
	-18° 26.7	-18° 29.4	-18° 32.1	-18° 34.7	-18° 37.1	-18° 39.5	-18° 41.7	-18° 43.9	-18° 45.9	-18° 47.9	-18° 49.7	-2.3	56.9
Сб 6	265° 00.3	279° 27.5	293° 54.7	308° 21.8	322° 48.9	337° 16.0	351° 43.1	6° 10.2	20° 37.2	35° 04.2	49° 31.3	+27.1	15.7
	-19° 04.1	-19° 04.2	-19° 04.2	-19° 04.0	-19° 03.8	-19° 03.4	-19° 02.9	-19° 02.3	-19° 01.6	-19° 00.8	-18° 59.9	+0.4	57.4
Вс 7	266° 15.3	280° 42.2	295° 09.1	309° 36.0	324° 02.9	338° 29.8	352° 56.7	7° 23.6	21° 50.5	36° 17.4	50° 44.3	+26.9	15.8
	-18° 32.3	-18° 29.6	-18° 26.7	-18° 23.8	-18° 20.7	-18° 17.5	-18° 14.2	-18° 10.8	-18° 07.3	-18° 03.7	-17° 59.9	+3.2	57.9
Пн 8	267° 29.2	281° 56.3	296° 23.4	310° 50.5	325° 17.6	339° 44.8	354° 11.9	8° 39.1	23° 06.3	37° 33.6	52° 00.8	+27.2	15.9
	-16° 50.8	-16° 45.3	-16° 39.8	-16° 34.1	-16° 28.4	-16° 22.5	-16° 16.5	-16° 10.5	-16° 04.3	-15° 58.0	-15° 51.7	+5.9	58.3
Вт 9	268° 51.8	283° 19.4	297° 47.0	312° 14.6	326° 42.3	341° 09.9	355° 37.6	10° 05.3	24° 33.0	39° 00.8	53° 28.6	+27.7	16.0
	-14° 04.8	-13° 56.9	-13° 49.0	-13° 41.0	-13° 32.8	-13° 24.7	-13° 16.4	-13° 08.0	-12° 59.6	-12° 51.0	-12° 42.4	+8.2	58.7
◐ Ср 10	270° 27.8	284° 55.9	299° 24.0	313° 52.2	328° 20.3	342° 48.5	357° 16.7	11° 44.9	26° 13.2	40° 41.4	55° 09.7	+28.2	16.1
	-10° 24.3	-10° 14.6	-10° 04.7	-9° 54.8	-9° 44.9	-9° 34.9	-9° 24.8	-9° 14.7	-9° 04.5	-8° 54.2	-8° 43.9	+10.0	59.1
Чт 11	272° 15.6	286° 44.1	301° 12.6	315° 41.1	330° 09.6	344° 38.1	359° 06.6	13° 35.2	28° 03.7	42° 32.2	57° 00.8	+28.5	16.2
	-6° 03.1	-5° 52.0	-5° 40.9	-5° 29.8	-5° 18.6	-5° 07.4	-4° 56.1	-4° 44.8	-4° 33.5	-4° 22.1	-4° 10.8	+11.2	59.4
Пт 12	274° 09.3	288° 37.8	303° 06.4	317° 34.9	332° 03.5	346° 32.0	1° 00.5	15° 29.1	29° 57.6	44° 26.1	58° 54.6	+28.5	16.2
	-1° 17.3	-1° 05.6	-0° 53.9	-0° 42.2	-0° 30.5	-0° 18.7	-0° 07.0	0° 04.7	0° 16.5	0° 28.2	0° 40.0	+11.7	59.6
Сб 13	276° 00.6	290° 28.9	304° 57.1	319° 25.4	333° 53.6	348° 21.8	2° 50.0	17° 18.2	31° 46.3	46° 14.4	60° 42.5	+28.2	16.3
	3° 35.2	3° 46.7	3° 58.3	4° 09.8	4° 21.3	4° 32.7	4° 44.2	4° 55.6	5° 07.0	5° 18.4	5° 29.7	+11.5	59.6
Вс 14	277° 41.4	292° 09.2	306° 36.9	321° 04.5	335° 32.2	349° 59.8	4° 27.4	18° 55.0	33° 22.6	47° 50.1	62° 17.6	+27.6	16.2
	8° 15.0	8° 25.6	8° 36.2	8° 46.8	8° 57.2	9° 07.7	9° 18.1	9° 28.4	9° 38.6	9° 48.8	9° 59.0	+10.4	59.5
Пн 15	279° 06.8	293° 33.9	308° 01.0	322° 28.0	336° 55.0	351° 22.0	5° 48.9	20° 15.9	34° 42.8	49° 09.7	63° 36.5	+27.0	16.1
	12° 22.8	12° 31.8	12° 40.7	12° 49.5	12° 58.2	13° 06.9	13° 15.4	13° 23.9	13° 32.3	13° 40.6	13° 48.9	+8.6	59.2
Вт 16	280° 17.2	294° 43.8	309° 10.3	323° 36.9	338° 03.4	352° 30.0	6° 56.5	21° 23.0	35° 49.5	50° 16.0	64° 42.5	+26.5	16.0
	15° 40.9	15° 47.6	15° 54.1	16° 00.6	16° 07.0	16° 13.3	16° 19.4	16° 25.5	16° 31.4	16° 37.3	16° 43.0	+6.2	58.7
○ Ср 17	281° 19.5	295° 46.0	310° 12.5	324° 39.0	339° 05.6	353° 32.1	7° 58.6	22° 25.2	36° 51.7	51° 18.3	65° 44.9	+26.5	15.8
	17° 55.7	17° 59.7	18° 03.5	18° 07.3	18° 10.9	18° 14.4	18° 17.7	18° 21.0	18° 24.1	18° 27.2	18° 30.1	+3.4	58.1
Чт 18	282° 26.5	296° 53.5	311° 20.5	325° 47.5	340° 14.6	354° 41.7	9° 08.9	23° 36.1	38° 03.3	52° 30.5	66° 57.9	+27.1	15.6
	19° 00.1	19° 01.1	19° 02.1	19° 03.0	19° 03.7	19° 04.3	19° 04.8	19° 05.2	19° 05.5	19° 05.7	19° 05.8	+0.6	57.3
Пт 19	283° 52.6	298° 20.7	312° 48.8	327° 16.9	341° 45.1	356° 13.3	10° 41.6	25° 10.0	39° 38.4	54° 06.9	68° 35.4	+28.3	15.4
	18° 53.7	18° 52.1	18° 50.3	18° 48.5	18° 46.5	18° 44.4	18° 42.3	18° 40.0	18° 37.7	18° 35.2	18° 32.6	-2.1	56.6
Сб 20	285° 50.1	300° 19.6	314° 49.1	329° 18.7	343° 48.4	358° 18.1	12° 47.8	27° 17.7	41° 47.6	56° 17.5	70° 47.5	+29.7	15.2
	17° 42.9	17° 38.8	17° 34.7	17° 30.5	17° 26.2	17° 21.8	17° 17.4	17° 12.8	17° 08.2	17° 03.5	16° 58.7	-4.4	55.8
Вс 21	288° 25.3	302° 56.3	317° 27.4	331° 58.5	346° 29.7	1° 01.0	15° 32.3	30° 03.6	44° 35.1	59° 06.5	73° 38.1	+31.3	15.0
	15° 37.5	15° 31.5	15° 25.5	15° 19.4	15° 13.2	15° 06.9	15° 00.6	14° 54.2	14° 47.8	14° 41.3	14° 34.7	-6.3	55.2
Пн 22	302° 56.3	317° 27.4	331° 58.5	346° 29.7	1° 01.0	15° 32.3	30° 03.6	44° 35.1	59° 06.5	73° 38.1	88° 09.7	+31.3	15.0
	15° 31.5	15° 25.5	15° 19.4	15° 13.2	15° 06.9	15° 00.6	14° 54.2	14° 47.8	14° 41.3	14° 34.7	14° 28.0	-6.4	55.2
Вт 23	306° 10.4	320° 42.9	335° 15.4	349° 48.0	4° 20.6	18° 53.3	33° 26.0	47° 58.8	62° 31.6	77° 04.5	91° 37.4	+32.7	14.9
	12° 41.6	12° 34.0	12° 26.5	12° 18.8	12° 11.2	12° 03.4	11° 55.7	11° 47.8	11° 40.0	11° 32.1	11° 24.1	-7.7	54.7
◑ Ср 24	309° 56.3	324° 29.8	339° 03.4	353° 37.1	8° 10.8	22° 44.5	37° 18.2	51° 52.0	66° 25.8	80° 59.6	95° 33.5	+33.7	14.8
	9° 19.8	9° 11.2	9° 02.6	8° 54.0	8° 45.3	8° 36.5	8° 27.8	8° 19.0	8° 10.2	8° 01.3	7° 52.5	-8.7	54.3
Чт 25	314° 04.6	328° 38.9	343° 13.2	357° 47.4	12° 21.7	26° 56.1	41° 30.4	56° 04.7	70° 39.1	85° 13.5	99° 47.8	+34.3	14.8
	5° 36.0	5° 26.8	5° 17.5	5° 08.1	4° 58.8	4° 49.4	4° 40.0	4° 30.6	4° 21.2	4° 11.8	4° 02.3	-9.4	54.2
Пт 26	318° 24.4	332° 58.9	347° 33.3	2° 07.8	16° 42.3	31° 16.7	45° 51.2	60° 25.6	75° 00.0	89° 34.5	104° 08.9	+34.4	14.8
	1° 38.9	1° 29.2	1° 19.5	1° 09.9	1° 00.2	0° 50.5	0° 40.8	0° 31.1	0° 21.4	0° 11.7	0° 02.0	-9.7	54.2
Сб 27	322° 43.6	337° 17.8	351° 52.0	6° 26.1	21° 00.3	35° 34.4	50° 08.4	64° 42.5	79° 16.5	93° 50.5	108° 24.5	+34.1	14.8
	-2° 23.6	-2° 33.3	-2° 43.0	-2° 52.7	-3° 02.4	-3° 12.0	-3° 21.7	-3° 31.3	-3° 41.0	-3° 50.6	-4° 00.2	-9.7	54.5
Вс 28	326° 50.2	341° 23.6	355° 57.0	10° 30.4	25° 03.7	39° 37.0	54° 10.2	68° 43.4	83° 16.5	97° 49.6	112° 22.7	+33.3	15.0
	-6° 22.9	-6° 32.3	-6° 41.7	-6° 51.0	-7° 00.3	-7° 09.6	-7° 18.9	-7° 28.1	-7° 37.3	-7° 46.5	-7° 55.7	-9.3	54.8
Пн 29	330° 32.7	345° 05.0	359° 37.2	14° 09.3	28° 41.4	43° 13.4	57° 45.4	72° 17.3	86° 49.2	101° 21.0	115° 52.7	+32.0	15.1
	-10° 09.6	-10° 18.2	-10° 26.8	-10° 35.4	-10° 43.9	-10° 52.4	-11° 00.9	-11° 09.3	-11° 17.6	-11° 26.0	-11° 34.2	-8.5	55.4
Вт 30	333° 41.6	348° 12.3	2° 43.0	17° 13.6	31° 44.2	46° 14.7	60° 45.1	75° 15.5	89° 45.8	104° 16.0	118° 46.2	+30.5	15.3
	-13° 32.3	-13° 39.7	-13° 47.1	-13° 54.4	-14° 01.7	-14° 08.9	-14° 16.0	-14° 23.1	-14° 30.0	-14° 37.0	-14° 43.8	-7.2	56.0

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 3 05h44 — Первая четв.: 10 11h33 — Полнолуние: 17 06h42 — Последняя четв.: 24 22h47

СОЛНЦЕ

Декабрь 2032

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	272° 43.6	287° 43.3	302° 43.1	317° 42.9	332° 42.6	347° 42.4	2° 42.2	17° 41.9	32° 41.7	47° 41.4	62° 41.2	77° 41.0	-0.2
	-21° 53.0	-21° 53.4	-21° 53.7	-21° 54.1	-21° 54.5	-21° 54.9	-21° 55.2	-21° 55.6	-21° 56.0	-21° 56.4	-21° 56.7	-21° 57.1	-0.4
Чт 2	272° 37.8	287° 37.6	302° 37.3	317° 37.1	332° 36.8	347° 36.6	2° 36.3	17° 36.1	32° 35.9	47° 35.6	62° 35.4	77° 35.1	-0.2
	-22° 01.9	-22° 02.2	-22° 02.6	-22° 02.9	-22° 03.3	-22° 03.7	-22° 04.0	-22° 04.4	-22° 04.7	-22° 05.1	-22° 05.4	-22° 05.8	-0.4
Пт 3	272° 31.9	287° 31.6	302° 31.4	317° 31.1	332° 30.9	347° 30.6	2° 30.4	17° 30.1	32° 29.9	47° 29.6	62° 29.4	77° 29.1	-0.3
	-22° 10.3	-22° 10.7	-22° 11.0	-22° 11.3	-22° 11.7	-22° 12.0	-22° 12.4	-22° 12.7	-22° 13.0	-22° 13.4	-22° 13.7	-22° 14.0	-0.3
Сб 4	272° 25.8	287° 25.6	302° 25.3	317° 25.1	332° 24.8	347° 24.5	2° 24.3	17° 24.0	32° 23.8	47° 23.5	62° 23.3	77° 23.0	-0.3
	-22° 18.3	-22° 18.7	-22° 19.0	-22° 19.3	-22° 19.6	-22° 20.0	-22° 20.3	-22° 20.6	-22° 20.9	-22° 21.2	-22° 21.6	-22° 21.9	-0.3
Вс 5	272° 19.6	287° 19.4	302° 19.1	317° 18.8	332° 18.6	347° 18.3	2° 18.0	17° 17.8	32° 17.5	47° 17.3	62° 17.0	77° 16.7	-0.3
	-22° 25.9	-22° 26.2	-22° 26.5	-22° 26.8	-22° 27.2	-22° 27.5	-22° 27.8	-22° 28.1	-22° 28.4	-22° 28.7	-22° 29.0	-22° 29.3	-0.3
Пн 6	272° 13.3	287° 13.0	302° 12.7	317° 12.5	332° 12.2	347° 11.9	2° 11.7	17° 11.4	32° 11.1	47° 10.9	62° 10.6	77° 10.3	-0.3
	-22° 33.1	-22° 33.4	-22° 33.7	-22° 34.0	-22° 34.2	-22° 34.5	-22° 34.8	-22° 35.1	-22° 35.4	-22° 35.7	-22° 35.9	-22° 36.2	-0.3
Вт 7	272° 06.8	287° 06.5	302° 06.3	317° 06.0	332° 05.7	347° 05.4	2° 05.2	17° 04.9	32° 04.6	47° 04.4	62° 04.1	77° 03.8	-0.3
	-22° 39.8	-22° 40.1	-22° 40.3	-22° 40.6	-22° 40.9	-22° 41.1	-22° 41.4	-22° 41.7	-22° 41.9	-22° 42.2	-22° 42.5	-22° 42.7	-0.3
Ср 8	272° 00.2	287° 00.0	301° 59.7	316° 59.4	331° 59.1	346° 58.8	1° 58.6	16° 58.3	31° 58.0	46° 57.7	61° 57.5	76° 57.2	-0.3
	-22° 46.1	-22° 46.3	-22° 46.6	-22° 46.8	-22° 47.1	-22° 47.3	-22° 47.6	-22° 47.8	-22° 48.1	-22° 48.3	-22° 48.6	-22° 48.8	-0.2
Чт 9	271° 53.5	286° 53.3	301° 53.0	316° 52.7	331° 52.4	346° 52.1	1° 51.8	16° 51.6	31° 51.3	46° 51.0	61° 50.7	76° 50.4	-0.3
	-22° 51.9	-22° 52.1	-22° 52.4	-22° 52.6	-22° 52.8	-22° 53.1	-22° 53.3	-22° 53.5	-22° 53.7	-22° 54.0	-22° 54.2	-22° 54.4	-0.2
Пт 10	271° 46.7	286° 46.5	301° 46.2	316° 45.9	331° 45.6	346° 45.3	1° 45.0	16° 44.7	31° 44.5	46° 44.2	61° 43.9	76° 43.6	-0.3
	-22° 57.3	-22° 57.5	-22° 57.7	-22° 57.9	-22° 58.1	-22° 58.3	-22° 58.5	-22° 58.8	-22° 59.0	-22° 59.2	-22° 59.4	-22° 59.6	-0.2
Сб 11	271° 39.9	286° 39.6	301° 39.3	316° 39.0	331° 38.7	346° 38.4	1° 38.1	16° 37.8	31° 37.5	46° 37.3	61° 37.0	76° 36.7	-0.3
	-23° 02.2	-23° 02.4	-23° 02.6	-23° 02.8	-23° 03.0	-23° 03.2	-23° 03.4	-23° 03.5	-23° 03.7	-23° 03.9	-23° 04.1	-23° 04.3	-0.2
Вс 12	271° 32.9	286° 32.6	301° 32.3	316° 32.0	331° 31.7	346° 31.4	1° 31.1	16° 30.8	31° 30.5	46° 30.3	61° 30.0	76° 29.7	-0.3
	-23° 06.7	-23° 06.8	-23° 07.0	-23° 07.2	-23° 07.4	-23° 07.5	-23° 07.7	-23° 07.9	-23° 08.0	-23° 08.2	-23° 08.4	-23° 08.6	-0.2
Пн 13	271° 25.8	286° 25.5	301° 25.2	316° 24.9	331° 24.7	346° 24.4	1° 24.1	16° 23.8	31° 23.5	46° 23.2	61° 22.9	76° 22.6	-0.3
	-23° 10.7	-23° 10.8	-23° 11.0	-23° 11.1	-23° 11.3	-23° 11.4	-23° 11.6	-23° 11.7	-23° 11.9	-23° 12.0	-23° 12.2	-23° 12.3	-0.2
Вт 14	271° 18.7	286° 18.4	301° 18.1	316° 17.8	331° 17.5	346° 17.2	1° 16.9	16° 16.6	31° 16.3	46° 16.0	61° 15.7	76° 15.4	-0.3
	-23° 14.2	-23° 14.3	-23° 14.5	-23° 14.6	-23° 14.8	-23° 14.9	-23° 15.0	-23° 15.2	-23° 15.3	-23° 15.4	-23° 15.5	-23° 15.7	-0.1
Ср 15	271° 11.5	286° 11.2	301° 10.9	316° 10.6	331° 10.3	346° 10.0	1° 09.7	16° 09.4	31° 09.1	46° 08.8	61° 08.5	76° 08.2	-0.3
	-23° 17.3	-23° 17.4	-23° 17.5	-23° 17.6	-23° 17.8	-23° 17.9	-23° 18.0	-23° 18.1	-23° 18.2	-23° 18.3	-23° 18.4	-23° 18.5	-0.1
Чт 16	271° 04.3	286° 04.0	301° 03.7	316° 03.4	331° 03.1	346° 02.8	1° 02.5	16° 02.1	31° 01.8	46° 01.5	61° 01.2	76° 00.9	-0.3
	-23° 19.9	-23° 20.0	-23° 20.1	-23° 20.2	-23° 20.3	-23° 20.4	-23° 20.5	-23° 20.6	-23° 20.7	-23° 20.8	-23° 20.9	-23° 20.9	-0.1
Пт 17	270° 57.0	285° 56.7	300° 56.4	315° 56.1	330° 55.7	345° 55.4	0° 55.1	15° 54.8	30° 54.5	45° 54.2	60° 53.9	75° 53.6	-0.3
	-23° 22.1	-23° 22.1	-23° 22.2	-23° 22.3	-23° 22.4	-23° 22.4	-23° 22.5	-23° 22.6	-23° 22.7	-23° 22.7	-23° 22.8	-23° 22.9	-0.1
Сб 18	270° 49.6	285° 49.3	300° 49.0	315° 48.7	330° 48.4	345° 48.1	0° 47.8	15° 47.5	30° 47.2	45° 46.9	60° 46.6	75° 46.2	-0.3
	-23° 23.7	-23° 23.8	-23° 23.9	-23° 23.9	-23° 24.0	-23° 24.0	-23° 24.1	-23° 24.1	-23° 24.2	-23° 24.2	-23° 24.3	-23° 24.4	-0.1
Вс 19	270° 42.2	285° 41.9	300° 41.6	315° 41.3	330° 41.0	345° 40.7	0° 40.4	15° 40.1	30° 39.8	45° 39.5	60° 39.2	75° 38.8	-0.3
	-23° 25.0	-23° 25.0	-23° 25.0	-23° 25.1	-23° 25.1	-23° 25.1	-23° 25.2	-23° 25.2	-23° 25.3	-23° 25.3	-23° 25.3	-23° 25.4	-0.0
Пн 20	270° 34.8	285° 34.5	300° 34.2	315° 33.9	330° 33.6	345° 33.3	0° 33.0	15° 32.7	30° 32.4	45° 32.0	60° 31.7	75° 31.4	-0.3
	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.9	-23° 25.9	-23° 25.9	-0.0
Вт 21	270° 27.4	285° 27.1	300° 26.8	315° 26.5	330° 26.2	345° 25.8	0° 25.5	15° 25.2	30° 24.9	45° 24.6	60° 24.3	75° 24.0	-0.3
	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 26.0	-23° 25.9	-23° 25.9	-23° 25.9	+0.0
Ср 22	270° 20.0	285° 19.6	300° 19.3	315° 19.0	330° 18.7	345° 18.4	0° 18.1	15° 17.8	30° 17.5	45° 17.2	60° 16.8	75° 16.5	-0.3
	-23° 25.8	-23° 25.8	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.5	-23° 25.5	+0.0
Чт 23	270° 12.5	285° 12.2	300° 11.9	315° 11.6	330° 11.3	345° 10.9	0° 10.6	15° 10.3	30° 10.0	45° 09.7	60° 09.4	75° 09.1	-0.3
	-23° 25.1	-23° 25.1	-23° 25.0	-23° 25.0	-23° 24.9	-23° 24.9	-23° 24.9	-23° 24.8	-23° 24.8	-23° 24.7	-23° 24.7	-23° 24.6	+0.0
Пт 24	270° 05.1	285° 04.7	300° 04.4	315° 04.1	330° 03.8	345° 03.5	0° 03.2	15° 02.9	30° 02.6	45° 02.3	60° 02.0	75° 01.6	-0.3
	-23° 24.0	-23° 23.9	-23° 23.8	-23° 23.8	-23° 23.7	-23° 23.7	-23° 23.6	-23° 23.5	-23° 23.5	-23° 23.4	-23° 23.3	-23° 23.3	+0.1
Сб 25	269° 57.6	284° 57.3	299° 57.0	314° 56.7	329° 56.4	344° 56.1	359° 55.8	14° 55.4	29° 55.1	44° 54.8	59° 54.5	74° 54.2	-0.3
	-23° 22.3	-23° 22.3	-23° 22.2	-23° 22.1	-23° 22.0	-23° 22.0	-23° 21.9	-23° 21.8	-23° 21.7	-23° 21.6	-23° 21.5	-23° 21.5	+0.1
Вс 26	269° 50.2	284° 49.9	299° 49.6	314° 49.3	329° 49.0	344° 48.7	359° 48.3	14° 48.0	29° 47.7	44° 47.4	59° 47.1	74° 46.8	-0.3
	-23° 20.3	-23° 20.2	-23° 20.1	-23° 20.0	-23° 19.9	-23° 19.8	-23° 19.7	-23° 19.6	-23° 19.5	-23° 19.4	-23° 19.3	-23° 19.2	+0.1
Пн 27	269° 42.8	284° 42.5	299° 42.2	314° 41.9	329° 41.6	344° 41.3	359° 41.0	14° 40.7	29° 40.4	44° 40.0	59° 39.7	74° 39.4	-0.3
	-23° 17.7	-23° 17.6	-23° 17.5	-23° 17.4	-23° 17.2	-23° 17.1	-23° 17.0	-23° 16.9	-23° 16.8	-23° 16.6	-23° 16.5	-23° 16.4	+0.1
Вт 28	269° 35.5	284° 35.1	299° 34.8	314° 34.5	329° 34.2	344° 33.9	359° 33.6	14° 33.3	29° 33.0	44° 32.7	59° 32.4	74° 32.1	-0.3
	-23° 14.7	-23° 14.6	-23° 14.4	-23° 14.3	-23° 14.2	-23° 14.0	-23° 13.9	-23° 13.7	-23° 13.6	-23° 13.4	-23° 13.3	-23° 13.2	+0.1
Ср 29	269° 28.1	284° 27.8	299° 27.5	314° 27.2	329° 26.9	344° 26.6	359° 26.3	14° 26.0	29° 25.7	44° 25.4	59° 25.1	74° 24.8	-0.3
	-23° 11.2	-23° 11.1	-23° 10.9	-23° 10.7	-23° 10.6	-23° 10.4	-23° 10.3	-23° 10.1	-23° 10.0	-23° 09.8	-23° 09.6	-23° 09.5	+0.2
Чт 30	269° 20.9	284° 20.6	299° 20.3	314° 20.0	329° 19.7	344° 19.4	359° 19.1	14° 18.8	29° 18.5	44° 18.2	59° 17.9	74° 17.6	-0.3
	-23° 07.3	-23° 07.1	-23° 06.9	-23° 06.7	-23° 06.6	-23° 06.4	-23° 06.2	-23° 06.0	-23° 05.8	-23° 05.7	-23° 05.5	-23° 05.3	+0.2
Пт 31	269° 13.7	284° 13.4	299° 13.1	314° 12.8	329° 12.5	344° 12.2	359° 11.9	14° 11.6	29° 11.3	44° 11.0	59° 10.7	74° 10.4	-0.3
	-23° 02.9	-23° 02.7	-23° 02.5	-23° 02.3	-23° 02.1	-23° 01.9	-23° 01.7	-23° 01.5	-23° 01.3	-23° 01.1	-23° 00.9	-23° 00.7	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Декабрь 2032

Д	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	R/p
Ср 1	249° 14.7 -15° 42.5	263° 44.2 -15° 48.6	278° 13.6 -15° 54.7	292° 43.0 -16° 00.7	307° 12.3 -16° 06.6	321° 41.5 -16° 12.4	336° 10.7 -16° 18.2	350° 39.8 -16° 23.9	5° 08.9 -16° 29.4	19° 37.9 -16° 35.0	34° 06.8 -16° 40.4	+29.2 -5.8	15.4 56.5
● Чт 2	251° 13.0 -17° 51.1	265° 40.9 -17° 55.1	280° 08.8 -17° 59.0	294° 36.6 -18° 02.8	309° 04.4 -18° 06.4	323° 32.1 -18° 10.0	337° 59.8 -18° 13.5	352° 27.3 -18° 16.8	6° 54.9 -18° 20.1	21° 22.4 -18° 23.3	35° 49.8 -18° 26.4	+27.7 -3.5	15.6 57.1
Пт 3	252° 35.7 -18° 59.5	267° 02.4 -19° 00.8	281° 29.0 -19° 02.0	295° 55.7 -19° 03.1	310° 22.3 -19° 04.1	324° 48.9 -19° 04.9	339° 15.4 -19° 05.7	353° 41.9 -19° 06.3	8° 08.4 -19° 06.9	22° 34.8 -19° 07.3	37° 01.2 -19° 07.6	+26.6 -0.8	15.7 57.7
Сб 4	253° 34.6 -18° 57.8	268° 00.7 -18° 56.2	282° 26.8 -18° 54.5	296° 52.9 -18° 52.6	311° 19.0 -18° 50.7	325° 45.0 -18° 48.6	340° 11.1 -18° 46.4	354° 37.1 -18° 44.1	9° 03.2 -18° 41.7	23° 29.2 -18° 39.1	37° 55.2 -18° 36.4	+26.1 +2.1	15.9 58.3
Вс 5	254° 26.3 -17° 42.5	268° 52.5 -17° 37.9	283° 18.6 -17° 33.3	297° 44.8 -17° 28.6	312° 11.0 -17° 23.7	326° 37.2 -17° 18.7	341° 03.5 -17° 13.7	355° 29.7 -17° 08.5	9° 56.0 -17° 03.2	24° 22.3 -16° 57.8	38° 48.6 -16° 52.3	+26.2 +5.0	16.0 58.7
Пн 6	255° 26.4 -15° 17.2	269° 53.2 -15° 10.0	284° 20.0 -15° 02.8	298° 46.8 -14° 55.5	313° 13.6 -14° 48.0	327° 40.5 -14° 40.5	342° 07.4 -14° 32.9	356° 34.4 -14° 25.2	11° 01.3 -14° 17.4	25° 28.3 -14° 09.6	39° 55.4 -14° 01.6	+26.9 +7.6	16.1 58.9
Вт 7	256° 45.3 -11° 52.3	271° 12.9 -11° 43.0	285° 40.5 -11° 33.7	300° 08.2 -11° 24.3	314° 35.9 -11° 14.9	329° 03.7 -11° 05.4	343° 31.5 -10° 55.8	357° 59.3 -10° 46.1	12° 27.1 -10° 36.4	26° 55.0 -10° 26.6	41° 22.9 -10° 16.8	+27.8 +9.5	16.1 59.1
Ср 8	258° 25.7 -7° 42.5	272° 54.1 -7° 31.8	287° 22.5 -7° 21.1	301° 51.0 -7° 10.3	316° 19.5 -6° 59.5	330° 48.1 -6° 48.6	345° 16.6 -6° 37.7	359° 45.2 -6° 26.8	14° 13.8 -6° 15.8	28° 42.5 -6° 04.8	43° 11.1 -5° 53.8	+28.5 +10.9	16.1 59.2
◐ Чт 9	260° 23.6 -3° 04.8	274° 52.5 -2° 53.4	289° 21.5 -2° 41.9	303° 50.5 -2° 30.4	318° 19.5 -2° 19.0	332° 48.5 -2° 07.5	347° 17.6 -1° 56.0	1° 46.6 -1° 44.4	16° 15.7 -1° 32.9	30° 44.7 -1° 21.4	45° 13.8 -1° 09.9	+29.0 +11.5	16.1 59.1
Пт 10	262° 30.5 1° 43.2	276° 59.7 1° 54.7	291° 28.8 2° 06.2	305° 57.9 2° 17.7	320° 27.0 2° 29.1	334° 56.1 2° 40.5	349° 25.2 2° 51.9	3° 54.3 3° 03.3	18° 23.4 3° 14.7	32° 52.5 3° 26.1	47° 21.6 3° 37.4	+29.1 +11.4	16.1 59.0
Сб 11	264° 36.6 6° 24.2	279° 05.5 6° 35.0	293° 34.3 6° 45.8	308° 03.2 6° 56.6	322° 32.0 7° 07.3	337° 00.8 7° 18.0	351° 29.6 7° 28.7	5° 58.4 7° 39.3	20° 27.2 7° 49.8	34° 55.9 8° 00.3	49° 24.6 8° 10.8	+28.8 +10.7	16.0 58.9
Вс 12	266° 32.7 10° 41.1	281° 01.1 10° 50.6	295° 29.4 11° 00.1	309° 57.7 11° 09.5	324° 26.0 11° 18.9	338° 54.2 11° 28.1	353° 22.4 11° 37.3	7° 50.6 11° 46.5	22° 18.8 11° 55.5	36° 46.9 12° 04.5	51° 15.1 12° 13.5	+28.2 +9.2	16.0 58.6
Пн 13	268° 13.7 14° 17.9	282° 41.4 14° 25.5	297° 09.1 14° 33.0	311° 36.8 14° 40.5	326° 04.4 14° 47.9	340° 32.0 14° 55.1	354° 59.6 15° 02.3	9° 27.2 15° 09.4	23° 54.7 15° 16.4	38° 22.2 15° 23.3	52° 49.7 15° 30.1	+27.6 +7.2	15.9 58.3
Вт 14	269° 40.0 17° 00.6	284° 07.2 17° 05.8	298° 34.4 17° 10.9	313° 01.6 17° 15.9	327° 28.8 17° 20.8	341° 56.0 17° 25.6	356° 23.1 17° 30.3	10° 50.3 17° 34.9	25° 17.5 17° 39.4	39° 44.6 17° 43.8	54° 11.7 17° 48.0	+27.2 +4.7	15.8 57.8
Ср 15	270° 58.6 18° 38.9	285° 25.7 18° 41.5	299° 52.9 18° 43.9	314° 20.0 18° 46.1	328° 47.2 18° 48.3	343° 14.4 18° 50.4	357° 41.6 18° 52.3	12° 08.8 18° 54.2	26° 36.0 18° 55.9	41° 03.2 18° 57.5	55° 30.5 18° 59.0	+27.2 +2.0	15.6 57.3
○ Чт 16	272° 21.7 19° 08.3	286° 49.3 19° 08.0	301° 17.0 19° 07.6	315° 44.7 19° 07.1	330° 12.4 19° 06.5	344° 40.1 19° 05.9	359° 07.9 19° 05.0	13° 35.7 19° 04.1	28° 03.6 19° 03.1	42° 31.5 19° 02.0	56° 59.4 19° 00.8	+27.8 -0.8	15.5 56.7
Пт 17	274° 03.4 18° 30.0	288° 32.0 18° 27.1	303° 00.7 18° 24.2	317° 29.4 18° 21.1	331° 58.2 18° 18.0	346° 27.0 18° 14.7	0° 55.9 18° 11.4	15° 24.8 18° 08.0	29° 53.8 18° 04.5	44° 22.8 18° 00.9	58° 51.9 17° 57.2	+28.9 -3.3	15.3 56.1
Сб 18	276° 14.8 16° 51.1	290° 44.8 16° 46.0	305° 14.9 16° 40.8	319° 45.0 16° 35.6	334° 15.1 16° 30.3	348° 45.3 16° 24.9	3° 15.6 16° 19.4	17° 45.9 16° 13.9	32° 16.3 16° 08.3	46° 46.8 16° 02.6	61° 17.3 15° 56.8	+30.2 -5.4	15.2 55.6
Вс 19	279° 01.9 14° 22.0	293° 33.3 14° 15.2	308° 04.8 14° 08.3	322° 36.4 14° 01.3	337° 08.0 13° 54.3	351° 39.6 13° 47.2	6° 11.4 13° 40.0	20° 43.1 13° 32.9	35° 15.0 13° 25.6	49° 46.8 13° 18.3	64° 18.8 13° 10.9	+31.7 -7.1	15.0 55.0
Пн 20	282° 24.1 11° 14.4	296° 56.9 11° 06.3	311° 29.7 10° 58.1	326° 02.6 10° 49.9	340° 35.4 10° 41.6	355° 08.4 10° 33.3	9° 41.4 10° 25.0	24° 14.4 10° 16.6	38° 47.5 10° 08.2	53° 20.6 9° 59.7	67° 53.8 9° 51.2	+33.0 -8.3	14.9 54.6
Вт 21	286° 16.0 7° 39.6	300° 49.8 7° 30.6	315° 23.6 7° 21.6	329° 57.4 7° 12.5	344° 31.3 7° 03.4	359° 05.2 6° 54.3	13° 39.1 6° 45.2	28° 13.1 6° 36.0	42° 47.1 6° 26.8	57° 21.1 6° 17.6	71° 55.1 6° 08.4	+33.9 -9.1	14.8 54.3
Ср 22	300° 49.8 7° 30.6	315° 23.6 7° 21.6	329° 57.4 7° 12.5	344° 31.3 7° 03.4	359° 05.2 6° 54.3	13° 39.1 6° 45.2	28° 13.1 6° 36.0	42° 47.1 6° 26.8	57° 21.1 6° 17.6	71° 55.1 6° 08.4	86° 29.2 5° 59.1	+33.9 -9.2	14.8 54.3
Чт 23	305° 02.9 3° 38.1	319° 37.3 3° 28.6	334° 11.7 3° 19.1	348° 46.2 3° 09.5	3° 20.6 3° 00.0	17° 55.0 2° 50.4	32° 29.5 2° 40.8	47° 04.0 2° 31.3	61° 38.4 2° 21.7	76° 12.9 2° 12.1	90° 47.4 2° 02.5	+34.5 -9.6	14.8 54.2
◑ Пт 24	309° 25.2 -0° 22.3	323° 59.7 -0° 32.0	338° 34.2 -0° 41.7	353° 08.7 -0° 51.3	7° 43.2 -1° 01.0	22° 17.7 -1° 10.7	36° 52.1 -1° 20.3	51° 26.6 -1° 30.0	66° 01.1 -1° 39.6	80° 35.5 -1° 49.3	95° 09.9 -1° 58.9	+34.5 -9.7	14.8 54.2
Сб 25	313° 44.4 -4° 22.7	328° 18.6 -4° 32.1	342° 52.7 -4° 41.6	357° 26.7 -4° 51.1	12° 00.8 -5° 00.5	26° 34.8 -5° 10.0	41° 08.8 -5° 19.4	55° 42.8 -5° 28.8	70° 16.7 -5° 38.2	84° 50.6 -5° 47.5	99° 24.5 -5° 56.9	+34.0 -9.4	14.8 54.5
Вс 26	317° 48.2 -8° 14.5	332° 21.5 -8° 23.4	346° 54.7 -8° 32.4	1° 27.9 -8° 41.3	16° 01.0 -8° 50.2	30° 34.1 -8° 59.0	45° 07.1 -9° 07.8	59° 40.1 -9° 16.6	74° 13.0 -9° 25.4	88° 45.9 -9° 34.1	103° 18.7 -9° 42.8	+33.1 -8.8	15.0 54.9
Пн 27	321° 24.7 -11° 48.5	335° 56.7 -11° 56.5	350° 28.5 -12° 04.5	5° 00.4 -12° 12.4	19° 32.1 -12° 20.3	34° 03.8 -12° 28.2	48° 35.4 -12° 36.0	63° 07.0 -12° 43.7	77° 38.5 -12° 51.4	92° 10.0 -12° 59.1	106° 41.3 -13° 06.7	+31.7 -7.8	15.1 55.5
Вт 28	324° 23.8 -14° 53.6	338° 54.1 -15° 00.2	353° 24.3 -15° 06.8	7° 54.5 -15° 13.3	22° 24.5 -15° 19.7	36° 54.5 -15° 26.0	51° 24.4 -15° 32.3	65° 54.3 -15° 38.5	80° 24.1 -15° 44.7	94° 53.8 -15° 50.7	109° 23.4 -15° 56.7	+30.0 -6.3	15.3 56.2
Ср 29	326° 39.2 -17° 17.0	341° 07.7 -17° 21.7	355° 36.1 -17° 26.3	10° 04.4 -17° 30.7	24° 32.7 -17° 35.1	39° 00.9 -17° 39.5	53° 29.0 -17° 43.7	67° 57.1 -17° 47.8	82° 25.0 -17° 51.8	96° 53.0 -17° 55.8	111° 20.8 -17° 59.6	+28.2 -4.3	15.5 57.0
Чт 30	328° 10.7 -18° 45.0	342° 37.5 -18° 47.1	357° 04.3 -18° 49.2	11° 31.0 -18° 51.2	25° 57.7 -18° 53.0	40° 24.3 -18° 54.7	54° 50.8 -18° 56.4	69° 17.3 -18° 57.9	83° 43.8 -18° 59.3	98° 10.2 -19° 00.6	112° 36.5 -19° 01.7	+26.6 -1.7	15.8 57.8
Пт 31	329° 06.2 -19° 05.1	343° 31.9 -19° 04.4	357° 57.5 -19° 03.5	12° 23.1 -19° 02.5	26° 48.7 -19° 01.4	41° 14.2 -19° 00.2	55° 39.8 -18° 58.9	70° 05.2 -18° 57.4	84° 30.7 -18° 55.8	98° 56.2 -18° 54.1	113° 21.6 -18° 52.2	+25.5 +1.3	16.0 58.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 2 20h52 — Первая четв.: 9 19h08 — Полнолуние: 16 20h49 — Последняя четв.: 24 20h39

СОЛНЦЕ

Январь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 06.6	284° 06.3	299° 06.0	314° 05.7	329° 05.4	344° 05.1	359° 04.8	14° 04.5	29° 04.2	44° 03.9	59° 03.6	74° 03.3	-0.3
	-22° 58.0	-22° 57.8	-22° 57.6	-22° 57.3	-22° 57.1	-22° 56.9	-22° 56.7	-22° 56.5	-22° 56.3	-22° 56.0	-22° 55.8	-22° 55.6	+0.2
Вс 2	268° 59.5	283° 59.3	298° 59.0	313° 58.7	328° 58.4	343° 58.1	358° 57.8	13° 57.5	28° 57.2	43° 56.9	58° 56.6	73° 56.3	-0.3
	-22° 52.7	-22° 52.4	-22° 52.2	-22° 52.0	-22° 51.7	-22° 51.5	-22° 51.3	-22° 51.0	-22° 50.8	-22° 50.5	-22° 50.3	-22° 50.1	+0.2
Пн 3	268° 52.6	283° 52.3	298° 52.0	313° 51.7	328° 51.4	343° 51.2	358° 50.9	13° 50.6	28° 50.3	43° 50.0	58° 49.7	73° 49.4	-0.3
	-22° 46.9	-22° 46.6	-22° 46.4	-22° 46.1	-22° 45.9	-22° 45.6	-22° 45.4	-22° 45.1	-22° 44.8	-22° 44.6	-22° 44.3	-22° 44.1	+0.3
Вт 4	268° 45.7	283° 45.5	298° 45.2	313° 44.9	328° 44.6	343° 44.3	358° 44.1	13° 43.8	28° 43.5	43° 43.2	58° 42.9	73° 42.6	-0.3
	-22° 40.6	-22° 40.4	-22° 40.1	-22° 39.8	-22° 39.6	-22° 39.3	-22° 39.0	-22° 38.7	-22° 38.5	-22° 38.2	-22° 37.9	-22° 37.6	+0.3
Ср 5	268° 39.0	283° 38.7	298° 38.5	313° 38.2	328° 37.9	343° 37.6	358° 37.3	13° 37.1	28° 36.8	43° 36.5	58° 36.2	73° 36.0	-0.3
	-22° 34.0	-22° 33.7	-22° 33.4	-22° 33.1	-22° 32.8	-22° 32.5	-22° 32.2	-22° 31.9	-22° 31.6	-22° 31.3	-22° 31.0	-22° 30.7	+0.3
Чт 6	268° 32.4	283° 32.1	298° 31.8	313° 31.6	328° 31.3	343° 31.0	358° 30.7	13° 30.5	28° 30.2	43° 29.9	58° 29.7	73° 29.4	-0.3
	-22° 26.8	-22° 26.5	-22° 26.2	-22° 25.9	-22° 25.6	-22° 25.3	-22° 25.0	-22° 24.7	-22° 24.3	-22° 24.0	-22° 23.7	-22° 23.4	+0.3
Пт 7	268° 25.9	283° 25.6	298° 25.3	313° 25.1	328° 24.8	343° 24.5	358° 24.3	13° 24.0	28° 23.7	43° 23.5	58° 23.2	73° 22.9	-0.3
	-22° 19.2	-22° 18.9	-22° 18.6	-22° 18.3	-22° 17.9	-22° 17.6	-22° 17.3	-22° 17.0	-22° 16.6	-22° 16.3	-22° 16.0	-22° 15.6	+0.3
Сб 8	268° 19.5	283° 19.2	298° 19.0	313° 18.7	328° 18.4	343° 18.2	358° 17.9	13° 17.7	28° 17.4	43° 17.2	58° 16.9	73° 16.6	-0.3
	-22° 11.2	-22° 10.9	-22° 10.5	-22° 10.2	-22° 09.9	-22° 09.5	-22° 09.2	-22° 08.8	-22° 08.5	-22° 08.1	-22° 07.8	-22° 07.4	+0.3
Вс 9	268° 13.3	283° 13.0	298° 12.8	313° 12.5	328° 12.3	343° 12.0	358° 11.7	13° 11.5	28° 11.2	43° 11.0	58° 10.7	73° 10.5	-0.3
	-22° 02.8	-22° 02.4	-22° 02.1	-22° 01.7	-22° 01.3	-22° 01.0	-22° 00.6	-22° 00.2	-21° 59.9	-21° 59.5	-21° 59.1	-21° 58.8	+0.4
Пн 10	268° 07.2	283° 06.9	298° 06.7	313° 06.4	328° 06.2	343° 05.9	358° 05.7	13° 05.4	28° 05.2	43° 04.9	58° 04.7	73° 04.4	-0.2
	-21° 53.9	-21° 53.5	-21° 53.2	-21° 52.8	-21° 52.4	-21° 52.0	-21° 51.6	-21° 51.2	-21° 50.9	-21° 50.5	-21° 50.1	-21° 49.7	+0.4
Вт 11	268° 01.2	283° 01.0	298° 00.8	313° 00.5	328° 00.3	343° 00.0	357° 59.8	12° 59.5	27° 59.3	42° 59.1	57° 58.8	72° 58.6	-0.2
	-21° 44.6	-21° 44.2	-21° 43.8	-21° 43.4	-21° 43.0	-21° 42.6	-21° 42.2	-21° 41.8	-21° 41.4	-21° 41.0	-21° 40.6	-21° 40.2	+0.4
Ср 12	267° 55.5	282° 55.2	297° 55.0	312° 54.7	327° 54.5	342° 54.3	357° 54.0	12° 53.8	27° 53.6	42° 53.3	57° 53.1	72° 52.8	-0.2
	-21° 34.9	-21° 34.5	-21° 34.1	-21° 33.6	-21° 33.2	-21° 32.8	-21° 32.4	-21° 32.0	-21° 31.6	-21° 31.1	-21° 30.7	-21° 30.3	+0.4
Чт 13	267° 49.8	282° 49.6	297° 49.4	312° 49.1	327° 48.9	342° 48.7	357° 48.4	12° 48.2	27° 48.0	42° 47.7	57° 47.5	72° 47.3	-0.2
	-21° 24.7	-21° 24.3	-21° 23.9	-21° 23.4	-21° 23.0	-21° 22.6	-21° 22.1	-21° 21.7	-21° 21.3	-21° 20.8	-21° 20.4	-21° 20.0	+0.4
Пт 14	267° 44.3	282° 44.1	297° 43.9	312° 43.7	327° 43.4	342° 43.2	357° 43.0	12° 42.8	27° 42.6	42° 42.3	57° 42.1	72° 41.9	-0.2
	-21° 14.2	-21° 13.7	-21° 13.3	-21° 12.8	-21° 12.4	-21° 11.9	-21° 11.5	-21° 11.0	-21° 10.6	-21° 10.1	-21° 09.7	-21° 09.2	+0.5
Сб 15	267° 39.0	282° 38.8	297° 38.6	312° 38.4	327° 38.2	342° 38.0	357° 37.7	12° 37.5	27° 37.3	42° 37.1	57° 36.9	72° 36.7	-0.2
	-21° 03.2	-21° 02.8	-21° 02.3	-21° 01.8	-21° 01.4	-21° 00.9	-21° 00.4	-21° 00.0	-20° 59.5	-20° 59.0	-20° 58.5	-20° 58.1	+0.5
Вс 16	267° 33.9	282° 33.7	297° 33.5	312° 33.3	327° 33.1	342° 32.8	357° 32.6	12° 32.4	27° 32.2	42° 32.0	57° 31.8	72° 31.6	-0.2
	-20° 51.9	-20° 51.4	-20° 50.9	-20° 50.4	-20° 49.9	-20° 49.4	-20° 49.0	-20° 48.5	-20° 48.0	-20° 47.5	-20° 47.0	-20° 46.5	+0.5
Пн 17	267° 28.9	282° 28.7	297° 28.5	312° 28.3	327° 28.1	342° 27.9	357° 27.7	12° 27.5	27° 27.3	42° 27.1	57° 26.9	72° 26.7	-0.2
	-20° 40.1	-20° 39.6	-20° 39.1	-20° 38.6	-20° 38.1	-20° 37.6	-20° 37.1	-20° 36.6	-20° 36.1	-20° 35.6	-20° 35.1	-20° 34.6	+0.5
Вт 18	267° 24.1	282° 23.9	297° 23.8	312° 23.6	327° 23.4	342° 23.2	357° 23.0	12° 22.8	27° 22.6	42° 22.4	57° 22.2	72° 22.0	-0.2
	-20° 27.9	-20° 27.4	-20° 26.9	-20° 26.4	-20° 25.9	-20° 25.4	-20° 24.8	-20° 24.3	-20° 23.8	-20° 23.3	-20° 22.8	-20° 22.2	+0.5
Ср 19	267° 19.5	282° 19.3	297° 19.2	312° 19.0	327° 18.8	342° 18.6	357° 18.4	12° 18.2	27° 18.0	42° 17.8	57° 17.7	72° 17.5	-0.2
	-20° 15.4	-20° 14.9	-20° 14.3	-20° 13.8	-20° 13.3	-20° 12.7	-20° 12.2	-20° 11.7	-20° 11.1	-20° 10.6	-20° 10.1	-20° 09.5	+0.5
Чт 20	267° 15.1	282° 14.9	297° 14.7	312° 14.6	327° 14.4	342° 14.2	357° 14.0	12° 13.8	27° 13.7	42° 13.5	57° 13.3	72° 13.1	-0.2
	-20° 02.5	-20° 01.9	-20° 01.4	-20° 00.8	-20° 00.3	-19° 59.7	-19° 59.2	-19° 58.6	-19° 58.1	-19° 57.5	-19° 57.0	-19° 56.4	+0.6
Пт 21	267° 10.9	282° 10.7	297° 10.5	312° 10.3	327° 10.2	342° 10.0	357° 09.8	12° 09.6	27° 09.5	42° 09.3	57° 09.1	72° 09.0	-0.2
	-19° 49.2	-19° 48.6	-19° 48.1	-19° 47.5	-19° 46.9	-19° 46.4	-19° 45.8	-19° 45.2	-19° 44.7	-19° 44.1	-19° 43.5	-19° 43.0	+0.6
Сб 22	267° 06.8	282° 06.6	297° 06.5	312° 06.3	327° 06.1	342° 06.0	357° 05.8	12° 05.6	27° 05.5	42° 05.3	57° 05.2	72° 05.0	-0.2
	-19° 35.5	-19° 34.9	-19° 34.3	-19° 33.8	-19° 33.2	-19° 32.6	-19° 32.0	-19° 31.4	-19° 30.9	-19° 30.3	-19° 29.7	-19° 29.1	+0.6
Вс 23	267° 02.9	282° 02.8	297° 02.6	312° 02.5	327° 02.3	342° 02.1	357° 02.0	12° 01.8	27° 01.7	42° 01.5	57° 01.4	72° 01.2	-0.2
	-19° 21.5	-19° 20.9	-19° 20.3	-19° 19.7	-19° 19.1	-19° 18.5	-19° 17.9	-19° 17.3	-19° 16.7	-19° 16.1	-19° 15.5	-19° 14.9	+0.6
Пн 24	266° 59.2	281° 59.1	296° 58.9	311° 58.8	326° 58.6	341° 58.5	356° 58.4	11° 58.2	26° 58.1	41° 57.9	56° 57.8	71° 57.6	-0.1
	-19° 07.1	-19° 06.5	-19° 05.9	-19° 05.3	-19° 04.6	-19° 04.0	-19° 03.4	-19° 02.8	-19° 02.2	-19° 01.6	-19° 01.0	-19° 00.4	+0.6
Вт 25	266° 55.8	281° 55.6	296° 55.5	311° 55.3	326° 55.2	341° 55.1	356° 54.9	11° 54.8	26° 54.6	41° 54.5	56° 54.4	71° 54.2	-0.1
	-18° 52.3	-18° 51.7	-18° 51.1	-18° 50.5	-18° 49.8	-18° 49.2	-18° 48.6	-18° 48.0	-18° 47.3	-18° 46.7	-18° 46.1	-18° 45.5	+0.6
Ср 26	266° 52.5	281° 52.3	296° 52.2	311° 52.1	326° 51.9	341° 51.8	356° 51.7	11° 51.5	26° 51.4	41° 51.3	56° 51.1	71° 51.0	-0.1
	-18° 37.2	-18° 36.6	-18° 36.0	-18° 35.3	-18° 34.7	-18° 34.0	-18° 33.4	-18° 32.8	-18° 32.1	-18° 31.5	-18° 30.8	-18° 30.2	+0.6
Чт 27	266° 49.4	281° 49.2	296° 49.1	311° 49.0	326° 48.9	341° 48.7	356° 48.6	11° 48.5	26° 48.4	41° 48.3	56° 48.1	71° 48.0	-0.1
	-18° 21.8	-18° 21.2	-18° 20.5	-18° 19.9	-18° 19.2	-18° 18.5	-18° 17.9	-18° 17.2	-18° 16.6	-18° 15.9	-18° 15.3	-18° 14.6	+0.7
Пт 28	266° 46.5	281° 46.3	296° 46.2	311° 46.1	326° 46.0	341° 45.9	356° 45.8	11° 45.7	26° 45.5	41° 45.4	56° 45.3	71° 45.2	-0.1
	-18° 06.0	-18° 05.4	-18° 04.7	-18° 04.0	-18° 03.4	-18° 02.7	-18° 02.0	-18° 01.4	-18° 00.7	-18° 00.0	-17° 59.4	-17° 58.7	+0.7
Сб 29	266° 43.8	281° 43.7	296° 43.5	311° 43.4	326° 43.3	341° 43.2	356° 43.1	11° 43.0	26° 42.9	41° 42.8	56° 42.7	71° 42.6	-0.1
	-17° 49.9	-17° 49.3	-17° 48.6	-17° 47.9	-17° 47.2	-17° 46.6	-17° 45.9	-17° 45.2	-17° 44.5	-17° 43.8	-17° 43.2	-17° 42.5	+0.7
Вс 30	266° 41.3	281° 41.2	296° 41.1	311° 41.0	326° 40.9	341° 40.8	356° 40.7	11° 40.6	26° 40.5	41° 40.4	56° 40.3	71° 40.2	-0.1
	-17° 33.5	-17° 32.9	-17° 32.2	-17° 31.5	-17° 30.8	-17° 30.1	-17° 29.4	-17° 28.7	-17° 28.0	-17° 27.3	-17° 26.6	-17° 25.9	+0.7
Пн 31	266° 39.0	281° 38.9	296° 38.8	311° 38.7	326° 38.6	341° 38.5	356° 38.4	11° 38.3	26° 38.2	41° 38.2	56° 38.1	71° 38.0	-0.1
	-17° 16.8	-17° 16.1	-17° 15.4	-17° 14.7	-17° 14.0	-17° 13.3	-17° 12.6	-17° 11.9	-17° 11.2	-17° 10.5	-17° 09.8	-17° 09.1	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2033

	Д	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	R/p
●	Сб 1	243° 09.5	257° 34.8	272° 00.0	286° 25.3	300° 50.5	315° 15.8	329° 41.0	344° 06.2	358° 31.4	12° 56.7	27° 21.9	+25.2	16.1
		-18° 30.1	-18° 27.0	-18° 23.8	-18° 20.5	-18° 17.0	-18° 13.5	-18° 09.8	-18° 06.0	-18° 02.0	-17° 58.0	-17° 53.8	+3.6	59.1
	Вс 2	243° 41.1	258° 06.4	272° 31.8	286° 57.3	301° 22.7	315° 48.2	330° 13.6	344° 39.2	359° 04.7	13° 30.2	27° 55.8	+25.5	16.3
		-16° 36.9	-16° 30.8	-16° 24.7	-16° 18.4	-16° 12.0	-16° 05.5	-15° 58.9	-15° 52.2	-15° 45.4	-15° 38.5	-15° 31.5	+6.5	59.6
	Пн 3	244° 23.1	258° 49.2	273° 15.3	287° 41.5	302° 07.7	316° 33.9	331° 00.2	345° 26.5	359° 52.8	14° 19.2	28° 45.6	+26.2	16.3
		-13° 34.0	-13° 25.5	-13° 16.8	-13° 08.0	-12° 59.2	-12° 50.2	-12° 41.2	-12° 32.1	-12° 23.0	-12° 13.7	-12° 04.4	+9.0	59.9
	Вт 4	245° 26.6	259° 53.7	274° 20.8	288° 47.9	303° 15.1	317° 42.3	332° 09.5	346° 36.8	1° 04.1	15° 31.5	29° 58.9	+27.2	16.3
		-9° 35.7	-9° 25.3	-9° 14.8	-9° 04.3	-8° 53.7	-8° 43.0	-8° 32.3	-8° 21.6	-8° 10.8	-7° 59.9	-7° 49.0	+10.7	59.9
	Ср 5	246° 54.2	261° 22.1	275° 50.1	290° 18.2	304° 46.2	319° 14.3	333° 42.4	348° 10.5	2° 38.7	17° 06.9	31° 35.1	+28.1	16.3
		-5° 00.8	-4° 49.3	-4° 37.8	-4° 26.3	-4° 14.8	-4° 03.2	-3° 51.6	-3° 40.0	-3° 28.4	-3° 16.8	-3° 05.2	+11.6	59.8
	Чт 6	248° 41.5	263° 10.1	277° 38.7	292° 07.3	306° 36.0	321° 04.6	335° 33.3	350° 02.0	4° 30.7	18° 59.4	33° 28.1	+28.7	16.2
		-0° 09.6	0° 02.1	0° 13.8	0° 25.5	0° 37.1	0° 48.8	1° 00.5	1° 12.1	1° 23.8	1° 35.4	1° 47.0	+11.7	59.5
	Пт 7	250° 40.3	265° 09.1	279° 38.0	294° 06.9	308° 35.7	323° 04.6	337° 33.4	352° 02.3	6° 31.2	21° 00.0	35° 28.9	+28.9	16.1
		4° 38.3	4° 49.5	5° 00.7	5° 11.8	5° 22.9	5° 33.9	5° 45.0	5° 55.9	6° 06.9	6° 17.7	6° 28.6	+11.0	59.1
◐	Сб 8	252° 41.3	267° 10.1	281° 38.8	296° 07.6	310° 36.3	325° 05.0	339° 33.8	354° 02.5	8° 31.2	22° 59.9	37° 28.5	+28.7	16.0
		9° 05.5	9° 15.5	9° 25.4	9° 35.4	9° 45.2	9° 55.0	10° 04.7	10° 14.4	10° 24.0	10° 33.5	10° 43.0	+9.8	58.6
	Вс 9	254° 37.0	269° 05.4	283° 33.9	298° 02.3	312° 30.7	326° 59.1	341° 27.5	355° 55.8	10° 24.1	24° 52.5	39° 20.8	+28.4	15.8
		12° 56.4	13° 04.7	13° 12.9	13° 21.1	13° 29.1	13° 37.1	13° 45.0	13° 52.8	14° 00.5	14° 08.1	14° 15.7	+7.9	58.1
	Пн 10	256° 23.6	270° 51.7	285° 19.8	299° 47.9	314° 15.9	328° 43.9	343° 11.9	357° 40.0	12° 08.0	26° 35.9	41° 03.9	+28.0	15.7
		15° 58.4	16° 04.5	16° 10.5	16° 16.4	16° 22.2	16° 27.9	16° 33.6	16° 39.1	16° 44.5	16° 49.8	16° 55.1	+5.7	57.5
	Вт 11	258° 02.8	272° 30.6	286° 58.5	301° 26.4	315° 54.3	330° 22.2	344° 50.1	359° 18.0	13° 45.8	28° 13.7	42° 41.6	+27.9	15.5
		18° 01.4	18° 05.0	18° 08.5	18° 11.9	18° 15.2	18° 18.4	18° 21.4	18° 24.4	18° 27.3	18° 30.0	18° 32.7	+3.1	57.0
	Ср 12	259° 41.0	274° 09.1	288° 37.2	303° 05.2	317° 33.3	332° 01.5	346° 29.6	0° 57.8	15° 25.9	29° 54.1	44° 22.4	+28.1	15.4
		18° 59.7	19° 00.6	19° 01.5	19° 02.2	19° 02.8	19° 03.4	19° 03.8	19° 04.1	19° 04.3	19° 04.4	19° 04.4	+0.5	56.5
	Чт 13	261° 28.7	275° 57.4	290° 26.1	304° 54.8	319° 23.6	333° 52.4	348° 21.2	2° 50.1	17° 19.0	31° 47.9	46° 16.9	+28.8	15.3
		18° 51.9	18° 50.3	18° 48.5	18° 46.7	18° 44.7	18° 42.7	18° 40.6	18° 38.3	18° 36.0	18° 33.5	18° 31.0	-2.1	56.0
	Пт 14	263° 36.5	278° 06.1	292° 35.8	307° 05.6	321° 35.3	336° 05.2	350° 35.1	5° 05.0	19° 35.0	34° 05.0	48° 35.1	+29.9	15.1
		17° 41.8	17° 37.8	17° 33.7	17° 29.5	17° 25.3	17° 20.9	17° 16.5	17° 12.0	17° 07.4	17° 02.7	16° 57.9	-4.4	55.5
○	Сб 15	266° 12.2	280° 43.0	295° 14.0	309° 44.9	324° 16.0	338° 47.0	353° 18.2	7° 49.3	22° 20.6	36° 51.9	51° 23.2	+31.1	15.0
		15° 37.1	15° 31.1	15° 25.0	15° 18.9	15° 12.7	15° 06.4	15° 00.1	14° 53.7	14° 47.2	14° 40.7	14° 34.1	-6.3	55.1
	Вс 16	269° 19.1	283° 51.3	298° 23.4	312° 55.7	327° 27.9	342° 00.2	356° 32.6	11° 05.0	25° 37.5	40° 10.0	54° 42.5	+32.3	14.9
		12° 47.9	12° 40.4	12° 32.8	12° 25.2	12° 17.5	12° 09.8	12° 02.0	11° 54.1	11° 46.3	11° 38.3	11° 30.4	-7.8	54.7
	Пн 17	272° 55.9	287° 29.1	302° 02.4	316° 35.7	331° 09.0	345° 42.4	0° 15.8	14° 49.2	29° 22.7	43° 56.2	58° 29.8	+33.4	14.8
		9° 25.6	9° 17.0	9° 08.4	8° 59.7	8° 50.9	8° 42.2	8° 33.4	8° 24.6	8° 15.7	8° 06.8	7° 57.9	-8.8	54.4
	Вт 18	276° 56.9	291° 30.9	306° 05.0	320° 39.1	335° 13.2	349° 47.3	4° 21.4	18° 55.6	33° 29.8	48° 04.0	62° 38.3	+34.1	14.8
		5° 41.1	5° 31.8	5° 22.5	5° 13.2	5° 03.8	4° 54.5	4° 45.1	4° 35.7	4° 26.2	4° 16.8	4° 07.4	-9.4	54.1
	Ср 19	281° 13.8	295° 48.3	310° 22.7	324° 57.2	339° 31.7	354° 06.2	8° 40.7	23° 15.2	37° 49.8	52° 24.3	66° 58.8	+34.5	14.7
		1° 44.4	1° 34.8	1° 25.2	1° 15.6	1° 06.0	0° 56.4	0° 46.8	0° 37.2	0° 27.6	0° 18.0	0° 08.3	-9.6	54.0
	Чт 20	285° 36.6	300° 11.0	314° 45.5	329° 20.0	343° 54.4	358° 28.9	13° 03.3	27° 37.7	42° 12.1	56° 46.5	71° 20.9	+34.4	14.8
		-2° 15.5	-2° 25.0	-2° 34.5	-2° 44.1	-2° 53.6	-3° 03.1	-3° 12.6	-3° 22.0	-3° 31.5	-3° 41.0	-3° 50.4	-9.5	54.1
	Пт 21	300° 11.0	314° 45.5	329° 20.0	343° 54.4	358° 28.9	13° 03.3	27° 37.7	42° 12.1	56° 46.5	71° 20.9	85° 55.2	+34.4	14.8
		-2° 25.0	-2° 34.5	-2° 44.1	-2° 53.6	-3° 03.1	-3° 12.6	-3° 22.0	-3° 31.5	-3° 41.0	-3° 50.4	-3° 59.8	-9.5	54.1
	Сб 22	304° 28.2	319° 02.2	333° 36.2	348° 10.2	2° 44.1	17° 18.0	31° 51.9	46° 25.7	60° 59.5	75° 33.2	90° 07.0	+33.9	14.8
		-6° 19.2	-6° 28.3	-6° 37.4	-6° 46.5	-6° 55.5	-7° 04.6	-7° 13.6	-7° 22.6	-7° 31.5	-7° 40.5	-7° 49.4	-9.0	54.3
◑	Вс 23	308° 28.4	323° 01.5	337° 34.6	352° 07.6	6° 40.6	21° 13.5	35° 46.3	50° 19.2	64° 51.9	79° 24.6	93° 57.3	+32.9	14.9
		-9° 59.2	-10° 07.5	-10° 15.9	-10° 24.2	-10° 32.5	-10° 40.7	-10° 48.9	-10° 57.0	-11° 05.1	-11° 13.2	-11° 21.2	-8.2	54.8
	Пн 24	312° 00.8	326° 32.6	341° 04.3	355° 36.0	10° 07.6	24° 39.1	39° 10.6	53° 42.0	68° 13.3	82° 44.6	97° 15.8	+31.5	15.1
		-13° 15.8	-13° 23.0	-13° 30.2	-13° 37.3	-13° 44.4	-13° 51.4	-13° 58.3	-14° 05.2	-14° 12.1	-14° 18.8	-14° 25.6	-7.0	55.4
	Вт 25	314° 56.2	329° 26.3	343° 56.4	358° 26.4	12° 56.4	27° 26.2	41° 56.0	56° 25.8	70° 55.4	85° 25.0	99° 54.5	+29.8	15.3
		-15° 58.4	-16° 04.1	-16° 09.6	-16° 15.1	-16° 20.5	-16° 25.9	-16° 31.1	-16° 36.3	-16° 41.4	-16° 46.4	-16° 51.4	-5.3	56.1
	Ср 26	317° 08.8	331° 37.2	346° 05.6	0° 33.8	15° 02.0	29° 30.1	43° 58.2	58° 26.2	72° 54.1	87° 21.9	101° 49.7	+28.1	15.5
		-17° 55.2	-17° 58.8	-18° 02.2	-18° 05.6	-18° 08.8	-18° 12.0	-18° 15.1	-18° 18.0	-18° 20.9	-18° 23.6	-18° 26.3	-3.1	57.0
	Чт 27	318° 38.7	333° 05.5	347° 32.2	1° 58.9	16° 25.5	30° 52.1	45° 18.6	59° 45.0	74° 11.4	88° 37.8	103° 04.1	+26.5	15.8
		-18° 53.7	-18° 54.7	-18° 55.5	-18° 56.2	-18° 56.9	-18° 57.4	-18° 57.8	-18° 58.0	-18° 58.2	-18° 58.2	-18° 58.2	-0.4	58.0
	Пт 28	319° 33.0	333° 58.6	348° 24.2	2° 49.7	17° 15.2	31° 40.7	46° 06.1	60° 31.6	74° 56.9	89° 22.3	103° 47.6	+25.5	16.1
		-18° 42.8	-18° 40.8	-18° 38.7	-18° 36.5	-18° 34.1	-18° 31.7	-18° 29.0	-18° 26.3	-18° 23.5	-18° 20.5	-18° 17.4	+2.5	58.9
	Сб 29	320° 05.3	334° 30.4	348° 55.4	3° 20.5	17° 45.5	32° 10.6	46° 35.6	61° 00.6	75° 25.7	89° 50.7	104° 15.8	+25.0	16.3
		-17° 16.2	-17° 11.2	-17° 06.0	-17° 00.7	-16° 55.3	-16° 49.8	-16° 44.1	-16° 38.4	-16° 32.5	-16° 26.5	-16° 20.4	+5.6	59.7
●	Вс 30	320° 32.1	334° 57.3	349° 22.5	3° 47.7	18° 13.0	32° 38.2	47° 03.5	61° 28.8	75° 54.1	90° 19.4	104° 44.8	+25.3	16.5
		-14° 35.1	-14° 27.2	-14° 19.3	-14° 11.2	-14° 03.0	-13° 54.7	-13° 46.3	-13° 37.8	-13° 29.2	-13° 20.6	-13° 11.8	+8.3	60.4
	Пн 31	321° 07.9	335° 33.7	349° 59.5	4° 25.3	18° 51.1	33° 17.0	47° 42.9	62° 08.9	76° 34.8	91° 00.8	105° 26.8	+25.9	16.6
		-10° 49.6	-10° 39.4	-10° 29.2	-10° 18.9	-10° 08.6	-9° 58.2	-9° 47.7	-9° 37.1	-9° 26.5	-9° 15.8	-9° 05.1	+10.5	60.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 1 10h17 — Первая четв.: 8 03h34 — Полнолуние: 15 13h07 — Последняя четв.: 23 17h45 — Новолуние: 30 21h59

СОЛНЦЕ

Февраль 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	266° 36.9 -16° 59.8	281° 36.8 -16° 59.1	296° 36.7 -16° 58.4	311° 36.6 -16° 57.6	326° 36.6 -16° 56.9	341° 36.5 -16° 56.2	356° 36.4 -16° 55.5	11° 36.3 -16° 54.8	26° 36.2 -16° 54.1	41° 36.1 -16° 53.3	56° 36.1 -16° 52.6	71° 36.0 -16° 51.9	-0.1 +0.7
Ср 2	266° 35.0 -16° 42.5	281° 34.9 -16° 41.7	296° 34.8 -16° 41.0	311° 34.8 -16° 40.3	326° 34.7 -16° 39.6	341° 34.6 -16° 38.8	356° 34.6 -16° 38.1	11° 34.5 -16° 37.4	26° 34.4 -16° 36.6	41° 34.3 -16° 35.9	56° 34.3 -16° 35.2	71° 34.2 -16° 34.4	-0.1 +0.7
Чт 3	266° 33.3 -16° 24.9	281° 33.3 -16° 24.1	296° 33.2 -16° 23.4	311° 33.1 -16° 22.6	326° 33.1 -16° 21.9	341° 33.0 -16° 21.2	356° 32.9 -16° 20.4	11° 32.9 -16° 19.7	26° 32.8 -16° 18.9	41° 32.7 -16° 18.2	56° 32.7 -16° 17.4	71° 32.6 -16° 16.7	-0.1 +0.7
Пт 4	266° 31.8 -16° 07.0	281° 31.8 -16° 06.2	296° 31.7 -16° 05.5	311° 31.7 -16° 04.7	326° 31.6 -16° 03.9	341° 31.6 -16° 03.2	356° 31.5 -16° 02.4	11° 31.5 -16° 01.7	26° 31.4 -16° 00.9	41° 31.3 -16° 00.2	56° 31.3 -15° 59.4	71° 31.2 -15° 58.7	-0.1 +0.8
Сб 5	266° 30.6 -15° 48.8	281° 30.5 -15° 48.0	296° 30.5 -15° 47.3	311° 30.4 -15° 46.5	326° 30.4 -15° 45.7	341° 30.3 -15° 45.0	356° 30.3 -15° 44.2	11° 30.3 -15° 43.4	26° 30.2 -15° 42.7	41° 30.2 -15° 41.9	56° 30.1 -15° 41.1	71° 30.1 -15° 40.4	-0.0 +0.8
Вс 6	266° 29.5 -15° 30.3	281° 29.5 -15° 29.6	296° 29.4 -15° 28.8	311° 29.4 -15° 28.0	326° 29.4 -15° 27.2	341° 29.3 -15° 26.5	356° 29.3 -15° 25.7	11° 29.3 -15° 24.9	26° 29.2 -15° 24.1	41° 29.2 -15° 23.4	56° 29.1 -15° 22.6	71° 29.1 -15° 21.8	-0.0 +0.8
Пн 7	266° 28.7 -15° 11.6	281° 28.6 -15° 10.8	296° 28.6 -15° 10.1	311° 28.6 -15° 09.3	326° 28.5 -15° 08.5	341° 28.5 -15° 07.7	356° 28.5 -15° 06.9	11° 28.5 -15° 06.1	26° 28.4 -15° 05.3	41° 28.4 -15° 04.5	56° 28.4 -15° 03.8	71° 28.3 -15° 03.0	-0.0 +0.8
Вт 8	266° 28.0 -14° 52.7	281° 28.0 -14° 51.9	296° 28.0 -14° 51.1	311° 28.0 -14° 50.3	326° 27.9 -14° 49.5	341° 27.9 -14° 48.7	356° 27.9 -14° 47.9	11° 27.9 -14° 47.1	26° 27.8 -14° 46.3	41° 27.8 -14° 45.5	56° 27.8 -14° 44.7	71° 27.8 -14° 43.9	-0.0 +0.8
Ср 9	266° 27.6 -14° 33.4	281° 27.6 -14° 32.6	296° 27.5 -14° 31.8	311° 27.5 -14° 31.0	326° 27.5 -14° 30.2	341° 27.5 -14° 29.4	356° 27.5 -14° 28.6	11° 27.5 -14° 27.8	26° 27.5 -14° 27.0	41° 27.5 -14° 26.2	56° 27.4 -14° 25.4	71° 27.4 -14° 24.6	-0.0 +0.8
Чт 10	266° 27.3 -14° 14.0	281° 27.3 -14° 13.2	296° 27.3 -14° 12.4	311° 27.3 -14° 11.5	326° 27.3 -14° 10.7	341° 27.3 -14° 09.9	356° 27.3 -14° 09.1	11° 27.3 -14° 08.3	26° 27.3 -14° 07.5	41° 27.3 -14° 06.6	56° 27.3 -14° 05.8	71° 27.3 -14° 05.0	-0.0 +0.8
Пт 11	266° 27.3 -13° 54.3	281° 27.3 -13° 53.5	296° 27.3 -13° 52.6	311° 27.3 -13° 51.8	326° 27.3 -13° 51.0	341° 27.3 -13° 50.2	356° 27.3 -13° 49.3	11° 27.3 -13° 48.5	26° 27.3 -13° 47.7	41° 27.3 -13° 46.9	56° 27.3 -13° 46.0	71° 27.3 -13° 45.2	+0.0 +0.8
Сб 12	266° 27.4 -13° 34.4	281° 27.4 -13° 33.5	296° 27.4 -13° 32.7	311° 27.4 -13° 31.9	326° 27.5 -13° 31.0	341° 27.5 -13° 30.2	356° 27.5 -13° 29.4	11° 27.5 -13° 28.5	26° 27.5 -13° 27.7	41° 27.5 -13° 26.8	56° 27.5 -13° 26.0	71° 27.5 -13° 25.2	+0.0 +0.8
Вс 13	266° 27.7 -13° 14.2	281° 27.8 -13° 13.4	296° 27.8 -13° 12.5	311° 27.8 -13° 11.7	326° 27.8 -13° 10.9	341° 27.8 -13° 10.0	356° 27.9 -13° 09.2	11° 27.9 -13° 08.3	26° 27.9 -13° 07.5	41° 27.9 -13° 06.6	56° 27.9 -13° 05.8	71° 28.0 -13° 04.9	+0.0 +0.8
Пн 14	266° 28.3 -12° 53.9	281° 28.3 -12° 53.0	296° 28.3 -12° 52.2	311° 28.3 -12° 51.3	326° 28.4 -12° 50.5	341° 28.4 -12° 49.6	356° 28.4 -12° 48.7	11° 28.4 -12° 47.9	26° 28.5 -12° 47.0	41° 28.5 -12° 46.2	56° 28.5 -12° 45.3	71° 28.6 -12° 44.5	+0.0 +0.9
Вт 15	266° 29.0 -12° 33.3	281° 29.0 -12° 32.4	296° 29.0 -12° 31.6	311° 29.1 -12° 30.7	326° 29.1 -12° 29.9	341° 29.1 -12° 29.0	356° 29.2 -12° 28.1	11° 29.2 -12° 27.3	26° 29.2 -12° 26.4	41° 29.3 -12° 25.5	56° 29.3 -12° 24.7	71° 29.3 -12° 23.8	+0.0 +0.9
Ср 16	266° 29.8 -12° 12.5	281° 29.9 -12° 11.7	296° 29.9 -12° 10.8	311° 30.0 -12° 09.9	326° 30.0 -12° 09.0	341° 30.0 -12° 08.2	356° 30.1 -12° 07.3	11° 30.1 -12° 06.4	26° 30.2 -12° 05.6	41° 30.2 -12° 04.7	56° 30.3 -12° 03.8	71° 30.3 -12° 02.9	+0.0 +0.9
Чт 17	266° 30.9 -11° 51.6	281° 30.9 -11° 50.7	296° 31.0 -11° 49.8	311° 31.0 -11° 48.9	326° 31.1 -11° 48.0	341° 31.1 -11° 47.2	356° 31.2 -11° 46.3	11° 31.2 -11° 45.4	26° 31.3 -11° 44.5	41° 31.3 -11° 43.7	56° 31.4 -11° 42.8	71° 31.4 -11° 41.9	+0.0 +0.9
Пт 18	266° 32.1 -11° 30.4	281° 32.2 -11° 29.5	296° 32.2 -11° 28.6	311° 32.3 -11° 27.7	326° 32.3 -11° 26.9	341° 32.4 -11° 26.0	356° 32.4 -11° 25.1	11° 32.5 -11° 24.2	26° 32.6 -11° 23.3	41° 32.6 -11° 22.4	56° 32.7 -11° 21.5	71° 32.7 -11° 20.6	+0.1 +0.9
Сб 19	266° 33.5 -11° 09.1	281° 33.6 -11° 08.2	296° 33.6 -11° 07.3	311° 33.7 -11° 06.4	326° 33.8 -11° 05.5	341° 33.8 -11° 04.6	356° 33.9 -11° 03.7	11° 33.9 -11° 02.8	26° 34.0 -11° 01.9	41° 34.1 -11° 01.0	56° 34.1 -11° 00.1	71° 34.2 -10° 59.2	+0.1 +0.9
Вс 20	266° 35.1 -10° 47.6	281° 35.1 -10° 46.7	296° 35.2 -10° 45.8	311° 35.3 -10° 44.9	326° 35.3 -10° 44.0	341° 35.4 -10° 43.0	356° 35.5 -10° 42.1	11° 35.5 -10° 41.2	26° 35.6 -10° 40.3	41° 35.7 -10° 39.4	56° 35.8 -10° 38.5	71° 35.8 -10° 37.6	+0.1 +0.9
Пн 21	266° 36.8 -10° 25.9	281° 36.8 -10° 25.0	296° 36.9 -10° 24.1	311° 37.0 -10° 23.1	326° 37.1 -10° 22.2	341° 37.1 -10° 21.3	356° 37.2 -10° 20.4	11° 37.3 -10° 19.5	26° 37.4 -10° 18.6	41° 37.5 -10° 17.7	56° 37.5 -10° 16.8	71° 37.6 -10° 15.9	+0.1 +0.9
Вт 22	266° 38.6 -10° 04.0	281° 38.7 -10° 03.1	296° 38.8 -10° 02.2	311° 38.9 -10° 01.3	326° 39.0 -10° 00.4	341° 39.0 -9° 59.5	356° 39.1 -9° 58.5	11° 39.2 -9° 57.6	26° 39.3 -9° 56.7	41° 39.4 -9° 55.8	56° 39.5 -9° 54.9	71° 39.5 -9° 54.0	+0.1 +0.9
Ср 23	266° 40.7 -9° 42.0	281° 40.7 -9° 41.1	296° 40.8 -9° 40.2	311° 40.9 -9° 39.3	326° 41.0 -9° 38.3	341° 41.1 -9° 37.4	356° 41.2 -9° 36.5	11° 41.3 -9° 35.6	26° 41.4 -9° 34.7	41° 41.5 -9° 33.7	56° 41.5 -9° 32.8	71° 41.6 -9° 31.9	+0.1 +0.9
Чт 24	266° 42.8 -9° 19.9	281° 42.9 -9° 18.9	296° 43.0 -9° 18.0	311° 43.1 -9° 17.1	326° 43.2 -9° 16.2	341° 43.3 -9° 15.2	356° 43.4 -9° 14.3	11° 43.5 -9° 13.4	26° 43.6 -9° 12.5	41° 43.7 -9° 11.5	56° 43.8 -9° 10.6	71° 43.9 -9° 09.7	+0.1 +0.9
Пт 25	266° 45.1 -8° 57.6	281° 45.2 -8° 56.6	296° 45.3 -8° 55.7	311° 45.4 -8° 54.8	326° 45.5 -8° 53.9	341° 45.6 -8° 52.9	356° 45.7 -8° 52.0	11° 45.8 -8° 51.1	26° 45.9 -8° 50.1	41° 46.0 -8° 49.2	56° 46.1 -8° 48.3	71° 46.2 -8° 47.3	+0.1 +0.9
Сб 26	266° 47.6 -8° 35.2	281° 47.7 -8° 34.2	296° 47.8 -8° 33.3	311° 47.9 -8° 32.3	326° 48.0 -8° 31.4	341° 48.1 -8° 30.5	356° 48.2 -8° 29.5	11° 48.3 -8° 28.6	26° 48.4 -8° 27.6	41° 48.5 -8° 26.7	56° 48.6 -8° 25.8	71° 48.7 -8° 24.8	+0.1 +0.9
Вс 27	266° 50.2 -8° 12.6	281° 50.3 -8° 11.7	296° 50.4 -8° 10.7	311° 50.5 -8° 09.8	326° 50.6 -8° 08.8	341° 50.7 -8° 07.9	356° 50.8 -8° 06.9	11° 50.9 -8° 06.0	26° 51.0 -8° 05.1	41° 51.2 -8° 04.1	56° 51.3 -8° 03.2	71° 51.4 -8° 02.2	+0.1 +0.9
Пн 28	266° 52.9 -7° 49.9	281° 53.0 -7° 49.0	296° 53.1 -7° 48.0	311° 53.2 -7° 47.1	326° 53.3 -7° 46.1	341° 53.5 -7° 45.2	356° 53.6 -7° 44.2	11° 53.7 -7° 43.3	26° 53.8 -7° 42.3	41° 53.9 -7° 41.4	56° 54.0 -7° 40.4	71° 54.2 -7° 39.5	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2033

Д	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	R/p
Вт 1	249° 48.8 -7° 14.4	264° 15.2 -7° 03.1	278° 41.5 -6° 51.7	293° 08.0 -6° 40.2	307° 34.4 -6° 28.8	322° 00.9 -6° 17.2	336° 27.4 -6° 05.7	350° 54.0 -5° 54.1	5° 20.6 -5° 42.5	19° 47.2 -5° 30.8	34° 13.8 -5° 19.1	+26.5 +11.5	16.6 60.8
Ср 2	250° 56.8 -2° 20.6	265° 23.9 -2° 08.6	279° 51.0 -1° 56.6	294° 18.1 -1° 44.5	308° 45.2 -1° 32.5	323° 12.4 -1° 20.4	337° 39.6 -1° 08.4	352° 06.9 -0° 56.3	6° 34.1 -0° 44.3	21° 01.4 -0° 32.2	35° 28.7 -0° 20.2	+27.2 +12.1	16.5 60.6
Чт 3	252° 20.5 2° 39.1	266° 48.1 2° 50.9	281° 15.7 3° 02.6	295° 43.3 3° 14.4	310° 11.0 3° 26.1	324° 38.6 3° 37.8	339° 06.3 3° 49.4	353° 34.0 4° 01.0	8° 01.7 4° 12.6	22° 29.4 4° 24.1	36° 57.1 4° 35.6	+27.7 +11.7	16.4 60.2
Пт 4	253° 54.1 7° 23.0	268° 21.9 7° 33.7	282° 49.8 7° 44.4	297° 17.7 7° 55.0	311° 45.6 8° 05.6	326° 13.4 8° 16.2	340° 41.3 8° 26.6	355° 09.2 8° 37.0	9° 37.1 8° 47.4	24° 05.0 8° 57.6	38° 32.9 9° 07.8	+27.9 +10.5	16.2 59.5
Сб 5	255° 31.6 11° 32.7	269° 59.5 11° 41.7	284° 27.4 11° 50.7	298° 55.3 11° 59.6	313° 23.2 12° 08.5	327° 51.2 12° 17.2	342° 19.1 12° 25.9	356° 47.0 12° 34.4	11° 14.9 12° 42.9	25° 42.8 12° 51.3	40° 10.7 12° 59.7	+27.9 +8.7	16.0 58.8
◐ Вс 6	257° 09.3 14° 54.0	271° 37.2 15° 00.9	286° 05.1 15° 07.7	300° 33.0 15° 14.4	315° 00.9 15° 21.0	329° 28.8 15° 27.5	343° 56.7 15° 33.9	358° 24.6 15° 40.3	12° 52.5 15° 46.5	27° 20.4 15° 52.6	41° 48.3 15° 58.6	+27.9 +6.5	15.8 58.0
Пн 7	258° 47.3 17° 17.1	273° 15.2 17° 21.5	287° 43.2 17° 25.8	302° 11.2 17° 30.0	316° 39.2 17° 34.2	331° 07.2 17° 38.2	345° 35.2 17° 42.1	0° 03.2 17° 45.9	14° 31.2 17° 49.6	28° 59.2 17° 53.2	43° 27.3 17° 56.6	+28.0 +4.0	15.6 57.2
Вт 8	260° 29.4 18° 36.4	274° 57.7 18° 38.2	289° 26.0 18° 40.0	303° 54.3 18° 41.6	318° 22.6 18° 43.1	332° 50.9 18° 44.5	347° 19.3 18° 45.8	1° 47.7 18° 47.0	16° 16.1 18° 48.1	30° 44.5 18° 49.0	45° 13.0 18° 49.9	+28.4 +1.3	15.4 56.6
Ср 9	262° 22.6 18° 50.9	276° 51.5 18° 50.1	291° 20.4 18° 49.3	305° 49.3 18° 48.3	320° 18.3 18° 47.3	334° 47.3 18° 46.1	349° 16.3 18° 44.9	3° 45.3 18° 43.6	18° 14.4 18° 42.1	32° 43.6 18° 40.6	47° 12.7 18° 39.0	+29.0 -1.2	15.3 55.9
Чт 10	264° 34.4 18° 03.3	279° 04.2 18° 00.2	293° 33.9 17° 56.9	308° 03.8 17° 53.7	322° 33.7 17° 50.3	337° 03.6 17° 46.8	351° 33.5 17° 43.3	6° 03.5 17° 39.6	20° 33.6 17° 35.9	35° 03.6 17° 32.1	49° 33.8 17° 28.2	+29.9 -3.5	15.1 55.4
Пт 11	267° 10.8 16° 19.9	281° 41.7 16° 14.7	296° 12.5 16° 09.5	310° 43.5 16° 04.1	325° 14.4 15° 58.7	339° 45.4 15° 53.3	354° 16.5 15° 47.7	8° 47.6 15° 42.1	23° 18.7 15° 36.4	37° 49.9 15° 30.7	52° 21.1 15° 24.8	+31.0 -5.5	15.0 55.0
Сб 12	270° 15.0 13° 49.4	284° 46.9 13° 42.6	299° 18.9 13° 35.6	313° 50.9 13° 28.7	328° 23.0 13° 21.6	342° 55.1 13° 14.5	357° 27.3 13° 07.4	11° 59.5 13° 00.2	26° 31.7 12° 52.9	41° 04.0 12° 45.6	55° 36.3 12° 38.3	+32.1 -7.1	14.9 54.6
Вс 13	273° 46.1 10° 41.8	288° 19.1 10° 33.7	302° 52.1 10° 25.5	317° 25.1 10° 17.3	331° 58.2 10° 09.0	346° 31.3 10° 00.7	1° 04.4 9° 52.4	15° 37.6 9° 44.0	30° 10.8 9° 35.6	44° 44.1 9° 27.2	59° 17.4 9° 18.7	+33.1 -8.3	14.8 54.3
○ Пн 14	277° 40.4 7° 07.4	292° 14.2 6° 58.5	306° 48.0 6° 49.5	321° 21.8 6° 40.4	335° 55.7 6° 31.4	350° 29.5 6° 22.3	5° 03.5 6° 13.2	19° 37.4 6° 04.0	34° 11.3 5° 54.9	48° 45.3 5° 45.7	63° 19.3 5° 36.5	+33.9 -9.1	14.8 54.1
Вт 15	281° 51.6 3° 16.5	296° 25.9 3° 07.1	311° 00.2 2° 57.6	325° 34.5 2° 48.2	340° 08.9 2° 38.7	354° 43.2 2° 29.2	9° 17.5 2° 19.7	23° 51.9 2° 10.2	38° 26.3 2° 00.7	53° 00.7 1° 51.2	67° 35.1 1° 41.7	+34.3 -9.5	14.7 54.0
Ср 16	286° 11.7 -0° 41.3	300° 46.2 -0° 50.8	315° 20.6 -1° 00.3	329° 55.1 -1° 09.8	344° 29.5 -1° 19.3	359° 04.0 -1° 28.8	13° 38.5 -1° 38.3	28° 12.9 -1° 47.8	42° 47.4 -1° 57.3	57° 21.8 -2° 06.8	71° 56.2 -2° 16.3	+34.5 -9.5	14.7 53.9
Чт 17	290° 31.7 -4° 36.8	305° 06.0 -4° 46.0	319° 40.2 -4° 55.2	334° 14.5 -5° 04.5	348° 48.7 -5° 13.6	3° 22.9 -5° 22.8	17° 57.1 -5° 32.0	32° 31.2 -5° 41.1	47° 05.4 -5° 50.2	61° 39.5 -5° 59.3	76° 13.6 -6° 08.3	+34.2 -9.2	14.7 54.0
Пт 18	294° 42.3 -8° 21.1	309° 16.0 -8° 29.7	323° 49.6 -8° 38.3	338° 23.3 -8° 46.8	352° 56.9 -8° 55.3	7° 30.4 -9° 03.8	22° 04.0 -9° 12.3	36° 37.5 -9° 20.7	51° 10.9 -9° 29.0	65° 44.4 -9° 37.4	80° 17.8 -9° 45.7	+33.5 -8.5	14.8 54.3
Сб 19	309° 16.0 -8° 29.7	323° 49.6 -8° 38.3	338° 23.3 -8° 46.8	352° 56.9 -8° 55.3	7° 30.4 -9° 03.8	22° 04.0 -9° 12.3	36° 37.5 -9° 20.7	51° 10.9 -9° 29.0	65° 44.4 -9° 37.4	80° 17.8 -9° 45.7	94° 51.1 -9° 53.9	+33.5 -8.4	14.8 54.3
Вс 20	313° 06.8 -11° 52.9	327° 39.6 -12° 00.5	342° 12.2 -12° 08.0	356° 44.8 -12° 15.5	11° 17.4 -12° 22.9	25° 50.0 -12° 30.2	40° 22.4 -12° 37.6	54° 54.9 -12° 44.8	69° 27.3 -12° 52.1	83° 59.6 -12° 59.2	98° 31.9 -13° 06.3	+32.5 -7.3	14.9 54.7
Пн 21	316° 30.2 -14° 46.2	331° 01.7 -14° 52.4	345° 33.1 -14° 58.5	0° 04.4 -15° 04.5	14° 35.7 -15° 10.5	29° 06.9 -15° 16.4	43° 38.1 -15° 22.2	58° 09.2 -15° 28.0	72° 40.3 -15° 33.7	87° 11.3 -15° 39.3	101° 42.3 -15° 44.9	+31.2 -5.9	15.1 55.2
◑ Вт 22	319° 19.6 -16° 59.5	333° 49.6 -17° 03.9	348° 19.5 -17° 08.2	2° 49.4 -17° 12.4	17° 19.2 -17° 16.5	31° 49.0 -17° 20.5	46° 18.7 -17° 24.4	60° 48.3 -17° 28.3	75° 17.9 -17° 32.1	89° 47.5 -17° 35.7	104° 16.9 -17° 39.3	+29.7 -4.0	15.2 55.9
Ср 23	321° 31.8 -18° 22.4	336° 00.3 -18° 24.5	350° 28.7 -18° 26.6	4° 57.2 -18° 28.5	19° 25.5 -18° 30.3	33° 53.8 -18° 32.0	48° 22.0 -18° 33.6	62° 50.2 -18° 35.2	77° 18.3 -18° 36.6	91° 46.4 -18° 37.9	106° 14.4 -18° 39.1	+28.3 -1.7	15.5 56.8
Чт 24	323° 08.3 -18° 44.7	337° 35.5 -18° 44.2	352° 02.6 -18° 43.6	6° 29.7 -18° 42.8	20° 56.8 -18° 42.0	35° 23.8 -18° 41.1	49° 50.8 -18° 40.0	64° 17.7 -18° 38.9	78° 44.6 -18° 37.6	93° 11.4 -18° 36.2	107° 38.2 -18° 34.7	+27.0 +1.0	15.7 57.7
Пт 25	324° 15.7 -17° 58.3	338° 41.9 -17° 54.9	353° 08.1 -17° 51.4	7° 34.2 -17° 47.8	22° 00.4 -17° 44.1	36° 26.5 -17° 40.3	50° 52.6 -17° 36.4	65° 18.7 -17° 32.3	79° 44.7 -17° 28.1	94° 10.7 -17° 23.8	108° 36.7 -17° 19.4	+26.1 +3.9	16.0 58.7
Сб 26	325° 04.3 -15° 59.5	339° 30.0 -15° 53.3	353° 55.7 -15° 46.9	8° 21.4 -15° 40.5	22° 47.1 -15° 33.9	37° 12.8 -15° 27.2	51° 38.5 -15° 20.4	66° 04.1 -15° 13.5	80° 29.8 -15° 06.5	94° 55.4 -14° 59.4	109° 21.1 -14° 52.2	+25.7 +6.7	16.3 59.7
Вс 27	325° 45.6 -12° 51.5	340° 11.3 -12° 42.6	354° 36.9 -12° 33.7	9° 02.6 -12° 24.7	23° 28.2 -12° 15.5	37° 53.9 -12° 06.3	52° 19.5 -11° 57.0	66° 45.2 -11° 47.6	81° 10.9 -11° 38.2	95° 36.6 -11° 28.6	110° 02.3 -11° 19.0	+25.7 +9.3	16.5 60.5
Пн 28	326° 28.8 -8° 44.9	340° 54.7 -8° 34.0	355° 20.5 -8° 23.1	9° 46.4 -8° 12.1	24° 12.3 -8° 01.1	38° 38.2 -7° 50.0	53° 04.1 -7° 38.8	67° 30.0 -7° 27.6	81° 56.0 -7° 16.4	96° 21.9 -7° 05.0	110° 47.9 -6° 53.7	+25.9 +11.1	16.7 61.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24
Первая четв.: 6 13h34 — Полнолуние: 14 07h04 — Последняя четв.: 22 11h53

СОЛНЦЕ

Март 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	266° 55.7	281° 55.8	296° 56.0	311° 56.1	326° 56.2	341° 56.3	356° 56.4	11° 56.6	26° 56.7	41° 56.8	56° 56.9	71° 57.1	+0.1
	-7° 27.1	-7° 26.2	-7° 25.2	-7° 24.3	-7° 23.3	-7° 22.4	-7° 21.4	-7° 20.5	-7° 19.5	-7° 18.6	-7° 17.6	-7° 16.7	+1.0
Ср 2	266° 58.7	281° 58.8	296° 58.9	311° 59.1	326° 59.2	341° 59.3	356° 59.4	11° 59.6	26° 59.7	41° 59.8	57° 00.0	72° 00.1	+0.1
	-7° 04.2	-7° 03.3	-7° 02.3	-7° 01.4	-7° 00.4	-6° 59.5	-6° 58.5	-6° 57.5	-6° 56.6	-6° 55.6	-6° 54.7	-6° 53.7	+1.0
Чт 3	267° 01.8	282° 01.9	297° 02.0	312° 02.2	327° 02.3	342° 02.4	357° 02.6	12° 02.7	27° 02.8	42° 03.0	57° 03.1	72° 03.2	+0.1
	-6° 41.2	-6° 40.3	-6° 39.3	-6° 38.4	-6° 37.4	-6° 36.4	-6° 35.5	-6° 34.5	-6° 33.6	-6° 32.6	-6° 31.6	-6° 30.7	+1.0
Пт 4	267° 05.0	282° 05.1	297° 05.2	312° 05.4	327° 05.5	342° 05.7	357° 05.8	12° 05.9	27° 06.1	42° 06.2	57° 06.3	72° 06.5	+0.1
	-6° 18.2	-6° 17.2	-6° 16.2	-6° 15.3	-6° 14.3	-6° 13.3	-6° 12.4	-6° 11.4	-6° 10.4	-6° 09.5	-6° 08.5	-6° 07.5	+1.0
Сб 5	267° 08.3	282° 08.4	297° 08.6	312° 08.7	327° 08.9	342° 09.0	357° 09.1	12° 09.3	27° 09.4	42° 09.6	57° 09.7	72° 09.9	+0.1
	-5° 55.0	-5° 54.0	-5° 53.0	-5° 52.1	-5° 51.1	-5° 50.1	-5° 49.2	-5° 48.2	-5° 47.2	-5° 46.3	-5° 45.3	-5° 44.3	+1.0
Вс 6	267° 11.7	282° 11.9	297° 12.0	312° 12.2	327° 12.3	342° 12.5	357° 12.6	12° 12.7	27° 12.9	42° 13.0	57° 13.2	72° 13.3	+0.1
	-5° 31.7	-5° 30.8	-5° 29.8	-5° 28.8	-5° 27.8	-5° 26.9	-5° 25.9	-5° 24.9	-5° 24.0	-5° 23.0	-5° 22.0	-5° 21.0	+1.0
Пн 7	267° 15.3	282° 15.4	297° 15.6	312° 15.7	327° 15.9	342° 16.0	357° 16.2	12° 16.3	27° 16.5	42° 16.6	57° 16.8	72° 16.9	+0.2
	-5° 08.4	-5° 07.4	-5° 06.5	-5° 05.5	-5° 04.5	-5° 03.5	-5° 02.6	-5° 01.6	-5° 00.6	-4° 59.6	-4° 58.7	-4° 57.7	+1.0
Вт 8	267° 18.9	282° 19.1	297° 19.2	312° 19.4	327° 19.5	342° 19.7	357° 19.8	12° 20.0	27° 20.1	42° 20.3	57° 20.4	72° 20.6	+0.2
	-4° 45.0	-4° 44.0	-4° 43.1	-4° 42.1	-4° 41.1	-4° 40.1	-4° 39.1	-4° 38.2	-4° 37.2	-4° 36.2	-4° 35.2	-4° 34.3	+1.0
Ср 9	267° 22.6	282° 22.8	297° 23.0	312° 23.1	327° 23.3	342° 23.4	357° 23.6	12° 23.7	27° 23.9	42° 24.1	57° 24.2	72° 24.4	+0.2
	-4° 21.6	-4° 20.6	-4° 19.6	-4° 18.6	-4° 17.6	-4° 16.7	-4° 15.7	-4° 14.7	-4° 13.7	-4° 12.7	-4° 11.8	-4° 10.8	+1.0
Чт 10	267° 26.5	282° 26.6	297° 26.8	312° 27.0	327° 27.1	342° 27.3	357° 27.4	12° 27.6	27° 27.8	42° 27.9	57° 28.1	72° 28.2	+0.2
	-3° 58.0	-3° 57.1	-3° 56.1	-3° 55.1	-3° 54.1	-3° 53.1	-3° 52.2	-3° 51.2	-3° 50.2	-3° 49.2	-3° 48.2	-3° 47.3	+1.0
Пт 11	267° 30.4	282° 30.5	297° 30.7	312° 30.9	327° 31.0	342° 31.2	357° 31.4	12° 31.5	27° 31.7	42° 31.9	57° 32.0	72° 32.2	+0.2
	-3° 34.5	-3° 33.5	-3° 32.5	-3° 31.5	-3° 30.6	-3° 29.6	-3° 28.6	-3° 27.6	-3° 26.6	-3° 25.6	-3° 24.7	-3° 23.7	+1.0
Сб 12	267° 34.4	282° 34.5	297° 34.7	312° 34.9	327° 35.0	342° 35.2	357° 35.4	12° 35.6	27° 35.7	42° 35.9	57° 36.1	72° 36.2	+0.2
	-3° 10.9	-3° 09.9	-3° 08.9	-3° 07.9	-3° 07.0	-3° 06.0	-3° 05.0	-3° 04.0	-3° 03.0	-3° 02.0	-3° 01.1	-3° 00.1	+1.0
Вс 13	267° 38.4	282° 38.6	297° 38.8	312° 39.0	327° 39.1	342° 39.3	357° 39.5	12° 39.6	27° 39.8	42° 40.0	57° 40.2	72° 40.3	+0.2
	-2° 47.3	-2° 46.3	-2° 45.3	-2° 44.3	-2° 43.3	-2° 42.3	-2° 41.4	-2° 40.4	-2° 39.4	-2° 38.4	-2° 37.4	-2° 36.4	+1.0
Пн 14	267° 42.6	282° 42.8	297° 42.9	312° 43.1	327° 43.3	342° 43.4	357° 43.6	12° 43.8	27° 44.0	42° 44.1	57° 44.3	72° 44.5	+0.2
	-2° 23.6	-2° 22.6	-2° 21.6	-2° 20.6	-2° 19.7	-2° 18.7	-2° 17.7	-2° 16.7	-2° 15.7	-2° 14.7	-2° 13.7	-2° 12.8	+1.0
Вт 15	267° 46.8	282° 47.0	297° 47.1	312° 47.3	327° 47.5	342° 47.7	357° 47.8	12° 48.0	27° 48.2	42° 48.4	57° 48.5	72° 48.7	+0.2
	-1° 59.9	-1° 58.9	-1° 57.9	-1° 57.0	-1° 56.0	-1° 55.0	-1° 54.0	-1° 53.0	-1° 52.0	-1° 51.0	-1° 50.0	-1° 49.1	+1.0
Ср 16	267° 51.0	282° 51.2	297° 51.4	312° 51.6	327° 51.8	342° 51.9	357° 52.1	12° 52.3	27° 52.5	42° 52.6	57° 52.8	72° 53.0	+0.2
	-1° 36.2	-1° 35.2	-1° 34.2	-1° 33.3	-1° 32.3	-1° 31.3	-1° 30.3	-1° 29.3	-1° 28.3	-1° 27.3	-1° 26.3	-1° 25.4	+1.0
Чт 17	267° 55.3	282° 55.5	297° 55.7	312° 55.9	327° 56.1	342° 56.2	357° 56.4	12° 56.6	27° 56.8	42° 57.0	57° 57.2	72° 57.3	+0.2
	-1° 12.5	-1° 11.5	-1° 10.5	-1° 09.5	-1° 08.6	-1° 07.6	-1° 06.6	-1° 05.6	-1° 04.6	-1° 03.6	-1° 02.6	-1° 01.6	+1.0
Пт 18	267° 59.7	282° 59.9	298° 00.1	313° 00.2	328° 00.4	343° 00.6	358° 00.8	13° 01.0	28° 01.2	43° 01.3	58° 01.5	73° 01.7	+0.2
	-0° 48.8	-0° 47.8	-0° 46.8	-0° 45.8	-0° 44.8	-0° 43.8	-0° 42.9	-0° 41.9	-0° 40.9	-0° 39.9	-0° 38.9	-0° 37.9	+1.0
Сб 19	268° 04.1	283° 04.3	298° 04.5	313° 04.6	328° 04.8	343° 05.0	358° 05.2	13° 05.4	28° 05.6	43° 05.7	58° 05.9	73° 06.1	+0.2
	-0° 25.1	-0° 24.1	-0° 23.1	-0° 22.1	-0° 21.1	-0° 20.1	-0° 19.1	-0° 18.2	-0° 17.2	-0° 16.2	-0° 15.2	-0° 14.2	+1.0
Вс 20	268° 08.5	283° 08.7	298° 08.9	313° 09.1	328° 09.3	343° 09.4	358° 09.6	13° 09.8	28° 10.0	43° 10.2	58° 10.4	73° 10.6	+0.2
	-0° 01.4	-0° 00.4	0° 00.6	0° 01.6	0° 02.6	0° 03.6	0° 04.6	0° 05.6	0° 06.5	0° 07.5	0° 08.5	0° 09.5	+1.0
Пн 21	268° 13.0	283° 13.2	298° 13.3	313° 13.5	328° 13.7	343° 13.9	358° 14.1	13° 14.3	28° 14.5	43° 14.7	58° 14.8	73° 15.0	+0.2
	0° 22.3	0° 23.3	0° 24.3	0° 25.3	0° 26.3	0° 27.3	0° 28.3	0° 29.3	0° 30.2	0° 31.2	0° 32.2	0° 33.2	+1.0
Вт 22	268° 17.5	283° 17.6	298° 17.8	313° 18.0	328° 18.2	343° 18.4	358° 18.6	13° 18.8	28° 19.0	43° 19.1	58° 19.3	73° 19.5	+0.2
	0° 46.0	0° 47.0	0° 48.0	0° 49.0	0° 50.0	0° 51.0	0° 51.9	0° 52.9	0° 53.9	0° 54.9	0° 55.9	0° 56.9	+1.0
Ср 23	268° 21.9	283° 22.1	298° 22.3	313° 22.5	328° 22.7	343° 22.9	358° 23.1	13° 23.3	28° 23.5	43° 23.6	58° 23.8	73° 24.0	+0.2
	1° 09.7	1° 10.7	1° 11.7	1° 12.6	1° 13.6	1° 14.6	1° 15.6	1° 16.6	1° 17.6	1° 18.6	1° 19.5	1° 20.5	+1.0
Чт 24	268° 26.5	283° 26.6	298° 26.8	313° 27.0	328° 27.2	343° 27.4	358° 27.6	13° 27.8	28° 28.0	43° 28.1	58° 28.3	73° 28.5	+0.2
	1° 33.3	1° 34.3	1° 35.3	1° 36.3	1° 37.3	1° 38.2	1° 39.2	1° 40.2	1° 41.2	1° 42.2	1° 43.2	1° 44.1	+1.0
Пт 25	268° 31.0	283° 31.2	298° 31.3	313° 31.5	328° 31.7	343° 31.9	358° 32.1	13° 32.3	28° 32.5	43° 32.7	58° 32.8	73° 33.0	+0.2
	1° 56.9	1° 57.9	1° 58.9	1° 59.9	2° 00.8	2° 01.8	2° 02.8	2° 03.8	2° 04.8	2° 05.8	2° 06.7	2° 07.7	+1.0
Сб 26	268° 35.5	283° 35.7	298° 35.9	313° 36.0	328° 36.2	343° 36.4	358° 36.6	13° 36.8	28° 37.0	43° 37.2	58° 37.4	73° 37.5	+0.2
	2° 20.5	2° 21.4	2° 22.4	2° 23.4	2° 24.4	2° 25.4	2° 26.3	2° 27.3	2° 28.3	2° 29.3	2° 30.3	2° 31.2	+1.0
Вс 27	268° 40.0	283° 40.2	298° 40.4	313° 40.6	328° 40.7	343° 40.9	358° 41.1	13° 41.3	28° 41.5	43° 41.7	58° 41.9	73° 42.1	+0.2
	2° 44.0	2° 45.0	2° 45.9	2° 46.9	2° 47.9	2° 48.9	2° 49.8	2° 50.8	2° 51.8	2° 52.8	2° 53.8	2° 54.7	+1.0
Пн 28	268° 44.5	283° 44.7	298° 44.9	313° 45.1	328° 45.2	343° 45.4	358° 45.6	13° 45.8	28° 46.0	43° 46.2	58° 46.4	73° 46.5	+0.2
	3° 07.4	3° 08.4	3° 09.4	3° 10.4	3° 11.3	3° 12.3	3° 13.3	3° 14.3	3° 15.2	3° 16.2	3° 17.2	3° 18.2	+1.0
Вт 29	268° 49.0	283° 49.2	298° 49.4	313° 49.5	328° 49.7	343° 49.9	358° 50.1	13° 50.3	28° 50.5	43° 50.7	58° 50.8	73° 51.0	+0.2
	3° 30.8	3° 31.8	3° 32.8	3° 33.7	3° 34.7	3° 35.7	3° 36.7	3° 37.6	3° 38.6	3° 39.6	3° 40.5	3° 41.5	+1.0
Ср 30	268° 53.4	283° 53.6	298° 53.8	313° 54.0	328° 54.2	343° 54.4	358° 54.6	13° 54.8	28° 54.9	43° 55.1	58° 55.3	73° 55.5	+0.2
	3° 54.1	3° 55.1	3° 56.1	3° 57.1	3° 58.0	3° 59.0	4° 00.0	4° 00.9	4° 01.9	4° 02.9	4° 03.8	4° 04.8	+1.0
Чт 31	268° 57.9	283° 58.1	298° 58.3	313° 58.5	328° 58.6	343° 58.8	358° 59.0	13° 59.2	28° 59.4	43° 59.6	58° 59.8	73° 59.9	+0.2
	4° 17.4	4° 18.4	4° 19.3	4° 20.3	4° 21.3	4° 22.2	4° 23.2	4° 24.2	4° 25.1	4° 26.1	4° 27.1	4° 28.0	+1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2033

	Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
●	Вт 1	255° 08.1	269° 34.2	284° 00.3	298° 26.5	312° 52.6	327° 18.7	341° 44.9	356° 11.0	10° 37.2	25° 03.4	39° 29.6	+26.1	16.7
		-4° 57.4	-4° 45.5	-4° 33.6	-4° 21.7	-4° 09.8	-3° 57.8	-3° 45.8	-3° 33.8	-3° 21.7	-3° 09.6	-2° 57.5	+12.0	61.3
	Ср 2	256° 03.8	270° 30.2	284° 56.6	299° 22.9	313° 49.3	328° 15.7	342° 42.1	357° 08.5	11° 34.9	26° 01.4	40° 27.8	+26.4	16.7
		0° 05.6	0° 17.8	0° 30.0	0° 42.2	0° 54.4	1° 06.6	1° 18.8	1° 31.0	1° 43.2	1° 55.3	2° 07.4	+12.2	61.2
	Чт 3	257° 04.9	271° 31.4	285° 58.0	300° 24.5	314° 51.0	329° 17.5	343° 44.1	358° 10.6	12° 37.2	27° 03.7	41° 30.3	+26.5	16.6
		5° 06.1	5° 17.7	5° 29.3	5° 40.8	5° 52.3	6° 03.8	6° 15.2	6° 26.5	6° 37.8	6° 49.1	7° 00.3	+11.4	60.8
	Пт 4	258° 08.8	272° 35.4	287° 02.0	301° 28.5	315° 55.1	330° 21.7	344° 48.3	359° 14.9	13° 41.6	28° 08.2	42° 34.8	+26.6	16.4
		9° 40.7	9° 50.9	10° 01.0	10° 11.0	10° 20.9	10° 30.8	10° 40.5	10° 50.2	10° 59.8	11° 09.4	11° 18.8	+9.8	60.1
	Сб 5	259° 14.4	273° 41.1	288° 07.8	302° 34.5	317° 01.2	331° 27.9	345° 54.6	0° 21.3	14° 48.1	29° 14.8	43° 41.5	+26.7	16.2
		13° 30.1	13° 38.1	13° 46.0	13° 53.8	14° 01.6	14° 09.2	14° 16.7	14° 24.2	14° 31.5	14° 38.7	14° 45.9	+7.6	59.3
	Вс 6	260° 24.0	274° 51.0	289° 17.9	303° 44.9	318° 11.9	332° 38.9	347° 05.9	1° 32.9	16° 00.0	30° 27.0	44° 54.1	+27.0	15.9
		16° 20.5	16° 26.0	16° 31.3	16° 36.6	16° 41.7	16° 46.7	16° 51.7	16° 56.5	17° 01.2	17° 05.8	17° 10.3	+5.0	58.3
	Пн 7	261° 43.1	276° 10.5	290° 38.0	305° 05.5	319° 33.1	334° 00.7	348° 28.3	2° 55.9	17° 23.6	31° 51.2	46° 19.0	+27.6	15.6
		18° 04.7	18° 07.4	18° 10.0	18° 12.6	18° 15.0	18° 17.3	18° 19.5	18° 21.6	18° 23.6	18° 25.5	18° 27.3	+2.3	57.4
◐	Вт 8	263° 18.9	277° 47.2	292° 15.6	306° 43.9	321° 12.3	335° 40.8	350° 09.3	4° 37.8	19° 06.4	33° 35.0	48° 03.7	+28.5	15.4
		18° 41.2	18° 41.2	18° 41.2	18° 41.1	18° 40.9	18° 40.6	18° 40.1	18° 39.6	18° 39.0	18° 38.3	18° 37.4	-0.4	56.5
	Ср 9	265° 18.8	279° 48.2	294° 17.6	308° 47.1	323° 16.6	337° 46.1	352° 15.7	6° 45.4	21° 15.1	35° 44.9	50° 14.7	+29.6	15.2
		18° 13.3	18° 11.0	18° 08.5	18° 06.0	18° 03.3	18° 00.6	17° 57.8	17° 54.9	17° 51.9	17° 48.8	17° 45.6	-2.8	55.8
	Чт 10	267° 47.6	282° 18.2	296° 48.8	311° 19.5	325° 50.2	340° 21.0	354° 51.8	9° 22.7	23° 53.6	38° 24.6	52° 55.6	+30.8	15.0
		16° 47.9	16° 43.4	16° 38.9	16° 34.2	16° 29.5	16° 24.7	16° 19.8	16° 14.9	16° 09.8	16° 04.7	15° 59.5	-4.8	55.2
	Пт 11	270° 46.8	285° 18.6	299° 50.4	314° 22.3	328° 54.2	343° 26.2	357° 58.2	12° 30.3	27° 02.4	41° 34.5	56° 06.7	+32.0	14.9
		14° 33.6	14° 27.3	14° 21.0	14° 14.6	14° 08.2	14° 01.7	13° 55.1	13° 48.5	13° 41.8	13° 35.1	13° 28.3	-6.5	54.7
	Сб 12	274° 14.6	288° 47.5	303° 20.4	317° 53.3	332° 26.2	346° 59.2	1° 32.3	16° 05.4	30° 38.5	45° 11.6	59° 44.8	+33.0	14.8
		11° 39.9	11° 32.2	11° 24.5	11° 16.8	11° 09.1	11° 01.2	10° 53.4	10° 45.5	10° 37.5	10° 29.5	10° 21.5	-7.8	54.3
	Вс 13	278° 06.3	292° 40.0	307° 13.7	321° 47.4	336° 21.2	350° 54.9	5° 28.8	20° 02.6	34° 36.4	49° 10.3	63° 44.2	+33.8	14.7
		8° 16.4	8° 07.8	7° 59.2	7° 50.5	7° 41.8	7° 33.0	7° 24.3	7° 15.5	7° 06.6	6° 57.8	6° 48.9	-8.8	54.1
	Пн 14	282° 15.2	296° 49.4	311° 23.6	325° 57.9	340° 32.1	355° 06.4	9° 40.7	24° 15.0	38° 49.3	53° 23.6	67° 57.9	+34.3	14.7
		4° 32.9	4° 23.7	4° 14.4	4° 05.2	3° 55.9	3° 46.6	3° 37.3	3° 28.0	3° 18.7	3° 09.3	3° 00.0	-9.3	53.9
	Вт 15	286° 33.6	301° 08.0	315° 42.4	330° 16.8	344° 51.2	359° 25.7	14° 00.1	28° 34.5	43° 08.9	57° 43.3	72° 17.7	+34.4	14.7
		0° 38.7	0° 29.2	0° 19.7	0° 10.3	0° 00.8	-0° 08.6	-0° 18.1	-0° 27.6	-0° 37.0	-0° 46.5	-0° 55.9	-9.5	53.9
○	Ср 16	290° 53.1	305° 27.4	320° 01.6	334° 35.9	349° 10.2	3° 44.4	18° 18.6	32° 52.8	47° 27.0	62° 01.2	76° 35.3	+34.2	14.7
		-3° 17.0	-3° 26.3	-3° 35.7	-3° 45.0	-3° 54.2	-4° 03.5	-4° 12.8	-4° 22.0	-4° 31.2	-4° 40.4	-4° 49.6	-9.3	54.0
	Чт 17	295° 05.4	309° 39.2	324° 13.0	338° 46.8	353° 20.6	7° 54.3	22° 28.0	37° 01.7	51° 35.3	66° 08.9	80° 42.5	+33.7	14.8
		-7° 04.9	-7° 13.7	-7° 22.5	-7° 31.3	-7° 40.0	-7° 48.7	-7° 57.4	-8° 06.0	-8° 14.6	-8° 23.2	-8° 31.7	-8.7	54.1
	Пт 18	299° 02.7	313° 35.7	328° 08.8	342° 41.8	357° 14.7	11° 47.7	26° 20.6	40° 53.4	55° 26.2	69° 59.0	84° 31.7	+32.9	14.8
		-10° 35.5	-10° 43.5	-10° 51.4	-10° 59.2	-11° 07.0	-11° 14.8	-11° 22.5	-11° 30.1	-11° 37.8	-11° 45.3	-11° 52.8	-7.7	54.4
	Сб 19	302° 37.9	317° 10.0	331° 42.0	346° 14.0	0° 46.0	15° 17.9	29° 49.7	44° 21.5	58° 53.3	73° 25.0	87° 56.7	+31.9	14.9
		-13° 39.4	-13° 46.1	-13° 52.7	-13° 59.2	-14° 05.7	-14° 12.1	-14° 18.5	-14° 24.8	-14° 31.0	-14° 37.2	-14° 43.3	-6.4	54.7
	Вс 20	317° 10.0	331° 42.0	346° 14.0	0° 46.0	15° 17.9	29° 49.7	44° 21.5	58° 53.3	73° 25.0	87° 56.7	102° 28.3	+31.8	14.9
		-13° 46.1	-13° 52.7	-13° 59.2	-14° 05.7	-14° 12.1	-14° 18.5	-14° 24.8	-14° 31.0	-14° 37.2	-14° 43.3	-14° 49.3	-6.3	54.7
	Пн 21	320° 17.0	334° 47.9	349° 18.7	3° 49.5	18° 20.2	32° 50.9	47° 21.5	61° 52.1	76° 22.6	90° 53.1	105° 23.5	+30.7	15.1
		-16° 11.8	-16° 16.7	-16° 21.6	-16° 26.4	-16° 31.1	-16° 35.7	-16° 40.2	-16° 44.7	-16° 49.1	-16° 53.4	-16° 57.6	-4.6	55.2
	Вт 22	322° 54.3	337° 23.9	351° 53.6	6° 23.1	20° 52.7	35° 22.2	49° 51.6	64° 21.0	78° 50.4	93° 19.7	107° 48.9	+29.5	15.2
		-17° 51.1	-17° 54.0	-17° 56.8	-17° 59.5	-18° 02.1	-18° 04.6	-18° 07.0	-18° 09.4	-18° 11.6	-18° 13.8	-18° 15.8	-2.5	55.8
	Ср 23	325° 02.6	339° 31.2	353° 59.7	8° 28.2	22° 56.7	37° 25.1	51° 53.5	66° 21.8	80° 50.1	95° 18.4	109° 46.7	+28.4	15.4
		-18° 35.2	-18° 35.7	-18° 36.1	-18° 36.4	-18° 36.6	-18° 36.7	-18° 36.7	-18° 36.6	-18° 36.4	-18° 36.1	-18° 35.6	-0.0	56.6
◑	Чт 24	326° 46.1	341° 13.9	355° 41.6	10° 09.2	24° 36.8	39° 04.4	53° 32.0	67° 59.6	82° 27.1	96° 54.6	111° 22.1	+27.6	15.7
		-18° 16.8	-18° 14.7	-18° 12.5	-18° 10.2	-18° 07.8	-18° 05.2	-18° 02.6	-17° 59.9	-17° 57.0	-17° 54.0	-17° 51.0	+2.6	57.4
	Пт 25	328° 11.6	342° 38.7	357° 05.9	11° 33.0	26° 00.1	40° 27.1	54° 54.2	69° 21.3	83° 48.3	98° 15.3	112° 42.3	+27.1	15.9
		-16° 51.9	-16° 47.1	-16° 42.2	-16° 37.2	-16° 32.1	-16° 26.9	-16° 21.6	-16° 16.1	-16° 10.6	-16° 05.0	-15° 59.2	+5.3	58.4
	Сб 26	329° 26.2	343° 53.0	358° 19.8	12° 46.7	27° 13.5	41° 40.3	56° 07.1	70° 33.9	85° 00.7	99° 27.5	113° 54.3	+26.8	16.2
		-14° 20.7	-14° 13.3	-14° 05.8	-13° 58.3	-13° 50.6	-13° 42.9	-13° 35.0	-13° 27.1	-13° 19.0	-13° 10.9	-13° 02.6	+7.8	59.3
	Вс 27	330° 35.6	345° 02.3	359° 29.1	13° 55.8	28° 22.5	42° 49.2	57° 15.9	71° 42.6	86° 09.3	100° 36.0	115° 02.7	+26.7	16.4
		-10° 48.6	-10° 39.0	-10° 29.4	-10° 19.6	-10° 09.8	-9° 59.9	-9° 49.9	-9° 39.8	-9° 29.7	-9° 19.5	-9° 09.2	+9.9	60.1
	Пн 28	331° 42.7	346° 09.3	0° 35.9	15° 02.6	29° 29.2	43° 55.8	58° 22.4	72° 49.0	87° 15.6	101° 42.2	116° 08.8	+26.6	16.6
		-6° 27.5	-6° 16.2	-6° 04.9	-5° 53.6	-5° 42.2	-5° 30.8	-5° 19.3	-5° 07.8	-4° 56.2	-4° 44.6	-4° 33.0	+11.5	60.8
	Вт 29	332° 46.8	347° 13.3	1° 39.8	16° 06.2	30° 32.7	44° 59.1	59° 25.5	73° 51.9	88° 18.3	102° 44.7	117° 11.1	+26.4	16.7
		-1° 34.6	-1° 22.5	-1° 10.5	-0° 58.4	-0° 46.3	-0° 34.1	-0° 22.0	-0° 09.9	0° 02.2	0° 14.4	0° 26.5	+12.1	61.2
●	Ср 30	333° 45.5	348° 11.7	2° 37.8	17° 04.0	31° 30.1	45° 56.3	60° 22.4	74° 48.5	89° 14.6	103° 40.7	118° 06.8	+26.1	16.7
		3° 27.7	3° 39.7	3° 51.6	4° 03.5	4° 15.4	4° 27.2	4° 39.0	4° 50.8	5° 02.5	5° 14.2	5° 25.9	+11.8	61.3
	Чт 31	334° 36.1	349° 02.0	3° 27.8	17° 53.7	32° 19.5	46° 45.3	61° 11.1	75° 36.8	90° 02.6	104° 28.3	118° 54.1	+25.8	16.6
		8° 15.3	8° 26.1	8° 36.9	8° 47.6	8° 58.3	9° 08.9	9° 19.4	9° 29.9	9° 40.2	9° 50.5	10° 00.8	+10.6	60.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 1 08h23 — Первая четв.: 8 01h27 — Полнолуние: 16 01h37 — Последняя четв.: 24 01h49 — Новолуние: 30 17h51

СОЛНЦЕ

Апрель 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	269° 02.3	284° 02.5	299° 02.7	314° 02.9	329° 03.1	344° 03.3	359° 03.4	14° 03.6	29° 03.8	44° 04.0	59° 04.2	74° 04.4	+0.2
	4° 40.6	4° 41.5	4° 42.5	4° 43.5	4° 44.4	4° 45.4	4° 46.4	4° 47.3	4° 48.3	4° 49.2	4° 50.2	4° 51.2	+1.0
Сб 2	269° 06.7	284° 06.9	299° 07.1	314° 07.3	329° 07.5	344° 07.6	359° 07.8	14° 08.0	29° 08.2	44° 08.4	59° 08.6	74° 08.7	+0.2
	5° 03.7	5° 04.6	5° 05.6	5° 06.5	5° 07.5	5° 08.5	5° 09.4	5° 10.4	5° 11.3	5° 12.3	5° 13.3	5° 14.2	+1.0
Вс 3	269° 11.1	284° 11.3	299° 11.5	314° 11.6	329° 11.8	344° 12.0	359° 12.2	14° 12.4	29° 12.6	44° 12.7	59° 12.9	74° 13.1	+0.2
	5° 26.7	5° 27.6	5° 28.6	5° 29.5	5° 30.5	5° 31.4	5° 32.4	5° 33.4	5° 34.3	5° 35.3	5° 36.2	5° 37.2	+1.0
Пн 4	269° 15.4	284° 15.6	299° 15.8	314° 16.0	329° 16.2	344° 16.3	359° 16.5	14° 16.7	29° 16.9	44° 17.1	59° 17.2	74° 17.4	+0.2
	5° 49.6	5° 50.5	5° 51.5	5° 52.4	5° 53.4	5° 54.3	5° 55.3	5° 56.2	5° 57.2	5° 58.1	5° 59.1	6° 00.0	+1.0
Вт 5	269° 19.7	284° 19.9	299° 20.1	314° 20.3	329° 20.5	344° 20.6	359° 20.8	14° 21.0	29° 21.2	44° 21.3	59° 21.5	74° 21.7	+0.2
	6° 12.4	6° 13.3	6° 14.3	6° 15.2	6° 16.2	6° 17.1	6° 18.0	6° 19.0	6° 19.9	6° 20.9	6° 21.8	6° 22.8	+0.9
Ср 6	269° 24.0	284° 24.2	299° 24.3	314° 24.5	329° 24.7	344° 24.9	359° 25.1	14° 25.2	29° 25.4	44° 25.6	59° 25.8	74° 25.9	+0.2
	6° 35.1	6° 36.0	6° 36.9	6° 37.9	6° 38.8	6° 39.8	6° 40.7	6° 41.7	6° 42.6	6° 43.5	6° 44.5	6° 45.4	+0.9
Чт 7	269° 28.2	284° 28.4	299° 28.6	314° 28.7	329° 28.9	344° 29.1	359° 29.2	14° 29.4	29° 29.6	44° 29.8	59° 29.9	74° 30.1	+0.2
	6° 57.6	6° 58.6	6° 59.5	7° 00.4	7° 01.4	7° 02.3	7° 03.3	7° 04.2	7° 05.1	7° 06.1	7° 07.0	7° 07.9	+0.9
Пт 8	269° 32.4	284° 32.5	299° 32.7	314° 32.9	329° 33.0	344° 33.2	359° 33.4	14° 33.6	29° 33.7	44° 33.9	59° 34.1	74° 34.2	+0.2
	7° 20.1	7° 21.0	7° 22.0	7° 22.9	7° 23.8	7° 24.8	7° 25.7	7° 26.6	7° 27.5	7° 28.5	7° 29.4	7° 30.3	+0.9
Сб 9	269° 36.5	284° 36.6	299° 36.8	314° 37.0	329° 37.1	344° 37.3	359° 37.5	14° 37.6	29° 37.8	44° 38.0	59° 38.2	74° 38.3	+0.2
	7° 42.4	7° 43.3	7° 44.3	7° 45.2	7° 46.1	7° 47.1	7° 48.0	7° 48.9	7° 49.8	7° 50.8	7° 51.7	7° 52.6	+0.9
Вс 10	269° 40.5	284° 40.7	299° 40.8	314° 41.0	329° 41.2	344° 41.3	359° 41.5	14° 41.7	29° 41.8	44° 42.0	59° 42.2	74° 42.3	+0.2
	8° 04.6	8° 05.5	8° 06.5	8° 07.4	8° 08.3	8° 09.2	8° 10.2	8° 11.1	8° 12.0	8° 12.9	8° 13.8	8° 14.8	+0.9
Пн 11	269° 44.5	284° 44.6	299° 44.8	314° 45.0	329° 45.1	344° 45.3	359° 45.5	14° 45.6	29° 45.8	44° 45.9	59° 46.1	74° 46.3	+0.2
	8° 26.7	8° 27.6	8° 28.5	8° 29.4	8° 30.4	8° 31.3	8° 32.2	8° 33.1	8° 34.0	8° 34.9	8° 35.8	8° 36.8	+0.9
Вт 12	269° 48.4	284° 48.5	299° 48.7	314° 48.9	329° 49.0	344° 49.2	359° 49.3	14° 49.5	29° 49.7	44° 49.8	59° 50.0	74° 50.1	+0.2
	8° 48.6	8° 49.5	8° 50.4	8° 51.3	8° 52.2	8° 53.2	8° 54.1	8° 55.0	8° 55.9	8° 56.8	8° 57.7	8° 58.6	+0.9
Ср 13	269° 52.2	284° 52.4	299° 52.5	314° 52.7	329° 52.8	344° 53.0	359° 53.1	14° 53.3	29° 53.5	44° 53.6	59° 53.8	74° 53.9	+0.2
	9° 10.4	9° 11.3	9° 12.2	9° 13.1	9° 14.0	9° 14.9	9° 15.8	9° 16.7	9° 17.6	9° 18.5	9° 19.4	9° 20.3	+0.9
Чт 14	269° 55.9	284° 56.1	299° 56.3	314° 56.4	329° 56.6	344° 56.7	359° 56.9	14° 57.0	29° 57.2	44° 57.3	59° 57.5	74° 57.6	+0.2
	9° 32.0	9° 32.9	9° 33.8	9° 34.7	9° 35.6	9° 36.5	9° 37.4	9° 38.3	9° 39.2	9° 40.1	9° 41.0	9° 41.9	+0.9
Пт 15	269° 59.6	284° 59.8	299° 59.9	315° 00.1	330° 00.2	345° 00.4	0° 00.5	15° 00.7	30° 00.8	45° 01.0	60° 01.1	75° 01.3	+0.1
	9° 53.5	9° 54.4	9° 55.2	9° 56.1	9° 57.0	9° 57.9	9° 58.8	9° 59.7	10° 00.6	10° 01.5	10° 02.4	10° 03.3	+0.9
Сб 16	270° 03.2	285° 03.3	300° 03.5	315° 03.6	330° 03.8	345° 03.9	0° 04.1	15° 04.2	30° 04.3	45° 04.5	60° 04.6	75° 04.8	+0.1
	10° 14.8	10° 15.7	10° 16.5	10° 17.4	10° 18.3	10° 19.2	10° 20.1	10° 20.9	10° 21.8	10° 22.7	10° 23.6	10° 24.5	+0.9
Вс 17	270° 06.7	285° 06.8	300° 06.9	315° 07.1	330° 07.2	345° 07.4	0° 07.5	15° 07.6	30° 07.8	45° 07.9	60° 08.1	75° 08.2	+0.1
	10° 35.9	10° 36.8	10° 37.7	10° 38.5	10° 39.4	10° 40.3	10° 41.2	10° 42.0	10° 42.9	10° 43.8	10° 44.7	10° 45.5	+0.9
Пн 18	270° 10.0	285° 10.2	300° 10.3	315° 10.4	330° 10.6	345° 10.7	0° 10.9	15° 11.0	30° 11.1	45° 11.3	60° 11.4	75° 11.5	+0.1
	10° 56.9	10° 57.7	10° 58.6	10° 59.5	11° 00.3	11° 01.2	11° 02.1	11° 02.9	11° 03.8	11° 04.7	11° 05.5	11° 06.4	+0.9
Вт 19	270° 13.3	285° 13.4	300° 13.6	315° 13.7	330° 13.8	345° 14.0	0° 14.1	15° 14.2	30° 14.4	45° 14.5	60° 14.6	75° 14.8	+0.1
	11° 17.6	11° 18.5	11° 19.4	11° 20.2	11° 21.1	11° 21.9	11° 22.8	11° 23.7	11° 24.5	11° 25.4	11° 26.2	11° 27.1	+0.9
Ср 20	270° 16.5	285° 16.6	300° 16.7	315° 16.9	330° 17.0	345° 17.1	0° 17.2	15° 17.4	30° 17.5	45° 17.6	60° 17.8	75° 17.9	+0.1
	11° 38.2	11° 39.1	11° 39.9	11° 40.8	11° 41.6	11° 42.5	11° 43.3	11° 44.2	11° 45.0	11° 45.9	11° 46.7	11° 47.6	+0.9
Чт 21	270° 19.5	285° 19.7	300° 19.8	315° 19.9	330° 20.0	345° 20.2	0° 20.3	15° 20.4	30° 20.5	45° 20.6	60° 20.8	75° 20.9	+0.1
	11° 58.6	11° 59.5	12° 00.3	12° 01.2	12° 02.0	12° 02.9	12° 03.7	12° 04.5	12° 05.4	12° 06.2	12° 07.1	12° 07.9	+0.8
Пт 22	270° 22.5	285° 22.6	300° 22.7	315° 22.8	330° 22.9	345° 23.1	0° 23.2	15° 23.3	30° 23.4	45° 23.5	60° 23.7	75° 23.8	+0.1
	12° 18.8	12° 19.7	12° 20.5	12° 21.3	12° 22.2	12° 23.0	12° 23.9	12° 24.7	12° 25.5	12° 26.4	12° 27.2	12° 28.0	+0.8
Сб 23	270° 25.3	285° 25.4	300° 25.5	315° 25.6	330° 25.8	345° 25.9	0° 26.0	15° 26.1	30° 26.2	45° 26.3	60° 26.4	75° 26.5	+0.1
	12° 38.8	12° 39.7	12° 40.5	12° 41.3	12° 42.1	12° 43.0	12° 43.8	12° 44.6	12° 45.5	12° 46.3	12° 47.1	12° 47.9	+0.8
Вс 24	270° 28.0	285° 28.1	300° 28.2	315° 28.3	330° 28.4	345° 28.5	0° 28.7	15° 28.8	30° 28.9	45° 29.0	60° 29.1	75° 29.2	+0.1
	12° 58.6	12° 59.5	13° 00.3	13° 01.1	13° 01.9	13° 02.7	13° 03.5	13° 04.3	13° 05.2	13° 06.0	13° 06.8	13° 07.6	+0.8
Пн 25	270° 30.6	285° 30.7	300° 30.8	315° 30.9	330° 31.0	345° 31.1	0° 31.2	15° 31.3	30° 31.4	45° 31.5	60° 31.6	75° 31.7	+0.1
	13° 18.2	13° 19.0	13° 19.8	13° 20.6	13° 21.5	13° 22.3	13° 23.1	13° 23.9	13° 24.7	13° 25.5	13° 26.3	13° 27.1	+0.8
Вт 26	270° 33.0	285° 33.1	300° 33.2	315° 33.3	330° 33.4	345° 33.5	0° 33.6	15° 33.7	30° 33.8	45° 33.9	60° 34.0	75° 34.1	+0.1
	13° 37.6	13° 38.4	13° 39.2	13° 40.0	13° 40.8	13° 41.6	13° 42.4	13° 43.2	13° 44.0	13° 44.8	13° 45.6	13° 46.4	+0.8
Ср 27	270° 35.3	285° 35.4	300° 35.5	315° 35.6	330° 35.7	345° 35.8	0° 35.9	15° 36.0	30° 36.1	45° 36.2	60° 36.3	75° 36.4	+0.1
	13° 56.7	13° 57.5	13° 58.3	13° 59.1	13° 59.9	14° 00.7	14° 01.5	14° 02.3	14° 03.1	14° 03.8	14° 04.6	14° 05.4	+0.8
Чт 28	270° 37.5	285° 37.6	300° 37.7	315° 37.8	330° 37.9	345° 38.0	0° 38.1	15° 38.2	30° 38.2	45° 38.3	60° 38.4	75° 38.5	+0.1
	14° 15.6	14° 16.4	14° 17.2	14° 18.0	14° 18.8	14° 19.5	14° 20.3	14° 21.1	14° 21.9	14° 22.7	14° 23.4	14° 24.2	+0.8
Пт 29	270° 39.6	285° 39.7	300° 39.8	315° 39.9	330° 39.9	345° 40.0	0° 40.1	15° 40.2	30° 40.3	45° 40.4	60° 40.4	75° 40.5	+0.1
	14° 34.3	14° 35.1	14° 35.9	14° 36.6	14° 37.4	14° 38.2	14° 38.9	14° 39.7	14° 40.5	14° 41.3	14° 42.0	14° 42.8	+0.8
Сб 30	270° 41.5	285° 41.6	300° 41.7	315° 41.8	330° 41.9	345° 41.9	0° 42.0	15° 42.1	30° 42.2	45° 42.2	60° 42.3	75° 42.4	+0.1
	14° 52.7	14° 53.5	14° 54.3	14° 55.0	14° 55.8	14° 56.6	14° 57.3	14° 58.1	14° 58.8	14° 59.6	15° 00.4	15° 01.1	+0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2033

Д	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	R/p
Пт 1	248° 45.3 11° 29.4	263° 10.9 11° 38.8	277° 36.6 11° 48.2	292° 02.2 11° 57.4	306° 27.8 12° 06.6	320° 53.4 12° 15.7	335° 19.0 12° 24.7	349° 44.6 12° 33.6	4° 10.2 12° 42.4	18° 35.8 12° 51.1	33° 01.4 12° 59.7	+25.6 +9.0	16.5 60.5
Сб 2	249° 25.1 14° 57.0	263° 50.7 15° 04.0	278° 16.3 15° 10.9	292° 41.9 15° 17.6	307° 07.5 15° 24.3	321° 33.1 15° 30.9	335° 58.7 15° 37.3	350° 24.4 15° 43.6	4° 50.0 15° 49.8	19° 15.7 15° 56.0	33° 41.3 16° 01.9	+25.6 +6.5	16.3 59.7
Вс 3	250° 08.3 17° 18.2	264° 34.2 17° 22.4	279° 00.2 17° 26.4	293° 26.2 17° 30.4	307° 52.2 17° 34.2	322° 18.3 17° 37.9	336° 44.4 17° 41.5	351° 10.5 17° 44.9	5° 36.7 17° 48.3	20° 02.8 17° 51.5	34° 29.0 17° 54.6	+26.1 +3.6	16.0 58.7
Пн 4	251° 06.3 18° 27.5	265° 33.1 18° 28.7	280° 00.0 18° 29.9	294° 26.8 18° 30.9	308° 53.8 18° 31.9	323° 20.8 18° 32.7	337° 47.8 18° 33.4	352° 14.8 18° 34.0	6° 42.0 18° 34.5	21° 09.1 18° 34.9	35° 36.3 18° 35.2	+27.0 +0.8	15.7 57.7
Вт 5	252° 30.6 18° 26.4	266° 58.7 18° 25.0	281° 26.8 18° 23.4	295° 55.0 18° 21.8	310° 23.2 18° 20.1	324° 51.5 18° 18.3	339° 19.8 18° 16.4	353° 48.2 18° 14.3	8° 16.6 18° 12.2	22° 45.1 18° 10.0	37° 13.7 18° 07.7	+28.3 -1.9	15.5 56.8
◐ Ср 6	254° 29.4 17° 22.0	268° 59.0 17° 18.2	283° 28.6 17° 14.4	297° 58.2 17° 10.5	312° 27.9 17° 06.4	326° 57.7 17° 02.3	341° 27.5 16° 58.2	355° 57.4 16° 53.9	10° 27.4 16° 49.6	24° 57.4 16° 45.1	39° 27.5 16° 40.6	+29.8 -4.1	15.2 55.9
Чт 7	257° 05.9 15° 24.1	271° 36.9 15° 18.4	286° 08.0 15° 12.7	300° 39.1 15° 06.9	315° 10.3 15° 01.0	329° 41.6 14° 55.0	344° 12.9 14° 49.0	358° 44.3 14° 42.9	13° 15.7 14° 36.8	27° 47.2 14° 30.6	42° 18.7 14° 24.3	+31.3 -6.0	15.1 55.2
Пт 8	260° 18.1 12° 43.4	274° 50.4 12° 36.2	289° 22.8 12° 29.0	303° 55.3 12° 21.7	318° 27.8 12° 14.4	333° 00.4 12° 07.0	347° 33.0 11° 59.6	2° 05.6 11° 52.1	16° 38.3 11° 44.6	31° 11.0 11° 37.0	45° 43.8 11° 29.4	+32.6 -7.4	14.9 54.6
Сб 9	264° 00.4 9° 30.1	278° 33.8 9° 21.9	293° 07.2 9° 13.5	307° 40.7 9° 05.2	322° 14.2 8° 56.8	336° 47.8 8° 48.4	351° 21.4 8° 40.0	5° 55.0 8° 31.5	20° 28.6 8° 23.0	35° 02.3 8° 14.5	49° 36.0 8° 05.9	+33.6 -8.4	14.8 54.3
Вс 10	268° 04.8 5° 54.0	282° 38.9 5° 45.0	297° 13.0 5° 35.9	311° 47.1 5° 26.9	326° 21.3 5° 17.9	340° 55.5 5° 08.8	355° 29.7 4° 59.7	10° 03.9 4° 50.6	24° 38.1 4° 41.4	39° 12.4 4° 32.3	53° 46.6 4° 23.1	+34.2 -9.1	14.7 54.0
Пн 11	272° 22.0 2° 03.9	286° 56.4 1° 54.5	301° 30.8 1° 45.1	316° 05.3 1° 35.7	330° 39.7 1° 26.3	345° 14.2 1° 16.9	359° 48.6 1° 07.5	14° 23.0 0° 58.1	28° 57.5 0° 48.7	43° 31.9 0° 39.3	58° 06.4 0° 29.9	+34.4 -9.4	14.7 53.9
Вт 12	276° 42.6 -1° 51.4	291° 16.9 -2° 00.8	305° 51.3 -2° 10.2	320° 25.6 -2° 19.6	335° 00.0 -2° 28.9	349° 34.3 -2° 38.3	4° 08.6 -2° 47.7	18° 42.9 -2° 57.0	33° 17.2 -3° 06.3	47° 51.4 -3° 15.7	62° 25.7 -3° 25.0	+34.3 -9.4	14.7 54.0
Ср 13	280° 57.3 -5° 42.9	295° 31.3 -5° 52.0	310° 05.2 -6° 01.0	324° 39.1 -6° 10.0	339° 12.9 -6° 19.0	353° 46.8 -6° 28.0	8° 20.6 -6° 36.9	22° 54.4 -6° 45.8	37° 28.2 -6° 54.7	52° 01.9 -7° 03.6	66° 35.6 -7° 12.4	+33.8 -9.0	14.8 54.1
○ Чт 14	284° 57.8 -9° 21.4	299° 31.0 -9° 29.7	314° 04.2 -9° 38.0	328° 37.3 -9° 46.2	343° 10.4 -9° 54.5	357° 43.5 -10° 02.6	12° 16.5 -10° 10.8	26° 49.5 -10° 18.9	41° 22.5 -10° 26.9	55° 55.4 -10° 34.9	70° 28.3 -10° 42.9	+33.1 -8.2	14.8 54.3
Пт 15	288° 37.0 -12° 36.8	303° 09.3 -12° 44.0	317° 41.5 -12° 51.2	332° 13.6 -12° 58.3	346° 45.8 -13° 05.3	1° 17.8 -13° 12.3	15° 49.9 -13° 19.2	30° 21.9 -13° 26.0	44° 53.8 -13° 32.8	59° 25.7 -13° 39.6	73° 57.6 -13° 46.3	+32.1 -6.9	14.9 54.6
Сб 16	291° 50.3 -15° 19.0	306° 21.4 -15° 24.7	320° 52.5 -15° 30.3	335° 23.6 -15° 35.8	349° 54.6 -15° 41.2	4° 25.6 -15° 46.6	18° 56.5 -15° 51.9	33° 27.4 -15° 57.1	47° 58.2 -16° 02.2	62° 29.0 -16° 07.3	76° 59.8 -16° 12.3	+31.0 -5.3	15.0 55.0
Вс 17	294° 35.8 -17° 17.9	309° 05.8 -17° 21.6	323° 35.9 -17° 25.2	338° 05.8 -17° 28.8	352° 35.8 -17° 32.2	7° 05.7 -17° 35.6	21° 35.5 -17° 38.9	36° 05.3 -17° 42.1	50° 35.1 -17° 45.2	65° 04.8 -17° 48.2	79° 34.5 -17° 51.2	+29.9 -3.3	15.1 55.5
Пн 18	296° 55.4 -18° 24.2	311° 24.5 -18° 25.7	325° 53.6 -18° 27.0	340° 22.6 -18° 28.3	354° 51.6 -18° 29.4	9° 20.6 -18° 30.5	23° 49.6 -18° 31.5	38° 18.5 -18° 32.4	52° 47.4 -18° 33.1	67° 16.2 -18° 33.8	81° 45.0 -18° 34.4	+29.0 -1.0	15.3 56.0
Вт 19	311° 24.5 -18° 25.7	325° 53.6 -18° 27.0	340° 22.6 -18° 28.3	354° 51.6 -18° 29.4	9° 20.6 -18° 30.5	23° 49.6 -18° 31.5	38° 18.5 -18° 32.4	52° 47.4 -18° 33.1	67° 16.2 -18° 33.8	81° 45.0 -18° 34.4	96° 13.8 -18° 34.8	+28.9 -0.9	15.3 56.0
Ср 20	313° 22.7 -18° 29.9	327° 51.1 -18° 28.8	342° 19.5 -18° 27.6	356° 47.8 -18° 26.2	11° 16.2 -18° 24.8	25° 44.5 -18° 23.2	40° 12.8 -18° 21.6	54° 41.1 -18° 19.8	69° 09.3 -18° 18.0	83° 37.6 -18° 16.0	98° 05.8 -18° 13.9	+28.3 +1.6	15.5 56.7
Чт 21	315° 07.7 -17° 30.6	329° 35.7 -17° 26.9	344° 03.8 -17° 23.1	358° 31.8 -17° 19.2	12° 59.8 -17° 15.1	27° 27.8 -17° 11.0	41° 55.8 -17° 06.8	56° 23.8 -17° 02.5	70° 51.8 -16° 58.0	85° 19.7 -16° 53.5	99° 47.7 -16° 48.9	+28.0 +4.2	15.6 57.3
◑ Пт 22	316° 46.8 -15° 27.6	331° 14.7 -15° 21.5	345° 42.7 -15° 15.2	0° 10.6 -15° 08.8	14° 38.5 -15° 02.3	29° 06.4 -14° 55.7	43° 34.3 -14° 49.1	58° 02.3 -14° 42.3	72° 30.2 -14° 35.5	86° 58.1 -14° 28.5	101° 26.0 -14° 21.5	+27.9 +6.6	15.8 58.1
Сб 23	318° 24.9 -12° 25.4	332° 52.9 -12° 17.0	347° 20.8 -12° 08.5	1° 48.7 -11° 59.9	16° 16.7 -11° 51.3	30° 44.6 -11° 42.5	45° 12.6 -11° 33.7	59° 40.5 -11° 24.8	74° 08.4 -11° 15.9	88° 36.4 -11° 06.8	103° 04.3 -10° 57.7	+27.9 +8.8	16.0 58.8
Вс 24	320° 03.3 -8° 32.5	334° 31.2 -8° 22.3	348° 59.1 -8° 12.0	3° 27.0 -8° 01.7	17° 54.9 -7° 51.3	32° 22.8 -7° 40.9	46° 50.7 -7° 30.4	61° 18.6 -7° 19.9	75° 46.5 -7° 09.2	90° 14.3 -6° 58.6	104° 42.2 -6° 47.9	+27.9 +10.5	16.2 59.6
Пн 25	321° 39.2 -4° 01.7	336° 06.9 -3° 50.4	350° 34.6 -3° 38.9	5° 02.3 -3° 27.5	19° 30.0 -3° 16.0	33° 57.7 -3° 04.5	48° 25.3 -2° 52.9	62° 53.0 -2° 41.4	77° 20.6 -2° 29.8	91° 48.2 -2° 18.1	106° 15.8 -2° 06.5	+27.7 +11.5	16.4 60.2
Вт 26	323° 07.4 0° 50.0	337° 34.7 1° 01.8	352° 01.9 1° 13.6	6° 29.1 1° 25.5	20° 56.3 1° 37.3	35° 23.5 1° 49.1	49° 50.7 2° 00.9	64° 17.8 2° 12.7	78° 44.9 2° 24.5	93° 12.0 2° 36.3	107° 39.1 2° 48.1	+27.2 +11.8	16.5 60.6
Ср 27	324° 21.7 5° 42.3	338° 48.3 5° 53.7	353° 14.9 6° 05.0	7° 41.4 6° 16.3	22° 08.0 6° 27.6	36° 34.4 6° 38.9	51° 00.9 6° 50.1	65° 27.3 7° 01.2	79° 53.7 7° 12.3	94° 20.1 7° 23.4	108° 46.5 7° 34.4	+26.5 +11.2	16.6 60.7
Чт 28	325° 18.0 10° 12.7	339° 43.9 10° 22.8	354° 09.7 10° 32.8	8° 35.5 10° 42.7	23° 01.3 10° 52.5	37° 27.1 11° 02.2	51° 52.8 11° 11.9	66° 18.5 11° 21.5	80° 44.2 11° 31.0	95° 09.8 11° 40.4	109° 35.4 11° 49.8	+25.7 +9.7	16.5 60.6
● Пт 29	325° 57.1 13° 59.4	340° 22.3 14° 07.3	354° 47.6 14° 15.1	9° 12.9 14° 22.8	23° 38.1 14° 30.3	38° 03.3 14° 37.8	52° 28.5 14° 45.2	66° 53.7 14° 52.5	81° 18.9 14° 59.6	95° 44.1 15° 06.7	110° 09.3 15° 13.6	+25.2 +7.4	16.4 60.2
Сб 30	326° 26.2 16° 44.4	340° 51.3 16° 49.6	355° 16.4 16° 54.6	9° 41.6 16° 59.5	24° 06.7 17° 04.3	38° 31.9 17° 08.9	52° 57.1 17° 13.5	67° 22.3 17° 17.9	81° 47.5 17° 22.2	96° 12.7 17° 26.4	110° 37.9 17° 30.5	+25.2 +4.6	16.2 59.5

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 6 15h13 — Полнолуние: 14 19h17 — Последняя четв.: 22 11h42 — Новолуние: 29 02h46

СОЛНЦЕ

Май 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	270° 43.3 15° 10.9	285° 43.4 15° 11.7	300° 43.5 15° 12.4	315° 43.6 15° 13.2	330° 43.6 15° 13.9	345° 43.7 15° 14.7	0° 43.8 15° 15.4	15° 43.8 15° 16.2	30° 43.9 15° 16.9	45° 44.0 15° 17.7	60° 44.1 15° 18.4	75° 44.1 15° 19.2	+0.1 +0.8
Пн 2	270° 45.0 15° 28.9	285° 45.1 15° 29.6	300° 45.2 15° 30.4	315° 45.2 15° 31.1	330° 45.3 15° 31.8	345° 45.3 15° 32.6	0° 45.4 15° 33.3	15° 45.5 15° 34.1	30° 45.5 15° 34.8	45° 45.6 15° 35.5	60° 45.7 15° 36.3	75° 45.7 15° 37.0	+0.1 +0.7
Вт 3	270° 46.6 15° 46.6	285° 46.6 15° 47.3	300° 46.7 15° 48.0	315° 46.7 15° 48.8	330° 46.8 15° 49.5	345° 46.9 15° 50.2	0° 46.9 15° 50.9	15° 47.0 15° 51.7	30° 47.0 15° 52.4	45° 47.1 15° 53.1	60° 47.2 15° 53.9	75° 47.2 15° 54.6	+0.1 +0.7
Ср 4	270° 48.0 16° 04.0	285° 48.0 16° 04.7	300° 48.1 16° 05.4	315° 48.1 16° 06.1	330° 48.2 16° 06.9	345° 48.2 16° 07.6	0° 48.3 16° 08.3	15° 48.3 16° 09.0	30° 48.4 16° 09.7	45° 48.5 16° 10.4	60° 48.5 16° 11.2	75° 48.6 16° 11.9	+0.1 +0.7
Чт 5	270° 49.2 16° 21.1	285° 49.3 16° 21.8	300° 49.3 16° 22.6	315° 49.4 16° 23.3	330° 49.4 16° 24.0	345° 49.5 16° 24.7	0° 49.5 16° 25.4	15° 49.6 16° 26.1	30° 49.6 16° 26.8	45° 49.7 16° 27.5	60° 49.7 16° 28.2	75° 49.8 16° 28.9	+0.0 +0.7
Пт 6	270° 50.4 16° 38.0	285° 50.4 16° 38.7	300° 50.5 16° 39.4	315° 50.5 16° 40.1	330° 50.5 16° 40.8	345° 50.6 16° 41.5	0° 50.6 16° 42.2	15° 50.7 16° 42.9	30° 50.7 16° 43.6	45° 50.8 16° 44.3	60° 50.8 16° 45.0	75° 50.8 16° 45.7	+0.0 +0.7
Сб 7	270° 51.4 16° 54.6	285° 51.4 16° 55.3	300° 51.4 16° 56.0	315° 51.5 16° 56.7	330° 51.5 16° 57.4	345° 51.6 16° 58.0	0° 51.6 16° 58.7	15° 51.6 16° 59.4	30° 51.7 17° 00.1	45° 51.7 17° 00.8	60° 51.7 17° 01.4	75° 51.8 17° 02.1	+0.0 +0.7
Вс 8	270° 52.2 17° 10.9	285° 52.3 17° 11.6	300° 52.3 17° 12.3	315° 52.3 17° 13.0	330° 52.4 17° 13.6	345° 52.4 17° 14.3	0° 52.4 17° 15.0	15° 52.4 17° 15.6	30° 52.5 17° 16.3	45° 52.5 17° 17.0	60° 52.5 17° 17.6	75° 52.6 17° 18.3	+0.0 +0.7
Пн 9	270° 52.9 17° 27.0	285° 53.0 17° 27.6	300° 53.0 17° 28.3	315° 53.0 17° 28.9	330° 53.1 17° 29.6	345° 53.1 17° 30.3	0° 53.1 17° 30.9	15° 53.1 17° 31.6	30° 53.2 17° 32.2	45° 53.2 17° 32.9	60° 53.2 17° 33.6	75° 53.2 17° 34.2	+0.0 +0.7
Вт 10	270° 53.5 17° 42.7	285° 53.6 17° 43.3	300° 53.6 17° 44.0	315° 53.6 17° 44.6	330° 53.6 17° 45.3	345° 53.6 17° 45.9	0° 53.7 17° 46.6	15° 53.7 17° 47.2	30° 53.7 17° 47.9	45° 53.7 17° 48.5	60° 53.7 17° 49.2	75° 53.8 17° 49.8	+0.0 +0.6
Ср 11	270° 54.0 17° 58.1	285° 54.0 17° 58.8	300° 54.0 17° 59.4	315° 54.0 18° 00.0	330° 54.0 18° 00.7	345° 54.0 18° 01.3	0° 54.1 18° 02.0	15° 54.1 18° 02.6	30° 54.1 18° 03.2	45° 54.1 18° 03.9	60° 54.1 18° 04.5	75° 54.1 18° 05.1	+0.0 +0.6
Чт 12	270° 54.3 18° 13.3	285° 54.3 18° 13.9	300° 54.3 18° 14.5	315° 54.3 18° 15.1	330° 54.3 18° 15.8	345° 54.3 18° 16.4	0° 54.3 18° 17.0	15° 54.3 18° 17.6	30° 54.3 18° 18.3	45° 54.4 18° 18.9	60° 54.4 18° 19.5	75° 54.4 18° 20.1	+0.0 +0.6
Пт 13	270° 54.4 18° 28.1	285° 54.4 18° 28.7	300° 54.4 18° 29.3	315° 54.5 18° 29.9	330° 54.5 18° 30.5	345° 54.5 18° 31.2	0° 54.5 18° 31.8	15° 54.5 18° 32.4	30° 54.5 18° 33.0	45° 54.5 18° 33.6	60° 54.5 18° 34.2	75° 54.5 18° 34.8	+0.0 +0.6
Сб 14	270° 54.5 18° 42.6	285° 54.5 18° 43.2	300° 54.5 18° 43.8	315° 54.5 18° 44.4	330° 54.5 18° 45.0	345° 54.4 18° 45.6	0° 54.4 18° 46.2	15° 54.4 18° 46.8	30° 54.4 18° 47.4	45° 54.4 18° 48.0	60° 54.4 18° 48.6	75° 54.4 18° 49.2	-0.0 +0.6
Вс 15	270° 54.3 18° 56.8	285° 54.3 18° 57.4	300° 54.3 18° 58.0	315° 54.3 18° 58.6	330° 54.3 18° 59.2	345° 54.3 18° 59.7	0° 54.3 19° 00.3	15° 54.3 19° 00.9	30° 54.3 19° 01.5	45° 54.3 19° 02.1	60° 54.2 19° 02.7	75° 54.2 19° 03.2	-0.0 +0.6
Пн 16	270° 54.1 19° 10.7	285° 54.1 19° 11.3	300° 54.0 19° 11.9	315° 54.0 19° 12.4	330° 54.0 19° 13.0	345° 54.0 19° 13.6	0° 54.0 19° 14.1	15° 54.0 19° 14.7	30° 54.0 19° 15.3	45° 53.9 19° 15.8	60° 53.9 19° 16.4	75° 53.9 19° 17.0	-0.0 +0.6
Вт 17	270° 53.7 19° 24.3	285° 53.7 19° 24.8	300° 53.6 19° 25.4	315° 53.6 19° 25.9	330° 53.6 19° 26.5	345° 53.6 19° 27.1	0° 53.6 19° 27.6	15° 53.5 19° 28.2	30° 53.5 19° 28.7	45° 53.5 19° 29.3	60° 53.5 19° 29.8	75° 53.4 19° 30.4	-0.0 +0.6
Ср 18	270° 53.1 19° 37.5	285° 53.1 19° 38.0	300° 53.1 19° 38.6	315° 53.0 19° 39.1	330° 53.0 19° 39.7	345° 53.0 19° 40.2	0° 53.0 19° 40.8	15° 52.9 19° 41.3	30° 52.9 19° 41.8	45° 52.9 19° 42.4	60° 52.9 19° 42.9	75° 52.8 19° 43.4	-0.0 +0.5
Чт 19	270° 52.4 19° 50.4	285° 52.4 19° 50.9	300° 52.4 19° 51.4	315° 52.3 19° 52.0	330° 52.3 19° 52.5	345° 52.3 19° 53.0	0° 52.2 19° 53.6	15° 52.2 19° 54.1	30° 52.2 19° 54.6	45° 52.1 19° 55.1	60° 52.1 19° 55.7	75° 52.1 19° 56.2	-0.0 +0.5
Пт 20	270° 51.6 20° 02.9	285° 51.6 20° 03.5	300° 51.5 20° 04.0	315° 51.5 20° 04.5	330° 51.5 20° 05.0	345° 51.4 20° 05.5	0° 51.4 20° 06.0	15° 51.3 20° 06.5	30° 51.3 20° 07.1	45° 51.3 20° 07.6	60° 51.2 20° 08.1	75° 51.2 20° 08.6	-0.0 +0.5
Сб 21	270° 50.6 20° 15.2	285° 50.6 20° 15.7	300° 50.6 20° 16.2	315° 50.5 20° 16.7	330° 50.5 20° 17.2	345° 50.4 20° 17.7	0° 50.4 20° 18.2	15° 50.3 20° 18.7	30° 50.3 20° 19.2	45° 50.2 20° 19.7	60° 50.2 20° 20.1	75° 50.2 20° 20.6	-0.0 +0.5
Вс 22	270° 49.5 20° 27.0	285° 49.5 20° 27.5	300° 49.4 20° 28.0	315° 49.4 20° 28.5	330° 49.3 20° 29.0	345° 49.3 20° 29.5	0° 49.2 20° 29.9	15° 49.2 20° 30.4	30° 49.1 20° 30.9	45° 49.1 20° 31.4	60° 49.0 20° 31.9	75° 49.0 20° 32.4	-0.1 +0.5
Пн 23	270° 48.3 20° 38.5	285° 48.2 20° 39.0	300° 48.2 20° 39.5	315° 48.1 20° 40.0	330° 48.1 20° 40.4	345° 48.0 20° 40.9	0° 48.0 20° 41.4	15° 47.9 20° 41.8	30° 47.9 20° 42.3	45° 47.8 20° 42.8	60° 47.7 20° 43.2	75° 47.7 20° 43.7	-0.1 +0.5
Вт 24	270° 46.9 20° 49.7	285° 46.9 20° 50.2	300° 46.8 20° 50.6	315° 46.7 20° 51.1	330° 46.7 20° 51.5	345° 46.6 20° 52.0	0° 46.6 20° 52.4	15° 46.5 20° 52.9	30° 46.4 20° 53.4	45° 46.4 20° 53.8	60° 46.3 20° 54.3	75° 46.3 20° 54.7	-0.1 +0.5
Ср 25	270° 45.4 21° 00.5	285° 45.4 21° 01.0	300° 45.3 21° 01.4	315° 45.2 21° 01.8	330° 45.2 21° 02.3	345° 45.1 21° 02.7	0° 45.0 21° 03.2	15° 45.0 21° 03.6	30° 44.9 21° 04.0	45° 44.8 21° 04.5	60° 44.8 21° 04.9	75° 44.7 21° 05.3	-0.1 +0.4
Чт 26	270° 43.8 21° 11.0	285° 43.7 21° 11.4	300° 43.7 21° 11.8	315° 43.6 21° 12.2	330° 43.5 21° 12.7	345° 43.4 21° 13.1	0° 43.4 21° 13.5	15° 43.3 21° 13.9	30° 43.2 21° 14.4	45° 43.2 21° 14.8	60° 43.1 21° 15.2	75° 43.0 21° 15.6	-0.1 +0.4
Пт 27	270° 42.0 21° 21.0	285° 42.0 21° 21.5	300° 41.9 21° 21.9	315° 41.8 21° 22.3	330° 41.7 21° 22.7	345° 41.7 21° 23.1	0° 41.6 21° 23.5	15° 41.5 21° 23.9	30° 41.4 21° 24.3	45° 41.4 21° 24.7	60° 41.3 21° 25.1	75° 41.2 21° 25.5	-0.1 +0.4
Сб 28	270° 40.2 21° 30.7	285° 40.1 21° 31.1	300° 40.0 21° 31.5	315° 39.9 21° 31.9	330° 39.9 21° 32.3	345° 39.8 21° 32.7	0° 39.7 21° 33.1	15° 39.6 21° 33.5	30° 39.5 21° 33.9	45° 39.4 21° 34.3	60° 39.4 21° 34.7	75° 39.3 21° 35.1	-0.1 +0.4
Вс 29	270° 38.2 21° 40.1	285° 38.1 21° 40.5	300° 38.0 21° 40.8	315° 37.9 21° 41.2	330° 37.9 21° 41.6	345° 37.8 21° 42.0	0° 37.7 21° 42.4	15° 37.6 21° 42.7	30° 37.5 21° 43.1	45° 37.4 21° 43.5	60° 37.3 21° 43.9	75° 37.2 21° 44.2	-0.1 +0.4
Пн 30	270° 36.1 21° 49.0	285° 36.0 21° 49.4	300° 35.9 21° 49.8	315° 35.8 21° 50.1	330° 35.7 21° 50.5	345° 35.7 21° 50.9	0° 35.6 21° 51.2	15° 35.5 21° 51.6	30° 35.4 21° 51.9	45° 35.3 21° 52.3	60° 35.2 21° 52.7	75° 35.1 21° 53.0	-0.1 +0.4
Вт 31	270° 33.9 21° 57.6	285° 33.8 21° 58.0	300° 33.7 21° 58.3	315° 33.6 21° 58.7	330° 33.5 21° 59.0	345° 33.4 21° 59.4	0° 33.3 21° 59.7	15° 33.2 22° 00.1	30° 33.2 22° 00.4	45° 33.1 22° 00.7	60° 33.0 22° 01.1	75° 32.9 22° 01.4	-0.1 +0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	R/p
Вс 1	254° 51.2 18° 04.5	269° 16.7 18° 07.2	283° 42.2 18° 09.8	298° 07.7 18° 12.3	312° 33.3 18° 14.7	326° 58.8 18° 17.0	341° 24.5 18° 19.1	355° 50.1 18° 21.1	10° 15.8 18° 23.0	24° 41.5 18° 24.8	39° 07.2 18° 26.4	+25.6 +2.2	16.0 58.8
Пн 2	255° 38.5 18° 37.1	270° 04.9 18° 36.9	284° 31.4 18° 36.5	298° 58.0 18° 36.1	313° 24.6 18° 35.5	327° 51.3 18° 34.9	342° 18.0 18° 34.1	356° 44.8 18° 33.2	11° 11.6 18° 32.2	25° 38.5 18° 31.1	40° 05.4 18° 29.9	+26.7 -0.7	15.8 57.9
Вт 3	256° 57.0 17° 58.9	271° 24.9 17° 56.1	285° 52.9 17° 53.1	300° 21.0 17° 50.0	314° 49.1 17° 46.9	329° 17.3 17° 43.6	343° 45.6 17° 40.3	358° 14.0 17° 36.8	12° 42.4 17° 33.3	27° 10.9 17° 29.7	41° 39.4 17° 25.9	+28.2 -3.3	15.5 56.9
Ср 4	258° 55.9 16° 19.7	273° 25.6 16° 14.7	287° 55.3 16° 09.5	302° 25.1 16° 04.3	316° 55.0 15° 59.0	331° 24.9 15° 53.6	345° 54.9 15° 48.2	0° 25.0 15° 42.7	14° 55.1 15° 37.1	29° 25.3 15° 31.4	43° 55.6 15° 25.7	+30.0 -5.4	15.3 56.1
Чт 5	261° 37.6 13° 51.6	276° 08.9 13° 44.8	290° 40.3 13° 38.0	305° 11.7 13° 31.1	319° 43.2 13° 24.2	334° 14.8 13° 17.2	348° 46.4 13° 10.1	3° 18.1 13° 03.0	17° 49.8 12° 55.8	32° 21.6 12° 48.6	46° 53.5 12° 41.4	+31.6 -7.0	15.1 55.3
◐ Пт 6	264° 57.9 10° 46.6	279° 30.7 10° 38.6	294° 03.4 10° 30.5	308° 36.2 10° 22.4	323° 09.1 10° 14.3	337° 42.0 10° 06.2	352° 14.9 9° 57.9	6° 47.9 9° 49.7	21° 21.0 9° 41.4	35° 54.0 9° 33.1	50° 27.2 9° 24.8	+32.9 -8.2	14.9 54.7
Сб 7	268° 48.8 7° 15.7	283° 22.6 7° 06.8	297° 56.3 6° 58.0	312° 30.1 6° 49.1	327° 03.9 6° 40.2	341° 37.8 6° 31.3	356° 11.7 6° 22.3	10° 45.6 6° 13.3	25° 19.5 6° 04.3	39° 53.5 5° 55.3	54° 27.5 5° 46.2	+33.9 -8.9	14.8 54.3
Вс 8	273° 00.0 3° 28.4	287° 34.3 3° 19.1	302° 08.6 3° 09.8	316° 43.0 3° 00.5	331° 17.3 2° 51.2	345° 51.7 2° 41.8	0° 26.0 2° 32.5	15° 00.4 2° 23.1	29° 34.8 2° 13.7	44° 09.2 2° 04.3	58° 43.6 1° 54.9	+34.4 -9.4	14.8 54.1
Пн 9	277° 20.3 -0° 26.5	291° 54.7 -0° 35.9	306° 29.2 -0° 45.4	321° 03.6 -0° 54.8	335° 38.0 -1° 04.2	350° 12.5 -1° 13.7	4° 46.9 -1° 23.1	19° 21.3 -1° 32.5	33° 55.7 -1° 41.9	48° 30.1 -1° 51.3	63° 04.5 -2° 00.7	+34.4 -9.4	14.7 54.1
Вт 10	281° 38.7 -4° 20.8	296° 12.8 -4° 30.0	310° 47.0 -4° 39.2	325° 21.1 -4° 48.4	339° 55.2 -4° 57.6	354° 29.2 -5° 06.8	9° 03.3 -5° 16.0	23° 37.3 -5° 25.1	38° 11.3 -5° 34.2	52° 45.3 -5° 43.3	67° 19.2 -5° 52.4	+34.1 -9.2	14.8 54.2
Ср 11	285° 44.9 -8° 05.7	300° 18.4 -8° 14.4	314° 51.8 -8° 23.1	329° 25.2 -8° 31.7	343° 58.6 -8° 40.3	358° 31.9 -8° 48.8	13° 05.2 -8° 57.3	27° 38.5 -9° 05.8	42° 11.7 -9° 14.3	56° 44.8 -9° 22.7	71° 18.0 -9° 31.0	+33.3 -8.5	14.8 54.4
Чт 12	289° 30.1 -11° 31.9	304° 02.6 -11° 39.7	318° 35.0 -11° 47.3	333° 07.4 -11° 54.9	347° 39.7 -12° 02.5	2° 12.0 -12° 10.0	16° 44.3 -12° 17.5	31° 16.5 -12° 24.9	45° 48.6 -12° 32.3	60° 20.7 -12° 39.6	74° 52.8 -12° 46.9	+32.3 -7.5	14.9 54.7
Пт 13	292° 47.8 -14° 29.0	307° 19.1 -14° 35.3	321° 50.3 -14° 41.6	336° 21.5 -14° 47.8	350° 52.6 -14° 53.9	5° 23.7 -14° 59.9	19° 54.7 -15° 05.9	34° 25.7 -15° 11.9	48° 56.6 -15° 17.7	63° 27.5 -15° 23.5	77° 58.3 -15° 29.2	+31.1 -6.0	15.0 55.1
○ Сб 14	295° 34.9 -16° 46.0	310° 04.9 -16° 50.5	324° 34.9 -16° 54.9	339° 04.9 -16° 59.2	353° 34.8 -17° 03.5	8° 04.6 -17° 07.6	22° 34.5 -17° 11.7	37° 04.2 -17° 15.7	51° 34.0 -17° 19.6	66° 03.6 -17° 23.5	80° 33.3 -17° 27.2	+29.8 -4.1	15.2 55.6
Вс 15	297° 52.8 -18° 12.5	312° 21.7 -18° 14.8	326° 50.7 -18° 17.0	341° 19.6 -18° 19.1	355° 48.5 -18° 21.1	10° 17.3 -18° 23.0	24° 46.1 -18° 24.8	39° 14.9 -18° 26.5	53° 43.6 -18° 28.1	68° 12.3 -18° 29.6	82° 41.0 -18° 31.0	+28.8 -1.8	15.3 56.1
Пн 16	299° 47.6 -18° 40.0	314° 15.9 -18° 39.8	328° 44.1 -18° 39.5	343° 12.3 -18° 39.1	357° 40.5 -18° 38.6	12° 08.6 -18° 37.9	26° 36.8 -18° 37.2	41° 04.9 -18° 36.4	55° 33.0 -18° 35.4	70° 01.1 -18° 34.4	84° 29.2 -18° 33.2	+28.2 +0.7	15.4 56.6
Вт 17	301° 29.0 -18° 03.5	315° 56.9 -18° 00.7	330° 24.8 -17° 57.8	344° 52.7 -17° 54.7	359° 20.6 -17° 51.6	13° 48.5 -17° 48.4	28° 16.4 -17° 45.0	42° 44.4 -17° 41.6	57° 12.3 -17° 38.1	71° 40.2 -17° 34.4	86° 08.1 -17° 30.7	+27.9 +3.3	15.6 57.1
Ср 18	315° 56.9 -18° 00.7	330° 24.8 -17° 57.8	344° 52.7 -17° 54.7	359° 20.6 -17° 51.6	13° 48.5 -17° 48.4	28° 16.4 -17° 45.0	42° 44.4 -17° 41.6	57° 12.3 -17° 38.1	71° 40.2 -17° 34.4	86° 08.1 -17° 30.7	100° 36.0 -17° 26.8	+27.9 +3.4	15.6 57.1
Чт 19	317° 35.0 -16° 17.1	332° 03.0 -16° 11.7	346° 31.0 -16° 06.1	0° 59.0 -16° 00.5	15° 27.1 -15° 54.8	29° 55.1 -15° 49.0	44° 23.1 -15° 43.0	58° 51.2 -15° 37.0	73° 19.2 -15° 30.9	87° 47.3 -15° 24.7	102° 15.4 -15° 18.5	+28.0 +5.9	15.7 57.7
Пт 20	319° 18.1 -13° 33.5	333° 46.4 -13° 25.9	348° 14.7 -13° 18.1	2° 43.0 -13° 10.2	17° 11.3 -13° 02.3	31° 39.7 -12° 54.3	46° 08.0 -12° 46.2	60° 36.4 -12° 38.1	75° 04.8 -12° 29.8	89° 33.2 -12° 21.5	104° 01.6 -12° 13.1	+28.3 +8.0	15.9 58.2
◑ Сб 21	321° 09.2 -9° 58.7	335° 37.8 -9° 49.2	350° 06.4 -9° 39.6	4° 35.1 -9° 30.0	19° 03.7 -9° 20.3	33° 32.3 -9° 10.6	48° 01.0 -9° 00.8	62° 29.6 -8° 50.9	76° 58.3 -8° 41.0	91° 27.0 -8° 31.0	105° 55.6 -8° 21.0	+28.6 +9.8	16.0 58.7
Вс 22	323° 06.4 -5° 44.5	337° 35.1 -5° 33.7	352° 03.8 -5° 22.9	6° 32.6 -5° 12.1	21° 01.3 -5° 01.2	35° 30.0 -4° 50.2	49° 58.8 -4° 39.3	64° 27.5 -4° 28.3	78° 56.2 -4° 17.2	93° 24.9 -4° 06.2	107° 53.6 -3° 55.1	+28.7 +11.0	16.1 59.2
Пн 23	325° 03.4 -1° 05.7	339° 31.9 -0° 54.3	354° 00.5 -0° 42.9	8° 29.0 -0° 31.4	22° 57.5 -0° 19.9	37° 26.0 -0° 08.5	51° 54.5 0° 03.0	66° 23.0 0° 14.5	80° 51.4 0° 26.0	95° 19.8 0° 37.5	109° 48.2 0° 49.0	+28.5 +11.5	16.2 59.6
Вт 24	326° 51.7 3° 40.8	341° 19.8 3° 52.1	355° 47.8 4° 03.5	10° 15.7 4° 14.8	24° 43.7 4° 26.1	39° 11.6 4° 37.4	53° 39.5 4° 48.6	68° 07.4 4° 59.8	82° 35.2 5° 11.0	97° 03.0 5° 22.2	111° 30.8 5° 33.3	+27.9 +11.3	16.3 59.8
Ср 25	328° 23.3 8° 16.1	342° 50.5 8° 26.6	357° 17.7 8° 37.1	11° 44.8 8° 47.5	26° 11.9 8° 57.8	40° 39.0 9° 08.1	55° 06.0 9° 18.3	69° 33.0 9° 28.5	84° 00.0 9° 38.6	98° 26.9 9° 48.7	112° 53.8 9° 58.7	+27.1 +10.3	16.3 59.9
Чт 26	329° 32.8 12° 20.4	343° 59.1 12° 29.3	358° 25.3 12° 38.1	12° 51.6 12° 46.8	27° 17.8 12° 55.4	41° 44.0 13° 03.9	56° 10.1 13° 12.3	70° 36.2 13° 20.7	85° 02.3 13° 28.9	99° 28.3 13° 37.1	113° 54.3 13° 45.2	+26.2 +8.5	16.3 59.8
Пт 27	330° 21.1 15° 34.8	344° 46.6 15° 41.3	359° 12.2 15° 47.7	13° 37.7 15° 54.0	28° 03.3 16° 00.2	42° 28.8 16° 06.2	56° 54.3 16° 12.2	71° 19.7 16° 18.1	85° 45.2 16° 23.8	100° 10.6 16° 29.4	114° 36.1 16° 35.0	+25.5 +6.0	16.2 59.5
● Сб 28	330° 56.6 17° 44.0	345° 22.0 17° 47.7	359° 47.3 17° 51.2	14° 12.7 17° 54.7	28° 38.1 17° 58.0	43° 03.4 18° 01.2	57° 28.8 18° 04.2	71° 54.2 18° 07.2	86° 19.6 18° 10.0	100° 45.1 18° 12.7	115° 10.5 18° 15.3	+25.4 +3.1	16.1 59.0
Вс 29	331° 34.6 18° 39.7	346° 00.4 18° 40.4	0° 26.2 18° 40.9	14° 52.1 18° 41.3	29° 18.0 18° 41.7	43° 44.0 18° 41.8	58° 10.0 18° 41.9	72° 36.0 18° 41.9	87° 02.1 18° 41.7	101° 28.2 18° 41.5	115° 54.4 18° 41.1	+26.0 +0.1	15.9 58.3
Пн 30	332° 32.5 18° 21.7	346° 59.5 18° 19.5	1° 26.5 18° 17.2	15° 53.6 18° 14.8	30° 20.7 18° 12.3	44° 47.9 18° 09.8	59° 15.2 18° 07.1	73° 42.5 18° 04.3	88° 09.9 18° 01.4	102° 37.3 17° 58.4	117° 04.8 17° 55.3	+27.2 -2.6	15.7 57.5
Вт 31	334° 05.2 16° 57.2	348° 33.7 16° 52.6	3° 02.4 16° 47.9	17° 31.1 16° 43.1	31° 59.8 16° 38.2	46° 28.7 16° 33.3	60° 57.6 16° 28.3	75° 26.6 16° 23.2	89° 55.6 16° 18.0	104° 24.7 16° 12.7	118° 53.9 16° 07.3	+28.9 -5.0	15.5 56.7

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Первая четв.: 6 06h45 — Полнолуние: 14 10h42 — Последняя четв.: 21 18h29 — Новолуние: 28 11h36

СОЛНЦЕ

Июнь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	270° 31.6	285° 31.5	300° 31.4	315° 31.3	330° 31.2	345° 31.1	0° 31.0	15° 30.9	30° 30.8	45° 30.7	60° 30.6	75° 30.5	-0.1
	22° 05.8	22° 06.2	22° 06.5	22° 06.8	22° 07.2	22° 07.5	22° 07.8	22° 08.1	22° 08.5	22° 08.8	22° 09.1	22° 09.5	+0.3
Чт 2	270° 29.2	285° 29.1	300° 29.0	315° 28.9	330° 28.8	345° 28.7	0° 28.6	15° 28.5	30° 28.4	45° 28.3	60° 28.2	75° 28.1	-0.1
	22° 13.6	22° 14.0	22° 14.3	22° 14.6	22° 14.9	22° 15.2	22° 15.5	22° 15.8	22° 16.2	22° 16.5	22° 16.8	22° 17.1	+0.3
Пт 3	270° 26.8	285° 26.6	300° 26.5	315° 26.4	330° 26.3	345° 26.2	0° 26.1	15° 26.0	30° 25.9	45° 25.8	60° 25.7	75° 25.6	-0.1
	22° 21.1	22° 21.4	22° 21.7	22° 22.0	22° 22.3	22° 22.6	22° 22.9	22° 23.2	22° 23.4	22° 23.7	22° 24.0	22° 24.3	+0.3
Сб 4	270° 24.2	285° 24.1	300° 24.0	315° 23.9	330° 23.8	345° 23.6	0° 23.5	15° 23.4	30° 23.3	45° 23.2	60° 23.1	75° 23.0	-0.1
	22° 28.1	22° 28.4	22° 28.7	22° 28.9	22° 29.2	22° 29.5	22° 29.8	22° 30.1	22° 30.3	22° 30.6	22° 30.9	22° 31.2	+0.3
Вс 5	270° 21.6	285° 21.4	300° 21.3	315° 21.2	330° 21.1	345° 21.0	0° 20.9	15° 20.8	30° 20.7	45° 20.5	60° 20.4	75° 20.3	-0.1
	22° 34.7	22° 35.0	22° 35.3	22° 35.5	22° 35.8	22° 36.1	22° 36.3	22° 36.6	22° 36.9	22° 37.1	22° 37.4	22° 37.6	+0.3
Пн 6	270° 18.8	285° 18.7	300° 18.6	315° 18.5	330° 18.4	345° 18.3	0° 18.1	15° 18.0	30° 17.9	45° 17.8	60° 17.7	75° 17.6	-0.1
	22° 41.0	22° 41.2	22° 41.5	22° 41.7	22° 42.0	22° 42.2	22° 42.5	22° 42.7	22° 43.0	22° 43.2	22° 43.5	22° 43.7	+0.2
Вт 7	270° 16.1	285° 15.9	300° 15.8	315° 15.7	330° 15.6	345° 15.5	0° 15.3	15° 15.2	30° 15.1	45° 15.0	60° 14.9	75° 14.8	-0.1
	22° 46.8	22° 47.1	22° 47.3	22° 47.5	22° 47.8	22° 48.0	22° 48.2	22° 48.4	22° 48.7	22° 48.9	22° 49.1	22° 49.4	+0.2
Ср 8	270° 13.2	285° 13.1	300° 13.0	315° 12.8	330° 12.7	345° 12.6	0° 12.5	15° 12.4	30° 12.2	45° 12.1	60° 12.0	75° 11.9	-0.1
	22° 52.3	22° 52.5	22° 52.7	22° 52.9	22° 53.1	22° 53.3	22° 53.6	22° 53.8	22° 54.0	22° 54.2	22° 54.4	22° 54.6	+0.2
Чт 9	270° 10.3	285° 10.2	300° 10.0	315° 09.9	330° 09.8	345° 09.7	0° 09.6	15° 09.4	30° 09.3	45° 09.2	60° 09.1	75° 08.9	-0.1
	22° 57.3	22° 57.5	22° 57.7	22° 57.9	22° 58.1	22° 58.3	22° 58.5	22° 58.7	22° 58.9	22° 59.1	22° 59.3	22° 59.5	+0.2
Пт 10	270° 07.3	285° 07.2	300° 07.1	315° 07.0	330° 06.8	345° 06.7	0° 06.6	15° 06.5	30° 06.3	45° 06.2	60° 06.1	75° 05.9	-0.1
	23° 01.9	23° 02.1	23° 02.3	23° 02.5	23° 02.7	23° 02.9	23° 03.0	23° 03.2	23° 03.4	23° 03.6	23° 03.8	23° 03.9	+0.2
Сб 11	270° 04.3	285° 04.2	300° 04.1	315° 03.9	330° 03.8	345° 03.7	0° 03.5	15° 03.4	30° 03.3	45° 03.2	60° 03.0	75° 02.9	-0.1
	23° 06.2	23° 06.3	23° 06.5	23° 06.7	23° 06.8	23° 07.0	23° 07.2	23° 07.3	23° 07.5	23° 07.7	23° 07.8	23° 08.0	+0.2
Вс 12	270° 01.2	285° 01.1	300° 01.0	315° 00.9	330° 00.7	345° 00.6	0° 00.5	15° 00.3	30° 00.2	45° 00.1	60° 00.0	74° 59.8	-0.1
	23° 10.0	23° 10.1	23° 10.3	23° 10.4	23° 10.6	23° 10.7	23° 10.9	23° 11.0	23° 11.2	23° 11.3	23° 11.5	23° 11.6	+0.1
Пн 13	269° 58.1	284° 58.0	299° 57.9	314° 57.7	329° 57.6	344° 57.5	359° 57.4	14° 57.2	29° 57.1	44° 57.0	59° 56.8	74° 56.7	-0.1
	23° 13.4	23° 13.5	23° 13.7	23° 13.8	23° 13.9	23° 14.1	23° 14.2	23° 14.3	23° 14.5	23° 14.6	23° 14.7	23° 14.8	+0.1
Вт 14	269° 55.0	284° 54.9	299° 54.7	314° 54.6	329° 54.5	344° 54.3	359° 54.2	14° 54.1	29° 53.9	44° 53.8	59° 53.7	74° 53.5	-0.1
	23° 16.4	23° 16.5	23° 16.7	23° 16.8	23° 16.9	23° 17.0	23° 17.1	23° 17.2	23° 17.3	23° 17.4	23° 17.6	23° 17.7	+0.1
Ср 15	269° 51.8	284° 51.7	299° 51.5	314° 51.4	329° 51.3	344° 51.1	359° 51.0	14° 50.9	29° 50.7	44° 50.6	59° 50.5	74° 50.3	-0.1
	23° 19.0	23° 19.1	23° 19.2	23° 19.3	23° 19.4	23° 19.5	23° 19.6	23° 19.7	23° 19.8	23° 19.9	23° 20.0	23° 20.1	+0.1
Чт 16	269° 48.6	284° 48.5	299° 48.3	314° 48.2	329° 48.1	344° 47.9	359° 47.8	14° 47.7	29° 47.5	44° 47.4	59° 47.3	74° 47.1	-0.1
	23° 21.2	23° 21.3	23° 21.4	23° 21.4	23° 21.5	23° 21.6	23° 21.7	23° 21.8	23° 21.8	23° 21.9	23° 22.0	23° 22.1	+0.1
Пт 17	269° 45.4	284° 45.2	299° 45.1	314° 45.0	329° 44.8	344° 44.7	359° 44.6	14° 44.4	29° 44.3	44° 44.2	59° 44.0	74° 43.9	-0.1
	23° 23.0	23° 23.0	23° 23.1	23° 23.2	23° 23.2	23° 23.3	23° 23.4	23° 23.4	23° 23.5	23° 23.5	23° 23.6	23° 23.6	+0.1
Сб 18	269° 42.1	284° 42.0	299° 41.9	314° 41.7	329° 41.6	344° 41.4	359° 41.3	14° 41.2	29° 41.0	44° 40.9	59° 40.8	74° 40.6	-0.1
	23° 24.3	23° 24.4	23° 24.4	23° 24.5	23° 24.5	23° 24.6	23° 24.6	23° 24.7	23° 24.7	23° 24.7	23° 24.8	23° 24.8	+0.0
Вс 19	269° 38.9	284° 38.7	299° 38.6	314° 38.5	329° 38.3	344° 38.2	359° 38.0	14° 37.9	29° 37.8	44° 37.6	59° 37.5	74° 37.4	-0.1
	23° 25.3	23° 25.3	23° 25.3	23° 25.4	23° 25.4	23° 25.4	23° 25.5	23° 25.5	23° 25.5	23° 25.5	23° 25.6	23° 25.6	+0.0
Пн 20	269° 35.6	284° 35.5	299° 35.3	314° 35.2	329° 35.0	344° 34.9	359° 34.8	14° 34.6	29° 34.5	44° 34.4	59° 34.2	74° 34.1	-0.1
	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	+0.0
Вт 21	269° 32.3	284° 32.2	299° 32.1	314° 31.9	329° 31.8	344° 31.6	359° 31.5	14° 31.4	29° 31.2	44° 31.1	59° 31.0	74° 30.8	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.8	-0.0
Ср 22	269° 29.1	284° 28.9	299° 28.8	314° 28.6	329° 28.5	344° 28.4	359° 28.2	14° 28.1	29° 28.0	44° 27.8	59° 27.7	74° 27.6	-0.1
	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.5	23° 25.5	23° 25.5	23° 25.5	23° 25.4	23° 25.4	23° 25.4	23° 25.4	-0.0
Чт 23	269° 25.8	284° 25.7	299° 25.5	314° 25.4	329° 25.3	344° 25.1	359° 25.0	14° 24.8	29° 24.7	44° 24.6	59° 24.4	74° 24.3	-0.1
	23° 24.9	23° 24.9	23° 24.8	23° 24.8	23° 24.8	23° 24.7	23° 24.7	23° 24.6	23° 24.6	23° 24.6	23° 24.6	23° 24.5	-0.0
Пт 24	269° 22.6	284° 22.4	299° 22.3	314° 22.2	329° 22.0	344° 21.9	359° 21.7	14° 21.6	29° 21.5	44° 21.3	59° 21.2	74° 21.1	-0.1
	23° 23.8	23° 23.8	23° 23.7	23° 23.6	23° 23.6	23° 23.5	23° 23.5	23° 23.4	23° 23.3	23° 23.3	23° 23.2	23° 23.2	-0.1
Сб 25	269° 19.3	284° 19.2	299° 19.1	314° 18.9	329° 18.8	344° 18.7	359° 18.5	14° 18.4	29° 18.3	44° 18.1	59° 18.0	74° 17.9	-0.1
	23° 22.3	23° 22.2	23° 22.1	23° 22.1	23° 22.0	23° 21.9	23° 21.8	23° 21.7	23° 21.7	23° 21.6	23° 21.5	23° 21.4	-0.1
Вс 26	269° 16.2	284° 16.0	299° 15.9	314° 15.8	329° 15.6	344° 15.5	359° 15.4	14° 15.2	29° 15.1	44° 15.0	59° 14.8	74° 14.7	-0.1
	23° 20.3	23° 20.2	23° 20.1	23° 20.1	23° 20.0	23° 19.9	23° 19.8	23° 19.7	23° 19.6	23° 19.5	23° 19.4	23° 19.3	-0.1
Пн 27	269° 13.0	284° 12.9	299° 12.7	314° 12.6	329° 12.5	344° 12.4	359° 12.2	14° 12.1	29° 12.0	44° 11.8	59° 11.7	74° 11.6	-0.1
	23° 18.0	23° 17.9	23° 17.8	23° 17.7	23° 17.5	23° 17.4	23° 17.3	23° 17.2	23° 17.1	23° 17.0	23° 16.9	23° 16.8	-0.1
Вт 28	269° 09.9	284° 09.8	299° 09.6	314° 09.5	329° 09.4	344° 09.3	359° 09.1	14° 09.0	29° 08.9	44° 08.8	59° 08.6	74° 08.5	-0.1
	23° 15.2	23° 15.1	23° 15.0	23° 14.8	23° 14.7	23° 14.6	23° 14.5	23° 14.3	23° 14.2	23° 14.1	23° 13.9	23° 13.8	-0.1
Ср 29	269° 06.9	284° 06.7	299° 06.6	314° 06.5	329° 06.3	344° 06.2	359° 06.1	14° 06.0	29° 05.8	44° 05.7	59° 05.6	74° 05.5	-0.1
	23° 12.0	23° 11.9	23° 11.8	23° 11.6	23° 11.5	23° 11.3	23° 11.2	23° 11.0	23° 10.9	23° 10.8	23° 10.6	23° 10.5	-0.1
Чт 30	269° 03.9	284° 03.7	299° 03.6	314° 03.5	329° 03.4	344° 03.2	359° 03.1	14° 03.0	29° 02.9	44° 02.8	59° 02.6	74° 02.5	-0.1
	23° 08.5	23° 08.3	23° 08.2	23° 08.0	23° 07.8	23° 07.7	23° 07.5	23° 07.3	23° 07.2	23° 07.0	23° 06.9	23° 06.7	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июнь 2033

Д	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	R/p
Ср 1	249° 19.8 15° 15.7	263° 49.6 15° 09.6	278° 19.6 15° 03.4	292° 49.6 14° 57.2	307° 19.7 14° 50.9	321° 49.9 14° 44.5	336° 20.1 14° 38.0	350° 50.4 14° 31.5	5° 20.8 14° 24.9	19° 51.2 14° 18.3	34° 21.7 14° 11.6	+30.2 -6.4	15.3 56.1
Чт 2	252° 07.3 12° 23.9	266° 38.8 12° 16.3	281° 10.4 12° 08.6	295° 42.1 12° 00.9	310° 13.8 11° 53.2	324° 45.6 11° 45.4	339° 17.5 11° 37.5	353° 49.4 11° 29.6	8° 21.3 11° 21.7	22° 53.3 11° 13.7	37° 25.4 11° 05.7	+31.8 -7.8	15.1 55.4
Пт 3	255° 33.1 9° 00.5	270° 06.0 8° 51.8	284° 39.0 8° 43.2	299° 12.0 8° 34.5	313° 45.0 8° 25.8	328° 18.1 8° 17.0	342° 51.2 8° 08.2	357° 24.4 7° 59.4	11° 57.6 7° 50.6	26° 30.9 7° 41.7	41° 04.2 7° 32.8	+33.1 -8.8	15.0 54.8
◐ Сб 4	259° 28.3 5° 16.7	274° 02.1 5° 07.5	288° 36.0 4° 58.2	303° 10.0 4° 48.9	317° 43.9 4° 39.7	332° 17.9 4° 30.4	346° 51.9 4° 21.1	1° 25.9 4° 11.7	15° 59.9 4° 02.4	30° 34.0 3° 53.1	45° 08.1 3° 43.7	+34.0 -9.3	14.8 54.4
Вс 5	263° 41.7 1° 22.2	278° 16.0 1° 12.8	292° 50.4 1° 03.3	307° 24.8 0° 53.8	321° 59.1 0° 44.3	336° 33.5 0° 34.8	351° 07.9 0° 25.3	5° 42.3 0° 15.9	20° 16.7 0° 06.4	34° 51.1 -0° 03.1	49° 25.5 -0° 12.6	+34.4 -9.5	14.8 54.2
Пн 6	268° 01.4 -2° 34.4	282° 35.8 -2° 43.8	297° 10.1 -2° 53.2	311° 44.4 -3° 02.5	326° 18.7 -3° 11.9	340° 53.1 -3° 21.2	355° 27.3 -3° 30.6	10° 01.6 -3° 39.9	24° 35.9 -3° 49.2	39° 10.1 -3° 58.5	53° 44.4 -4° 07.8	+34.3 -9.3	14.8 54.2
Вт 7	272° 15.5 -6° 25.0	286° 49.4 -6° 34.0	301° 23.3 -6° 43.0	315° 57.1 -6° 51.9	330° 30.9 -7° 00.8	345° 04.7 -7° 09.7	359° 38.4 -7° 18.6	14° 12.2 -7° 27.4	28° 45.8 -7° 36.2	43° 19.5 -7° 45.0	57° 53.1 -7° 53.7	+33.8 -8.9	14.8 54.3
Ср 8	276° 13.0 -10° 01.2	290° 46.0 -10° 09.4	305° 19.0 -10° 17.6	319° 51.9 -10° 25.8	334° 24.8 -10° 33.9	348° 57.6 -10° 41.9	3° 30.4 -10° 49.9	18° 03.2 -10° 57.9	32° 35.9 -11° 05.8	47° 08.5 -11° 13.7	61° 41.2 -11° 21.6	+32.8 -8.0	14.9 54.6
Чт 9	279° 44.5 -13° 13.5	294° 16.3 -13° 20.5	308° 48.0 -13° 27.5	323° 19.7 -13° 34.5	337° 51.4 -13° 41.3	352° 23.0 -13° 48.1	6° 54.5 -13° 54.9	21° 26.0 -14° 01.6	35° 57.4 -14° 08.3	50° 28.8 -14° 14.8	65° 00.2 -14° 21.3	+31.6 -6.8	15.0 55.1
Пт 10	282° 43.4 -15° 51.2	297° 13.8 -15° 56.7	311° 44.2 -16° 02.0	326° 14.5 -16° 07.3	340° 44.8 -16° 12.5	355° 15.0 -16° 17.6	9° 45.1 -16° 22.7	24° 15.2 -16° 27.7	38° 45.3 -16° 32.6	53° 15.3 -16° 37.4	67° 45.2 -16° 42.1	+30.2 -5.1	15.2 55.6
Сб 11	285° 07.7 -17° 43.2	299° 36.8 -17° 46.6	314° 05.8 -17° 49.8	328° 34.8 -17° 53.0	343° 03.7 -17° 56.1	357° 32.6 -17° 59.1	12° 01.5 -18° 02.0	26° 30.2 -18° 04.9	40° 59.0 -18° 07.6	55° 27.7 -18° 10.2	69° 56.3 -18° 12.7	+28.9 -3.0	15.3 56.2
○ Вс 12	287° 01.0 -18° 38.9	301° 29.0 -18° 39.8	315° 56.9 -18° 40.6	330° 24.9 -18° 41.3	344° 52.7 -18° 42.0	359° 20.6 -18° 42.5	13° 48.4 -18° 42.9	28° 16.2 -18° 43.2	42° 44.0 -18° 43.4	57° 11.7 -18° 43.5	71° 39.5 -18° 43.5	+27.8 -0.5	15.5 56.8
Пн 13	288° 32.3 -18° 30.3	302° 59.6 -18° 28.6	317° 27.0 -18° 26.7	331° 54.3 -18° 24.8	346° 21.7 -18° 22.7	0° 49.0 -18° 20.5	15° 16.3 -18° 18.2	29° 43.6 -18° 15.9	44° 10.9 -18° 13.3	58° 38.1 -18° 10.7	73° 05.4 -18° 08.0	+27.3 +2.2	15.6 57.3
Вт 14	289° 54.2 -17° 14.4	304° 21.4 -17° 09.9	318° 48.7 -17° 05.4	333° 16.0 -17° 00.8	347° 43.3 -16° 56.0	2° 10.6 -16° 51.2	16° 37.9 -16° 46.3	31° 05.2 -16° 41.2	45° 32.5 -16° 36.1	59° 59.8 -16° 30.8	74° 27.2 -16° 25.5	+27.3 +4.9	15.8 57.8
Ср 15	291° 19.0 -14° 53.6	305° 46.6 -14° 46.7	320° 14.2 -14° 39.8	334° 41.9 -14° 32.7	349° 09.5 -14° 25.5	3° 37.2 -14° 18.3	18° 04.9 -14° 11.0	32° 32.6 -14° 03.6	47° 00.3 -13° 56.1	61° 28.1 -13° 48.5	75° 55.9 -13° 40.8	+27.7 +7.3	15.9 58.3
Чт 16	292° 55.2 -11° 36.3	307° 23.4 -11° 27.4	321° 51.5 -11° 18.4	336° 19.7 -11° 09.4	350° 47.9 -11° 00.2	5° 16.1 -10° 51.1	19° 44.4 -10° 41.8	34° 12.7 -10° 32.5	48° 41.0 -10° 23.1	63° 09.3 -10° 13.7	77° 37.6 -10° 04.2	+28.2 +9.2	16.0 58.7
Пт 17	307° 23.4 -11° 27.4	321° 51.5 -11° 18.4	336° 19.7 -11° 09.4	350° 47.9 -11° 00.2	5° 16.1 -10° 51.1	19° 44.4 -10° 41.8	34° 12.7 -10° 32.5	48° 41.0 -10° 23.1	63° 09.3 -10° 13.7	77° 37.6 -10° 04.2	92° 06.0 -9° 54.6	+28.3 +9.3	16.0 58.7
Сб 18	309° 13.8 -7° 24.5	323° 42.5 -7° 14.1	338° 11.1 -7° 03.7	352° 39.8 -6° 53.2	7° 08.6 -6° 42.6	21° 37.3 -6° 32.1	36° 06.0 -6° 21.4	50° 34.8 -6° 10.8	65° 03.6 -6° 00.1	79° 32.4 -5° 49.4	94° 01.2 -5° 38.6	+28.7 +10.6	16.1 59.0
◑ Вс 19	311° 14.3 -2° 53.5	325° 43.3 -2° 42.3	340° 12.2 -2° 31.1	354° 41.2 -2° 19.8	9° 10.1 -2° 08.6	23° 39.1 -1° 57.3	38° 08.0 -1° 46.0	52° 36.9 -1° 34.8	67° 05.9 -1° 23.5	81° 34.8 -1° 12.2	96° 03.8 -1° 00.8	+28.9 +11.3	16.1 59.1
Пн 20	313° 17.4 1° 49.2	327° 46.3 2° 00.5	342° 15.1 2° 11.8	356° 43.9 2° 23.1	11° 12.7 2° 34.4	25° 41.5 2° 45.6	40° 10.3 2° 56.9	54° 39.0 3° 08.1	69° 07.8 3° 19.3	83° 36.5 3° 30.5	98° 05.2 3° 41.7	+28.8 +11.2	16.2 59.3
Вт 21	315° 13.7 6° 26.2	329° 42.0 6° 36.9	344° 10.4 6° 47.6	358° 38.7 6° 58.2	13° 07.0 7° 08.8	27° 35.3 7° 19.3	42° 03.6 7° 29.8	56° 31.8 7° 40.3	71° 00.0 7° 50.7	85° 28.2 8° 01.1	99° 56.3 8° 11.4	+28.3 +10.5	16.2 59.3
Ср 22	316° 54.8 10° 39.9	331° 22.4 10° 49.3	345° 50.0 10° 58.7	0° 17.6 11° 07.9	14° 45.1 11° 17.2	29° 12.6 11° 26.3	43° 40.1 11° 35.4	58° 07.6 11° 44.4	72° 35.0 11° 53.3	87° 02.4 12° 02.2	101° 29.7 12° 11.0	+27.5 +9.1	16.1 59.2
Чт 23	318° 16.0 14° 13.3	332° 42.8 14° 20.7	347° 09.6 14° 28.1	1° 36.4 14° 35.4	16° 03.1 14° 42.6	30° 29.8 14° 49.7	44° 56.5 14° 56.7	59° 23.2 15° 03.6	73° 49.8 15° 10.4	88° 16.4 15° 17.2	102° 43.0 15° 23.8	+26.7 +7.1	16.1 59.0
Пт 24	319° 18.8 16° 51.0	333° 45.0 16° 56.0	348° 11.2 17° 00.9	2° 37.4 17° 05.6	17° 03.6 17° 10.3	31° 29.7 17° 14.8	45° 55.9 17° 19.3	60° 22.0 17° 23.6	74° 48.2 17° 27.8	89° 14.3 17° 31.9	103° 40.4 17° 35.9	+26.2 +4.5	16.0 58.7
Сб 25	320° 11.7 18° 22.0	334° 37.8 18° 24.2	349° 03.9 18° 26.2	3° 30.1 18° 28.1	17° 56.2 18° 29.9	32° 22.3 18° 31.6	46° 48.5 18° 33.2	61° 14.7 18° 34.6	75° 40.8 18° 36.0	90° 07.0 18° 37.2	104° 33.2 18° 38.3	+26.1 +1.6	15.9 58.2
● Вс 26	321° 09.2 18° 41.1	335° 35.8 18° 40.4	350° 02.4 18° 39.6	4° 29.1 18° 38.6	18° 55.9 18° 37.5	33° 22.6 18° 36.4	47° 49.4 18° 35.1	62° 16.3 18° 33.7	76° 43.1 18° 32.2	91° 10.1 18° 30.6	105° 37.0 18° 28.9	+26.8 -1.2	15.7 57.7
Пн 27	322° 27.0 17° 50.4	336° 54.7 17° 47.0	351° 22.5 17° 43.5	5° 50.4 17° 40.0	20° 18.3 17° 36.3	34° 46.2 17° 32.5	49° 14.2 17° 28.7	63° 42.3 17° 24.7	78° 10.4 17° 20.6	92° 38.6 17° 16.5	107° 06.9 17° 12.3	+28.0 -3.8	15.6 57.0
Вт 28	324° 17.8 15° 58.2	338° 47.1 15° 52.5	353° 16.4 15° 46.9	7° 45.7 15° 41.1	22° 15.1 15° 35.3	36° 44.6 15° 29.3	51° 14.2 15° 23.4	65° 43.8 15° 17.3	80° 13.5 15° 11.2	94° 43.2 15° 04.9	109° 13.0 14° 58.7	+29.5 -6.0	15.4 56.4
Ср 29	326° 47.9 13° 16.5	341° 18.7 13° 09.2	355° 49.6 13° 01.8	10° 20.5 12° 54.4	24° 51.5 12° 46.9	39° 22.6 12° 39.4	53° 53.7 12° 31.8	68° 24.9 12° 24.2	82° 56.2 12° 16.5	97° 27.5 12° 08.7	111° 58.9 12° 00.9	+31.1 -7.6	15.2 55.7
Чт 30	329° 56.4 9° 58.6	344° 28.7 9° 50.1	359° 01.0 9° 41.6	13° 33.4 9° 33.1	28° 05.8 9° 24.5	42° 38.3 9° 15.8	57° 10.8 9° 07.2	71° 43.4 8° 58.5	86° 16.0 8° 49.8	100° 48.7 8° 41.0	115° 21.4 8° 32.2	+32.5 -8.6	15.0 55.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 4 23h38 — Полнолуние: 12 23h19 — Последняя четв.: 19 23h29 — Новолуние: 26 21h07

СОЛНЦЕ

Июль 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	269° 00.9	284° 00.8	299° 00.7	314° 00.6	329° 00.4	344° 00.3	359° 00.2	14° 00.1	29° 00.0	43° 59.8	58° 59.7	73° 59.6	-0.1
	23° 04.5	23° 04.3	23° 04.1	23° 04.0	23° 03.8	23° 03.6	23° 03.4	23° 03.3	23° 03.1	23° 02.9	23° 02.7	23° 02.5	-0.2
Сб 2	268° 58.1	283° 58.0	298° 57.8	313° 57.7	328° 57.6	343° 57.5	358° 57.4	13° 57.3	28° 57.1	43° 57.0	58° 56.9	73° 56.8	-0.1
	23° 00.1	22° 59.9	22° 59.7	22° 59.5	22° 59.3	22° 59.1	22° 58.9	22° 58.7	22° 58.6	22° 58.4	22° 58.2	22° 58.0	-0.2
Вс 3	268° 55.3	283° 55.2	298° 55.1	313° 54.9	328° 54.8	343° 54.7	358° 54.6	13° 54.5	28° 54.4	43° 54.3	58° 54.2	73° 54.0	-0.1
	22° 55.3	22° 55.1	22° 54.9	22° 54.7	22° 54.5	22° 54.3	22° 54.1	22° 53.8	22° 53.6	22° 53.4	22° 53.2	22° 53.0	-0.2
Пн 4	268° 52.6	283° 52.5	298° 52.4	313° 52.3	328° 52.1	343° 52.0	358° 51.9	13° 51.8	28° 51.7	43° 51.6	58° 51.5	73° 51.4	-0.1
	22° 50.1	22° 49.9	22° 49.7	22° 49.5	22° 49.2	22° 49.0	22° 48.8	22° 48.5	22° 48.3	22° 48.1	22° 47.9	22° 47.6	-0.2
Вт 5	268° 50.0	283° 49.9	298° 49.8	313° 49.7	328° 49.5	343° 49.4	358° 49.3	13° 49.2	28° 49.1	43° 49.0	58° 48.9	73° 48.8	-0.1
	22° 44.6	22° 44.3	22° 44.1	22° 43.8	22° 43.6	22° 43.3	22° 43.1	22° 42.9	22° 42.6	22° 42.4	22° 42.1	22° 41.9	-0.2
Ср 6	268° 47.5	283° 47.3	298° 47.2	313° 47.1	328° 47.0	343° 46.9	358° 46.8	13° 46.7	28° 46.6	43° 46.5	58° 46.4	73° 46.3	-0.1
	22° 38.6	22° 38.3	22° 38.1	22° 37.8	22° 37.5	22° 37.3	22° 37.0	22° 36.8	22° 36.5	22° 36.2	22° 36.0	22° 35.7	-0.3
Чт 7	268° 45.0	283° 44.9	298° 44.8	313° 44.7	328° 44.6	343° 44.5	358° 44.4	13° 44.3	28° 44.2	43° 44.1	58° 44.0	73° 43.9	-0.1
	22° 32.2	22° 31.9	22° 31.7	22° 31.4	22° 31.1	22° 30.8	22° 30.6	22° 30.3	22° 30.0	22° 29.7	22° 29.4	22° 29.2	-0.3
Пт 8	268° 42.7	283° 42.6	298° 42.5	313° 42.4	328° 42.3	343° 42.2	358° 42.1	13° 42.0	28° 41.9	43° 41.9	58° 41.8	73° 41.7	-0.1
	22° 25.5	22° 25.2	22° 24.9	22° 24.6	22° 24.3	22° 24.0	22° 23.7	22° 23.4	22° 23.1	22° 22.8	22° 22.5	22° 22.2	-0.3
Сб 9	268° 40.5	283° 40.4	298° 40.3	313° 40.2	328° 40.1	343° 40.0	358° 39.9	13° 39.9	28° 39.8	43° 39.7	58° 39.6	73° 39.5	-0.1
	22° 18.3	22° 18.0	22° 17.7	22° 17.4	22° 17.1	22° 16.8	22° 16.5	22° 16.2	22° 15.8	22° 15.5	22° 15.2	22° 14.9	-0.3
Вс 10	268° 38.4	283° 38.3	298° 38.2	313° 38.1	328° 38.0	343° 37.9	358° 37.9	13° 37.8	28° 37.7	43° 37.6	58° 37.5	73° 37.4	-0.1
	22° 10.8	22° 10.5	22° 10.1	22° 09.8	22° 09.5	22° 09.2	22° 08.8	22° 08.5	22° 08.2	22° 07.9	22° 07.5	22° 07.2	-0.3
Пн 11	268° 36.4	283° 36.3	298° 36.2	313° 36.1	328° 36.0	343° 36.0	358° 35.9	13° 35.8	28° 35.7	43° 35.6	58° 35.6	73° 35.5	-0.1
	22° 02.9	22° 02.5	22° 02.2	22° 01.9	22° 01.5	22° 01.2	22° 00.8	22° 00.5	22° 00.2	21° 59.8	21° 59.5	21° 59.1	-0.3
Вт 12	268° 34.5	283° 34.4	298° 34.3	313° 34.2	328° 34.2	343° 34.1	358° 34.0	13° 33.9	28° 33.9	43° 33.8	58° 33.7	73° 33.7	-0.1
	21° 54.6	21° 54.2	21° 53.9	21° 53.5	21° 53.2	21° 52.8	21° 52.5	21° 52.1	21° 51.7	21° 51.4	21° 51.0	21° 50.7	-0.4
Ср 13	268° 32.7	283° 32.6	298° 32.6	313° 32.5	328° 32.4	343° 32.4	358° 32.3	13° 32.2	28° 32.1	43° 32.1	58° 32.0	73° 31.9	-0.1
	21° 45.9	21° 45.6	21° 45.2	21° 44.8	21° 44.4	21° 44.1	21° 43.7	21° 43.3	21° 43.0	21° 42.6	21° 42.2	21° 41.8	-0.4
Чт 14	268° 31.1	283° 31.0	298° 30.9	313° 30.9	328° 30.8	343° 30.7	358° 30.7	13° 30.6	28° 30.5	43° 30.5	58° 30.4	73° 30.3	-0.1
	21° 36.9	21° 36.5	21° 36.1	21° 35.7	21° 35.3	21° 35.0	21° 34.6	21° 34.2	21° 33.8	21° 33.4	21° 33.0	21° 32.6	-0.4
Пт 15	268° 29.5	283° 29.5	298° 29.4	313° 29.3	328° 29.3	343° 29.2	358° 29.2	13° 29.1	28° 29.0	43° 29.0	58° 28.9	73° 28.9	-0.1
	21° 27.5	21° 27.1	21° 26.7	21° 26.3	21° 25.9	21° 25.5	21° 25.1	21° 24.7	21° 24.3	21° 23.9	21° 23.5	21° 23.1	-0.4
Сб 16	268° 28.1	283° 28.1	298° 28.0	313° 28.0	328° 27.9	343° 27.8	358° 27.8	13° 27.7	28° 27.7	43° 27.6	58° 27.6	73° 27.5	-0.1
	21° 17.7	21° 17.3	21° 16.9	21° 16.5	21° 16.1	21° 15.6	21° 15.2	21° 14.8	21° 14.4	21° 14.0	21° 13.5	21° 13.1	-0.4
Вс 17	268° 26.8	283° 26.8	298° 26.7	313° 26.7	328° 26.6	343° 26.6	358° 26.5	13° 26.5	28° 26.4	43° 26.4	58° 26.3	73° 26.3	-0.0
	21° 07.6	21° 07.2	21° 06.7	21° 06.3	21° 05.9	21° 05.4	21° 05.0	21° 04.6	21° 04.1	21° 03.7	21° 03.3	21° 02.8	-0.4
Пн 18	268° 25.7	283° 25.6	298° 25.6	313° 25.6	328° 25.5	343° 25.5	358° 25.4	13° 25.4	28° 25.3	43° 25.3	58° 25.3	73° 25.2	-0.0
	20° 57.1	20° 56.6	20° 56.2	20° 55.8	20° 55.3	20° 54.9	20° 54.4	20° 54.0	20° 53.5	20° 53.1	20° 52.6	20° 52.2	-0.4
Вт 19	268° 24.7	283° 24.6	298° 24.6	313° 24.6	328° 24.5	343° 24.5	358° 24.4	13° 24.4	28° 24.4	43° 24.3	58° 24.3	73° 24.2	-0.0
	20° 46.2	20° 45.8	20° 45.3	20° 44.9	20° 44.4	20° 43.9	20° 43.5	20° 43.0	20° 42.6	20° 42.1	20° 41.6	20° 41.2	-0.5
Ср 20	268° 23.8	283° 23.8	298° 23.7	313° 23.7	328° 23.6	343° 23.6	358° 23.6	13° 23.6	28° 23.5	43° 23.5	58° 23.5	73° 23.4	-0.0
	20° 35.1	20° 34.6	20° 34.1	20° 33.6	20° 33.2	20° 32.7	20° 32.2	20° 31.7	20° 31.2	20° 30.8	20° 30.3	20° 29.8	-0.5
Чт 21	268° 23.0	283° 23.0	298° 23.0	313° 22.9	328° 22.9	343° 22.9	358° 22.9	13° 22.8	28° 22.8	43° 22.8	58° 22.8	73° 22.7	-0.0
	20° 23.5	20° 23.0	20° 22.5	20° 22.0	20° 21.6	20° 21.1	20° 20.6	20° 20.1	20° 19.6	20° 19.1	20° 18.6	20° 18.1	-0.5
Пт 22	268° 22.4	283° 22.4	298° 22.4	313° 22.3	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.2	43° 22.2	58° 22.2	73° 22.2	-0.0
	20° 11.6	20° 11.1	20° 10.6	20° 10.1	20° 09.6	20° 09.1	20° 08.6	20° 08.1	20° 07.6	20° 07.1	20° 06.6	20° 06.1	-0.5
Сб 23	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.9	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.8	-0.0
	19° 59.4	19° 58.9	19° 58.4	19° 57.9	19° 57.3	19° 56.8	19° 56.3	19° 55.8	19° 55.3	19° 54.7	19° 54.2	19° 53.7	-0.5
Вс 24	268° 21.6	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.5	13° 21.5	28° 21.5	43° 21.5	58° 21.5	73° 21.5	-0.0
	19° 46.8	19° 46.3	19° 45.8	19° 45.3	19° 44.7	19° 44.2	19° 43.7	19° 43.1	19° 42.6	19° 42.1	19° 41.5	19° 41.0	-0.5
Пн 25	268° 21.4	283° 21.4	298° 21.4	313° 21.4	328° 21.4	343° 21.4	358° 21.4	13° 21.4	28° 21.4	43° 21.4	58° 21.4	73° 21.4	-0.0
	19° 34.0	19° 33.4	19° 32.9	19° 32.3	19° 31.8	19° 31.2	19° 30.7	19° 30.1	19° 29.6	19° 29.0	19° 28.5	19° 27.9	-0.5
Вт 26	268° 21.4	283° 21.4	298° 21.4	313° 21.4	328° 21.4	343° 21.4	358° 21.4	13° 21.4	28° 21.4	43° 21.4	58° 21.4	73° 21.4	+0.0
	19° 20.8	19° 20.2	19° 19.6	19° 19.1	19° 18.5	19° 18.0	19° 17.4	19° 16.8	19° 16.3	19° 15.7	19° 15.2	19° 14.6	-0.6
Ср 27	268° 21.5	283° 21.5	298° 21.5	313° 21.5	328° 21.5	343° 21.5	358° 21.5	13° 21.6	28° 21.6	43° 21.6	58° 21.6	73° 21.6	+0.0
	19° 07.2	19° 06.7	19° 06.1	19° 05.5	19° 04.9	19° 04.4	19° 03.8	19° 03.2	19° 02.6	19° 02.1	19° 01.5	19° 00.9	-0.6
Чт 28	268° 21.8	283° 21.8	298° 21.8	313° 21.8	328° 21.8	343° 21.8	358° 21.8	13° 21.9	28° 21.9	43° 21.9	58° 21.9	73° 21.9	+0.0
	18° 53.4	18° 52.8	18° 52.2	18° 51.6	18° 51.0	18° 50.5	18° 49.9	18° 49.3	18° 48.7	18° 48.1	18° 47.5	18° 46.9	-0.6
Пт 29	268° 22.2	283° 22.2	298° 22.2	313° 22.2	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.3	43° 22.4	58° 22.4	73° 22.4	+0.0
	18° 39.2	18° 38.6	18° 38.0	18° 37.4	18° 36.8	18° 36.2	18° 35.6	18° 35.0	18° 34.4	18° 33.8	18° 33.2	18° 32.6	-0.6
Сб 30	268° 22.7	283° 22.8	298° 22.8	313° 22.8	328° 22.9	343° 22.9	358° 22.9	13° 22.9	28° 23.0	43° 23.0	58° 23.0	73° 23.1	+0.0
	18° 24.8	18° 24.2	18° 23.5	18° 22.9	18° 22.3	18° 21.7	18° 21.1	18° 20.5	18° 19.9	18° 19.3	18° 18.7	18° 18.0	-0.6
Вс 31	268° 23.5	283° 23.5	298° 23.5	313° 23.6	328° 23.6	343° 23.6	358° 23.7	13° 23.7	28° 23.7	43° 23.8	58° 23.8	73° 23.9	+0.0
	18° 10.0	18° 09.4	18° 08.8	18° 08.1	18° 07.5	18° 06.9	18° 06.3	18° 05.6	18° 05.0	18° 04.4	18° 03.8	18° 03.1	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2033

Д	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	R/p
Пт 1	246° 18.0 7° 11.8	260° 51.1 7° 02.8	275° 24.4 6° 53.7	289° 57.6 6° 44.6	304° 30.9 6° 35.5	319° 04.2 6° 26.3	333° 37.6 6° 17.1	348° 11.0 6° 08.0	2° 44.4 5° 58.7	17° 17.9 5° 49.5	31° 51.4 5° 40.3	+33.3 -9.2	14.9 54.8
Сб 2	250° 17.7 3° 19.8	264° 51.7 3° 10.3	279° 25.7 3° 00.9	293° 59.7 2° 51.4	308° 33.8 2° 41.9	323° 07.8 2° 32.4	337° 41.9 2° 22.9	352° 16.0 2° 13.4	6° 50.2 2° 03.9	21° 24.3 1° 54.4	35° 58.5 1° 44.9	+34.1 -9.5	14.8 54.4
Вс 3	254° 32.4 -0° 37.7	269° 06.7 -0° 47.2	283° 41.1 -0° 56.7	298° 15.4 -1° 06.2	312° 49.7 -1° 15.7	327° 24.1 -1° 25.1	341° 58.4 -1° 34.6	356° 32.8 -1° 44.0	11° 07.1 -1° 53.5	25° 41.5 -2° 02.9	40° 15.8 -2° 12.3	+34.3 -9.5	14.8 54.2
Пн 4	258° 50.2 -4° 32.2	273° 24.5 -4° 41.4	287° 58.7 -4° 50.6	302° 32.8 -4° 59.8	317° 07.0 -5° 08.9	331° 41.2 -5° 18.0	346° 15.3 -5° 27.1	0° 49.4 -5° 36.2	15° 23.5 -5° 45.3	29° 57.6 -5° 54.3	44° 31.6 -6° 03.3	+34.1 -9.1	14.8 54.2
Вт 5	262° 59.6 -8° 15.5	277° 33.2 -8° 24.1	292° 06.9 -8° 32.7	306° 40.4 -8° 41.2	321° 14.0 -8° 49.7	335° 47.5 -8° 58.1	350° 20.9 -9° 06.6	4° 54.4 -9° 14.9	19° 27.8 -9° 23.3	34° 01.1 -9° 31.6	48° 34.5 -9° 39.9	+33.5 -8.4	14.8 54.4
Ср 6	266° 49.5 -11° 39.3	281° 22.1 -11° 47.0	295° 54.7 -11° 54.5	310° 27.3 -12° 02.0	324° 59.8 -12° 09.5	339° 32.2 -12° 16.9	354° 04.6 -12° 24.3	8° 37.0 -12° 31.7	23° 09.3 -12° 38.9	37° 41.6 -12° 46.2	52° 13.8 -12° 53.3	+32.4 -7.4	14.9 54.7
Чт 7	270° 10.5 -14° 34.3	284° 41.8 -14° 40.5	299° 13.1 -14° 46.7	313° 44.3 -14° 52.9	328° 15.5 -14° 58.9	342° 46.6 -15° 04.9	357° 17.7 -15° 10.8	11° 48.7 -15° 16.7	26° 19.6 -15° 22.5	40° 50.5 -15° 28.2	55° 21.3 -15° 33.9	+31.1 -6.0	15.1 55.3
Пт 8	272° 56.4 -16° 50.0	287° 26.3 -16° 54.4	301° 56.1 -16° 58.8	316° 25.8 -17° 03.1	330° 55.5 -17° 07.3	345° 25.1 -17° 11.4	359° 54.7 -17° 15.4	14° 24.2 -17° 19.4	28° 53.6 -17° 23.3	43° 23.0 -17° 27.1	57° 52.4 -17° 30.8	+29.6 -4.1	15.2 55.9
Сб 9	275° 05.6 -18° 15.3	289° 34.0 -18° 17.6	304° 02.4 -18° 19.7	318° 30.7 -18° 21.7	332° 59.0 -18° 23.6	347° 27.3 -18° 25.5	1° 55.5 -18° 27.2	16° 23.6 -18° 28.8	30° 51.7 -18° 30.3	45° 19.7 -18° 31.7	59° 47.7 -18° 33.1	+28.2 -1.8	15.4 56.6
Вс 10	276° 42.4 -18° 40.3	291° 09.7 -18° 39.9	305° 37.0 -18° 39.4	320° 04.3 -18° 38.8	334° 31.5 -18° 38.1	348° 58.7 -18° 37.3	3° 25.9 -18° 36.4	17° 53.0 -18° 35.4	32° 20.1 -18° 34.2	46° 47.2 -18° 33.0	61° 14.2 -18° 31.6	+27.2 +0.9	15.6 57.4
Пн 11	277° 57.1 -17° 57.7	292° 23.8 -17° 54.6	306° 50.5 -17° 51.3	321° 17.2 -17° 47.9	335° 43.9 -17° 44.4	350° 10.5 -17° 40.8	4° 37.2 -17° 37.1	19° 03.8 -17° 33.3	33° 30.5 -17° 29.4	47° 57.1 -17° 25.4	62° 23.8 -17° 21.2	+26.7 +3.7	15.8 58.1
Вт 12	279° 03.1 -16° 06.0	293° 29.8 -16° 00.1	307° 56.4 -15° 54.2	322° 23.1 -15° 48.1	336° 49.8 -15° 41.9	351° 16.5 -15° 35.7	5° 43.2 -15° 29.3	20° 09.9 -15° 22.8	34° 36.6 -15° 16.3	49° 03.3 -15° 09.6	63° 30.1 -15° 02.8	+26.7 +6.3	16.0 58.7
Ср 13	280° 13.3 -13° 10.2	294° 40.3 -13° 01.9	309° 07.4 -12° 53.6	323° 34.4 -12° 45.2	338° 01.5 -12° 36.8	352° 28.7 -12° 28.2	6° 55.8 -12° 19.6	21° 23.0 -12° 10.9	35° 50.1 -12° 02.1	50° 17.3 -11° 53.2	64° 44.6 -11° 44.3	+27.1 +8.6	16.1 59.1
Чт 14	281° 35.9 -9° 21.6	296° 03.5 -9° 11.6	310° 31.1 -9° 01.5	324° 58.8 -8° 51.4	339° 26.5 -8° 41.2	353° 54.2 -8° 30.9	8° 21.9 -8° 20.6	22° 49.7 -8° 10.3	37° 17.5 -7° 59.9	51° 45.3 -7° 49.4	66° 13.1 -7° 38.9	+27.7 +10.3	16.2 59.4
Пт 15	283° 13.0 -4° 56.3	297° 41.2 -4° 45.2	312° 09.3 -4° 34.1	326° 37.5 -4° 22.9	341° 05.7 -4° 11.7	355° 33.9 -4° 00.5	10° 02.2 -3° 49.2	24° 30.4 -3° 38.0	38° 58.7 -3° 26.7	53° 27.0 -3° 15.4	67° 55.3 -3° 04.0	+28.2 +11.2	16.2 59.6
Сб 16	285° 01.1 -0° 12.7	299° 29.6 -0° 01.3	313° 58.1 0° 10.2	328° 26.5 0° 21.7	342° 55.0 0° 33.1	357° 23.5 0° 44.5	11° 52.0 0° 56.0	26° 20.5 1° 07.4	40° 49.0 1° 18.8	55° 17.4 1° 30.2	69° 45.9 1° 41.6	+28.5 +11.4	16.2 59.5
Вс 17	299° 29.6 -0° 01.3	313° 58.1 0° 10.2	328° 26.5 0° 21.7	342° 55.0 0° 33.1	357° 23.5 0° 44.5	11° 52.0 0° 56.0	26° 20.5 1° 07.4	40° 49.0 1° 18.8	55° 17.4 1° 30.2	69° 45.9 1° 41.6	84° 14.4 1° 53.0	+28.5 +11.4	16.2 59.5
Пн 18	301° 21.7 4° 41.5	315° 50.1 4° 52.5	330° 18.5 5° 03.5	344° 47.0 5° 14.5	359° 15.4 5° 25.4	13° 43.8 5° 36.3	28° 12.2 5° 47.1	42° 40.6 5° 57.9	57° 08.9 6° 08.7	71° 37.3 6° 19.5	86° 05.7 6° 30.2	+28.4 +10.9	16.2 59.4
Вт 19	303° 09.3 9° 05.0	317° 37.4 9° 14.9	332° 05.5 9° 24.7	346° 33.6 9° 34.5	1° 01.7 9° 44.2	15° 29.7 9° 53.9	29° 57.7 10° 03.5	44° 25.7 10° 13.0	58° 53.7 10° 22.5	73° 21.7 10° 31.9	87° 49.6 10° 41.2	+28.0 +9.6	16.1 59.1
Ср 20	304° 46.2 12° 52.7	319° 13.8 13° 00.8	333° 41.4 13° 08.9	348° 09.0 13° 16.9	2° 36.5 13° 24.8	17° 04.0 13° 32.6	31° 31.5 13° 40.4	45° 59.0 13° 48.0	60° 26.4 13° 55.6	74° 53.9 14° 03.1	89° 21.3 14° 10.5	+27.5 +7.8	16.0 58.7
Чт 21	306° 10.1 15° 50.4	320° 37.2 15° 56.3	335° 04.3 16° 02.1	349° 31.4 16° 07.7	3° 58.4 16° 13.3	18° 25.5 16° 18.8	32° 52.5 16° 24.2	47° 19.5 16° 29.5	61° 46.5 16° 34.7	76° 13.5 16° 39.8	90° 40.5 16° 44.8	+27.0 +5.4	15.9 58.3
Пт 22	307° 24.1 17° 47.0	321° 51.0 17° 50.3	336° 17.9 17° 53.4	350° 44.7 17° 56.5	5° 11.6 17° 59.5	19° 38.4 18° 02.3	34° 05.3 18° 05.0	48° 32.2 18° 07.7	62° 59.0 18° 10.2	77° 25.9 18° 12.6	91° 52.8 18° 14.9	+26.9 +2.8	15.8 57.9
Сб 23	308° 37.1 18° 36.1	323° 04.2 18° 36.6	337° 31.3 18° 37.0	351° 58.4 18° 37.3	6° 25.5 18° 37.5	20° 52.6 18° 37.6	35° 19.8 18° 37.6	49° 47.0 18° 37.4	64° 14.2 18° 37.2	78° 41.4 18° 36.8	93° 08.7 18° 36.4	+27.2 +0.0	15.7 57.4
Вс 24	310° 01.2 18° 16.7	324° 29.0 18° 14.5	338° 56.8 18° 12.3	353° 24.6 18° 09.9	7° 52.5 18° 07.5	22° 20.4 18° 04.9	36° 48.4 18° 02.3	51° 16.4 17° 59.5	65° 44.5 17° 56.7	80° 12.6 17° 53.7	94° 40.7 17° 50.7	+27.9 -2.6	15.5 56.9
Пн 25	311° 48.3 16° 53.6	326° 17.2 16° 49.1	340° 46.2 16° 44.5	355° 15.2 16° 39.8	9° 44.2 16° 35.0	24° 13.4 16° 30.1	38° 42.5 16° 25.2	53° 11.7 16° 20.1	67° 41.0 16° 15.0	82° 10.3 16° 09.8	96° 39.7 16° 04.5	+29.1 -4.9	15.4 56.4
Вт 26	314° 06.9 14° 36.0	328° 37.2 14° 29.5	343° 07.5 14° 23.0	357° 37.8 14° 16.4	12° 08.3 14° 09.7	26° 38.8 14° 03.0	41° 09.3 13° 56.2	55° 39.9 13° 49.3	70° 10.5 13° 42.4	84° 41.2 13° 35.4	99° 12.0 13° 28.3	+30.5 -6.8	15.2 55.8
Ср 27	317° 00.0 11° 35.7	331° 31.6 11° 27.8	346° 03.3 11° 19.8	0° 35.0 11° 11.8	15° 06.8 11° 03.7	29° 38.6 10° 55.6	44° 10.5 10° 47.5	58° 42.4 10° 39.3	73° 14.4 10° 31.1	87° 46.4 10° 22.8	102° 18.5 10° 14.5	+31.9 -8.1	15.1 55.3
Чт 28	320° 25.3 8° 05.2	334° 58.2 7° 56.3	349° 31.0 7° 47.4	4° 03.9 7° 38.5	18° 36.8 7° 29.5	33° 09.8 7° 20.6	47° 42.8 7° 11.5	62° 15.9 7° 02.5	76° 49.0 6° 53.4	91° 22.1 6° 44.4	105° 55.3 6° 35.3	+33.0 -9.0	15.0 54.8
Пт 29	324° 16.9 4° 16.4	338° 50.6 4° 07.0	353° 24.3 3° 57.6	7° 58.1 3° 48.2	22° 31.9 3° 38.8	37° 05.7 3° 29.4	51° 39.5 3° 19.9	66° 13.3 3° 10.5	80° 47.2 3° 01.1	95° 21.1 2° 51.6	109° 55.0 2° 42.1	+33.8 -9.4	14.9 54.5
Сб 30	328° 26.1 0° 19.8	343° 00.3 0° 10.3	357° 34.5 0° 00.9	12° 08.7 -0° 08.6	26° 42.9 -0° 18.1	41° 17.1 -0° 27.6	55° 51.4 -0° 37.0	70° 25.6 -0° 46.5	84° 59.9 -0° 55.9	99° 34.2 -1° 05.4	114° 08.4 -1° 14.8	+34.2 -9.5	14.8 54.2
Вс 31	332° 42.7 -3° 35.1	347° 17.0 -3° 44.3	1° 51.3 -3° 53.6	16° 25.5 -4° 02.8	30° 59.8 -4° 12.0	45° 34.0 -4° 21.1	60° 08.3 -4° 30.3	74° 42.5 -4° 39.4	89° 16.7 -4° 48.5	103° 50.9 -4° 57.6	118° 25.1 -5° 06.7	+34.2 -9.2	14.8 54.1

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Первая четв.: 4 17h12 — Полнолуние: 12 09h28 — Последняя четв.: 19 04h07 — Новолуние: 26 08h12

СОЛНЦЕ

Август 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	268° 24.3 17° 55.0	283° 24.4 17° 54.3	298° 24.4 17° 53.7	313° 24.5 17° 53.0	328° 24.5 17° 52.4	343° 24.6 17° 51.8	358° 24.6 17° 51.1	13° 24.6 17° 50.5	28° 24.7 17° 49.9	43° 24.7 17° 49.2	58° 24.8 17° 48.6	73° 24.8 17° 48.0	+0.0 -0.6
Вт 2	268° 25.4 17° 39.6	283° 25.4 17° 39.0	298° 25.5 17° 38.3	313° 25.5 17° 37.7	328° 25.6 17° 37.0	343° 25.6 17° 36.4	358° 25.7 17° 35.7	13° 25.7 17° 35.1	28° 25.8 17° 34.4	43° 25.8 17° 33.8	58° 25.9 17° 33.1	73° 25.9 17° 32.5	+0.0 -0.6
Ср 3	268° 26.6 17° 24.0	283° 26.6 17° 23.3	298° 26.7 17° 22.7	313° 26.7 17° 22.0	328° 26.8 17° 21.3	343° 26.8 17° 20.7	358° 26.9 17° 20.0	13° 27.0 17° 19.4	28° 27.0 17° 18.7	43° 27.1 17° 18.0	58° 27.1 17° 17.4	73° 27.2 17° 16.7	+0.1 -0.7
Чт 4	268° 27.9 17° 08.1	283° 28.0 17° 07.4	298° 28.0 17° 06.7	313° 28.1 17° 06.0	328° 28.2 17° 05.4	343° 28.2 17° 04.7	358° 28.3 17° 04.0	13° 28.4 17° 03.4	28° 28.4 17° 02.7	43° 28.5 17° 02.0	58° 28.5 17° 01.3	73° 28.6 17° 00.7	+0.1 -0.7
Пт 5	268° 29.4 16° 51.9	283° 29.5 16° 51.2	298° 29.6 16° 50.5	313° 29.6 16° 49.8	328° 29.7 16° 49.1	343° 29.8 16° 48.5	358° 29.8 16° 47.8	13° 29.9 16° 47.1	28° 30.0 16° 46.4	43° 30.0 16° 45.7	58° 30.1 16° 45.0	73° 30.2 16° 44.4	+0.1 -0.7
Сб 6	268° 31.1 16° 35.4	283° 31.2 16° 34.7	298° 31.2 16° 34.0	313° 31.3 16° 33.3	328° 31.4 16° 32.6	343° 31.5 16° 31.9	358° 31.5 16° 31.2	13° 31.6 16° 30.6	28° 31.7 16° 29.9	43° 31.7 16° 29.2	58° 31.8 16° 28.5	73° 31.9 16° 27.8	+0.1 -0.7
Вс 7	268° 32.9 16° 18.7	283° 33.0 16° 18.0	298° 33.1 16° 17.3	313° 33.1 16° 16.6	328° 33.2 16° 15.9	343° 33.3 16° 15.2	358° 33.4 16° 14.5	13° 33.5 16° 13.7	28° 33.5 16° 13.0	43° 33.6 16° 12.3	58° 33.7 16° 11.6	73° 33.8 16° 10.9	+0.1 -0.7
Пн 8	268° 34.9 16° 01.7	283° 34.9 16° 01.0	298° 35.0 16° 00.3	313° 35.1 15° 59.5	328° 35.2 15° 58.8	343° 35.3 15° 58.1	358° 35.4 15° 57.4	13° 35.5 15° 56.7	28° 35.5 15° 56.0	43° 35.6 15° 55.2	58° 35.7 15° 54.5	73° 35.8 15° 53.8	+0.1 -0.7
Вт 9	268° 37.0 15° 44.4	283° 37.1 15° 43.7	298° 37.2 15° 43.0	313° 37.2 15° 42.3	328° 37.3 15° 41.5	343° 37.4 15° 40.8	358° 37.5 15° 40.1	13° 37.6 15° 39.4	28° 37.7 15° 38.6	43° 37.8 15° 37.9	58° 37.9 15° 37.2	73° 38.0 15° 36.5	+0.1 -0.7
Ср 10	268° 39.2 15° 26.9	283° 39.3 15° 26.2	298° 39.4 15° 25.5	313° 39.5 15° 24.7	328° 39.6 15° 24.0	343° 39.7 15° 23.3	358° 39.8 15° 22.5	13° 39.9 15° 21.8	28° 40.0 15° 21.1	43° 40.1 15° 20.3	58° 40.2 15° 19.6	73° 40.3 15° 18.8	+0.1 -0.7
Чт 11	268° 41.6 15° 09.2	283° 41.7 15° 08.5	298° 41.8 15° 07.7	313° 41.9 15° 07.0	328° 42.0 15° 06.2	343° 42.1 15° 05.5	358° 42.2 15° 04.7	13° 42.4 15° 04.0	28° 42.5 15° 03.2	43° 42.6 15° 02.5	58° 42.7 15° 01.7	73° 42.8 15° 01.0	+0.1 -0.7
Пт 12	268° 44.2 14° 51.2	283° 44.3 14° 50.5	298° 44.4 14° 49.7	313° 44.5 14° 48.9	328° 44.6 14° 48.2	343° 44.7 14° 47.4	358° 44.8 14° 46.7	13° 44.9 14° 45.9	28° 45.0 14° 45.2	43° 45.2 14° 44.4	58° 45.3 14° 43.6	73° 45.4 14° 42.9	+0.1 -0.8
Сб 13	268° 46.8 14° 33.0	283° 47.0 14° 32.2	298° 47.1 14° 31.5	313° 47.2 14° 30.7	328° 47.3 14° 29.9	343° 47.4 14° 29.2	358° 47.5 14° 28.4	13° 47.7 14° 27.6	28° 47.8 14° 26.9	43° 47.9 14° 26.1	58° 48.0 14° 25.3	73° 48.1 14° 24.6	+0.1 -0.8
Вс 14	268° 49.7 14° 14.5	283° 49.8 14° 13.8	298° 49.9 14° 13.0	313° 50.0 14° 12.2	328° 50.1 14° 11.4	343° 50.3 14° 10.7	358° 50.4 14° 09.9	13° 50.5 14° 09.1	28° 50.6 14° 08.3	43° 50.7 14° 07.6	58° 50.9 14° 06.8	73° 51.0 14° 06.0	+0.1 -0.8
Пн 15	268° 52.6 13° 55.8	283° 52.7 13° 55.1	298° 52.8 13° 54.3	313° 53.0 13° 53.5	328° 53.1 13° 52.7	343° 53.2 13° 51.9	358° 53.4 13° 51.1	13° 53.5 13° 50.4	28° 53.6 13° 49.6	43° 53.7 13° 48.8	58° 53.9 13° 48.0	73° 54.0 13° 47.2	+0.1 -0.8
Вт 16	268° 55.7 13° 36.9	283° 55.8 13° 36.1	298° 55.9 13° 35.4	313° 56.1 13° 34.6	328° 56.2 13° 33.8	343° 56.3 13° 33.0	358° 56.5 13° 32.2	13° 56.6 13° 31.4	28° 56.7 13° 30.6	43° 56.9 13° 29.8	58° 57.0 13° 29.0	73° 57.1 13° 28.2	+0.1 -0.8
Ср 17	268° 58.9 13° 17.8	283° 59.0 13° 17.0	298° 59.1 13° 16.2	313° 59.3 13° 15.4	328° 59.4 13° 14.6	343° 59.5 13° 13.8	358° 59.7 13° 13.0	13° 59.8 13° 12.2	29° 00.0 13° 11.4	44° 00.1 13° 10.6	59° 00.2 13° 09.8	74° 00.4 13° 09.0	+0.1 -0.8
Чт 18	269° 02.2 12° 58.5	284° 02.3 12° 57.7	299° 02.5 12° 56.9	314° 02.6 12° 56.0	329° 02.7 12° 55.2	344° 02.9 12° 54.4	359° 03.0 12° 53.6	14° 03.2 12° 52.8	29° 03.3 12° 52.0	44° 03.5 12° 51.2	59° 03.6 12° 50.4	74° 03.7 12° 49.5	+0.1 -0.8
Пт 19	269° 05.6 12° 38.9	284° 05.8 12° 38.1	299° 05.9 12° 37.3	314° 06.1 12° 36.5	329° 06.2 12° 35.7	344° 06.3 12° 34.8	359° 06.5 12° 34.0	14° 06.6 12° 33.2	29° 06.8 12° 32.4	44° 06.9 12° 31.6	59° 07.1 12° 30.7	74° 07.2 12° 29.9	+0.1 -0.8
Сб 20	269° 09.2 12° 19.2	284° 09.3 12° 18.4	299° 09.5 12° 17.5	314° 09.6 12° 16.7	329° 09.8 12° 15.9	344° 09.9 12° 15.1	359° 10.1 12° 14.2	14° 10.2 12° 13.4	29° 10.4 12° 12.6	44° 10.5 12° 11.7	59° 10.7 12° 10.9	74° 10.8 12° 10.1	+0.2 -0.8
Вс 21	269° 12.8 11° 59.3	284° 13.0 11° 58.4	299° 13.1 11° 57.6	314° 13.3 11° 56.7	329° 13.5 11° 55.9	344° 13.6 11° 55.1	359° 13.8 11° 54.2	14° 13.9 11° 53.4	29° 14.1 11° 52.6	44° 14.2 11° 51.7	59° 14.4 11° 50.9	74° 14.5 11° 50.1	+0.2 -0.8
Пн 22	269° 16.6 11° 39.1	284° 16.8 11° 38.3	299° 16.9 11° 37.4	314° 17.1 11° 36.6	329° 17.2 11° 35.8	344° 17.4 11° 34.9	359° 17.6 11° 34.1	14° 17.7 11° 33.2	29° 17.9 11° 32.4	44° 18.1 11° 31.5	59° 18.2 11° 30.7	74° 18.4 11° 29.8	+0.2 -0.8
Вт 23	269° 20.5 11° 18.8	284° 20.7 11° 18.0	299° 20.8 11° 17.1	314° 21.0 11° 16.3	329° 21.2 11° 15.4	344° 21.3 11° 14.6	359° 21.5 11° 13.7	14° 21.6 11° 12.9	29° 21.8 11° 12.0	44° 22.0 11° 11.1	59° 22.1 11° 10.3	74° 22.3 11° 09.4	+0.2 -0.9
Ср 24	269° 24.5 10° 58.3	284° 24.7 10° 57.5	299° 24.8 10° 56.6	314° 25.0 10° 55.7	329° 25.2 10° 54.9	344° 25.3 10° 54.0	359° 25.5 10° 53.2	14° 25.7 10° 52.3	29° 25.8 10° 51.5	44° 26.0 10° 50.6	59° 26.2 10° 49.7	74° 26.4 10° 48.9	+0.2 -0.9
Чт 25	269° 28.6 10° 37.7	284° 28.8 10° 36.8	299° 28.9 10° 35.9	314° 29.1 10° 35.1	329° 29.3 10° 34.2	344° 29.5 10° 33.3	359° 29.6 10° 32.5	14° 29.8 10° 31.6	29° 30.0 10° 30.7	44° 30.1 10° 29.9	59° 30.3 10° 29.0	74° 30.5 10° 28.1	+0.2 -0.9
Пт 26	269° 32.8 10° 16.8	284° 33.0 10° 16.0	299° 33.1 10° 15.1	314° 33.3 10° 14.2	329° 33.5 10° 13.3	344° 33.7 10° 12.5	359° 33.9 10° 11.6	14° 34.0 10° 10.7	29° 34.2 10° 09.8	44° 34.4 10° 09.0	59° 34.6 10° 08.1	74° 34.7 10° 07.2	+0.2 -0.9
Сб 27	269° 37.1 9° 55.8	284° 37.3 9° 54.9	299° 37.4 9° 54.1	314° 37.6 9° 53.2	329° 37.8 9° 52.3	344° 38.0 9° 51.4	359° 38.2 9° 50.6	14° 38.4 9° 49.7	29° 38.5 9° 48.8	44° 38.7 9° 47.9	59° 38.9 9° 47.0	74° 39.1 9° 46.2	+0.2 -0.9
Вс 28	269° 41.5 9° 34.7	284° 41.7 9° 33.8	299° 41.8 9° 32.9	314° 42.0 9° 32.0	329° 42.2 9° 31.1	344° 42.4 9° 30.2	359° 42.6 9° 29.4	14° 42.8 9° 28.5	29° 43.0 9° 27.6	44° 43.1 9° 26.7	59° 43.3 9° 25.8	74° 43.5 9° 24.9	+0.2 -0.9
Пн 29	269° 46.0 9° 13.4	284° 46.1 9° 12.5	299° 46.3 9° 11.6	314° 46.5 9° 10.7	329° 46.7 9° 09.8	344° 46.9 9° 08.9	359° 47.1 9° 08.0	14° 47.3 9° 07.1	29° 47.5 9° 06.2	44° 47.7 9° 05.3	59° 47.9 9° 04.4	74° 48.0 9° 03.6	+0.2 -0.9
Вт 30	269° 50.5 8° 51.9	284° 50.7 8° 51.0	299° 50.9 8° 50.1	314° 51.1 8° 49.2	329° 51.3 8° 48.3	344° 51.5 8° 47.4	359° 51.7 8° 46.5	14° 51.9 8° 45.6	29° 52.1 8° 44.7	44° 52.3 8° 43.8	59° 52.5 8° 42.9	74° 52.7 8° 42.0	+0.2 -0.9
Ср 31	269° 55.2 8° 30.3	284° 55.4 8° 29.4	299° 55.6 8° 28.5	314° 55.8 8° 27.6	329° 56.0 8° 26.7	344° 56.2 8° 25.8	359° 56.4 8° 24.9	14° 56.6 8° 24.0	29° 56.8 8° 23.1	44° 57.0 8° 22.2	59° 57.2 8° 21.3	74° 57.4 8° 20.4	+0.2 -0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2033

Д	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	R/p
Пн 1	249° 32.3	264° 06.4	278° 40.4	293° 14.4	307° 48.4	322° 22.4	336° 56.3	351° 30.3	6° 04.2	20° 38.1	35° 11.9	+34.0	14.8
	-6° 27.3	-6° 36.2	-6° 45.0	-6° 53.8	-7° 02.5	-7° 11.3	-7° 20.0	-7° 28.6	-7° 37.3	-7° 45.9	-7° 54.5	-8.7	54.1
Вт 2	253° 36.6	268° 10.0	282° 43.4	297° 16.7	311° 50.0	326° 23.3	340° 56.5	355° 29.7	10° 02.8	24° 35.9	39° 09.0	+33.2	14.8
	-9° 59.1	-10° 07.1	-10° 15.1	-10° 23.0	-10° 30.9	-10° 38.8	-10° 46.6	-10° 54.3	-11° 02.1	-11° 09.7	-11° 17.4	-7.8	54.3
◐ Ср 3	257° 20.0	271° 52.4	286° 24.7	300° 57.0	315° 29.2	330° 01.4	344° 33.6	359° 05.7	13° 37.7	28° 09.7	42° 41.6	+32.2	14.9
	-13° 06.2	-13° 13.1	-13° 19.9	-13° 26.6	-13° 33.3	-13° 39.9	-13° 46.5	-13° 53.0	-13° 59.4	-14° 05.8	-14° 12.2	-6.6	54.7
Чт 4	260° 34.3	275° 05.4	289° 36.4	304° 07.4	318° 38.3	333° 09.1	347° 39.9	2° 10.6	16° 41.3	31° 11.9	45° 42.5	+30.8	15.1
	-15° 39.7	-15° 45.0	-15° 50.2	-15° 55.4	-16° 00.5	-16° 05.5	-16° 10.5	-16° 15.3	-16° 20.1	-16° 24.9	-16° 29.5	-5.0	55.3
Пт 5	263° 14.1	277° 43.7	292° 13.3	306° 42.8	321° 12.3	335° 41.7	350° 11.0	4° 40.3	19° 09.6	33° 38.8	48° 07.9	+29.4	15.3
	-17° 29.8	-17° 33.1	-17° 36.4	-17° 39.6	-17° 42.7	-17° 45.7	-17° 48.6	-17° 51.4	-17° 54.2	-17° 56.8	-17° 59.4	-3.0	56.0
Сб 6	265° 18.3	279° 46.5	294° 14.7	308° 42.9	323° 11.0	337° 39.1	352° 07.1	6° 35.1	21° 03.0	35° 30.9	49° 58.8	+28.0	15.5
	-18° 26.3	-18° 27.4	-18° 28.3	-18° 29.1	-18° 29.8	-18° 30.4	-18° 30.9	-18° 31.3	-18° 31.6	-18° 31.8	-18° 31.9	-0.6	56.8
Вс 7	266° 51.2	281° 18.4	295° 45.5	310° 12.6	324° 39.7	339° 06.7	353° 33.8	8° 00.7	22° 27.7	36° 54.6	51° 21.5	+27.0	15.7
	-18° 20.5	-18° 18.9	-18° 17.1	-18° 15.3	-18° 13.3	-18° 11.3	-18° 09.1	-18° 06.8	-18° 04.4	-18° 01.9	-17° 59.2	+2.1	57.7
Пн 8	268° 02.0	282° 28.5	296° 55.1	311° 21.6	325° 48.1	340° 14.6	354° 41.0	9° 07.5	23° 33.9	38° 00.4	52° 26.8	+26.5	16.0
	-17° 06.5	-17° 02.1	-16° 57.6	-16° 52.9	-16° 48.2	-16° 43.3	-16° 38.4	-16° 33.3	-16° 28.2	-16° 22.9	-16° 17.5	+4.9	58.6
Вт 9	269° 02.6	283° 29.0	297° 55.3	312° 21.7	326° 48.1	341° 14.5	355° 40.9	10° 07.3	24° 33.7	39° 00.1	53° 26.5	+26.4	16.2
	-14° 44.0	-14° 36.9	-14° 29.8	-14° 22.5	-14° 15.1	-14° 07.7	-14° 00.2	-13° 52.5	-13° 44.8	-13° 36.9	-13° 29.0	+7.5	59.3
○ Ср 10	270° 03.8	284° 30.4	298° 57.0	313° 23.6	327° 50.3	342° 16.9	356° 43.5	11° 10.2	25° 36.9	40° 03.6	54° 30.3	+26.6	16.3
	-11° 19.5	-11° 10.2	-11° 00.9	-10° 51.4	-10° 41.9	-10° 32.3	-10° 22.6	-10° 12.9	-10° 03.1	-9° 53.2	-9° 43.2	+9.6	59.9
Чт 11	271° 12.8	285° 39.8	300° 06.7	314° 33.7	329° 00.7	343° 27.8	357° 54.8	12° 21.9	26° 48.9	41° 16.0	55° 43.1	+27.0	16.4
	-7° 06.6	-6° 55.7	-6° 44.7	-6° 33.8	-6° 22.8	-6° 11.7	-6° 00.6	-5° 49.5	-5° 38.3	-5° 27.0	-5° 15.8	+11.1	60.3
Пт 12	272° 31.2	286° 58.5	301° 25.8	315° 53.2	330° 20.5	344° 47.9	359° 15.2	13° 42.6	28° 10.0	42° 37.4	57° 04.8	+27.4	16.5
	-2° 23.5	-2° 11.9	-2° 00.2	-1° 48.5	-1° 36.9	-1° 25.2	-1° 13.5	-1° 01.8	-0° 50.0	-0° 38.3	-0° 26.6	+11.7	60.4
Сб 13	273° 56.5	288° 24.0	302° 51.4	317° 18.9	331° 46.4	346° 13.9	0° 41.4	15° 08.9	29° 36.4	44° 03.9	58° 31.4	+27.5	16.4
	2° 28.4	2° 40.0	2° 51.5	3° 03.0	3° 14.5	3° 26.0	3° 37.4	3° 48.8	4° 00.2	4° 11.5	4° 22.9	+11.5	60.2
Вс 14	275° 23.6	289° 51.0	304° 18.5	318° 45.9	333° 13.3	347° 40.8	2° 08.2	16° 35.6	31° 03.0	45° 30.4	59° 57.8	+27.4	16.3
	7° 08.0	7° 18.7	7° 29.3	7° 39.8	7° 50.3	8° 00.7	8° 11.1	8° 21.4	8° 31.7	8° 41.9	8° 52.0	+10.4	59.9
Пн 15	276° 47.8	291° 15.0	305° 42.3	320° 09.5	334° 36.8	349° 04.0	3° 31.2	17° 58.4	32° 25.6	46° 52.8	61° 20.0	+27.2	16.2
	11° 16.1	11° 25.1	11° 34.1	11° 43.0	11° 51.8	12° 00.5	12° 09.1	12° 17.6	12° 26.1	12° 34.5	12° 42.8	+8.6	59.3
Вт 16	291° 15.0	305° 42.3	320° 09.5	334° 36.8	349° 04.0	3° 31.2	17° 58.4	32° 25.6	46° 52.8	61° 20.0	75° 47.1	+27.2	16.2
	11° 25.1	11° 34.1	11° 43.0	11° 51.8	12° 00.5	12° 09.1	12° 17.7	12° 26.1	12° 34.5	12° 42.8	12° 51.0	+8.6	59.3
◑ Ср 17	292° 33.7	307° 00.8	321° 27.8	335° 54.9	350° 21.9	4° 48.9	19° 15.9	33° 43.0	48° 10.0	62° 37.0	77° 04.0	+27.0	16.0
	14° 43.7	14° 50.4	14° 57.1	15° 03.7	15° 10.2	15° 16.5	15° 22.8	15° 29.0	15° 35.1	15° 41.1	15° 46.9	+6.3	58.7
Чт 18	293° 49.0	308° 16.0	322° 43.0	337° 10.0	351° 37.1	6° 04.1	20° 31.1	34° 58.2	49° 25.2	63° 52.3	78° 19.4	+27.0	15.8
	17° 02.8	17° 07.1	17° 11.2	17° 15.2	17° 19.1	17° 22.9	17° 26.6	17° 30.1	17° 33.6	17° 37.0	17° 40.2	+3.7	58.0
Пт 19	295° 06.9	309° 34.1	324° 01.5	338° 28.8	352° 56.1	7° 23.5	21° 50.9	36° 18.3	50° 45.7	65° 13.2	79° 40.7	+27.4	15.7
	18° 16.1	18° 17.6	18° 19.0	18° 20.3	18° 21.5	18° 22.6	18° 23.6	18° 24.5	18° 25.2	18° 25.9	18° 26.5	+1.0	57.4
Сб 20	296° 36.3	311° 04.2	325° 32.2	340° 00.2	354° 28.3	8° 56.4	23° 24.5	37° 52.7	52° 20.9	66° 49.1	81° 17.4	+28.1	15.5
	18° 22.0	18° 20.9	18° 19.7	18° 18.3	18° 16.9	18° 15.4	18° 13.7	18° 12.0	18° 10.2	18° 08.2	18° 06.2	-1.6	56.8
Вс 21	298° 26.4	312° 55.4	327° 24.4	341° 53.4	356° 22.5	10° 51.7	25° 20.8	39° 50.1	54° 19.3	68° 48.7	83° 18.0	+29.2	15.3
	17° 24.1	17° 20.6	17° 16.9	17° 13.2	17° 09.4	17° 05.5	17° 01.5	16° 57.4	16° 53.2	16° 49.0	16° 44.6	-4.0	56.2
Пн 22	300° 44.4	315° 14.6	329° 44.8	344° 15.1	358° 45.4	13° 15.7	27° 46.1	42° 16.6	56° 47.1	71° 17.7	85° 48.3	+30.4	15.2
	15° 29.8	15° 24.2	15° 18.5	15° 12.7	15° 06.9	15° 01.0	14° 55.0	14° 49.0	14° 42.8	14° 36.7	14° 30.4	-5.9	55.7
Вт 23	303° 33.4	318° 04.8	332° 36.2	347° 07.7	1° 39.3	16° 10.8	30° 42.5	45° 14.2	59° 45.9	74° 17.7	88° 49.5	+31.6	15.1
	12° 49.0	12° 41.8	12° 34.5	12° 27.1	12° 19.7	12° 12.3	12° 04.8	11° 57.2	11° 49.6	11° 41.9	11° 34.2	-7.5	55.2
● Ср 24	306° 52.2	321° 24.8	335° 57.3	350° 29.9	5° 02.6	19° 35.3	34° 08.0	48° 40.8	63° 13.6	77° 46.4	92° 19.3	+32.7	15.0
	9° 33.2	9° 24.8	9° 16.3	9° 07.9	8° 59.3	8° 50.8	8° 42.2	8° 33.6	8° 25.0	8° 16.3	8° 07.6	-8.6	54.8
Чт 25	310° 36.7	325° 10.1	339° 43.5	354° 17.0	8° 50.5	23° 24.1	37° 57.6	52° 31.2	67° 04.8	81° 38.5	96° 12.1	+33.5	14.9
	5° 53.7	5° 44.5	5° 35.4	5° 26.3	5° 17.1	5° 07.9	4° 58.7	4° 49.5	4° 40.2	4° 31.0	4° 21.7	-9.2	54.5
Пт 26	314° 39.9	329° 13.9	343° 47.9	358° 21.9	12° 56.0	27° 30.1	42° 04.1	56° 38.2	71° 12.3	85° 46.5	100° 20.6	+34.1	14.8
	2° 01.4	1° 52.0	1° 42.6	1° 33.2	1° 23.7	1° 14.3	1° 04.9	0° 55.5	0° 46.0	0° 36.6	0° 27.2	-9.4	54.2
Сб 27	318° 53.7	333° 27.9	348° 02.2	2° 36.4	17° 10.7	31° 44.9	46° 19.2	60° 53.4	75° 27.7	90° 01.9	104° 36.2	+34.3	14.7
	-1° 53.6	-2° 02.9	-2° 12.2	-2° 21.5	-2° 30.8	-2° 40.1	-2° 49.3	-2° 58.6	-3° 07.8	-3° 17.0	-3° 26.2	-9.3	54.0
Вс 28	323° 09.2	337° 43.4	352° 17.5	6° 51.6	21° 25.7	35° 59.8	50° 33.8	65° 07.9	79° 41.9	94° 15.9	108° 49.9	+34.1	14.7
	-5° 42.0	-5° 50.9	-5° 59.7	-6° 08.6	-6° 17.4	-6° 26.1	-6° 34.9	-6° 43.6	-6° 52.3	-7° 01.0	-7° 09.6	-8.8	54.0
Пн 29	327° 17.6	341° 51.3	356° 24.9	10° 58.6	25° 32.1	40° 05.7	54° 39.2	69° 12.7	83° 46.2	98° 19.7	112° 53.1	+33.5	14.7
	-9° 15.3	-9° 23.4	-9° 31.4	-9° 39.5	-9° 47.5	-9° 55.4	-10° 03.3	-10° 11.2	-10° 19.0	-10° 26.8	-10° 34.5	-7.9	54.1
Вт 30	331° 10.5	345° 43.3	0° 16.2	14° 49.0	29° 21.7	43° 54.5	58° 27.2	72° 59.8	87° 32.4	102° 05.0	116° 37.5	+32.7	14.8
	-12° 25.1	-12° 32.0	-12° 39.0	-12° 45.9	-12° 52.7	-12° 59.5	-13° 06.2	-13° 12.8	-13° 19.5	-13° 26.0	-13° 32.5	-6.7	54.3
Ср 31	334° 40.3	349° 12.2	3° 43.9	18° 15.7	32° 47.4	47° 19.0	61° 50.6	76° 22.2	90° 53.7	105° 25.1	119° 56.5	+31.6	14.9
	-15° 02.9	-15° 08.4	-15° 13.9	-15° 19.3	-15° 24.6	-15° 29.9	-15° 35.1	-15° 40.2	-15° 45.3	-15° 50.2	-15° 55.2	-5.2	54.7

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 3 10h25 — Полнолуние: 10 18h07 — Последняя четв.: 17 09h42 — Новолуние: 24 21h39

СОЛНЦЕ

Сентябрь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	269° 59.9 8° 08.6	285° 00.1 8° 07.7	300° 00.3 8° 06.8	315° 00.5 8° 05.9	330° 00.7 8° 05.0	345° 00.9 8° 04.1	0° 01.1 8° 03.2	15° 01.3 8° 02.2	30° 01.5 8° 01.3	45° 01.7 8° 00.4	60° 01.9 7° 59.5	75° 02.1 7° 58.6	+0.2 -0.9
Пт 2	270° 04.7 7° 46.7	285° 05.0 7° 45.8	300° 05.2 7° 44.9	315° 05.4 7° 44.0	330° 05.6 7° 43.1	345° 05.8 7° 42.2	0° 06.0 7° 41.3	15° 06.2 7° 40.3	30° 06.4 7° 39.4	45° 06.6 7° 38.5	60° 06.8 7° 37.6	75° 07.0 7° 36.7	+0.2 -0.9
Сб 3	270° 09.6 7° 24.8	285° 09.8 7° 23.8	300° 10.0 7° 22.9	315° 10.3 7° 22.0	330° 10.5 7° 21.1	345° 10.7 7° 20.2	0° 10.9 7° 19.3	15° 11.1 7° 18.3	30° 11.3 7° 17.4	45° 11.5 7° 16.5	60° 11.7 7° 15.6	75° 11.9 7° 14.7	+0.2 -0.9
Вс 4	270° 14.6 7° 02.7	285° 14.8 7° 01.7	300° 15.0 7° 00.8	315° 15.2 6° 59.9	330° 15.4 6° 59.0	345° 15.6 6° 58.1	0° 15.8 6° 57.1	15° 16.1 6° 56.2	30° 16.3 6° 55.3	45° 16.5 6° 54.4	60° 16.7 6° 53.4	75° 16.9 6° 52.5	+0.2 -0.9
Пн 5	270° 19.6 6° 40.5	285° 19.8 6° 39.5	300° 20.0 6° 38.6	315° 20.3 6° 37.7	330° 20.5 6° 36.7	345° 20.7 6° 35.8	0° 20.9 6° 34.9	15° 21.1 6° 34.0	30° 21.3 6° 33.0	45° 21.5 6° 32.1	60° 21.7 6° 31.2	75° 21.9 6° 30.2	+0.2 -0.9
Вт 6	270° 24.7 6° 18.1	285° 24.9 6° 17.2	300° 25.1 6° 16.3	315° 25.3 6° 15.3	330° 25.6 6° 14.4	345° 25.8 6° 13.5	0° 26.0 6° 12.5	15° 26.2 6° 11.6	30° 26.4 6° 10.7	45° 26.6 6° 09.7	60° 26.8 6° 08.8	75° 27.1 6° 07.9	+0.2 -0.9
Ср 7	270° 29.8 5° 55.7	285° 30.1 5° 54.8	300° 30.3 5° 53.8	315° 30.5 5° 52.9	330° 30.7 5° 52.0	345° 30.9 5° 51.0	0° 31.1 5° 50.1	15° 31.3 5° 49.2	30° 31.6 5° 48.2	45° 31.8 5° 47.3	60° 32.0 5° 46.3	75° 32.2 5° 45.4	+0.2 -0.9
Чт 8	270° 35.0 5° 33.2	285° 35.2 5° 32.3	300° 35.5 5° 31.3	315° 35.7 5° 30.4	330° 35.9 5° 29.4	345° 36.1 5° 28.5	0° 36.3 5° 27.6	15° 36.5 5° 26.6	30° 36.8 5° 25.7	45° 37.0 5° 24.7	60° 37.2 5° 23.8	75° 37.4 5° 22.8	+0.2 -0.9
Пт 9	270° 40.3 5° 10.6	285° 40.5 5° 09.6	300° 40.7 5° 08.7	315° 40.9 5° 07.8	330° 41.1 5° 06.8	345° 41.3 5° 05.9	0° 41.6 5° 04.9	15° 41.8 5° 04.0	30° 42.0 5° 03.0	45° 42.2 5° 02.1	60° 42.4 5° 01.1	75° 42.7 5° 00.2	+0.2 -0.9
Сб 10	270° 45.5 4° 47.9	285° 45.7 4° 46.9	300° 46.0 4° 46.0	315° 46.2 4° 45.0	330° 46.4 4° 44.1	345° 46.6 4° 43.1	0° 46.8 4° 42.2	15° 47.1 4° 41.2	30° 47.3 4° 40.3	45° 47.5 4° 39.4	60° 47.7 4° 38.4	75° 47.9 4° 37.5	+0.2 -0.9
Вс 11	270° 50.8 4° 25.1	285° 51.0 4° 24.2	300° 51.3 4° 23.2	315° 51.5 4° 22.3	330° 51.7 4° 21.3	345° 51.9 4° 20.3	0° 52.1 4° 19.4	15° 52.4 4° 18.4	30° 52.6 4° 17.5	45° 52.8 4° 16.5	60° 53.0 4° 15.6	75° 53.3 4° 14.6	+0.2 -1.0
Пн 12	270° 56.1 4° 02.2	285° 56.4 4° 01.3	300° 56.6 4° 00.3	315° 56.8 3° 59.4	330° 57.0 3° 58.4	345° 57.2 3° 57.5	0° 57.5 3° 56.5	15° 57.7 3° 55.6	30° 57.9 3° 54.6	45° 58.1 3° 53.7	60° 58.4 3° 52.7	75° 58.6 3° 51.7	+0.2 -1.0
Вт 13	271° 01.5 3° 39.3	286° 01.7 3° 38.4	301° 01.9 3° 37.4	316° 02.1 3° 36.4	331° 02.4 3° 35.5	346° 02.6 3° 34.5	1° 02.8 3° 33.6	16° 03.0 3° 32.6	31° 03.3 3° 31.7	46° 03.5 3° 30.7	61° 03.7 3° 29.7	76° 03.9 3° 28.8	+0.2 -1.0
Ср 14	271° 06.8 3° 16.3	286° 07.1 3° 15.4	301° 07.3 3° 14.4	316° 07.5 3° 13.4	331° 07.7 3° 12.5	346° 07.9 3° 11.5	1° 08.2 3° 10.6	16° 08.4 3° 09.6	31° 08.6 3° 08.6	46° 08.8 3° 07.7	61° 09.1 3° 06.7	76° 09.3 3° 05.7	+0.2 -1.0
Чт 15	271° 12.2 2° 53.2	286° 12.4 2° 52.3	301° 12.6 2° 51.3	316° 12.9 2° 50.4	331° 13.1 2° 49.4	346° 13.3 2° 48.4	1° 13.5 2° 47.5	16° 13.8 2° 46.5	31° 14.0 2° 45.5	46° 14.2 2° 44.6	61° 14.4 2° 43.6	76° 14.7 2° 42.7	+0.2 -1.0
Пт 16	271° 17.6 2° 30.1	286° 17.8 2° 29.2	301° 18.0 2° 28.2	316° 18.2 2° 27.2	331° 18.5 2° 26.3	346° 18.7 2° 25.3	1° 18.9 2° 24.3	16° 19.1 2° 23.4	31° 19.3 2° 22.4	46° 19.6 2° 21.4	61° 19.8 2° 20.5	76° 20.0 2° 19.5	+0.2 -1.0
Сб 17	271° 22.9 2° 07.0	286° 23.1 2° 06.0	301° 23.4 2° 05.0	316° 23.6 2° 04.1	331° 23.8 2° 03.1	346° 24.0 2° 02.1	1° 24.3 2° 01.2	16° 24.5 2° 00.2	31° 24.7 1° 59.2	46° 24.9 1° 58.3	61° 25.2 1° 57.3	76° 25.4 1° 56.3	+0.2 -1.0
Вс 18	271° 28.3 1° 43.7	286° 28.5 1° 42.8	301° 28.7 1° 41.8	316° 28.9 1° 40.8	331° 29.2 1° 39.9	346° 29.4 1° 38.9	1° 29.6 1° 37.9	16° 29.8 1° 37.0	31° 30.1 1° 36.0	46° 30.3 1° 35.0	61° 30.5 1° 34.1	76° 30.7 1° 33.1	+0.2 -1.0
Пн 19	271° 33.6 1° 20.5	286° 33.8 1° 19.5	301° 34.1 1° 18.6	316° 34.3 1° 17.6	331° 34.5 1° 16.6	346° 34.7 1° 15.6	1° 35.0 1° 14.7	16° 35.2 1° 13.7	31° 35.4 1° 12.7	46° 35.6 1° 11.8	61° 35.8 1° 10.8	76° 36.1 1° 09.8	+0.2 -1.0
Вт 20	271° 38.9 0° 57.2	286° 39.2 0° 56.2	301° 39.4 0° 55.3	316° 39.6 0° 54.3	331° 39.8 0° 53.3	346° 40.1 0° 52.4	1° 40.3 0° 51.4	16° 40.5 0° 50.4	31° 40.7 0° 49.4	46° 40.9 0° 48.5	61° 41.2 0° 47.5	76° 41.4 0° 46.5	+0.2 -1.0
Ср 21	271° 44.3 0° 33.9	286° 44.5 0° 32.9	301° 44.7 0° 32.0	316° 44.9 0° 31.0	331° 45.1 0° 30.0	346° 45.4 0° 29.0	1° 45.6 0° 28.1	16° 45.8 0° 27.1	31° 46.0 0° 26.1	46° 46.2 0° 25.1	61° 46.5 0° 24.2	76° 46.7 0° 23.2	+0.2 -1.0
Чт 22	271° 49.5 0° 10.6	286° 49.8 0° 09.6	301° 50.0 0° 08.6	316° 50.2 0° 07.6	331° 50.4 0° 06.7	346° 50.6 0° 05.7	1° 50.9 0° 04.7	16° 51.1 0° 03.8	31° 51.3 0° 02.8	46° 51.5 0° 01.8	61° 51.7 0° 00.8	76° 52.0 -0° 00.1	+0.2 -1.0
Пт 23	271° 54.8 -0° 12.8	286° 55.0 -0° 13.8	301° 55.2 -0° 14.7	316° 55.5 -0° 15.7	331° 55.7 -0° 16.7	346° 55.9 -0° 17.7	1° 56.1 -0° 18.6	16° 56.3 -0° 19.6	31° 56.5 -0° 20.6	46° 56.8 -0° 21.5	61° 57.0 -0° 22.5	76° 57.2 -0° 23.5	+0.2 -1.0
Сб 24	272° 00.0 -0° 36.1	287° 00.2 -0° 37.1	302° 00.5 -0° 38.1	317° 00.7 -0° 39.1	332° 00.9 -0° 40.0	347° 01.1 -0° 41.0	2° 01.3 -0° 42.0	17° 01.5 -0° 43.0	32° 01.8 -0° 43.9	47° 02.0 -0° 44.9	62° 02.2 -0° 45.9	77° 02.4 -0° 46.9	+0.2 -1.0
Вс 25	272° 05.2 -0° 59.5	287° 05.4 -1° 00.5	302° 05.6 -1° 01.5	317° 05.9 -1° 02.4	332° 06.1 -1° 03.4	347° 06.3 -1° 04.4	2° 06.5 -1° 05.4	17° 06.7 -1° 06.3	32° 06.9 -1° 07.3	47° 07.1 -1° 08.3	62° 07.4 -1° 09.2	77° 07.6 -1° 10.2	+0.2 -1.0
Пн 26	272° 10.4 -1° 22.9	287° 10.6 -1° 23.8	302° 10.8 -1° 24.8	317° 11.0 -1° 25.8	332° 11.2 -1° 26.8	347° 11.4 -1° 27.7	2° 11.6 -1° 28.7	17° 11.8 -1° 29.7	32° 12.1 -1° 30.7	47° 12.3 -1° 31.6	62° 12.5 -1° 32.6	77° 12.7 -1° 33.6	+0.2 -1.0
Вт 27	272° 15.4 -1° 46.2	287° 15.7 -1° 47.2	302° 15.9 -1° 48.2	317° 16.1 -1° 49.1	332° 16.3 -1° 50.1	347° 16.5 -1° 51.1	2° 16.7 -1° 52.1	17° 16.9 -1° 53.0	32° 17.1 -1° 54.0	47° 17.3 -1° 55.0	62° 17.6 -1° 56.0	77° 17.8 -1° 56.9	+0.2 -1.0
Ср 28	272° 20.5 -2° 09.6	287° 20.7 -2° 10.5	302° 20.9 -2° 11.5	317° 21.1 -2° 12.5	332° 21.3 -2° 13.5	347° 21.5 -2° 14.4	2° 21.7 -2° 15.4	17° 22.0 -2° 16.4	32° 22.2 -2° 17.3	47° 22.4 -2° 18.3	62° 22.6 -2° 19.3	77° 22.8 -2° 20.3	+0.2 -1.0
Чт 29	272° 25.5 -2° 32.9	287° 25.7 -2° 33.9	302° 25.9 -2° 34.8	317° 26.1 -2° 35.8	332° 26.3 -2° 36.8	347° 26.5 -2° 37.7	2° 26.7 -2° 38.7	17° 26.9 -2° 39.7	32° 27.1 -2° 40.7	47° 27.3 -2° 41.6	62° 27.6 -2° 42.6	77° 27.8 -2° 43.6	+0.2 -1.0
Пт 30	272° 30.4 -2° 56.2	287° 30.6 -2° 57.2	302° 30.8 -2° 58.1	317° 31.0 -2° 59.1	332° 31.2 -3° 00.1	347° 31.4 -3° 01.0	2° 31.6 -3° 02.0	17° 31.8 -3° 03.0	32° 32.1 -3° 03.9	47° 32.3 -3° 04.9	62° 32.5 -3° 05.9	77° 32.7 -3° 06.9	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2033

Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
Чт 1	250° 37.0 -16° 36.2	265° 07.9 -16° 40.4	279° 38.8 -16° 44.5	294° 09.6 -16° 48.5	308° 40.4 -16° 52.5	323° 11.1 -16° 56.3	337° 41.8 -17° 00.1	352° 12.4 -17° 03.9	6° 43.0 -17° 07.5	21° 13.5 -17° 11.1	35° 44.0 -17° 14.6	+30.7 -3.8	15.0 55.1
◐ Пт 2	253° 15.0 -17° 56.7	267° 44.7 -17° 58.8	282° 14.3 -18° 00.9	296° 43.9 -18° 02.8	311° 13.4 -18° 04.7	325° 42.9 -18° 06.4	340° 12.3 -18° 08.1	354° 41.7 -18° 09.6	9° 11.0 -18° 11.1	23° 40.3 -18° 12.5	38° 09.6 -18° 13.8	+29.5 -1.7	15.2 55.8
Сб 3	255° 22.6 -18° 21.7	269° 51.1 -18° 21.4	284° 19.5 -18° 21.0	298° 48.0 -18° 20.6	313° 16.3 -18° 20.0	327° 44.7 -18° 19.3	342° 13.0 -18° 18.6	356° 41.3 -18° 17.7	11° 09.5 -18° 16.7	25° 37.7 -18° 15.6	40° 05.8 -18° 14.5	+28.3 +0.7	15.5 56.7
Вс 4	257° 03.6 -17° 44.2	271° 31.2 -17° 41.3	285° 58.7 -17° 38.3	300° 26.2 -17° 35.2	314° 53.7 -17° 32.1	329° 21.2 -17° 28.8	343° 48.6 -17° 25.4	358° 16.0 -17° 21.9	12° 43.4 -17° 18.2	27° 10.7 -17° 14.5	41° 38.1 -17° 10.7	+27.4 +3.3	15.7 57.6
Пн 5	258° 25.1 -16° 00.5	272° 52.0 -15° 55.0	287° 19.0 -15° 49.3	301° 45.9 -15° 43.6	316° 12.8 -15° 37.8	330° 39.7 -15° 31.8	345° 06.6 -15° 25.8	359° 33.5 -15° 19.6	14° 00.4 -15° 13.4	28° 27.2 -15° 07.0	42° 54.0 -15° 00.6	+26.9 +6.0	16.0 58.6
Вт 6	259° 35.1 -13° 11.9	274° 01.8 -13° 03.9	288° 28.4 -12° 55.8	302° 55.1 -12° 47.6	317° 21.8 -12° 39.3	331° 48.4 -12° 30.9	346° 15.0 -12° 22.5	0° 41.7 -12° 13.9	15° 08.3 -12° 05.3	29° 34.9 -11° 56.6	44° 01.5 -11° 47.7	+26.6 +8.4	16.2 59.6
Ср 7	260° 40.5 -9° 25.8	275° 07.1 -9° 15.8	289° 33.7 -9° 05.6	304° 00.2 -8° 55.4	318° 26.8 -8° 45.2	332° 53.4 -8° 34.9	347° 20.0 -8° 24.5	1° 46.6 -8° 14.0	16° 13.1 -8° 03.5	30° 39.7 -7° 52.9	45° 06.3 -7° 42.2	+26.6 +10.4	16.3 60.3
Чт 8	261° 44.9 -4° 56.3	276° 11.5 -4° 44.9	290° 38.1 -4° 33.4	305° 04.7 -4° 21.9	319° 31.2 -4° 10.4	333° 57.8 -3° 58.8	348° 24.4 -3° 47.2	2° 50.9 -3° 35.6	17° 17.5 -3° 23.9	31° 44.1 -3° 12.3	46° 10.6 -3° 00.6	+26.6 +11.6	16.6 60.9
○ Пт 9	262° 48.8 -0° 02.9	277° 15.3 0° 09.0	291° 41.8 0° 21.0	306° 08.3 0° 32.9	320° 34.8 0° 44.8	335° 01.3 0° 56.7	349° 27.8 1° 08.6	3° 54.3 1° 20.5	18° 20.8 1° 32.4	32° 47.3 1° 44.2	47° 13.7 1° 56.1	+26.5 +11.9	16.7 61.1
Сб 10	263° 50.0 4° 51.5	278° 16.4 5° 02.9	292° 42.7 5° 14.4	307° 09.1 5° 25.7	321° 35.4 5° 37.1	336° 01.8 5° 48.4	350° 28.1 5° 59.6	4° 54.4 6° 10.8	19° 20.7 6° 22.0	33° 47.0 6° 33.1	48° 13.3 6° 44.2	+26.3 +11.3	16.6 61.0
Вс 11	264° 46.5 9° 23.4	279° 12.7 9° 33.6	293° 38.8 9° 43.6	308° 05.0 9° 53.6	322° 31.1 10° 03.4	336° 57.2 10° 13.3	351° 23.3 10° 23.0	5° 49.4 10° 32.7	20° 15.5 10° 42.3	34° 41.6 10° 51.8	49° 07.7 11° 01.2	+26.1 +9.8	16.5 60.5
Пн 12	265° 38.2 13° 12.4	280° 04.2 13° 20.5	294° 30.2 13° 28.4	308° 56.2 13° 36.2	323° 22.2 13° 44.0	337° 48.2 13° 51.6	352° 14.2 13° 59.1	6° 40.2 14° 06.6	21° 06.2 14° 13.9	35° 32.2 14° 21.2	49° 58.2 14° 28.3	+26.0 +7.6	16.3 59.9
Вт 13	266° 28.6 16° 02.9	280° 54.6 16° 08.4	295° 20.7 16° 13.7	309° 46.8 16° 19.0	324° 12.9 16° 24.1	338° 39.1 16° 29.1	353° 05.2 16° 34.0	7° 31.4 16° 38.8	21° 57.5 16° 43.5	36° 23.7 16° 48.1	50° 49.9 16° 52.5	+26.1 +5.0	16.1 59.0
Ср 14	267° 25.0 17° 46.0	281° 51.5 17° 48.6	296° 18.1 17° 51.2	310° 44.6 17° 53.6	325° 11.2 17° 55.9	339° 37.9 17° 58.1	354° 04.5 18° 00.2	8° 31.2 18° 02.2	22° 57.9 18° 04.1	37° 24.7 18° 05.9	51° 51.4 18° 07.5	+26.6 +2.2	15.9 58.2
◑ Чт 15	281° 51.5 17° 48.6	296° 18.1 17° 51.2	310° 44.6 17° 53.6	325° 11.2 17° 55.9	339° 37.9 17° 58.1	354° 04.5 18° 00.2	8° 31.2 18° 02.2	22° 57.9 18° 04.1	37° 24.7 18° 05.9	51° 51.4 18° 07.5	66° 18.2 18° 09.1	+26.7 +2.0	15.9 58.2
Пт 16	283° 04.6 18° 19.0	297° 32.0 18° 18.8	311° 59.4 18° 18.5	326° 26.9 18° 18.0	340° 54.4 18° 17.5	355° 21.9 18° 16.9	9° 49.6 18° 16.2	24° 17.2 18° 15.3	38° 44.9 18° 14.4	53° 12.6 18° 13.3	67° 40.4 18° 12.2	+27.6 -0.7	15.6 57.3
Сб 17	284° 42.9 17° 43.0	299° 11.5 17° 40.3	313° 40.1 17° 37.5	328° 08.8 17° 34.6	342° 37.5 17° 31.6	357° 06.2 17° 28.5	11° 35.1 17° 25.3	26° 03.9 17° 22.0	40° 32.9 17° 18.6	55° 01.8 17° 15.2	69° 30.9 17° 11.6	+28.8 -3.1	15.4 56.5
Вс 18	286° 52.8 16° 08.3	301° 22.7 16° 03.4	315° 52.7 15° 58.4	330° 22.7 15° 53.4	344° 52.7 15° 48.3	359° 22.8 15° 43.1	13° 53.0 15° 37.9	28° 23.2 15° 32.5	42° 53.5 15° 27.1	57° 23.8 15° 21.6	71° 54.2 15° 16.1	+30.1 -5.2	15.2 55.9
Пн 19	289° 36.4 13° 44.6	304° 07.6 13° 38.0	318° 38.9 13° 31.4	333° 10.2 13° 24.6	347° 41.6 13° 17.9	2° 13.0 13° 11.0	16° 44.5 13° 04.1	31° 16.0 12° 57.1	45° 47.6 12° 50.1	60° 19.2 12° 43.1	74° 50.8 12° 35.9	+31.5 -6.9	15.1 55.3
Вт 20	292° 51.5 10° 42.9	307° 23.9 10° 35.0	321° 56.4 10° 27.1	336° 28.8 10° 19.1	351° 01.4 10° 11.0	5° 33.9 10° 03.0	20° 06.5 9° 54.9	34° 39.2 9° 46.7	49° 11.9 9° 38.5	63° 44.6 9° 30.3	78° 17.4 9° 22.0	+32.6 -8.1	15.0 54.8
Ср 21	296° 33.2 7° 13.9	311° 06.6 7° 05.1	325° 39.9 6° 56.3	340° 13.3 6° 47.5	354° 46.7 6° 38.6	9° 20.2 6° 29.7	23° 53.6 6° 20.8	38° 27.2 6° 11.9	53° 00.7 6° 03.0	67° 34.2 5° 54.0	82° 07.8 5° 45.0	+33.5 -8.9	14.8 54.5
Чт 22	300° 34.5 3° 28.0	315° 08.4 3° 18.7	329° 42.4 3° 09.4	344° 16.4 3° 00.2	358° 50.4 2° 50.9	13° 24.4 2° 41.6	27° 58.4 2° 32.3	42° 32.5 2° 23.0	57° 06.5 2° 13.7	71° 40.6 2° 04.4	86° 14.7 1° 55.1	+34.0 -9.3	14.8 54.2
● Пт 23	304° 47.3 -0° 25.0	319° 21.5 -0° 34.4	333° 55.8 -0° 43.7	348° 30.0 -0° 53.0	3° 04.3 -1° 02.3	17° 38.5 -1° 11.6	32° 12.8 -1° 20.9	46° 47.0 -1° 30.2	61° 21.3 -1° 39.5	75° 55.5 -1° 48.8	90° 29.8 -1° 58.1	+34.3 -9.3	14.7 54.0
Сб 24	309° 03.4 -4° 15.6	323° 37.6 -4° 24.7	338° 11.8 -4° 33.7	352° 45.9 -4° 42.7	7° 20.1 -4° 51.7	21° 54.3 -5° 00.6	36° 28.4 -5° 09.6	51° 02.6 -5° 18.5	65° 36.7 -5° 27.4	80° 10.8 -5° 36.3	94° 44.9 -5° 45.1	+34.2 -9.0	14.7 53.9
Вс 25	313° 14.8 -7° 54.7	327° 48.6 -8° 03.1	342° 22.4 -8° 11.5	356° 56.3 -8° 19.8	11° 30.0 -8° 28.1	26° 03.8 -8° 36.4	40° 37.6 -8° 44.6	55° 11.3 -8° 52.8	69° 45.0 -9° 00.9	84° 18.7 -9° 09.1	98° 52.3 -9° 17.1	+33.8 -8.2	14.7 53.9
Пн 26	317° 14.2 -11° 13.5	331° 47.4 -11° 20.9	346° 20.6 -11° 28.2	0° 53.8 -11° 35.5	15° 26.9 -11° 42.8	30° 00.0 -11° 50.0	44° 33.1 -11° 57.2	59° 06.2 -12° 04.3	73° 39.2 -12° 11.4	88° 12.2 -12° 18.4	102° 45.1 -12° 25.3	+33.1 -7.2	14.7 54.0
Вт 27	320° 55.4 -14° 03.2	335° 27.8 -14° 09.3	350° 00.2 -14° 15.3	4° 32.5 -14° 21.3	19° 04.8 -14° 27.1	33° 37.1 -14° 33.0	48° 09.3 -14° 38.7	62° 41.5 -14° 44.4	77° 13.7 -14° 50.0	91° 45.8 -14° 55.6	106° 17.8 -15° 01.1	+32.2 -5.8	14.8 54.3
Ср 28	324° 14.2 -16° 15.6	338° 45.7 -16° 20.0	353° 17.1 -16° 24.3	7° 48.4 -16° 28.6	22° 19.8 -16° 32.7	36° 51.1 -16° 36.8	51° 22.3 -16° 40.9	65° 53.5 -16° 44.8	80° 24.7 -16° 48.7	94° 55.8 -16° 52.5	109° 26.9 -16° 56.2	+31.3 -4.1	14.9 54.6
Чт 29	327° 08.4 -17° 42.5	341° 38.8 -17° 44.9	356° 09.2 -17° 47.2	10° 39.6 -17° 49.5	25° 09.9 -17° 51.7	39° 40.2 -17° 53.7	54° 10.5 -17° 55.7	68° 40.7 -17° 57.6	83° 10.9 -17° 59.5	97° 41.0 -18° 01.2	112° 11.1 -18° 02.9	+30.3 -2.0	15.0 55.1
Пт 30	329° 38.3 -18° 16.7	344° 07.8 -18° 16.9	358° 37.3 -18° 17.0	13° 06.8 -18° 17.0	27° 36.2 -18° 16.9	42° 05.6 -18° 16.7	56° 34.9 -18° 16.4	71° 04.3 -18° 16.1	85° 33.6 -18° 15.6	100° 02.8 -18° 15.0	114° 32.1 -18° 14.3	+29.4 +0.2	15.2 55.8

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Первая четв.: 2 02h23 — Полнолуние: 9 02h20 — Последняя четв.: 15 17h33 — Новолуние: 23 13h39

СОЛНЦЕ

Октябрь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	272° 35.3 -3° 19.4	287° 35.5 -3° 20.4	302° 35.7 -3° 21.4	317° 35.9 -3° 22.4	332° 36.1 -3° 23.3	347° 36.3 -3° 24.3	2° 36.5 -3° 25.3	17° 36.7 -3° 26.2	32° 36.9 -3° 27.2	47° 37.1 -3° 28.2	62° 37.3 -3° 29.1	77° 37.5 -3° 30.1	+0.2 -1.0
Вс 2	272° 40.1 -3° 42.7	287° 40.3 -3° 43.6	302° 40.5 -3° 44.6	317° 40.7 -3° 45.6	332° 40.9 -3° 46.5	347° 41.1 -3° 47.5	2° 41.3 -3° 48.5	17° 41.5 -3° 49.4	32° 41.7 -3° 50.4	47° 41.9 -3° 51.4	62° 42.1 -3° 52.3	77° 42.3 -3° 53.3	+0.2 -1.0
Пн 3	272° 44.8 -4° 05.9	287° 45.0 -4° 06.8	302° 45.2 -4° 07.8	317° 45.4 -4° 08.7	332° 45.6 -4° 09.7	347° 45.8 -4° 10.7	2° 46.0 -4° 11.6	17° 46.2 -4° 12.6	32° 46.4 -4° 13.6	47° 46.6 -4° 14.5	62° 46.8 -4° 15.5	77° 47.0 -4° 16.5	+0.2 -1.0
Вт 4	272° 49.5 -4° 29.0	287° 49.7 -4° 29.9	302° 49.8 -4° 30.9	317° 50.0 -4° 31.9	332° 50.2 -4° 32.8	347° 50.4 -4° 33.8	2° 50.6 -4° 34.8	17° 50.8 -4° 35.7	32° 51.0 -4° 36.7	47° 51.2 -4° 37.6	62° 51.4 -4° 38.6	77° 51.6 -4° 39.6	+0.2 -1.0
Ср 5	272° 54.0 -4° 52.1	287° 54.2 -4° 53.0	302° 54.4 -4° 54.0	317° 54.6 -4° 54.9	332° 54.8 -4° 55.9	347° 55.0 -4° 56.9	2° 55.1 -4° 57.8	17° 55.3 -4° 58.8	32° 55.5 -4° 59.7	47° 55.7 -5° 00.7	62° 55.9 -5° 01.7	77° 56.1 -5° 02.6	+0.2 -1.0
Чт 6	272° 58.5 -5° 15.1	287° 58.7 -5° 16.0	302° 58.9 -5° 17.0	317° 59.0 -5° 17.9	332° 59.2 -5° 18.9	347° 59.4 -5° 19.9	2° 59.6 -5° 20.8	17° 59.8 -5° 21.8	33° 00.0 -5° 22.7	48° 00.1 -5° 23.7	63° 00.3 -5° 24.6	78° 00.5 -5° 25.6	+0.2 -1.0
Пт 7	273° 02.9 -5° 38.0	288° 03.0 -5° 39.0	303° 03.2 -5° 39.9	318° 03.4 -5° 40.9	333° 03.6 -5° 41.8	348° 03.8 -5° 42.8	3° 03.9 -5° 43.7	18° 04.1 -5° 44.7	33° 04.3 -5° 45.7	48° 04.5 -5° 46.6	63° 04.7 -5° 47.6	78° 04.8 -5° 48.5	+0.2 -1.0
Сб 8	273° 07.1 -6° 00.9	288° 07.3 -6° 01.8	303° 07.5 -6° 02.8	318° 07.7 -6° 03.8	333° 07.8 -6° 04.7	348° 08.0 -6° 05.7	3° 08.2 -6° 06.6	18° 08.4 -6° 07.6	33° 08.5 -6° 08.5	48° 08.7 -6° 09.5	63° 08.9 -6° 10.4	78° 09.1 -6° 11.4	+0.2 -1.0
Вс 9	273° 11.3 -6° 23.7	288° 11.5 -6° 24.6	303° 11.7 -6° 25.6	318° 11.8 -6° 26.5	333° 12.0 -6° 27.5	348° 12.2 -6° 28.4	3° 12.3 -6° 29.4	18° 12.5 -6° 30.3	33° 12.7 -6° 31.3	48° 12.8 -6° 32.2	63° 13.0 -6° 33.2	78° 13.2 -6° 34.1	+0.2 -0.9
Пн 10	273° 15.4 -6° 46.4	288° 15.5 -6° 47.4	303° 15.7 -6° 48.3	318° 15.9 -6° 49.2	333° 16.0 -6° 50.2	348° 16.2 -6° 51.1	3° 16.4 -6° 52.1	18° 16.5 -6° 53.0	33° 16.7 -6° 54.0	48° 16.8 -6° 54.9	63° 17.0 -6° 55.8	78° 17.2 -6° 56.8	+0.2 -0.9
Вт 11	273° 19.3 -7° 09.0	288° 19.5 -7° 10.0	303° 19.6 -7° 10.9	318° 19.8 -7° 11.8	333° 19.9 -7° 12.8	348° 20.1 -7° 13.7	3° 20.3 -7° 14.7	18° 20.4 -7° 15.6	33° 20.6 -7° 16.5	48° 20.7 -7° 17.5	63° 20.9 -7° 18.4	78° 21.1 -7° 19.4	+0.2 -0.9
Ср 12	273° 23.1 -7° 31.6	288° 23.3 -7° 32.5	303° 23.4 -7° 33.4	318° 23.6 -7° 34.4	333° 23.7 -7° 35.3	348° 23.9 -7° 36.2	3° 24.0 -7° 37.2	18° 24.2 -7° 38.1	33° 24.3 -7° 39.0	48° 24.5 -7° 40.0	63° 24.6 -7° 40.9	78° 24.8 -7° 41.8	+0.2 -0.9
Чт 13	273° 26.8 -7° 54.0	288° 26.9 -7° 54.9	303° 27.1 -7° 55.8	318° 27.2 -7° 56.8	333° 27.4 -7° 57.7	348° 27.5 -7° 58.6	3° 27.7 -7° 59.6	18° 27.8 -8° 00.5	33° 28.0 -8° 01.4	48° 28.1 -8° 02.4	63° 28.3 -8° 03.3	78° 28.4 -8° 04.2	+0.1 -0.9
Пт 14	273° 30.3 -8° 16.3	288° 30.5 -8° 17.2	303° 30.6 -8° 18.2	318° 30.7 -8° 19.1	333° 30.9 -8° 20.0	348° 31.0 -8° 20.9	3° 31.2 -8° 21.9	18° 31.3 -8° 22.8	33° 31.5 -8° 23.7	48° 31.6 -8° 24.6	63° 31.7 -8° 25.6	78° 31.9 -8° 26.5	+0.1 -0.9
Сб 15	273° 33.7 -8° 38.5	288° 33.8 -8° 39.4	303° 34.0 -8° 40.3	318° 34.1 -8° 41.3	333° 34.3 -8° 42.2	348° 34.4 -8° 43.1	3° 34.5 -8° 44.0	18° 34.7 -8° 45.0	33° 34.8 -8° 45.9	48° 34.9 -8° 46.8	63° 35.1 -8° 47.7	78° 35.2 -8° 48.6	+0.1 -0.9
Вс 16	273° 37.0 -9° 00.6	288° 37.1 -9° 01.5	303° 37.2 -9° 02.4	318° 37.4 -9° 03.3	333° 37.5 -9° 04.2	348° 37.6 -9° 05.2	3° 37.7 -9° 06.1	18° 37.9 -9° 07.0	33° 38.0 -9° 07.9	48° 38.1 -9° 08.8	63° 38.3 -9° 09.7	78° 38.4 -9° 10.7	+0.1 -0.9
Пн 17	273° 40.1 -9° 22.5	288° 40.2 -9° 23.4	303° 40.3 -9° 24.4	318° 40.4 -9° 25.3	333° 40.6 -9° 26.2	348° 40.7 -9° 27.1	3° 40.8 -9° 28.0	18° 40.9 -9° 28.9	33° 41.1 -9° 29.8	48° 41.2 -9° 30.7	63° 41.3 -9° 31.6	78° 41.4 -9° 32.6	+0.1 -0.9
Вт 18	273° 43.0 -9° 44.4	288° 43.1 -9° 45.3	303° 43.2 -9° 46.2	318° 43.4 -9° 47.1	333° 43.5 -9° 48.0	348° 43.6 -9° 48.9	3° 43.7 -9° 49.8	18° 43.8 -9° 50.7	33° 43.9 -9° 51.6	48° 44.1 -9° 52.5	63° 44.2 -9° 53.4	78° 44.3 -9° 54.3	+0.1 -0.9
Ср 19	273° 45.8 -10° 06.0	288° 45.9 -10° 06.9	303° 46.0 -10° 07.8	318° 46.1 -10° 08.7	333° 46.2 -10° 09.6	348° 46.4 -10° 10.5	3° 46.5 -10° 11.4	18° 46.6 -10° 12.3	33° 46.7 -10° 13.2	48° 46.8 -10° 14.1	63° 46.9 -10° 15.0	78° 47.0 -10° 15.9	+0.1 -0.9
Чт 20	273° 48.4 -10° 27.6	288° 48.5 -10° 28.5	303° 48.6 -10° 29.4	318° 48.7 -10° 30.3	333° 48.8 -10° 31.1	348° 48.9 -10° 32.0	3° 49.1 -10° 32.9	18° 49.2 -10° 33.8	33° 49.3 -10° 34.7	48° 49.4 -10° 35.6	63° 49.5 -10° 36.5	78° 49.6 -10° 37.4	+0.1 -0.9
Пт 21	273° 50.9 -10° 48.9	288° 51.0 -10° 49.8	303° 51.1 -10° 50.7	318° 51.2 -10° 51.6	333° 51.3 -10° 52.5	348° 51.4 -10° 53.4	3° 51.5 -10° 54.3	18° 51.6 -10° 55.2	33° 51.7 -10° 56.0	48° 51.8 -10° 56.9	63° 51.9 -10° 57.8	78° 52.0 -10° 58.7	+0.1 -0.9
Сб 22	273° 53.2 -11° 10.2	288° 53.3 -11° 11.0	303° 53.4 -11° 11.9	318° 53.5 -11° 12.8	333° 53.5 -11° 13.7	348° 53.6 -11° 14.6	3° 53.7 -11° 15.4	18° 53.8 -11° 16.3	33° 53.9 -11° 17.2	48° 54.0 -11° 18.1	63° 54.1 -11° 19.0	78° 54.2 -11° 19.8	+0.1 -0.9
Вс 23	273° 55.3 -11° 31.2	288° 55.4 -11° 32.1	303° 55.5 -11° 33.0	318° 55.6 -11° 33.8	333° 55.6 -11° 34.7	348° 55.7 -11° 35.6	3° 55.8 -11° 36.5	18° 55.9 -11° 37.3	33° 56.0 -11° 38.2	48° 56.1 -11° 39.1	63° 56.1 -11° 39.9	78° 56.2 -11° 40.8	+0.1 -0.9
Пн 24	273° 57.3 -11° 52.1	288° 57.3 -11° 53.0	303° 57.4 -11° 53.8	318° 57.5 -11° 54.7	333° 57.6 -11° 55.6	348° 57.6 -11° 56.4	3° 57.7 -11° 57.3	18° 57.8 -11° 58.2	33° 57.9 -11° 59.0	48° 57.9 -11° 59.9	63° 58.0 -12° 00.7	78° 58.1 -12° 01.6	+0.1 -0.9
Вт 25	273° 59.0 -12° 12.8	288° 59.1 -12° 13.7	303° 59.2 -12° 14.5	318° 59.2 -12° 15.4	333° 59.3 -12° 16.2	348° 59.4 -12° 17.1	3° 59.4 -12° 17.9	18° 59.5 -12° 18.8	33° 59.6 -12° 19.7	48° 59.7 -12° 20.5	63° 59.7 -12° 21.4	78° 59.8 -12° 22.2	+0.1 -0.9
Ср 26	274° 00.6 -12° 33.3	289° 00.7 -12° 34.2	304° 00.8 -12° 35.0	319° 00.8 -12° 35.9	334° 00.9 -12° 36.7	349° 00.9 -12° 37.6	4° 01.0 -12° 38.4	19° 01.1 -12° 39.3	34° 01.1 -12° 40.1	49° 01.2 -12° 40.9	64° 01.2 -12° 41.8	79° 01.3 -12° 42.6	+0.1 -0.8
Чт 27	274° 02.0 -12° 53.6	289° 02.1 -12° 54.5	304° 02.2 -12° 55.3	319° 02.2 -12° 56.1	334° 02.3 -12° 57.0	349° 02.3 -12° 57.8	4° 02.4 -12° 58.7	19° 02.4 -12° 59.5	34° 02.5 -13° 00.3	49° 02.5 -13° 01.2	64° 02.6 -13° 02.0	79° 02.6 -13° 02.9	+0.1 -0.8
Пт 28	274° 03.3 -13° 13.7	289° 03.3 -13° 14.6	304° 03.4 -13° 15.4	319° 03.4 -13° 16.2	334° 03.5 -13° 17.1	349° 03.5 -13° 17.9	4° 03.6 -13° 18.7	19° 03.6 -13° 19.6	34° 03.6 -13° 20.4	49° 03.7 -13° 21.2	64° 03.7 -13° 22.1	79° 03.8 -13° 22.9	+0.0 -0.8
Сб 29	274° 04.3 -13° 33.6	289° 04.4 -13° 34.5	304° 04.4 -13° 35.3	319° 04.4 -13° 36.1	334° 04.5 -13° 36.9	349° 04.5 -13° 37.8	4° 04.6 -13° 38.6	19° 04.6 -13° 39.4	34° 04.6 -13° 40.2	49° 04.7 -13° 41.1	64° 04.7 -13° 41.9	79° 04.7 -13° 42.7	+0.0 -0.8
Вс 30	274° 05.2 -13° 53.3	289° 05.2 -13° 54.2	304° 05.2 -13° 55.0	319° 05.3 -13° 55.8	334° 05.3 -13° 56.6	349° 05.3 -13° 57.4	4° 05.4 -13° 58.2	19° 05.4 -13° 59.0	34° 05.4 -13° 59.9	49° 05.5 -14° 00.7	64° 05.5 -14° 01.5	79° 05.5 -14° 02.3	+0.0 -0.8
Пн 31	274° 05.8 -14° 12.8	289° 05.9 -14° 13.6	304° 05.9 -14° 14.4	319° 05.9 -14° 15.2	334° 05.9 -14° 16.0	349° 06.0 -14° 16.8	4° 06.0 -14° 17.6	19° 06.0 -14° 18.4	34° 06.0 -14° 19.2	49° 06.0 -14° 20.0	64° 06.1 -14° 20.9	79° 06.1 -14° 21.7	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

Октябрь 2033

	Д	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	R/p
◐	Сб 1	244° 53.7	259° 22.7	273° 51.6	288° 20.4	302° 49.3	317° 18.1	331° 46.9	346° 15.6	0° 44.3	15° 13.1	29° 41.7	+28.8	15.4
		-18° 04.0	-18° 02.3	-18° 00.6	-17° 58.8	-17° 56.8	-17° 54.8	-17° 52.6	-17° 50.4	-17° 48.1	-17° 45.6	-17° 43.1	+2.1	56.4
	Вс 2	246° 49.0	261° 17.3	275° 45.6	290° 13.8	304° 42.1	319° 10.3	333° 38.5	348° 06.7	2° 34.9	17° 03.0	31° 31.1	+28.2	15.6
		-16° 53.2	-16° 49.0	-16° 44.8	-16° 40.5	-16° 36.0	-16° 31.5	-16° 26.9	-16° 22.2	-16° 17.3	-16° 12.4	-16° 07.4	+4.6	57.3
	Пн 3	248° 30.9	262° 58.8	277° 26.7	291° 54.5	306° 22.3	320° 50.1	335° 17.9	349° 45.7	4° 13.4	18° 41.2	33° 08.9	+27.8	15.9
		-14° 40.4	-14° 33.8	-14° 27.1	-14° 20.4	-14° 13.5	-14° 06.6	-13° 59.5	-13° 52.4	-13° 45.2	-13° 37.8	-13° 30.4	+7.0	58.3
	Вт 4	250° 03.3	264° 30.9	278° 58.4	293° 25.9	307° 53.4	322° 20.8	336° 48.3	351° 15.8	5° 43.2	20° 10.6	34° 38.0	+27.5	16.2
		-11° 28.8	-11° 20.0	-11° 11.2	-11° 02.2	-10° 53.2	-10° 44.1	-10° 34.9	-10° 25.7	-10° 16.3	-10° 06.9	-9° 57.5	+9.1	59.3
	Ср 5	251° 27.7	265° 54.9	280° 22.1	294° 49.2	309° 16.4	323° 43.5	338° 10.6	352° 37.8	7° 04.9	21° 31.9	35° 59.0	+27.1	16.4
		-7° 26.9	-7° 16.4	-7° 05.8	-6° 55.1	-6° 44.4	-6° 33.6	-6° 22.8	-6° 11.9	-6° 01.0	-5° 50.0	-5° 38.9	+10.8	60.2
	Чт 6	252° 42.9	267° 09.7	281° 36.4	296° 03.2	310° 29.9	324° 56.6	339° 23.3	353° 49.9	8° 16.6	22° 43.2	37° 09.8	+26.7	16.6
		-2° 48.5	-2° 36.8	-2° 25.1	-2° 13.5	-2° 01.7	-1° 50.0	-1° 38.2	-1° 26.4	-1° 14.6	-1° 02.8	-0° 51.0	+11.8	60.9
	Пт 7	253° 46.0	268° 12.2	282° 38.5	297° 04.6	311° 30.8	325° 56.9	340° 23.0	354° 49.1	9° 15.2	23° 41.2	38° 07.2	+26.1	16.7
		2° 07.3	2° 19.2	2° 31.0	2° 42.9	2° 54.7	3° 06.5	3° 18.4	3° 30.1	3° 41.9	3° 53.6	4° 05.4	+11.8	61.3
○	Сб 8	254° 34.2	268° 59.8	283° 25.3	297° 50.9	312° 16.4	326° 41.9	341° 07.3	355° 32.8	9° 58.2	24° 23.6	38° 49.0	+25.5	16.7
		6° 57.2	7° 08.4	7° 19.5	7° 30.5	7° 41.5	7° 52.4	8° 03.2	8° 14.0	8° 24.8	8° 35.5	8° 46.1	+10.9	61.4
	Вс 9	255° 06.9	269° 31.9	283° 56.9	298° 21.9	312° 46.9	327° 11.8	341° 36.8	356° 01.7	10° 26.6	24° 51.5	39° 16.4	+25.0	16.6
		11° 17.0	11° 26.5	11° 35.8	11° 45.1	11° 54.3	12° 03.4	12° 12.4	12° 21.3	12° 30.1	12° 38.8	12° 47.4	+9.0	61.0
	Пн 10	255° 28.4	269° 53.2	284° 17.9	298° 42.7	313° 07.4	327° 32.2	341° 56.9	356° 21.7	10° 46.5	25° 11.2	39° 36.0	+24.8	16.5
		14° 44.9	14° 51.9	14° 58.8	15° 05.5	15° 12.2	15° 18.8	15° 25.2	15° 31.5	15° 37.7	15° 43.8	15° 49.8	+6.5	60.4
	Вт 11	255° 48.9	270° 13.8	284° 38.8	299° 03.9	313° 28.9	327° 54.0	342° 19.1	356° 44.2	11° 09.4	25° 34.6	39° 59.8	+25.1	16.2
		17° 05.4	17° 09.5	17° 13.5	17° 17.4	17° 21.1	17° 24.7	17° 28.2	17° 31.5	17° 34.8	17° 37.9	17° 40.9	+3.5	59.5
	Ср 12	256° 22.1	270° 47.9	285° 13.7	299° 39.6	314° 05.6	328° 31.6	342° 57.6	357° 23.7	11° 49.8	26° 16.0	40° 42.2	+26.0	16.0
		18° 11.6	18° 12.7	18° 13.7	18° 14.5	18° 15.3	18° 15.9	18° 16.4	18° 16.8	18° 17.1	18° 17.2	18° 17.3	+0.6	58.6
	Чт 13	257° 22.3	271° 49.4	286° 16.6	300° 43.8	315° 11.1	329° 38.5	344° 06.0	358° 33.5	13° 01.0	27° 28.6	41° 56.3	+27.4	15.7
		18° 04.7	18° 03.0	18° 01.2	17° 59.3	17° 57.3	17° 55.2	17° 53.0	17° 50.7	17° 48.2	17° 45.7	17° 43.1	-2.2	57.6
	Пт 14	258° 59.6	273° 28.3	287° 57.1	302° 26.0	316° 54.9	331° 24.0	345° 53.0	0° 22.2	14° 51.4	29° 20.7	43° 50.0	+29.0	15.5
		16° 52.5	16° 48.4	16° 44.2	16° 40.0	16° 35.6	16° 31.2	16° 26.7	16° 22.1	16° 17.4	16° 12.6	16° 07.8	-4.5	56.7
◑	Сб 15	273° 28.3	287° 57.1	302° 26.0	316° 54.9	331° 24.0	345° 53.0	0° 22.2	14° 51.4	29° 20.7	43° 50.0	58° 19.4	+29.1	15.4
		16° 48.4	16° 44.2	16° 40.0	16° 35.6	16° 31.2	16° 26.7	16° 22.1	16° 17.4	16° 12.6	16° 07.8	16° 02.8	-4.6	56.6
	Вс 16	275° 48.6	290° 19.0	304° 49.5	319° 20.1	333° 50.8	348° 21.5	2° 52.3	17° 23.1	31° 54.0	46° 24.9	60° 56.0	+30.7	15.2
		14° 40.0	14° 33.9	14° 27.8	14° 21.6	14° 15.3	14° 09.0	14° 02.6	13° 56.1	13° 49.6	13° 43.0	13° 36.3	-6.4	55.8
	Пн 17	278° 48.2	293° 20.1	307° 52.1	322° 24.2	336° 56.2	351° 28.4	6° 00.6	20° 32.8	35° 05.1	49° 37.4	64° 09.8	+32.2	15.0
		11° 49.9	11° 42.4	11° 34.8	11° 27.2	11° 19.6	11° 11.9	11° 04.1	10° 56.4	10° 48.5	10° 40.7	10° 32.7	-7.7	55.2
	Вт 18	282° 21.1	296° 54.2	311° 27.3	326° 00.4	340° 33.6	355° 06.9	9° 40.2	24° 13.5	38° 46.8	53° 20.2	67° 53.6	+33.3	14.9
		8° 29.5	8° 21.0	8° 12.4	8° 03.9	7° 55.3	7° 46.7	7° 38.0	7° 29.4	7° 20.7	7° 11.9	7° 03.2	-8.6	54.6
	Ср 19	286° 18.5	300° 52.4	315° 26.3	330° 00.2	344° 34.2	359° 08.1	13° 42.1	28° 16.1	42° 50.2	57° 24.2	71° 58.3	+34.0	14.8
		4° 49.2	4° 40.1	4° 31.0	4° 21.9	4° 12.8	4° 03.6	3° 54.5	3° 45.3	3° 36.1	3° 26.9	3° 17.7	-9.2	54.3
	Чт 20	290° 31.0	305° 05.3	319° 39.6	334° 13.9	348° 48.2	3° 22.5	17° 56.8	32° 31.1	47° 05.4	61° 39.8	76° 14.1	+34.3	14.7
		0° 58.6	0° 49.3	0° 40.0	0° 30.7	0° 21.4	0° 12.1	0° 02.8	-0° 06.5	-0° 15.8	-0° 25.2	-0° 34.5	-9.3	54.0
	Пт 21	294° 49.0	309° 23.3	323° 57.6	338° 31.9	353° 06.2	7° 40.5	22° 14.7	36° 49.0	51° 23.2	65° 57.5	80° 31.7	+34.3	14.7
		-2° 53.2	-3° 02.4	-3° 11.6	-3° 20.7	-3° 29.9	-3° 39.0	-3° 48.1	-3° 57.2	-4° 06.3	-4° 15.3	-4° 24.4	-9.1	53.9
	Сб 22	299° 03.5	313° 37.5	328° 11.5	342° 45.4	357° 19.4	11° 53.3	26° 27.2	41° 01.1	55° 34.9	70° 08.7	84° 42.6	+33.9	14.7
		-6° 37.5	-6° 46.2	-6° 54.9	-7° 03.5	-7° 12.1	-7° 20.7	-7° 29.2	-7° 37.8	-7° 46.3	-7° 54.7	-8° 03.1	-8.6	53.9
●	Вс 23	303° 06.7	317° 40.1	332° 13.5	346° 46.9	1° 20.2	15° 53.5	30° 26.7	44° 59.9	59° 33.1	74° 06.3	88° 39.4	+33.3	14.7
		-10° 05.3	-10° 13.2	-10° 21.0	-10° 28.7	-10° 36.4	-10° 44.1	-10° 51.7	-10° 59.3	-11° 06.9	-11° 14.3	-11° 21.8	-7.6	54.0
	Пн 24	306° 52.5	321° 25.1	335° 57.7	350° 30.2	5° 02.7	19° 35.2	34° 07.6	48° 40.0	63° 12.4	77° 44.7	92° 17.0	+32.4	14.8
		-13° 07.5	-13° 14.2	-13° 20.7	-13° 27.2	-13° 33.7	-13° 40.1	-13° 46.4	-13° 52.7	-13° 59.0	-14° 05.1	-14° 11.2	-6.4	54.1
	Вт 25	310° 17.0	324° 48.7	339° 20.3	353° 52.0	8° 23.6	22° 55.1	37° 26.6	51° 58.1	66° 29.6	81° 01.0	95° 32.4	+31.5	14.8
		-15° 35.1	-15° 40.2	-15° 45.2	-15° 50.1	-15° 55.0	-15° 59.7	-16° 04.4	-16° 09.1	-16° 13.6	-16° 18.1	-16° 22.5	-4.7	54.4
	Ср 26	313° 18.8	327° 49.6	342° 20.4	356° 51.2	11° 21.9	25° 52.6	40° 23.2	54° 53.9	69° 24.4	83° 55.0	98° 25.5	+30.7	14.9
		-17° 19.6	-17° 22.8	-17° 25.9	-17° 28.9	-17° 31.8	-17° 34.7	-17° 37.4	-17° 40.1	-17° 42.7	-17° 45.2	-17° 47.6	-2.8	54.8
	Чт 27	315° 59.8	330° 29.8	344° 59.9	359° 29.9	13° 59.8	28° 29.8	42° 59.7	57° 29.6	71° 59.5	86° 29.3	100° 59.2	+29.9	15.1
		-18° 13.6	-18° 14.6	-18° 15.6	-18° 16.4	-18° 17.2	-18° 17.8	-18° 18.4	-18° 18.9	-18° 19.3	-18° 19.6	-18° 19.8	-0.6	55.2
	Пт 28	318° 23.9	332° 53.4	347° 22.9	1° 52.3	16° 21.8	30° 51.2	45° 20.6	59° 50.0	74° 19.3	88° 48.7	103° 18.0	+29.4	15.2
		-18° 11.6	-18° 10.3	-18° 09.0	-18° 07.5	-18° 05.9	-18° 04.2	-18° 02.5	-18° 00.6	-17° 58.6	-17° 56.6	-17° 54.4	+1.7	55.8
	Сб 29	320° 36.5	335° 05.6	349° 34.8	4° 03.9	18° 33.0	33° 02.1	47° 31.2	62° 00.2	76° 29.3	90° 58.4	105° 27.4	+29.1	15.4
		-17° 10.8	-17° 07.1	-17° 03.3	-16° 59.5	-16° 55.5	-16° 51.5	-16° 47.3	-16° 43.1	-16° 38.8	-16° 34.3	-16° 29.8	+4.1	56.5
	Вс 30	322° 42.3	337° 11.2	351° 40.2	6° 09.1	20° 38.0	35° 06.9	49° 35.8	64° 04.7	78° 33.6	93° 02.5	107° 31.4	+28.9	15.6
		-15° 11.0	-15° 05.1	-14° 59.0	-14° 52.8	-14° 46.6	-14° 40.3	-14° 33.9	-14° 27.4	-14° 20.8	-14° 14.1	-14° 07.3	+6.4	57.3
◐	Пн 31	324° 43.9	339° 12.7	353° 41.5	8° 10.2	22° 39.0	37° 07.8	51° 36.5	66° 05.2	80° 34.0	95° 02.7	109° 31.4	+28.7	15.9
		-12° 15.8	-12° 07.7	-11° 59.6	-11° 51.4	-11° 43.0	-11° 34.7	-11° 26.2	-11° 17.7	-11° 09.0	-11° 00.4	-10° 51.6	+8.4	58.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 1 16h32 — Полнолуние: 8 10h58 — Последняя четв.: 15 04h47 — Новолуние: 23 07h28 — Первая четв.: 31 04h46

СОЛНЦЕ

Ноябрь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	274 06.3	289 06.3	304 06.4	319 06.4	334 06.4	349 06.4	4 06.4	19 06.4	34 06.4	49 06.4	64 06.5	79 06.5	+0.0
	-14 32.0	-14 32.8	-14 33.6	-14 34.4	-14 35.2	-14 36.0	-14 36.8	-14 37.6	-14 38.4	-14 39.2	-14 40.0	-14 40.8	-0.8
Ср 2	274 06.6	289 06.6	304 06.6	319 06.6	334 06.6	349 06.6	4 06.6	19 06.6	34 06.7	49 06.7	64 06.7	79 06.7	+0.0
	-14 51.1	-14 51.8	-14 52.6	-14 53.4	-14 54.2	-14 55.0	-14 55.8	-14 56.6	-14 57.3	-14 58.1	-14 58.9	-14 59.7	-0.8
Чт 3	274 06.7	289 06.7	304 06.7	319 06.7	334 06.7	349 06.7	4 06.7	19 06.7	34 06.7	49 06.7	64 06.7	79 06.7	-0.0
	-15 09.8	-15 10.6	-15 11.4	-15 12.1	-15 12.9	-15 13.7	-15 14.5	-15 15.2	-15 16.0	-15 16.8	-15 17.6	-15 18.3	-0.8
Пт 4	274 06.6	289 06.6	304 06.5	319 06.5	334 06.5	349 06.5	4 06.5	19 06.5	34 06.5	49 06.5	64 06.5	79 06.4	-0.0
	-15 28.3	-15 29.1	-15 29.9	-15 30.6	-15 31.4	-15 32.2	-15 32.9	-15 33.7	-15 34.4	-15 35.2	-15 36.0	-15 36.7	-0.8
Сб 5	274 06.2	289 06.2	304 06.2	319 06.2	334 06.2	349 06.2	4 06.1	19 06.1	34 06.1	49 06.1	64 06.1	79 06.0	-0.0
	-15 46.6	-15 47.3	-15 48.1	-15 48.9	-15 49.6	-15 50.4	-15 51.1	-15 51.9	-15 52.6	-15 53.4	-15 54.1	-15 54.9	-0.8
Вс 6	274 05.7	289 05.7	304 05.7	319 05.6	334 05.6	349 05.6	4 05.6	19 05.5	34 05.5	49 05.5	64 05.4	79 05.4	-0.0
	-16 04.6	-16 05.3	-16 06.1	-16 06.8	-16 07.6	-16 08.3	-16 09.0	-16 09.8	-16 10.5	-16 11.3	-16 12.0	-16 12.8	-0.7
Пн 7	274 05.0	289 05.0	304 04.9	319 04.9	334 04.8	349 04.8	4 04.8	19 04.7	34 04.7	49 04.7	64 04.6	79 04.6	-0.0
	-16 22.3	-16 23.1	-16 23.8	-16 24.5	-16 25.3	-16 26.0	-16 26.7	-16 27.4	-16 28.2	-16 28.9	-16 29.6	-16 30.4	-0.7
Вт 8	274 04.0	289 04.0	304 04.0	319 03.9	334 03.9	349 03.8	4 03.8	19 03.7	34 03.7	49 03.6	64 03.6	79 03.5	-0.0
	-16 39.8	-16 40.5	-16 41.2	-16 41.9	-16 42.7	-16 43.4	-16 44.1	-16 44.8	-16 45.5	-16 46.3	-16 47.0	-16 47.7	-0.7
Ср 9	274 02.9	289 02.8	304 02.8	319 02.7	334 02.7	349 02.6	4 02.6	19 02.5	34 02.4	49 02.4	64 02.3	79 02.3	-0.1
	-16 57.0	-16 57.7	-16 58.4	-16 59.1	-16 59.8	-17 00.5	-17 01.2	-17 01.9	-17 02.6	-17 03.3	-17 04.0	-17 04.7	-0.7
Чт 10	274 01.5	289 01.4	304 01.4	319 01.3	334 01.3	349 01.2	4 01.1	19 01.1	34 01.0	49 00.9	64 00.9	79 00.8	-0.1
	-17 13.8	-17 14.5	-17 15.2	-17 15.9	-17 16.6	-17 17.3	-17 18.0	-17 18.7	-17 19.4	-17 20.1	-17 20.8	-17 21.5	-0.7
Пт 11	273 59.9	288 59.9	303 59.8	318 59.7	333 59.6	348 59.6	3 59.5	18 59.4	33 59.3	48 59.3	63 59.2	78 59.1	-0.1
	-17 30.4	-17 31.1	-17 31.8	-17 32.5	-17 33.2	-17 33.9	-17 34.5	-17 35.2	-17 35.9	-17 36.6	-17 37.3	-17 37.9	-0.7
Сб 12	273 58.1	288 58.0	303 58.0	318 57.9	333 57.8	348 57.7	3 57.6	18 57.6	33 57.5	48 57.4	63 57.3	78 57.2	-0.1
	-17 46.7	-17 47.4	-17 48.1	-17 48.7	-17 49.4	-17 50.1	-17 50.8	-17 51.4	-17 52.1	-17 52.8	-17 53.4	-17 54.1	-0.7
Вс 13	273 56.1	288 56.0	303 55.9	318 55.8	333 55.7	348 55.6	3 55.6	18 55.5	33 55.4	48 55.3	63 55.2	78 55.1	-0.1
	-18 02.7	-18 03.4	-18 04.0	-18 04.7	-18 05.4	-18 06.0	-18 06.7	-18 07.3	-18 08.0	-18 08.6	-18 09.3	-18 09.9	-0.7
Пн 14	273 53.9	288 53.8	303 53.7	318 53.6	333 53.5	348 53.4	3 53.3	18 53.2	33 53.1	48 53.0	63 52.9	78 52.8	-0.1
	-18 18.4	-18 19.0	-18 19.7	-18 20.3	-18 21.0	-18 21.6	-18 22.3	-18 22.9	-18 23.5	-18 24.2	-18 24.8	-18 25.5	-0.6
Вт 15	273 51.4	288 51.3	303 51.2	318 51.1	333 51.0	348 50.9	3 50.8	18 50.6	33 50.5	48 50.4	63 50.3	78 50.2	-0.1
	-18 33.7	-18 34.4	-18 35.0	-18 35.6	-18 36.3	-18 36.9	-18 37.5	-18 38.2	-18 38.8	-18 39.4	-18 40.0	-18 40.7	-0.6
Ср 16	273 48.7	288 48.6	303 48.5	318 48.4	333 48.3	348 48.2	3 48.0	18 47.9	33 47.8	48 47.7	63 47.6	78 47.4	-0.1
	-18 48.8	-18 49.4	-18 50.0	-18 50.6	-18 51.2	-18 51.9	-18 52.5	-18 53.1	-18 53.7	-18 54.3	-18 54.9	-18 55.5	-0.6
Чт 17	273 45.9	288 45.7	303 45.6	318 45.5	333 45.3	348 45.2	3 45.1	18 45.0	33 44.8	48 44.7	63 44.6	78 44.5	-0.1
	-19 03.5	-19 04.1	-19 04.7	-19 05.3	-19 05.9	-19 06.5	-19 07.1	-19 07.7	-19 08.3	-19 08.9	-19 09.5	-19 10.1	-0.6
Пт 18	273 42.8	288 42.6	303 42.5	318 42.4	333 42.2	348 42.1	3 41.9	18 41.8	33 41.7	48 41.5	63 41.4	78 41.3	-0.1
	-19 17.8	-19 18.4	-19 19.0	-19 19.6	-19 20.2	-19 20.8	-19 21.4	-19 21.9	-19 22.5	-19 23.1	-19 23.7	-19 24.3	-0.6
Сб 19	273 39.5	288 39.3	303 39.2	318 39.0	333 38.9	348 38.7	3 38.6	18 38.4	33 38.3	48 38.2	63 38.0	78 37.9	-0.1
	-19 31.8	-19 32.4	-19 33.0	-19 33.6	-19 34.1	-19 34.7	-19 35.3	-19 35.8	-19 36.4	-19 37.0	-19 37.6	-19 38.1	-0.6
Вс 20	273 35.9	288 35.8	303 35.6	318 35.5	333 35.3	348 35.2	3 35.0	18 34.9	33 34.7	48 34.6	63 34.4	78 34.3	-0.2
	-19 45.5	-19 46.0	-19 46.6	-19 47.2	-19 47.7	-19 48.3	-19 48.8	-19 49.4	-19 50.0	-19 50.5	-19 51.1	-19 51.6	-0.6
Пн 21	273 32.2	288 32.1	303 31.9	318 31.7	333 31.6	348 31.4	3 31.3	18 31.1	33 30.9	48 30.8	63 30.6	78 30.5	-0.2
	-19 58.8	-19 59.3	-19 59.9	-20 00.4	-20 01.0	-20 01.5	-20 02.0	-20 02.6	-20 03.1	-20 03.7	-20 04.2	-20 04.8	-0.5
Вт 22	273 28.3	288 28.1	303 28.0	318 27.8	333 27.6	348 27.5	3 27.3	18 27.1	33 27.0	48 26.8	63 26.6	78 26.4	-0.2
	-20 11.7	-20 12.2	-20 12.8	-20 13.3	-20 13.8	-20 14.4	-20 14.9	-20 15.4	-20 15.9	-20 16.5	-20 17.0	-20 17.5	-0.5
Ср 23	273 24.2	288 24.0	303 23.8	318 23.7	333 23.5	348 23.3	3 23.1	18 23.0	33 22.8	48 22.6	63 22.4	78 22.2	-0.2
	-20 24.3	-20 24.8	-20 25.3	-20 25.8	-20 26.3	-20 26.8	-20 27.4	-20 27.9	-20 28.4	-20 28.9	-20 29.4	-20 29.9	-0.5
Чт 24	273 19.9	288 19.7	303 19.5	318 19.3	333 19.1	348 19.0	3 18.8	18 18.6	33 18.4	48 18.2	63 18.0	78 17.8	-0.2
	-20 36.5	-20 37.0	-20 37.5	-20 38.0	-20 38.5	-20 39.0	-20 39.4	-20 39.9	-20 40.4	-20 40.9	-20 41.4	-20 41.9	-0.5
Пт 25	273 15.4	288 15.2	303 15.0	318 14.8	333 14.6	348 14.4	3 14.2	18 14.0	33 13.8	48 13.7	63 13.5	78 13.3	-0.2
	-20 48.3	-20 48.8	-20 49.2	-20 49.7	-20 50.2	-20 50.7	-20 51.2	-20 51.6	-20 52.1	-20 52.6	-20 53.1	-20 53.5	-0.5
Сб 26	273 10.7	288 10.5	303 10.3	318 10.1	333 09.9	348 09.7	3 09.5	18 09.3	33 09.1	48 08.9	63 08.7	78 08.5	-0.2
	-20 59.7	-21 00.2	-21 00.6	-21 01.1	-21 01.5	-21 02.0	-21 02.5	-21 02.9	-21 03.4	-21 03.9	-21 04.3	-21 04.8	-0.5
Вс 27	273 05.8	288 05.6	303 05.4	318 05.2	333 05.0	348 04.8	3 04.6	18 04.4	33 04.2	48 04.0	63 03.8	78 03.6	-0.2
	-21 10.7	-21 11.2	-21 11.6	-21 12.1	-21 12.5	-21 13.0	-21 13.4	-21 13.8	-21 14.3	-21 14.7	-21 15.2	-21 15.6	-0.4
Пн 28	273 00.8	288 00.6	303 00.4	318 00.2	332 59.9	347 59.7	2 59.5	17 59.3	32 59.1	47 58.9	62 58.7	77 58.4	-0.2
	-21 21.3	-21 21.8	-21 22.2	-21 22.6	-21 23.1	-21 23.5	-21 23.9	-21 24.4	-21 24.8	-21 25.2	-21 25.6	-21 26.1	-0.4
Вт 29	272 55.6	287 55.4	302 55.2	317 54.9	332 54.7	347 54.5	2 54.3	17 54.1	32 53.8	47 53.6	62 53.4	77 53.2	-0.2
	-21 31.6	-21 32.0	-21 32.4	-21 32.8	-21 33.2	-21 33.6	-21 34.0	-21 34.5	-21 34.9	-21 35.3	-21 35.7	-21 36.1	-0.4
Ср 30	272 50.2	287 50.0	302 49.8	317 49.5	332 49.3	347 49.1	2 48.9	17 48.6	32 48.4	47 48.2	62 47.9	77 47.7	-0.2
	-21 41.4	-21 41.8	-21 42.2	-21 42.6	-21 43.0	-21 43.4	-21 43.8	-21 44.1	-21 44.5	-21 44.9	-21 45.3	-21 45.7	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2033

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Вт 1	254° 18.0 -9° 20.1	268° 46.6 -9° 10.6	283° 15.1 -9° 01.0	297° 43.7 -8° 51.4	312° 12.3 -8° 41.7	326° 40.8 -8° 31.9	341° 09.4 -8° 22.1	355° 37.9 -8° 12.2	10° 06.4 -8° 02.2	24° 34.9 -7° 52.2	39° 03.3 -7° 42.2	+28.5 +9.8	16.0 58.8
Ср 2	256° 08.5 -5° 04.8	270° 36.6 -4° 53.9	285° 04.8 -4° 43.0	299° 32.9 -4° 32.0	314° 01.1 -4° 21.0	328° 29.2 -4° 10.0	342° 57.2 -3° 58.9	357° 25.3 -3° 47.8	11° 53.3 -3° 36.6	26° 21.3 -3° 25.5	40° 49.3 -3° 14.3	+28.1 +11.1	16.3 59.7
Чт 3	257° 45.6 -0° 22.8	272° 13.1 -0° 11.3	286° 40.6 0° 00.3	301° 08.0 0° 12.0	315° 35.4 0° 23.6	330° 02.8 0° 35.2	344° 30.1 0° 46.8	358° 57.4 0° 58.5	13° 24.7 1° 10.1	27° 51.9 1° 21.8	42° 19.1 1° 33.4	+27.4 +11.6	16.5 60.4
Пт 4	259° 02.5 4° 27.4	273° 29.1 4° 38.9	287° 55.6 4° 50.3	302° 22.1 5° 01.8	316° 48.6 5° 13.2	331° 15.0 5° 24.6	345° 41.3 5° 35.9	0° 07.7 5° 47.2	14° 33.9 5° 58.5	29° 00.2 6° 09.8	43° 26.4 6° 21.0	+26.4 +11.4	16.6 60.9
Сб 5	259° 54.0 9° 04.0	274° 19.5 9° 14.5	288° 45.0 9° 24.9	303° 10.4 9° 35.2	317° 35.8 9° 45.5	332° 01.1 9° 55.7	346° 26.4 10° 05.8	0° 51.7 10° 15.9	15° 16.9 10° 25.8	29° 42.0 10° 35.8	44° 07.2 10° 45.6	+25.3 +10.2	16.7 61.2
○ Вс 6	260° 19.5 13° 03.6	274° 44.0 13° 12.1	289° 08.6 13° 20.5	303° 33.0 13° 28.8	317° 57.5 13° 37.0	332° 21.9 13° 45.1	346° 46.3 13° 53.1	1° 10.7 14° 01.0	15° 35.0 14° 08.8	29° 59.3 14° 16.5	44° 23.6 14° 24.1	+24.4 +8.1	16.6 61.0
Пн 7	260° 25.7 16° 04.7	274° 49.8 16° 10.5	289° 13.8 16° 16.2	303° 37.8 16° 21.7	318° 01.8 16° 27.2	332° 25.8 16° 32.5	346° 49.9 16° 37.7	1° 13.9 16° 42.7	15° 37.9 16° 47.7	30° 01.9 16° 52.5	44° 25.9 16° 57.2	+24.0 +5.2	16.5 60.6
Вт 8	260° 27.5 17° 52.6	274° 51.7 17° 55.3	289° 16.0 17° 57.8	303° 40.3 18° 00.2	318° 04.7 18° 02.5	332° 29.0 18° 04.7	346° 53.4 18° 06.7	1° 17.8 18° 08.7	15° 42.3 18° 10.5	30° 06.8 18° 12.1	44° 31.3 18° 13.7	+24.4 +2.1	16.3 59.8
Ср 9	260° 44.3 18° 21.8	275° 09.6 18° 21.4	289° 34.9 18° 20.8	304° 00.3 18° 20.2	318° 25.7 18° 19.4	332° 51.2 18° 18.5	347° 16.7 18° 17.5	1° 42.3 18° 16.3	16° 08.0 18° 15.1	30° 33.7 18° 13.7	44° 59.5 18° 12.2	+25.5 -1.0	16.1 58.9
Чт 10	261° 34.3 17° 36.8	276° 01.2 17° 33.5	290° 28.2 17° 30.2	304° 55.2 17° 26.8	319° 22.3 17° 23.3	333° 49.5 17° 19.7	348° 16.8 17° 16.0	2° 44.1 17° 12.2	17° 11.5 17° 08.3	31° 39.0 17° 04.3	46° 06.5 17° 00.3	+27.2 -3.7	15.8 57.9
Пт 11	263° 09.2 15° 48.4	277° 38.0 15° 43.0	292° 06.9 15° 37.4	306° 35.8 15° 31.8	321° 04.8 15° 26.1	335° 33.9 15° 20.4	350° 03.1 15° 14.5	4° 32.4 15° 08.6	19° 01.7 15° 02.6	33° 31.1 14° 56.6	48° 00.6 14° 50.5	+29.1 -5.8	15.5 56.9
Сб 12	265° 31.8 13° 10.7	280° 02.5 13° 03.6	294° 33.2 12° 56.4	309° 04.0 12° 49.2	323° 34.9 12° 41.9	338° 05.8 12° 34.5	352° 36.8 12° 27.1	7° 07.9 12° 19.6	21° 39.0 12° 12.1	36° 10.2 12° 04.6	50° 41.5 11° 57.0	+31.0 -7.4	15.3 56.0
◑ Вс 13	280° 02.5 13° 03.6	294° 33.2 12° 56.4	309° 04.0 12° 49.2	323° 34.9 12° 41.9	338° 05.8 12° 34.5	352° 36.8 12° 27.1	7° 07.9 12° 19.6	21° 39.0 12° 12.1	36° 10.2 12° 04.6	50° 41.5 11° 57.0	65° 12.8 11° 49.3	+31.0 -7.4	15.3 56.0
Пн 14	283° 10.3 9° 49.2	297° 42.6 9° 40.9	312° 14.9 9° 32.5	326° 47.3 9° 24.2	341° 19.8 9° 15.7	355° 52.3 9° 07.3	10° 24.8 8° 58.8	24° 57.5 8° 50.2	39° 30.1 8° 41.7	54° 02.8 8° 33.1	68° 35.6 8° 24.5	+32.5 -8.5	15.1 55.2
Вт 15	286° 52.4 6° 12.0	301° 25.9 6° 03.0	315° 59.3 5° 54.0	330° 32.9 5° 44.9	345° 06.4 5° 35.8	359° 40.0 5° 26.7	14° 13.6 5° 17.6	28° 47.3 5° 08.5	43° 21.0 4° 59.4	57° 54.7 4° 50.2	72° 28.4 4° 41.1	+33.6 -9.1	14.9 54.7
Ср 16	290° 57.9 2° 22.2	305° 32.0 2° 12.9	320° 06.2 2° 03.5	334° 40.3 1° 54.2	349° 14.5 1° 44.9	3° 48.7 1° 35.5	18° 23.0 1° 26.2	32° 57.2 1° 16.8	47° 31.4 1° 07.5	62° 05.7 0° 58.1	76° 40.0 0° 48.8	+34.2 -9.3	14.8 54.3
Чт 17	295° 15.1 -1° 31.3	309° 49.5 -1° 40.5	324° 23.8 -1° 49.8	338° 58.2 -1° 59.1	353° 32.6 -2° 08.4	8° 07.0 -2° 17.6	22° 41.3 -2° 26.9	37° 15.7 -2° 36.1	51° 50.1 -2° 45.4	66° 24.4 -2° 54.6	80° 58.8 -3° 03.8	+34.4 -9.3	14.7 54.0
Пт 18	299° 33.0 -5° 20.0	314° 07.2 -5° 28.9	328° 41.4 -5° 37.8	343° 15.6 -5° 46.7	357° 49.7 -5° 55.6	12° 23.8 -6° 04.4	26° 57.9 -6° 13.2	41° 32.0 -6° 22.0	56° 06.1 -6° 30.8	70° 40.1 -6° 39.6	85° 14.2 -6° 48.3	+34.1 -8.8	14.7 54.0
Сб 19	303° 41.8 -8° 55.6	318° 15.4 -9° 03.9	332° 49.0 -9° 12.1	347° 22.6 -9° 20.2	1° 56.2 -9° 28.3	16° 29.7 -9° 36.4	31° 03.2 -9° 44.5	45° 36.6 -9° 52.5	60° 10.1 -10° 00.5	74° 43.5 -10° 08.4	89° 16.8 -10° 16.3	+33.5 -8.1	14.7 54.0
Вс 20	307° 33.2 -12° 09.4	322° 06.0 -12° 16.6	336° 38.8 -12° 23.7	351° 11.5 -12° 30.8	5° 44.2 -12° 37.8	20° 16.8 -12° 44.8	34° 49.5 -12° 51.7	49° 22.0 -12° 58.5	63° 54.6 -13° 05.3	78° 27.1 -13° 12.1	92° 59.5 -13° 18.8	+32.6 -6.9	14.8 54.2
Пн 21	311° 01.6 -14° 52.1	325° 33.4 -14° 57.9	340° 05.2 -15° 03.5	354° 37.0 -15° 09.1	9° 08.6 -15° 14.7	23° 40.3 -15° 20.1	38° 11.9 -15° 25.5	52° 43.5 -15° 30.9	67° 15.0 -15° 36.1	81° 46.5 -15° 41.3	96° 17.9 -15° 46.4	+31.6 -5.4	14.9 54.5
● Вт 22	314° 04.8 -16° 54.4	328° 35.7 -16° 58.4	343° 06.4 -17° 02.2	357° 37.2 -17° 06.0	12° 07.9 -17° 09.7	26° 38.5 -17° 13.3	41° 09.2 -17° 16.8	55° 39.8 -17° 20.3	70° 10.3 -17° 23.6	84° 40.8 -17° 26.9	99° 11.3 -17° 30.1	+30.6 -3.6	14.9 54.8
Ср 23	316° 44.5 -18° 07.8	331° 14.4 -18° 09.6	345° 44.4 -18° 11.3	0° 14.3 -18° 13.0	14° 44.2 -18° 14.5	29° 14.0 -18° 16.0	43° 43.8 -18° 17.3	58° 13.6 -18° 18.6	72° 43.4 -18° 19.8	87° 13.1 -18° 20.8	101° 42.8 -18° 21.8	+29.8 -1.4	15.1 55.2
Чт 24	319° 05.9 -18° 25.5	333° 35.3 -18° 25.0	348° 04.6 -18° 24.4	2° 34.0 -18° 23.7	17° 03.3 -18° 22.9	31° 32.6 -18° 22.0	46° 01.9 -18° 21.0	60° 31.2 -18° 19.9	75° 00.5 -18° 18.7	89° 29.8 -18° 17.5	103° 59.0 -18° 16.1	+29.3 +0.9	15.2 55.6
Пт 25	321° 16.7 -17° 43.9	335° 45.8 -17° 41.0	350° 15.0 -17° 38.0	4° 44.1 -17° 34.9	19° 13.2 -17° 31.7	33° 42.3 -17° 28.5	48° 11.4 -17° 25.1	62° 40.6 -17° 21.6	77° 09.7 -17° 18.0	91° 38.8 -17° 14.4	106° 07.9 -17° 10.6	+29.1 +3.3	15.3 56.1
Сб 26	323° 24.7 -16° 03.1	337° 53.9 -15° 57.9	352° 23.0 -15° 52.6	6° 52.2 -15° 47.2	21° 21.4 -15° 41.7	35° 50.5 -15° 36.1	50° 19.7 -15° 30.4	64° 48.9 -15° 24.7	79° 18.1 -15° 18.8	93° 47.3 -15° 12.9	108° 16.5 -15° 06.9	+29.2 +5.6	15.5 56.7
Вс 27	325° 35.3 -13° 26.7	340° 04.6 -13° 19.4	354° 34.0 -13° 12.0	9° 03.3 -13° 04.5	23° 32.6 -12° 57.0	38° 02.0 -12° 49.3	52° 31.3 -12° 41.6	67° 00.7 -12° 33.9	81° 30.0 -12° 26.0	95° 59.4 -12° 18.1	110° 28.7 -12° 10.1	+29.3 +7.7	15.6 57.3
Пн 28	327° 49.9 -10° 01.8	342° 19.3 -9° 52.7	356° 48.7 -9° 43.6	11° 18.2 -9° 34.4	25° 47.6 -9° 25.2	40° 17.1 -9° 15.8	54° 46.5 -9° 06.5	69° 15.9 -8° 57.0	83° 45.4 -8° 47.5	98° 14.8 -8° 38.0	112° 44.2 -8° 28.4	+29.4 +9.3	15.8 58.0
◐ Вт 29	330° 05.3 -5° 58.2	344° 34.6 -5° 47.9	359° 04.0 -5° 37.4	13° 33.3 -5° 27.0	28° 02.6 -5° 16.5	42° 31.9 -5° 05.9	57° 01.2 -4° 55.3	71° 30.5 -4° 44.7	85° 59.8 -4° 34.1	100° 29.0 -4° 23.4	114° 58.3 -4° 12.7	+29.3 +10.6	16.0 58.6
Ср 30	332° 14.8 -1° 28.4	346° 43.7 -1° 17.2	1° 12.6 -1° 06.1	15° 41.5 -0° 54.9	30° 10.3 -0° 43.7	44° 39.2 -0° 32.5	59° 08.0 -0° 21.3	73° 36.7 -0° 10.1	88° 05.5 0° 01.2	102° 34.2 0° 12.4	117° 02.9 0° 23.7	+28.8 +11.2	16.2 59.3

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 6 20h32 — Последняя четв.: 13 20h08 — Новолуние: 22 01h39 — Первая четв.: 29 15h15

СОЛНЦЕ

Декабрь 2033

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	272° 44.7	287° 44.5	302° 44.2	317° 44.0	332° 43.8	347° 43.5	2° 43.3	17° 43.1	32° 42.8	47° 42.6	62° 42.4	77° 42.1	-0.2
	-21° 50.8	-21° 51.1	-21° 51.5	-21° 51.9	-21° 52.3	-21° 52.7	-21° 53.0	-21° 53.4	-21° 53.8	-21° 54.2	-21° 54.6	-21° 54.9	-0.4
Пт 2	272° 39.0	287° 38.8	302° 38.5	317° 38.3	332° 38.1	347° 37.8	2° 37.6	17° 37.3	32° 37.1	47° 36.8	62° 36.6	77° 36.4	-0.2
	-21° 59.7	-22° 00.1	-22° 00.5	-22° 00.8	-22° 01.2	-22° 01.6	-22° 01.9	-22° 02.3	-22° 02.6	-22° 03.0	-22° 03.4	-22° 03.7	-0.4
Сб 3	272° 33.2	287° 32.9	302° 32.7	317° 32.4	332° 32.2	347° 31.9	2° 31.7	17° 31.5	32° 31.2	47° 31.0	62° 30.7	77° 30.5	-0.2
	-22° 08.3	-22° 08.6	-22° 09.0	-22° 09.3	-22° 09.7	-22° 10.0	-22° 10.4	-22° 10.7	-22° 11.0	-22° 11.4	-22° 11.7	-22° 12.1	-0.3
Вс 4	272° 27.2	287° 27.0	302° 26.7	317° 26.4	332° 26.2	347° 25.9	2° 25.7	17° 25.4	32° 25.2	47° 24.9	62° 24.7	77° 24.4	-0.3
	-22° 16.4	-22° 16.7	-22° 17.1	-22° 17.4	-22° 17.7	-22° 18.1	-22° 18.4	-22° 18.7	-22° 19.0	-22° 19.4	-22° 19.7	-22° 20.0	-0.3
Пн 5	272° 21.1	287° 20.8	302° 20.6	317° 20.3	332° 20.1	347° 19.8	2° 19.5	17° 19.3	32° 19.0	47° 18.8	62° 18.5	77° 18.2	-0.3
	-22° 24.1	-22° 24.4	-22° 24.7	-22° 25.0	-22° 25.4	-22° 25.7	-22° 26.0	-22° 26.3	-22° 26.6	-22° 26.9	-22° 27.2	-22° 27.5	-0.3
Вт 6	272° 14.8	287° 14.6	302° 14.3	317° 14.0	332° 13.8	347° 13.5	2° 13.2	17° 13.0	32° 12.7	47° 12.5	62° 12.2	77° 11.9	-0.3
	-22° 31.4	-22° 31.7	-22° 32.0	-22° 32.2	-22° 32.5	-22° 32.8	-22° 33.1	-22° 33.4	-22° 33.7	-22° 34.0	-22° 34.3	-22° 34.5	-0.3
Ср 7	272° 08.4	287° 08.2	302° 07.9	317° 07.6	332° 07.4	347° 07.1	2° 06.8	17° 06.6	32° 06.3	47° 06.0	62° 05.7	77° 05.5	-0.3
	-22° 38.2	-22° 38.5	-22° 38.7	-22° 39.0	-22° 39.3	-22° 39.6	-22° 39.8	-22° 40.1	-22° 40.4	-22° 40.6	-22° 40.9	-22° 41.2	-0.3
Чт 8	272° 01.9	287° 01.7	302° 01.4	317° 01.1	332° 00.8	347° 00.6	2° 00.3	17° 00.0	31° 59.7	46° 59.5	61° 59.2	76° 58.9	-0.3
	-22° 44.6	-22° 44.8	-22° 45.1	-22° 45.3	-22° 45.6	-22° 45.8	-22° 46.1	-22° 46.3	-22° 46.6	-22° 46.8	-22° 47.1	-22° 47.3	-0.3
Пт 9	271° 55.3	286° 55.0	301° 54.8	316° 54.5	331° 54.2	346° 53.9	1° 53.6	16° 53.4	31° 53.1	46° 52.8	61° 52.5	76° 52.2	-0.3
	-22° 50.5	-22° 50.7	-22° 51.0	-22° 51.2	-22° 51.4	-22° 51.7	-22° 51.9	-22° 52.1	-22° 52.4	-22° 52.6	-22° 52.8	-22° 53.1	-0.2
Сб 10	271° 48.6	286° 48.3	301° 48.0	316° 47.7	331° 47.4	346° 47.2	1° 46.9	16° 46.6	31° 46.3	46° 46.0	61° 45.7	76° 45.4	-0.3
	-22° 56.0	-22° 56.2	-22° 56.4	-22° 56.6	-22° 56.8	-22° 57.1	-22° 57.3	-22° 57.5	-22° 57.7	-22° 57.9	-22° 58.1	-22° 58.3	-0.2
Вс 11	271° 41.7	286° 41.4	301° 41.2	316° 40.9	331° 40.6	346° 40.3	1° 40.0	16° 39.7	31° 39.4	46° 39.1	61° 38.8	76° 38.6	-0.3
	-23° 01.0	-23° 01.2	-23° 01.4	-23° 01.6	-23° 01.8	-23° 02.0	-23° 02.2	-23° 02.4	-23° 02.6	-23° 02.8	-23° 03.0	-23° 03.2	-0.2
Пн 12	271° 34.8	286° 34.5	301° 34.2	316° 33.9	331° 33.6	346° 33.3	1° 33.0	16° 32.7	31° 32.5	46° 32.2	61° 31.9	76° 31.6	-0.3
	-23° 05.6	-23° 05.8	-23° 05.9	-23° 06.1	-23° 06.3	-23° 06.5	-23° 06.7	-23° 06.8	-23° 07.0	-23° 07.2	-23° 07.3	-23° 07.5	-0.2
Вт 13	271° 27.8	286° 27.5	301° 27.2	316° 26.9	331° 26.6	346° 26.3	1° 26.0	16° 25.7	31° 25.4	46° 25.1	61° 24.8	76° 24.5	-0.3
	-23° 09.7	-23° 09.9	-23° 10.0	-23° 10.2	-23° 10.3	-23° 10.5	-23° 10.7	-23° 10.8	-23° 11.0	-23° 11.1	-23° 11.3	-23° 11.4	-0.2
Ср 14	271° 20.6	286° 20.3	301° 20.0	316° 19.7	331° 19.4	346° 19.1	1° 18.8	16° 18.5	31° 18.2	46° 17.9	61° 17.6	76° 17.3	-0.3
	-23° 13.3	-23° 13.5	-23° 13.6	-23° 13.8	-23° 13.9	-23° 14.1	-23° 14.2	-23° 14.3	-23° 14.5	-23° 14.6	-23° 14.7	-23° 14.9	-0.1
Чт 15	271° 13.4	286° 13.1	301° 12.8	316° 12.5	331° 12.2	346° 11.9	1° 11.6	16° 11.3	31° 11.0	46° 10.7	61° 10.4	76° 10.1	-0.3
	-23° 16.5	-23° 16.7	-23° 16.8	-23° 16.9	-23° 17.0	-23° 17.1	-23° 17.3	-23° 17.4	-23° 17.5	-23° 17.6	-23° 17.7	-23° 17.8	-0.1
Пт 16	271° 06.2	286° 05.9	301° 05.6	316° 05.3	331° 05.0	346° 04.7	1° 04.4	16° 04.1	31° 03.7	46° 03.4	61° 03.1	76° 02.8	-0.3
	-23° 19.3	-23° 19.4	-23° 19.5	-23° 19.6	-23° 19.7	-23° 19.8	-23° 19.9	-23° 20.0	-23° 20.1	-23° 20.2	-23° 20.3	-23° 20.4	-0.1
Сб 17	270° 58.9	285° 58.6	300° 58.2	315° 57.9	330° 57.6	345° 57.3	0° 57.0	15° 56.7	30° 56.4	45° 56.1	60° 55.8	75° 55.5	-0.3
	-23° 21.5	-23° 21.6	-23° 21.7	-23° 21.8	-23° 21.9	-23° 21.9	-23° 22.0	-23° 22.1	-23° 22.2	-23° 22.3	-23° 22.3	-23° 22.4	-0.1
Вс 18	270° 51.5	285° 51.2	300° 50.9	315° 50.6	330° 50.3	345° 50.0	0° 49.6	15° 49.3	30° 49.0	45° 48.7	60° 48.4	75° 48.1	-0.3
	-23° 23.3	-23° 23.4	-23° 23.5	-23° 23.5	-23° 23.6	-23° 23.6	-23° 23.7	-23° 23.8	-23° 23.8	-23° 23.9	-23° 23.9	-23° 24.0	-0.1
Пн 19	270° 44.1	285° 43.8	300° 43.5	315° 43.2	330° 42.8	345° 42.5	0° 42.2	15° 41.9	30° 41.6	45° 41.3	60° 41.0	75° 40.7	-0.3
	-23° 24.7	-23° 24.7	-23° 24.7	-23° 24.8	-23° 24.8	-23° 24.9	-23° 24.9	-23° 24.9	-23° 25.0	-23° 25.0	-23° 25.1	-23° 25.1	-0.0
Вт 20	270° 36.6	285° 36.3	300° 36.0	315° 35.7	330° 35.4	345° 35.1	0° 34.8	15° 34.5	30° 34.2	45° 33.8	60° 33.5	75° 33.2	-0.3
	-23° 25.5	-23° 25.5	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-0.0
Ср 21	270° 29.2	285° 28.9	300° 28.6	315° 28.2	330° 27.9	345° 27.6	0° 27.3	15° 27.0	30° 26.7	45° 26.4	60° 26.1	75° 25.8	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-0.0
Чт 22	270° 21.7	285° 21.4	300° 21.1	315° 20.8	330° 20.5	345° 20.1	0° 19.8	15° 19.5	30° 19.2	45° 18.9	60° 18.6	75° 18.3	-0.3
	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.7	-23° 25.6	-23° 25.6	+0.0
Пт 23	270° 14.2	285° 13.9	300° 13.6	315° 13.3	330° 13.0	345° 12.7	0° 12.4	15° 12.0	30° 11.7	45° 11.4	60° 11.1	75° 10.8	-0.3
	-23° 25.3	-23° 25.2	-23° 25.2	-23° 25.2	-23° 25.1	-23° 25.1	-23° 25.0	-23° 25.0	-23° 25.0	-23° 24.9	-23° 24.9	-23° 24.8	+0.0
Сб 24	270° 06.8	285° 06.4	300° 06.1	315° 05.8	330° 05.5	345° 05.2	0° 04.9	15° 04.6	30° 04.3	45° 04.0	60° 03.6	75° 03.3	-0.3
	-23° 24.2	-23° 24.2	-23° 24.1	-23° 24.1	-23° 24.0	-23° 24.0	-23° 23.9	-23° 23.8	-23° 23.8	-23° 23.7	-23° 23.7	-23° 23.6	+0.1
Вс 25	269° 59.3	284° 59.0	299° 58.7	314° 58.4	329° 58.1	344° 57.8	359° 57.4	14° 57.1	29° 56.8	44° 56.5	59° 56.2	74° 55.9	-0.3
	-23° 22.7	-23° 22.7	-23° 22.6	-23° 22.5	-23° 22.4	-23° 22.4	-23° 22.3	-23° 22.2	-23° 22.1	-23° 22.1	-23° 22.0	-23° 21.9	+0.1
Пн 26	269° 51.9	284° 51.6	299° 51.3	314° 50.9	329° 50.6	344° 50.3	359° 50.0	14° 49.7	29° 49.4	44° 49.1	59° 48.8	74° 48.5	-0.3
	-23° 20.8	-23° 20.7	-23° 20.6	-23° 20.5	-23° 20.4	-23° 20.3	-23° 20.2	-23° 20.1	-23° 20.0	-23° 19.9	-23° 19.8	-23° 19.7	+0.1
Вт 27	269° 44.5	284° 44.2	299° 43.9	314° 43.6	329° 43.3	344° 42.9	359° 42.6	14° 42.3	29° 42.0	44° 41.7	59° 41.4	74° 41.1	-0.3
	-23° 18.3	-23° 18.2	-23° 18.1	-23° 18.0	-23° 17.9	-23° 17.8	-23° 17.7	-23° 17.5	-23° 17.4	-23° 17.3	-23° 17.2	-23° 17.1	+0.1
Ср 28	269° 37.1	284° 36.8	299° 36.5	314° 36.2	329° 35.9	344° 35.6	359° 35.3	14° 35.0	29° 34.7	44° 34.4	59° 34.1	74° 33.8	-0.3
	-23° 15.4	-23° 15.3	-23° 15.2	-23° 15.0	-23° 14.9	-23° 14.8	-23° 14.6	-23° 14.5	-23° 14.4	-23° 14.2	-23° 14.1	-23° 14.0	+0.1
Чт 29	269° 29.8	284° 29.5	299° 29.2	314° 28.9	329° 28.6	344° 28.3	359° 28.0	14° 27.7	29° 27.4	44° 27.1	59° 26.8	74° 26.5	-0.3
	-23° 12.1	-23° 11.9	-23° 11.8	-23° 11.6	-23° 11.5	-23° 11.3	-23° 11.2	-23° 11.0	-23° 10.9	-23° 10.7	-23° 10.5	-23° 10.4	+0.2
Пт 30	269° 22.6	284° 22.3	299° 22.0	314° 21.7	329° 21.4	344° 21.1	359° 20.8	14° 20.5	29° 20.2	44° 19.9	59° 19.6	74° 19.3	-0.3
	-23° 08.2	-23° 08.1	-23° 07.9	-23° 07.7	-23° 07.6	-23° 07.4	-23° 07.2	-23° 07.0	-23° 06.9	-23° 06.7	-23° 06.5	-23° 06.3	+0.2
Сб 31	269° 15.4	284° 15.1	299° 14.8	314° 14.5	329° 14.2	344° 14.0	359° 13.7	14° 13.4	29° 13.1	44° 12.8	59° 12.5	74° 12.2	-0.3
	-23° 04.0	-23° 03.8	-23° 03.6	-23° 03.4	-23° 03.2	-23° 03.0	-23° 02.8	-23° 02.6	-23° 02.4	-23° 02.2	-23° 02.0	-23° 01.8	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Декабрь 2033

Д	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	R/p
Чт 1	247° 19.6	261° 48.0	276° 16.3	290° 44.6	305° 12.8	319° 41.0	334° 09.2	348° 37.3	3° 05.4	17° 33.5	32° 01.5	+28.2	16.3
	2° 05.1	2° 16.4	2° 27.7	2° 39.0	2° 50.2	3° 01.5	3° 12.7	3° 23.9	3° 35.2	3° 46.4	3° 57.6	+11.2	59.7
Пт 2	248° 56.4	263° 23.7	277° 50.9	292° 18.1	306° 45.3	321° 12.4	335° 39.5	350° 06.5	4° 33.4	19° 00.3	33° 27.2	+27.1	16.4
	6° 43.0	6° 53.7	7° 04.5	7° 15.2	7° 25.9	7° 36.6	7° 47.2	7° 57.7	8° 08.2	8° 18.7	8° 29.1	+10.6	60.2
Сб 3	250° 03.9	264° 29.9	278° 55.9	293° 21.9	307° 47.7	322° 13.6	336° 39.4	351° 05.1	5° 30.8	19° 56.4	34° 22.0	+25.8	16.5
	10° 58.9	11° 08.4	11° 17.8	11° 27.1	11° 36.4	11° 45.6	11° 54.7	12° 03.8	12° 12.7	12° 21.6	12° 30.4	+9.2	60.4
Вс 4	250° 40.3	265° 05.2	279° 30.1	293° 54.9	308° 19.6	322° 44.3	337° 09.0	351° 33.7	5° 58.3	20° 22.9	34° 47.4	+24.7	16.5
	14° 32.1	14° 39.4	14° 46.7	14° 53.8	15° 00.9	15° 07.8	15° 14.7	15° 21.4	15° 28.0	15° 34.5	15° 40.9	+6.9	60.4
Пн 5	250° 52.6	265° 16.7	279° 40.9	294° 05.1	308° 29.2	322° 53.4	337° 17.5	351° 41.6	6° 05.7	20° 29.9	34° 54.0	+24.1	16.4
	17° 03.4	17° 08.0	17° 12.4	17° 16.7	17° 20.9	17° 25.0	17° 28.9	17° 32.7	17° 36.4	17° 40.0	17° 43.4	+4.0	60.2
○ Вт 6	250° 56.4	265° 20.7	279° 45.0	294° 09.3	308° 33.7	322° 58.0	337° 22.4	351° 46.9	6° 11.3	20° 35.8	35° 00.3	+24.4	16.3
	18° 19.9	18° 21.3	18° 22.6	18° 23.7	18° 24.7	18° 25.6	18° 26.4	18° 27.1	18° 27.6	18° 28.0	18° 28.2	+0.8	59.6
Ср 7	251° 13.2	265° 38.4	280° 03.7	294° 29.1	308° 54.5	323° 19.9	337° 45.5	352° 11.0	6° 36.7	21° 02.4	35° 28.2	+25.5	16.1
	18° 17.5	18° 15.8	18° 14.0	18° 12.0	18° 10.0	18° 07.9	18° 05.6	18° 03.2	18° 00.7	17° 58.1	17° 55.4	-2.2	58.9
Чт 8	252° 02.8	266° 29.7	280° 56.6	295° 23.6	309° 50.7	324° 17.9	338° 45.2	353° 12.5	7° 39.9	22° 07.4	36° 35.0	+27.2	15.8
	17° 01.9	16° 57.5	16° 53.0	16° 48.4	16° 43.8	16° 39.0	16° 34.1	16° 29.2	16° 24.1	16° 19.0	16° 13.8	-4.8	58.0
Пт 9	253° 37.8	268° 06.7	282° 35.6	297° 04.5	311° 33.6	326° 02.7	340° 32.0	355° 01.2	9° 30.6	24° 00.1	38° 29.6	+29.2	15.6
	14° 45.7	14° 39.2	14° 32.6	14° 26.0	14° 19.3	14° 12.5	14° 05.6	13° 58.7	13° 51.8	13° 44.7	13° 37.6	-6.8	57.1
Сб 10	256° 01.6	270° 32.3	285° 03.1	299° 33.9	314° 04.8	328° 35.8	343° 06.9	357° 38.0	12° 09.2	26° 40.5	41° 11.8	+31.0	15.3
	11° 44.2	11° 36.3	11° 28.2	11° 20.2	11° 12.0	11° 03.9	10° 55.7	10° 47.4	10° 39.1	10° 30.8	10° 22.4	-8.2	56.2
Вс 11	259° 09.3	273° 41.6	288° 14.0	302° 46.4	317° 18.9	331° 51.4	346° 24.0	0° 56.6	15° 29.3	30° 02.0	44° 34.8	+32.5	15.1
	8° 12.6	8° 03.7	7° 54.7	7° 45.8	7° 36.8	7° 27.8	7° 18.7	7° 09.7	7° 00.6	6° 51.5	6° 42.4	-9.0	55.5
Пн 12	262° 51.7	277° 25.2	291° 58.6	306° 32.2	321° 05.7	335° 39.3	350° 12.9	4° 46.6	19° 20.3	33° 54.0	48° 27.7	+33.6	15.0
	4° 23.5	4° 14.1	4° 04.7	3° 55.3	3° 45.9	3° 36.5	3° 27.1	3° 17.7	3° 08.2	2° 58.8	2° 49.4	-9.4	54.8
◑ Вт 13	277° 25.2	291° 58.6	306° 32.2	321° 05.7	335° 39.3	350° 12.9	4° 46.6	19° 20.3	33° 54.0	48° 27.7	63° 01.5	+33.6	15.0
	4° 14.1	4° 04.7	3° 55.3	3° 45.9	3° 36.5	3° 27.1	3° 17.7	3° 08.2	2° 58.8	2° 49.4	2° 39.9	-9.4	54.8
Ср 14	281° 31.0	296° 05.1	310° 39.3	325° 13.4	339° 47.6	354° 21.8	8° 55.9	23° 30.1	38° 04.4	52° 38.6	67° 12.8	+34.2	14.8
	0° 18.0	0° 08.6	-0° 00.9	-0° 10.3	-0° 19.7	-0° 29.2	-0° 38.6	-0° 48.0	-0° 57.4	-1° 06.8	-1° 16.2	-9.4	54.4
Чт 15	285° 46.8	300° 21.1	314° 55.4	329° 29.6	344° 03.9	358° 38.1	13° 12.4	27° 46.6	42° 20.8	56° 55.1	71° 29.3	+34.2	14.8
	-3° 35.7	-3° 44.9	-3° 54.1	-4° 03.3	-4° 12.4	-4° 21.5	-4° 30.6	-4° 39.7	-4° 48.8	-4° 57.8	-5° 06.8	-9.1	54.2
Пт 16	290° 00.8	304° 34.8	319° 08.7	333° 42.6	348° 16.5	2° 50.4	17° 24.2	31° 58.1	46° 31.9	61° 05.7	75° 39.4	+33.9	14.8
	-7° 19.3	-7° 27.9	-7° 36.5	-7° 45.0	-7° 53.5	-8° 02.0	-8° 10.5	-8° 18.9	-8° 27.3	-8° 35.7	-8° 44.0	-8.5	54.1
Сб 17	294° 02.2	308° 35.5	323° 08.7	337° 41.9	352° 15.1	6° 48.2	21° 21.3	35° 54.3	50° 27.3	65° 00.3	79° 33.2	+33.1	14.8
	-10° 44.6	-10° 52.3	-11° 00.0	-11° 07.6	-11° 15.2	-11° 22.7	-11° 30.2	-11° 37.7	-11° 45.1	-11° 52.4	-11° 59.7	-7.5	54.2
Вс 18	297° 42.4	312° 14.7	326° 46.9	341° 19.1	355° 51.2	10° 23.3	24° 55.4	39° 27.4	53° 59.4	68° 31.3	83° 03.1	+32.1	14.9
	-13° 43.2	-13° 49.7	-13° 56.1	-14° 02.5	-14° 08.8	-14° 15.0	-14° 21.2	-14° 27.3	-14° 33.3	-14° 39.3	-14° 45.2	-6.2	54.5
Пн 19	300° 55.7	315° 26.8	329° 57.9	344° 28.9	358° 59.9	13° 30.9	28° 01.8	42° 32.6	57° 03.4	71° 34.2	86° 04.9	+30.9	15.0
	-16° 06.1	-16° 10.9	-16° 15.7	-16° 20.4	-16° 25.0	-16° 29.6	-16° 34.0	-16° 38.4	-16° 42.7	-16° 47.0	-16° 51.1	-4.5	54.8
Вт 20	303° 40.4	318° 10.4	332° 40.4	347° 10.3	1° 40.2	16° 10.1	30° 39.9	45° 09.7	59° 39.4	74° 09.1	88° 38.8	+29.8	15.1
	-17° 43.8	-17° 46.7	-17° 49.4	-17° 52.1	-17° 54.7	-17° 57.2	-17° 59.6	-18° 01.9	-18° 04.1	-18° 06.3	-18° 08.3	-2.5	55.3
● Ср 21	305° 59.7	320° 28.8	334° 57.9	349° 27.0	3° 56.0	18° 25.1	32° 54.1	47° 23.1	61° 52.0	76° 20.9	90° 49.8	+29.0	15.2
	-18° 27.9	-18° 28.5	-18° 29.0	-18° 29.3	-18° 29.6	-18° 29.7	-18° 29.8	-18° 29.8	-18° 29.6	-18° 29.4	-18° 29.1	-0.1	55.8
Чт 22	308° 01.1	322° 29.7	336° 58.3	351° 26.9	5° 55.5	20° 24.1	34° 52.6	49° 21.2	63° 49.8	78° 18.3	92° 46.9	+28.6	15.4
	-18° 12.3	-18° 10.4	-18° 08.4	-18° 06.3	-18° 04.1	-18° 01.8	-17° 59.4	-17° 56.9	-17° 54.3	-17° 51.6	-17° 48.7	+2.4	56.3
Пт 23	309° 54.6	324° 23.2	338° 51.7	353° 20.2	7° 48.8	22° 17.3	36° 45.9	51° 14.4	65° 43.0	80° 11.5	94° 40.1	+28.5	15.5
	-16° 54.8	-16° 50.5	-16° 46.0	-16° 41.5	-16° 36.8	-16° 32.0	-16° 27.2	-16° 22.3	-16° 17.2	-16° 12.1	-16° 06.9	+4.8	56.8
Сб 24	311° 49.9	326° 18.7	340° 47.4	355° 16.2	9° 45.0	24° 13.8	38° 42.6	53° 11.5	67° 40.3	82° 09.2	96° 38.1	+28.8	15.6
	-14° 37.9	-14° 31.3	-14° 24.6	-14° 17.8	-14° 10.9	-14° 03.9	-13° 56.9	-13° 49.8	-13° 42.6	-13° 35.3	-13° 27.9	+7.0	57.3
Вс 25	313° 53.1	328° 22.2	342° 51.4	357° 20.5	11° 49.7	26° 18.9	40° 48.1	55° 17.3	69° 46.5	84° 15.7	98° 45.0	+29.2	15.8
	-11° 28.5	-11° 20.0	-11° 11.4	-11° 02.7	-10° 54.0	-10° 45.2	-10° 36.3	-10° 27.4	-10° 18.5	-10° 09.4	-10° 00.3	+8.8	57.8
Пн 26	316° 05.3	330° 34.7	345° 04.2	359° 33.6	14° 03.1	28° 32.5	43° 02.0	57° 31.5	72° 01.0	86° 30.5	101° 00.0	+29.5	15.9
	-7° 37.2	-7° 27.2	-7° 17.2	-7° 07.2	-6° 57.1	-6° 47.0	-6° 36.8	-6° 26.6	-6° 16.4	-6° 06.1	-5° 55.8	+10.1	58.2
Вт 27	318° 22.6	332° 52.1	347° 21.6	1° 51.1	16° 20.6	30° 50.1	45° 19.5	59° 49.0	74° 18.5	88° 47.9	103° 17.4	+29.5	16.0
	-3° 16.9	-3° 06.1	-2° 55.3	-2° 44.4	-2° 33.6	-2° 22.7	-2° 11.8	-2° 00.8	-1° 49.9	-1° 38.9	-1° 28.0	+10.9	58.6
Ср 28	320° 37.4	335° 06.6	349° 35.8	4° 05.0	18° 34.1	33° 03.2	47° 32.3	62° 01.4	76° 30.5	90° 59.5	105° 28.5	+29.1	16.1
	1° 17.6	1° 28.7	1° 39.7	1° 50.8	2° 01.8	2° 12.8	2° 23.9	2° 34.9	2° 45.9	2° 56.9	3° 07.9	+11.0	59.0
◐ Чт 29	322° 40.1	337° 08.6	351° 37.1	6° 05.6	20° 34.0	35° 02.3	49° 30.7	63° 59.0	78° 27.2	92° 55.5	107° 23.7	+28.4	16.2
	5° 50.5	6° 01.1	6° 11.8	6° 22.3	6° 32.9	6° 43.4	6° 53.9	7° 04.3	7° 14.7	7° 25.1	7° 35.4	+10.5	59.2
Пт 30	324° 21.5	338° 49.0	353° 16.5	7° 43.9	22° 11.3	36° 38.6	51° 05.9	65° 33.2	80° 00.4	94° 27.5	108° 54.6	+27.3	16.2
	10° 04.7	10° 14.3	10° 23.7	10° 33.2	10° 42.5	10° 51.8	11° 01.0	11° 10.2	11° 19.3	11° 28.3	11° 37.2	+9.3	59.4
Сб 31	325° 35.7	340° 02.1	354° 28.5	8° 54.7	23° 21.0	37° 47.2	52° 13.4	66° 39.5	81° 05.6	95° 31.6	109° 57.6	+26.2	16.2
	13° 42.6	13° 50.3	13° 57.9	14° 05.5	14° 12.9	14° 20.3	14° 27.5	14° 34.7	14° 41.8	14° 48.8	14° 55.7	+7.3	59.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 6 07h22 — Последняя четв.: 13 15h28 — Новолуние: 21 18h46 — Первая четв.: 29 00h20

СОЛНЦЕ

Январь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 08.3	284° 08.1	299° 07.8	314° 07.5	329° 07.2	344° 06.9	359° 06.6	14° 06.3	29° 06.0	44° 05.7	59° 05.4	74° 05.1	-0.3
	-22° 59.2	-22° 59.0	-22° 58.8	-22° 58.6	-22° 58.4	-22° 58.2	-22° 57.9	-22° 57.7	-22° 57.5	-22° 57.3	-22° 57.1	-22° 56.9	+0.2
Пн 2	269° 01.3	284° 01.1	299° 00.8	314° 00.5	329° 00.2	343° 59.9	358° 59.6	13° 59.3	28° 59.0	43° 58.7	58° 58.4	73° 58.2	-0.3
	-22° 54.0	-22° 53.8	-22° 53.5	-22° 53.3	-22° 53.1	-22° 52.8	-22° 52.6	-22° 52.4	-22° 52.2	-22° 51.9	-22° 51.7	-22° 51.4	+0.2
Вт 3	268° 54.4	283° 54.1	298° 53.9	313° 53.6	328° 53.3	343° 53.0	358° 52.7	13° 52.4	28° 52.1	43° 51.9	58° 51.6	73° 51.3	-0.3
	-22° 48.3	-22° 48.1	-22° 47.8	-22° 47.6	-22° 47.3	-22° 47.1	-22° 46.8	-22° 46.6	-22° 46.3	-22° 46.1	-22° 45.8	-22° 45.6	+0.3
Ср 4	268° 47.6	283° 47.3	298° 47.0	313° 46.8	328° 46.5	343° 46.2	358° 45.9	13° 45.6	28° 45.4	43° 45.1	58° 44.8	73° 44.5	-0.3
	-22° 42.2	-22° 41.9	-22° 41.7	-22° 41.4	-22° 41.1	-22° 40.9	-22° 40.6	-22° 40.3	-22° 40.1	-22° 39.8	-22° 39.5	-22° 39.2	+0.3
Чт 5	268° 40.9	283° 40.6	298° 40.3	313° 40.1	328° 39.8	343° 39.5	358° 39.2	13° 39.0	28° 38.7	43° 38.4	58° 38.1	73° 37.9	-0.3
	-22° 35.6	-22° 35.3	-22° 35.1	-22° 34.8	-22° 34.5	-22° 34.2	-22° 33.9	-22° 33.6	-22° 33.3	-22° 33.1	-22° 32.8	-22° 32.5	+0.3
Пт 6	268° 34.3	283° 34.0	298° 33.7	313° 33.5	328° 33.2	343° 32.9	358° 32.7	13° 32.4	28° 32.1	43° 31.8	58° 31.6	73° 31.3	-0.3
	-22° 28.6	-22° 28.3	-22° 28.0	-22° 27.7	-22° 27.4	-22° 27.1	-22° 26.8	-22° 26.5	-22° 26.2	-22° 25.9	-22° 25.6	-22° 25.3	+0.3
Сб 7	268° 27.8	283° 27.5	298° 27.3	313° 27.0	328° 26.7	343° 26.5	358° 26.2	13° 25.9	28° 25.7	43° 25.4	58° 25.1	73° 24.9	-0.3
	-22° 21.2	-22° 20.8	-22° 20.5	-22° 20.2	-22° 19.9	-22° 19.5	-22° 19.2	-22° 18.9	-22° 18.6	-22° 18.2	-22° 17.9	-22° 17.6	+0.3
Вс 8	268° 21.4	283° 21.2	298° 20.9	313° 20.6	328° 20.4	343° 20.1	358° 19.8	13° 19.6	28° 19.3	43° 19.1	58° 18.8	73° 18.5	-0.3
	-22° 13.3	-22° 12.9	-22° 12.6	-22° 12.2	-22° 11.9	-22° 11.6	-22° 11.2	-22° 10.9	-22° 10.5	-22° 10.2	-22° 09.8	-22° 09.5	+0.3
Пн 9	268° 15.2	283° 14.9	298° 14.7	313° 14.4	328° 14.1	343° 13.9	358° 13.6	13° 13.4	28° 13.1	43° 12.9	58° 12.6	73° 12.4	-0.3
	-22° 04.9	-22° 04.6	-22° 04.2	-22° 03.8	-22° 03.5	-22° 03.1	-22° 02.8	-22° 02.4	-22° 02.0	-22° 01.7	-22° 01.3	-22° 00.9	+0.4
Вт 10	268° 09.1	283° 08.8	298° 08.6	313° 08.3	328° 08.1	343° 07.8	358° 07.6	13° 07.3	28° 07.1	43° 06.8	58° 06.6	73° 06.3	-0.3
	-21° 56.1	-21° 55.8	-21° 55.4	-21° 55.0	-21° 54.6	-21° 54.3	-21° 53.9	-21° 53.5	-21° 53.1	-21° 52.7	-21° 52.4	-21° 52.0	+0.4
Ср 11	268° 03.1	283° 02.8	298° 02.6	313° 02.3	328° 02.1	343° 01.9	358° 01.6	13° 01.4	28° 01.1	43° 00.9	58° 00.6	73° 00.4	-0.2
	-21° 46.9	-21° 46.6	-21° 46.2	-21° 45.8	-21° 45.4	-21° 45.0	-21° 44.6	-21° 44.2	-21° 43.8	-21° 43.4	-21° 43.0	-21° 42.6	+0.4
Чт 12	267° 57.3	282° 57.0	297° 56.8	312° 56.5	327° 56.3	342° 56.1	357° 55.8	12° 55.6	27° 55.3	42° 55.1	57° 54.9	72° 54.6	-0.2
	-21° 37.3	-21° 36.9	-21° 36.5	-21° 36.1	-21° 35.7	-21° 35.3	-21° 34.8	-21° 34.4	-21° 34.0	-21° 33.6	-21° 33.2	-21° 32.8	+0.4
Пт 13	267° 51.6	282° 51.3	297° 51.1	312° 50.9	327° 50.6	342° 50.4	357° 50.2	12° 49.9	27° 49.7	42° 49.5	57° 49.2	72° 49.0	-0.2
	-21° 27.3	-21° 26.9	-21° 26.4	-21° 26.0	-21° 25.6	-21° 25.1	-21° 24.7	-21° 24.3	-21° 23.8	-21° 23.4	-21° 23.0	-21° 22.5	+0.4
Сб 14	267° 46.0	282° 45.8	297° 45.6	312° 45.4	327° 45.1	342° 44.9	357° 44.7	12° 44.4	27° 44.2	42° 44.0	57° 43.8	72° 43.5	-0.2
	-21° 16.8	-21° 16.4	-21° 15.9	-21° 15.5	-21° 15.0	-21° 14.6	-21° 14.1	-21° 13.7	-21° 13.2	-21° 12.8	-21° 12.3	-21° 11.9	+0.4
Вс 15	267° 40.7	282° 40.4	297° 40.2	312° 40.0	327° 39.8	342° 39.6	357° 39.3	12° 39.1	27° 38.9	42° 38.7	57° 38.5	72° 38.2	-0.2
	-21° 06.0	-21° 05.5	-21° 05.0	-21° 04.6	-21° 04.1	-21° 03.6	-21° 03.2	-21° 02.7	-21° 02.2	-21° 01.8	-21° 01.3	-21° 00.8	+0.5
Пн 16	267° 35.4	282° 35.2	297° 35.0	312° 34.8	327° 34.6	342° 34.4	357° 34.2	12° 34.0	27° 33.7	42° 33.5	57° 33.3	72° 33.1	-0.2
	-20° 54.7	-20° 54.2	-20° 53.7	-20° 53.2	-20° 52.8	-20° 52.3	-20° 51.8	-20° 51.3	-20° 50.8	-20° 50.3	-20° 49.9	-20° 49.4	+0.5
Вт 17	267° 30.4	282° 30.2	297° 30.0	312° 29.8	327° 29.6	342° 29.4	357° 29.2	12° 29.0	27° 28.8	42° 28.6	57° 28.3	72° 28.1	-0.2
	-20° 43.0	-20° 42.5	-20° 42.0	-20° 41.5	-20° 41.0	-20° 40.5	-20° 40.0	-20° 39.5	-20° 39.0	-20° 38.5	-20° 38.0	-20° 37.5	+0.5
Ср 18	267° 25.5	282° 25.3	297° 25.1	312° 24.9	327° 24.7	342° 24.5	357° 24.3	12° 24.1	27° 23.9	42° 23.7	57° 23.6	72° 23.4	-0.2
	-20° 30.9	-20° 30.4	-20° 29.9	-20° 29.4	-20° 28.9	-20° 28.4	-20° 27.9	-20° 27.3	-20° 26.8	-20° 26.3	-20° 25.8	-20° 25.3	+0.5
Чт 19	267° 20.8	282° 20.6	297° 20.5	312° 20.3	327° 20.1	342° 19.9	357° 19.7	12° 19.5	27° 19.3	42° 19.1	57° 18.9	72° 18.7	-0.2
	-20° 18.5	-20° 18.0	-20° 17.4	-20° 16.9	-20° 16.4	-20° 15.8	-20° 15.3	-20° 14.8	-20° 14.3	-20° 13.7	-20° 13.2	-20° 12.7	+0.5
Пт 20	267° 16.3	282° 16.1	297° 16.0	312° 15.8	327° 15.6	342° 15.4	357° 15.2	12° 15.0	27° 14.9	42° 14.7	57° 14.5	72° 14.3	-0.2
	-20° 05.7	-20° 05.1	-20° 04.6	-20° 04.0	-20° 03.5	-20° 02.9	-20° 02.4	-20° 01.8	-20° 01.3	-20° 00.7	-20° 00.2	-19° 59.6	+0.5
Сб 21	267° 12.0	282° 11.8	297° 11.6	312° 11.5	327° 11.3	342° 11.1	357° 10.9	12° 10.8	27° 10.6	42° 10.4	57° 10.3	72° 10.1	-0.2
	-19° 52.4	-19° 51.9	-19° 51.3	-19° 50.8	-19° 50.2	-19° 49.6	-19° 49.1	-19° 48.5	-19° 48.0	-19° 47.4	-19° 46.8	-19° 46.3	+0.6
Вс 22	267° 07.9	282° 07.7	297° 07.5	312° 07.4	327° 07.2	342° 07.0	357° 06.9	12° 06.7	27° 06.5	42° 06.4	57° 06.2	72° 06.0	-0.2
	-19° 38.9	-19° 38.3	-19° 37.7	-19° 37.1	-19° 36.6	-19° 36.0	-19° 35.4	-19° 34.8	-19° 34.2	-19° 33.7	-19° 33.1	-19° 32.5	+0.6
Пн 23	267° 03.9	282° 03.8	297° 03.6	312° 03.4	327° 03.3	342° 03.1	357° 03.0	12° 02.8	27° 02.7	42° 02.5	57° 02.3	72° 02.2	-0.2
	-19° 24.9	-19° 24.3	-19° 23.7	-19° 23.1	-19° 22.6	-19° 22.0	-19° 21.4	-19° 20.8	-19° 20.2	-19° 19.6	-19° 19.0	-19° 18.4	+0.6
Вт 24	267° 00.2	282° 00.0	296° 59.9	311° 59.7	326° 59.6	341° 59.4	356° 59.3	11° 59.1	26° 59.0	41° 58.8	56° 58.7	71° 58.5	-0.1
	-19° 10.6	-19° 10.0	-19° 09.4	-19° 08.8	-19° 08.2	-19° 07.6	-19° 07.0	-19° 06.4	-19° 05.8	-19° 05.1	-19° 04.5	-19° 03.9	+0.6
Ср 25	266° 56.6	281° 56.5	296° 56.4	311° 56.2	326° 56.1	341° 55.9	356° 55.8	11° 55.6	26° 55.5	41° 55.4	56° 55.2	71° 55.1	-0.1
	-18° 55.9	-18° 55.3	-18° 54.7	-18° 54.1	-18° 53.5	-18° 52.9	-18° 52.2	-18° 51.6	-18° 51.0	-18° 50.4	-18° 49.7	-18° 49.1	+0.6
Чт 26	266° 53.3	281° 53.2	296° 53.0	311° 52.9	326° 52.8	341° 52.6	356° 52.5	11° 52.4	26° 52.2	41° 52.1	56° 52.0	71° 51.8	-0.1
	-18° 40.9	-18° 40.3	-18° 39.7	-18° 39.0	-18° 38.4	-18° 37.8	-18° 37.1	-18° 36.5	-18° 35.9	-18° 35.2	-18° 34.6	-18° 34.0	+0.6
Пт 27	266° 50.2	281° 50.0	296° 49.9	311° 49.8	326° 49.7	341° 49.5	356° 49.4	11° 49.3	26° 49.2	41° 49.1	56° 48.9	71° 48.8	-0.1
	-18° 25.6	-18° 25.0	-18° 24.3	-18° 23.7	-18° 23.0	-18° 22.4	-18° 21.7	-18° 21.1	-18° 20.4	-18° 19.8	-18° 19.1	-18° 18.5	+0.6
Сб 28	266° 47.2	281° 47.1	296° 47.0	311° 46.9	326° 46.8	341° 46.7	356° 46.6	11° 46.4	26° 46.3	41° 46.2	56° 46.1	71° 46.0	-0.1
	-18° 09.9	-18° 09.3	-18° 08.6	-18° 07.9	-18° 07.3	-18° 06.6	-18° 06.0	-18° 05.3	-18° 04.6	-18° 04.0	-18° 03.3	-18° 02.6	+0.7
Вс 29	266° 44.5	281° 44.4	296° 44.3	311° 44.2	326° 44.1	341° 44.0	356° 43.9	11° 43.8	26° 43.7	41° 43.6	56° 43.5	71° 43.4	-0.1
	-17° 53.9	-17° 53.3	-17° 52.6	-17° 51.9	-17° 51.2	-17° 50.6	-17° 49.9	-17° 49.2	-17° 48.5	-17° 47.8	-17° 47.2	-17° 46.5	+0.7
Пн 30	266° 42.0	281° 41.9	296° 41.8	311° 41.7	326° 41.6	341° 41.5	356° 41.4	11° 41.3	26° 41.2	41° 41.1	56° 41.0	71° 40.9	-0.1
	-17° 37.6	-17° 36.9	-17° 36.2	-17° 35.5	-17° 34.9	-17° 34.2	-17° 33.5	-17° 32.8	-17° 32.1	-17° 31.4	-17° 30.7	-17° 30.0	+0.7
Вт 31	266° 39.7	281° 39.6	296° 39.5	311° 39.4	326° 39.4	341° 39.3	356° 39.2	11° 39.1	26° 39.0	41° 38.9	56° 38.8	71° 38.7	-0.1
	-17° 21.0	-17° 20.3	-17° 19.6	-17° 18.9	-17° 18.2	-17° 17.5	-17° 16.8	-17° 16.1	-17° 15.4	-17° 14.7	-17° 14.0	-17° 13.3	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2034

Д	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	R/p
Вс 1	254° 15.5 15° 59.2	268° 41.1 16° 05.0	283° 06.6 16° 10.7	297° 32.2 16° 16.2	311° 57.7 16° 21.7	326° 23.1 16° 27.1	340° 48.5 16° 32.3	355° 13.9 16° 37.5	9° 39.3 16° 42.5	24° 04.7 16° 47.4	38° 30.0 16° 52.2	+25.4 +5.3	16.2 59.5
Пн 2	254° 47.2 17° 50.7	269° 12.2 17° 53.7	283° 37.2 17° 56.5	298° 02.2 17° 59.2	312° 27.2 18° 01.8	326° 52.2 18° 04.3	341° 17.2 18° 06.7	355° 42.2 18° 08.9	10° 07.2 18° 11.0	24° 32.2 18° 13.0	38° 57.2 18° 14.9	+25.0 +2.4	16.2 59.3
Вт 3	255° 12.9 18° 28.3	269° 38.1 18° 28.3	284° 03.3 18° 28.1	298° 28.5 18° 27.7	312° 53.8 18° 27.3	327° 19.0 18° 26.7	341° 44.3 18° 26.1	356° 09.7 18° 25.3	10° 35.0 18° 24.3	25° 00.4 18° 23.3	39° 25.8 18° 22.1	+25.3 -0.6	16.1 58.9
○ Ср 4	255° 51.8 17° 50.9	270° 17.9 17° 47.9	284° 44.0 17° 44.9	299° 10.2 17° 41.7	313° 36.5 17° 38.4	328° 02.8 17° 34.9	342° 29.1 17° 31.4	356° 55.5 17° 27.8	11° 22.0 17° 24.1	25° 48.5 17° 20.2	40° 15.1 17° 16.3	+26.3 -3.5	15.9 58.3
Чт 5	257° 01.1 16° 05.5	271° 28.7 16° 00.1	285° 56.4 15° 54.5	300° 24.1 15° 48.9	314° 51.9 15° 43.2	329° 19.7 15° 37.4	343° 47.6 15° 31.5	358° 15.6 15° 25.5	12° 43.7 15° 19.5	27° 11.8 15° 13.3	41° 40.0 15° 07.1	+27.9 -5.8	15.7 57.6
Пт 6	258° 51.6 13° 25.0	273° 20.9 13° 17.7	287° 50.3 13° 10.3	302° 19.8 13° 02.8	316° 49.3 12° 55.3	331° 18.9 12° 47.7	345° 48.6 12° 40.0	0° 18.4 12° 32.3	14° 48.2 12° 24.5	29° 18.1 12° 16.7	43° 48.1 12° 08.8	+29.7 -7.6	15.5 56.9
Сб 7	261° 25.6 10° 04.7	275° 56.7 9° 56.1	290° 27.7 9° 47.5	304° 58.9 9° 38.8	319° 30.1 9° 30.0	334° 01.4 9° 21.3	348° 32.7 9° 12.4	3° 04.1 9° 03.6	17° 35.6 8° 54.7	32° 07.1 8° 45.8	46° 38.7 8° 36.9	+31.3 -8.8	15.3 56.2
Вс 8	264° 39.0 6° 19.6	279° 11.4 6° 10.2	293° 43.9 6° 00.9	308° 16.4 5° 51.5	322° 49.0 5° 42.1	337° 21.6 5° 32.7	351° 54.3 5° 23.3	6° 27.0 5° 13.9	20° 59.8 5° 04.4	35° 32.6 4° 54.9	50° 05.4 4° 45.5	+32.6 -9.4	15.1 55.5
Пн 9	268° 22.8 2° 22.4	282° 56.2 2° 12.8	297° 29.7 2° 03.2	312° 03.2 1° 53.7	326° 36.7 1° 44.1	341° 10.3 1° 34.5	355° 43.9 1° 24.9	10° 17.5 1° 15.4	24° 51.1 1° 05.8	39° 24.8 0° 56.2	53° 58.5 0° 46.6	+33.6 -9.6	15.0 54.9
Вт 10	272° 26.2 -1° 36.0	287° 00.2 -1° 45.5	301° 34.1 -1° 54.9	316° 08.1 -2° 04.3	330° 42.2 -2° 13.7	345° 16.2 -2° 23.1	359° 50.2 -2° 32.4	14° 24.2 -2° 41.8	28° 58.3 -2° 51.1	43° 32.3 -3° 00.4	58° 06.4 -3° 09.7	+34.0 -9.4	14.9 54.5
Ср 11	287° 00.2 -1° 45.5	301° 34.1 -1° 54.9	316° 08.1 -2° 04.3	330° 42.2 -2° 13.7	345° 16.2 -2° 23.1	359° 50.2 -2° 32.4	14° 24.2 -2° 41.8	28° 58.3 -2° 51.1	43° 32.3 -3° 00.4	58° 06.4 -3° 09.7	72° 40.5 -3° 19.0	+34.0 -9.4	14.9 54.5
◑ Чт 12	291° 11.5 -5° 35.8	305° 45.5 -5° 44.7	320° 19.6 -5° 53.6	334° 53.6 -6° 02.5	349° 27.6 -6° 11.4	4° 01.6 -6° 20.2	18° 35.6 -6° 29.0	33° 09.6 -6° 37.8	47° 43.6 -6° 46.5	62° 17.6 -6° 55.2	76° 51.5 -7° 03.9	+34.0 -8.8	14.8 54.2
Пт 13	295° 18.9 -9° 10.2	309° 52.5 -9° 18.4	324° 26.2 -9° 26.5	338° 59.8 -9° 34.6	353° 33.4 -9° 42.6	8° 06.9 -9° 50.6	22° 40.5 -9° 58.5	37° 14.0 -10° 06.4	51° 47.5 -10° 14.3	66° 20.9 -10° 22.1	80° 54.3 -10° 29.9	+33.5 -8.0	14.8 54.2
Сб 14	299° 12.0 -12° 21.2	313° 44.9 -12° 28.2	328° 17.7 -12° 35.2	342° 50.5 -12° 42.1	357° 23.3 -12° 49.0	11° 56.1 -12° 55.8	26° 28.8 -13° 02.6	41° 01.4 -13° 09.3	55° 34.1 -13° 16.0	70° 06.7 -13° 22.6	84° 39.2 -13° 29.2	+32.7 -6.8	14.8 54.3
Вс 15	302° 42.3 -15° 00.5	317° 14.1 -15° 06.1	331° 45.9 -15° 11.6	346° 17.7 -15° 17.1	0° 49.4 -15° 22.5	15° 21.1 -15° 27.8	29° 52.7 -15° 33.1	44° 24.3 -15° 38.3	58° 55.8 -15° 43.4	73° 27.3 -15° 48.5	87° 58.7 -15° 53.5	+31.6 -5.3	14.9 54.7
Пн 16	305° 44.3 -16° 59.6	320° 15.0 -17° 03.4	334° 45.6 -17° 07.1	349° 16.2 -17° 10.7	3° 46.7 -17° 14.3	18° 17.2 -17° 17.8	32° 47.6 -17° 21.2	47° 17.9 -17° 24.5	61° 48.3 -17° 27.7	76° 18.5 -17° 30.9	90° 48.8 -17° 33.9	+30.4 -3.4	15.0 55.1
Вт 17	308° 16.7 -18° 09.6	322° 46.2 -18° 11.2	337° 15.7 -18° 12.8	351° 45.1 -18° 14.3	6° 14.5 -18° 15.7	20° 43.8 -18° 16.9	35° 13.1 -18° 18.1	49° 42.4 -18° 19.3	64° 11.6 -18° 20.3	78° 40.8 -18° 21.2	93° 09.9 -18° 22.0	+29.3 -1.2	15.2 55.7
Ср 18	310° 22.7 -18° 22.6	324° 51.3 -18° 21.9	339° 19.9 -18° 21.0	353° 48.4 -18° 20.1	8° 16.9 -18° 19.0	22° 45.4 -18° 17.9	37° 13.9 -18° 16.6	51° 42.3 -18° 15.3	66° 10.7 -18° 13.8	80° 39.1 -18° 12.3	95° 07.4 -18° 10.6	+28.5 +1.2	15.4 56.4
Чт 19	312° 10.3 -17° 33.5	326° 38.3 -17° 30.2	341° 06.4 -17° 26.8	355° 34.4 -17° 23.4	10° 02.4 -17° 19.8	24° 30.4 -17° 16.1	38° 58.4 -17° 12.3	53° 26.4 -17° 08.4	67° 54.4 -17° 04.4	82° 22.4 -17° 00.3	96° 50.4 -16° 56.1	+28.0 +3.7	15.6 57.0
● Пт 20	313° 49.5 -15° 41.3	328° 17.4 -15° 35.5	342° 45.3 -15° 29.7	357° 13.3 -15° 23.7	11° 41.2 -15° 17.7	26° 09.2 -15° 11.5	40° 37.1 -15° 05.3	55° 05.1 -14° 59.0	69° 33.1 -14° 52.6	84° 01.0 -14° 46.1	98° 29.0 -14° 39.5	+28.0 +6.2	15.7 57.7
Сб 21	315° 29.9 -12° 50.3	329° 58.0 -12° 42.3	344° 26.2 -12° 34.3	358° 54.3 -12° 26.2	13° 22.5 -12° 18.0	27° 50.7 -12° 09.8	42° 18.9 -12° 01.4	56° 47.1 -11° 53.0	71° 15.4 -11° 44.6	85° 43.6 -11° 36.0	100° 11.9 -11° 27.4	+28.2 +8.3	15.9 58.2
Вс 22	317° 17.5 -9° 10.1	331° 46.0 -9° 00.4	346° 14.5 -8° 50.7	0° 43.1 -8° 41.0	15° 11.6 -8° 31.1	29° 40.1 -8° 21.3	44° 08.7 -8° 11.4	58° 37.3 -8° 01.4	73° 05.9 -7° 51.4	87° 34.5 -7° 41.3	102° 03.1 -7° 31.2	+28.6 +9.9	16.0 58.7
Пн 23	319° 13.7 -4° 54.4	333° 42.5 -4° 43.6	348° 11.2 -4° 32.9	2° 40.0 -4° 22.1	17° 08.9 -4° 11.3	31° 37.7 -4° 00.4	46° 06.5 -3° 49.5	60° 35.3 -3° 38.6	75° 04.2 -3° 27.7	89° 33.0 -3° 16.7	104° 01.8 -3° 05.8	+28.8 +10.9	16.1 59.0
Вт 24	321° 14.7 -0° 19.5	335° 43.6 -0° 08.4	350° 12.5 0° 02.8	4° 41.3 0° 13.9	19° 10.2 0° 25.1	33° 39.0 0° 36.2	48° 07.8 0° 47.4	62° 36.7 0° 58.5	77° 05.5 1° 09.7	91° 34.3 1° 20.8	106° 03.1 1° 31.9	+28.8 +11.1	16.1 59.1
Ср 25	323° 14.1 4° 17.2	337° 42.7 4° 28.0	352° 11.3 4° 38.9	6° 39.9 4° 49.7	21° 08.5 5° 00.4	35° 37.0 5° 11.2	50° 05.5 5° 21.9	64° 34.1 5° 32.6	79° 02.6 5° 43.2	93° 31.1 5° 53.8	107° 59.5 6° 04.4	+28.5 +10.7	16.1 59.2
Чт 26	325° 03.8 8° 38.2	339° 31.9 8° 48.1	353° 59.9 8° 57.9	8° 28.0 9° 07.6	22° 56.0 9° 17.4	37° 24.0 9° 27.0	51° 51.9 9° 36.6	66° 19.8 9° 46.1	80° 47.7 9° 55.6	95° 15.6 10° 05.0	109° 43.4 10° 14.4	+28.0 +9.6	16.1 59.2
◐ Пт 27	326° 37.4 12° 26.7	341° 04.8 12° 34.9	355° 32.1 12° 43.1	9° 59.4 12° 51.2	24° 26.7 12° 59.2	38° 53.9 13° 07.1	53° 21.1 13° 15.0	67° 48.3 13° 22.7	82° 15.4 13° 30.4	96° 42.5 13° 38.0	111° 09.6 13° 45.5	+27.2 +7.9	16.1 59.0
Сб 28	327° 52.2 15° 27.4	342° 18.8 15° 33.5	356° 45.4 15° 39.4	11° 12.0 15° 45.3	25° 38.5 15° 51.0	40° 05.0 15° 56.6	54° 31.5 16° 02.2	68° 58.0 16° 07.6	83° 24.4 16° 13.0	97° 50.9 16° 18.2	112° 17.3 16° 23.4	+26.5 +5.6	16.0 58.9
Вс 29	328° 51.0 17° 27.7	343° 17.2 17° 31.1	357° 43.3 17° 34.4	12° 09.4 17° 37.6	26° 35.5 17° 40.7	41° 01.6 17° 43.7	55° 27.7 17° 46.5	69° 53.8 17° 49.3	84° 19.8 17° 51.9	98° 45.9 17° 54.4	113° 12.0 17° 56.8	+26.1 +2.9	16.0 58.6
Пн 30	329° 43.1 18° 19.2	344° 09.2 18° 19.8	358° 35.3 18° 20.2	13° 01.5 18° 20.6	27° 27.6 18° 20.8	41° 53.8 18° 20.9	56° 20.0 18° 20.9	70° 46.2 18° 20.8	85° 12.4 18° 20.6	99° 38.7 18° 20.3	114° 04.9 18° 19.8	+26.2 +0.1	15.9 58.3
Вт 31	330° 41.8 17° 59.6	345° 08.5 17° 57.4	359° 35.2 17° 55.1	14° 02.0 17° 52.6	28° 28.8 17° 50.1	42° 55.6 17° 47.4	57° 22.5 17° 44.7	71° 49.4 17° 41.8	86° 16.3 17° 38.9	100° 43.3 17° 35.8	115° 10.4 17° 32.6	+26.9 -2.7	15.8 57.8

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 4 19h47 — Последняя четв.: 12 13h17 — Новолуние: 20 10h01 — Первая четв.: 27 08h32

СОЛНЦЕ

Февраль 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	266° 37.6	281° 37.5	296° 37.5	311° 37.4	326° 37.3	341° 37.2	356° 37.1	11° 37.1	26° 37.0	41° 36.9	56° 36.8	71° 36.7	-0.1
	-17° 04.0	-17° 03.3	-17° 02.6	-17° 01.9	-17° 01.2	-17° 00.5	-16° 59.8	-16° 59.0	-16° 58.3	-16° 57.6	-16° 56.9	-16° 56.2	+0.7
Чт 2	266° 35.7	281° 35.7	296° 35.6	311° 35.5	326° 35.4	341° 35.4	356° 35.3	11° 35.2	26° 35.2	41° 35.1	56° 35.0	71° 34.9	-0.1
	-16° 46.8	-16° 46.1	-16° 45.3	-16° 44.6	-16° 43.9	-16° 43.2	-16° 42.4	-16° 41.7	-16° 41.0	-16° 40.3	-16° 39.5	-16° 38.8	+0.7
Пт 3	266° 34.1	281° 34.0	296° 33.9	311° 33.9	326° 33.8	341° 33.7	356° 33.7	11° 33.6	26° 33.5	41° 33.5	56° 33.4	71° 33.4	-0.1
	-16° 29.3	-16° 28.5	-16° 27.8	-16° 27.1	-16° 26.3	-16° 25.6	-16° 24.8	-16° 24.1	-16° 23.4	-16° 22.6	-16° 21.9	-16° 21.1	+0.7
Сб 4	266° 32.6	281° 32.5	296° 32.5	311° 32.4	326° 32.3	341° 32.3	356° 32.2	11° 32.2	26° 32.1	41° 32.1	56° 32.0	71° 32.0	-0.1
	-16° 11.4	-16° 10.7	-16° 10.0	-16° 09.2	-16° 08.5	-16° 07.7	-16° 07.0	-16° 06.2	-16° 05.4	-16° 04.7	-16° 03.9	-16° 03.2	+0.8
Вс 5	266° 31.3	281° 31.2	296° 31.2	311° 31.2	326° 31.1	341° 31.1	356° 31.0	11° 31.0	26° 30.9	41° 30.9	56° 30.8	71° 30.8	-0.0
	-15° 53.3	-15° 52.6	-15° 51.8	-15° 51.1	-15° 50.3	-15° 49.5	-15° 48.8	-15° 48.0	-15° 47.3	-15° 46.5	-15° 45.7	-15° 45.0	+0.8
Пн 6	266° 30.2	281° 30.2	296° 30.1	311° 30.1	326° 30.1	341° 30.0	356° 30.0	11° 29.9	26° 29.9	41° 29.9	56° 29.8	71° 29.8	-0.0
	-15° 35.0	-15° 34.2	-15° 33.4	-15° 32.7	-15° 31.9	-15° 31.1	-15° 30.3	-15° 29.6	-15° 28.8	-15° 28.0	-15° 27.2	-15° 26.5	+0.8
Вт 7	266° 29.3	281° 29.3	296° 29.3	311° 29.2	326° 29.2	341° 29.2	356° 29.1	11° 29.1	26° 29.1	41° 29.1	56° 29.0	71° 29.0	-0.0
	-15° 16.3	-15° 15.6	-15° 14.8	-15° 14.0	-15° 13.2	-15° 12.4	-15° 11.6	-15° 10.9	-15° 10.1	-15° 09.3	-15° 08.5	-15° 07.7	+0.8
Ср 8	266° 28.7	281° 28.6	296° 28.6	311° 28.6	326° 28.6	341° 28.5	356° 28.5	11° 28.5	26° 28.5	41° 28.4	56° 28.4	71° 28.4	-0.0
	-14° 57.4	-14° 56.6	-14° 55.9	-14° 55.1	-14° 54.3	-14° 53.5	-14° 52.7	-14° 51.9	-14° 51.1	-14° 50.3	-14° 49.5	-14° 48.7	+0.8
Чт 9	266° 28.2	281° 28.1	296° 28.1	311° 28.1	326° 28.1	341° 28.1	356° 28.1	11° 28.1	26° 28.0	41° 28.0	56° 28.0	71° 28.0	-0.0
	-14° 38.3	-14° 37.5	-14° 36.7	-14° 35.9	-14° 35.1	-14° 34.3	-14° 33.5	-14° 32.7	-14° 31.8	-14° 31.0	-14° 30.2	-14° 29.4	+0.8
Пт 10	266° 27.9	281° 27.8	296° 27.8	311° 27.8	326° 27.8	341° 27.8	356° 27.8	11° 27.8	26° 27.8	41° 27.8	56° 27.8	71° 27.8	-0.0
	-14° 18.9	-14° 18.1	-14° 17.3	-14° 16.4	-14° 15.6	-14° 14.8	-14° 14.0	-14° 13.2	-14° 12.4	-14° 11.5	-14° 10.7	-14° 09.9	+0.8
Сб 11	266° 27.7	281° 27.7	296° 27.7	311° 27.7	326° 27.7	341° 27.7	356° 27.7	11° 27.7	26° 27.7	41° 27.8	56° 27.8	71° 27.8	+0.0
	-13° 59.2	-13° 58.4	-13° 57.6	-13° 56.8	-13° 55.9	-13° 55.1	-13° 54.3	-13° 53.5	-13° 52.6	-13° 51.8	-13° 51.0	-13° 50.2	+0.8
Вс 12	266° 27.8	281° 27.8	296° 27.8	311° 27.8	326° 27.9	341° 27.9	356° 27.9	11° 27.9	26° 27.9	41° 27.9	56° 27.9	71° 27.9	+0.0
	-13° 39.4	-13° 38.5	-13° 37.7	-13° 36.9	-13° 36.0	-13° 35.2	-13° 34.4	-13° 33.5	-13° 32.7	-13° 31.9	-13° 31.0	-13° 30.2	+0.8
Пн 13	266° 28.1	281° 28.1	296° 28.1	311° 28.1	326° 28.1	341° 28.2	356° 28.2	11° 28.2	26° 28.2	41° 28.2	56° 28.2	71° 28.3	+0.0
	-13° 19.3	-13° 18.4	-13° 17.6	-13° 16.7	-13° 15.9	-13° 15.1	-13° 14.2	-13° 13.4	-13° 12.5	-13° 11.7	-13° 10.8	-13° 10.0	+0.8
Вт 14	266° 28.5	281° 28.5	296° 28.6	311° 28.6	326° 28.6	341° 28.6	356° 28.7	11° 28.7	26° 28.7	41° 28.7	56° 28.8	71° 28.8	+0.0
	-12° 59.0	-12° 58.1	-12° 57.3	-12° 56.4	-12° 55.5	-12° 54.7	-12° 53.8	-12° 53.0	-12° 52.1	-12° 51.3	-12° 50.4	-12° 49.6	+0.9
Ср 15	266° 29.1	281° 29.2	296° 29.2	311° 29.2	326° 29.3	341° 29.3	356° 29.3	11° 29.4	26° 29.4	41° 29.4	56° 29.4	71° 29.5	+0.0
	-12° 38.4	-12° 37.6	-12° 36.7	-12° 35.8	-12° 35.0	-12° 34.1	-12° 33.3	-12° 32.4	-12° 31.5	-12° 30.7	-12° 29.8	-12° 29.0	+0.9
Чт 16	266° 29.9	281° 30.0	296° 30.0	311° 30.0	326° 30.1	341° 30.1	356° 30.2	11° 30.2	26° 30.2	41° 30.3	56° 30.3	71° 30.4	+0.0
	-12° 17.7	-12° 16.8	-12° 16.0	-12° 15.1	-12° 14.2	-12° 13.4	-12° 12.5	-12° 11.6	-12° 10.7	-12° 09.9	-12° 09.0	-12° 08.1	+0.9
Пт 17	266° 30.9	281° 30.9	296° 31.0	311° 31.0	326° 31.1	341° 31.1	356° 31.2	11° 31.2	26° 31.3	41° 31.3	56° 31.4	71° 31.4	+0.0
	-11° 56.8	-11° 55.9	-11° 55.0	-11° 54.1	-11° 53.3	-11° 52.4	-11° 51.5	-11° 50.6	-11° 49.7	-11° 48.9	-11° 48.0	-11° 47.1	+0.9
Сб 18	266° 32.0	281° 32.1	296° 32.1	311° 32.2	326° 32.3	341° 32.3	356° 32.4	11° 32.4	26° 32.5	41° 32.5	56° 32.6	71° 32.6	+0.1
	-11° 35.6	-11° 34.8	-11° 33.9	-11° 33.0	-11° 32.1	-11° 31.2	-11° 30.3	-11° 29.4	-11° 28.6	-11° 27.7	-11° 26.8	-11° 25.9	+0.9
Вс 19	266° 33.4	281° 33.4	296° 33.5	311° 33.5	326° 33.6	341° 33.7	356° 33.7	11° 33.8	26° 33.8	41° 33.9	56° 34.0	71° 34.0	+0.1
	-11° 14.3	-11° 13.4	-11° 12.6	-11° 11.7	-11° 10.8	-11° 09.9	-11° 09.0	-11° 08.1	-11° 07.2	-11° 06.3	-11° 05.4	-11° 04.5	+0.9
Пн 20	266° 34.8	281° 34.9	296° 35.0	311° 35.0	326° 35.1	341° 35.2	356° 35.2	11° 35.3	26° 35.4	41° 35.4	56° 35.5	71° 35.6	+0.1
	-10° 52.9	-10° 52.0	-10° 51.1	-10° 50.2	-10° 49.3	-10° 48.4	-10° 47.5	-10° 46.6	-10° 45.7	-10° 44.8	-10° 43.9	-10° 43.0	+0.9
Вт 21	266° 36.5	281° 36.6	296° 36.6	311° 36.7	326° 36.8	341° 36.8	356° 36.9	11° 37.0	26° 37.1	41° 37.1	56° 37.2	71° 37.3	+0.1
	-10° 31.2	-10° 30.3	-10° 29.4	-10° 28.5	-10° 27.6	-10° 26.7	-10° 25.8	-10° 24.9	-10° 24.0	-10° 23.1	-10° 22.1	-10° 21.2	+0.9
Ср 22	266° 38.3	281° 38.4	296° 38.4	311° 38.5	326° 38.6	341° 38.7	356° 38.8	11° 38.8	26° 38.9	41° 39.0	56° 39.1	71° 39.2	+0.1
	-10° 09.4	-10° 08.5	-10° 07.6	-10° 06.7	-10° 05.8	-10° 04.8	-10° 03.9	-10° 03.0	-10° 02.1	-10° 01.2	-10° 00.3	-9° 59.4	+0.9
Чт 23	266° 40.3	281° 40.3	296° 40.4	311° 40.5	326° 40.6	341° 40.7	356° 40.8	11° 40.9	26° 40.9	41° 41.0	56° 41.1	71° 41.2	+0.1
	-9° 47.4	-9° 46.5	-9° 45.6	-9° 44.7	-9° 43.8	-9° 42.8	-9° 41.9	-9° 41.0	-9° 40.1	-9° 39.2	-9° 38.2	-9° 37.3	+0.9
Пт 24	266° 42.4	281° 42.5	296° 42.6	311° 42.7	326° 42.7	341° 42.8	356° 42.9	11° 43.0	26° 43.1	41° 43.2	56° 43.3	71° 43.4	+0.1
	-9° 25.3	-9° 24.4	-9° 23.5	-9° 22.6	-9° 21.6	-9° 20.7	-9° 19.8	-8° 18.8	-9° 17.9	-9° 17.0	-9° 16.1	-9° 15.1	+0.9
Сб 25	266° 44.7	281° 44.8	296° 44.9	311° 45.0	326° 45.1	341° 45.1	356° 45.2	11° 45.3	26° 45.4	41° 45.5	56° 45.6	71° 45.8	+0.1
	-9° 03.1	-9° 02.1	-9° 01.2	-9° 00.3	-8° 59.3	-8° 58.4	-8° 57.5	-8° 56.6	-8° 55.6	-8° 54.7	-8° 53.8	-8° 52.8	+0.9
Вс 26	266° 47.1	281° 47.2	296° 47.3	311° 47.4	326° 47.5	341° 47.6	356° 47.7	11° 47.8	26° 47.9	41° 48.0	56° 48.1	71° 48.2	+0.1
	-8° 40.7	-8° 39.7	-8° 38.8	-8° 37.9	-8° 36.9	-8° 36.0	-8° 35.1	-8° 34.1	-8° 33.2	-8° 32.3	-8° 31.3	-8° 30.4	+0.9
Пн 27	266° 49.7	281° 49.8	296° 49.9	311° 50.0	326° 50.1	341° 50.2	356° 50.3	11° 50.4	26° 50.5	41° 50.7	56° 50.8	71° 50.9	+0.1
	-8° 18.2	-8° 17.2	-8° 16.3	-8° 15.3	-8° 14.4	-8° 13.5	-8° 12.5	-8° 11.6	-8° 10.6	-8° 09.7	-8° 08.8	-8° 07.8	+0.9
Вт 28	266° 52.4	281° 52.5	296° 52.6	311° 52.7	326° 52.8	341° 52.9	356° 53.1	11° 53.2	26° 53.3	41° 53.4	56° 53.5	71° 53.6	+0.1
	-7° 55.5	-7° 54.6	-7° 53.6	-7° 52.7	-7° 51.7	-7° 50.8	-7° 49.9	-7° 48.9	-7° 48.0	-7° 47.0	-7° 46.1	-7° 45.1	+0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2034

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Ср 1	245° 15.6	259° 43.1	274° 10.6	288° 38.2	303° 05.8	317° 33.5	332° 01.2	346° 29.0	0° 56.8	15° 24.7	29° 52.6	+27.7	15.7
	16° 59.5	16° 55.3	16° 51.1	16° 46.7	16° 42.2	16° 37.7	16° 33.0	16° 28.3	16° 23.5	16° 18.6	16° 13.6	-4.6	57.5
Чт 2	246° 58.1	261° 26.9	275° 55.8	290° 24.7	304° 53.7	319° 22.8	333° 51.9	348° 21.1	2° 50.3	17° 19.6	31° 48.9	+29.1	15.5
	14° 48.2	14° 41.9	14° 35.4	14° 29.0	14° 22.4	14° 15.8	14° 09.1	14° 02.3	13° 55.5	13° 48.5	13° 41.6	-6.7	57.0
○ Пт 3	249° 16.1	263° 46.4	278° 16.7	292° 47.1	307° 17.5	321° 48.0	336° 18.6	350° 49.2	5° 19.9	19° 50.6	34° 21.4	+30.5	15.4
	11° 49.2	11° 41.3	11° 33.3	11° 25.2	11° 17.1	11° 09.0	11° 00.8	10° 52.5	10° 44.2	10° 35.9	10° 27.5	-8.2	56.4
Сб 4	252° 09.8	266° 41.4	281° 13.1	295° 44.8	310° 16.6	324° 48.4	339° 20.3	353° 52.2	8° 24.2	22° 56.2	37° 28.3	+31.9	15.2
	8° 16.8	8° 07.8	7° 58.7	7° 49.7	7° 40.6	7° 31.5	7° 22.3	7° 13.2	7° 04.0	6° 54.8	6° 45.5	-9.1	55.8
Вс 5	255° 34.5	270° 07.3	284° 40.0	299° 12.8	313° 45.7	328° 18.6	342° 51.5	357° 24.4	11° 57.4	26° 30.4	41° 03.5	+32.9	15.1
	4° 24.6	4° 15.1	4° 05.6	3° 56.0	3° 46.5	3° 36.9	3° 27.4	3° 17.8	3° 08.2	2° 58.6	2° 49.0	-9.6	55.3
Пн 6	259° 22.7	273° 56.1	288° 29.6	303° 03.2	317° 36.7	332° 10.3	346° 43.9	1° 17.5	15° 51.1	30° 24.7	44° 58.4	+33.6	14.9
	0° 25.1	0° 15.5	0° 06.0	-0° 03.6	-0° 13.1	-0° 22.7	-0° 32.2	-0° 41.8	-0° 51.3	-1° 00.8	-1° 10.3	-9.5	54.8
Вт 7	263° 24.8	277° 58.6	292° 32.5	307° 06.3	321° 40.2	336° 14.0	350° 47.9	5° 21.8	19° 55.6	34° 29.5	49° 03.4	+33.9	14.8
	-3° 31.0	-3° 40.3	-3° 49.5	-3° 58.7	-4° 07.9	-4° 17.0	-4° 26.2	-4° 35.3	-4° 44.4	-4° 53.4	-5° 02.5	-9.1	54.4
Ср 8	267° 31.0	282° 04.8	296° 38.6	311° 12.4	325° 46.2	340° 19.9	354° 53.7	9° 27.4	24° 01.1	38° 34.8	53° 08.5	+33.7	14.8
	-7° 14.8	-7° 23.3	-7° 31.9	-7° 40.4	-7° 48.9	-7° 57.3	-8° 05.7	-8° 14.1	-8° 22.4	-8° 30.7	-8° 39.0	-8.4	54.2
Чт 9	271° 31.7	286° 05.1	300° 38.4	315° 11.8	329° 45.1	344° 18.4	358° 51.6	13° 24.8	27° 58.1	42° 31.2	57° 04.4	+33.3	14.8
	-10° 38.0	-10° 45.6	-10° 53.2	-11° 00.7	-11° 08.1	-11° 15.5	-11° 22.9	-11° 30.2	-11° 37.5	-11° 44.7	-11° 51.9	-7.4	54.2
Пт 10	286° 05.1	300° 38.4	315° 11.8	329° 45.1	344° 18.4	358° 51.6	13° 24.8	27° 58.1	42° 31.2	57° 04.4	71° 37.5	+33.2	14.8
	-10° 45.6	-10° 53.2	-11° 00.7	-11° 08.1	-11° 15.5	-11° 22.9	-11° 30.2	-11° 37.5	-11° 44.7	-11° 51.9	-11° 59.0	-7.3	54.2
◑ Сб 11	289° 50.6	304° 23.2	318° 55.8	333° 28.4	348° 00.9	2° 33.3	17° 05.8	31° 38.1	46° 10.5	60° 42.8	75° 15.1	+32.4	14.8
	-13° 39.5	-13° 45.8	-13° 52.0	-13° 58.1	-14° 04.2	-14° 10.2	-14° 16.2	-14° 22.1	-14° 27.9	-14° 33.7	-14° 39.4	-6.0	54.3
Вс 12	293° 14.4	307° 46.1	322° 17.6	336° 49.2	351° 20.7	5° 52.1	20° 23.5	34° 54.9	49° 26.2	63° 57.5	78° 28.8	+31.4	14.9
	-15° 57.3	-16° 02.0	-16° 06.6	-16° 11.1	-16° 15.5	-16° 19.9	-16° 24.2	-16° 28.4	-16° 32.6	-16° 36.6	-16° 40.6	-4.3	54.7
Пн 13	296° 12.0	310° 42.5	325° 13.0	339° 43.4	354° 13.8	8° 44.2	23° 14.5	37° 44.7	52° 14.9	66° 45.1	81° 15.2	+30.3	15.0
	-17° 31.3	-17° 34.1	-17° 36.7	-17° 39.3	-17° 41.8	-17° 44.2	-17° 46.5	-17° 48.7	-17° 50.9	-17° 52.9	-17° 54.9	-2.4	55.2
Вт 14	298° 42.1	313° 11.6	327° 41.0	342° 10.4	356° 39.7	11° 09.0	25° 38.3	40° 07.5	54° 36.7	69° 05.9	83° 35.0	+29.3	15.2
	-18° 13.8	-18° 14.4	-18° 14.8	-18° 15.1	-18° 15.4	-18° 15.5	-18° 15.6	-18° 15.6	-18° 15.4	-18° 15.2	-18° 14.9	-0.1	55.8
Ср 15	300° 47.6	315° 16.2	329° 44.7	344° 13.3	358° 41.8	13° 10.2	27° 38.7	42° 07.1	56° 35.5	71° 03.8	85° 32.2	+28.5	15.4
	-17° 58.3	-17° 56.4	-17° 54.4	-17° 52.3	-17° 50.1	-17° 47.8	-17° 45.4	-17° 42.9	-17° 40.3	-17° 37.5	-17° 34.7	+2.4	56.6
Чт 16	302° 34.5	317° 02.5	331° 30.5	345° 58.5	0° 26.4	14° 54.4	29° 22.3	43° 50.2	58° 18.1	72° 46.0	87° 13.9	+27.9	15.7
	-16° 40.5	-16° 36.1	-16° 31.6	-16° 27.0	-16° 22.3	-16° 17.5	-16° 12.5	-16° 07.5	-16° 02.4	-15° 57.2	-15° 51.9	+4.9	57.5
Пт 17	304° 10.7	318° 38.5	333° 06.2	347° 33.9	2° 01.6	16° 29.3	30° 57.0	45° 24.8	59° 52.5	74° 20.2	88° 47.9	+27.7	15.9
	-14° 20.7	-14° 13.8	-14° 06.9	-13° 59.9	-13° 52.8	-13° 45.6	-13° 38.3	-13° 30.9	-13° 23.5	-13° 15.9	-13° 08.3	+7.2	58.3
● Сб 18	305° 43.3	320° 11.0	334° 38.7	349° 06.5	3° 34.2	18° 01.9	32° 29.6	46° 57.3	61° 25.0	75° 52.8	90° 20.5	+27.7	16.1
	-11° 03.9	-10° 54.9	-10° 45.9	-10° 36.9	-10° 27.7	-10° 18.5	-10° 09.2	-9° 59.9	-9° 50.5	-9° 41.0	-9° 31.4	+9.2	59.0
Вс 19	307° 16.8	321° 44.6	336° 12.4	350° 40.1	5° 07.9	19° 35.7	34° 03.5	48° 31.3	62° 59.1	77° 26.9	91° 54.7	+27.8	16.2
	-7° 01.0	-6° 50.5	-6° 40.0	-6° 29.4	-6° 18.8	-6° 08.2	-5° 57.5	-5° 46.7	-5° 36.0	-5° 25.1	-5° 14.3	+10.7	59.6
Пн 20	308° 51.8	323° 19.6	337° 47.4	352° 15.2	6° 43.0	21° 10.8	35° 38.6	50° 06.4	64° 34.2	79° 02.0	93° 29.8	+27.8	16.3
	-2° 27.7	-2° 16.4	-2° 05.1	-1° 53.7	-1° 42.4	-1° 31.0	-1° 19.6	-1° 08.3	-0° 56.9	-0° 45.5	-0° 34.1	+11.4	59.9
Вт 21	310° 25.8	324° 53.5	339° 21.2	353° 48.9	8° 16.5	22° 44.1	37° 11.8	51° 39.4	66° 07.0	80° 34.6	95° 02.2	+27.6	16.4
	2° 17.0	2° 28.3	2° 39.6	2° 50.9	3° 02.2	3° 13.5	3° 24.7	3° 35.9	3° 47.1	3° 58.3	4° 09.5	+11.3	60.0
Ср 22	311° 54.5	326° 21.8	340° 49.2	355° 16.5	9° 43.8	24° 11.2	38° 38.4	53° 05.7	67° 33.0	82° 00.2	96° 27.4	+27.3	16.3
	6° 52.7	7° 03.3	7° 13.8	7° 24.2	7° 34.6	7° 45.0	7° 55.3	8° 05.6	8° 15.8	8° 25.9	8° 36.0	+10.3	59.9
Чт 23	313° 13.6	327° 40.6	342° 07.5	356° 34.4	11° 01.3	25° 28.1	39° 55.0	54° 21.8	68° 48.6	83° 15.4	97° 42.2	+26.9	16.3
	10° 59.9	11° 09.0	11° 17.9	11° 26.8	11° 35.6	11° 44.4	11° 53.0	12° 01.6	12° 10.1	12° 18.5	12° 26.9	+8.7	59.6
Пт 24	314° 21.8	328° 48.3	343° 14.8	357° 41.3	12° 07.8	26° 34.2	41° 00.7	55° 27.1	69° 53.6	84° 20.0	98° 46.4	+26.5	16.1
	14° 21.5	14° 28.4	14° 35.2	14° 42.0	14° 48.6	14° 55.1	15° 01.5	15° 07.9	15° 14.1	15° 20.2	15° 26.3	+6.5	59.2
◐ Сб 25	315° 21.5	329° 47.8	344° 14.1	358° 40.4	13° 06.7	27° 33.0	41° 59.3	56° 25.6	70° 51.9	85° 18.2	99° 44.5	+26.3	16.0
	16° 44.3	16° 48.6	16° 52.9	16° 57.0	17° 01.0	17° 05.0	17° 08.8	17° 12.5	17° 16.1	17° 19.5	17° 22.9	+3.9	58.7
Вс 26	316° 19.9	330° 46.3	345° 12.8	359° 39.3	14° 05.8	28° 32.3	42° 58.8	57° 25.3	71° 51.9	86° 18.5	100° 45.1	+26.5	15.9
	18° 00.0	18° 01.6	18° 03.1	18° 04.4	18° 05.7	18° 06.8	18° 07.8	18° 08.8	18° 09.6	18° 10.2	18° 10.8	+1.1	58.2
Пн 27	317° 27.2	331° 54.2	346° 21.3	0° 48.4	15° 15.5	29° 42.7	44° 09.9	58° 37.1	73° 04.4	87° 31.7	101° 59.1	+27.2	15.7
	18° 06.2	18° 05.1	18° 03.8	18° 02.4	18° 00.9	17° 59.3	17° 57.6	17° 55.8	17° 53.9	17° 51.9	17° 49.7	-1.7	57.6
Вт 28	318° 54.2	333° 22.2	347° 50.2	2° 18.3	16° 46.5	31° 14.7	45° 43.0	60° 11.2	74° 39.6	89° 08.0	103° 36.4	+28.2	15.6
	17° 05.9	17° 02.2	16° 58.4	16° 54.5	16° 50.5	16° 46.4	16° 42.3	16° 38.0	16° 33.7	16° 29.2	16° 24.7	-4.1	57.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Полнолуние: 3 10h04 — Последняя четв.: 11 11h09 — Новолуние: 18 23h10 — Первая четв.: 25 16h34

СОЛНЦЕ

Март 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	266° 55.2	281° 55.3	296° 55.4	311° 55.6	326° 55.7	341° 55.8	356° 55.9	11° 56.1	26° 56.2	41° 56.3	56° 56.4	71° 56.6	+0.1
	-7° 32.8	-7° 31.8	-7° 30.9	-7° 29.9	-7° 29.0	-7° 28.0	-7° 27.1	-7° 26.1	-7° 25.2	-7° 24.2	-7° 23.3	-7° 22.3	+1.0
Чт 2	266° 58.2	281° 58.3	296° 58.4	311° 58.6	326° 58.7	341° 58.8	356° 58.9	11° 59.1	26° 59.2	41° 59.3	56° 59.5	71° 59.6	+0.1
	-7° 09.9	-7° 09.0	-7° 08.0	-7° 07.1	-7° 06.1	-7° 05.2	-7° 04.2	-7° 03.2	-7° 02.3	-7° 01.3	-7° 00.4	-6° 59.4	+1.0
Пт 3	267° 01.3	282° 01.4	297° 01.5	312° 01.7	327° 01.8	342° 01.9	357° 02.1	12° 02.2	27° 02.3	42° 02.5	57° 02.6	72° 02.7	+0.1
	-6° 47.0	-6° 46.0	-6° 45.1	-6° 44.1	-6° 43.1	-6° 42.2	-6° 41.2	-6° 40.3	-6° 39.3	-6° 38.3	-6° 37.4	-6° 36.4	+1.0
Сб 4	267° 04.5	282° 04.6	297° 04.8	312° 04.9	327° 05.0	342° 05.2	357° 05.3	12° 05.5	27° 05.6	42° 05.7	57° 05.9	72° 06.0	+0.1
	-6° 23.9	-6° 23.0	-6° 22.0	-6° 21.0	-6° 20.1	-6° 19.1	-6° 18.1	-6° 17.2	-6° 16.2	-6° 15.2	-6° 14.3	-6° 13.3	+1.0
Вс 5	267° 07.8	282° 08.0	297° 08.1	312° 08.3	327° 08.4	342° 08.5	357° 08.7	12° 08.8	27° 09.0	42° 09.1	57° 09.2	72° 09.4	+0.1
	-6° 00.8	-5° 59.8	-5° 58.8	-5° 57.9	-5° 56.9	-5° 55.9	-5° 55.0	-5° 54.0	-5° 53.0	-5° 52.1	-5° 51.1	-5° 50.1	+1.0
Пн 6	267° 11.3	282° 11.4	297° 11.6	312° 11.7	327° 11.8	342° 12.0	357° 12.1	12° 12.3	27° 12.4	42° 12.6	57° 12.7	72° 12.9	+0.1
	-5° 37.6	-5° 36.6	-5° 35.6	-5° 34.6	-5° 33.7	-5° 32.7	-5° 31.7	-5° 30.8	-5° 29.8	-5° 28.8	-5° 27.9	-5° 26.9	+1.0
Вт 7	267° 14.8	282° 15.0	297° 15.1	312° 15.3	327° 15.4	342° 15.6	357° 15.7	12° 15.9	27° 16.0	42° 16.2	57° 16.3	72° 16.5	+0.2
	-5° 14.2	-5° 13.3	-5° 12.3	-5° 11.3	-5° 10.4	-5° 09.4	-5° 08.4	-5° 07.4	-5° 06.5	-5° 05.5	-5° 04.5	-5° 03.5	+1.0
Ср 8	267° 18.4	282° 18.6	297° 18.7	312° 18.9	327° 19.1	342° 19.2	357° 19.4	12° 19.5	27° 19.7	42° 19.8	57° 20.0	72° 20.1	+0.2
	-4° 50.9	-4° 49.9	-4° 48.9	-4° 48.0	-4° 47.0	-4° 46.0	-4° 45.0	-4° 44.0	-4° 43.1	-4° 42.1	-4° 41.1	-4° 40.1	+1.0
Чт 9	267° 22.2	282° 22.3	297° 22.5	312° 22.6	327° 22.8	342° 23.0	357° 23.1	12° 23.3	27° 23.4	42° 23.6	57° 23.7	72° 23.9	+0.2
	-4° 27.4	-4° 26.5	-4° 25.5	-4° 24.5	-4° 23.5	-4° 22.6	-4° 21.6	-4° 20.6	-4° 19.6	-4° 18.6	-4° 17.7	-4° 16.7	+1.0
Пт 10	267° 26.0	282° 26.1	297° 26.3	312° 26.5	327° 26.6	342° 26.8	357° 26.9	12° 27.1	27° 27.3	42° 27.4	57° 27.6	72° 27.7	+0.2
	-4° 03.9	-4° 03.0	-4° 02.0	-4° 01.0	-4° 00.0	-3° 59.0	-3° 58.1	-3° 57.1	-3° 56.1	-3° 55.1	-3° 54.1	-3° 53.2	+1.0
Сб 11	267° 29.9	282° 30.0	297° 30.2	312° 30.4	327° 30.5	342° 30.7	357° 30.8	12° 31.0	27° 31.2	42° 31.3	57° 31.5	72° 31.7	+0.2
	-3° 40.4	-3° 39.4	-3° 38.4	-3° 37.5	-3° 36.5	-3° 35.5	-3° 34.5	-3° 33.5	-3° 32.5	-3° 31.6	-3° 30.6	-3° 29.6	+1.0
Вс 12	267° 33.8	282° 34.0	297° 34.2	312° 34.3	327° 34.5	342° 34.7	357° 34.8	12° 35.0	27° 35.2	42° 35.3	57° 35.5	72° 35.7	+0.2
	-3° 16.8	-3° 15.8	-3° 14.8	-3° 13.9	-3° 12.9	-3° 11.9	-3° 10.9	-3° 09.9	-3° 08.9	-3° 08.0	-3° 07.0	-3° 06.0	+1.0
Пн 13	267° 37.9	282° 38.0	297° 38.2	312° 38.4	327° 38.5	342° 38.7	357° 38.9	12° 39.1	27° 39.2	42° 39.4	57° 39.6	72° 39.7	+0.2
	-2° 53.2	-2° 52.2	-2° 51.2	-2° 50.2	-2° 49.2	-2° 48.3	-2° 47.3	-2° 46.3	-2° 45.3	-2° 44.3	-2° 43.3	-2° 42.3	+1.0
Вт 14	267° 42.0	282° 42.1	297° 42.3	312° 42.5	327° 42.6	342° 42.8	357° 43.0	12° 43.2	27° 43.3	42° 43.5	57° 43.7	72° 43.9	+0.2
	-2° 29.5	-2° 28.5	-2° 27.5	-2° 26.6	-2° 25.6	-2° 24.6	-2° 23.6	-2° 22.6	-2° 21.6	-2° 20.6	-2° 19.7	-2° 18.7	+1.0
Ср 15	267° 46.1	282° 46.3	297° 46.5	312° 46.6	327° 46.8	342° 47.0	357° 47.2	12° 47.3	27° 47.5	42° 47.7	57° 47.9	72° 48.0	+0.2
	-2° 05.8	-2° 04.8	-2° 03.9	-2° 02.9	-2° 01.9	-2° 00.9	-1° 59.9	-1° 58.9	-1° 57.9	-1° 56.9	-1° 56.0	-1° 55.0	+1.0
Чт 16	267° 50.3	282° 50.5	297° 50.7	312° 50.9	327° 51.0	342° 51.2	357° 51.4	12° 51.6	27° 51.7	42° 51.9	57° 52.1	72° 52.3	+0.2
	-1° 42.1	-1° 41.1	-1° 40.1	-1° 39.2	-1° 38.2	-1° 37.2	-1° 36.2	-1° 35.2	-1° 34.2	-1° 33.2	-1° 32.2	-1° 31.2	+1.0
Пт 17	267° 54.6	282° 54.8	297° 54.9	312° 55.1	327° 55.3	342° 55.5	357° 55.7	12° 55.8	27° 56.0	42° 56.2	57° 56.4	72° 56.5	+0.2
	-1° 18.4	-1° 17.4	-1° 16.4	-1° 15.4	-1° 14.4	-1° 13.5	-1° 12.5	-1° 11.5	-1° 10.5	-1° 09.5	-1° 08.5	-1° 07.5	+1.0
Сб 18	267° 58.9	282° 59.1	297° 59.2	312° 59.4	327° 59.6	342° 59.8	358° 00.0	13° 00.1	28° 00.3	43° 00.5	58° 00.7	73° 00.9	+0.2
	-0° 54.7	-0° 53.7	-0° 52.7	-0° 51.7	-0° 50.7	-0° 49.7	-0° 48.7	-0° 47.7	-0° 46.8	-0° 45.8	-0° 44.8	-0° 43.8	+1.0
Вс 19	268° 03.2	283° 03.4	298° 03.6	313° 03.8	328° 03.9	343° 04.1	358° 04.3	13° 04.5	28° 04.7	43° 04.9	58° 05.0	73° 05.2	+0.2
	-0° 30.9	-0° 29.9	-0° 29.0	-0° 28.0	-0° 27.0	-0° 26.0	-0° 25.0	-0° 24.0	-0° 23.0	-0° 22.0	-0° 21.0	-0° 20.1	+1.0
Пн 20	268° 07.6	283° 07.8	298° 08.0	313° 08.1	328° 08.3	343° 08.5	358° 08.7	13° 08.9	28° 09.1	43° 09.2	58° 09.4	73° 09.6	+0.2
	-0° 07.2	-0° 06.2	-0° 05.2	-0° 04.2	-0° 03.3	-0° 02.3	-0° 01.3	-0° 00.3	0° 00.7	0° 01.7	0° 02.7	0° 03.7	+1.0
Вт 21	268° 12.0	283° 12.2	298° 12.4	313° 12.6	328° 12.7	343° 12.9	358° 13.1	13° 13.3	28° 13.5	43° 13.7	58° 13.9	73° 14.0	+0.2
	0° 16.5	0° 17.5	0° 18.5	0° 19.5	0° 20.5	0° 21.4	0° 22.4	0° 23.4	0° 24.4	0° 25.4	0° 26.4	0° 27.4	+1.0
Ср 22	268° 16.4	283° 16.6	298° 16.8	313° 17.0	328° 17.2	343° 17.4	358° 17.6	13° 17.7	28° 17.9	43° 18.1	58° 18.3	73° 18.5	+0.2
	0° 40.2	0° 41.2	0° 42.2	0° 43.2	0° 44.2	0° 45.1	0° 46.1	0° 47.1	0° 48.1	0° 49.1	0° 50.1	0° 51.1	+1.0
Чт 23	268° 20.9	283° 21.1	298° 21.3	313° 21.5	328° 21.7	343° 21.8	358° 22.0	13° 22.2	28° 22.4	43° 22.6	58° 22.8	73° 23.0	+0.2
	1° 03.9	1° 04.9	1° 05.9	1° 06.8	1° 07.8	1° 08.8	1° 09.8	1° 10.8	1° 11.8	1° 12.8	1° 13.7	1° 14.7	+1.0
Пт 24	268° 25.4	283° 25.6	298° 25.8	313° 26.0	328° 26.1	343° 26.3	358° 26.5	13° 26.7	28° 26.9	43° 27.1	58° 27.3	73° 27.4	+0.2
	1° 27.5	1° 28.5	1° 29.5	1° 30.5	1° 31.5	1° 32.5	1° 33.4	1° 34.4	1° 35.4	1° 36.4	1° 37.4	1° 38.4	+1.0
Сб 25	268° 29.9	283° 30.1	298° 30.3	313° 30.4	328° 30.6	343° 30.8	358° 31.0	13° 31.2	28° 31.4	43° 31.6	58° 31.8	73° 32.0	+0.2
	1° 51.1	1° 52.1	1° 53.1	1° 54.1	1° 55.1	1° 56.0	1° 57.0	1° 58.0	1° 59.0	2° 00.0	2° 01.0	2° 01.9	+1.0
Вс 26	268° 34.4	283° 34.6	298° 34.8	313° 35.0	328° 35.1	343° 35.3	358° 35.5	13° 35.7	28° 35.9	43° 36.1	58° 36.3	73° 36.5	+0.2
	2° 14.7	2° 15.7	2° 16.7	2° 17.6	2° 18.6	2° 19.6	2° 20.6	2° 21.6	2° 22.5	2° 23.5	2° 24.5	2° 25.5	+1.0
Пн 27	268° 38.9	283° 39.1	298° 39.3	313° 39.5	328° 39.7	343° 39.9	358° 40.0	13° 40.2	28° 40.4	43° 40.6	58° 40.8	73° 41.0	+0.2
	2° 38.2	2° 39.2	2° 40.2	2° 41.2	2° 42.1	2° 43.1	2° 44.1	2° 45.1	2° 46.0	2° 47.0	2° 48.0	2° 49.0	+1.0
Вт 28	268° 43.4	283° 43.6	298° 43.8	313° 44.0	328° 44.2	343° 44.4	358° 44.6	13° 44.7	28° 44.9	43° 45.1	58° 45.3	73° 45.5	+0.2
	3° 01.7	3° 02.7	3° 03.6	3° 04.6	3° 05.6	3° 06.6	3° 07.5	3° 08.5	3° 09.5	3° 10.5	3° 11.4	3° 12.4	+1.0
Ср 29	268° 47.9	283° 48.1	298° 48.3	313° 48.5	328° 48.7	343° 48.9	358° 49.1	13° 49.3	28° 49.4	43° 49.6	58° 49.8	73° 50.0	+0.2
	3° 25.1	3° 26.1	3° 27.0	3° 28.0	3° 29.0	3° 29.9	3° 30.9	3° 31.9	3° 32.9	3° 33.8	3° 34.8	3° 35.8	+1.0
Чт 30	268° 52.4	283° 52.6	298° 52.8	313° 53.0	328° 53.2	343° 53.4	358° 53.6	13° 53.8	28° 53.9	43° 54.1	58° 54.3	73° 54.5	+0.2
	3° 48.4	3° 49.4	3° 50.4	3° 51.3	3° 52.3	3° 53.3	3° 54.2	3° 55.2	3° 56.2	3° 57.1	3° 58.1	3° 59.1	+1.0
Пт 31	268° 56.9	283° 57.1	298° 57.3	313° 57.5	328° 57.7	343° 57.9	358° 58.1	13° 58.2	28° 58.4	43° 58.6	58° 58.8	73° 59.0	+0.2
	4° 11.7	4° 12.6	4° 13.6	4° 14.6	4° 15.5	4° 16.5	4° 17.5	4° 18.4	4° 19.4	4° 20.4	4° 21.3	4° 22.3	+1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2034

Д	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	R/p
Ср 1	248° 23.6	262° 52.6	277° 21.6	291° 50.7	306° 19.9	320° 49.1	335° 18.3	349° 47.6	4° 17.0	18° 46.4	33° 15.8	+29.2	15.5
	15° 34.8	15° 29.3	15° 23.8	15° 18.2	15° 12.5	15° 06.7	15° 00.8	14° 54.9	14° 48.9	14° 42.9	14° 36.7	-5.8	56.7
Чт 2	250° 43.9	265° 14.2	279° 44.6	294° 15.0	308° 45.4	323° 15.9	337° 46.4	352° 17.0	6° 47.7	21° 18.4	35° 49.1	+30.5	15.3
	12° 56.2	12° 49.0	12° 41.7	12° 34.3	12° 27.0	12° 19.5	12° 12.0	12° 04.4	11° 56.8	11° 49.1	11° 41.4	-7.5	56.2
Пт 3	253° 36.2	268° 07.7	282° 39.2	297° 10.8	311° 42.5	326° 14.2	340° 45.9	355° 17.7	9° 49.5	24° 21.4	38° 53.3	+31.7	15.2
	9° 39.5	9° 31.0	9° 22.5	9° 13.9	9° 05.3	8° 56.7	8° 48.0	8° 39.3	8° 30.6	8° 21.8	8° 13.0	-8.7	55.7
Сб 4	256° 56.7	271° 29.2	286° 01.8	300° 34.4	315° 07.0	329° 39.7	344° 12.4	358° 45.1	13° 17.9	27° 50.7	42° 23.5	+32.7	15.1
	5° 57.4	5° 48.1	5° 38.9	5° 29.6	5° 20.3	5° 11.0	5° 01.7	4° 52.3	4° 43.0	4° 33.6	4° 24.2	-9.3	55.2
○ Вс 5	260° 39.3	275° 12.6	289° 45.9	304° 19.2	318° 52.5	333° 25.8	347° 59.2	2° 32.6	17° 06.0	31° 39.4	46° 12.9	+33.4	15.0
	2° 02.1	1° 52.5	1° 43.0	1° 33.5	1° 24.0	1° 14.4	1° 04.9	0° 55.4	0° 45.8	0° 36.3	0° 26.8	-9.5	54.8
Пн 6	264° 36.4	279° 10.1	293° 43.8	308° 17.5	322° 51.2	337° 24.9	351° 58.6	6° 32.3	21° 06.0	35° 39.7	50° 13.5	+33.7	14.9
	-1° 55.2	-2° 04.6	-2° 13.9	-2° 23.3	-2° 32.6	-2° 42.0	-2° 51.3	-3° 00.6	-3° 09.8	-3° 19.1	-3° 28.3	-9.3	54.5
Вт 7	268° 39.8	283° 13.6	297° 47.3	312° 21.1	326° 54.8	341° 28.5	356° 02.3	10° 36.0	25° 09.7	39° 43.4	54° 17.1	+33.7	14.8
	-5° 44.3	-5° 53.1	-6° 02.0	-6° 10.8	-6° 19.6	-6° 28.3	-6° 37.0	-6° 45.7	-6° 54.4	-7° 03.0	-7° 11.6	-8.7	54.2
Ср 8	272° 41.4	287° 15.0	301° 48.5	316° 22.0	330° 55.4	345° 28.9	0° 02.3	14° 35.8	29° 09.2	43° 42.5	58° 15.9	+33.4	14.7
	-9° 16.1	-9° 24.1	-9° 32.1	-9° 40.0	-9° 47.9	-9° 55.7	-10° 03.5	-10° 11.2	-10° 18.9	-10° 26.6	-10° 34.2	-7.8	54.1
Чт 9	276° 33.9	291° 07.0	305° 40.0	320° 12.9	334° 45.9	349° 18.8	3° 51.7	18° 24.5	32° 57.4	47° 30.2	62° 03.0	+32.9	14.7
	-12° 22.5	-12° 29.4	-12° 36.1	-12° 42.8	-12° 49.5	-12° 56.1	-13° 02.6	-13° 09.1	-13° 15.5	-13° 21.9	-13° 28.2	-6.6	54.1
Пт 10	280° 11.1	294° 43.4	309° 15.7	323° 47.9	338° 20.1	352° 52.3	7° 24.4	21° 56.5	36° 28.6	51° 00.6	65° 32.6	+32.2	14.8
	-14° 55.8	-15° 01.1	-15° 06.4	-15° 11.6	-15° 16.8	-15° 21.8	-15° 26.8	-15° 31.8	-15° 36.6	-15° 41.5	-15° 46.2	-5.0	54.2
Сб 11	294° 43.4	309° 15.7	323° 47.9	338° 20.1	352° 52.3	7° 24.4	21° 56.5	36° 28.6	51° 00.6	65° 32.6	80° 04.6	+32.1	14.8
	-15° 01.1	-15° 06.4	-15° 11.6	-15° 16.8	-15° 21.8	-15° 26.8	-15° 31.8	-15° 36.6	-15° 41.5	-15° 46.2	-15° 50.9	-5.0	54.2
Вс 12	297° 59.9	312° 31.4	327° 02.7	341° 34.1	356° 05.4	10° 36.6	25° 07.9	39° 39.0	54° 10.2	68° 41.3	83° 12.4	+31.2	14.9
	-16° 52.3	-16° 55.8	-16° 59.2	-17° 02.5	-17° 05.8	-17° 09.0	-17° 12.1	-17° 15.2	-17° 18.1	-17° 21.0	-17° 23.8	-3.2	54.6
◑ Пн 13	300° 54.3	315° 24.8	329° 55.3	344° 25.8	358° 56.2	13° 26.5	27° 56.9	42° 27.2	56° 57.4	71° 27.7	85° 57.9	+30.4	15.0
	-17° 56.0	-17° 57.4	-17° 58.8	-18° 00.1	-18° 01.3	-18° 02.5	-18° 03.5	-18° 04.5	-18° 05.3	-18° 06.1	-18° 06.8	-1.1	55.1
Вт 14	303° 26.9	317° 56.5	332° 26.2	346° 55.8	1° 25.4	15° 54.9	30° 24.5	44° 54.0	59° 23.4	73° 52.9	88° 22.3	+29.5	15.2
	-18° 06.2	-18° 05.5	-18° 04.6	-18° 03.6	-18° 02.6	-18° 01.4	-18° 00.2	-17° 58.9	-17° 57.4	-17° 55.9	-17° 54.3	+1.2	55.8
Ср 15	305° 40.1	320° 09.1	334° 38.1	349° 07.0	3° 35.9	18° 04.8	32° 33.7	47° 02.5	61° 31.3	76° 00.1	90° 28.9	+28.9	15.4
	-17° 18.6	-17° 15.4	-17° 12.1	-17° 08.8	-17° 05.4	-17° 01.8	-16° 58.2	-16° 54.5	-16° 50.6	-16° 46.7	-16° 42.7	+3.6	56.6
Чт 16	307° 38.1	322° 06.6	336° 35.0	351° 03.5	5° 31.9	20° 00.3	34° 28.7	48° 57.0	63° 25.4	77° 53.7	92° 22.0	+28.4	15.7
	-15° 30.8	-15° 25.3	-15° 19.6	-15° 13.9	-15° 08.1	-15° 02.1	-14° 56.1	-14° 50.0	-14° 43.8	-14° 37.5	-14° 31.1	+6.0	57.5
Пт 17	309° 25.0	323° 53.1	338° 21.2	352° 49.3	7° 17.3	21° 45.4	36° 13.4	50° 41.4	65° 09.4	79° 37.4	94° 05.4	+28.0	15.9
	-12° 44.5	-12° 36.7	-12° 28.9	-12° 20.9	-12° 12.8	-12° 04.7	-11° 56.5	-11° 48.2	-11° 39.8	-11° 31.4	-11° 22.8	+8.2	58.5
Сб 18	311° 03.7	325° 31.5	339° 59.3	354° 27.0	8° 54.8	23° 22.5	37° 50.2	52° 18.0	66° 45.7	81° 13.4	95° 41.0	+27.7	16.2
	-9° 05.8	-8° 56.1	-8° 46.3	-8° 36.5	-8° 26.6	-8° 16.6	-8° 06.6	-7° 56.5	-7° 46.4	-7° 36.2	-7° 25.9	+10.0	59.4
Вс 19	312° 34.7	327° 02.1	341° 29.6	355° 57.0	10° 24.4	24° 51.9	39° 19.2	53° 46.6	68° 14.0	82° 41.3	97° 08.6	+27.4	16.4
	-4° 45.9	-4° 34.8	-4° 23.7	-4° 12.6	-4° 01.5	-3° 50.3	-3° 39.1	-3° 27.8	-3° 16.6	-3° 05.2	-2° 53.9	+11.2	60.1
● Пн 20	313° 56.4	328° 23.4	342° 50.4	357° 17.4	11° 44.4	26° 11.3	40° 38.3	55° 05.2	69° 32.1	83° 58.9	98° 25.8	+26.9	16.5
	-0° 01.3	0° 10.3	0° 21.9	0° 33.5	0° 45.2	0° 56.8	1° 08.4	1° 20.0	1° 31.6	1° 43.3	1° 54.9	+11.6	60.6
Вт 21	315° 05.8	329° 32.3	343° 58.8	358° 25.2	12° 51.6	27° 18.0	41° 44.4	56° 10.7	70° 37.0	85° 03.3	99° 29.6	+26.4	16.6
	4° 47.2	4° 58.5	5° 09.7	5° 21.0	5° 32.2	5° 43.3	5° 54.5	6° 05.6	6° 16.6	6° 27.6	6° 38.6	+11.1	60.8
Ср 22	316° 00.7	330° 26.6	344° 52.5	359° 18.3	13° 44.2	28° 10.0	42° 35.7	57° 01.5	71° 27.2	85° 52.9	100° 18.6	+25.8	16.6
	9° 16.9	9° 27.0	9° 37.0	9° 47.0	9° 56.8	10° 06.6	10° 16.4	10° 26.0	10° 35.6	10° 45.2	10° 54.6	+9.8	60.7
Чт 23	316° 41.7	331° 07.1	345° 32.4	359° 57.8	14° 23.2	28° 48.5	43° 13.8	57° 39.2	72° 04.5	86° 29.8	100° 55.1	+25.3	16.5
	13° 06.2	13° 14.3	13° 22.2	13° 30.1	13° 37.9	13° 45.6	13° 53.1	14° 00.6	14° 08.0	14° 15.3	14° 22.4	+7.6	60.3
Пт 24	317° 13.7	331° 38.9	346° 04.1	0° 29.3	14° 54.6	29° 19.8	43° 45.0	58° 10.3	72° 35.5	87° 00.8	101° 26.1	+25.2	16.3
	15° 57.4	16° 02.9	16° 08.2	16° 13.4	16° 18.6	16° 23.6	16° 28.4	16° 33.2	16° 37.9	16° 42.4	16° 46.9	+4.9	59.7
Сб 25	317° 46.6	332° 12.1	346° 37.7	1° 03.2	15° 28.8	29° 54.4	44° 20.1	58° 45.7	73° 11.4	87° 37.1	102° 02.9	+25.6	16.1
	17° 39.3	17° 41.9	17° 44.3	17° 46.7	17° 48.9	17° 51.0	17° 52.9	17° 54.8	17° 56.5	17° 58.1	17° 59.6	+2.0	59.0
Вс 26	318° 33.2	332° 59.5	347° 25.8	1° 52.3	16° 18.7	30° 45.2	45° 11.7	59° 38.3	74° 05.0	88° 31.6	102° 58.4	+26.5	15.9
	18° 08.3	18° 08.0	18° 07.5	18° 07.0	18° 06.3	18° 05.5	18° 04.6	18° 03.7	18° 02.5	18° 01.3	18° 00.0	-0.8	58.2
◐ Пн 27	319° 45.3	334° 12.8	348° 40.4	3° 08.1	17° 35.8	32° 03.6	46° 31.4	60° 59.3	75° 27.3	89° 55.3	104° 23.3	+27.8	15.7
	17° 27.6	17° 24.6	17° 21.5	17° 18.4	17° 15.1	17° 11.7	17° 08.3	17° 04.7	17° 01.1	16° 57.3	16° 53.5	-3.4	57.4
Вт 28	321° 31.2	336° 00.2	350° 29.3	4° 58.4	19° 27.6	33° 56.8	48° 26.1	62° 55.5	77° 24.9	91° 54.4	106° 23.9	+29.3	15.5
	15° 45.4	15° 40.2	15° 34.9	15° 29.6	15° 24.1	15° 18.6	15° 13.0	15° 07.3	15° 01.6	14° 55.7	14° 49.8	-5.6	56.7
Ср 29	323° 53.9	338° 24.3	352° 54.8	7° 25.4	21° 56.0	36° 26.7	50° 57.4	65° 28.2	79° 59.1	94° 30.0	109° 00.9	+30.7	15.3
	13° 13.0	13° 06.1	12° 59.0	12° 52.0	12° 44.8	12° 37.6	12° 30.3	12° 23.0	12° 15.7	12° 08.2	12° 00.7	-7.2	56.1
Чт 30	326° 51.2	341° 23.0	355° 54.8	10° 26.6	24° 58.5	39° 30.4	54° 02.4	68° 34.4	83° 06.5	97° 38.6	112° 10.7	+32.0	15.1
	10° 02.6	9° 54.3	9° 46.0	9° 37.7	9° 29.4	9° 21.0	9° 12.5	9° 04.0	8° 55.5	8° 47.0	8° 38.4	-8.4	55.5
Пт 31	330° 17.7	344° 50.5	359° 23.3	13° 56.1	28° 29.0	43° 01.9	57° 34.8	72° 07.7	86° 40.7	101° 13.8	115° 46.8	+32.9	15.0
	6° 26.0	6° 16.9	6° 07.8	5° 58.8	5° 49.6	5° 40.5	5° 31.4	5° 22.2	5° 13.0	5° 03.8	4° 54.6	-9.1	55.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 5 02h10 — Последняя четв.: 13 06h44 — Новолуние: 20 10h14 — Первая четв.: 27 01h18

СОЛНЦЕ

Апрель 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 01.4	284° 01.6	299° 01.8	314° 02.0	329° 02.2	344° 02.3	359° 02.5	14° 02.7	29° 02.9	44° 03.1	59° 03.3	74° 03.5	+0.2
	4° 34.9	4° 35.8	4° 36.8	4° 37.8	4° 38.7	4° 39.7	4° 40.6	4° 41.6	4° 42.6	4° 43.5	4° 44.5	4° 45.5	+1.0
Вс 2	269° 05.9	284° 06.0	299° 06.2	314° 06.4	329° 06.6	344° 06.8	359° 07.0	14° 07.1	29° 07.3	44° 07.5	59° 07.7	74° 07.9	+0.2
	4° 58.0	4° 58.9	4° 59.9	5° 00.8	5° 01.8	5° 02.8	5° 03.7	5° 04.7	5° 05.6	5° 06.6	5° 07.6	5° 08.5	+1.0
Пн 3	269° 10.3	284° 10.5	299° 10.6	314° 10.8	329° 11.0	344° 11.2	359° 11.4	14° 11.6	29° 11.7	44° 11.9	59° 12.1	74° 12.3	+0.2
	5° 21.0	5° 21.9	5° 22.9	5° 23.8	5° 24.8	5° 25.8	5° 26.7	5° 27.7	5° 28.6	5° 29.6	5° 30.5	5° 31.5	+1.0
Вт 4	269° 14.6	284° 14.8	299° 15.0	314° 15.2	329° 15.4	344° 15.6	359° 15.7	14° 15.9	29° 16.1	44° 16.3	59° 16.5	74° 16.6	+0.2
	5° 43.9	5° 44.8	5° 45.8	5° 46.7	5° 47.7	5° 48.7	5° 49.6	5° 50.6	5° 51.5	5° 52.5	5° 53.4	5° 54.4	+1.0
Ср 5	269° 19.0	284° 19.2	299° 19.3	314° 19.5	329° 19.7	344° 19.9	359° 20.1	14° 20.2	29° 20.4	44° 20.6	59° 20.8	74° 21.0	+0.2
	6° 06.7	6° 07.7	6° 08.6	6° 09.6	6° 10.5	6° 11.4	6° 12.4	6° 13.3	6° 14.3	6° 15.2	6° 16.2	6° 17.1	+0.9
Чт 6	269° 23.3	284° 23.5	299° 23.6	314° 23.8	329° 24.0	344° 24.2	359° 24.3	14° 24.5	29° 24.7	44° 24.9	59° 25.0	74° 25.2	+0.2
	6° 29.4	6° 30.4	6° 31.3	6° 32.2	6° 33.2	6° 34.1	6° 35.1	6° 36.0	6° 37.0	6° 37.9	6° 38.8	6° 39.8	+0.9
Пт 7	269° 27.5	284° 27.7	299° 27.9	314° 28.0	329° 28.2	344° 28.4	359° 28.6	14° 28.7	29° 28.9	44° 29.1	59° 29.3	74° 29.4	+0.2
	6° 52.0	6° 53.0	6° 53.9	6° 54.8	6° 55.8	6° 56.7	6° 57.7	6° 58.6	6° 59.5	7° 00.5	7° 01.4	7° 02.3	+0.9
Сб 8	269° 31.7	284° 31.9	299° 32.0	314° 32.2	329° 32.4	344° 32.5	359° 32.7	14° 32.9	29° 33.1	44° 33.2	59° 33.4	74° 33.6	+0.2
	7° 14.5	7° 15.4	7° 16.4	7° 17.3	7° 18.2	7° 19.2	7° 20.1	7° 21.0	7° 22.0	7° 22.9	7° 23.8	7° 24.8	+0.9
Вс 9	269° 35.8	284° 36.0	299° 36.1	314° 36.3	329° 36.5	344° 36.6	359° 36.8	14° 37.0	29° 37.2	44° 37.3	59° 37.5	74° 37.7	+0.2
	7° 36.9	7° 37.8	7° 38.7	7° 39.7	7° 40.6	7° 41.5	7° 42.4	7° 43.4	7° 44.3	7° 45.2	7° 46.1	7° 47.1	+0.9
Пн 10	269° 39.8	284° 40.0	299° 40.2	314° 40.3	329° 40.5	344° 40.7	359° 40.8	14° 41.0	29° 41.2	44° 41.3	59° 41.5	74° 41.7	+0.2
	7° 59.1	8° 00.0	8° 01.0	8° 01.9	8° 02.8	8° 03.7	8° 04.6	8° 05.6	8° 06.5	8° 07.4	8° 08.3	8° 09.3	+0.9
Вт 11	269° 43.8	284° 44.0	299° 44.2	314° 44.3	329° 44.5	344° 44.6	359° 44.8	14° 45.0	29° 45.1	44° 45.3	59° 45.5	74° 45.6	+0.2
	8° 21.2	8° 22.1	8° 23.0	8° 24.0	8° 24.9	8° 25.8	8° 26.7	8° 27.6	8° 28.5	8° 29.5	8° 30.4	8° 31.3	+0.9
Ср 12	269° 47.7	284° 47.9	299° 48.0	314° 48.2	329° 48.4	344° 48.5	359° 48.7	14° 48.8	29° 49.0	44° 49.2	59° 49.3	74° 49.5	+0.2
	8° 43.2	8° 44.1	8° 45.0	8° 45.9	8° 46.8	8° 47.7	8° 48.6	8° 49.6	8° 50.5	8° 51.4	8° 52.3	8° 53.2	+0.9
Чт 13	269° 51.5	284° 51.7	299° 51.8	314° 52.0	329° 52.2	344° 52.3	359° 52.5	14° 52.6	29° 52.8	44° 52.9	59° 53.1	74° 53.3	+0.2
	9° 05.0	9° 05.9	9° 06.8	9° 07.7	9° 08.6	9° 09.5	9° 10.4	9° 11.3	9° 12.2	9° 13.1	9° 14.0	9° 14.9	+0.9
Пт 14	269° 55.3	284° 55.4	299° 55.6	314° 55.7	329° 55.9	344° 56.0	359° 56.2	14° 56.3	29° 56.5	44° 56.6	59° 56.8	74° 56.9	+0.2
	9° 26.7	9° 27.6	9° 28.5	9° 29.4	9° 30.3	9° 31.2	9° 32.1	9° 33.0	9° 33.9	9° 34.7	9° 35.6	9° 36.5	+0.9
Сб 15	269° 58.9	284° 59.1	299° 59.2	314° 59.4	329° 59.5	344° 59.7	359° 59.8	15° 00.0	30° 00.1	45° 00.2	60° 00.4	75° 00.5	+0.1
	9° 48.2	9° 49.1	9° 50.0	9° 50.9	9° 51.7	9° 52.6	9° 53.5	9° 54.4	9° 55.3	9° 56.2	9° 57.1	9° 58.0	+0.9
Вс 16	270° 02.5	285° 02.6	300° 02.7	315° 02.9	330° 03.0	345° 03.2	0° 03.3	15° 03.5	30° 03.6	45° 03.8	60° 03.9	75° 04.1	+0.1
	10° 09.5	10° 10.4	10° 11.3	10° 12.2	10° 13.1	10° 14.0	10° 14.8	10° 15.7	10° 16.6	10° 17.5	10° 18.4	10° 19.3	+0.9
Пн 17	270° 05.9	285° 06.1	300° 06.2	315° 06.3	330° 06.5	345° 06.6	0° 06.8	15° 06.9	30° 07.0	45° 07.2	60° 07.3	75° 07.5	+0.1
	10° 30.7	10° 31.6	10° 32.5	10° 33.4	10° 34.2	10° 35.1	10° 36.0	10° 36.9	10° 37.7	10° 38.6	10° 39.5	10° 40.4	+0.9
Вт 18	270° 09.3	285° 09.4	300° 09.5	315° 09.7	330° 09.8	345° 10.0	0° 10.1	15° 10.2	30° 10.4	45° 10.5	60° 10.6	75° 10.8	+0.1
	10° 51.7	10° 52.6	10° 53.5	10° 54.3	10° 55.2	10° 56.1	10° 57.0	10° 57.8	10° 58.7	10° 59.6	11° 00.4	11° 01.3	+0.9
Ср 19	270° 12.5	285° 12.7	300° 12.8	315° 12.9	330° 13.1	345° 13.2	0° 13.3	15° 13.5	30° 13.6	45° 13.7	60° 13.8	75° 14.0	+0.1
	11° 12.6	11° 13.4	11° 14.3	11° 15.2	11° 16.0	11° 16.9	11° 17.7	11° 18.6	11° 19.5	11° 20.3	11° 21.2	11° 22.0	+0.9
Чт 20	270° 15.7	285° 15.8	300° 15.9	315° 16.1	330° 16.2	345° 16.3	0° 16.4	15° 16.6	30° 16.7	45° 16.8	60° 17.0	75° 17.1	+0.1
	11° 33.2	11° 34.1	11° 34.9	11° 35.8	11° 36.6	11° 37.5	11° 38.3	11° 39.2	11° 40.0	11° 40.9	11° 41.8	11° 42.6	+0.9
Пт 21	270° 18.7	285° 18.8	300° 19.0	315° 19.1	330° 19.2	345° 19.3	0° 19.5	15° 19.6	30° 19.7	45° 19.8	60° 20.0	75° 20.1	+0.1
	11° 53.7	11° 54.5	11° 55.4	11° 56.2	11° 57.1	11° 57.9	11° 58.8	11° 59.6	12° 00.4	12° 01.3	12° 02.1	12° 03.0	+0.8
Сб 22	270° 21.7	285° 21.8	300° 21.9	315° 22.0	330° 22.1	345° 22.3	0° 22.4	15° 22.5	30° 22.6	45° 22.7	60° 22.9	75° 23.0	+0.1
	12° 13.9	12° 14.8	12° 15.6	12° 16.4	12° 17.3	12° 18.1	12° 19.0	12° 19.8	12° 20.6	12° 21.5	12° 22.3	12° 23.1	+0.8
Вс 23	270° 24.5	285° 24.6	300° 24.7	315° 24.8	330° 25.0	345° 25.1	0° 25.2	15° 25.3	30° 25.4	45° 25.5	60° 25.7	75° 25.8	+0.1
	12° 34.0	12° 34.8	12° 35.6	12° 36.5	12° 37.3	12° 38.1	12° 39.0	12° 39.8	12° 40.6	12° 41.5	12° 42.3	12° 43.1	+0.8
Пн 24	270° 27.2	285° 27.3	300° 27.4	315° 27.6	330° 27.7	345° 27.8	0° 27.9	15° 28.0	30° 28.1	45° 28.2	60° 28.3	75° 28.4	+0.1
	12° 53.8	12° 54.7	12° 55.5	12° 56.3	12° 57.1	12° 57.9	12° 58.8	12° 59.6	13° 00.4	13° 01.2	13° 02.0	13° 02.9	+0.8
Вт 25	270° 29.8	285° 29.9	300° 30.0	315° 30.2	330° 30.3	345° 30.4	0° 30.5	15° 30.6	30° 30.7	45° 30.8	60° 30.9	75° 31.0	+0.1
	13° 13.5	13° 14.3	13° 15.1	13° 15.9	13° 16.7	13° 17.5	13° 18.4	13° 19.2	13° 20.0	13° 20.8	13° 21.6	13° 22.4	+0.8
Ср 26	270° 32.3	285° 32.4	300° 32.5	315° 32.6	330° 32.7	345° 32.8	0° 32.9	15° 33.0	30° 33.1	45° 33.2	60° 33.3	75° 33.4	+0.1
	13° 32.9	13° 33.7	13° 34.5	13° 35.3	13° 36.1	13° 36.9	13° 37.7	13° 38.5	13° 39.3	13° 40.1	13° 40.9	13° 41.7	+0.8
Чт 27	270° 34.7	285° 34.8	300° 34.9	315° 35.0	330° 35.1	345° 35.2	0° 35.3	15° 35.4	30° 35.5	45° 35.6	60° 35.7	75° 35.8	+0.1
	13° 52.1	13° 52.9	13° 53.7	13° 54.5	13° 55.3	13° 56.1	13° 56.9	13° 57.6	13° 58.4	13° 59.2	14° 00.0	14° 00.8	+0.8
Пт 28	270° 37.0	285° 37.1	300° 37.1	315° 37.2	330° 37.3	345° 37.4	0° 37.5	15° 37.6	30° 37.7	45° 37.8	60° 37.9	75° 38.0	+0.1
	14° 11.1	14° 11.8	14° 12.6	14° 13.4	14° 14.2	14° 15.0	14° 15.8	14° 16.5	14° 17.3	14° 18.1	14° 18.9	14° 19.7	+0.8
Сб 29	270° 39.1	285° 39.2	300° 39.3	315° 39.3	330° 39.4	345° 39.5	0° 39.6	15° 39.7	30° 39.8	45° 39.9	60° 39.9	75° 40.0	+0.1
	14° 29.8	14° 30.6	14° 31.3	14° 32.1	14° 32.9	14° 33.7	14° 34.4	14° 35.2	14° 36.0	14° 36.7	14° 37.5	14° 38.3	+0.8
Вс 30	270° 41.1	285° 41.2	300° 41.3	315° 41.3	330° 41.4	345° 41.5	0° 41.6	15° 41.7	30° 41.7	45° 41.8	60° 41.9	75° 42.0	+0.1
	14° 48.3	14° 49.0	14° 49.8	14° 50.6	14° 51.3	14° 52.1	14° 52.9	14° 53.6	14° 54.4	14° 55.1	14° 55.9	14° 56.7	+0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2034

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Сб 1	246° 45.5	261° 18.8	275° 52.1	290° 25.5	304° 58.9	319° 32.3	334° 05.7	348° 39.2	3° 12.6	17° 46.1	32° 19.6	+33.4	14.9
	3° 30.9	3° 21.5	3° 12.1	3° 02.8	2° 53.4	2° 44.0	2° 34.6	2° 25.2	2° 15.8	2° 06.3	1° 56.9	-9.4	54.8
Вс 2	250° 44.2	265° 17.9	279° 51.7	294° 25.4	308° 59.2	323° 33.0	338° 06.8	352° 40.6	7° 14.4	21° 48.2	36° 22.0	+33.8	14.8
	-0° 24.6	-0° 34.0	-0° 43.4	-0° 52.8	-1° 02.2	-1° 11.6	-1° 21.0	-1° 30.3	-1° 39.7	-1° 49.0	-1° 58.4	-9.4	54.4
○ Пн 3	254° 49.6	269° 23.5	283° 57.3	298° 31.2	313° 05.0	327° 38.8	342° 12.7	356° 46.5	11° 20.3	25° 54.1	40° 27.9	+33.8	14.8
	-4° 16.7	-4° 25.8	-4° 34.8	-4° 43.9	-4° 52.9	-5° 01.9	-5° 10.8	-5° 19.8	-5° 28.7	-5° 37.6	-5° 46.4	-9.0	54.2
Вт 4	258° 54.0	273° 27.7	288° 01.3	302° 34.9	317° 08.5	331° 42.1	346° 15.7	0° 49.3	15° 22.8	29° 56.4	44° 29.9	+33.6	14.7
	-7° 55.9	-8° 04.3	-8° 12.6	-8° 21.0	-8° 29.2	-8° 37.4	-8° 45.6	-8° 53.8	-9° 01.9	-9° 10.0	-9° 18.0	-8.2	54.0
Ср 5	262° 50.5	277° 23.7	291° 56.9	306° 30.1	321° 03.2	335° 36.3	350° 09.4	4° 42.5	19° 15.6	33° 48.6	48° 21.6	+33.1	14.7
	-11° 13.4	-11° 20.8	-11° 28.0	-11° 35.3	-11° 42.4	-11° 49.6	-11° 56.7	-12° 03.7	-12° 10.7	-12° 17.6	-12° 24.4	-7.1	53.9
Чт 6	266° 33.8	281° 06.4	295° 39.0	310° 11.5	324° 44.0	339° 16.5	353° 49.0	8° 21.4	22° 53.8	37° 26.2	51° 58.6	+32.5	14.7
	-14° 00.8	-14° 06.8	-14° 12.7	-14° 18.5	-14° 24.3	-14° 30.0	-14° 35.6	-14° 41.2	-14° 46.8	-14° 52.2	-14° 57.6	-5.7	54.0
Пт 7	270° 00.5	284° 32.4	299° 04.2	313° 36.1	328° 07.9	342° 39.6	357° 11.4	11° 43.1	26° 14.8	40° 46.5	55° 18.1	+31.8	14.8
	-16° 10.4	-16° 14.7	-16° 18.9	-16° 23.1	-16° 27.2	-16° 31.2	-16° 35.1	-16° 39.0	-16° 42.7	-16° 46.5	-16° 50.1	-4.0	54.2
Сб 8	273° 09.2	287° 40.3	302° 11.5	316° 42.6	331° 13.7	345° 44.8	0° 15.8	14° 46.8	29° 17.8	43° 48.8	58° 19.7	+31.1	14.9
	-17° 35.3	-17° 37.7	-17° 40.0	-17° 42.2	-17° 44.4	-17° 46.4	-17° 48.4	-17° 50.3	-17° 52.1	-17° 53.8	-17° 55.5	-2.0	54.5
Вс 9	276° 00.7	290° 31.2	305° 01.7	319° 32.2	334° 02.6	348° 33.1	3° 03.5	17° 33.9	32° 04.2	46° 34.6	61° 04.9	+30.4	15.0
	-18° 09.9	-18° 10.2	-18° 10.3	-18° 10.4	-18° 10.4	-18° 10.4	-18° 10.2	-18° 09.9	-18° 09.6	-18° 09.1	-18° 08.6	+0.1	54.9
Пн 10	290° 31.2	305° 01.7	319° 32.2	334° 02.6	348° 33.1	3° 03.5	17° 33.9	32° 04.2	46° 34.6	61° 04.9	75° 35.2	+30.4	15.0
	-18° 10.2	-18° 10.3	-18° 10.4	-18° 10.4	-18° 10.4	-18° 10.2	-18° 09.9	-18° 09.6	-18° 09.1	-18° 08.6	-18° 08.0	+0.2	55.0
◑ Вт 11	293° 07.2	307° 37.2	322° 07.2	336° 37.1	351° 07.0	5° 37.0	20° 06.8	34° 36.7	49° 06.6	63° 36.4	78° 06.2	+29.9	15.2
	-17° 47.9	-17° 45.9	-17° 43.7	-17° 41.5	-17° 39.1	-17° 36.7	-17° 34.2	-17° 31.6	-17° 28.9	-17° 26.1	-17° 23.2	+2.5	55.6
Ср 12	295° 31.6	310° 01.1	324° 30.7	339° 00.2	353° 29.8	7° 59.3	22° 28.8	36° 58.3	51° 27.7	65° 57.2	80° 26.6	+29.5	15.4
	-16° 28.9	-16° 24.6	-16° 20.1	-16° 15.6	-16° 11.0	-16° 06.3	-16° 01.5	-15° 56.6	-15° 51.6	-15° 46.5	-15° 41.4	+4.8	56.4
Чт 13	297° 46.6	312° 15.9	326° 45.1	341° 14.3	355° 43.5	10° 12.7	24° 41.8	39° 11.0	53° 40.1	68° 09.2	82° 38.3	+29.2	15.6
	-14° 13.5	-14° 06.9	-14° 00.3	-13° 53.5	-13° 46.7	-13° 39.8	-13° 32.9	-13° 25.8	-13° 18.7	-13° 11.4	-13° 04.1	+6.9	57.3
Пт 14	299° 53.2	314° 22.1	328° 51.0	343° 19.8	357° 48.6	12° 17.4	26° 46.2	41° 15.0	55° 43.8	70° 12.5	84° 41.2	+28.8	15.9
	-11° 04.9	-10° 56.4	-10° 47.8	-10° 39.0	-10° 30.3	-10° 21.4	-10° 12.5	-10° 03.5	-9° 54.4	-9° 45.3	-9° 36.1	+8.9	58.3
Сб 15	301° 49.8	316° 18.2	330° 46.6	345° 14.9	359° 43.3	14° 11.6	28° 39.9	43° 08.1	57° 36.4	72° 04.6	86° 32.8	+28.3	16.2
	-7° 10.4	-7° 00.2	-6° 50.0	-6° 39.6	-6° 29.3	-6° 18.9	-6° 08.4	-5° 57.9	-5° 47.3	-5° 36.7	-5° 26.1	+10.4	59.3
Вс 16	303° 32.4	318° 00.2	332° 27.9	346° 55.5	1° 23.2	15° 50.8	30° 18.4	44° 45.9	59° 13.5	73° 40.9	88° 08.4	+27.6	16.4
	-2° 41.2	-2° 29.9	-2° 18.6	-2° 07.3	-1° 56.0	-1° 44.6	-1° 33.2	-1° 21.7	-1° 10.3	-0° 58.8	-0° 47.3	+11.4	60.2
Пн 17	304° 55.8	319° 22.6	333° 49.5	348° 16.2	2° 43.0	17° 09.7	31° 36.3	46° 03.0	60° 29.5	74° 56.1	89° 22.6	+26.7	16.6
	2° 06.3	2° 17.9	2° 29.5	2° 41.1	2° 52.7	3° 04.3	3° 15.8	3° 27.4	3° 38.9	3° 50.5	4° 02.0	+11.6	60.8
● Вт 18	305° 55.0	320° 20.8	334° 46.5	349° 12.3	3° 38.0	18° 03.6	32° 29.2	46° 54.8	61° 20.3	75° 45.8	90° 11.2	+25.6	16.7
	6° 51.5	7° 02.5	7° 13.5	7° 24.4	7° 35.3	7° 46.2	7° 56.9	8° 07.7	8° 18.4	8° 29.0	8° 39.6	+10.8	61.2
Ср 19	306° 27.9	320° 52.7	335° 17.5	349° 42.2	4° 06.9	18° 31.6	32° 56.2	47° 20.8	61° 45.3	76° 09.9	90° 34.3	+24.6	16.7
	11° 10.6	11° 20.1	11° 29.5	11° 38.8	11° 48.0	11° 57.2	12° 06.3	12° 15.2	12° 24.1	12° 32.9	12° 41.7	+9.1	61.3
Чт 20	306° 38.4	321° 02.5	335° 26.6	349° 50.7	4° 14.7	18° 38.7	33° 02.7	47° 26.7	61° 50.7	76° 14.7	90° 38.6	+24.0	16.6
	14° 40.6	14° 47.7	14° 54.7	15° 01.5	15° 08.3	15° 14.9	15° 21.5	15° 27.9	15° 34.2	15° 40.4	15° 46.5	+6.6	60.9
Пт 21	306° 37.7	321° 01.7	335° 25.7	349° 49.7	4° 13.7	18° 37.7	33° 01.7	47° 25.7	61° 49.8	76° 13.9	90° 38.0	+24.0	16.5
	17° 03.2	17° 07.3	17° 11.3	17° 15.2	17° 18.9	17° 22.6	17° 26.1	17° 29.4	17° 32.7	17° 35.8	17° 38.8	+3.6	60.3
Сб 22	306° 42.8	321° 07.4	335° 32.1	349° 56.7	4° 21.5	18° 46.2	33° 11.0	47° 35.9	62° 00.8	76° 25.7	90° 50.7	+24.8	16.2
	18° 08.6	18° 09.6	18° 10.4	18° 11.1	18° 11.7	18° 12.2	18° 12.6	18° 12.8	18° 12.9	18° 12.9	18° 12.8	+0.4	59.5
Вс 23	307° 12.2	321° 38.1	336° 04.0	350° 30.1	4° 56.2	19° 22.3	33° 48.5	48° 14.8	62° 41.2	77° 07.6	91° 34.1	+26.2	16.0
	17° 56.7	17° 54.7	17° 52.6	17° 50.4	17° 48.1	17° 45.7	17° 43.1	17° 40.5	17° 37.8	17° 34.9	17° 31.9	-2.5	58.6
Пн 24	308° 19.9	322° 47.5	337° 15.3	351° 43.0	6° 10.9	20° 38.8	35° 06.8	49° 34.9	64° 03.0	78° 31.2	92° 59.5	+28.0	15.7
	16° 35.6	16° 31.1	16° 26.5	16° 21.8	16° 17.0	16° 12.1	16° 07.2	16° 02.1	15° 57.0	15° 51.8	15° 46.5	-4.9	57.6
◐ Вт 25	310° 12.7	324° 42.2	339° 11.7	353° 41.3	8° 11.0	22° 40.7	37° 10.5	51° 40.4	66° 10.3	80° 40.4	95° 10.4	+29.8	15.5
	14° 17.8	14° 11.3	14° 04.7	13° 58.1	13° 51.4	13° 44.6	13° 37.8	13° 30.9	13° 24.0	13° 17.0	13° 09.9	-6.8	56.7
Ср 26	312° 49.7	327° 20.8	341° 52.0	356° 23.2	10° 54.5	25° 25.9	39° 57.3	54° 28.8	69° 00.3	83° 31.9	98° 03.5	+31.4	15.3
	11° 17.2	11° 09.3	11° 01.3	10° 53.3	10° 45.3	10° 37.2	10° 29.0	10° 20.9	10° 12.6	10° 04.4	9° 56.1	-8.1	56.0
Чт 27	316° 04.5	330° 36.9	345° 09.4	359° 42.0	14° 14.6	28° 47.2	43° 19.9	57° 52.6	72° 25.4	86° 58.2	101° 31.0	+32.7	15.1
	7° 47.2	7° 38.4	7° 29.5	7° 20.6	7° 11.7	7° 02.8	6° 53.8	6° 44.8	6° 35.8	6° 26.7	6° 17.7	-9.0	55.3
Пт 28	319° 47.9	334° 21.3	348° 54.7	3° 28.1	18° 01.6	32° 35.1	47° 08.6	61° 42.2	76° 15.7	90° 49.3	105° 22.9	+33.5	14.9
	3° 59.6	3° 50.2	3° 40.9	3° 31.6	3° 22.2	3° 12.9	3° 03.5	2° 54.1	2° 44.7	2° 35.3	2° 25.9	-9.4	54.8
Сб 29	323° 49.5	338° 23.4	352° 57.3	7° 31.2	22° 05.2	36° 39.1	51° 13.1	65° 47.0	80° 21.0	94° 55.0	109° 29.0	+33.9	14.8
	0° 04.7	-0° 04.7	-0° 14.2	-0° 23.6	-0° 33.0	-0° 42.3	-0° 51.7	-1° 01.1	-1° 10.5	-1° 19.8	-1° 29.2	-9.4	54.4
Вс 30	327° 59.2	342° 33.2	357° 07.2	11° 41.2	26° 15.2	40° 49.3	55° 23.3	69° 57.3	84° 31.2	99° 05.2	113° 39.2	+34.0	14.8
	-3° 48.0	-3° 57.2	-4° 06.3	-4° 15.4	-4° 24.5	-4° 33.5	-4° 42.6	-4° 51.6	-5° 00.6	-5° 09.6	-5° 18.5	-9.0	54.1

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 3 19h18 — Последняя четв.: 11 22h45 — Новолуние: 18 19h25 — Первая четв.: 25 11h34

СОЛНЦЕ

Май 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	270° 43.0 15° 06.5	285° 43.0 15° 07.3	300° 43.1 15° 08.0	315° 43.2 15° 08.8	330° 43.3 15° 09.5	345° 43.3 15° 10.3	0° 43.4 15° 11.0	15° 43.5 15° 11.8	30° 43.6 15° 12.5	45° 43.6 15° 13.3	60° 43.7 15° 14.0	75° 43.8 15° 14.8	+0.1 +0.8
Вт 2	270° 44.7 15° 24.5	285° 44.8 15° 25.3	300° 44.8 15° 26.0	315° 44.9 15° 26.7	330° 45.0 15° 27.5	345° 45.0 15° 28.2	0° 45.1 15° 29.0	15° 45.2 15° 29.7	30° 45.3 15° 30.5	45° 45.3 15° 31.2	60° 45.4 15° 31.9	75° 45.5 15° 32.7	+0.1 +0.7
Ср 3	270° 46.3 15° 42.2	285° 46.4 15° 43.0	300° 46.4 15° 43.7	315° 46.5 15° 44.4	330° 46.6 15° 45.2	345° 46.6 15° 45.9	0° 46.7 15° 46.6	15° 46.8 15° 47.4	30° 46.8 15° 48.1	45° 46.9 15° 48.8	60° 46.9 15° 49.6	75° 47.0 15° 50.3	+0.1 +0.7
Чт 4	270° 47.8 15° 59.7	285° 47.8 16° 00.4	300° 47.9 16° 01.2	315° 47.9 16° 01.9	330° 48.0 16° 02.6	345° 48.1 16° 03.3	0° 48.1 16° 04.1	15° 48.2 16° 04.8	30° 48.2 16° 05.5	45° 48.3 16° 06.2	60° 48.3 16° 06.9	75° 48.4 16° 07.6	+0.1 +0.7
Пт 5	270° 49.1 16° 16.9	285° 49.2 16° 17.6	300° 49.2 16° 18.4	315° 49.3 16° 19.1	330° 49.3 16° 19.8	345° 49.4 16° 20.5	0° 49.4 16° 21.2	15° 49.5 16° 21.9	30° 49.5 16° 22.6	45° 49.6 16° 23.3	60° 49.6 16° 24.0	75° 49.7 16° 24.7	+0.1 +0.7
Сб 6	270° 50.3 16° 33.9	285° 50.3 16° 34.6	300° 50.4 16° 35.3	315° 50.4 16° 36.0	330° 50.5 16° 36.7	345° 50.5 16° 37.4	0° 50.6 16° 38.1	15° 50.6 16° 38.8	30° 50.7 16° 39.5	45° 50.7 16° 40.2	60° 50.7 16° 40.9	75° 50.8 16° 41.5	+0.0 +0.7
Вс 7	270° 51.3 16° 50.5	285° 51.4 16° 51.2	300° 51.4 16° 51.9	315° 51.5 16° 52.6	330° 51.5 16° 53.3	345° 51.5 16° 54.0	0° 51.6 16° 54.7	15° 51.6 16° 55.4	30° 51.7 16° 56.0	45° 51.7 16° 56.7	60° 51.7 16° 57.4	75° 51.8 16° 58.1	+0.0 +0.7
Пн 8	270° 52.2 17° 06.9	285° 52.3 17° 07.6	300° 52.3 17° 08.3	315° 52.3 17° 09.0	330° 52.4 17° 09.6	345° 52.4 17° 10.3	0° 52.4 17° 11.0	15° 52.5 17° 11.7	30° 52.5 17° 12.3	45° 52.5 17° 13.0	60° 52.6 17° 13.7	75° 52.6 17° 14.3	+0.0 +0.7
Вт 9	270° 53.0 17° 23.0	285° 53.0 17° 23.7	300° 53.0 17° 24.4	315° 53.1 17° 25.0	330° 53.1 17° 25.7	345° 53.1 17° 26.3	0° 53.2 17° 27.0	15° 53.2 17° 27.7	30° 53.2 17° 28.3	45° 53.2 17° 29.0	60° 53.3 17° 29.7	75° 53.3 17° 30.3	+0.0 +0.7
Ср 10	270° 53.6 17° 38.8	285° 53.6 17° 39.5	300° 53.6 17° 40.1	315° 53.7 17° 40.8	330° 53.7 17° 41.4	345° 53.7 17° 42.1	0° 53.7 17° 42.7	15° 53.7 17° 43.4	30° 53.8 17° 44.0	45° 53.8 17° 44.7	60° 53.8 17° 45.3	75° 53.8 17° 46.0	+0.0 +0.6
Чт 11	270° 54.1 17° 54.4	285° 54.1 17° 55.0	300° 54.1 17° 55.6	315° 54.1 17° 56.3	330° 54.1 17° 56.9	345° 54.1 17° 57.5	0° 54.1 17° 58.2	15° 54.2 17° 58.8	30° 54.2 17° 59.5	45° 54.2 18° 00.1	60° 54.2 18° 00.7	75° 54.2 18° 01.4	+0.0 +0.6
Пт 12	270° 54.4 18° 09.6	285° 54.4 18° 10.2	300° 54.4 18° 10.8	315° 54.4 18° 11.4	330° 54.4 18° 12.1	345° 54.4 18° 12.7	0° 54.4 18° 13.3	15° 54.4 18° 13.9	30° 54.4 18° 14.6	45° 54.4 18° 15.2	60° 54.5 18° 15.8	75° 54.5 18° 16.4	+0.0 +0.6
Сб 13	270° 54.5 18° 24.5	285° 54.5 18° 25.1	300° 54.5 18° 25.7	315° 54.5 18° 26.3	330° 54.5 18° 26.9	345° 54.5 18° 27.5	0° 54.5 18° 28.2	15° 54.6 18° 28.8	30° 54.6 18° 29.4	45° 54.6 18° 30.0	60° 54.6 18° 30.6	75° 54.6 18° 31.2	+0.0 +0.6
Вс 14	270° 54.5 18° 39.1	285° 54.5 18° 39.7	300° 54.5 18° 40.3	315° 54.5 18° 40.9	330° 54.5 18° 41.5	345° 54.5 18° 42.1	0° 54.5 18° 42.7	15° 54.5 18° 43.3	30° 54.5 18° 43.9	45° 54.5 18° 44.5	60° 54.5 18° 45.1	75° 54.5 18° 45.7	-0.0 +0.6
Пн 15	270° 54.4 18° 53.4	285° 54.4 18° 54.0	300° 54.4 18° 54.5	315° 54.4 18° 55.1	330° 54.4 18° 55.7	345° 54.4 18° 56.3	0° 54.4 18° 56.9	15° 54.3 18° 57.5	30° 54.3 18° 58.1	45° 54.3 18° 58.6	60° 54.3 18° 59.2	75° 54.3 18° 59.8	-0.0 +0.6
Вт 16	270° 54.1 19° 07.3	285° 54.1 19° 07.9	300° 54.1 19° 08.5	315° 54.1 19° 09.1	330° 54.1 19° 09.6	345° 54.1 19° 10.2	0° 54.0 19° 10.8	15° 54.0 19° 11.3	30° 54.0 19° 11.9	45° 54.0 19° 12.5	60° 54.0 19° 13.1	75° 54.0 19° 13.6	-0.0 +0.6
Ср 17	270° 53.7 19° 21.0	285° 53.7 19° 21.5	300° 53.7 19° 22.1	315° 53.7 19° 22.7	330° 53.6 19° 23.2	345° 53.6 19° 23.8	0° 53.6 19° 24.3	15° 53.6 19° 24.9	30° 53.5 19° 25.5	45° 53.5 19° 26.0	60° 53.5 19° 26.6	75° 53.5 19° 27.1	-0.0 +0.6
Чт 18	270° 53.2 19° 34.3	285° 53.1 19° 34.8	300° 53.1 19° 35.4	315° 53.1 19° 35.9	330° 53.1 19° 36.5	345° 53.0 19° 37.0	0° 53.0 19° 37.6	15° 53.0 19° 38.1	30° 52.9 19° 38.7	45° 52.9 19° 39.2	60° 52.9 19° 39.7	75° 52.9 19° 40.3	-0.0 +0.5
Пт 19	270° 52.5 19° 47.3	285° 52.4 19° 47.8	300° 52.4 19° 48.3	315° 52.4 19° 48.9	330° 52.3 19° 49.4	345° 52.3 19° 49.9	0° 52.3 19° 50.5	15° 52.2 19° 51.0	30° 52.2 19° 51.5	45° 52.2 19° 52.1	60° 52.1 19° 52.6	75° 52.1 19° 53.1	-0.0 +0.5
Сб 20	270° 51.6 19° 59.9	285° 51.6 20° 00.4	300° 51.6 20° 01.0	315° 51.5 20° 01.5	330° 51.5 20° 02.0	345° 51.4 20° 02.5	0° 51.4 20° 03.0	15° 51.4 20° 03.5	30° 51.3 20° 04.1	45° 51.3 20° 04.6	60° 51.2 20° 05.1	75° 51.2 20° 05.6	-0.0 +0.5
Вс 21	270° 50.7 20° 12.2	285° 50.6 20° 12.7	300° 50.6 20° 13.2	315° 50.5 20° 13.7	330° 50.5 20° 14.2	345° 50.5 20° 14.7	0° 50.4 20° 15.3	15° 50.4 20° 15.8	30° 50.3 20° 16.3	45° 50.3 20° 16.8	60° 50.2 20° 17.3	75° 50.2 20° 17.8	-0.0 +0.5
Пн 22	270° 49.6 20° 24.2	285° 49.5 20° 24.7	300° 49.5 20° 25.2	315° 49.4 20° 25.7	330° 49.4 20° 26.1	345° 49.3 20° 26.6	0° 49.3 20° 27.1	15° 49.2 20° 27.6	30° 49.2 20° 28.1	45° 49.1 20° 28.6	60° 49.1 20° 29.1	75° 49.0 20° 29.6	-0.0 +0.5
Вт 23	270° 48.4 20° 35.8	285° 48.3 20° 36.3	300° 48.2 20° 36.7	315° 48.2 20° 37.2	330° 48.1 20° 37.7	345° 48.1 20° 38.2	0° 48.0 20° 38.6	15° 48.0 20° 39.1	30° 47.9 20° 39.6	45° 47.9 20° 40.1	60° 47.8 20° 40.5	75° 47.8 20° 41.0	-0.1 +0.5
Ср 24	270° 47.0 20° 47.0	285° 47.0 20° 47.5	300° 46.9 20° 48.0	315° 46.8 20° 48.4	330° 46.8 20° 48.9	345° 46.7 20° 49.3	0° 46.7 20° 49.8	15° 46.6 20° 50.3	30° 46.5 20° 50.7	45° 46.5 20° 51.2	60° 46.4 20° 51.6	75° 46.4 20° 52.1	-0.1 +0.5
Чт 25	270° 45.6 20° 57.9	285° 45.5 20° 58.4	300° 45.4 20° 58.8	315° 45.4 20° 59.3	330° 45.3 20° 59.7	345° 45.2 21° 00.2	0° 45.2 21° 00.6	15° 45.1 21° 01.1	30° 45.0 21° 01.5	45° 45.0 21° 01.9	60° 44.9 21° 02.4	75° 44.8 21° 02.8	-0.1 +0.4
Пт 26	270° 44.0 21° 08.5	285° 43.9 21° 08.9	300° 43.8 21° 09.3	315° 43.8 21° 09.8	330° 43.7 21° 10.2	345° 43.6 21° 10.6	0° 43.6 21° 11.1	15° 43.5 21° 11.5	30° 43.4 21° 11.9	45° 43.3 21° 12.3	60° 43.3 21° 12.8	75° 43.2 21° 13.2	-0.1 +0.4
Сб 27	270° 42.3 21° 18.6	285° 42.2 21° 19.1	300° 42.1 21° 19.5	315° 42.1 21° 19.9	330° 42.0 21° 20.3	345° 41.9 21° 20.7	0° 41.8 21° 21.1	15° 41.8 21° 21.5	30° 41.7 21° 21.9	45° 41.6 21° 22.4	60° 41.5 21° 22.8	75° 41.5 21° 23.2	-0.1 +0.4
Вс 28	270° 40.5 21° 28.4	285° 40.4 21° 28.8	300° 40.3 21° 29.2	315° 40.2 21° 29.6	330° 40.2 21° 30.0	345° 40.1 21° 30.4	0° 40.0 21° 30.8	15° 39.9 21° 31.2	30° 39.8 21° 31.6	45° 39.8 21° 32.0	60° 39.7 21° 32.4	75° 39.6 21° 32.8	-0.1 +0.4
Пн 29	270° 38.5 21° 37.9	285° 38.5 21° 38.2	300° 38.4 21° 38.6	315° 38.3 21° 39.0	330° 38.2 21° 39.4	345° 38.1 21° 39.8	0° 38.1 21° 40.2	15° 38.0 21° 40.5	30° 37.9 21° 40.9	45° 37.8 21° 41.3	60° 37.7 21° 41.7	75° 37.6 21° 42.1	-0.1 +0.4
Вт 30	270° 36.5 21° 46.9	285° 36.4 21° 47.3	300° 36.3 21° 47.6	315° 36.3 21° 48.0	330° 36.2 21° 48.4	345° 36.1 21° 48.7	0° 36.0 21° 49.1	15° 35.9 21° 49.5	30° 35.8 21° 49.8	45° 35.7 21° 50.2	60° 35.6 21° 50.6	75° 35.6 21° 50.9	-0.1 +0.4
Ср 31	270° 34.4 21° 55.6	285° 34.3 21° 55.9	300° 34.2 21° 56.3	315° 34.1 21° 56.6	330° 34.0 21° 57.0	345° 33.9 21° 57.3	0° 33.8 21° 57.7	15° 33.8 21° 58.0	30° 33.7 21° 58.4	45° 33.6 21° 58.7	60° 33.5 21° 59.1	75° 33.4 21° 59.4	-0.1 +0.3

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2034

Д	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	R/p
Пн 1	244° 44.6 -6° 37.9	259° 18.5 -6° 46.6	273° 52.4 -6° 55.3	288° 26.2 -7° 03.9	303° 00.1 -7° 12.5	317° 33.9 -7° 21.1	332° 07.7 -7° 29.6	346° 41.5 -7° 38.1	1° 15.3 -7° 46.6	15° 49.1 -7° 55.0	30° 22.8 -8° 03.4	+33.8 -8.6	14.7 54.0
Вт 2	248° 47.0 -10° 05.1	263° 20.4 -10° 12.9	277° 53.8 -10° 20.7	292° 27.2 -10° 28.4	307° 00.6 -10° 36.1	321° 34.0 -10° 43.7	336° 07.3 -10° 51.3	350° 40.6 -10° 58.8	5° 13.9 -11° 06.3	19° 47.2 -11° 13.7	34° 20.4 -11° 21.1	+33.3 -7.6	14.7 53.9
○ Ср 3	252° 35.9 -13° 05.9	267° 08.7 -13° 12.5	281° 41.5 -13° 19.0	296° 14.3 -13° 25.4	310° 47.0 -13° 31.8	325° 19.7 -13° 38.2	339° 52.4 -13° 44.4	354° 25.0 -13° 50.7	8° 57.7 -13° 56.8	23° 30.2 -14° 02.9	38° 02.8 -14° 09.0	+32.7 -6.3	14.7 53.9
Чт 4	256° 07.7 -15° 31.9	270° 39.7 -15° 36.9	285° 11.8 -15° 41.9	299° 43.8 -15° 46.7	314° 15.8 -15° 51.5	328° 47.8 -15° 56.3	343° 19.7 -16° 00.9	357° 51.6 -16° 05.5	12° 23.5 -16° 10.0	26° 55.4 -16° 14.5	41° 27.2 -16° 18.8	+32.0 -4.7	14.7 54.0
Пт 5	259° 21.1 -17° 15.5	273° 52.5 -17° 18.7	288° 23.8 -17° 21.7	302° 55.2 -17° 24.7	317° 26.4 -17° 27.7	331° 57.7 -17° 30.5	346° 29.0 -17° 33.3	1° 00.2 -17° 36.0	15° 31.4 -17° 38.6	30° 02.5 -17° 41.1	44° 33.7 -17° 43.5	+31.3 -2.8	14.8 54.2
Сб 6	262° 18.0 -18° 10.2	276° 48.8 -18° 11.3	291° 19.5 -18° 12.3	305° 50.3 -18° 13.2	320° 21.0 -18° 14.1	334° 51.7 -18° 14.8	349° 22.4 -18° 15.5	3° 53.0 -18° 16.1	18° 23.7 -18° 16.6	32° 54.3 -18° 17.0	47° 24.9 -18° 17.3	+30.7 -0.7	14.9 54.6
Вс 7	265° 02.1 -18° 11.5	279° 32.4 -18° 10.4	294° 02.8 -18° 09.3	308° 33.1 -18° 08.0	323° 03.5 -18° 06.6	337° 33.8 -18° 05.2	352° 04.1 -18° 03.6	6° 34.4 -18° 02.0	21° 04.7 -18° 00.3	35° 35.0 -17° 58.5	50° 05.2 -17° 56.6	+30.3 +1.5	15.0 55.0
Пн 8	267° 38.1 -17° 17.3	282° 08.3 -17° 14.0	296° 38.4 -17° 10.6	311° 08.5 -17° 07.1	325° 38.7 -17° 03.5	340° 08.8 -16° 59.8	354° 38.9 -16° 56.0	9° 09.0 -16° 52.1	23° 39.1 -16° 48.2	38° 09.2 -16° 44.2	52° 39.3 -16° 40.0	+30.1 +3.7	15.1 55.5
Вт 9	270° 10.1 -15° 27.9	284° 40.2 -15° 22.4	299° 10.2 -15° 16.8	313° 40.2 -15° 11.1	328° 10.2 -15° 05.4	342° 40.2 -14° 59.6	357° 10.2 -14° 53.7	11° 40.3 -14° 47.7	26° 10.3 -14° 41.6	40° 40.3 -14° 35.5	55° 10.3 -14° 29.2	+30.0 +5.9	15.3 56.2
Ср 10	284° 40.2 -15° 22.4	299° 10.2 -15° 16.8	313° 40.2 -15° 11.1	328° 10.2 -15° 05.4	342° 40.2 -14° 59.6	357° 10.2 -14° 53.7	11° 40.3 -14° 47.7	26° 10.3 -14° 41.6	40° 40.3 -14° 35.5	55° 10.3 -14° 29.2	69° 40.3 -14° 22.9	+30.0 +5.9	15.3 56.3
◑ Чт 11	287° 09.7 -12° 38.8	301° 39.6 -12° 31.2	316° 09.5 -12° 23.6	330° 39.4 -12° 15.9	345° 09.3 -12° 08.1	359° 39.2 -12° 00.2	14° 09.1 -11° 52.3	28° 39.0 -11° 44.3	43° 08.9 -11° 36.3	57° 38.8 -11° 28.1	72° 08.6 -11° 19.9	+29.9 +7.9	15.6 57.1
Пт 12	289° 35.3 -9° 08.8	304° 05.0 -8° 59.6	318° 34.7 -8° 50.3	333° 04.4 -8° 40.9	347° 34.0 -8° 31.5	2° 03.6 -8° 22.0	16° 33.2 -8° 12.4	31° 02.8 -8° 02.8	45° 32.4 -7° 53.2	60° 02.0 -7° 43.5	74° 31.5 -7° 33.7	+29.6 +9.5	15.8 57.9
Сб 13	291° 52.3 -5° 01.1	306° 21.5 -4° 50.6	320° 50.6 -4° 40.0	335° 19.8 -4° 29.4	349° 48.9 -4° 18.7	4° 18.0 -4° 08.0	18° 47.0 -3° 57.3	33° 16.1 -3° 46.5	47° 45.1 -3° 35.7	62° 14.1 -3° 24.9	76° 43.0 -3° 14.0	+29.1 +10.7	16.1 58.9
Вс 14	293° 53.0 -0° 27.5	308° 21.4 -0° 16.3	322° 49.7 -0° 05.0	337° 18.0 0° 06.3	351° 46.3 0° 17.6	6° 14.5 0° 29.0	20° 42.6 0° 40.3	35° 10.8 0° 51.6	49° 38.8 1° 03.0	64° 06.9 1° 14.4	78° 34.9 1° 25.7	+28.2 +11.3	16.3 59.8
Пн 15	295° 29.0 4° 16.1	309° 56.2 4° 27.4	324° 23.3 4° 38.7	338° 50.4 4° 49.9	353° 17.5 5° 01.2	7° 44.5 5° 12.4	22° 11.4 5° 23.6	36° 38.3 5° 34.7	51° 05.1 5° 45.9	65° 31.9 5° 57.0	79° 58.6 6° 08.1	+27.0 +11.2	16.5 60.5
Вт 16	296° 32.6 8° 49.9	310° 58.4 9° 00.4	325° 24.2 9° 10.7	339° 49.9 9° 21.1	354° 15.5 9° 31.3	8° 41.1 9° 41.5	23° 06.6 9° 51.7	37° 32.1 10° 01.8	51° 57.5 10° 11.8	66° 22.8 10° 21.7	80° 48.1 10° 31.6	+25.5 +10.2	16.6 61.0
Ср 17	297° 00.9 12° 51.1	311° 25.3 12° 59.7	325° 49.7 13° 08.2	340° 14.1 13° 16.7	354° 38.4 13° 25.0	9° 02.6 13° 33.3	23° 26.8 13° 41.5	37° 50.9 13° 49.5	52° 15.0 13° 57.5	66° 39.1 14° 05.4	81° 03.1 14° 13.2	+24.2 +8.2	16.7 61.2
● Чт 18	296° 58.8 15° 56.8	311° 22.3 16° 02.8	325° 45.7 16° 08.7	340° 09.1 16° 14.4	354° 32.5 16° 20.0	8° 55.9 16° 25.6	23° 19.2 16° 31.0	37° 42.6 16° 36.2	52° 05.9 16° 41.4	66° 29.2 16° 46.4	80° 52.5 16° 51.3	+23.4 +5.5	16.7 61.1
Пт 19	296° 41.0 17° 49.3	311° 04.3 17° 52.1	325° 27.5 17° 54.8	339° 50.8 17° 57.3	354° 14.1 17° 59.7	8° 37.4 18° 02.0	23° 00.8 18° 04.2	37° 24.1 18° 06.2	51° 47.5 18° 08.1	66° 10.9 18° 09.9	80° 34.3 18° 11.5	+23.3 +2.2	16.5 60.6
Сб 20	296° 29.5 18° 20.1	310° 53.6 18° 19.6	325° 17.6 18° 19.0	339° 41.7 18° 18.3	354° 05.9 18° 17.5	8° 30.1 18° 16.5	22° 54.4 18° 15.4	37° 18.7 18° 14.2	51° 43.0 18° 12.8	66° 07.5 18° 11.4	80° 32.0 18° 09.8	+24.2 -1.0	16.3 59.9
Вс 21	296° 47.1 17° 31.8	311° 12.6 17° 28.3	325° 38.3 17° 24.8	340° 04.0 17° 21.1	354° 29.8 17° 17.4	8° 55.7 17° 13.5	23° 21.6 17° 09.5	37° 47.6 17° 05.4	52° 13.7 17° 01.3	66° 39.9 16° 57.0	81° 06.1 16° 52.6	+25.9 -3.9	16.1 58.9
Пн 22	297° 49.7 15° 35.6	312° 17.3 15° 29.8	326° 44.9 15° 23.9	341° 12.6 15° 17.9	355° 40.4 15° 11.8	10° 08.3 15° 05.6	24° 36.3 14° 59.4	39° 04.4 14° 53.1	53° 32.5 14° 46.7	68° 00.7 14° 40.2	82° 29.1 14° 33.6	+27.9 -6.2	15.8 57.9
Вт 23	299° 43.5 12° 47.4	314° 13.1 12° 39.8	328° 42.8 12° 32.1	343° 12.5 12° 24.4	357° 42.3 12° 16.7	12° 12.2 12° 08.9	26° 42.2 12° 01.0	41° 12.3 11° 53.1	55° 42.4 11° 45.2	70° 12.6 11° 37.1	84° 42.9 11° 29.1	+29.9 -7.8	15.5 57.0
◐ Ср 24	302° 25.6 9° 23.0	316° 56.9 9° 14.3	331° 28.4 9° 05.5	345° 59.9 8° 56.7	0° 31.4 8° 47.9	15° 03.1 8° 39.1	29° 34.7 8° 30.2	44° 06.5 8° 21.3	58° 38.3 8° 12.3	73° 10.2 8° 03.4	87° 42.1 7° 54.4	+31.7 -8.9	15.3 56.1
Чт 25	305° 47.2 5° 36.7	320° 20.0 5° 27.4	334° 52.8 5° 18.0	349° 25.6 5° 08.6	3° 58.4 4° 59.3	18° 31.4 4° 49.9	33° 04.3 4° 40.5	47° 37.3 4° 31.1	62° 10.3 4° 21.6	76° 43.4 4° 12.2	91° 16.5 4° 02.7	+32.9 -9.4	15.1 55.4
Пт 26	309° 37.1 1° 40.3	324° 10.8 1° 30.8	338° 44.4 1° 21.2	353° 18.1 1° 11.7	7° 51.7 1° 02.2	22° 25.5 0° 52.7	36° 59.2 0° 43.2	51° 32.9 0° 33.7	66° 06.7 0° 24.2	80° 40.5 0° 14.7	95° 14.3 0° 05.2	+33.7 -9.5	14.9 54.8
Сб 27	313° 43.3 -2° 16.4	328° 17.3 -2° 25.7	342° 51.3 -2° 35.0	357° 25.3 -2° 44.3	11° 59.4 -2° 53.6	26° 33.4 -3° 02.9	41° 07.4 -3° 12.2	55° 41.5 -3° 21.5	70° 15.5 -3° 30.7	84° 49.6 -3° 39.9	99° 23.6 -3° 49.1	+34.0 -9.3	14.8 54.3
Вс 28	317° 54.2 -6° 04.5	332° 28.1 -6° 13.4	347° 02.1 -6° 22.2	1° 36.1 -6° 31.0	16° 10.1 -6° 39.7	30° 44.0 -6° 48.4	45° 17.9 -6° 57.1	59° 51.9 -7° 05.8	74° 25.8 -7° 14.4	88° 59.7 -7° 23.0	103° 33.6 -7° 31.6	+33.9 -8.7	14.7 54.1
Пн 29	321° 59.8 -9° 36.0	336° 33.4 -9° 44.0	351° 07.0 -9° 52.0	5° 40.6 -9° 59.9	20° 14.1 -10° 07.8	34° 47.6 -10° 15.6	49° 21.1 -10° 23.4	63° 54.5 -10° 31.1	78° 28.0 -10° 38.8	93° 01.4 -10° 46.5	107° 34.8 -10° 54.1	+33.5 -7.8	14.7 54.0
Вт 30	325° 52.3 -12° 42.6	340° 25.2 -12° 49.4	354° 58.1 -12° 56.2	9° 31.0 -13° 02.9	24° 03.8 -13° 09.6	38° 36.7 -13° 16.2	53° 09.4 -13° 22.8	67° 42.2 -13° 29.3	82° 14.9 -13° 35.7	96° 47.6 -13° 42.1	111° 20.2 -13° 48.4	+32.8 -6.6	14.7 54.0
Ср 31	329° 26.2 -15° 16.0	343° 58.3 -15° 21.3	358° 30.4 -15° 26.6	13° 02.4 -15° 31.8	27° 34.5 -15° 36.9	42° 06.5 -15° 42.0	56° 38.4 -15° 46.9	71° 10.3 -15° 51.9	85° 42.2 -15° 56.7	100° 14.1 -16° 01.5	114° 45.9 -16° 06.2	+32.0 -5.0	14.7 54.1

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Полнолуние: 3 12h15 — Последняя четв.: 11 10h56 — Новолуние: 18 03h12 — Первая четв.: 24 23h57

СОЛНЦЕ

Июнь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	270° 32.2	285° 32.1	300° 32.0	315° 31.9	330° 31.8	345° 31.7	0° 31.6	15° 31.5	30° 31.4	45° 31.3	60° 31.2	75° 31.1	-0.1
	22° 03.9	22° 04.2	22° 04.5	22° 04.9	22° 05.2	22° 05.5	22° 05.9	22° 06.2	22° 06.5	22° 06.9	22° 07.2	22° 07.5	+0.3
Пт 2	270° 29.8	285° 29.7	300° 29.6	315° 29.5	330° 29.4	345° 29.3	0° 29.2	15° 29.1	30° 29.0	45° 28.9	60° 28.8	75° 28.7	-0.1
	22° 11.8	22° 12.1	22° 12.4	22° 12.7	22° 13.0	22° 13.4	22° 13.7	22° 14.0	22° 14.3	22° 14.6	22° 14.9	22° 15.3	+0.3
Сб 3	270° 27.4	285° 27.3	300° 27.2	315° 27.1	330° 27.0	345° 26.9	0° 26.8	15° 26.7	30° 26.6	45° 26.5	60° 26.4	75° 26.3	-0.1
	22° 19.3	22° 19.6	22° 19.9	22° 20.2	22° 20.5	22° 20.8	22° 21.1	22° 21.4	22° 21.7	22° 22.0	22° 22.3	22° 22.6	+0.3
Вс 4	270° 24.9	285° 24.8	300° 24.7	315° 24.6	330° 24.5	345° 24.4	0° 24.3	15° 24.1	30° 24.0	45° 23.9	60° 23.8	75° 23.7	-0.1
	22° 26.4	22° 26.7	22° 27.0	22° 27.3	22° 27.6	22° 27.8	22° 28.1	22° 28.4	22° 28.7	22° 29.0	22° 29.3	22° 29.5	+0.3
Пн 5	270° 22.3	285° 22.2	300° 22.1	315° 22.0	330° 21.9	345° 21.7	0° 21.6	15° 21.5	30° 21.4	45° 21.3	60° 21.2	75° 21.1	-0.1
	22° 33.1	22° 33.4	22° 33.7	22° 34.0	22° 34.2	22° 34.5	22° 34.8	22° 35.0	22° 35.3	22° 35.6	22° 35.8	22° 36.1	+0.3
Вт 6	270° 19.6	285° 19.5	300° 19.4	315° 19.3	330° 19.2	345° 19.0	0° 18.9	15° 18.8	30° 18.7	45° 18.6	60° 18.5	75° 18.4	-0.1
	22° 39.5	22° 39.7	22° 40.0	22° 40.2	22° 40.5	22° 40.7	22° 41.0	22° 41.2	22° 41.5	22° 41.7	22° 42.0	22° 42.2	+0.3
Ср 7	270° 16.8	285° 16.7	300° 16.6	315° 16.5	330° 16.4	345° 16.3	0° 16.1	15° 16.0	30° 15.9	45° 15.8	60° 15.7	75° 15.6	-0.1
	22° 45.4	22° 45.7	22° 45.9	22° 46.1	22° 46.4	22° 46.6	22° 46.8	22° 47.1	22° 47.3	22° 47.5	22° 47.8	22° 48.0	+0.2
Чт 8	270° 14.0	285° 13.9	300° 13.8	315° 13.6	330° 13.5	345° 13.4	0° 13.3	15° 13.2	30° 13.0	45° 12.9	60° 12.8	75° 12.7	-0.1
	22° 51.0	22° 51.2	22° 51.4	22° 51.6	22° 51.8	22° 52.1	22° 52.3	22° 52.5	22° 52.7	22° 52.9	22° 53.1	22° 53.4	+0.2
Пт 9	270° 11.1	285° 11.0	300° 10.9	315° 10.7	330° 10.6	345° 10.5	0° 10.4	15° 10.2	30° 10.1	45° 10.0	60° 09.9	75° 09.7	-0.1
	22° 56.1	22° 56.3	22° 56.5	22° 56.7	22° 56.9	22° 57.1	22° 57.3	22° 57.5	22° 57.7	22° 57.9	22° 58.1	22° 58.3	+0.2
Сб 10	270° 08.1	285° 08.0	300° 07.9	315° 07.7	330° 07.6	345° 07.5	0° 07.4	15° 07.2	30° 07.1	45° 07.0	60° 06.9	75° 06.7	-0.1
	23° 00.8	23° 01.0	23° 01.2	23° 01.4	23° 01.6	23° 01.8	23° 01.9	23° 02.1	23° 02.3	23° 02.5	23° 02.7	23° 02.9	+0.2
Вс 11	270° 05.1	285° 05.0	300° 04.8	315° 04.7	330° 04.6	345° 04.4	0° 04.3	15° 04.2	30° 04.1	45° 03.9	60° 03.8	75° 03.7	-0.1
	23° 05.2	23° 05.3	23° 05.5	23° 05.7	23° 05.8	23° 06.0	23° 06.2	23° 06.3	23° 06.5	23° 06.7	23° 06.8	23° 07.0	+0.2
Пн 12	270° 02.0	285° 01.9	300° 01.7	315° 01.6	330° 01.5	345° 01.3	0° 01.2	15° 01.1	30° 01.0	45° 00.8	60° 00.7	75° 00.6	-0.1
	23° 09.1	23° 09.2	23° 09.4	23° 09.5	23° 09.7	23° 09.8	23° 10.0	23° 10.1	23° 10.3	23° 10.4	23° 10.6	23° 10.7	+0.2
Вт 13	269° 58.9	284° 58.7	299° 58.6	314° 58.5	329° 58.3	344° 58.2	359° 58.1	14° 57.9	29° 57.8	44° 57.7	59° 57.5	74° 57.4	-0.1
	23° 12.6	23° 12.7	23° 12.9	23° 13.0	23° 13.1	23° 13.3	23° 13.4	23° 13.5	23° 13.7	23° 13.8	23° 13.9	23° 14.1	+0.1
Ср 14	269° 55.7	284° 55.5	299° 55.4	314° 55.3	329° 55.1	344° 55.0	359° 54.9	14° 54.7	29° 54.6	44° 54.5	59° 54.3	74° 54.2	-0.1
	23° 15.7	23° 15.8	23° 15.9	23° 16.1	23° 16.2	23° 16.3	23° 16.4	23° 16.5	23° 16.6	23° 16.8	23° 16.9	23° 17.0	+0.1
Чт 15	269° 52.5	284° 52.3	299° 52.2	314° 52.1	329° 51.9	344° 51.8	359° 51.6	14° 51.5	29° 51.4	44° 51.2	59° 51.1	74° 51.0	-0.1
	23° 18.4	23° 18.5	23° 18.6	23° 18.7	23° 18.8	23° 18.9	23° 19.0	23° 19.1	23° 19.2	23° 19.3	23° 19.4	23° 19.5	+0.1
Пт 16	269° 49.2	284° 49.1	299° 48.9	314° 48.8	329° 48.7	344° 48.5	359° 48.4	14° 48.3	29° 48.1	44° 48.0	59° 47.8	74° 47.7	-0.1
	23° 20.7	23° 20.8	23° 20.9	23° 20.9	23° 21.0	23° 21.1	23° 21.2	23° 21.3	23° 21.4	23° 21.4	23° 21.5	23° 21.6	+0.1
Сб 17	269° 45.9	284° 45.8	299° 45.7	314° 45.5	329° 45.4	344° 45.3	359° 45.1	14° 45.0	29° 44.8	44° 44.7	59° 44.6	74° 44.4	-0.1
	23° 22.6	23° 22.6	23° 22.7	23° 22.8	23° 22.8	23° 22.9	23° 23.0	23° 23.0	23° 23.1	23° 23.2	23° 23.2	23° 23.3	+0.1
Вс 18	269° 42.7	284° 42.5	299° 42.4	314° 42.2	329° 42.1	344° 42.0	359° 41.8	14° 41.7	29° 41.6	44° 41.4	59° 41.3	74° 41.1	-0.1
	23° 24.0	23° 24.1	23° 24.1	23° 24.2	23° 24.2	23° 24.3	23° 24.3	23° 24.4	23° 24.4	23° 24.5	23° 24.5	23° 24.5	+0.0
Пн 19	269° 39.4	284° 39.2	299° 39.1	314° 38.9	329° 38.8	344° 38.7	359° 38.5	14° 38.4	29° 38.3	44° 38.1	59° 38.0	74° 37.9	-0.1
	23° 25.1	23° 25.1	23° 25.1	23° 25.2	23° 25.2	23° 25.2	23° 25.3	23° 25.3	23° 25.3	23° 25.4	23° 25.4	23° 25.4	+0.0
Вт 20	269° 36.1	284° 35.9	299° 35.8	314° 35.7	329° 35.5	344° 35.4	359° 35.2	14° 35.1	29° 35.0	44° 34.8	59° 34.7	74° 34.6	-0.1
	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.9	+0.0
Ср 21	269° 32.8	284° 32.6	299° 32.5	314° 32.4	329° 32.2	344° 32.1	359° 32.0	14° 31.8	29° 31.7	44° 31.6	59° 31.4	74° 31.3	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	-0.0
Чт 22	269° 29.5	284° 29.4	299° 29.2	314° 29.1	329° 29.0	344° 28.8	359° 28.7	14° 28.6	29° 28.4	44° 28.3	59° 28.2	74° 28.0	-0.1
	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.6	23° 25.5	23° 25.5	-0.0
Пт 23	269° 26.3	284° 26.1	299° 26.0	314° 25.9	329° 25.7	344° 25.6	359° 25.4	14° 25.3	29° 25.2	44° 25.0	59° 24.9	74° 24.8	-0.1
	23° 25.1	23° 25.1	23° 25.1	23° 25.0	23° 25.0	23° 24.9	23° 24.9	23° 24.9	23° 24.8	23° 24.8	23° 24.8	23° 24.7	-0.0
Сб 24	269° 23.0	284° 22.9	299° 22.8	314° 22.6	329° 22.5	344° 22.4	359° 22.2	14° 22.1	29° 22.0	44° 21.8	59° 21.7	74° 21.6	-0.1
	23° 24.1	23° 24.1	23° 24.0	23° 24.0	23° 23.9	23° 23.8	23° 23.8	23° 23.7	23° 23.7	23° 23.6	23° 23.6	23° 23.5	-0.1
Вс 25	269° 19.8	284° 19.7	299° 19.6	314° 19.4	329° 19.3	344° 19.2	359° 19.0	14° 18.9	29° 18.8	44° 18.6	59° 18.5	74° 18.4	-0.1
	23° 22.7	23° 22.6	23° 22.5	23° 22.5	23° 22.4	23° 22.3	23° 22.3	23° 22.2	23° 22.1	23° 22.0	23° 22.0	23° 21.9	-0.1
Пн 26	269° 16.7	284° 16.5	299° 16.4	314° 16.3	329° 16.1	344° 16.0	359° 15.9	14° 15.8	29° 15.6	44° 15.5	59° 15.4	74° 15.2	-0.1
	23° 20.8	23° 20.7	23° 20.7	23° 20.6	23° 20.5	23° 20.4	23° 20.3	23° 20.2	23° 20.1	23° 20.0	23° 19.9	23° 19.9	-0.1
Вт 27	269° 13.5	284° 13.4	299° 13.3	314° 13.2	329° 13.0	344° 12.9	359° 12.8	14° 12.6	29° 12.5	44° 12.4	59° 12.3	74° 12.1	-0.1
	23° 18.6	23° 18.5	23° 18.4	23° 18.3	23° 18.2	23° 18.1	23° 18.0	23° 17.8	23° 17.7	23° 17.6	23° 17.5	23° 17.4	-0.1
Ср 28	269° 10.5	284° 10.3	299° 10.2	314° 10.1	329° 10.0	344° 09.8	359° 09.7	14° 09.6	29° 09.5	44° 09.3	59° 09.2	74° 09.1	-0.1
	23° 15.9	23° 15.8	23° 15.7	23° 15.6	23° 15.4	23° 15.3	23° 15.2	23° 15.1	23° 14.9	23° 14.8	23° 14.7	23° 14.6	-0.1
Чт 29	269° 07.5	284° 07.3	299° 07.2	314° 07.1	329° 07.0	344° 06.8	359° 06.7	14° 06.6	29° 06.5	44° 06.3	59° 06.2	74° 06.1	-0.1
	23° 12.9	23° 12.7	23° 12.6	23° 12.4	23° 12.3	23° 12.2	23° 12.0	23° 11.9	23° 11.7	23° 11.6	23° 11.5	23° 11.3	-0.1
Пт 30	269° 04.5	284° 04.4	299° 04.2	314° 04.1	329° 04.0	344° 03.9	359° 03.8	14° 03.6	29° 03.5	44° 03.4	59° 03.3	74° 03.1	-0.1
	23° 09.4	23° 09.2	23° 09.1	23° 08.9	23° 08.8	23° 08.6	23° 08.4	23° 08.3	23° 08.1	23° 08.0	23° 07.8	23° 07.6	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июнь 2034

Д	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ°/h	R/p
Чт 1	245° 30.9	260° 02.4	274° 33.9	289° 05.3	303° 36.7	318° 08.1	332° 39.4	347° 10.7	1° 42.0	16° 13.3	30° 44.5	+31.4	14.8
	-16° 45.4	-16° 49.3	-16° 53.2	-16° 57.1	-17° 00.8	-17° 04.5	-17° 08.1	-17° 11.6	-17° 15.1	-17° 18.4	-17° 21.7	-3.6	54.2
○ Пт 2	248° 29.4	263° 00.1	277° 30.9	292° 01.6	306° 32.3	321° 03.0	335° 33.6	350° 04.3	4° 34.9	19° 05.5	33° 36.0	+30.7	14.9
	-18° 01.2	-18° 03.2	-18° 05.1	-18° 06.9	-18° 08.6	-18° 10.2	-18° 11.8	-18° 13.2	-18° 14.6	-18° 15.9	-18° 17.1	-1.6	54.5
Сб 3	251° 12.1	265° 42.4	280° 12.6	294° 42.9	309° 13.1	323° 43.3	338° 13.5	352° 43.7	7° 13.9	21° 44.1	36° 14.2	+30.2	15.0
	-18° 24.4	-18° 24.2	-18° 23.9	-18° 23.5	-18° 23.0	-18° 22.4	-18° 21.7	-18° 21.0	-18° 20.1	-18° 19.2	-18° 18.1	+0.6	54.9
Вс 4	253° 45.5	268° 15.5	282° 45.6	297° 15.6	311° 45.6	326° 15.7	340° 45.7	355° 15.7	9° 45.7	24° 15.7	38° 45.7	+30.0	15.1
	-17° 51.7	-17° 49.2	-17° 46.6	-17° 43.9	-17° 41.2	-17° 38.3	-17° 35.4	-17° 32.4	-17° 29.2	-17° 26.0	-17° 22.7	+2.9	55.3
Пн 5	256° 16.1	270° 46.1	285° 16.2	299° 46.2	314° 16.3	328° 46.4	343° 16.4	357° 46.5	12° 16.6	26° 46.7	41° 16.7	+30.1	15.2
	-16° 22.7	-16° 18.0	-16° 13.2	-16° 08.4	-16° 03.4	-15° 58.4	-15° 53.3	-15° 48.1	-15° 42.8	-15° 37.4	-15° 32.0	+5.1	55.8
Вт 6	258° 48.7	273° 18.9	287° 49.1	302° 19.2	316° 49.4	331° 19.6	345° 49.8	0° 20.1	14° 50.3	29° 20.5	43° 50.7	+30.2	15.4
	-14° 00.5	-13° 53.8	-13° 47.0	-13° 40.1	-13° 33.2	-13° 26.1	-13° 19.0	-13° 11.9	-13° 04.6	-12° 57.3	-12° 49.9	+7.1	56.4
Ср 7	261° 24.6	275° 54.9	290° 25.2	304° 55.5	319° 25.7	333° 56.0	348° 26.3	2° 56.6	17° 26.9	31° 57.1	46° 27.4	+30.3	15.6
	-10° 50.8	-10° 42.4	-10° 33.9	-10° 25.3	-10° 16.6	-10° 07.9	-9° 59.1	-9° 50.3	-9° 41.4	-9° 32.5	-9° 23.5	+8.7	57.0
Чт 8	264° 01.1	278° 31.3	293° 01.5	307° 31.6	322° 01.8	336° 31.9	351° 02.1	5° 32.2	20° 02.3	34° 32.4	49° 02.5	+30.1	15.7
	-7° 01.9	-6° 52.1	-6° 42.2	-6° 32.3	-6° 22.3	-6° 12.3	-6° 02.3	-5° 52.2	-5° 42.1	-5° 31.9	-5° 21.7	+10.0	57.8
◑ Пт 9	278° 31.3	293° 01.5	307° 31.6	322° 01.8	336° 31.9	351° 02.1	5° 32.2	20° 02.3	34° 32.4	49° 02.5	63° 32.6	+30.1	15.8
	-6° 52.1	-6° 42.2	-6° 32.3	-6° 22.3	-6° 12.3	-6° 02.3	-5° 52.2	-5° 42.1	-5° 31.9	-5° 21.7	-5° 11.4	+10.1	57.8
Сб 10	281° 01.4	295° 31.1	310° 00.9	324° 30.6	339° 00.2	353° 29.9	7° 59.5	22° 29.1	36° 58.6	51° 28.1	65° 57.6	+29.6	16.0
	-2° 33.5	-2° 22.7	-2° 12.0	-2° 01.2	-1° 50.3	-1° 39.5	-1° 28.6	-1° 17.7	-1° 06.8	-0° 55.9	-0° 44.9	+10.9	58.5
Вс 11	283° 15.9	297° 44.8	312° 13.7	326° 42.5	341° 11.3	355° 40.0	10° 08.7	24° 37.3	39° 05.9	53° 34.5	68° 03.0	+28.7	16.2
	2° 00.5	2° 11.6	2° 22.7	2° 33.7	2° 44.8	2° 55.9	3° 06.9	3° 18.0	3° 29.0	3° 40.0	3° 51.0	+11.1	59.3
Пн 12	285° 04.5	299° 32.2	313° 59.8	328° 27.3	342° 54.8	357° 22.3	11° 49.7	26° 17.0	40° 44.3	55° 11.5	69° 38.6	+27.4	16.3
	6° 34.2	6° 44.9	6° 55.6	7° 06.2	7° 16.8	7° 27.4	7° 37.9	7° 48.3	7° 58.8	8° 09.2	8° 19.5	+10.5	59.9
Вт 13	286° 18.6	300° 44.7	315° 10.8	329° 36.9	344° 02.9	358° 28.8	12° 54.7	27° 20.4	41° 46.2	56° 11.9	70° 37.5	+25.9	16.5
	10° 48.9	10° 58.4	11° 07.8	11° 17.2	11° 26.5	11° 35.7	11° 44.9	11° 54.0	12° 03.0	12° 11.9	12° 20.8	+9.2	60.4
Ср 14	286° 54.5	301° 19.2	315° 43.9	330° 08.4	344° 33.0	358° 57.4	13° 21.8	27° 46.2	42° 10.5	56° 34.8	70° 59.1	+24.4	16.6
	14° 23.6	14° 31.1	14° 38.4	14° 45.7	14° 52.8	14° 59.9	15° 06.9	15° 13.7	15° 20.5	15° 27.1	15° 33.6	+7.0	60.7
Чт 15	286° 57.6	301° 21.2	315° 44.8	330° 08.3	344° 31.9	358° 55.4	13° 18.9	27° 42.4	42° 05.8	56° 29.3	70° 52.7	+23.5	16.6
	16° 58.0	17° 02.7	17° 07.3	17° 11.7	17° 16.0	17° 20.2	17° 24.2	17° 28.2	17° 32.0	17° 35.6	17° 39.2	+4.1	60.7
● Пт 16	286° 43.2	301° 06.6	315° 30.0	329° 53.4	344° 16.8	358° 40.2	13° 03.7	27° 27.2	41° 50.7	56° 14.2	70° 37.7	+23.4	16.5
	18° 16.7	18° 18.2	18° 19.5	18° 20.7	18° 21.7	18° 22.6	18° 23.4	18° 24.1	18° 24.6	18° 25.0	18° 25.2	+0.8	60.4
Сб 17	286° 34.6	300° 58.8	315° 22.9	329° 47.2	344° 11.4	358° 35.8	13° 00.2	27° 24.6	41° 49.1	56° 13.6	70° 38.3	+24.4	16.3
	18° 13.4	18° 11.6	18° 09.7	18° 07.6	18° 05.5	18° 03.2	18° 00.7	17° 58.2	17° 55.5	17° 52.7	17° 49.8	-2.4	59.8
Вс 18	286° 55.2	301° 20.9	315° 46.7	330° 12.5	344° 38.5	359° 04.4	13° 30.5	27° 56.7	42° 22.9	56° 49.2	71° 15.6	+26.0	16.1
	16° 52.7	16° 48.0	16° 43.2	16° 38.3	16° 33.3	16° 28.3	16° 23.1	16° 17.8	16° 12.4	16° 07.0	16° 01.4	-5.1	59.0
Пн 19	288° 01.1	302° 28.8	316° 56.6	331° 24.5	345° 52.4	0° 20.4	14° 48.5	29° 16.7	43° 45.0	58° 13.4	72° 41.8	+28.1	15.8
	14° 27.5	14° 20.6	14° 13.6	14° 06.5	13° 59.4	13° 52.2	13° 44.9	13° 37.6	13° 30.2	13° 22.7	13° 15.2	-7.2	58.1
Вт 20	289° 58.0	304° 27.8	318° 57.5	333° 27.4	347° 57.4	2° 27.4	16° 57.5	31° 27.6	45° 57.9	60° 28.2	74° 58.6	+30.1	15.6
	11° 15.0	11° 06.6	10° 58.1	10° 49.6	10° 41.0	10° 32.4	10° 23.7	10° 15.0	10° 06.3	9° 57.5	9° 48.7	-8.6	57.1
Ср 21	292° 42.6	307° 14.0	321° 45.5	336° 17.1	350° 48.7	5° 20.4	19° 52.2	34° 24.0	48° 55.9	63° 27.8	77° 59.8	+31.7	15.3
	7° 32.3	7° 23.0	7° 13.7	7° 04.3	6° 54.9	6° 45.5	6° 36.1	6° 26.6	6° 17.2	6° 07.7	5° 58.2	-9.4	56.3
Чт 22	296° 05.5	310° 38.2	325° 11.0	339° 43.9	354° 16.7	8° 49.7	23° 22.6	37° 55.6	52° 28.6	67° 01.7	81° 34.8	+32.9	15.1
	3° 34.1	3° 24.5	3° 14.8	3° 05.1	2° 55.4	2° 45.7	2° 36.0	2° 26.4	2° 16.7	2° 07.0	1° 57.3	-9.7	55.5
◐ Пт 23	299° 55.0	314° 28.6	329° 02.1	343° 35.7	358° 09.4	12° 43.0	27° 16.7	41° 50.3	56° 24.0	70° 57.7	85° 31.5	+33.7	15.0
	-0° 27.6	-0° 37.2	-0° 46.8	-0° 56.4	-1° 06.0	-1° 15.5	-1° 25.1	-1° 34.6	-1° 44.1	-1° 53.6	-2° 03.1	-9.6	54.9
Сб 24	303° 58.7	318° 32.6	333° 06.5	347° 40.4	2° 14.3	16° 48.2	31° 22.0	45° 55.9	60° 29.8	75° 03.7	89° 37.6	+33.9	14.8
	-4° 23.3	-4° 32.5	-4° 41.7	-4° 50.8	-4° 59.9	-5° 09.0	-5° 18.0	-5° 27.1	-5° 36.1	-5° 45.1	-5° 54.0	-9.1	54.4
Вс 25	308° 05.0	322° 38.8	337° 12.5	351° 46.2	6° 19.9	20° 53.6	35° 27.3	50° 01.0	64° 34.6	79° 08.2	93° 41.8	+33.7	14.8
	-8° 04.6	-8° 13.1	-8° 21.5	-8° 29.9	-8° 38.2	-8° 46.5	-8° 54.8	-9° 03.0	-9° 11.2	-9° 19.3	-9° 27.4	-8.3	54.2
Пн 26	312° 03.5	326° 36.8	341° 10.0	355° 43.2	10° 16.4	24° 49.6	39° 22.7	53° 55.8	68° 28.8	83° 01.9	97° 34.9	+33.1	14.7
	-11° 23.9	-11° 31.3	-11° 38.6	-11° 45.9	-11° 53.2	-12° 00.4	-12° 07.5	-12° 14.6	-12° 21.7	-12° 28.7	-12° 35.6	-7.2	54.1
Вт 27	315° 46.3	330° 18.8	344° 51.2	359° 23.7	13° 56.1	28° 28.4	43° 00.7	57° 33.0	72° 05.3	86° 37.5	101° 09.7	+32.3	14.8
	-14° 13.2	-14° 19.3	-14° 25.3	-14° 31.2	-14° 37.0	-14° 42.8	-14° 48.6	-14° 54.2	-14° 59.8	-15° 05.4	-15° 10.9	-5.8	54.1
Ср 28	319° 08.2	333° 39.8	348° 11.3	2° 42.9	17° 14.4	31° 45.8	46° 17.3	60° 48.7	75° 20.0	89° 51.3	104° 22.6	+31.4	14.8
	-16° 24.9	-16° 29.3	-16° 33.6	-16° 37.8	-16° 41.9	-16° 46.0	-16° 50.0	-16° 53.9	-16° 57.8	-17° 01.5	-17° 05.2	-4.0	54.3
Чт 29	322° 07.8	336° 38.5	351° 09.3	5° 39.9	20° 10.6	34° 41.2	49° 11.8	63° 42.4	78° 12.9	92° 43.4	107° 13.9	+30.6	14.9
	-17° 51.1	-17° 53.5	-17° 55.9	-17° 58.1	-18° 00.2	-18° 02.3	-18° 04.3	-18° 06.2	-18° 08.0	-18° 09.7	-18° 11.4	-2.0	54.6
Пт 30	324° 47.8	339° 17.9	353° 47.9	8° 18.0	22° 48.0	37° 18.0	51° 47.9	66° 17.9	80° 47.8	95° 17.7	109° 47.6	+30.0	15.0
	-18° 25.3	-18° 25.5	-18° 25.7	-18° 25.7	-18° 25.6	-18° 25.5	-18° 25.2	-18° 24.9	-18° 24.5	-18° 23.9	-18° 23.3	+0.2	55.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Полнолуние: 2 03h54 — Последняя четв.: 9 19h43 — Новолуние: 16 10h25 — Первая четв.: 23 14h35

СОЛНЦЕ

Июль 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 01.6	284° 01.5	299° 01.3	314° 01.2	329° 01.1	344° 01.0	359° 00.9	14° 00.7	29° 00.6	44° 00.5	59° 00.4	74° 00.3	-0.1
	23° 05.5	23° 05.3	23° 05.2	23° 05.0	23° 04.8	23° 04.6	23° 04.5	23° 04.3	23° 04.1	23° 03.9	23° 03.8	23° 03.6	-0.2
Вс 2	268° 58.7	283° 58.6	298° 58.5	313° 58.4	328° 58.3	343° 58.2	358° 58.0	13° 57.9	28° 57.8	43° 57.7	58° 57.6	73° 57.5	-0.1
	23° 01.2	23° 01.0	23° 00.8	23° 00.6	23° 00.5	23° 00.3	23° 00.1	22° 59.9	22° 59.7	22° 59.5	22° 59.3	22° 59.1	-0.2
Пн 3	268° 56.0	283° 55.9	298° 55.7	313° 55.6	328° 55.5	343° 55.4	358° 55.3	13° 55.2	28° 55.1	43° 55.0	58° 54.8	73° 54.7	-0.1
	22° 56.5	22° 56.3	22° 56.1	22° 55.9	22° 55.7	22° 55.5	22° 55.3	22° 55.1	22° 54.9	22° 54.7	22° 54.4	22° 54.2	-0.2
Вт 4	268° 53.3	283° 53.2	298° 53.1	313° 52.9	328° 52.8	343° 52.7	358° 52.6	13° 52.5	28° 52.4	43° 52.3	58° 52.2	73° 52.1	-0.1
	22° 51.4	22° 51.2	22° 51.0	22° 50.8	22° 50.5	22° 50.3	22° 50.1	22° 49.9	22° 49.6	22° 49.4	22° 49.2	22° 49.0	-0.2
Ср 5	268° 50.7	283° 50.6	298° 50.5	313° 50.3	328° 50.2	343° 50.1	358° 50.0	13° 49.9	28° 49.8	43° 49.7	58° 49.6	73° 49.5	-0.1
	22° 45.9	22° 45.7	22° 45.5	22° 45.2	22° 45.0	22° 44.8	22° 44.5	22° 44.3	22° 44.0	22° 43.8	22° 43.5	22° 43.3	-0.2
Чт 6	268° 48.1	283° 48.0	298° 47.9	313° 47.8	328° 47.7	343° 47.6	358° 47.5	13° 47.4	28° 47.3	43° 47.2	58° 47.1	73° 47.0	-0.1
	22° 40.1	22° 39.8	22° 39.6	22° 39.3	22° 39.0	22° 38.8	22° 38.5	22° 38.3	22° 38.0	22° 37.8	22° 37.5	22° 37.2	-0.3
Пт 7	268° 45.7	283° 45.6	298° 45.5	313° 45.4	328° 45.3	343° 45.2	358° 45.1	13° 45.0	28° 44.9	43° 44.8	58° 44.7	73° 44.6	-0.1
	22° 33.8	22° 33.5	22° 33.3	22° 33.0	22° 32.7	22° 32.4	22° 32.2	22° 31.9	22° 31.6	22° 31.3	22° 31.1	22° 30.8	-0.3
Сб 8	268° 43.3	283° 43.2	298° 43.1	313° 43.0	328° 42.9	343° 42.9	358° 42.8	13° 42.7	28° 42.6	43° 42.5	58° 42.4	73° 42.3	-0.1
	22° 27.1	22° 26.8	22° 26.6	22° 26.3	22° 26.0	22° 25.7	22° 25.4	22° 25.1	22° 24.8	22° 24.5	22° 24.2	22° 23.9	-0.3
Вс 9	268° 41.1	283° 41.0	298° 40.9	313° 40.8	328° 40.7	343° 40.6	358° 40.5	13° 40.4	28° 40.3	43° 40.2	58° 40.2	73° 40.1	-0.1
	22° 20.1	22° 19.8	22° 19.5	22° 19.2	22° 18.9	22° 18.6	22° 18.2	22° 17.9	22° 17.6	22° 17.3	22° 17.0	22° 16.7	-0.3
Пн 10	268° 38.9	283° 38.8	298° 38.7	313° 38.6	328° 38.6	343° 38.5	358° 38.4	13° 38.3	28° 38.2	43° 38.1	58° 38.0	73° 37.9	-0.1
	22° 12.6	22° 12.3	22° 12.0	22° 11.7	22° 11.4	22° 11.0	22° 10.7	22° 10.4	22° 10.1	22° 09.7	22° 09.4	22° 09.1	-0.3
Вт 11	268° 36.8	283° 36.8	298° 36.7	313° 36.6	328° 36.5	343° 36.4	358° 36.3	13° 36.3	28° 36.2	43° 36.1	58° 36.0	73° 35.9	-0.1
	22° 04.8	22° 04.5	22° 04.1	22° 03.8	22° 03.5	22° 03.1	22° 02.8	22° 02.5	22° 02.1	22° 01.8	22° 01.4	22° 01.1	-0.3
Ср 12	268° 34.9	283° 34.8	298° 34.7	313° 34.7	328° 34.6	343° 34.5	358° 34.4	13° 34.3	28° 34.3	43° 34.2	58° 34.1	73° 34.0	-0.1
	21° 56.6	21° 56.3	21° 55.9	21° 55.6	21° 55.2	21° 54.8	21° 54.5	21° 54.1	21° 53.8	21° 53.4	21° 53.1	21° 52.7	-0.4
Чт 13	268° 33.0	283° 33.0	298° 32.9	313° 32.8	328° 32.8	343° 32.7	358° 32.6	13° 32.5	28° 32.5	43° 32.4	58° 32.3	73° 32.2	-0.1
	21° 48.0	21° 47.7	21° 47.3	21° 46.9	21° 46.6	21° 46.2	21° 45.8	21° 45.5	21° 45.1	21° 44.7	21° 44.3	21° 44.0	-0.4
Пт 14	268° 31.3	283° 31.3	298° 31.2	313° 31.1	328° 31.0	343° 31.0	358° 30.9	13° 30.8	28° 30.8	43° 30.7	58° 30.6	73° 30.6	-0.1
	21° 39.1	21° 38.7	21° 38.3	21° 37.9	21° 37.5	21° 37.2	21° 36.8	21° 36.4	21° 36.0	21° 35.6	21° 35.2	21° 34.8	-0.4
Сб 15	268° 29.7	283° 29.7	298° 29.6	313° 29.5	328° 29.5	343° 29.4	358° 29.3	13° 29.3	28° 29.2	43° 29.2	58° 29.1	73° 29.0	-0.1
	21° 29.8	21° 29.4	21° 29.0	21° 28.6	21° 28.2	21° 27.8	21° 27.4	21° 27.0	21° 26.6	21° 26.2	21° 25.8	21° 25.4	-0.4
Вс 16	268° 28.2	283° 28.2	298° 28.1	313° 28.1	328° 28.0	343° 28.0	358° 27.9	13° 27.8	28° 27.8	43° 27.7	58° 27.7	73° 27.6	-0.1
	21° 20.1	21° 19.7	21° 19.2	21° 18.8	21° 18.4	21° 18.0	21° 17.6	21° 17.2	21° 16.8	21° 16.3	21° 15.9	21° 15.5	-0.4
Пн 17	268° 26.9	283° 26.8	298° 26.8	313° 26.7	328° 26.7	343° 26.6	358° 26.6	13° 26.5	28° 26.5	43° 26.4	58° 26.4	73° 26.3	-0.1
	21° 10.0	21° 09.6	21° 09.2	21° 08.7	21° 08.3	21° 07.9	21° 07.5	21° 07.0	21° 06.6	21° 06.2	21° 05.7	21° 05.3	-0.4
Вт 18	268° 25.7	283° 25.6	298° 25.6	313° 25.5	328° 25.5	343° 25.4	358° 25.4	13° 25.4	28° 25.3	43° 25.3	58° 25.2	73° 25.2	-0.0
	20° 59.6	20° 59.2	20° 58.7	20° 58.3	20° 57.8	20° 57.4	20° 57.0	20° 56.5	20° 56.1	20° 55.6	20° 55.2	20° 54.7	-0.4
Ср 19	268° 24.6	283° 24.6	298° 24.5	313° 24.5	328° 24.4	343° 24.4	358° 24.4	13° 24.3	28° 24.3	43° 24.2	58° 24.2	73° 24.2	-0.0
	20° 48.9	20° 48.4	20° 47.9	20° 47.5	20° 47.0	20° 46.6	20° 46.1	20° 45.7	20° 45.2	20° 44.7	20° 44.3	20° 43.8	-0.5
Чт 20	268° 23.7	283° 23.6	298° 23.6	313° 23.6	328° 23.5	343° 23.5	358° 23.5	13° 23.4	28° 23.4	43° 23.4	58° 23.3	73° 23.3	-0.0
	20° 37.7	20° 37.3	20° 36.8	20° 36.3	20° 35.9	20° 35.4	20° 34.9	20° 34.4	20° 34.0	20° 33.5	20° 33.0	20° 32.5	-0.5
Пт 21	268° 22.9	283° 22.9	298° 22.8	313° 22.8	328° 22.8	343° 22.7	358° 22.7	13° 22.7	28° 22.7	43° 22.6	58° 22.6	73° 22.6	-0.0
	20° 26.3	20° 25.8	20° 25.3	20° 24.8	20° 24.3	20° 23.9	20° 23.4	20° 22.9	20° 22.4	20° 21.9	20° 21.4	20° 20.9	-0.5
Сб 22	268° 22.2	283° 22.2	298° 22.2	313° 22.2	328° 22.1	343° 22.1	358° 22.1	13° 22.1	28° 22.1	43° 22.0	58° 22.0	73° 22.0	-0.0
	20° 14.5	20° 14.0	20° 13.5	20° 13.0	20° 12.5	20° 12.0	20° 11.5	20° 11.0	20° 10.5	20° 10.0	20° 09.5	20° 09.0	-0.5
Вс 23	268° 21.7	283° 21.7	298° 21.7	313° 21.7	328° 21.7	343° 21.7	358° 21.6	13° 21.6	28° 21.6	43° 21.6	58° 21.6	73° 21.6	-0.0
	20° 02.4	20° 01.8	20° 01.3	20° 00.8	20° 00.3	19° 59.8	19° 59.3	19° 58.8	19° 58.2	19° 57.7	19° 57.2	19° 56.7	-0.5
Пн 24	268° 21.4	283° 21.4	298° 21.4	313° 21.4	328° 21.4	343° 21.3	358° 21.3	13° 21.3	28° 21.3	43° 21.3	58° 21.3	73° 21.3	-0.0
	19° 49.9	19° 49.4	19° 48.8	19° 48.3	19° 47.8	19° 47.2	19° 46.7	19° 46.2	19° 45.7	19° 45.1	19° 44.6	19° 44.1	-0.5
Вт 25	268° 21.2	283° 21.2	298° 21.2	313° 21.2	328° 21.2	343° 21.2	358° 21.2	13° 21.2	28° 21.2	43° 21.2	58° 21.2	73° 21.2	-0.0
	19° 37.1	19° 36.5	19° 36.0	19° 35.5	19° 34.9	19° 34.4	19° 33.8	19° 33.3	19° 32.7	19° 32.2	19° 31.7	19° 31.1	-0.5
Ср 26	268° 21.2	283° 21.2	298° 21.2	313° 21.2	328° 21.2	343° 21.2	358° 21.2	13° 21.2	28° 21.2	43° 21.2	58° 21.2	73° 21.2	+0.0
	19° 24.0	19° 23.4	19° 22.9	19° 22.3	19° 21.7	19° 21.2	19° 20.6	19° 20.1	19° 19.5	19° 19.0	19° 18.4	19° 17.8	-0.6
Чт 27	268° 21.3	283° 21.3	298° 21.3	313° 21.3	328° 21.3	343° 21.3	358° 21.3	13° 21.3	28° 21.4	43° 21.4	58° 21.4	73° 21.4	+0.0
	19° 10.5	19° 10.0	19° 09.4	19° 08.8	19° 08.2	19° 07.7	19° 07.1	19° 06.5	19° 06.0	19° 05.4	19° 04.8	19° 04.3	-0.6
Пт 28	268° 21.5	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.6	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	+0.0
	18° 56.8	18° 56.2	18° 55.6	18° 55.0	18° 54.4	18° 53.9	18° 53.3	18° 52.7	18° 52.1	18° 51.5	18° 50.9	18° 50.3	-0.6
Сб 29	268° 22.0	283° 22.0	298° 22.0	313° 22.0	328° 22.1	343° 22.1	358° 22.1	13° 22.1	28° 22.1	43° 22.2	58° 22.2	73° 22.2	+0.0
	18° 42.7	18° 42.1	18° 41.5	18° 40.9	18° 40.3	18° 39.7	18° 39.1	18° 38.5	18° 37.9	18° 37.3	18° 36.7	18° 36.1	-0.6
Вс 30	268° 22.5	283° 22.6	298° 22.6	313° 22.6	328° 22.7	343° 22.7	358° 22.7	13° 22.7	28° 22.8	43° 22.8	58° 22.8	73° 22.9	+0.0
	18° 28.3	18° 27.7	18° 27.1	18° 26.5	18° 25.9	18° 25.3	18° 24.7	18° 24.1	18° 23.4	18° 22.8	18° 22.2	18° 21.6	-0.6
Пн 31	268° 23.3	283° 23.3	298° 23.3	313° 23.4	328° 23.4	343° 23.4	358° 23.5	13° 23.5	28° 23.5	43° 23.6	58° 23.6	73° 23.7	+0.0
	18° 13.6	18° 13.0	18° 12.4	18° 11.8	18° 11.2	18° 10.5	18° 09.9	18° 09.3	18° 08.7	18° 08.0	18° 07.4	18° 06.8	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

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	Д	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ°/h	R/p
○	Сб 1	240° 16.0	254° 45.7	269° 15.5	283° 45.2	298° 14.9	312° 44.6	327° 14.3	341° 44.0	356° 13.7	10° 43.4	25° 13.0	+29.7	15.1
		-18° 13.6	-18° 12.1	-18° 10.5	-18° 08.7	-18° 06.9	-18° 05.0	-18° 03.0	-18° 00.9	-17° 58.7	-17° 56.4	-17° 54.0	+2.0	55.4
	Вс 2	242° 37.4	257° 07.0	271° 36.6	286° 06.2	300° 35.9	315° 05.5	329° 35.1	344° 04.7	358° 34.3	13° 03.9	27° 33.6	+29.6	15.2
		-17° 07.3	-17° 03.5	-16° 59.5	-16° 55.5	-16° 51.4	-16° 47.2	-16° 42.9	-16° 38.5	-16° 34.0	-16° 29.5	-16° 24.8	+4.3	55.8
	Пн 3	244° 58.7	259° 28.4	273° 58.1	288° 27.9	302° 57.7	317° 27.4	331° 57.2	346° 27.0	0° 56.8	15° 26.6	29° 56.4	+29.8	15.4
		-15° 04.7	-14° 58.7	-14° 52.6	-14° 46.5	-14° 40.2	-14° 33.9	-14° 27.5	-14° 21.0	-14° 14.4	-14° 07.7	-14° 01.0	+6.4	56.3
	Вт 4	247° 24.8	261° 54.8	276° 24.8	290° 54.8	305° 24.8	319° 54.8	334° 24.9	348° 54.9	3° 24.9	17° 55.0	32° 25.1	+30.0	15.5
		-12° 11.2	-12° 03.3	-11° 55.3	-11° 47.3	-11° 39.2	-11° 31.1	-11° 22.8	-11° 14.6	-11° 06.2	-10° 57.8	-10° 49.3	+8.2	56.9
	Ср 5	249° 56.9	264° 27.1	278° 57.3	293° 27.5	307° 57.7	322° 27.9	336° 58.0	351° 28.2	5° 58.4	20° 28.6	34° 58.8	+30.2	15.7
		-8° 35.1	-8° 25.8	-8° 16.3	-8° 06.9	-7° 57.3	-7° 47.8	-7° 38.1	-7° 28.5	-7° 18.8	-7° 09.0	-6° 59.2	+9.6	57.4
	Чт 6	252° 31.7	267° 01.8	281° 32.0	296° 02.1	310° 32.2	325° 02.4	339° 32.5	354° 02.6	8° 32.7	23° 02.7	37° 32.8	+30.1	15.8
		-4° 27.5	-4° 17.1	-4° 06.7	-3° 56.2	-3° 45.8	-3° 35.3	-3° 24.7	-3° 14.2	-3° 03.6	-2° 53.0	-2° 42.4	+10.5	57.9
	Пт 7	255° 02.0	269° 31.8	284° 01.5	298° 31.3	313° 01.0	327° 30.7	342° 00.4	356° 30.0	10° 59.6	25° 29.2	39° 58.8	+29.7	15.9
		-0° 01.0	0° 09.8	0° 20.7	0° 31.6	0° 42.4	0° 53.3	1° 04.2	1° 15.1	1° 25.9	1° 36.8	1° 47.7	+10.9	58.5
	Сб 8	257° 18.5	271° 47.5	286° 16.5	300° 45.4	315° 14.3	329° 43.2	344° 12.0	358° 40.8	13° 09.6	27° 38.3	42° 06.9	+28.8	16.1
		4° 29.9	4° 40.6	4° 51.3	5° 02.0	5° 12.6	5° 23.3	5° 33.9	5° 44.4	5° 55.0	6° 05.5	6° 16.0	+10.6	59.0
◑	Вс 9	271° 47.5	286° 16.5	300° 45.4	315° 14.3	329° 43.2	344° 12.0	358° 40.8	13° 09.6	27° 38.3	42° 06.9	56° 35.5	+28.8	16.1
		4° 40.6	4° 51.3	5° 02.0	5° 12.6	5° 23.3	5° 33.9	5° 44.4	5° 55.0	6° 05.5	6° 16.0	6° 26.4	+10.6	59.0
	Пн 10	273° 39.1	288° 07.0	302° 34.8	317° 02.5	331° 30.2	345° 57.8	0° 25.4	14° 52.9	29° 20.4	43° 47.8	58° 15.2	+27.6	16.2
		8° 59.1	9° 08.9	9° 18.7	9° 28.4	9° 38.1	9° 47.8	9° 57.3	10° 06.9	10° 16.3	10° 25.7	10° 35.1	+9.6	59.4
	Вт 11	274° 59.1	289° 25.5	303° 52.0	318° 18.3	332° 44.7	347° 10.9	1° 37.1	16° 03.3	30° 29.4	44° 55.4	59° 21.4	+26.2	16.3
		12° 47.5	12° 55.8	13° 04.0	13° 12.1	13° 20.1	13° 28.0	13° 35.9	13° 43.6	13° 51.3	13° 58.9	14° 06.4	+7.9	59.7
	Ср 12	275° 45.0	290° 10.2	304° 35.4	319° 00.5	333° 25.5	347° 50.5	2° 15.5	16° 40.4	31° 05.3	45° 30.2	59° 55.0	+25.0	16.3
		15° 47.8	15° 53.8	15° 59.7	16° 05.4	16° 11.1	16° 16.6	16° 22.0	16° 27.3	16° 32.6	16° 37.7	16° 42.6	+5.5	59.9
	Чт 13	276° 03.2	290° 27.5	304° 51.8	319° 16.1	333° 40.4	348° 04.6	2° 28.9	16° 53.1	31° 17.3	45° 41.5	60° 05.7	+24.3	16.3
		17° 43.5	17° 46.6	17° 49.6	17° 52.5	17° 55.2	17° 57.8	18° 00.3	18° 02.6	18° 04.9	18° 07.0	18° 09.0	+2.5	59.9
	Пт 14	276° 08.5	290° 32.8	304° 57.0	319° 21.3	333° 45.6	348° 09.9	2° 34.2	16° 58.5	31° 22.9	45° 47.3	60° 11.7	+24.3	16.3
		18° 23.5	18° 23.4	18° 23.3	18° 23.0	18° 22.5	18° 22.0	18° 21.3	18° 20.5	18° 19.5	18° 18.5	18° 17.3	-0.6	59.7
●	Сб 15	276° 22.0	290° 47.0	305° 12.0	319° 37.1	334° 02.3	348° 27.5	2° 52.7	17° 18.0	31° 43.4	46° 08.8	60° 34.3	+25.2	16.2
		17° 44.9	17° 41.8	17° 38.6	17° 35.2	17° 31.8	17° 28.2	17° 24.5	17° 20.7	17° 16.8	17° 12.8	17° 08.7	-3.6	59.3
	Вс 16	277° 03.5	291° 30.0	305° 56.6	320° 23.2	334° 49.8	349° 16.6	3° 43.4	18° 10.3	32° 37.2	47° 04.3	61° 31.4	+26.8	16.0
		15° 54.3	15° 48.6	15° 42.7	15° 36.8	15° 30.8	15° 24.7	15° 18.5	15° 12.2	15° 05.8	14° 59.3	14° 52.8	-6.2	58.6
	Пн 17	278° 26.6	292° 54.9	307° 23.2	321° 51.6	336° 20.1	350° 48.7	5° 17.3	19° 46.1	34° 14.8	48° 43.7	63° 12.6	+28.6	15.8
		13° 05.3	12° 57.6	12° 49.8	12° 41.9	12° 34.0	12° 26.0	12° 18.0	12° 09.9	12° 01.7	11° 53.5	11° 45.2	-8.0	57.9
	Вт 18	280° 35.3	295° 05.4	309° 35.5	324° 05.7	338° 36.0	353° 06.3	7° 36.7	22° 07.2	36° 37.7	51° 08.3	65° 39.0	+30.4	15.6
		9° 35.0	9° 26.0	9° 16.9	9° 07.8	8° 58.6	8° 49.5	8° 40.3	8° 31.0	8° 21.7	8° 12.4	8° 03.1	-9.2	57.1
	Ср 19	283° 26.1	297° 57.7	312° 29.3	327° 01.0	341° 32.8	356° 04.6	10° 36.5	25° 08.4	39° 40.3	54° 12.3	68° 44.4	+31.8	15.3
		5° 40.1	5° 30.4	5° 20.7	5° 11.0	5° 01.2	4° 51.5	4° 41.8	4° 32.0	4° 22.2	4° 12.4	4° 02.6	-9.7	56.3
	Чт 20	286° 50.5	301° 23.2	315° 55.9	330° 28.7	345° 01.6	359° 34.4	14° 07.3	28° 40.2	43° 13.2	57° 46.2	72° 19.2	+32.9	15.1
		1° 35.3	1° 25.5	1° 15.6	1° 05.8	0° 56.0	0° 46.2	0° 36.4	0° 26.6	0° 16.9	0° 07.1	-0° 02.7	-9.8	55.5
	Пт 21	290° 37.5	305° 10.9	319° 44.3	334° 17.8	348° 51.2	3° 24.7	17° 58.1	32° 31.6	47° 05.1	61° 38.6	76° 12.2	+33.5	15.0
		-2° 27.5	-2° 37.0	-2° 46.6	-2° 56.0	-3° 05.5	-3° 15.0	-3° 24.4	-3° 33.8	-3° 43.2	-3° 52.5	-4° 01.9	-9.4	54.9
	Сб 22	294° 35.9	309° 09.5	323° 43.1	338° 16.7	352° 50.3	7° 23.9	21° 57.5	36° 31.1	51° 04.7	65° 38.3	80° 11.9	+33.6	14.9
		-6° 18.7	-6° 27.6	-6° 36.4	-6° 45.2	-6° 54.0	-7° 02.8	-7° 11.5	-7° 20.2	-7° 28.8	-7° 37.4	-7° 46.0	-8.7	54.5
◐	Вс 23	298° 34.6	313° 08.0	327° 41.4	342° 14.8	356° 48.2	11° 21.5	25° 54.9	40° 28.2	55° 01.5	69° 34.8	84° 08.0	+33.3	14.8
		-9° 50.0	-9° 58.0	-10° 05.9	-10° 13.7	-10° 21.5	-10° 29.3	-10° 37.0	-10° 44.6	-10° 52.3	-10° 59.8	-11° 07.4	-7.7	54.2
	Пн 24	302° 24.2	316° 57.1	331° 29.9	346° 02.7	0° 35.5	15° 08.3	29° 41.0	44° 13.7	58° 46.4	73° 19.1	87° 51.7	+32.8	14.8
		-12° 54.2	-13° 00.9	-13° 07.5	-13° 14.1	-13° 20.6	-13° 27.1	-13° 33.5	-13° 39.9	-13° 46.2	-13° 52.4	-13° 58.6	-6.4	54.2
	Вт 25	305° 57.1	320° 29.2	335° 01.3	349° 33.3	4° 05.3	18° 37.3	33° 09.2	47° 41.1	62° 12.9	76° 44.8	91° 16.5	+31.9	14.8
		-15° 23.8	-15° 29.0	-15° 34.1	-15° 39.1	-15° 44.1	-15° 49.0	-15° 53.8	-15° 58.6	-16° 03.3	-16° 07.9	-16° 12.4	-4.9	54.3
	Ср 26	309° 08.9	323° 40.1	338° 11.3	352° 42.4	7° 13.5	21° 44.6	36° 15.6	50° 46.6	65° 17.6	79° 48.5	94° 19.4	+31.0	14.9
		-17° 11.7	-17° 15.1	-17° 18.3	-17° 21.5	-17° 24.6	-17° 27.7	-17° 30.6	-17° 33.5	-17° 36.3	-17° 39.0	-17° 41.6	-3.0	54.5
	Чт 27	311° 58.6	326° 28.9	340° 59.2	355° 29.5	9° 59.8	24° 30.0	39° 00.2	53° 30.4	68° 00.5	82° 30.7	97° 00.7	+30.2	15.0
		-18° 10.9	-18° 12.1	-18° 13.3	-18° 14.4	-18° 15.4	-18° 16.3	-18° 17.1	-18° 17.8	-18° 18.5	-18° 19.0	-18° 19.5	-0.9	54.9
	Пт 28	314° 28.9	328° 58.6	343° 28.3	357° 57.9	12° 27.6	26° 57.2	41° 26.8	55° 56.3	70° 25.9	84° 55.4	99° 24.9	+29.6	15.1
		-18° 15.4	-18° 14.4	-18° 13.3	-18° 12.1	-18° 10.8	-18° 09.4	-18° 08.0	-18° 06.4	-18° 04.7	-18° 02.9	-18° 01.1	+1.4	55.5
	Сб 29	316° 46.0	331° 15.3	345° 44.6	0° 13.9	14° 43.2	29° 12.5	43° 41.7	58° 11.0	72° 40.3	87° 09.5	101° 38.8	+29.3	15.3
		-17° 21.9	-17° 18.5	-17° 15.1	-17° 11.5	-17° 07.9	-17° 04.2	-17° 00.3	-16° 56.4	-16° 52.4	-16° 48.3	-16° 44.1	+3.8	56.0
	Вс 30	318° 57.2	333° 26.4	347° 55.6	2° 24.9	16° 54.1	31° 23.3	45° 52.6	60° 21.8	74° 51.1	89° 20.3	103° 49.6	+29.2	15.4
		-15° 30.2	-15° 24.6	-15° 18.8	-15° 13.0	-15° 07.1	-15° 01.2	-14° 55.1	-14° 48.9	-14° 42.7	-14° 36.4	-14° 30.0	+6.0	56.6
○	Пн 31	321° 09.0	335° 38.4	350° 07.7	4° 37.1	19° 06.5	33° 35.9	48° 05.3	62° 34.6	77° 04.1	91° 33.5	106° 02.9	+29.4	15.6
		-12° 44.3	-12° 36.6	-12° 28.9	-12° 21.1	-12° 13.2	-12° 05.3	-11° 57.2	-11° 49.2	-11° 41.0	-11° 32.8	-11° 24.5	+8.0	57.2

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Полнолуние: 1 17h44 — Последняя четв.: 9 01h59 — Новолуние: 15 18h15 — Первая четв.: 23 07h05 — Полнолуние: 31 05h54

СОЛНЦЕ

Август 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	268 ○ 24.1	283 ○ 24.2	298 ○ 24.2	313 ○ 24.3	328 ○ 24.3	343 ○ 24.3	358 ○ 24.4	13 ○ 24.4	28 ○ 24.5	43 ○ 24.5	58 ○ 24.6	73 ○ 24.6	+0.0
	17 ○ 58.6	17 ○ 58.0	17 ○ 57.4	17 ○ 56.8	17 ○ 56.1	17 ○ 55.5	17 ○ 54.9	17 ○ 54.2	17 ○ 53.6	17 ○ 53.0	17 ○ 52.3	17 ○ 51.7	-0.6
Ср 2	268 ○ 25.2	283 ○ 25.2	298 ○ 25.3	313 ○ 25.3	328 ○ 25.4	343 ○ 25.4	358 ○ 25.5	13 ○ 25.5	28 ○ 25.6	43 ○ 25.6	58 ○ 25.7	73 ○ 25.7	+0.0
	17 ○ 43.4	17 ○ 42.7	17 ○ 42.1	17 ○ 41.4	17 ○ 40.8	17 ○ 40.2	17 ○ 39.5	17 ○ 38.9	17 ○ 38.2	17 ○ 37.6	17 ○ 36.9	17 ○ 36.3	-0.6
Чт 3	268 ○ 26.4	283 ○ 26.4	298 ○ 26.5	313 ○ 26.5	328 ○ 26.6	343 ○ 26.6	358 ○ 26.7	13 ○ 26.7	28 ○ 26.8	43 ○ 26.8	58 ○ 26.9	73 ○ 26.9	+0.1
	17 ○ 27.8	17 ○ 27.2	17 ○ 26.5	17 ○ 25.9	17 ○ 25.2	17 ○ 24.5	17 ○ 23.9	17 ○ 23.2	17 ○ 22.6	17 ○ 21.9	17 ○ 21.3	17 ○ 20.6	-0.7
Пт 4	268 ○ 27.7	283 ○ 27.7	298 ○ 27.8	313 ○ 27.9	328 ○ 27.9	343 ○ 28.0	358 ○ 28.0	13 ○ 28.1	28 ○ 28.2	43 ○ 28.2	58 ○ 28.3	73 ○ 28.3	+0.1
	17 ○ 12.0	17 ○ 11.3	17 ○ 10.6	17 ○ 10.0	17 ○ 09.3	17 ○ 08.6	17 ○ 08.0	17 ○ 07.3	17 ○ 06.6	17 ○ 06.0	17 ○ 05.3	17 ○ 04.6	-0.7
Сб 5	268 ○ 29.2	283 ○ 29.2	298 ○ 29.3	313 ○ 29.4	328 ○ 29.4	343 ○ 29.5	358 ○ 29.6	13 ○ 29.6	28 ○ 29.7	43 ○ 29.8	58 ○ 29.8	73 ○ 29.9	+0.1
	16 ○ 55.8	16 ○ 55.2	16 ○ 54.5	16 ○ 53.8	16 ○ 53.1	16 ○ 52.5	16 ○ 51.8	16 ○ 51.1	16 ○ 50.4	16 ○ 49.7	16 ○ 49.0	16 ○ 48.4	-0.7
Вс 6	268 ○ 30.8	283 ○ 30.9	298 ○ 30.9	313 ○ 31.0	328 ○ 31.1	343 ○ 31.1	358 ○ 31.2	13 ○ 31.3	28 ○ 31.4	43 ○ 31.4	58 ○ 31.5	73 ○ 31.6	+0.1
	16 ○ 39.5	16 ○ 38.8	16 ○ 38.1	16 ○ 37.4	16 ○ 36.7	16 ○ 36.0	16 ○ 35.3	16 ○ 34.6	16 ○ 33.9	16 ○ 33.2	16 ○ 32.5	16 ○ 31.8	-0.7
Пн 7	268 ○ 32.5	283 ○ 32.6	298 ○ 32.7	313 ○ 32.8	328 ○ 32.9	343 ○ 32.9	358 ○ 33.0	13 ○ 33.1	28 ○ 33.2	43 ○ 33.2	58 ○ 33.3	73 ○ 33.4	+0.1
	16 ○ 22.8	16 ○ 22.1	16 ○ 21.4	16 ○ 20.7	16 ○ 20.0	16 ○ 19.3	16 ○ 18.6	16 ○ 17.9	16 ○ 17.2	16 ○ 16.5	16 ○ 15.8	16 ○ 15.1	-0.7
Вт 8	268 ○ 34.5	283 ○ 34.5	298 ○ 34.6	313 ○ 34.7	328 ○ 34.8	343 ○ 34.9	358 ○ 35.0	13 ○ 35.0	28 ○ 35.1	43 ○ 35.2	58 ○ 35.3	73 ○ 35.4	+0.1
	16 ○ 05.8	16 ○ 05.1	16 ○ 04.4	16 ○ 03.7	16 ○ 03.0	16 ○ 02.3	16 ○ 01.6	16 ○ 00.9	16 ○ 00.1	15 ○ 59.4	15 ○ 58.7	15 ○ 58.0	-0.7
Ср 9	268 ○ 36.5	283 ○ 36.6	298 ○ 36.7	313 ○ 36.8	328 ○ 36.9	343 ○ 36.9	358 ○ 37.0	13 ○ 37.1	28 ○ 37.2	43 ○ 37.3	58 ○ 37.4	73 ○ 37.5	+0.1
	15 ○ 48.7	15 ○ 47.9	15 ○ 47.2	15 ○ 46.5	15 ○ 45.8	15 ○ 45.0	15 ○ 44.3	15 ○ 43.6	15 ○ 42.9	15 ○ 42.1	15 ○ 41.4	15 ○ 40.7	-0.7
Чт 10	268 ○ 38.7	283 ○ 38.8	298 ○ 38.9	313 ○ 39.0	328 ○ 39.1	343 ○ 39.2	358 ○ 39.3	13 ○ 39.4	28 ○ 39.4	43 ○ 39.5	58 ○ 39.6	73 ○ 39.7	+0.1
	15 ○ 31.2	15 ○ 30.5	15 ○ 29.7	15 ○ 29.0	15 ○ 28.3	15 ○ 27.5	15 ○ 26.8	15 ○ 26.1	15 ○ 25.3	15 ○ 24.6	15 ○ 23.9	15 ○ 23.1	-0.7
Пт 11	268 ○ 41.0	283 ○ 41.1	298 ○ 41.2	313 ○ 41.3	328 ○ 41.4	343 ○ 41.5	358 ○ 41.6	13 ○ 41.7	28 ○ 41.8	43 ○ 41.9	58 ○ 42.0	73 ○ 42.1	+0.1
	15 ○ 13.5	15 ○ 12.8	15 ○ 12.0	15 ○ 11.3	15 ○ 10.5	15 ○ 09.8	15 ○ 09.1	15 ○ 08.3	15 ○ 07.6	15 ○ 06.8	15 ○ 06.1	15 ○ 05.3	-0.7
Сб 12	268 ○ 43.5	283 ○ 43.6	298 ○ 43.7	313 ○ 43.8	328 ○ 43.9	343 ○ 44.0	358 ○ 44.1	13 ○ 44.2	28 ○ 44.3	43 ○ 44.4	58 ○ 44.5	73 ○ 44.7	+0.1
	14 ○ 55.6	14 ○ 54.8	14 ○ 54.1	14 ○ 53.3	14 ○ 52.6	14 ○ 51.8	14 ○ 51.1	14 ○ 50.3	14 ○ 49.5	14 ○ 48.8	14 ○ 48.0	14 ○ 47.3	-0.8
Вс 13	268 ○ 46.1	283 ○ 46.2	298 ○ 46.3	313 ○ 46.4	328 ○ 46.5	343 ○ 46.6	358 ○ 46.8	13 ○ 46.9	28 ○ 47.0	43 ○ 47.1	58 ○ 47.2	73 ○ 47.3	+0.1
	14 ○ 37.4	14 ○ 36.6	14 ○ 35.9	14 ○ 35.1	14 ○ 34.3	14 ○ 33.6	14 ○ 32.8	14 ○ 32.1	14 ○ 31.3	14 ○ 30.5	14 ○ 29.8	14 ○ 29.0	-0.8
Пн 14	268 ○ 48.8	283 ○ 48.9	298 ○ 49.1	313 ○ 49.2	328 ○ 49.3	343 ○ 49.4	358 ○ 49.5	13 ○ 49.6	28 ○ 49.8	43 ○ 49.9	58 ○ 50.0	73 ○ 50.1	+0.1
	14 ○ 19.0	14 ○ 18.2	14 ○ 17.4	14 ○ 16.7	14 ○ 15.9	14 ○ 15.1	14 ○ 14.4	14 ○ 13.6	14 ○ 12.8	14 ○ 12.0	14 ○ 11.3	14 ○ 10.5	-0.8
Вт 15	268 ○ 51.7	283 ○ 51.8	298 ○ 51.9	313 ○ 52.1	328 ○ 52.2	343 ○ 52.3	358 ○ 52.4	13 ○ 52.6	28 ○ 52.7	43 ○ 52.8	58 ○ 52.9	73 ○ 53.1	+0.1
	14 ○ 00.4	13 ○ 59.6	13 ○ 58.8	13 ○ 58.0	13 ○ 57.2	13 ○ 56.4	13 ○ 55.7	13 ○ 54.9	13 ○ 54.1	13 ○ 53.3	13 ○ 52.5	13 ○ 51.7	-0.8
Ср 16	268 ○ 54.7	283 ○ 54.8	298 ○ 55.0	313 ○ 55.1	328 ○ 55.2	343 ○ 55.3	358 ○ 55.5	13 ○ 55.6	28 ○ 55.7	43 ○ 55.9	58 ○ 56.0	73 ○ 56.1	+0.1
	13 ○ 41.5	13 ○ 40.7	13 ○ 39.9	13 ○ 39.1	13 ○ 38.3	13 ○ 37.5	13 ○ 36.7	13 ○ 36.0	13 ○ 35.2	13 ○ 34.4	13 ○ 33.6	13 ○ 32.8	-0.8
Чт 17	268 ○ 57.8	283 ○ 58.0	298 ○ 58.1	313 ○ 58.2	328 ○ 58.4	343 ○ 58.5	358 ○ 58.6	13 ○ 58.8	28 ○ 58.9	43 ○ 59.1	58 ○ 59.2	73 ○ 59.3	+0.1
	13 ○ 22.4	13 ○ 21.6	13 ○ 20.8	13 ○ 20.0	13 ○ 19.2	13 ○ 18.4	13 ○ 17.6	13 ○ 16.8	13 ○ 16.0	13 ○ 15.2	13 ○ 14.4	13 ○ 13.6	-0.8
Пт 18	269 ○ 01.1	284 ○ 01.3	299 ○ 01.4	314 ○ 01.5	329 ○ 01.7	344 ○ 01.8	359 ○ 02.0	14 ○ 02.1	29 ○ 02.2	44 ○ 02.4	59 ○ 02.5	74 ○ 02.7	+0.1
	13 ○ 03.1	13 ○ 02.3	13 ○ 01.5	13 ○ 00.7	12 ○ 59.9	12 ○ 59.1	12 ○ 58.3	12 ○ 57.5	12 ○ 56.7	12 ○ 55.8	12 ○ 55.0	12 ○ 54.2	-0.8
Сб 19	269 ○ 04.5	284 ○ 04.7	299 ○ 04.8	314 ○ 04.9	329 ○ 05.1	344 ○ 05.2	359 ○ 05.4	14 ○ 05.5	29 ○ 05.7	44 ○ 05.8	59 ○ 06.0	74 ○ 06.1	+0.1
	12 ○ 43.6	12 ○ 42.8	12 ○ 42.0	12 ○ 41.2	12 ○ 40.4	12 ○ 39.6	12 ○ 38.7	12 ○ 37.9	12 ○ 37.1	12 ○ 36.3	12 ○ 35.5	12 ○ 34.6	-0.8
Вс 20	269 ○ 08.0	284 ○ 08.2	299 ○ 08.3	314 ○ 08.5	329 ○ 08.6	344 ○ 08.8	359 ○ 08.9	14 ○ 09.1	29 ○ 09.2	44 ○ 09.4	59 ○ 09.5	74 ○ 09.7	+0.2
	12 ○ 23.9	12 ○ 23.1	12 ○ 22.3	12 ○ 21.5	12 ○ 20.6	12 ○ 19.8	12 ○ 19.0	12 ○ 18.2	12 ○ 17.3	12 ○ 16.5	12 ○ 15.7	12 ○ 14.9	-0.8
Пн 21	269 ○ 11.7	284 ○ 11.8	299 ○ 12.0	314 ○ 12.2	329 ○ 12.3	344 ○ 12.5	359 ○ 12.6	14 ○ 12.8	29 ○ 12.9	44 ○ 13.1	59 ○ 13.2	74 ○ 13.4	+0.2
	12 ○ 04.1	12 ○ 03.2	12 ○ 02.4	12 ○ 01.6	12 ○ 00.7	11 ○ 59.9	11 ○ 59.1	11 ○ 58.2	11 ○ 57.4	11 ○ 56.6	11 ○ 55.7	11 ○ 54.9	-0.8
Вт 22	269 ○ 15.5	284 ○ 15.6	299 ○ 15.8	314 ○ 15.9	329 ○ 16.1	344 ○ 16.3	359 ○ 16.4	14 ○ 16.6	29 ○ 16.7	44 ○ 16.9	59 ○ 17.1	74 ○ 17.2	+0.2
	11 ○ 44.0	11 ○ 43.1	11 ○ 42.3	11 ○ 41.5	11 ○ 40.6	11 ○ 39.8	11 ○ 38.9	11 ○ 38.1	11 ○ 37.3	11 ○ 36.4	11 ○ 35.6	11 ○ 34.7	-0.8
Ср 23	269 ○ 19.3	284 ○ 19.5	299 ○ 19.7	314 ○ 19.8	329 ○ 20.0	344 ○ 20.2	359 ○ 20.3	14 ○ 20.5	29 ○ 20.7	44 ○ 20.8	59 ○ 21.0	74 ○ 21.2	+0.2
	11 ○ 23.7	11 ○ 22.9	11 ○ 22.0	11 ○ 21.2	11 ○ 20.3	11 ○ 19.5	11 ○ 18.6	11 ○ 17.8	11 ○ 16.9	11 ○ 16.1	11 ○ 15.2	11 ○ 14.4	-0.8
Чт 24	269 ○ 23.3	284 ○ 23.5	299 ○ 23.7	314 ○ 23.8	329 ○ 24.0	344 ○ 24.2	359 ○ 24.4	14 ○ 24.5	29 ○ 24.7	44 ○ 24.9	59 ○ 25.0	74 ○ 25.2	+0.2
	11 ○ 03.3	11 ○ 02.4	11 ○ 01.6	11 ○ 00.7	10 ○ 59.9	10 ○ 59.0	10 ○ 58.1	10 ○ 57.3	10 ○ 56.4	10 ○ 55.6	10 ○ 54.7	10 ○ 53.9	-0.9
Пт 25	269 ○ 27.4	284 ○ 27.6	299 ○ 27.8	314 ○ 28.0	329 ○ 28.1	344 ○ 28.3	359 ○ 28.5	14 ○ 28.7	29 ○ 28.8	44 ○ 29.0	59 ○ 29.2	74 ○ 29.4	+0.2
	10 ○ 42.7	10 ○ 41.8	10 ○ 40.9	10 ○ 40.1	10 ○ 39.2	10 ○ 38.4	10 ○ 37.5	10 ○ 36.6	10 ○ 35.8	10 ○ 34.9	10 ○ 34.0	10 ○ 33.2	-0.9
Сб 26	269 ○ 31.7	284 ○ 31.8	299 ○ 32.0	314 ○ 32.2	329 ○ 32.4	344 ○ 32.5	359 ○ 32.7	14 ○ 32.9	29 ○ 33.1	44 ○ 33.3	59 ○ 33.4	74 ○ 33.6	+0.2
	10 ○ 21.9	10 ○ 21.0	10 ○ 20.1	10 ○ 19.3	10 ○ 18.4	10 ○ 17.5	10 ○ 16.7	10 ○ 15.8	10 ○ 14.9	10 ○ 14.1	10 ○ 13.2	10 ○ 12.3	-0.9
Вс 27	269 ○ 36.0	284 ○ 36.2	299 ○ 36.3	314 ○ 36.5	329 ○ 36.7	344 ○ 36.9	359 ○ 37.1	14 ○ 37.2	29 ○ 37.4	44 ○ 37.6	59 ○ 37.8	74 ○ 38.0	+0.2
	10 ○ 00.9	10 ○ 00.1	9 ○ 59.2	9 ○ 58.3	9 ○ 57.4	9 ○ 56.6	9 ○ 55.7	9 ○ 54.8	9 ○ 53.9	9 ○ 53.0	9 ○ 52.2	9 ○ 51.3	-0.9
Пн 28	269 ○ 40.4	284 ○ 40.6	299 ○ 40.8	314 ○ 40.9	329 ○ 41.1	344 ○ 41.3	359 ○ 41.5	14 ○ 41.7	29 ○ 41.9	44 ○ 42.1	59 ○ 42.2	74 ○ 42.4	+0.2
	9 ○ 39.8	9 ○ 39.0	9 ○ 38.1	9 ○ 37.2	9 ○ 36.3	9 ○ 35.4	9 ○ 34.5	9 ○ 33.7	9 ○ 32.8	9 ○ 31.9	9 ○ 31.0	9 ○ 30.1	-0.9
Вт 29	269 ○ 44.9	284 ○ 45.1	299 ○ 45.3	314 ○ 45.5	329 ○ 45.6	344 ○ 45.8	359 ○ 46.0	14 ○ 46.2	29 ○ 46.4	44 ○ 46.6	59 ○ 46.8	74 ○ 47.0	+0.2
	9 ○ 18.6	9 ○ 17.7	9 ○ 16.8	9 ○ 15.9	9 ○ 15.0	9 ○ 14.1	9 ○ 13.2	9 ○ 12.4	9 ○ 11.5	9 ○ 10.6	9 ○ 09.7	9 ○ 08.8	-0.9
Ср 30	269 ○ 49.5	284 ○ 49.7	299 ○ 49.9	314 ○ 50.1	329 ○ 50.2	344 ○ 50.4	359 ○ 50.6	14 ○ 50.8	29 ○ 51.0	44 ○ 51.2	59 ○ 51.4	74 ○ 51.6	+0.2
	8 ○ 57.2	8 ○ 56.3	8 ○ 55.4	8 ○ 54.5	8 ○ 53.6	8 ○ 52.7	8 ○ 51.8	8 ○ 50.9	8 ○ 50.0	8 ○ 49.1	8 ○ 48.2	8 ○ 47.3	-0.9
Чт 31	269 ○ 54.1	284 ○ 54.3	299 ○ 54.5	314 ○ 54.7	329 ○ 54.9	344 ○ 55.1	359 ○ 55.3	14 ○ 55.5	29 ○ 55.7	44 ○ 55.9	59 ○ 56.1	74 ○ 56.3	+0.2
	8 ○ 35.6	8 ○ 34.7	8 ○ 33.8	8 ○ 32.9	8 ○ 32.0	8 ○ 31.1	8 ○ 30.2	8 ○ 29.3	8 ○ 28.4	8 ○ 27.5	8 ○ 26.6	8 ○ 25.7	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2034

Д	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	R/p
Вт 1	236° 28.0 -10° 06.8	250° 57.5 -9° 57.9	265° 27.0 -9° 48.9	279° 56.5 -9° 39.8	294° 26.1 -9° 30.7	308° 55.6 -9° 21.5	323° 25.1 -9° 12.3	337° 54.7 -9° 03.0	352° 24.2 -8° 53.7	6° 53.8 -8° 44.3	21° 23.3 -8° 34.8	+29.5 +9.2	15.7 57.6
Ср 2	238° 47.3 -6° 07.3	253° 17.0 -5° 57.2	267° 46.6 -5° 46.9	282° 16.2 -5° 36.7	296° 45.9 -5° 26.4	311° 15.5 -5° 16.1	325° 45.1 -5° 05.7	340° 14.8 -4° 55.3	354° 44.4 -4° 44.9	9° 14.0 -4° 34.5	23° 43.6 -4° 24.0	+29.6 +10.3	15.8 58.1
Чт 3	241° 07.7 -1° 43.8	255° 37.2 -1° 32.9	270° 06.8 -1° 22.1	284° 36.3 -1° 11.2	299° 05.8 -1° 00.4	313° 35.3 -0° 49.5	328° 04.8 -0° 38.6	342° 34.3 -0° 27.7	357° 03.8 -0° 16.8	11° 33.3 -0° 05.9	26° 02.7 0° 05.0	+29.5 +10.9	16.0 58.5
Пт 4	243° 22.6 2° 48.5	257° 51.8 2° 59.4	272° 20.9 3° 10.2	286° 50.0 3° 21.0	301° 19.1 3° 31.8	315° 48.2 3° 42.6	330° 17.3 3° 53.4	344° 46.3 4° 04.1	359° 15.3 4° 14.8	13° 44.3 4° 25.6	28° 13.3 4° 36.2	+29.1 +10.8	16.0 58.8
Сб 5	245° 24.1 7° 13.1	259° 52.6 7° 23.3	274° 21.0 7° 33.4	288° 49.4 7° 43.5	303° 17.8 7° 53.6	317° 46.1 8° 03.6	332° 14.4 8° 13.6	346° 42.7 8° 23.5	1° 10.9 8° 33.4	15° 39.1 8° 43.2	30° 07.3 8° 53.0	+28.3 +10.0	16.1 59.1
Вс 6	247° 04.8 11° 13.0	261° 32.3 11° 21.9	275° 59.8 11° 30.6	290° 27.2 11° 39.3	304° 54.6 11° 48.0	319° 22.0 11° 56.5	333° 49.3 12° 05.0	348° 16.6 12° 13.5	2° 43.8 12° 21.8	17° 11.0 12° 30.1	31° 38.1 12° 38.3	+27.3 +8.5	16.1 59.2
◑ Пн 7	248° 20.2 14° 31.6	262° 46.7 14° 38.4	277° 13.1 14° 45.2	291° 39.5 14° 51.9	306° 05.8 14° 58.5	320° 32.2 15° 04.9	334° 58.5 15° 11.3	349° 24.7 15° 17.6	3° 50.9 15° 23.8	18° 17.1 15° 29.9	32° 43.2 15° 35.9	+26.3 +6.4	16.2 59.3
Вт 8	262° 46.7 14° 38.4	277° 13.1 14° 45.2	291° 39.5 14° 51.9	306° 05.8 14° 58.5	320° 32.2 15° 04.9	334° 58.5 15° 11.3	349° 24.7 15° 17.6	3° 50.9 15° 23.8	18° 17.1 15° 29.9	32° 43.2 15° 35.9	47° 09.3 15° 41.8	+26.3 +6.3	16.2 59.3
Ср 9	263° 36.8 16° 58.0	278° 02.3 17° 02.2	292° 27.9 17° 06.3	306° 53.5 17° 10.3	321° 19.0 17° 14.2	335° 44.5 17° 17.9	350° 09.9 17° 21.6	4° 35.4 17° 25.1	19° 00.8 17° 28.6	33° 26.2 17° 31.9	47° 51.6 17° 35.1	+25.5 +3.7	16.2 59.2
Чт 10	264° 10.8 18° 09.0	278° 36.1 18° 10.4	293° 01.3 18° 11.6	307° 26.5 18° 12.6	321° 51.7 18° 13.6	336° 16.9 18° 14.4	350° 42.1 18° 15.1	5° 07.4 18° 15.7	19° 32.6 18° 16.2	33° 57.8 18° 16.6	48° 23.0 18° 16.8	+25.2 +0.8	16.1 59.1
Пт 11	264° 43.1 18° 06.0	279° 08.6 18° 04.4	293° 34.2 18° 02.6	307° 59.7 18° 00.7	322° 25.3 17° 58.7	336° 50.9 17° 56.6	351° 16.5 17° 54.3	5° 42.2 17° 52.0	20° 07.8 17° 49.5	34° 33.6 17° 46.9	48° 59.3 17° 44.2	+25.6 -2.2	16.0 58.8
Сб 12	265° 30.3 16° 50.7	279° 56.7 16° 46.3	294° 23.1 16° 41.7	308° 49.6 16° 37.1	323° 16.2 16° 32.4	337° 42.8 16° 27.6	352° 09.4 16° 22.7	6° 36.1 16° 17.7	21° 02.9 16° 12.6	35° 29.7 16° 07.3	49° 56.6 16° 02.0	+26.6 -4.9	15.9 58.4
Вс 13	266° 46.2 14° 31.7	281° 14.0 14° 25.0	295° 41.8 14° 18.2	310° 09.7 14° 11.4	324° 37.6 14° 04.4	339° 05.6 13° 57.4	353° 33.7 13° 50.4	8° 01.9 13° 43.2	22° 30.1 13° 36.0	36° 58.3 13° 28.7	51° 26.6 13° 21.3	+28.0 -7.0	15.8 57.9
● Пн 14	268° 38.9 11° 22.8	283° 08.2 11° 14.5	297° 37.5 11° 06.0	312° 07.0 10° 57.6	326° 36.5 10° 49.0	341° 06.0 10° 40.5	355° 35.6 10° 31.8	10° 05.3 10° 23.2	24° 35.0 10° 14.4	39° 04.8 10° 05.7	53° 34.7 9° 56.9	+29.6 -8.6	15.6 57.3
Вт 15	271° 09.4 7° 39.9	285° 40.2 7° 30.5	300° 11.0 7° 21.1	314° 41.9 7° 11.6	329° 12.8 7° 02.1	343° 43.8 6° 52.6	358° 14.8 6° 43.1	12° 45.9 6° 33.5	27° 17.0 6° 24.0	41° 48.2 6° 14.4	56° 19.4 6° 04.7	+31.0 -9.5	15.4 56.7
Ср 16	274° 13.6 3° 38.5	288° 45.5 3° 28.6	303° 17.5 3° 18.8	317° 49.6 3° 08.9	332° 21.7 2° 59.1	346° 53.8 2° 49.2	1° 25.9 2° 39.4	15° 58.1 2° 29.5	30° 30.4 2° 19.6	45° 02.6 2° 09.8	59° 34.9 1° 59.9	+32.1 -9.9	15.3 56.0
Чт 17	277° 43.5 -0° 27.6	292° 16.3 -0° 37.4	306° 49.1 -0° 47.2	321° 22.0 -0° 56.9	335° 54.9 -1° 06.6	350° 27.8 -1° 16.4	5° 00.7 -1° 26.1	19° 33.6 -1° 35.7	34° 06.6 -1° 45.4	48° 39.6 -1° 55.1	63° 12.6 -2° 04.7	+32.9 -9.7	15.1 55.4
Пт 18	281° 29.9 -4° 26.8	296° 03.1 -4° 36.1	310° 36.4 -4° 45.3	325° 09.7 -4° 54.6	339° 43.0 -5° 03.7	354° 16.3 -5° 12.9	8° 49.6 -5° 22.1	23° 22.9 -5° 31.2	37° 56.2 -5° 40.2	52° 29.5 -5° 49.3	67° 02.9 -5° 58.3	+33.3 -9.2	15.0 54.9
Сб 19	285° 23.1 -8° 09.4	299° 56.4 -8° 17.8	314° 29.8 -8° 26.2	329° 03.1 -8° 34.6	343° 36.4 -8° 42.9	358° 09.7 -8° 51.2	12° 43.0 -8° 59.4	27° 16.3 -9° 07.6	41° 49.6 -9° 15.8	56° 22.9 -9° 23.9	70° 56.2 -9° 31.9	+33.3 -8.3	14.9 54.5
Вс 20	289° 14.1 -11° 27.3	303° 47.1 -11° 34.6	318° 20.2 -11° 41.8	332° 53.2 -11° 49.0	347° 26.3 -11° 56.2	1° 59.3 -12° 03.3	16° 32.3 -12° 10.3	31° 05.2 -12° 17.3	45° 38.2 -12° 24.2	60° 11.1 -12° 31.1	74° 44.0 -12° 37.9	+33.0 -7.1	14.8 54.2
Пн 21	292° 55.0 -14° 13.2	307° 27.5 -14° 19.1	322° 00.0 -14° 24.9	336° 32.5 -14° 30.7	351° 05.0 -14° 36.4	5° 37.4 -14° 42.0	20° 09.8 -14° 47.5	34° 42.2 -14° 53.0	49° 14.5 -14° 58.5	63° 46.9 -15° 03.8	78° 19.1 -15° 09.1	+32.4 -5.6	14.8 54.2
◐ Вт 22	296° 19.9 -16° 20.4	310° 51.8 -16° 24.6	325° 23.5 -16° 28.7	339° 55.3 -16° 32.8	354° 27.0 -16° 36.8	8° 58.7 -16° 40.6	23° 30.3 -16° 44.5	38° 01.9 -16° 48.2	52° 33.5 -16° 51.9	67° 05.1 -16° 55.5	81° 36.6 -16° 59.0	+31.7 -3.9	14.8 54.3
Ср 23	299° 25.5 -17° 42.4	313° 56.5 -17° 44.7	328° 27.5 -17° 46.8	342° 58.4 -17° 48.9	357° 29.3 -17° 50.9	12° 00.2 -17° 52.8	26° 31.0 -17° 54.7	41° 01.8 -17° 56.4	55° 32.6 -17° 58.1	70° 03.4 -17° 59.7	84° 34.1 -18° 01.2	+30.9 -1.9	14.9 54.6
Чт 24	302° 11.2 -18° 13.3	316° 41.4 -18° 13.4	331° 11.7 -18° 13.4	345° 41.8 -18° 13.3	0° 12.0 -18° 13.2	14° 42.1 -18° 12.9	29° 12.2 -18° 12.5	43° 42.3 -18° 12.1	58° 12.4 -18° 11.6	72° 42.4 -18° 11.0	87° 12.4 -18° 10.2	+30.1 +0.3	15.0 55.1
Пт 25	304° 39.5 -17° 48.5	319° 09.1 -17° 46.3	333° 38.8 -17° 44.0	348° 08.3 -17° 41.6	2° 37.9 -17° 39.1	17° 07.5 -17° 36.6	31° 37.0 -17° 33.9	46° 06.5 -17° 31.1	60° 36.0 -17° 28.3	75° 05.5 -17° 25.4	89° 35.0 -17° 22.3	+29.5 +2.6	15.2 55.8
Сб 26	306° 55.1 -16° 25.6	321° 24.3 -16° 21.1	335° 53.6 -16° 16.5	350° 22.8 -16° 11.8	4° 52.0 -16° 07.0	19° 21.2 -16° 02.1	33° 50.4 -15° 57.1	48° 19.5 -15° 52.0	62° 48.7 -15° 46.9	77° 17.9 -15° 41.6	91° 47.0 -15° 36.3	+29.2 +4.9	15.4 56.5
Вс 27	309° 03.4 -14° 05.6	323° 32.4 -13° 58.9	338° 01.5 -13° 52.0	352° 30.5 -13° 45.2	6° 59.5 -13° 38.2	21° 28.6 -13° 31.1	35° 57.6 -13° 24.0	50° 26.6 -13° 16.7	64° 55.6 -13° 09.4	79° 24.6 -13° 02.0	93° 53.7 -12° 54.6	+29.0 +7.1	15.6 57.2
Пн 28	311° 08.6 -10° 53.5	325° 37.6 -10° 44.8	340° 06.6 -10° 36.1	354° 35.6 -10° 27.3	9° 04.5 -10° 18.5	23° 33.5 -10° 09.5	38° 02.5 -10° 00.5	52° 31.5 -9° 51.5	67° 00.4 -9° 42.4	81° 29.4 -9° 33.2	95° 58.4 -9° 24.0	+29.0 +9.0	15.8 57.9
○ Вт 29	313° 12.7 -6° 58.5	327° 41.6 -6° 48.4	342° 10.6 -6° 38.3	356° 39.5 -6° 28.1	11° 08.4 -6° 17.8	25° 37.3 -6° 07.5	40° 06.2 -5° 57.2	54° 35.1 -5° 46.8	69° 04.1 -5° 36.4	83° 32.9 -5° 25.9	98° 01.8 -5° 15.5	+28.9 +10.3	16.0 58.6
Ср 30	315° 14.4 -2° 34.2	329° 43.2 -2° 23.2	344° 11.9 -2° 12.2	358° 40.7 -2° 01.2	13° 09.4 -1° 50.2	27° 38.2 -1° 39.2	42° 06.9 -1° 28.1	56° 35.6 -1° 17.0	71° 04.3 -1° 06.0	85° 33.0 -0° 54.9	100° 01.6 -0° 43.8	+28.7 +11.0	16.1 59.1
Чт 31	317° 09.9 2° 03.2	331° 38.3 2° 14.3	346° 06.7 2° 25.4	0° 35.0 2° 36.5	15° 03.4 2° 47.5	29° 31.7 2° 58.6	44° 00.0 3° 09.6	58° 28.3 3° 20.7	72° 56.6 3° 31.7	87° 24.9 3° 42.7	101° 53.1 3° 53.6	+28.3 +11.1	16.2 59.4

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 7 06h50 — Новолуние: 14 03h53 — Первая четв.: 22 00h43 — Полнолуние: 29 16h49

СОЛНЦЕ

Сентябрь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	269° 58.9 8° 13.9	284° 59.1 8° 13.0	299° 59.3 8° 12.1	314° 59.5 8° 11.2	329° 59.7 8° 10.3	344° 59.9 8° 09.4	0° 00.1 8° 08.5	15° 00.3 8° 07.6	30° 00.5 8° 06.7	45° 00.7 8° 05.8	60° 00.9 8° 04.9	75° 01.1 8° 04.0	+0.2 -0.9
Сб 2	270° 03.7 7° 52.1	285° 03.9 7° 51.2	300° 04.1 7° 50.3	315° 04.3 7° 49.4	330° 04.5 7° 48.5	345° 04.7 7° 47.6	0° 04.9 7° 46.7	15° 05.1 7° 45.7	30° 05.3 7° 44.8	45° 05.5 7° 43.9	60° 05.7 7° 43.0	75° 05.9 7° 42.1	+0.2 -0.9
Вс 3	270° 08.6 7° 30.2	285° 08.8 7° 29.3	300° 09.0 7° 28.3	315° 09.2 7° 27.4	330° 09.4 7° 26.5	345° 09.6 7° 25.6	0° 09.8 7° 24.7	15° 10.0 7° 23.8	30° 10.2 7° 22.8	45° 10.4 7° 21.9	60° 10.6 7° 21.0	75° 10.9 7° 20.1	+0.2 -0.9
Пн 4	270° 13.5 7° 08.1	285° 13.7 7° 07.2	300° 14.0 7° 06.3	315° 14.2 7° 05.3	330° 14.4 7° 04.4	345° 14.6 7° 03.5	0° 14.8 7° 02.6	15° 15.0 7° 01.6	30° 15.2 7° 00.7	45° 15.4 6° 59.8	60° 15.6 6° 58.9	75° 15.8 6° 58.0	+0.2 -0.9
Вт 5	270° 18.5 6° 45.9	285° 18.8 6° 45.0	300° 19.0 6° 44.1	315° 19.2 6° 43.1	330° 19.4 6° 42.2	345° 19.6 6° 41.3	0° 19.8 6° 40.4	15° 20.0 6° 39.4	30° 20.2 6° 38.5	45° 20.4 6° 37.6	60° 20.6 6° 36.6	75° 20.9 6° 35.7	+0.2 -0.9
Ср 6	270° 23.6 6° 23.6	285° 23.8 6° 22.7	300° 24.0 6° 21.8	315° 24.2 6° 20.8	330° 24.4 6° 19.9	345° 24.7 6° 19.0	0° 24.9 6° 18.0	15° 25.1 6° 17.1	30° 25.3 6° 16.2	45° 25.5 6° 15.2	60° 25.7 6° 14.3	75° 25.9 6° 13.4	+0.2 -0.9
Чт 7	270° 28.7 6° 01.2	285° 28.9 6° 00.3	300° 29.1 5° 59.3	315° 29.3 5° 58.4	330° 29.6 5° 57.5	345° 29.8 5° 56.5	0° 30.0 5° 55.6	15° 30.2 5° 54.7	30° 30.4 5° 53.7	45° 30.6 5° 52.8	60° 30.8 5° 51.9	75° 31.1 5° 50.9	+0.2 -0.9
Пт 8	270° 33.8 5° 38.7	285° 34.1 5° 37.8	300° 34.3 5° 36.8	315° 34.5 5° 35.9	330° 34.7 5° 35.0	345° 34.9 5° 34.0	0° 35.1 5° 33.1	15° 35.4 5° 32.1	30° 35.6 5° 31.2	45° 35.8 5° 30.2	60° 36.0 5° 29.3	75° 36.2 5° 28.4	+0.2 -0.9
Сб 9	270° 39.0 5° 16.1	285° 39.2 5° 15.2	300° 39.5 5° 14.2	315° 39.7 5° 13.3	330° 39.9 5° 12.3	345° 40.1 5° 11.4	0° 40.3 5° 10.4	15° 40.5 5° 09.5	30° 40.8 5° 08.6	45° 41.0 5° 07.6	60° 41.2 5° 06.7	75° 41.4 5° 05.7	+0.2 -0.9
Вс 10	270° 44.2 4° 53.4	285° 44.5 4° 52.5	300° 44.7 4° 51.5	315° 44.9 4° 50.6	330° 45.1 4° 49.6	345° 45.3 4° 48.7	0° 45.6 4° 47.7	15° 45.8 4° 46.8	30° 46.0 4° 45.8	45° 46.2 4° 44.9	60° 46.4 4° 43.9	75° 46.6 4° 43.0	+0.2 -0.9
Пн 11	270° 49.5 4° 30.6	285° 49.7 4° 29.7	300° 49.9 4° 28.7	315° 50.1 4° 27.8	330° 50.4 4° 26.8	345° 50.6 4° 25.9	0° 50.8 4° 24.9	15° 51.0 4° 24.0	30° 51.2 4° 23.0	45° 51.5 4° 22.1	60° 51.7 4° 21.1	75° 51.9 4° 20.2	+0.2 -1.0
Вт 12	270° 54.8 4° 07.8	285° 55.0 4° 06.8	300° 55.2 4° 05.9	315° 55.4 4° 04.9	330° 55.6 4° 04.0	345° 55.9 4° 03.0	0° 56.1 4° 02.1	15° 56.3 4° 01.1	30° 56.5 4° 00.2	45° 56.8 3° 59.2	60° 57.0 3° 58.2	75° 57.2 3° 57.3	+0.2 -1.0
Ср 13	271° 00.1 3° 44.9	286° 00.3 3° 43.9	301° 00.5 3° 43.0	316° 00.7 3° 42.0	331° 01.0 3° 41.0	346° 01.2 3° 40.1	1° 01.4 3° 39.1	16° 01.6 3° 38.2	31° 01.8 3° 37.2	46° 02.1 3° 36.2	61° 02.3 3° 35.3	76° 02.5 3° 34.3	+0.2 -1.0
Чт 14	271° 05.4 3° 21.9	286° 05.6 3° 20.9	301° 05.8 3° 20.0	316° 06.1 3° 19.0	331° 06.3 3° 18.0	346° 06.5 3° 17.1	1° 06.7 3° 16.1	16° 06.9 3° 15.2	31° 07.2 3° 14.2	46° 07.4 3° 13.2	61° 07.6 3° 12.3	76° 07.8 3° 11.3	+0.2 -1.0
Пт 15	271° 10.7 2° 58.8	286° 10.9 2° 57.9	301° 11.2 2° 56.9	316° 11.4 2° 55.9	331° 11.6 2° 55.0	346° 11.8 2° 54.0	1° 12.1 2° 53.0	16° 12.3 2° 52.1	31° 12.5 2° 51.1	46° 12.7 2° 50.2	61° 12.9 2° 49.2	76° 13.2 2° 48.2	+0.2 -1.0
Сб 16	271° 16.1 2° 35.7	286° 16.3 2° 34.7	301° 16.5 2° 33.8	316° 16.7 2° 32.8	331° 17.0 2° 31.9	346° 17.2 2° 30.9	1° 17.4 2° 29.9	16° 17.6 2° 29.0	31° 17.8 2° 28.0	46° 18.1 2° 27.0	61° 18.3 2° 26.1	76° 18.5 2° 25.1	+0.2 -1.0
Вс 17	271° 21.4 2° 12.5	286° 21.6 2° 11.6	301° 21.9 2° 10.6	316° 22.1 2° 09.7	331° 22.3 2° 08.7	346° 22.5 2° 07.7	1° 22.8 2° 06.8	16° 23.0 2° 05.8	31° 23.2 2° 04.8	46° 23.4 2° 03.9	61° 23.6 2° 02.9	76° 23.9 2° 01.9	+0.2 -1.0
Пн 18	271° 26.8 1° 49.3	286° 27.0 1° 48.4	301° 27.2 1° 47.4	316° 27.4 1° 46.4	331° 27.7 1° 45.5	346° 27.9 1° 44.5	1° 28.1 1° 43.5	16° 28.3 1° 42.6	31° 28.6 1° 41.6	46° 28.8 1° 40.6	61° 29.0 1° 39.7	76° 29.2 1° 38.7	+0.2 -1.0
Вт 19	271° 32.1 1° 26.1	286° 32.3 1° 25.1	301° 32.6 1° 24.2	316° 32.8 1° 23.2	331° 33.0 1° 22.2	346° 33.2 1° 21.3	1° 33.5 1° 20.3	16° 33.7 1° 19.3	31° 33.9 1° 18.3	46° 34.1 1° 17.4	61° 34.4 1° 16.4	76° 34.6 1° 15.4	+0.2 -1.0
Ср 20	271° 37.5 1° 02.8	286° 37.7 1° 01.9	301° 37.9 1° 00.9	316° 38.1 0° 59.9	331° 38.4 0° 58.9	346° 38.6 0° 58.0	1° 38.8 0° 57.0	16° 39.0 0° 56.0	31° 39.2 0° 55.1	46° 39.5 0° 54.1	61° 39.7 0° 53.1	76° 39.9 0° 52.2	+0.2 -1.0
Чт 21	271° 42.8 0° 39.5	286° 43.0 0° 38.6	301° 43.2 0° 37.6	316° 43.5 0° 36.6	331° 43.7 0° 35.6	346° 43.9 0° 34.7	1° 44.1 0° 33.7	16° 44.4 0° 32.7	31° 44.6 0° 31.8	46° 44.8 0° 30.8	61° 45.0 0° 29.8	76° 45.2 0° 28.8	+0.2 -1.0
Пт 22	271° 48.1 0° 16.2	286° 48.3 0° 15.2	301° 48.6 0° 14.3	316° 48.8 0° 13.3	331° 49.0 0° 12.3	346° 49.2 0° 11.3	1° 49.4 0° 10.4	16° 49.7 0° 09.4	31° 49.9 0° 08.4	46° 50.1 0° 07.5	61° 50.3 0° 06.5	76° 50.5 0° 05.5	+0.2 -1.0
Сб 23	271° 53.4 -0° 07.1	286° 53.6 -0° 08.1	301° 53.8 -0° 09.1	316° 54.1 -0° 10.0	331° 54.3 -0° 11.0	346° 54.5 -0° 12.0	1° 54.7 -0° 13.0	16° 54.9 -0° 13.9	31° 55.2 -0° 14.9	46° 55.4 -0° 15.9	61° 55.6 -0° 16.9	76° 55.8 -0° 17.8	+0.2 -1.0
Вс 24	271° 58.7 -0° 30.5	286° 58.9 -0° 31.5	301° 59.1 -0° 32.4	316° 59.3 -0° 33.4	331° 59.6 -0° 34.4	346° 59.8 -0° 35.3	2° 00.0 -0° 36.3	17° 00.2 -0° 37.3	32° 00.4 -0° 38.3	47° 00.6 -0° 39.2	62° 00.9 -0° 40.2	77° 01.1 -0° 41.2	+0.2 -1.0
Пн 25	272° 03.9 -0° 53.8	287° 04.1 -0° 54.8	302° 04.3 -0° 55.8	317° 04.6 -0° 56.7	332° 04.8 -0° 57.7	347° 05.0 -0° 58.7	2° 05.2 -0° 59.7	17° 05.4 -1° 00.6	32° 05.6 -1° 01.6	47° 05.9 -1° 02.6	62° 06.1 -1° 03.6	77° 06.3 -1° 04.5	+0.2 -1.0
Вт 26	272° 09.1 -1° 17.2	287° 09.3 -1° 18.2	302° 09.5 -1° 19.1	317° 09.7 -1° 20.1	332° 10.0 -1° 21.1	347° 10.2 -1° 22.0	2° 10.4 -1° 23.0	17° 10.6 -1° 24.0	32° 10.8 -1° 25.0	47° 11.0 -1° 25.9	62° 11.3 -1° 26.9	77° 11.5 -1° 27.9	+0.2 -1.0
Ср 27	272° 14.3 -1° 40.5	287° 14.5 -1° 41.5	302° 14.7 -1° 42.5	317° 14.9 -1° 43.4	332° 15.1 -1° 44.4	347° 15.3 -1° 45.4	2° 15.5 -1° 46.4	17° 15.7 -1° 47.3	32° 16.0 -1° 48.3	47° 16.2 -1° 49.3	62° 16.4 -1° 50.2	77° 16.6 -1° 51.2	+0.2 -1.0
Чт 28	272° 19.4 -2° 03.9	287° 19.6 -2° 04.8	302° 19.8 -2° 05.8	317° 20.0 -2° 06.8	332° 20.2 -2° 07.7	347° 20.4 -2° 08.7	2° 20.6 -2° 09.7	17° 20.8 -2° 10.7	32° 21.0 -2° 11.6	47° 21.2 -2° 12.6	62° 21.5 -2° 13.6	77° 21.7 -2° 14.5	+0.2 -1.0
Пт 29	272° 24.4 -2° 27.2	287° 24.6 -2° 28.1	302° 24.8 -2° 29.1	317° 25.0 -2° 30.1	332° 25.2 -2° 31.1	347° 25.4 -2° 32.0	2° 25.6 -2° 33.0	17° 25.9 -2° 34.0	32° 26.1 -2° 34.9	47° 26.3 -2° 35.9	62° 26.5 -2° 36.9	77° 26.7 -2° 37.8	+0.2 -1.0
Сб 30	272° 29.4 -2° 50.5	287° 29.6 -2° 51.4	302° 29.8 -2° 52.4	317° 30.0 -2° 53.4	332° 30.2 -2° 54.3	347° 30.4 -2° 55.3	2° 30.6 -2° 56.3	17° 30.8 -2° 57.2	32° 31.0 -2° 58.2	47° 31.2 -2° 59.2	62° 31.4 -3° 00.2	77° 31.6 -3° 01.1	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2034

Д	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	R/p
Пт 1	232° 06.1	246° 34.1	261° 02.1	275° 30.0	289° 58.0	304° 25.8	318° 53.7	333° 21.6	347° 49.4	2° 17.1	16° 44.9	+27.9	16.2
	5° 31.3	5° 42.0	5° 52.7	6° 03.3	6° 13.9	6° 24.5	6° 35.0	6° 45.5	6° 56.0	7° 06.4	7° 16.8	+10.6	59.5
Сб 2	233° 37.8	248° 05.1	262° 32.4	276° 59.6	291° 26.8	305° 54.0	320° 21.1	334° 48.2	349° 15.3	3° 42.3	18° 09.4	+27.2	16.2
	9° 46.4	9° 55.9	10° 05.4	10° 14.8	10° 24.1	10° 33.4	10° 42.6	10° 51.7	11° 00.8	11° 09.8	11° 18.7	+9.2	59.6
Вс 3	234° 50.9	249° 17.5	263° 44.0	278° 10.5	292° 36.9	307° 03.3	321° 29.7	335° 56.1	350° 22.4	4° 48.8	19° 15.1	+26.4	16.2
	13° 23.4	13° 31.1	13° 38.6	13° 46.1	13° 53.5	14° 00.8	14° 08.0	14° 15.1	14° 22.1	14° 29.1	14° 35.9	+7.3	59.5
Пн 4	235° 46.5	250° 12.4	264° 38.3	279° 04.2	293° 30.1	307° 56.0	322° 21.8	336° 47.6	351° 13.5	5° 39.3	20° 05.0	+25.9	16.1
	16° 06.7	16° 11.9	16° 17.0	16° 22.0	16° 26.9	16° 31.7	16° 36.4	16° 41.0	16° 45.5	16° 49.9	16° 54.1	+4.7	59.2
◑ Вт 5	236° 30.8	250° 56.5	265° 22.1	279° 47.8	294° 13.5	308° 39.2	323° 04.9	337° 30.6	351° 56.3	6° 22.0	20° 47.7	+25.7	16.1
	17° 44.5	17° 46.9	17° 49.2	17° 51.5	17° 53.6	17° 55.5	17° 57.4	17° 59.1	18° 00.8	18° 02.3	18° 03.7	+1.9	58.9
Ср 6	237° 14.8	251° 40.7	266° 06.7	280° 32.7	294° 58.7	309° 24.7	323° 50.8	338° 16.9	352° 43.0	7° 09.1	21° 35.3	+26.0	16.0
	18° 10.7	18° 10.3	18° 09.7	18° 09.0	18° 08.2	18° 07.3	18° 06.3	18° 05.2	18° 03.9	18° 02.5	18° 01.1	-1.0	58.5
Чт 7	251° 40.7	266° 06.7	280° 32.7	294° 58.7	309° 24.7	323° 50.8	338° 16.9	352° 43.0	7° 09.1	21° 35.3	36° 01.5	+26.1	16.0
	18° 10.3	18° 09.7	18° 09.0	18° 08.2	18° 07.3	18° 06.3	18° 05.2	18° 03.9	18° 02.5	18° 01.1	17° 59.5	-1.1	58.5
Пт 8	252° 38.4	267° 05.1	281° 31.9	295° 58.8	310° 25.6	324° 52.6	339° 19.5	353° 46.6	8° 13.6	22° 40.7	37° 07.9	+26.9	15.8
	17° 22.5	17° 19.2	17° 15.8	17° 12.3	17° 08.7	17° 04.9	17° 01.1	16° 57.2	16° 53.1	16° 49.0	16° 44.8	-3.8	58.1
Сб 9	254° 00.8	268° 28.8	282° 56.8	297° 24.8	311° 52.9	326° 21.0	340° 49.2	355° 17.5	9° 45.8	24° 14.1	38° 42.5	+28.2	15.7
	15° 30.1	15° 24.4	15° 18.7	15° 12.8	15° 06.9	15° 00.8	14° 54.7	14° 48.5	14° 42.2	14° 35.9	14° 29.5	-6.1	57.6
Вс 10	255° 55.2	270° 24.5	284° 53.8	299° 23.2	313° 52.6	328° 22.1	342° 51.7	357° 21.3	11° 50.9	26° 20.6	40° 50.4	+29.5	15.6
	12° 44.1	12° 36.6	12° 28.9	12° 21.3	12° 13.5	12° 05.7	11° 57.8	11° 49.9	11° 41.9	11° 33.8	11° 25.7	-7.8	57.1
Пн 11	258° 23.0	272° 53.6	287° 24.2	301° 54.9	316° 25.7	330° 56.4	345° 27.3	359° 58.1	14° 29.0	29° 00.0	43° 31.0	+30.8	15.4
	9° 18.1	9° 09.3	9° 00.3	8° 51.4	8° 42.4	8° 33.4	8° 24.3	8° 15.2	8° 06.1	7° 56.9	7° 47.7	-9.0	56.6
● Вт 12	261° 21.4	275° 53.1	290° 24.9	304° 56.6	319° 28.5	334° 00.3	348° 32.2	3° 04.1	17° 36.1	32° 08.1	46° 40.1	+31.9	15.3
	5° 26.4	5° 16.8	5° 07.2	4° 57.6	4° 47.9	4° 38.3	4° 28.6	4° 18.9	4° 09.2	3° 59.4	3° 49.7	-9.7	56.0
Ср 13	264° 44.4	279° 16.9	293° 49.4	308° 22.0	322° 54.6	337° 27.2	351° 59.9	6° 32.5	21° 05.2	35° 38.0	50° 10.7	+32.6	15.1
	1° 22.9	1° 13.1	1° 03.3	0° 53.5	0° 43.7	0° 33.9	0° 24.1	0° 14.3	0° 04.5	-0° 05.2	-0° 15.0	-9.8	55.5
Чт 14	268° 24.1	282° 57.2	297° 30.2	312° 03.3	326° 36.3	341° 09.4	355° 42.5	10° 15.6	24° 48.7	39° 21.8	53° 55.0	+33.1	15.0
	-2° 40.0	-2° 49.6	-2° 59.1	-3° 08.6	-3° 18.1	-3° 27.5	-3° 37.0	-3° 46.4	-3° 55.8	-4° 05.1	-4° 14.5	-9.5	55.0
Пт 15	272° 12.7	286° 45.9	301° 19.2	315° 52.4	330° 25.6	344° 58.8	359° 32.0	14° 05.2	28° 38.4	43° 11.7	57° 44.9	+33.2	14.9
	-6° 31.3	-6° 40.2	-6° 49.0	-6° 57.8	-7° 06.6	-7° 15.3	-7° 24.0	-7° 32.7	-7° 41.3	-7° 49.9	-7° 58.4	-8.7	54.6
Сб 16	276° 02.4	290° 35.5	305° 08.6	319° 41.7	334° 14.8	348° 47.9	3° 20.9	17° 54.0	32° 27.0	47° 00.0	61° 33.1	+33.1	14.8
	-10° 01.6	-10° 09.4	-10° 17.2	-10° 25.0	-10° 32.7	-10° 40.4	-10° 48.0	-10° 55.5	-11° 03.1	-11° 10.5	-11° 17.9	-7.6	54.3
Вс 17	279° 46.5	294° 19.3	308° 52.0	323° 24.7	337° 57.4	352° 30.1	7° 02.8	21° 35.5	36° 08.1	50° 40.7	65° 13.3	+32.7	14.8
	-13° 02.6	-13° 09.2	-13° 15.6	-13° 22.0	-13° 28.4	-13° 34.7	-13° 40.9	-13° 47.1	-13° 53.2	-13° 59.3	-14° 05.2	-6.3	54.1
Пн 18	283° 19.7	297° 51.9	312° 24.1	326° 56.3	341° 28.5	356° 00.6	10° 32.8	25° 04.9	39° 36.9	54° 09.0	68° 41.0	+32.1	14.8
	-15° 27.3	-15° 32.3	-15° 37.1	-15° 41.9	-15° 46.7	-15° 51.3	-15° 55.9	-16° 00.5	-16° 04.9	-16° 09.3	-16° 13.6	-4.6	54.1
Вт 19	286° 38.4	301° 10.1	315° 41.6	330° 13.2	344° 44.8	359° 16.3	13° 47.8	28° 19.3	42° 50.7	57° 22.1	71° 53.5	+31.5	14.8
	-17° 09.4	-17° 12.5	-17° 15.6	-17° 18.5	-17° 21.4	-17° 24.2	-17° 26.9	-17° 29.6	-17° 32.1	-17° 34.6	-17° 37.0	-2.8	54.2
◐ Ср 20	289° 41.3	304° 12.3	318° 43.3	333° 14.2	347° 45.1	2° 16.0	16° 46.9	31° 17.7	45° 48.6	60° 19.4	74° 50.1	+30.9	14.9
	-18° 03.4	-18° 04.5	-18° 05.5	-18° 06.4	-18° 07.2	-18° 08.0	-18° 08.7	-18° 09.2	-18° 09.7	-18° 10.2	-18° 10.5	-0.7	54.6
Чт 21	292° 28.9	306° 59.3	321° 29.7	336° 00.1	350° 30.5	5° 00.8	19° 31.1	34° 01.4	48° 31.6	63° 01.9	77° 32.1	+30.3	15.0
	-18° 04.8	-18° 03.8	-18° 02.6	-18° 01.3	-18° 00.0	-17° 58.5	-17° 57.0	-17° 55.4	-17° 53.7	-17° 51.9	-17° 50.0	+1.5	55.1
Пт 22	295° 03.3	309° 33.3	324° 03.2	338° 33.1	353° 03.0	7° 32.8	22° 02.7	36° 32.5	51° 02.4	65° 32.2	80° 02.0	+29.9	15.2
	-17° 10.9	-17° 07.5	-17° 04.1	-17° 00.6	-16° 57.0	-16° 53.3	-16° 49.5	-16° 45.6	-16° 41.7	-16° 37.6	-16° 33.5	+3.7	55.8
Сб 23	297° 27.2	311° 56.8	326° 26.3	340° 55.9	355° 25.4	9° 54.9	24° 24.5	38° 54.0	53° 23.4	67° 52.9	82° 22.4	+29.5	15.4
	-15° 20.6	-15° 15.0	-15° 09.4	-15° 03.6	-14° 57.8	-14° 51.9	-14° 45.9	-14° 39.8	-14° 33.6	-14° 27.4	-14° 21.0	+6.0	56.6
Вс 24	299° 42.9	314° 12.2	328° 41.4	343° 10.7	357° 39.9	12° 09.1	26° 38.3	41° 07.5	55° 36.7	70° 05.9	84° 35.1	+29.2	15.7
	-12° 36.0	-12° 28.4	-12° 20.6	-12° 12.8	-12° 05.0	-11° 57.0	-11° 49.0	-11° 40.9	-11° 32.7	-11° 24.4	-11° 16.1	+8.0	57.5
Пн 25	301° 51.1	316° 20.0	330° 49.0	345° 17.9	359° 46.8	14° 15.7	28° 44.6	43° 13.5	57° 42.4	72° 11.2	86° 40.0	+28.9	15.9
	-9° 02.8	-8° 53.3	-8° 43.9	-8° 34.3	-8° 24.7	-8° 15.1	-8° 05.3	-7° 55.6	-7° 45.7	-7° 35.8	-7° 25.9	+9.7	56.8
Вт 26	303° 50.5	318° 19.0	332° 47.5	347° 16.0	1° 44.5	16° 13.0	30° 41.5	45° 09.9	59° 38.3	74° 06.7	88° 35.0	+28.5	16.1
	-4° 50.7	-4° 40.0	-4° 29.2	-4° 18.4	-4° 07.6	-3° 56.8	-3° 45.9	-3° 34.9	-3° 24.0	-3° 13.0	-3° 02.0	+10.9	59.2
Ср 27	305° 37.6	320° 05.6	334° 33.6	349° 01.5	3° 29.4	17° 57.2	32° 25.1	46° 52.9	61° 20.6	75° 48.4	90° 16.1	+27.8	16.3
	-0° 13.9	-0° 02.6	0° 08.7	0° 20.1	0° 31.5	0° 42.8	0° 54.2	1° 05.6	1° 16.9	1° 28.3	1° 39.7	+11.4	59.9
○ Чт 28	307° 08.2	321° 35.4	336° 02.6	350° 29.7	4° 56.9	19° 23.9	33° 51.0	48° 18.0	62° 45.0	77° 11.9	91° 38.8	+27.1	16.4
	4° 29.2	4° 40.3	4° 51.5	5° 02.6	5° 13.7	5° 24.7	5° 35.7	5° 46.7	5° 57.7	6° 08.6	6° 19.5	+11.0	60.3
Пт 29	308° 18.3	322° 44.7	337° 11.0	351° 37.3	6° 03.5	20° 29.8	34° 55.9	49° 22.1	63° 48.2	78° 14.3	92° 40.3	+26.2	16.5
	8° 57.7	9° 07.8	9° 17.9	9° 27.9	9° 37.8	9° 47.7	9° 57.5	10° 07.3	10° 17.0	10° 26.6	10° 36.1	+9.9	60.4
Сб 30	309° 07.1	323° 32.6	337° 58.2	352° 23.6	6° 49.1	21° 14.5	35° 39.9	50° 05.3	64° 30.7	78° 56.0	93° 21.3	+25.4	16.4
	12° 50.2	12° 58.5	13° 06.7	13° 14.8	13° 22.8	13° 30.7	13° 38.5	13° 46.2	13° 53.8	14° 01.4	14° 08.8	+7.9	60.3

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 5 11h41 — Новолуние: 12 16h13 — Первая четв.: 20 18h39 — Полнолуние: 28 02h56

СОЛНЦЕ

Октябрь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ’/h
Вс 1	272° 34.3 -3° 13.7	287° 34.5 -3° 14.7	302° 34.7 -3° 15.7	317° 34.9 -3° 16.6	332° 35.1 -3° 17.6	347° 35.3 -3° 18.6	2° 35.5 -3° 19.5	17° 35.7 -3° 20.5	32° 35.9 -3° 21.5	47° 36.1 -3° 22.4	62° 36.3 -3° 23.4	77° 36.5 -3° 24.4	+0.2 -1.0
Пн 2	272° 39.1 -3° 37.0	287° 39.3 -3° 37.9	302° 39.5 -3° 38.9	317° 39.7 -3° 39.9	332° 39.9 -3° 40.8	347° 40.1 -3° 41.8	2° 40.3 -3° 42.8	17° 40.5 -3° 43.7	32° 40.7 -3° 44.7	47° 40.9 -3° 45.7	62° 41.1 -3° 46.6	77° 41.3 -3° 47.6	+0.2 -1.0
Вт 3	272° 43.9 -4° 00.1	287° 44.1 -4° 01.1	302° 44.3 -4° 02.1	317° 44.4 -4° 03.0	332° 44.6 -4° 04.0	347° 44.8 -4° 05.0	2° 45.0 -4° 05.9	17° 45.2 -4° 06.9	32° 45.4 -4° 07.9	47° 45.6 -4° 08.8	62° 45.8 -4° 09.8	77° 46.0 -4° 10.8	+0.2 -1.0
Ср 4	272° 48.5 -4° 23.3	287° 48.7 -4° 24.3	302° 48.9 -4° 25.2	317° 49.1 -4° 26.2	332° 49.3 -4° 27.1	347° 49.5 -4° 28.1	2° 49.7 -4° 29.1	17° 49.9 -4° 30.0	32° 50.1 -4° 31.0	47° 50.2 -4° 32.0	62° 50.4 -4° 32.9	77° 50.6 -4° 33.9	+0.2 -1.0
Чт 5	272° 53.1 -4° 46.4	287° 53.3 -4° 47.3	302° 53.5 -4° 48.3	317° 53.7 -4° 49.3	332° 53.8 -4° 50.2	347° 54.0 -4° 51.2	2° 54.2 -4° 52.1	17° 54.4 -4° 53.1	32° 54.6 -4° 54.1	47° 54.8 -4° 55.0	62° 55.0 -4° 56.0	77° 55.2 -4° 56.9	+0.2 -1.0
Пт 6	272° 57.6 -5° 09.4	287° 57.7 -5° 10.4	302° 57.9 -5° 11.3	317° 58.1 -5° 12.3	332° 58.3 -5° 13.3	347° 58.5 -5° 14.2	2° 58.7 -5° 15.2	17° 58.9 -5° 16.1	32° 59.0 -5° 17.1	47° 59.2 -5° 18.0	62° 59.4 -5° 19.0	77° 59.6 -5° 20.0	+0.2 -1.0
Сб 7	273° 01.9 -5° 32.4	288° 02.1 -5° 33.3	303° 02.3 -5° 34.3	318° 02.5 -5° 35.3	333° 02.7 -5° 36.2	348° 02.8 -5° 37.2	3° 03.0 -5° 38.1	18° 03.2 -5° 39.1	33° 03.4 -5° 40.0	48° 03.5 -5° 41.0	63° 03.7 -5° 41.9	78° 03.9 -5° 42.9	+0.2 -1.0
Вс 8	273° 06.2 -5° 55.3	288° 06.4 -5° 56.2	303° 06.6 -5° 57.2	318° 06.7 -5° 58.2	333° 06.9 -5° 59.1	348° 07.1 -6° 00.1	3° 07.2 -6° 01.0	18° 07.4 -6° 02.0	33° 07.6 -6° 02.9	48° 07.8 -6° 03.9	63° 07.9 -6° 04.8	78° 08.1 -6° 05.8	+0.2 -1.0
Пн 9	273° 10.4 -6° 18.1	288° 10.5 -6° 19.1	303° 10.7 -6° 20.0	318° 10.9 -6° 21.0	333° 11.0 -6° 21.9	348° 11.2 -6° 22.9	3° 11.4 -6° 23.8	18° 11.5 -6° 24.8	33° 11.7 -6° 25.7	48° 11.9 -6° 26.7	63° 12.1 -6° 27.6	78° 12.2 -6° 28.6	+0.2 -0.9
Вт 10	273° 14.4 -6° 40.9	288° 14.6 -6° 41.8	303° 14.7 -6° 42.8	318° 14.9 -6° 43.7	333° 15.1 -6° 44.7	348° 15.2 -6° 45.6	3° 15.4 -6° 46.5	18° 15.5 -6° 47.5	33° 15.7 -6° 48.4	48° 15.9 -6° 49.4	63° 16.0 -6° 50.3	78° 16.2 -6° 51.3	+0.2 -0.9
Ср 11	273° 18.3 -7° 03.5	288° 18.5 -7° 04.5	303° 18.6 -7° 05.4	318° 18.8 -7° 06.3	333° 19.0 -7° 07.3	348° 19.1 -7° 08.2	3° 19.3 -7° 09.2	18° 19.4 -7° 10.1	33° 19.6 -7° 11.1	48° 19.8 -7° 12.0	63° 19.9 -7° 12.9	78° 20.1 -7° 13.9	+0.2 -0.9
Чт 12	273° 22.1 -7° 26.1	288° 22.3 -7° 27.0	303° 22.4 -7° 28.0	318° 22.6 -7° 28.9	333° 22.7 -7° 29.8	348° 22.9 -7° 30.8	3° 23.0 -7° 31.7	18° 23.2 -7° 32.6	33° 23.3 -7° 33.6	48° 23.5 -7° 34.5	63° 23.7 -7° 35.5	78° 23.8 -7° 36.4	+0.2 -0.9
Пт 13	273° 25.8 -7° 48.5	288° 25.9 -7° 49.5	303° 26.1 -7° 50.4	318° 26.2 -7° 51.3	333° 26.4 -7° 52.3	348° 26.5 -7° 53.2	3° 26.7 -7° 54.1	18° 26.8 -7° 55.1	33° 27.0 -7° 56.0	48° 27.1 -7° 56.9	63° 27.3 -7° 57.9	78° 27.4 -7° 58.8	+0.1 -0.9
Сб 14	273° 29.3 -8° 10.9	288° 29.5 -8° 11.8	303° 29.6 -8° 12.8	318° 29.8 -8° 13.7	333° 29.9 -8° 14.6	348° 30.0 -8° 15.5	3° 30.2 -8° 16.5	18° 30.3 -8° 17.4	33° 30.5 -8° 18.3	48° 30.6 -8° 19.2	63° 30.8 -8° 20.2	78° 30.9 -8° 21.1	+0.1 -0.9
Вс 15	273° 32.7 -8° 33.1	288° 32.9 -8° 34.1	303° 33.0 -8° 35.0	318° 33.1 -8° 35.9	333° 33.3 -8° 36.8	348° 33.4 -8° 37.8	3° 33.6 -8° 38.7	18° 33.7 -8° 39.6	33° 33.8 -8° 40.5	48° 34.0 -8° 41.4	63° 34.1 -8° 42.4	78° 34.2 -8° 43.3	+0.1 -0.9
Пн 16	273° 36.0 -8° 55.3	288° 36.1 -8° 56.2	303° 36.3 -8° 57.1	318° 36.4 -8° 58.0	333° 36.5 -8° 58.9	348° 36.7 -8° 59.8	3° 36.8 -9° 00.8	18° 36.9 -9° 01.7	33° 37.1 -9° 02.6	48° 37.2 -9° 03.5	63° 37.3 -9° 04.4	78° 37.5 -9° 05.3	+0.1 -0.9
Вт 17	273° 39.1 -9° 17.2	288° 39.3 -9° 18.2	303° 39.4 -9° 19.1	318° 39.5 -9° 20.0	333° 39.6 -9° 20.9	348° 39.8 -9° 21.8	3° 39.9 -9° 22.7	18° 40.0 -9° 23.6	33° 40.1 -9° 24.5	48° 40.3 -9° 25.5	63° 40.4 -9° 26.4	78° 40.5 -9° 27.3	+0.1 -0.9
Ср 18	273° 42.1 -9° 39.1	288° 42.2 -9° 40.0	303° 42.4 -9° 40.9	318° 42.5 -9° 41.8	333° 42.6 -9° 42.7	348° 42.7 -9° 43.6	3° 42.8 -9° 44.5	18° 43.0 -9° 45.4	33° 43.1 -9° 46.3	48° 43.2 -9° 47.3	63° 43.3 -9° 48.2	78° 43.4 -9° 49.1	+0.1 -0.9
Чт 19	273° 44.9 -10° 00.8	288° 45.1 -10° 01.7	303° 45.2 -10° 02.6	318° 45.3 -10° 03.5	333° 45.4 -10° 04.4	348° 45.5 -10° 05.3	3° 45.6 -10° 06.2	18° 45.7 -10° 07.1	33° 45.9 -10° 08.0	48° 46.0 -10° 08.9	63° 46.1 -10° 09.8	78° 46.2 -10° 10.7	+0.1 -0.9
Пт 20	273° 47.6 -10° 22.4	288° 47.7 -10° 23.3	303° 47.8 -10° 24.2	318° 48.0 -10° 25.1	333° 48.1 -10° 26.0	348° 48.2 -10° 26.9	3° 48.3 -10° 27.7	18° 48.4 -10° 28.6	33° 48.5 -10° 29.5	48° 48.6 -10° 30.4	63° 48.7 -10° 31.3	78° 48.8 -10° 32.2	+0.1 -0.9
Сб 21	273° 50.2 -10° 43.8	288° 50.3 -10° 44.7	303° 50.4 -10° 45.6	318° 50.5 -10° 46.5	333° 50.6 -10° 47.3	348° 50.7 -10° 48.2	3° 50.8 -10° 49.1	18° 50.9 -10° 50.0	33° 51.0 -10° 50.9	48° 51.1 -10° 51.8	63° 51.2 -10° 52.7	78° 51.3 -10° 53.6	+0.1 -0.9
Вс 22	273° 52.5 -11° 05.0	288° 52.6 -11° 05.9	303° 52.7 -11° 06.8	318° 52.8 -11° 07.7	333° 52.9 -11° 08.6	348° 53.0 -11° 09.5	3° 53.1 -11° 10.3	18° 53.2 -11° 11.2	33° 53.3 -11° 12.1	48° 53.4 -11° 13.0	63° 53.5 -11° 13.8	78° 53.5 -11° 14.7	+0.1 -0.9
Пн 23	273° 54.7 -11° 26.1	288° 54.8 -11° 27.0	303° 54.9 -11° 27.9	318° 55.0 -11° 28.8	333° 55.1 -11° 29.6	348° 55.2 -11° 30.5	3° 55.2 -11° 31.4	18° 55.3 -11° 32.2	33° 55.4 -11° 33.1	48° 55.5 -11° 34.0	63° 55.6 -11° 34.9	78° 55.7 -11° 35.7	+0.1 -0.9
Вт 24	273° 56.7 -11° 47.0	288° 56.8 -11° 47.9	303° 56.9 -11° 48.8	318° 57.0 -11° 49.6	333° 57.1 -11° 50.5	348° 57.2 -11° 51.4	3° 57.2 -11° 52.2	18° 57.3 -11° 53.1	33° 57.4 -11° 54.0	48° 57.5 -11° 54.8	63° 57.5 -11° 55.7	78° 57.6 -11° 56.6	+0.1 -0.9
Ср 25	273° 58.6 -12° 07.8	288° 58.7 -12° 08.6	303° 58.8 -12° 09.5	318° 58.8 -12° 10.4	333° 58.9 -12° 11.2	348° 59.0 -12° 12.1	3° 59.0 -12° 12.9	18° 59.1 -12° 13.8	33° 59.2 -12° 14.6	48° 59.3 -12° 15.5	63° 59.3 -12° 16.4	78° 59.4 -12° 17.2	+0.1 -0.9
Чт 26	274° 00.3 -12° 28.3	289° 00.4 -12° 29.2	304° 00.4 -12° 30.0	319° 00.5 -12° 30.9	334° 00.6 -12° 31.7	349° 00.6 -12° 32.6	4° 00.7 -12° 33.4	19° 00.7 -12° 34.3	34° 00.8 -12° 35.1	49° 00.9 -12° 36.0	64° 00.9 -12° 36.8	79° 01.0 -12° 37.7	+0.1 -0.9
Пт 27	274° 01.8 -12° 48.7	289° 01.8 -12° 49.5	304° 01.9 -12° 50.4	319° 02.0 -12° 51.2	334° 02.0 -12° 52.0	349° 02.1 -12° 52.9	4° 02.1 -12° 53.7	19° 02.2 -12° 54.6	34° 02.3 -12° 55.4	49° 02.3 -12° 56.3	64° 02.4 -12° 57.1	79° 02.4 -12° 57.9	+0.1 -0.8
Сб 28	274° 03.1 -13° 08.8	289° 03.2 -13° 09.7	304° 03.2 -13° 10.5	319° 03.3 -13° 11.3	334° 03.3 -13° 12.2	349° 03.4 -13° 13.0	4° 03.4 -13° 13.8	19° 03.5 -13° 14.7	34° 03.5 -13° 15.5	49° 03.6 -13° 16.3	64° 03.6 -13° 17.2	79° 03.6 -13° 18.0	+0.0 -0.8
Вс 29	274° 04.2 -13° 28.8	289° 04.3 -13° 29.6	304° 04.3 -13° 30.4	319° 04.4 -13° 31.2	334° 04.4 -13° 32.1	349° 04.4 -13° 32.9	4° 04.5 -13° 33.7	19° 04.5 -13° 34.5	34° 04.6 -13° 35.4	49° 04.6 -13° 36.2	64° 04.6 -13° 37.0	79° 04.7 -13° 37.8	+0.0 -0.8
Пн 30	274° 05.2 -13° 48.5	289° 05.2 -13° 49.3	304° 05.2 -13° 50.1	319° 05.3 -13° 51.0	334° 05.3 -13° 51.8	349° 05.3 -13° 52.6	4° 05.4 -13° 53.4	19° 05.4 -13° 54.2	34° 05.4 -13° 55.0	49° 05.5 -13° 55.9	64° 05.5 -13° 56.7	79° 05.5 -13° 57.5	+0.0 -0.8
Вт 31	274° 05.9 -14° 08.0	289° 05.9 -14° 08.8	304° 05.9 -14° 09.6	319° 06.0 -14° 10.5	334° 06.0 -14° 11.3	349° 06.0 -14° 12.1	4° 06.0 -14° 12.9	19° 06.1 -14° 13.7	34° 06.1 -14° 14.5	49° 06.1 -14° 15.3	64° 06.1 -14° 16.1	79° 06.2 -14° 16.9	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ’/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ’/h = изменение δ за час
Полудиаметр R: 16.0’

ЛУНА

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Д	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	R/p
Вс 1	237° 33.2	251° 58.2	266° 23.3	280° 48.4	295° 13.4	309° 38.4	324° 03.4	338° 28.4	352° 53.4	7° 18.4	21° 43.3	+25.0	16.4
	15° 17.5	15° 23.8	15° 30.0	15° 36.1	15° 42.1	15° 48.0	15° 53.7	15° 59.4	16° 04.9	16° 10.3	16° 15.6	+5.8	60.1
Пн 2	237° 57.2	252° 22.2	266° 47.1	281° 12.0	295° 37.0	310° 01.9	324° 26.9	338° 51.9	353° 16.9	7° 41.9	22° 06.9	+25.0	16.2
	17° 21.4	17° 24.8	17° 28.1	17° 31.3	17° 34.4	17° 37.4	17° 40.2	17° 42.9	17° 45.5	17° 48.0	17° 50.4	+2.9	59.6
Вт 3	238° 24.4	252° 49.8	267° 15.2	281° 40.6	296° 06.0	310° 31.5	324° 57.0	339° 22.6	353° 48.2	8° 13.8	22° 39.5	+25.5	16.1
	18° 11.3	18° 11.7	18° 12.0	18° 12.2	18° 12.3	18° 12.2	18° 12.1	18° 11.8	18° 11.4	18° 10.9	18° 10.3	-0.1	59.0
◑ Ср 4	239° 09.3	253° 35.6	268° 02.0	282° 28.5	296° 55.0	311° 21.5	325° 48.1	340° 14.8	354° 41.5	9° 08.2	23° 35.0	+26.6	15.9
	17° 47.2	17° 44.8	17° 42.3	17° 39.6	17° 36.9	17° 34.0	17° 31.1	17° 28.0	17° 24.8	17° 21.6	17° 18.2	-2.9	58.3
Чт 5	240° 23.8	254° 51.5	269° 19.3	283° 47.1	298° 15.0	312° 42.9	327° 11.0	341° 39.0	356° 07.1	10° 35.3	25° 03.6	+28.0	15.7
	16° 15.8	16° 10.9	16° 05.9	16° 00.8	15° 55.6	15° 50.3	15° 45.0	15° 39.5	15° 34.0	15° 28.4	15° 22.7	-5.3	57.7
Пт 6	254° 51.5	269° 19.3	283° 47.1	298° 15.0	312° 42.9	327° 11.0	341° 39.0	356° 07.1	10° 35.3	25° 03.6	39° 31.9	+28.0	15.7
	16° 10.9	16° 05.9	16° 00.8	15° 55.6	15° 50.3	15° 45.0	15° 39.5	15° 34.0	15° 28.4	15° 22.7	15° 16.9	-5.4	57.7
Сб 7	256° 43.7	271° 12.9	285° 42.2	300° 11.6	314° 41.1	329° 10.6	343° 40.1	358° 09.7	12° 39.4	27° 09.1	41° 38.9	+29.5	15.6
	13° 41.1	13° 34.1	13° 27.1	13° 19.9	13° 12.8	13° 05.5	12° 58.2	12° 50.9	12° 43.5	12° 36.0	12° 28.4	-7.3	57.0
Вс 8	259° 12.3	273° 43.0	288° 13.7	302° 44.5	317° 15.3	331° 46.1	346° 17.0	0° 48.0	15° 19.0	29° 50.1	44° 21.2	+30.9	15.4
	10° 28.5	10° 20.1	10° 11.7	10° 03.2	9° 54.7	9° 46.1	9° 37.5	9° 28.8	9° 20.1	9° 11.4	9° 02.6	-8.6	56.4
Пн 9	262° 13.2	276° 45.0	291° 16.9	305° 48.7	320° 20.7	334° 52.6	349° 24.6	3° 56.7	18° 28.7	33° 00.9	47° 33.0	+32.0	15.2
	6° 46.7	6° 37.4	6° 28.1	6° 18.8	6° 09.4	6° 00.0	5° 50.6	5° 41.2	5° 31.7	5° 22.3	5° 12.8	-9.4	55.9
Вт 10	265° 39.1	280° 11.7	294° 44.4	309° 17.1	323° 49.8	338° 22.6	352° 55.3	7° 28.1	22° 00.9	36° 33.8	51° 06.6	+32.8	15.1
	2° 48.6	2° 38.9	2° 29.2	2° 19.5	2° 09.8	2° 00.1	1° 50.4	1° 40.7	1° 30.9	1° 21.2	1° 11.5	-9.7	55.4
Ср 11	269° 21.7	283° 54.8	298° 28.0	313° 01.2	327° 34.3	342° 07.5	356° 40.7	11° 13.9	25° 47.1	40° 20.3	54° 53.6	+33.2	15.0
	-1° 13.9	-1° 23.5	-1° 33.2	-1° 42.8	-1° 52.4	-2° 01.9	-2° 11.5	-2° 21.1	-2° 30.6	-2° 40.1	-2° 49.6	-9.6	55.0
● Чт 12	273° 12.7	287° 46.0	302° 19.4	316° 52.7	331° 26.0	345° 59.3	0° 32.6	15° 05.9	29° 39.2	44° 12.5	58° 45.8	+33.3	14.9
	-5° 09.8	-5° 18.9	-5° 28.1	-5° 37.2	-5° 46.2	-5° 55.3	-6° 04.3	-6° 13.3	-6° 22.2	-6° 31.1	-6° 40.0	-9.0	54.6
Пт 13	277° 04.7	291° 37.9	306° 11.1	320° 44.3	335° 17.4	349° 50.6	4° 23.7	18° 56.9	33° 30.0	48° 03.1	62° 36.3	+33.2	14.8
	-8° 49.0	-8° 57.3	-9° 05.6	-9° 13.8	-9° 21.9	-9° 30.1	-9° 38.1	-9° 46.2	-9° 54.2	-10° 02.1	-10° 10.0	-8.1	54.3
Сб 14	280° 51.3	295° 24.2	309° 57.1	324° 29.9	339° 02.8	353° 35.6	8° 08.4	22° 41.2	37° 14.0	51° 46.7	66° 19.5	+32.8	14.7
	-12° 02.6	-12° 09.6	-12° 16.7	-12° 23.7	-12° 30.6	-12° 37.4	-12° 44.3	-12° 51.0	-12° 57.7	-13° 04.3	-13° 10.9	-6.8	54.1
Вс 15	284° 28.3	299° 00.7	313° 33.1	328° 05.5	342° 37.9	357° 10.3	11° 42.6	26° 14.9	40° 47.2	55° 19.5	69° 51.7	+32.3	14.7
	-14° 42.3	-14° 47.9	-14° 53.4	-14° 58.9	-15° 04.3	-15° 09.6	-15° 14.8	-15° 20.0	-15° 25.1	-15° 30.2	-15° 35.2	-5.3	54.0
Пн 16	287° 53.1	302° 25.0	316° 56.9	331° 28.8	346° 00.7	0° 32.6	15° 04.4	29° 36.2	44° 08.0	58° 39.7	73° 11.5	+31.8	14.7
	-16° 41.4	-16° 45.2	-16° 49.0	-16° 52.6	-16° 56.3	-16° 59.8	-17° 03.2	-17° 06.6	-17° 09.9	-17° 13.1	-17° 16.3	-3.5	54.0
Вт 17	291° 05.4	305° 36.8	320° 08.2	334° 39.6	349° 11.0	3° 42.4	18° 13.8	32° 45.1	47° 16.4	61° 47.7	76° 19.0	+31.4	14.8
	-17° 54.0	-17° 55.9	-17° 57.7	-17° 59.4	-18° 01.1	-18° 02.6	-18° 04.1	-18° 05.5	-18° 06.8	-18° 08.0	-18° 09.1	-1.5	54.1
Ср 18	294° 06.3	308° 37.3	323° 08.4	337° 39.4	352° 10.4	6° 41.3	21° 12.3	35° 43.2	50° 14.2	64° 45.1	79° 16.0	+31.0	14.9
	-18° 16.1	-18° 15.8	-18° 15.5	-18° 15.1	-18° 14.7	-18° 14.1	-18° 13.5	-18° 12.7	-18° 11.9	-18° 11.0	-18° 10.0	+0.6	54.5
Чт 19	296° 58.1	311° 28.8	325° 59.6	340° 30.2	355° 00.9	9° 31.6	24° 02.3	38° 32.9	53° 03.6	67° 34.2	82° 04.8	+30.7	15.0
	-17° 44.8	-17° 42.4	-17° 39.9	-17° 37.4	-17° 34.7	-17° 32.0	-17° 29.2	-17° 26.3	-17° 23.3	-17° 20.3	-17° 17.1	+2.8	55.0
◐ Пт 20	299° 43.0	314° 13.5	328° 43.9	343° 14.4	357° 44.8	12° 15.2	26° 45.7	41° 16.1	55° 46.5	70° 16.9	84° 47.3	+30.4	15.2
	-16° 19.4	-16° 14.9	-16° 10.2	-16° 05.5	-16° 00.7	-15° 55.9	-15° 50.9	-15° 45.9	-15° 40.8	-15° 35.5	-15° 30.3	+4.9	55.6
Сб 21	302° 21.9	316° 52.1	331° 22.4	345° 52.6	0° 22.8	14° 52.9	29° 23.1	43° 53.3	58° 23.4	72° 53.6	87° 23.7	+30.2	15.4
	-14° 01.0	-13° 54.4	-13° 47.8	-13° 41.0	-13° 34.2	-13° 27.3	-13° 20.3	-13° 13.2	-13° 06.1	-12° 58.9	-12° 51.6	+6.9	56.5
Вс 22	304° 54.0	319° 23.9	333° 53.8	348° 23.7	2° 53.5	17° 23.4	31° 53.2	46° 23.0	60° 52.8	75° 22.6	89° 52.3	+29.8	15.7
	-10° 53.3	-10° 44.8	-10° 36.3	-10° 27.7	-10° 19.0	-10° 10.3	-10° 01.5	-9° 52.6	-9° 43.7	-9° 34.7	-9° 25.6	+8.8	57.4
Пн 23	307° 16.0	321° 45.4	336° 14.8	350° 44.2	5° 13.5	19° 42.8	34° 12.1	48° 41.3	63° 10.5	77° 39.7	92° 08.9	+29.3	15.9
	-7° 02.5	-6° 52.5	-6° 42.4	-6° 32.3	-6° 22.2	-6° 11.9	-6° 01.7	-5° 51.4	-5° 41.0	-5° 30.6	-5° 20.2	+10.2	58.4
Вт 24	309° 22.5	323° 51.2	338° 19.8	352° 48.4	7° 16.9	21° 45.4	36° 13.9	50° 42.3	65° 10.7	79° 39.0	94° 07.3	+28.5	16.2
	-2° 38.6	-2° 27.6	-2° 16.5	-2° 05.4	-1° 54.2	-1° 43.1	-1° 31.9	-1° 20.7	-1° 09.4	-0° 58.2	-0° 46.9	+11.2	59.4
Ср 25	311° 06.7	325° 34.3	340° 01.9	354° 29.4	8° 56.9	23° 24.3	37° 51.7	52° 19.0	66° 46.2	81° 13.5	95° 40.6	+27.4	16.4
	2° 03.9	2° 15.3	2° 26.7	2° 38.2	2° 49.6	3° 01.0	3° 12.4	3° 23.8	3° 35.2	3° 46.6	3° 58.0	+11.4	60.2
Чт 26	312° 22.1	326° 48.4	341° 14.7	355° 41.0	10° 07.2	24° 33.3	38° 59.4	53° 25.4	67° 51.4	82° 17.3	96° 43.2	+26.1	16.6
	6° 46.1	6° 57.1	7° 08.0	7° 18.9	7° 29.8	7° 40.6	7° 51.4	8° 02.1	8° 12.8	8° 23.4	8° 34.0	+10.8	60.9
○ Пт 27	313° 05.0	327° 30.0	341° 55.0	356° 20.0	10° 44.9	25° 09.7	39° 34.5	53° 59.3	68° 24.0	82° 48.6	97° 13.3	+24.8	16.7
	11° 05.6	11° 15.2	11° 24.7	11° 34.1	11° 43.4	11° 52.7	12° 01.8	12° 10.9	12° 19.9	12° 28.9	12° 37.7	+9.2	61.1
Сб 28	313° 17.6	327° 41.6	342° 05.6	356° 29.5	10° 53.4	25° 17.3	39° 41.1	54° 04.9	68° 28.7	82° 52.5	97° 16.2	+23.9	16.7
	14° 38.9	14° 46.2	14° 53.4	15° 00.4	15° 07.3	15° 14.2	15° 20.9	15° 27.5	15° 34.0	15° 40.4	15° 46.6	+6.8	61.1
Вс 29	313° 10.4	327° 33.9	341° 57.5	356° 21.0	10° 44.5	25° 08.0	39° 31.6	53° 55.1	68° 18.7	82° 42.2	97° 05.8	+23.5	16.6
	17° 06.2	17° 10.5	17° 14.6	17° 18.7	17° 22.6	17° 26.4	17° 30.1	17° 33.6	17° 37.0	17° 40.3	17° 43.5	+3.7	60.7
Пн 30	327° 33.9	341° 57.5	356° 21.0	10° 44.5	25° 08.0	39° 31.6	53° 55.1	68° 18.7	82° 42.2	97° 05.8	111° 29.4	+23.5	16.5
	17° 10.5	17° 14.6	17° 18.7	17° 22.6	17° 26.4	17° 30.1	17° 33.6	17° 37.0	17° 40.3	17° 43.5	17° 46.5	+3.6	60.7
Вт 31	327° 25.1	341° 49.0	356° 12.9	10° 36.9	25° 01.0	39° 25.0	53° 49.1	68° 13.3	82° 37.4	97° 01.7	111° 25.9	+24.1	16.4
	18° 16.2	18° 17.1	18° 17.9	18° 18.6	18° 19.2	18° 19.6	18° 19.9	18° 20.0	18° 20.1	18° 20.0	18° 19.8	+0.4	60.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 4 18h04 — Новолуние: 12 07h32 — Первая четв.: 20 12h03 — Полнолуние: 27 12h42

СОЛНЦЕ

Ноябрь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	274° 06.4	289° 06.4	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.5	19° 06.5	34° 06.6	49° 06.6	64° 06.6	79° 06.6	+0.0
	-14° 27.3	-14° 28.1	-14° 28.9	-14° 29.7	-14° 30.5	-14° 31.3	-14° 32.1	-14° 32.9	-14° 33.7	-14° 34.5	-14° 35.3	-14° 36.1	-0.8
Чт 2	274° 06.8	289° 06.8	304° 06.8	319° 06.8	334° 06.8	349° 06.8	4° 06.8	19° 06.8	34° 06.8	49° 06.8	64° 06.8	79° 06.8	+0.0
	-14° 46.4	-14° 47.2	-14° 48.0	-14° 48.7	-14° 49.5	-14° 50.3	-14° 51.1	-14° 51.9	-14° 52.7	-14° 53.5	-14° 54.3	-14° 55.0	-0.8
Пт 3	274° 06.9	289° 06.9	304° 06.9	319° 06.9	334° 06.9	349° 06.9	4° 06.9	19° 06.9	34° 06.9	49° 06.9	64° 06.9	79° 06.9	-0.0
	-15° 05.2	-15° 06.0	-15° 06.8	-15° 07.5	-15° 08.3	-15° 09.1	-15° 09.9	-15° 10.7	-15° 11.4	-15° 12.2	-15° 13.0	-15° 13.8	-0.8
Сб 4	274° 06.8	289° 06.8	304° 06.8	319° 06.8	334° 06.8	349° 06.7	4° 06.7	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.7	-0.0
	-15° 23.8	-15° 24.6	-15° 25.3	-15° 26.1	-15° 26.9	-15° 27.6	-15° 28.4	-15° 29.2	-15° 29.9	-15° 30.7	-15° 31.5	-15° 32.2	-0.8
Вс 5	274° 06.5	289° 06.5	304° 06.5	319° 06.4	334° 06.4	349° 06.4	4° 06.4	19° 06.4	34° 06.3	49° 06.3	64° 06.3	79° 06.3	-0.0
	-15° 42.1	-15° 42.9	-15° 43.6	-15° 44.4	-15° 45.1	-15° 45.9	-15° 46.7	-15° 47.4	-15° 48.2	-15° 48.9	-15° 49.7	-15° 50.4	-0.8
Пн 6	274° 06.0	289° 06.0	304° 05.9	319° 05.9	334° 05.9	349° 05.8	4° 05.8	19° 05.8	34° 05.8	49° 05.7	64° 05.7	79° 05.7	-0.0
	-16° 00.2	-16° 00.9	-16° 01.7	-16° 02.4	-16° 03.2	-16° 03.9	-16° 04.7	-16° 05.4	-16° 06.2	-16° 06.9	-16° 07.6	-16° 08.4	-0.7
Вт 7	274° 05.3	289° 05.2	304° 05.2	319° 05.1	334° 05.1	349° 05.1	4° 05.0	19° 05.0	34° 05.0	49° 04.9	64° 04.9	79° 04.9	-0.0
	-16° 18.0	-16° 18.7	-16° 19.5	-16° 20.2	-16° 20.9	-16° 21.7	-16° 22.4	-16° 23.1	-16° 23.9	-16° 24.6	-16° 25.3	-16° 26.1	-0.7
Ср 8	274° 04.3	289° 04.3	304° 04.2	319° 04.2	334° 04.1	349° 04.1	4° 04.1	19° 04.0	34° 04.0	49° 03.9	64° 03.9	79° 03.8	-0.0
	-16° 35.5	-16° 36.2	-16° 37.0	-16° 37.7	-16° 38.4	-16° 39.1	-16° 39.9	-16° 40.6	-16° 41.3	-16° 42.0	-16° 42.7	-16° 43.5	-0.7
Чт 9	274° 03.2	289° 03.1	304° 03.1	319° 03.0	334° 03.0	349° 02.9	4° 02.8	19° 02.8	34° 02.7	49° 02.7	64° 02.6	79° 02.6	-0.1
	-16° 52.8	-16° 53.5	-16° 54.2	-16° 54.9	-16° 55.6	-16° 56.3	-16° 57.0	-16° 57.8	-16° 58.5	-16° 59.2	-16° 59.9	-17° 00.6	-0.7
Пт 10	274° 01.8	289° 01.7	304° 01.7	319° 01.6	334° 01.6	349° 01.5	4° 01.4	19° 01.4	34° 01.3	49° 01.2	64° 01.2	79° 01.1	-0.1
	-17° 09.7	-17° 10.4	-17° 11.1	-17° 11.8	-17° 12.5	-17° 13.2	-17° 13.9	-17° 14.6	-17° 15.3	-17° 16.0	-17° 16.7	-17° 17.4	-0.7
Сб 11	274° 00.2	289° 00.2	304° 00.1	319° 00.0	333° 59.9	348° 59.9	3° 59.8	18° 59.7	33° 59.7	48° 59.6	63° 59.5	78° 59.4	-0.1
	-17° 26.4	-17° 27.1	-17° 27.8	-17° 28.5	-17° 29.2	-17° 29.9	-17° 30.5	-17° 31.2	-17° 31.9	-17° 32.6	-17° 33.3	-17° 34.0	-0.7
Вс 12	273° 58.4	288° 58.4	303° 58.3	318° 58.2	333° 58.1	348° 58.0	3° 58.0	18° 57.9	33° 57.8	48° 57.7	63° 57.6	78° 57.6	-0.1
	-17° 42.8	-17° 43.5	-17° 44.1	-17° 44.8	-17° 45.5	-17° 46.2	-17° 46.8	-17° 47.5	-17° 48.2	-17° 48.9	-17° 49.5	-17° 50.2	-0.7
Пн 13	273° 56.4	288° 56.4	303° 56.3	318° 56.2	333° 56.1	348° 56.0	3° 55.9	18° 55.8	33° 55.7	48° 55.6	63° 55.6	78° 55.5	-0.1
	-17° 58.9	-17° 59.5	-18° 00.2	-18° 00.8	-18° 01.5	-18° 02.2	-18° 02.8	-18° 03.5	-18° 04.1	-18° 04.8	-18° 05.5	-18° 06.1	-0.7
Вт 14	273° 54.2	288° 54.1	303° 54.0	318° 53.9	333° 53.8	348° 53.8	3° 53.7	18° 53.6	33° 53.5	48° 53.4	63° 53.3	78° 53.2	-0.1
	-18° 14.6	-18° 15.3	-18° 15.9	-18° 16.6	-18° 17.2	-18° 17.9	-18° 18.5	-18° 19.2	-18° 19.8	-18° 20.4	-18° 21.1	-18° 21.7	-0.6
Ср 15	273° 51.8	288° 51.7	303° 51.6	318° 51.5	333° 51.4	348° 51.3	3° 51.2	18° 51.1	33° 51.0	48° 50.9	63° 50.8	78° 50.6	-0.1
	-18° 30.1	-18° 30.7	-18° 31.3	-18° 32.0	-18° 32.6	-18° 33.2	-18° 33.9	-18° 34.5	-18° 35.1	-18° 35.8	-18° 36.4	-18° 37.0	-0.6
Чт 16	273° 49.2	288° 49.1	303° 49.0	318° 48.9	333° 48.7	348° 48.6	3° 48.5	18° 48.4	33° 48.3	48° 48.2	63° 48.0	78° 47.9	-0.1
	-18° 45.2	-18° 45.8	-18° 46.4	-18° 47.0	-18° 47.7	-18° 48.3	-18° 48.9	-18° 49.5	-18° 50.1	-18° 50.7	-18° 51.4	-18° 52.0	-0.6
Пт 17	273° 46.4	288° 46.2	303° 46.1	318° 46.0	333° 45.9	348° 45.7	3° 45.6	18° 45.5	33° 45.4	48° 45.2	63° 45.1	78° 45.0	-0.1
	-18° 59.9	-19° 00.6	-19° 01.2	-19° 01.8	-19° 02.4	-19° 03.0	-19° 03.6	-19° 04.2	-19° 04.8	-19° 05.4	-19° 06.0	-19° 06.6	-0.6
Сб 18	273° 43.3	288° 43.2	303° 43.1	318° 42.9	333° 42.8	348° 42.7	3° 42.5	18° 42.4	33° 42.3	48° 42.1	63° 42.0	78° 41.9	-0.1
	-19° 14.4	-19° 15.0	-19° 15.6	-19° 16.2	-19° 16.8	-19° 17.3	-19° 17.9	-19° 18.5	-19° 19.1	-19° 19.7	-19° 20.3	-19° 20.9	-0.6
Вс 19	273° 40.1	288° 39.9	303° 39.8	318° 39.7	333° 39.5	348° 39.4	3° 39.2	18° 39.1	33° 39.0	48° 38.8	63° 38.7	78° 38.5	-0.1
	-19° 28.5	-19° 29.1	-19° 29.6	-19° 30.2	-19° 30.8	-19° 31.4	-19° 31.9	-19° 32.5	-19° 33.1	-19° 33.7	-19° 34.2	-19° 34.8	-0.6
Пн 20	273° 36.7	288° 36.5	303° 36.4	318° 36.2	333° 36.1	348° 35.9	3° 35.8	18° 35.6	33° 35.5	48° 35.3	63° 35.2	78° 35.0	-0.1
	-19° 42.2	-19° 42.8	-19° 43.3	-19° 43.9	-19° 44.5	-19° 45.0	-19° 45.6	-19° 46.2	-19° 46.7	-19° 47.3	-19° 47.8	-19° 48.4	-0.6
Вт 21	273° 33.0	288° 32.9	303° 32.7	318° 32.5	333° 32.4	348° 32.2	3° 32.1	18° 31.9	33° 31.8	48° 31.6	63° 31.4	78° 31.3	-0.2
	-19° 55.6	-19° 56.1	-19° 56.7	-19° 57.2	-19° 57.8	-19° 58.3	-19° 58.9	-19° 59.4	-20° 00.0	-20° 00.5	-20° 01.1	-20° 01.6	-0.5
Ср 22	273° 29.2	288° 29.0	303° 28.9	318° 28.7	333° 28.5	348° 28.4	3° 28.2	18° 28.0	33° 27.9	48° 27.7	63° 27.5	78° 27.4	-0.2
	-20° 08.6	-20° 09.1	-20° 09.7	-20° 10.2	-20° 10.7	-20° 11.3	-20° 11.8	-20° 12.3	-20° 12.9	-20° 13.4	-20° 13.9	-20° 14.5	-0.5
Чт 23	273° 25.2	288° 25.0	303° 24.8	318° 24.6	333° 24.5	348° 24.3	3° 24.1	18° 23.9	33° 23.8	48° 23.6	63° 23.4	78° 23.2	-0.2
	-20° 21.3	-20° 21.8	-20° 22.3	-20° 22.8	-20° 23.3	-20° 23.8	-20° 24.4	-20° 24.9	-20° 25.4	-20° 25.9	-20° 26.4	-20° 26.9	-0.5
Пт 24	273° 20.9	288° 20.8	303° 20.6	318° 20.4	333° 20.2	348° 20.0	3° 19.9	18° 19.7	33° 19.5	48° 19.3	63° 19.1	78° 18.9	-0.2
	-20° 33.5	-20° 34.0	-20° 34.5	-20° 35.0	-20° 35.5	-20° 36.0	-20° 36.5	-20° 37.0	-20° 37.5	-20° 38.0	-20° 38.5	-20° 39.0	-0.5
Сб 25	273° 16.5	288° 16.3	303° 16.2	318° 16.0	333° 15.8	348° 15.6	3° 15.4	18° 15.2	33° 15.0	48° 14.8	63° 14.6	78° 14.5	-0.2
	-20° 45.4	-20° 45.9	-20° 46.4	-20° 46.9	-20° 47.4	-20° 47.9	-20° 48.3	-20° 48.8	-20° 49.3	-20° 49.8	-20° 50.3	-20° 50.7	-0.5
Вс 26	273° 11.9	288° 11.7	303° 11.5	318° 11.4	333° 11.2	348° 11.0	3° 10.8	18° 10.6	33° 10.4	48° 10.2	63° 10.0	78° 09.8	-0.2
	-20° 56.9	-20° 57.4	-20° 57.9	-20° 58.3	-20° 58.8	-20° 59.3	-20° 59.7	-21° 00.2	-21° 00.7	-21° 01.1	-21° 01.6	-21° 02.1	-0.5
Пн 27	273° 07.2	288° 07.0	303° 06.8	318° 06.6	333° 06.3	348° 06.1	3° 05.9	18° 05.7	33° 05.5	48° 05.3	63° 05.1	78° 04.9	-0.2
	-21° 08.0	-21° 08.5	-21° 08.9	-21° 09.4	-21° 09.9	-21° 10.3	-21° 10.8	-21° 11.2	-21° 11.7	-21° 12.1	-21° 12.6	-21° 13.0	-0.5
Вт 28	273° 02.2	288° 02.0	303° 01.8	318° 01.6	333° 01.4	348° 01.1	3° 00.9	18° 00.7	33° 00.5	48° 00.3	63° 00.1	77° 59.9	-0.2
	-21° 18.8	-21° 19.2	-21° 19.6	-21° 20.1	-21° 20.5	-21° 20.9	-21° 21.4	-21° 21.8	-21° 22.2	-21° 22.7	-21° 23.1	-21° 23.5	-0.4
Ср 29	272° 57.1	287° 56.8	302° 56.6	317° 56.4	332° 56.2	347° 56.0	2° 55.7	17° 55.5	32° 55.3	47° 55.1	62° 54.9	77° 54.6	-0.2
	-21° 29.1	-21° 29.5	-21° 29.9	-21° 30.3	-21° 30.8	-21° 31.2	-21° 31.6	-21° 32.0	-21° 32.4	-21° 32.8	-21° 33.2	-21° 33.7	-0.4
Чт 30	272° 51.7	287° 51.5	302° 51.3	317° 51.1	332° 50.8	347° 50.6	2° 50.4	17° 50.2	32° 49.9	47° 49.7	62° 49.5	77° 49.2	-0.2
	-21° 39.0	-21° 39.4	-21° 39.8	-21° 40.2	-21° 40.6	-21° 41.0	-21° 41.4	-21° 41.8	-21° 42.2	-21° 42.6	-21° 43.0	-21° 43.4	-0.4

Строка 1: $t_{\text{гр}}$ (гринвичский часовой угол), Δ'/h = изменение $t_{\text{гр}}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2034

Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	R/p
Ср 1	241° 43.8 17° 01.5	256° 10.1 16° 57.2	270° 36.6 16° 52.9	285° 03.1 16° 48.5	299° 29.7 16° 43.9	313° 56.3 16° 39.3	328° 23.1 16° 34.6	342° 49.9 16° 29.8	357° 16.8 16° 24.8	11° 43.7 16° 19.8	26° 10.7 16° 14.7	+26.7 -4.7	16.0 58.6
Чт 2	243° 05.2 14° 47.8	257° 33.4 14° 41.4	272° 01.7 14° 34.8	286° 30.1 14° 28.2	300° 58.6 14° 21.6	315° 27.1 14° 14.8	329° 55.7 14° 08.0	344° 24.4 14° 01.1	358° 53.2 13° 54.2	13° 22.0 13° 47.2	27° 50.9 13° 40.1	+28.6 -6.8	15.7 57.7
◑ Пт 3	245° 13.0 11° 46.2	259° 43.0 11° 38.2	274° 13.1 11° 30.1	288° 43.3 11° 22.0	303° 13.5 11° 13.8	317° 43.8 11° 05.5	332° 14.1 10° 57.2	346° 44.5 10° 48.9	1° 15.0 10° 40.5	15° 45.6 10° 32.1	30° 16.2 10° 23.6	+30.3 -8.3	15.5 56.6
Сб 4	259° 43.0 11° 38.2	274° 13.1 11° 30.1	288° 43.3 11° 22.0	303° 13.5 11° 13.8	317° 43.8 11° 05.5	332° 14.1 10° 57.2	346° 44.5 10° 48.9	1° 15.0 10° 40.5	15° 45.6 10° 32.1	30° 16.2 10° 23.6	44° 46.8 10° 15.1	+30.4 -8.3	15.5 56.8
Вс 5	262° 33.9 8° 02.6	277° 05.5 7° 53.5	291° 37.1 7° 44.4	306° 08.8 7° 35.2	320° 40.5 7° 26.0	335° 12.3 7° 16.8	349° 44.1 7° 07.6	4° 16.0 6° 58.3	18° 47.9 6° 49.0	33° 19.8 6° 39.7	47° 51.9 6° 30.4	+31.8 -9.2	15.3 56.1
Пн 6	265° 57.1 4° 08.0	280° 29.8 3° 58.4	295° 02.5 3° 48.8	309° 35.2 3° 39.2	324° 07.9 3° 29.6	338° 40.7 3° 19.9	353° 13.5 3° 10.3	7° 46.4 3° 00.6	22° 19.3 2° 50.9	36° 52.2 2° 41.2	51° 25.1 2° 31.6	+32.8 -9.7	15.1 55.5
Вт 7	269° 42.2 0° 06.2	284° 15.5 -0° 03.5	298° 48.8 -0° 13.1	313° 22.2 -0° 22.8	327° 55.5 -0° 32.5	342° 28.9 -0° 42.1	357° 02.3 -0° 51.7	11° 35.7 -1° 01.4	26° 09.1 -1° 11.0	40° 42.5 -1° 20.6	55° 16.0 -1° 30.2	+33.4 -9.6	15.0 55.0
Ср 8	273° 38.7 -3° 52.5	288° 12.3 -4° 01.8	302° 45.8 -4° 11.1	317° 19.4 -4° 20.4	331° 53.0 -4° 29.7	346° 26.5 -4° 39.0	1° 00.1 -4° 48.2	15° 33.7 -4° 57.4	30° 07.2 -5° 06.6	44° 40.8 -5° 15.8	59° 14.4 -5° 24.9	+33.6 -9.2	14.9 54.6
Чт 9	277° 37.3 -7° 38.4	292° 10.8 -7° 47.0	306° 44.3 -7° 55.6	321° 17.7 -8° 04.2	335° 51.1 -8° 12.8	350° 24.6 -8° 21.2	4° 58.0 -8° 29.7	19° 31.4 -8° 38.1	34° 04.8 -8° 46.5	48° 38.2 -8° 54.9	63° 11.6 -9° 03.2	+33.4 -8.5	14.8 54.2
Пт 10	281° 30.4 -11° 02.5	296° 03.5 -11° 10.1	310° 36.6 -11° 17.6	325° 09.7 -11° 25.1	339° 42.8 -11° 32.6	354° 15.8 -11° 40.0	8° 48.9 -11° 47.3	23° 21.9 -11° 54.6	37° 54.9 -12° 01.8	52° 27.9 -12° 09.0	67° 00.8 -12° 16.1	+33.0 -7.4	14.7 54.0
● Сб 11	285° 12.6 -13° 56.3	299° 45.3 -14° 02.5	314° 17.8 -14° 08.7	328° 50.4 -14° 14.7	343° 23.0 -14° 20.8	357° 55.5 -14° 26.7	12° 28.0 -14° 32.6	27° 00.5 -14° 38.5	41° 32.9 -14° 44.2	56° 05.4 -14° 49.9	70° 37.8 -14° 55.6	+32.5 -5.9	14.7 53.9
Вс 12	288° 41.3 -16° 12.0	303° 13.4 -16° 16.5	317° 45.4 -16° 21.0	332° 17.5 -16° 25.4	346° 49.4 -16° 29.7	1° 21.4 -16° 33.9	15° 53.4 -16° 38.1	30° 25.3 -16° 42.2	44° 57.2 -16° 46.2	59° 29.1 -16° 50.2	74° 01.0 -16° 54.0	+32.0 -4.2	14.7 53.9
Пн 13	291° 56.6 -17° 42.9	306° 28.2 -17° 45.5	320° 59.7 -17° 48.1	335° 31.3 -17° 50.5	350° 02.8 -17° 52.9	4° 34.3 -17° 55.2	19° 05.7 -17° 57.4	33° 37.2 -17° 59.6	48° 08.6 -18° 01.7	62° 40.1 -18° 03.6	77° 11.5 -18° 05.5	+31.5 -2.3	14.7 53.9
Вт 14	295° 01.0 -18° 24.0	309° 32.2 -18° 24.6	324° 03.4 -18° 25.1	338° 34.6 -18° 25.5	353° 05.8 -18° 25.8	7° 37.0 -18° 26.0	22° 08.1 -18° 26.1	36° 39.2 -18° 26.2	51° 10.4 -18° 26.1	65° 41.5 -18° 26.0	80° 12.6 -18° 25.8	+31.2 -0.2	14.8 54.1
Ср 15	297° 58.6 -18° 12.5	312° 29.6 -18° 10.9	327° 00.6 -18° 09.2	341° 31.6 -18° 07.5	356° 02.6 -18° 05.7	10° 33.6 -18° 03.7	25° 04.6 -18° 01.7	39° 35.6 -17° 59.6	54° 06.6 -17° 57.5	68° 37.6 -17° 55.2	83° 08.6 -17° 52.9	+31.0 +2.0	14.8 54.4
Чт 16	300° 53.3 -17° 07.5	315° 24.3 -17° 03.8	329° 55.2 -17° 00.0	344° 26.2 -16° 56.2	358° 57.2 -16° 52.2	13° 28.2 -16° 48.2	27° 59.2 -16° 44.1	42° 30.1 -16° 39.9	57° 01.1 -16° 35.6	71° 32.1 -16° 31.3	86° 03.1 -16° 26.8	+31.0 +4.1	15.0 54.9
Пт 17	303° 47.8 -15° 10.6	318° 18.8 -15° 04.9	332° 49.8 -14° 59.1	347° 20.8 -14° 53.3	1° 51.8 -14° 47.3	16° 22.8 -14° 41.3	30° 53.8 -14° 35.2	45° 24.7 -14° 29.0	59° 55.7 -14° 22.8	74° 26.7 -14° 16.5	88° 57.7 -14° 10.1	+31.0 +6.1	15.1 55.5
Сб 18	306° 42.2 -12° 25.3	321° 13.1 -12° 17.8	335° 44.0 -12° 10.2	350° 15.0 -12° 02.5	4° 45.9 -11° 54.7	19° 16.8 -11° 46.9	33° 47.7 -11° 39.0	48° 18.6 -11° 31.1	62° 49.5 -11° 23.0	77° 20.4 -11° 14.9	91° 51.2 -11° 06.8	+30.9 +7.9	15.3 56.2
◐ Вс 19	309° 33.1 -8° 57.0	324° 03.8 -8° 47.9	338° 34.5 -8° 38.7	353° 05.1 -8° 29.4	7° 35.7 -8° 20.1	22° 06.4 -8° 10.8	36° 37.0 -8° 01.4	51° 07.6 -7° 51.9	65° 38.1 -7° 42.4	80° 08.7 -7° 32.8	94° 39.2 -7° 23.2	+30.6 +9.4	15.6 57.1
Пн 20	312° 14.3 -4° 53.2	326° 44.4 -4° 42.8	341° 14.5 -4° 32.4	355° 44.6 -4° 22.0	10° 14.6 -4° 11.5	24° 44.6 -4° 01.0	39° 14.6 -3° 50.5	53° 44.5 -3° 39.9	68° 14.4 -3° 29.3	82° 44.3 -3° 18.6	97° 14.1 -3° 07.9	+30.0 +10.5	15.8 58.1
Вт 21	314° 36.9 -0° 24.3	329° 06.1 -0° 13.2	343° 35.2 -0° 02.1	358° 04.3 0° 09.1	12° 33.3 0° 20.2	27° 02.3 0° 31.4	41° 31.2 0° 42.6	56° 00.1 0° 53.7	70° 29.0 1° 04.9	84° 57.7 1° 16.1	99° 26.5 1° 27.3	+29.0 +11.2	16.1 59.1
Ср 22	316° 30.8 4° 15.8	330° 58.7 4° 26.9	345° 26.4 4° 38.1	359° 54.1 4° 49.3	14° 21.8 5° 00.4	28° 49.3 5° 11.5	43° 16.8 5° 22.7	57° 44.3 5° 33.7	72° 11.7 5° 44.8	86° 39.0 5° 55.9	101° 06.2 6° 06.9	+27.5 +11.1	16.4 60.1
Чт 23	317° 46.9 8° 48.4	332° 13.1 8° 58.9	346° 39.2 9° 09.3	1° 05.2 9° 19.6	15° 31.2 9° 29.9	29° 57.0 9° 40.2	44° 22.9 9° 50.4	58° 48.6 10° 00.5	73° 14.3 10° 10.6	87° 39.9 10° 20.6	102° 05.4 10° 30.6	+25.8 +10.2	16.6 60.8
Пт 24	318° 20.1 12° 51.5	332° 44.6 13° 00.2	347° 09.0 13° 08.9	1° 33.3 13° 17.5	15° 57.5 13° 26.0	30° 21.7 13° 34.4	44° 45.9 13° 42.7	59° 09.9 13° 50.9	73° 33.9 13° 59.1	87° 57.9 14° 07.1	102° 21.8 14° 15.0	+24.2 +8.4	16.7 61.3
○ Сб 25	318° 13.7 16° 01.1	332° 36.8 16° 07.3	346° 59.8 16° 13.3	1° 22.9 16° 19.3	15° 45.8 16° 25.1	30° 08.7 16° 30.7	44° 31.6 16° 36.3	58° 54.5 16° 41.7	73° 17.3 16° 47.0	87° 40.1 16° 52.2	102° 02.9 16° 57.3	+22.9 +5.6	16.8 61.4
Вс 26	317° 42.1 17° 57.2	332° 04.6 18° 00.1	346° 27.1 18° 02.9	0° 49.6 18° 05.6	15° 12.2 18° 08.1	29° 34.7 18° 10.4	43° 57.2 18° 12.7	58° 19.8 18° 14.8	72° 42.3 18° 16.7	87° 04.9 18° 18.5	101° 27.5 18° 20.2	+22.5 +2.3	16.7 61.2
Пн 27	317° 09.0 18° 28.7	331° 32.1 18° 28.2	345° 55.2 18° 27.5	0° 18.3 18° 26.7	14° 41.4 18° 25.8	29° 04.7 18° 24.7	43° 27.9 18° 23.5	57° 51.2 18° 22.2	72° 14.6 18° 20.8	86° 38.0 18° 19.2	101° 01.5 18° 17.4	+23.2 -1.1	16.5 60.6
Вт 28	331° 32.1 18° 28.2	345° 55.2 18° 27.5	0° 18.3 18° 26.7	14° 41.4 18° 25.8	29° 04.7 18° 24.7	43° 27.9 18° 23.5	57° 51.2 18° 22.2	72° 14.6 18° 20.8	86° 38.0 18° 19.2	101° 01.5 18° 17.4	115° 25.0 18° 15.6	+23.3 -1.3	16.5 60.6
Ср 29	331° 25.5 17° 32.9	345° 50.1 17° 29.1	0° 14.8 17° 25.2	14° 39.5 17° 21.2	29° 04.4 17° 17.0	43° 29.3 17° 12.8	57° 54.2 17° 08.4	72° 19.3 17° 03.9	86° 44.4 16° 59.4	101° 09.6 16° 54.7	115° 34.9 16° 49.9	+24.9 -4.3	16.3 59.7
Чт 30	332° 04.5 15° 26.2	346° 31.1 15° 19.8	0° 57.9 15° 13.4	15° 24.7 15° 06.9	29° 51.6 15° 00.4	44° 18.6 14° 53.7	58° 45.7 14° 47.0	73° 12.9 14° 40.2	87° 40.2 14° 33.3	102° 07.6 14° 26.3	116° 35.0 14° 19.3	+27.1 -6.7	16.0 58.8

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 3 03h27 — Новолуние: 11 01h16 — Первая четв.: 19 04h01 — Полнолуние: 25 22h32

СОЛНЦЕ

Декабрь 2034

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	272° 46.3	287° 46.0	302° 45.8	317° 45.6	332° 45.3	347° 45.1	2° 44.9	17° 44.6	32° 44.4	47° 44.2	62° 43.9	77° 43.7	-0.2
	-21° 48.5	-21° 48.9	-21° 49.2	-21° 49.6	-21° 50.0	-21° 50.4	-21° 50.8	-21° 51.2	-21° 51.5	-21° 51.9	-21° 52.3	-21° 52.7	-0.4
Сб 2	272° 40.6	287° 40.4	302° 40.1	317° 39.9	332° 39.6	347° 39.4	2° 39.2	17° 38.9	32° 38.7	47° 38.4	62° 38.2	77° 38.0	-0.2
	-21° 57.6	-21° 57.9	-21° 58.3	-21° 58.7	-21° 59.0	-21° 59.4	-21° 59.8	-22° 00.1	-22° 00.5	-22° 00.8	-22° 01.2	-22° 01.6	-0.4
Вс 3	272° 34.8	287° 34.5	302° 34.3	317° 34.1	332° 33.8	347° 33.6	2° 33.3	17° 33.1	32° 32.8	47° 32.6	62° 32.3	77° 32.1	-0.2
	-22° 06.2	-22° 06.6	-22° 06.9	-22° 07.3	-22° 07.6	-22° 08.0	-22° 08.3	-22° 08.7	-22° 09.0	-22° 09.3	-22° 09.7	-22° 10.0	-0.3
Пн 4	272° 28.8	287° 28.6	302° 28.3	317° 28.1	332° 27.8	347° 27.6	2° 27.3	17° 27.0	32° 26.8	47° 26.5	62° 26.3	77° 26.0	-0.3
	-22° 14.4	-22° 14.8	-22° 15.1	-22° 15.4	-22° 15.8	-22° 16.1	-22° 16.4	-22° 16.8	-22° 17.1	-22° 17.4	-22° 17.7	-22° 18.1	-0.3
Вт 5	272° 22.7	287° 22.4	302° 22.2	317° 21.9	332° 21.7	347° 21.4	2° 21.1	17° 20.9	32° 20.6	47° 20.4	62° 20.1	77° 19.8	-0.3
	-22° 22.2	-22° 22.6	-22° 22.9	-22° 23.2	-22° 23.5	-22° 23.8	-22° 24.1	-22° 24.4	-22° 24.7	-22° 25.1	-22° 25.4	-22° 25.7	-0.3
Ср 6	272° 16.4	287° 16.2	302° 15.9	317° 15.6	332° 15.4	347° 15.1	2° 14.9	17° 14.6	32° 14.3	47° 14.1	62° 13.8	77° 13.5	-0.3
	-22° 29.6	-22° 29.9	-22° 30.2	-22° 30.5	-22° 30.8	-22° 31.1	-22° 31.4	-22° 31.7	-22° 32.0	-22° 32.3	-22° 32.5	-22° 32.8	-0.3
Чт 7	272° 10.0	287° 09.8	302° 09.5	317° 09.2	332° 09.0	347° 08.7	2° 08.4	17° 08.2	32° 07.9	47° 07.6	62° 07.3	77° 07.1	-0.3
	-22° 36.5	-22° 36.8	-22° 37.1	-22° 37.4	-22° 37.6	-22° 37.9	-22° 38.2	-22° 38.5	-22° 38.7	-22° 39.0	-22° 39.3	-22° 39.6	-0.3
Пт 8	272° 03.5	287° 03.2	302° 03.0	317° 02.7	332° 02.4	347° 02.1	2° 01.9	17° 01.6	32° 01.3	47° 01.0	62° 00.8	77° 00.5	-0.3
	-22° 43.0	-22° 43.3	-22° 43.5	-22° 43.8	-22° 44.1	-22° 44.3	-22° 44.6	-22° 44.8	-22° 45.1	-22° 45.3	-22° 45.6	-22° 45.8	-0.3
Сб 9	271° 56.9	286° 56.6	301° 56.3	316° 56.0	331° 55.8	346° 55.5	1° 55.2	16° 54.9	31° 54.6	46° 54.4	61° 54.1	76° 53.8	-0.3
	-22° 49.1	-22° 49.3	-22° 49.6	-22° 49.8	-22° 50.0	-22° 50.3	-22° 50.5	-22° 50.7	-22° 51.0	-22° 51.2	-22° 51.5	-22° 51.7	-0.2
Вс 10	271° 50.1	286° 49.8	301° 49.6	316° 49.3	331° 49.0	346° 48.7	1° 48.4	16° 48.1	31° 47.8	46° 47.6	61° 47.3	76° 47.0	-0.3
	-22° 54.7	-22° 54.9	-22° 55.1	-22° 55.3	-22° 55.5	-22° 55.8	-22° 56.0	-22° 56.2	-22° 56.4	-22° 56.6	-22° 56.9	-22° 57.1	-0.2
Пн 11	271° 43.3	286° 43.0	301° 42.7	316° 42.4	331° 42.1	346° 41.8	1° 41.5	16° 41.2	31° 41.0	46° 40.7	61° 40.4	76° 40.1	-0.3
	-22° 59.8	-23° 00.0	-23° 00.2	-23° 00.4	-23° 00.6	-23° 00.8	-23° 01.0	-23° 01.2	-23° 01.4	-23° 01.6	-23° 01.8	-23° 02.0	-0.2
Вт 12	271° 36.3	286° 36.0	301° 35.7	316° 35.4	331° 35.1	346° 34.8	1° 34.6	16° 34.3	31° 34.0	46° 33.7	61° 33.4	76° 33.1	-0.3
	-23° 04.5	-23° 04.7	-23° 04.9	-23° 05.0	-23° 05.2	-23° 05.4	-23° 05.6	-23° 05.8	-23° 05.9	-23° 06.1	-23° 06.3	-23° 06.5	-0.2
Ср 13	271° 29.3	286° 29.0	301° 28.7	316° 28.4	331° 28.1	346° 27.8	1° 27.5	16° 27.2	31° 26.9	46° 26.6	61° 26.3	76° 26.0	-0.3
	-23° 08.7	-23° 08.9	-23° 09.1	-23° 09.2	-23° 09.4	-23° 09.5	-23° 09.7	-23° 09.9	-23° 10.0	-23° 10.2	-23° 10.3	-23° 10.5	-0.2
Чт 14	271° 22.1	286° 21.8	301° 21.5	316° 21.2	331° 20.9	346° 20.6	1° 20.3	16° 20.0	31° 19.7	46° 19.4	61° 19.2	76° 18.9	-0.3
	-23° 12.5	-23° 12.6	-23° 12.8	-23° 12.9	-23° 13.1	-23° 13.2	-23° 13.4	-23° 13.5	-23° 13.6	-23° 13.8	-23° 13.9	-23° 14.1	-0.1
Пт 15	271° 14.9	286° 14.6	301° 14.3	316° 14.0	331° 13.7	346° 13.4	1° 13.1	16° 12.8	31° 12.5	46° 12.2	61° 11.9	76° 11.6	-0.3
	-23° 15.8	-23° 15.9	-23° 16.1	-23° 16.2	-23° 16.3	-23° 16.4	-23° 16.6	-23° 16.7	-23° 16.8	-23° 16.9	-23° 17.0	-23° 17.2	-0.1
Сб 16	271° 07.7	286° 07.4	301° 07.1	316° 06.8	331° 06.5	346° 06.2	1° 05.9	16° 05.6	31° 05.3	46° 05.0	61° 04.7	76° 04.4	-0.3
	-23° 18.6	-23° 18.8	-23° 18.9	-23° 19.0	-23° 19.1	-23° 19.2	-23° 19.3	-23° 19.4	-23° 19.5	-23° 19.6	-23° 19.7	-23° 19.8	-0.1
Вс 17	271° 00.4	286° 00.1	300° 59.8	315° 59.5	330° 59.2	345° 58.9	0° 58.6	15° 58.3	30° 57.9	45° 57.6	60° 57.3	75° 57.0	-0.3
	-23° 21.0	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.5	-23° 21.5	-23° 21.6	-23° 21.7	-23° 21.8	-23° 21.9	-23° 22.0	-0.1
Пн 18	270° 53.0	285° 52.7	300° 52.4	315° 52.1	330° 51.8	345° 51.5	0° 51.2	15° 50.9	30° 50.6	45° 50.3	60° 50.0	75° 49.7	-0.3
	-23° 22.9	-23° 23.0	-23° 23.1	-23° 23.1	-23° 23.2	-23° 23.3	-23° 23.3	-23° 23.4	-23° 23.5	-23° 23.5	-23° 23.6	-23° 23.7	-0.1
Вт 19	270° 45.7	285° 45.4	300° 45.1	315° 44.7	330° 44.4	345° 44.1	0° 43.8	15° 43.5	30° 43.2	45° 42.9	60° 42.6	75° 42.3	-0.3
	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-23° 24.7	-23° 24.7	-23° 24.7	-23° 24.8	-23° 24.8	-23° 24.9	-0.0
Ср 20	270° 38.3	285° 38.0	300° 37.6	315° 37.3	330° 37.0	345° 36.7	0° 36.4	15° 36.1	30° 35.8	45° 35.5	60° 35.2	75° 34.9	-0.3
	-23° 25.3	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.6	-23° 25.6	-23° 25.6	-23° 25.6	-0.0
Чт 21	270° 30.8	285° 30.5	300° 30.2	315° 29.9	330° 29.6	345° 29.3	0° 29.0	15° 28.7	30° 28.4	45° 28.1	60° 27.7	75° 27.4	-0.3
	-23° 25.8	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-0.0
Пт 22	270° 23.4	285° 23.1	300° 22.8	315° 22.5	330° 22.2	345° 21.9	0° 21.5	15° 21.2	30° 20.9	45° 20.6	60° 20.3	75° 20.0	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.7	+0.0
Сб 23	270° 16.0	285° 15.7	300° 15.4	315° 15.0	330° 14.7	345° 14.4	0° 14.1	15° 13.8	30° 13.5	45° 13.2	60° 12.9	75° 12.6	-0.3
	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.3	-23° 25.3	-23° 25.3	-23° 25.2	-23° 25.2	-23° 25.2	-23° 25.1	-23° 25.1	+0.0
Вс 24	270° 08.5	285° 08.2	300° 07.9	315° 07.6	330° 07.3	345° 07.0	0° 06.7	15° 06.4	30° 06.1	45° 05.8	60° 05.5	75° 05.1	-0.3
	-23° 24.5	-23° 24.5	-23° 24.4	-23° 24.4	-23° 24.3	-23° 24.3	-23° 24.2	-23° 24.2	-23° 24.1	-23° 24.1	-23° 24.0	-23° 24.0	+0.1
Пн 25	270° 01.1	285° 00.8	300° 00.5	315° 00.2	329° 59.9	344° 59.6	359° 59.3	14° 59.0	29° 58.7	44° 58.4	59° 58.0	74° 57.7	-0.3
	-23° 23.1	-23° 23.1	-23° 23.0	-23° 22.9	-23° 22.9	-23° 22.8	-23° 22.7	-23° 22.7	-23° 22.6	-23° 22.5	-23° 22.4	-23° 22.4	+0.1
Вт 26	269° 53.7	284° 53.4	299° 53.1	314° 52.8	329° 52.5	344° 52.2	359° 51.9	14° 51.6	29° 51.3	44° 51.0	59° 50.7	74° 50.4	-0.3
	-23° 21.3	-23° 21.2	-23° 21.1	-23° 21.0	-23° 20.9	-23° 20.9	-23° 20.8	-23° 20.7	-23° 20.6	-23° 20.5	-23° 20.4	-23° 20.3	+0.1
Ср 27	269° 46.4	284° 46.1	299° 45.8	314° 45.5	329° 45.1	344° 44.8	359° 44.5	14° 44.2	29° 43.9	44° 43.6	59° 43.3	74° 43.0	-0.3
	-23° 19.0	-23° 18.9	-23° 18.8	-23° 18.7	-23° 18.5	-23° 18.4	-23° 18.3	-23° 18.2	-23° 18.1	-23° 18.0	-23° 17.9	-23° 17.8	+0.1
Чт 28	269° 39.0	284° 38.7	299° 38.4	314° 38.1	329° 37.8	344° 37.5	359° 37.2	14° 36.9	29° 36.6	44° 36.3	59° 36.0	74° 35.7	-0.3
	-23° 16.2	-23° 16.1	-23° 15.9	-23° 15.8	-23° 15.7	-23° 15.6	-23° 15.4	-23° 15.3	-23° 15.2	-23° 15.0	-23° 14.9	-23° 14.8	+0.1
Пт 29	269° 31.8	284° 31.5	299° 31.1	314° 30.8	329° 30.5	344° 30.2	359° 29.9	14° 29.6	29° 29.3	44° 29.0	59° 28.7	74° 28.4	-0.3
	-23° 12.9	-23° 12.8	-23° 12.6	-23° 12.5	-23° 12.4	-23° 12.2	-23° 12.1	-23° 11.9	-23° 11.8	-23° 11.6	-23° 11.4	-23° 11.3	+0.2
Сб 30	269° 24.5	284° 24.2	299° 23.9	314° 23.6	329° 23.3	344° 23.0	359° 22.7	14° 22.4	29° 22.1	44° 21.8	59° 21.5	74° 21.2	-0.3
	-23° 09.2	-23° 09.1	-23° 08.9	-23° 08.7	-23° 08.6	-23° 08.4	-23° 08.2	-23° 08.0	-23° 07.9	-23° 07.7	-23° 07.5	-23° 07.4	+0.2
Вс 31	269° 17.3	284° 17.0	299° 16.7	314° 16.4	329° 16.1	344° 15.8	359° 15.5	14° 15.2	29° 14.9	44° 14.7	59° 14.4	74° 14.1	-0.3
	-23° 05.0	-23° 04.9	-23° 04.7	-23° 04.5	-23° 04.3	-23° 04.1	-23° 03.9	-23° 03.7	-23° 03.5	-23° 03.4	-23° 03.2	-23° 03.0	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Декабрь 2034

Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	R/p
Пт 1	234° 28.0 9° 51.6	248° 58.3 9° 42.6	263° 28.6 9° 33.6	277° 58.9 9° 24.6	292° 29.4 9° 15.5	306° 59.9 9° 06.4	321° 30.5 8° 57.3	336° 01.1 8° 48.1	350° 31.8 8° 38.9	5° 02.6 8° 29.7	19° 33.5 8° 20.4	+30.5 -9.1	15.6 57.1
Сб 2	237° 23.8 5° 58.4	251° 55.6 5° 48.7	266° 27.5 5° 39.1	280° 59.4 5° 29.4	295° 31.4 5° 19.7	310° 03.4 5° 10.0	324° 35.5 5° 00.3	339° 07.6 4° 50.6	353° 39.8 4° 40.9	8° 12.0 4° 31.1	22° 44.3 4° 21.4	+32.1 -9.7	15.3 56.2
Вс 3	240° 53.5 1° 54.4	255° 26.5 1° 44.6	269° 59.4 1° 34.8	284° 32.4 1° 24.9	299° 05.4 1° 15.1	313° 38.5 1° 05.3	328° 11.6 0° 55.5	342° 44.7 0° 45.7	357° 17.8 0° 35.9	11° 51.0 0° 26.1	26° 24.2 0° 16.4	+33.1 -9.8	15.1 55.4
Пн 4	255° 26.5 1° 44.6	269° 59.4 1° 34.8	284° 32.4 1° 24.9	299° 05.4 1° 15.1	313° 38.5 1° 05.3	328° 11.6 0° 55.5	342° 44.7 0° 45.7	357° 17.8 0° 35.9	11° 51.0 0° 26.1	26° 24.2 0° 16.4	40° 57.4 0° 06.6	+33.1 -9.8	15.1 55.4
Вт 5	259° 18.3 -2° 18.7	273° 51.9 -2° 28.3	288° 25.4 -2° 37.9	302° 59.0 -2° 47.4	317° 32.6 -2° 57.0	332° 06.2 -3° 06.5	346° 39.8 -3° 15.9	1° 13.4 -3° 25.4	15° 47.0 -3° 34.9	30° 20.6 -3° 44.3	44° 54.2 -3° 53.7	+33.6 -9.5	14.9 54.8
Ср 6	263° 19.3 -6° 11.8	277° 53.0 -6° 20.8	292° 26.6 -6° 29.8	307° 00.3 -6° 38.7	321° 34.0 -6° 47.6	336° 07.6 -6° 56.5	350° 41.3 -7° 05.3	5° 14.9 -7° 14.1	19° 48.6 -7° 22.8	34° 22.2 -7° 31.6	48° 55.8 -7° 40.3	+33.7 -8.8	14.8 54.4
Чт 7	267° 19.0 -9° 46.2	281° 52.5 -9° 54.3	296° 25.9 -10° 02.3	310° 59.3 -10° 10.3	325° 32.7 -10° 18.2	340° 06.1 -10° 26.1	354° 39.4 -10° 33.9	9° 12.8 -10° 41.8	23° 46.1 -10° 49.5	38° 19.4 -10° 57.2	52° 52.7 -11° 04.9	+33.4 -7.9	14.7 54.1
Пт 8	271° 09.5 -12° 53.8	285° 42.5 -13° 00.6	300° 15.4 -13° 07.4	314° 48.3 -13° 14.1	329° 21.1 -13° 20.8	343° 54.0 -13° 27.4	358° 26.8 -13° 33.9	12° 59.6 -13° 40.4	27° 32.4 -13° 46.8	42° 05.1 -13° 53.2	56° 37.8 -13° 59.5	+32.8 -6.6	14.7 53.9
Сб 9	274° 45.6 -15° 26.7	289° 17.9 -15° 32.0	303° 50.1 -15° 37.2	318° 22.4 -15° 42.4	332° 54.6 -15° 47.5	347° 26.8 -15° 52.5	1° 59.0 -15° 57.4	16° 31.1 -16° 02.3	31° 03.3 -16° 07.1	45° 35.4 -16° 11.9	60° 07.4 -16° 16.5	+32.2 -5.0	14.7 53.9
Вс 10	278° 05.4 -17° 17.7	292° 37.1 -17° 21.2	307° 08.7 -17° 24.6	321° 40.3 -17° 27.9	336° 11.9 -17° 31.1	350° 43.5 -17° 34.3	5° 15.0 -17° 37.4	19° 46.6 -17° 40.4	34° 18.1 -17° 43.3	48° 49.6 -17° 46.1	63° 21.0 -17° 48.9	+31.6 -3.1	14.7 53.9
Пн 11	281° 10.7 -18° 20.5	295° 41.8 -18° 22.0	310° 13.0 -18° 23.3	324° 44.1 -18° 24.6	339° 15.2 -18° 25.8	353° 46.3 -18° 26.9	8° 17.4 -18° 27.9	22° 48.5 -18° 28.9	37° 19.6 -18° 29.7	51° 50.6 -18° 30.5	66° 21.7 -18° 31.1	+31.1 -1.1	14.7 54.1
Вт 12	284° 06.0 -18° 30.9	298° 36.9 -18° 30.2	313° 07.8 -18° 29.4	327° 38.6 -18° 28.5	342° 09.5 -18° 27.6	356° 40.4 -18° 26.5	11° 11.2 -18° 25.4	25° 42.1 -18° 24.1	40° 13.0 -18° 22.8	54° 43.8 -18° 21.4	69° 14.7 -18° 19.9	+30.9 +1.1	14.8 54.3
Ср 13	286° 57.4 -17° 47.2	301° 28.2 -17° 44.3	315° 59.1 -17° 41.3	330° 30.0 -17° 38.3	345° 00.8 -17° 35.2	359° 31.7 -17° 31.9	14° 02.6 -17° 28.6	28° 33.5 -17° 25.3	43° 04.4 -17° 21.8	57° 35.3 -17° 18.3	72° 06.2 -17° 14.6	+30.9 +3.3	14.9 54.6
Чт 14	289° 50.5 -16° 10.3	304° 21.5 -16° 05.3	318° 52.5 -16° 00.3	333° 23.5 -15° 55.2	347° 54.6 -15° 50.1	2° 25.6 -15° 44.8	16° 56.7 -15° 39.5	31° 27.7 -15° 34.1	45° 58.8 -15° 28.6	60° 29.9 -15° 23.0	75° 01.0 -15° 17.4	+31.1 +5.3	15.0 55.0
Пт 15	292° 48.4 -13° 44.0	307° 19.6 -13° 37.2	321° 50.9 -13° 30.3	336° 22.1 -13° 23.4	350° 53.4 -13° 16.4	5° 24.6 -13° 09.3	19° 55.9 -13° 02.1	34° 27.2 -12° 54.9	48° 58.4 -12° 47.6	63° 29.7 -12° 40.3	78° 01.0 -12° 32.9	+31.3 +7.1	15.1 55.5
Сб 16	295° 50.9 -10° 34.1	310° 22.3 -10° 25.7	324° 53.6 -10° 17.2	339° 25.0 -10° 08.7	353° 56.3 -10° 00.1	8° 27.7 -9° 51.5	22° 59.0 -9° 42.8	37° 30.4 -9° 34.1	52° 01.7 -9° 25.3	66° 33.1 -9° 16.5	81° 04.4 -9° 07.6	+31.3 +8.7	15.3 56.2
Вс 17	298° 53.8 -6° 48.2	313° 25.0 -6° 38.5	327° 56.2 -6° 28.8	342° 27.4 -6° 19.0	356° 58.6 -6° 09.3	11° 29.8 -5° 59.4	26° 00.9 -5° 49.6	40° 32.1 -5° 39.6	55° 03.2 -5° 29.7	69° 34.3 -5° 19.7	84° 05.4 -5° 09.7	+31.2 +9.8	15.5 56.9
Пн 18	301° 49.3 -2° 35.4	316° 20.0 -2° 24.8	330° 50.7 -2° 14.3	345° 21.3 -2° 03.7	359° 52.0 -1° 53.1	14° 22.6 -1° 42.5	28° 53.1 -1° 31.9	43° 23.7 -1° 21.2	57° 54.2 -1° 10.5	72° 24.7 -0° 59.8	86° 55.1 -0° 49.1	+30.6 +10.6	15.7 57.7
Вт 19	304° 26.9 1° 53.1	318° 56.7 2° 04.0	333° 26.4 2° 14.9	347° 56.1 2° 25.8	2° 25.7 2° 36.7	16° 55.3 2° 47.6	31° 24.8 2° 58.5	45° 54.3 3° 09.3	60° 23.7 3° 20.2	74° 53.0 3° 31.1	89° 22.4 3° 41.9	+29.5 +10.9	16.0 58.6
Ср 20	306° 35.1 6° 23.5	321° 03.4 6° 34.1	335° 31.7 6° 44.7	350° 00.0 6° 55.2	4° 28.1 7° 05.8	18° 56.2 7° 16.3	33° 24.2 7° 26.8	47° 52.2 7° 37.2	62° 20.1 7° 47.6	76° 47.9 7° 58.0	91° 15.6 8° 08.3	+28.1 +10.5	16.2 59.5
Чт 21	308° 03.2 10° 38.3	322° 29.8 10° 47.8	336° 56.3 10° 57.4	351° 22.7 11° 06.8	5° 49.1 11° 16.3	20° 15.3 11° 25.6	34° 41.5 11° 34.9	49° 07.7 11° 44.1	63° 33.7 11° 53.2	77° 59.7 12° 02.3	92° 25.6 12° 11.3	+26.2 +9.3	16.4 60.2
Пт 22	308° 45.1 14° 17.0	323° 09.8 14° 24.7	337° 34.4 14° 32.3	351° 59.0 14° 39.8	6° 23.5 14° 47.2	20° 47.9 14° 54.5	35° 12.3 15° 01.7	49° 36.6 15° 08.8	64° 00.8 15° 15.8	78° 25.0 15° 22.7	92° 49.1 15° 29.5	+24.4 +7.3	16.6 60.8
Сб 23	308° 43.4 16° 58.1	323° 06.5 17° 03.0	337° 29.7 17° 07.9	351° 52.8 17° 12.6	6° 15.8 17° 17.2	20° 38.8 17° 21.6	35° 01.8 17° 26.0	49° 24.7 17° 30.2	63° 47.6 17° 34.2	78° 10.5 17° 38.2	92° 33.3 17° 42.0	+23.0 +4.4	16.7 61.1
Вс 24	308° 12.6 18° 23.0	322° 35.1 18° 24.7	336° 57.6 18° 26.2	351° 20.1 18° 27.5	5° 42.6 18° 28.7	20° 05.0 18° 29.8	34° 27.5 18° 30.8	48° 50.0 18° 31.6	63° 12.5 18° 32.2	77° 35.0 18° 32.7	91° 57.5 18° 33.1	+22.5 +1.0	16.7 61.1
Пн 25	307° 37.7 18° 22.2	322° 00.6 18° 20.4	336° 23.6 18° 18.5	350° 46.6 18° 16.4	5° 09.6 18° 14.2	19° 32.7 18° 11.8	33° 55.9 18° 09.3	48° 19.1 18° 06.7	62° 42.3 18° 04.0	77° 05.6 18° 01.1	91° 28.9 17° 58.1	+23.1 -2.4	16.6 60.7
Вт 26	307° 26.4 16° 58.3	321° 50.8 16° 53.4	336° 15.2 16° 48.3	350° 39.7 16° 43.2	5° 04.3 16° 37.9	19° 29.0 16° 32.5	33° 53.7 16° 27.1	48° 18.6 16° 21.5	62° 43.5 16° 15.8	77° 08.5 16° 10.0	91° 33.5 16° 04.1	+24.7 -5.4	16.4 60.1
Ср 27	307° 59.6 14° 24.5	322° 26.0 14° 17.1	336° 52.6 14° 09.7	351° 19.2 14° 02.2	5° 45.9 13° 54.6	20° 12.6 13° 47.0	34° 39.5 13° 39.3	49° 06.5 13° 31.5	63° 33.5 13° 23.6	78° 00.6 13° 15.6	92° 27.8 13° 07.6	+26.8 -7.7	16.1 59.2
Чт 28	322° 26.0 14° 17.1	336° 52.6 14° 09.7	351° 19.2 14° 02.2	5° 45.9 13° 54.6	20° 12.6 13° 47.0	34° 39.5 13° 39.3	49° 06.5 13° 31.5	63° 33.5 13° 23.6	78° 00.6 13° 15.6	92° 27.8 13° 07.6	106° 55.1 12° 59.6	+26.9 -7.8	16.1 59.1
Пт 29	323° 55.2 10° 51.0	338° 23.8 10° 42.0	352° 52.6 10° 33.0	7° 21.4 10° 23.9	21° 50.4 10° 14.8	36° 19.4 10° 05.6	50° 48.5 9° 56.4	65° 17.7 9° 47.1	79° 46.9 9° 37.8	94° 16.2 9° 28.5	108° 45.6 9° 19.1	+29.1 -9.2	15.9 58.1
Сб 30	326° 15.9 6° 54.6	340° 46.4 6° 44.8	355° 17.1 6° 34.9	9° 47.8 6° 25.1	24° 18.6 6° 15.2	38° 49.5 6° 05.3	53° 20.4 5° 55.3	67° 51.4 5° 45.4	82° 22.4 5° 35.4	96° 53.5 5° 25.5	111° 24.7 5° 15.5	+30.9 -9.9	15.6 57.1
Вс 31	329° 19.0 2° 44.8	343° 51.0 2° 34.8	358° 23.1 2° 24.7	12° 55.3 2° 14.6	27° 27.4 2° 04.6	41° 59.7 1° 54.5	56° 31.9 1° 44.4	71° 04.2 1° 34.4	85° 36.6 1° 24.3	100° 09.0 1° 14.3	114° 41.4 1° 04.3	+32.2 -10.1	15.3 56.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 2 16h46 — Новолуние: 10 20h14 — Первая четв.: 18 17h44 — Полнолуние: 25 08h54

СОЛНЦЕ

Январь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	269° 10.2	284° 09.9	299° 09.6	314° 09.3	329° 09.0	344° 08.7	359° 08.4	14° 08.1	29° 07.9	44° 07.6	59° 07.3	74° 07.0	-0.3
	-23° 00.4	-23° 00.2	-23° 00.0	-22° 59.8	-22° 59.6	-22° 59.4	-22° 59.2	-22° 59.0	-22° 58.7	-22° 58.5	-22° 58.3	-22° 58.1	+0.2
Вт 2	269° 03.2	284° 02.9	299° 02.6	314° 02.3	329° 02.0	344° 01.7	359° 01.4	14° 01.1	29° 00.8	44° 00.5	59° 00.3	74° 00.0	-0.3
	-22° 55.3	-22° 55.1	-22° 54.8	-22° 54.6	-22° 54.4	-22° 54.2	-22° 53.9	-22° 53.7	-22° 53.5	-22° 53.3	-22° 53.0	-22° 52.8	+0.2
Ср 3	268° 56.2	283° 55.9	298° 55.6	313° 55.3	328° 55.0	343° 54.8	358° 54.5	13° 54.2	28° 53.9	43° 53.6	58° 53.3	73° 53.0	-0.3
	-22° 49.7	-22° 49.5	-22° 49.2	-22° 49.0	-22° 48.8	-22° 48.5	-22° 48.3	-22° 48.0	-22° 47.8	-22° 47.5	-22° 47.3	-22° 47.0	+0.2
Чт 4	268° 49.3	283° 49.0	298° 48.8	313° 48.5	328° 48.2	343° 47.9	358° 47.6	13° 47.3	28° 47.1	43° 46.8	58° 46.5	73° 46.2	-0.3
	-22° 43.7	-22° 43.5	-22° 43.2	-22° 42.9	-22° 42.7	-22° 42.4	-22° 42.1	-22° 41.9	-22° 41.6	-22° 41.3	-22° 41.1	-22° 40.8	+0.3
Пт 5	268° 42.5	283° 42.3	298° 42.0	313° 41.7	328° 41.4	343° 41.1	358° 40.9	13° 40.6	28° 40.3	43° 40.0	58° 39.7	73° 39.5	-0.3
	-22° 37.2	-22° 37.0	-22° 36.7	-22° 36.4	-22° 36.1	-22° 35.8	-22° 35.6	-22° 35.3	-22° 35.0	-22° 34.7	-22° 34.4	-22° 34.1	+0.3
Сб 6	268° 35.9	283° 35.6	298° 35.3	313° 35.0	328° 34.8	343° 34.5	358° 34.2	13° 33.9	28° 33.7	43° 33.4	58° 33.1	73° 32.8	-0.3
	-22° 30.3	-22° 30.0	-22° 29.7	-22° 29.4	-22° 29.1	-22° 28.8	-22° 28.5	-22° 28.2	-22° 27.9	-22° 27.6	-22° 27.3	-22° 27.0	+0.3
Вс 7	268° 29.3	283° 29.0	298° 28.8	313° 28.5	328° 28.2	343° 27.9	358° 27.7	13° 27.4	28° 27.1	43° 26.9	58° 26.6	73° 26.3	-0.3
	-22° 23.0	-22° 22.7	-22° 22.3	-22° 22.0	-22° 21.7	-22° 21.4	-22° 21.1	-22° 20.7	-22° 20.4	-22° 20.1	-22° 19.8	-22° 19.5	+0.3
Пн 8	268° 22.9	283° 22.6	298° 22.3	313° 22.1	328° 21.8	343° 21.5	358° 21.3	13° 21.0	28° 20.7	43° 20.5	58° 20.2	73° 19.9	-0.3
	-22° 15.2	-22° 14.8	-22° 14.5	-22° 14.2	-22° 13.8	-22° 13.5	-22° 13.2	-22° 12.8	-22° 12.5	-22° 12.1	-22° 11.8	-22° 11.5	+0.3
Вт 9	268° 16.5	283° 16.3	298° 16.0	313° 15.8	328° 15.5	343° 15.2	358° 15.0	13° 14.7	28° 14.5	43° 14.2	58° 13.9	73° 13.7	-0.3
	-22° 06.9	-22° 06.6	-22° 06.2	-22° 05.9	-22° 05.5	-22° 05.2	-22° 04.8	-22° 04.5	-22° 04.1	-22° 03.7	-22° 03.4	-22° 03.0	+0.4
Ср 10	268° 10.3	283° 10.1	298° 09.8	313° 09.6	328° 09.3	343° 09.1	358° 08.8	13° 08.6	28° 08.3	43° 08.1	58° 07.8	73° 07.6	-0.3
	-21° 58.3	-21° 57.9	-21° 57.5	-21° 57.2	-21° 56.8	-21° 56.4	-21° 56.0	-21° 55.7	-21° 55.3	-21° 54.9	-21° 54.5	-21° 54.2	+0.4
Чт 11	268° 04.3	283° 04.1	298° 03.8	313° 03.6	328° 03.3	343° 03.1	358° 02.8	13° 02.6	28° 02.3	43° 02.1	58° 01.8	73° 01.6	-0.2
	-21° 49.2	-21° 48.8	-21° 48.4	-21° 48.0	-21° 47.6	-21° 47.2	-21° 46.8	-21° 46.4	-21° 46.0	-21° 45.7	-21° 45.3	-21° 44.9	+0.4
Пт 12	267° 58.4	282° 58.2	297° 57.9	312° 57.7	327° 57.4	342° 57.2	357° 57.0	12° 56.7	27° 56.5	42° 56.2	57° 56.0	72° 55.8	-0.2
	-21° 39.7	-21° 39.2	-21° 38.8	-21° 38.4	-21° 38.0	-21° 37.6	-21° 37.2	-21° 36.8	-21° 36.4	-21° 36.0	-21° 35.6	-21° 35.1	+0.4
Сб 13	267° 52.7	282° 52.4	297° 52.2	312° 52.0	327° 51.7	342° 51.5	357° 51.2	12° 51.0	27° 50.8	42° 50.5	57° 50.3	72° 50.1	-0.2
	-21° 29.7	-21° 29.3	-21° 28.9	-21° 28.4	-21° 28.0	-21° 27.6	-21° 27.2	-21° 26.7	-21° 26.3	-21° 25.9	-21° 25.4	-21° 25.0	+0.4
Вс 14	267° 47.1	282° 46.8	297° 46.6	312° 46.4	327° 46.2	342° 45.9	357° 45.7	12° 45.5	27° 45.2	42° 45.0	57° 44.8	72° 44.6	-0.2
	-21° 19.4	-21° 18.9	-21° 18.5	-21° 18.0	-21° 17.6	-21° 17.1	-21° 16.7	-21° 16.3	-21° 15.8	-21° 15.4	-21° 14.9	-21° 14.5	+0.4
Пн 15	267° 41.7	282° 41.4	297° 41.2	312° 41.0	327° 40.8	342° 40.5	357° 40.3	12° 40.1	27° 39.9	42° 39.7	57° 39.4	72° 39.2	-0.2
	-21° 08.6	-21° 08.1	-21° 07.7	-21° 07.2	-21° 06.8	-21° 06.3	-21° 05.8	-21° 05.4	-21° 04.9	-21° 04.4	-21° 04.0	-21° 03.5	+0.5
Вт 16	267° 36.4	282° 36.2	297° 36.0	312° 35.8	327° 35.6	342° 35.3	357° 35.1	12° 34.9	27° 34.7	42° 34.5	57° 34.3	72° 34.1	-0.2
	-20° 57.4	-20° 56.9	-20° 56.5	-20° 56.0	-20° 55.5	-20° 55.0	-20° 54.6	-20° 54.1	-20° 53.6	-20° 53.1	-20° 52.6	-20° 52.2	+0.5
Ср 17	267° 31.3	282° 31.1	297° 30.9	312° 30.7	327° 30.5	342° 30.3	357° 30.1	12° 29.9	27° 29.7	42° 29.5	57° 29.3	72° 29.1	-0.2
	-20° 45.8	-20° 45.4	-20° 44.9	-20° 44.4	-20° 43.9	-20° 43.4	-20° 42.9	-20° 42.4	-20° 41.9	-20° 41.4	-20° 40.9	-20° 40.4	+0.5
Чт 18	267° 26.4	282° 26.2	297° 26.0	312° 25.9	327° 25.7	342° 25.5	357° 25.3	12° 25.1	27° 24.9	42° 24.7	57° 24.5	72° 24.3	-0.2
	-20° 33.9	-20° 33.4	-20° 32.9	-20° 32.4	-20° 31.8	-20° 31.3	-20° 30.8	-20° 30.3	-20° 29.8	-20° 29.3	-20° 28.8	-20° 28.3	+0.5
Пт 19	267° 21.7	282° 21.6	297° 21.4	312° 21.2	327° 21.0	342° 20.8	357° 20.6	12° 20.4	27° 20.2	42° 20.0	57° 19.8	72° 19.6	-0.2
	-20° 21.5	-20° 21.0	-20° 20.5	-20° 20.0	-20° 19.4	-20° 18.9	-20° 18.4	-20° 17.8	-20° 17.3	-20° 16.8	-20° 16.3	-20° 15.7	+0.5
Сб 20	267° 17.2	282° 17.0	297° 16.9	312° 16.7	327° 16.5	342° 16.3	357° 16.1	12° 15.9	27° 15.8	42° 15.6	57° 15.4	72° 15.2	-0.2
	-20° 08.8	-20° 08.2	-20° 07.7	-20° 07.2	-20° 06.6	-20° 06.1	-20° 05.5	-20° 05.0	-20° 04.5	-20° 03.9	-20° 03.4	-20° 02.8	+0.5
Вс 21	267° 12.9	282° 12.7	297° 12.5	312° 12.4	327° 12.2	342° 12.0	357° 11.8	12° 11.7	27° 11.5	42° 11.3	57° 11.2	72° 11.0	-0.2
	-19° 55.7	-19° 55.1	-19° 54.6	-19° 54.0	-19° 53.4	-19° 52.9	-19° 52.3	-19° 51.8	-19° 51.2	-19° 50.7	-19° 50.1	-19° 49.5	+0.6
Пн 22	267° 08.8	282° 08.6	297° 08.4	312° 08.3	327° 08.1	342° 07.9	357° 07.8	12° 07.6	27° 07.4	42° 07.3	57° 07.1	72° 06.9	-0.2
	-19° 42.2	-19° 41.6	-19° 41.0	-19° 40.5	-19° 39.9	-19° 39.3	-19° 38.8	-19° 38.2	-19° 37.6	-19° 37.0	-19° 36.5	-19° 35.9	+0.6
Вт 23	267° 04.8	282° 04.7	297° 04.5	312° 04.3	327° 04.2	342° 04.0	357° 03.9	12° 03.7	27° 03.5	42° 03.4	57° 03.2	72° 03.1	-0.2
	-19° 28.3	-19° 27.7	-19° 27.2	-19° 26.6	-19° 26.0	-19° 25.4	-19° 24.8	-19° 24.2	-19° 23.6	-19° 23.0	-19° 22.5	-19° 21.9	+0.6
Ср 24	267° 01.1	282° 00.9	297° 00.8	312° 00.6	327° 00.5	342° 00.3	357° 00.2	12° 00.0	26° 59.9	41° 59.7	56° 59.6	71° 59.4	-0.2
	-19° 14.1	-19° 13.5	-19° 12.9	-19° 12.3	-19° 11.7	-19° 11.1	-19° 10.5	-19° 09.9	-19° 09.3	-19° 08.7	-19° 08.1	-19° 07.5	+0.6
Чт 25	266° 57.5	281° 57.4	296° 57.2	311° 57.1	326° 56.9	341° 56.8	356° 56.7	11° 56.5	26° 56.4	41° 56.2	56° 56.1	71° 56.0	-0.1
	-18° 59.6	-18° 58.9	-18° 58.3	-18° 57.7	-18° 57.1	-18° 56.5	-18° 55.9	-18° 55.2	-18° 54.6	-18° 54.0	-18° 53.4	-18° 52.8	+0.6
Пт 26	266° 54.2	281° 54.0	296° 53.9	311° 53.8	326° 53.6	341° 53.5	356° 53.4	11° 53.2	26° 53.1	41° 53.0	56° 52.8	71° 52.7	-0.1
	-18° 44.6	-18° 44.0	-18° 43.4	-18° 42.7	-18° 42.1	-18° 41.5	-18° 40.9	-18° 40.2	-18° 39.6	-18° 39.0	-18° 38.3	-18° 37.7	+0.6
Сб 27	266° 51.0	281° 50.9	296° 50.8	311° 50.6	326° 50.5	341° 50.4	356° 50.2	11° 50.1	26° 50.0	41° 49.9	56° 49.8	71° 49.6	-0.1
	-18° 29.4	-18° 28.7	-18° 28.1	-18° 27.4	-18° 26.8	-18° 26.2	-18° 25.5	-18° 24.9	-18° 24.2	-18° 23.6	-18° 22.9	-18° 22.3	+0.6
Вс 28	266° 48.0	281° 47.9	296° 47.8	311° 47.7	326° 47.6	341° 47.5	356° 47.3	11° 47.2	26° 47.1	41° 47.0	56° 46.9	71° 46.8	-0.1
	-18° 13.8	-18° 13.1	-18° 12.5	-18° 11.8	-18° 11.2	-18° 10.5	-18° 09.8	-18° 09.2	-18° 08.5	-18° 07.9	-18° 07.2	-18° 06.5	+0.7
Пн 29	266° 45.3	281° 45.2	296° 45.1	311° 45.0	326° 44.8	341° 44.7	356° 44.6	11° 44.5	26° 44.4	41° 44.3	56° 44.2	71° 44.1	-0.1
	-17° 57.9	-17° 57.2	-17° 56.5	-17° 55.9	-17° 55.2	-17° 54.5	-17° 53.8	-17° 53.2	-17° 52.5	-17° 51.8	-17° 51.1	-17° 50.5	+0.7
Вт 30	266° 42.7	281° 42.6	296° 42.5	311° 42.4	326° 42.3	341° 42.2	356° 42.1	11° 42.0	26° 41.9	41° 41.8	56° 41.7	71° 41.6	-0.1
	-17° 41.6	-17° 40.9	-17° 40.3	-17° 39.6	-17° 38.9	-17° 38.2	-17° 37.5	-17° 36.8	-17° 36.1	-17° 35.4	-17° 34.8	-17° 34.1	+0.7
Ср 31	266° 40.4	281° 40.3	296° 40.2	311° 40.1	326° 40.0	341° 39.9	356° 39.8	11° 39.7	26° 39.6	41° 39.5	56° 39.4	71° 39.3	-0.1
	-17° 25.1	-17° 24.4	-17° 23.7	-17° 23.0	-17° 22.3	-17° 21.6	-17° 20.9	-17° 20.2	-17° 19.5	-17° 18.8	-17° 18.1	-17° 17.4	+0.7

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.3'

ЛУНА

Январь 2035

Д	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	R/p
Пн 1	234° 49.4 -4° 18.9	249° 22.8 -4° 28.3	263° 56.1 -4° 37.7	278° 29.5 -4° 47.1	293° 02.9 -4° 56.5	307° 36.3 -5° 05.8	322° 09.7 -5° 15.1	336° 43.1 -5° 24.4	351° 16.5 -5° 33.6	5° 49.9 -5° 42.8	20° 23.4 -5° 52.0	+33.4 -9.3	15.0 54.9
Вт 2	238° 45.3 -8° 05.4	253° 18.8 -8° 14.0	267° 52.3 -8° 22.6	282° 25.7 -8° 31.1	296° 59.2 -8° 39.6	311° 32.6 -8° 48.0	326° 06.0 -8° 56.4	340° 39.5 -9° 04.8	355° 12.9 -9° 13.1	9° 46.3 -9° 21.4	24° 19.7 -9° 29.6	+33.4 -8.4	14.8 54.4
Ср 3	253° 18.8 -8° 14.0	267° 52.3 -8° 22.6	282° 25.7 -8° 31.1	296° 59.2 -8° 39.6	311° 32.6 -8° 48.0	326° 06.0 -8° 56.4	340° 39.5 -9° 04.8	355° 12.9 -9° 13.1	9° 46.3 -9° 21.4	24° 19.7 -9° 29.6	38° 53.1 -9° 37.8	+33.4 -8.4	14.8 54.4
Чт 4	257° 12.6 -11° 35.0	271° 45.8 -11° 42.4	286° 19.0 -11° 49.8	300° 52.1 -11° 57.1	315° 25.3 -12° 04.4	329° 58.4 -12° 11.6	344° 31.5 -12° 18.8	359° 04.5 -12° 25.9	13° 37.6 -12° 32.9	28° 10.6 -12° 39.9	42° 43.6 -12° 46.8	+33.1 -7.2	14.8 54.1
Пт 5	260° 56.1 -14° 24.0	275° 28.8 -14° 30.0	290° 01.4 -14° 36.0	304° 34.0 -14° 41.8	319° 06.6 -14° 47.7	333° 39.1 -14° 53.4	348° 11.6 -14° 59.1	2° 44.1 -15° 04.7	17° 16.6 -15° 10.2	31° 49.0 -15° 15.7	46° 21.4 -15° 21.1	+32.5 -5.7	14.7 54.0
Сб 6	264° 24.2 -16° 34.2	278° 56.2 -16° 38.5	293° 28.1 -16° 42.7	308° 00.0 -16° 46.8	322° 31.9 -16° 50.9	337° 03.8 -16° 54.9	351° 35.6 -16° 58.9	6° 07.4 -17° 02.7	20° 39.2 -17° 06.5	35° 10.9 -17° 10.2	49° 42.7 -17° 13.8	+31.8 -4.0	14.7 54.0
Вс 7	267° 35.3 -17° 58.8	282° 06.6 -18° 01.2	296° 37.9 -18° 03.5	311° 09.2 -18° 05.7	325° 40.4 -18° 07.8	340° 11.7 -18° 09.8	354° 42.8 -18° 11.8	9° 14.0 -18° 13.6	23° 45.2 -18° 15.4	38° 16.3 -18° 17.1	52° 47.4 -18° 18.7	+31.2 -2.0	14.8 54.1
Пн 8	270° 31.7 -18° 32.6	285° 02.5 -18° 32.9	299° 33.3 -18° 33.0	314° 04.1 -18° 33.1	328° 34.8 -18° 33.0	343° 05.6 -18° 32.9	357° 36.3 -18° 32.7	12° 07.1 -18° 32.4	26° 37.8 -18° 32.1	41° 08.5 -18° 31.6	55° 39.2 -18° 31.0	+30.7 +0.2	14.8 54.3
Вт 9	273° 18.5 -18° 12.1	287° 49.0 -18° 10.1	302° 19.6 -18° 08.1	316° 50.2 -18° 05.9	331° 20.7 -18° 03.7	345° 51.3 -18° 01.4	0° 21.8 -17° 58.9	14° 52.4 -17° 56.4	29° 22.9 -17° 53.9	43° 53.5 -17° 51.2	58° 24.0 -17° 48.4	+30.6 +2.4	14.9 54.7
Ср 10	276° 02.3 -16° 56.6	290° 32.9 -16° 52.4	305° 03.5 -16° 48.2	319° 34.1 -16° 43.9	334° 04.7 -16° 39.5	348° 35.3 -16° 35.1	3° 05.9 -16° 30.5	17° 36.6 -16° 25.9	32° 07.2 -16° 21.1	46° 37.8 -16° 16.3	61° 08.5 -16° 11.5	+30.6 +4.5	15.0 55.0
Чт 11	278° 49.3 -14° 48.6	293° 20.1 -14° 42.5	307° 50.9 -14° 36.3	322° 21.7 -14° 30.0	336° 52.5 -14° 23.6	351° 23.4 -14° 17.2	5° 54.2 -14° 10.7	20° 25.1 -14° 04.1	34° 56.0 -13° 57.5	49° 26.9 -13° 50.7	63° 57.8 -13° 43.9	+30.9 +6.5	15.1 55.5
Пт 12	281° 42.6 -11° 53.8	296° 13.7 -11° 45.9	310° 44.8 -11° 38.0	325° 15.9 -11° 30.0	339° 47.0 -11° 22.0	354° 18.1 -11° 13.9	8° 49.2 -11° 05.7	23° 20.4 -10° 57.5	37° 51.5 -10° 49.2	52° 22.7 -10° 40.9	66° 53.8 -10° 32.5	+31.1 +8.1	15.3 55.9
Сб 13	284° 42.0 -8° 20.1	299° 13.3 -8° 10.9	313° 44.5 -8° 01.6	328° 15.8 -7° 52.3	342° 47.0 -7° 42.9	357° 18.3 -7° 33.5	11° 49.6 -7° 24.1	26° 20.8 -7° 14.6	40° 52.1 -7° 05.1	55° 23.4 -6° 55.5	69° 54.6 -6° 45.9	+31.3 +9.4	15.4 56.5
Вс 14	287° 43.1 -4° 17.3	302° 14.3 -4° 07.2	316° 45.4 -3° 57.0	331° 16.6 -3° 46.8	345° 47.7 -3° 36.6	0° 18.9 -3° 26.3	14° 50.0 -3° 16.0	29° 21.1 -3° 05.7	43° 52.2 -2° 55.3	58° 23.3 -2° 45.0	72° 54.3 -2° 34.6	+31.1 +10.3	15.6 57.0
Пн 15	290° 38.1 0° 03.1	305° 08.8 0° 13.7	319° 39.5 0° 24.4	334° 10.2 0° 35.0	348° 40.8 0° 45.6	3° 11.5 0° 56.2	17° 42.1 1° 06.9	32° 12.6 1° 17.5	46° 43.2 1° 28.2	61° 13.7 1° 38.8	75° 44.1 1° 49.5	+30.6 +10.6	15.7 57.7
Вт 16	293° 16.8 4° 28.5	307° 46.7 4° 39.1	322° 16.5 4° 49.6	336° 46.3 5° 00.1	351° 16.0 5° 10.5	5° 45.7 5° 21.0	20° 15.3 5° 31.4	34° 44.9 5° 41.8	49° 14.4 5° 52.2	63° 43.9 6° 02.6	78° 13.3 6° 12.9	+29.7 +10.4	15.9 58.3
Ср 17	295° 28.5 8° 44.4	309° 57.0 8° 54.2	324° 25.5 9° 03.9	338° 54.0 9° 13.7	353° 22.4 9° 23.3	7° 50.7 9° 33.0	22° 18.9 9° 42.6	36° 47.1 9° 52.1	51° 15.2 10° 01.6	65° 43.3 10° 11.0	80° 11.3 10° 20.4	+28.3 +9.6	16.1 58.9
Чт 18	297° 03.6 12° 34.1	311° 30.5 12° 42.5	325° 57.4 12° 50.8	340° 24.2 12° 59.0	354° 51.0 13° 07.2	9° 17.6 13° 15.3	23° 44.2 13° 23.3	38° 10.8 13° 31.2	52° 37.3 13° 39.1	67° 03.7 13° 46.9	81° 30.0 13° 54.6	+26.6 +8.1	16.2 59.5
Пт 19	297° 57.2 15° 39.5	312° 02.2 15° 45.7	326° 07.2 15° 51.9	340° 12.9 15° 57.9	355° 18.0 16° 03.8	10° 03.1 16° 09.6	24° 28.1 16° 15.4	38° 53.0 16° 21.0	53° 17.9 16° 26.5	67° 42.7 16° 31.9	82° 07.5 16° 37.2	+25.0 +5.8	16.4 60.0
Сб 20	298° 12.8 17° 42.7	312° 36.8 17° 46.2	327° 00.7 17° 49.5	341° 24.6 17° 52.6	355° 48.5 17° 55.7	10° 12.3 17° 58.6	24° 36.1 18° 01.4	38° 59.9 18° 04.0	53° 23.7 18° 06.6	67° 47.4 18° 09.0	82° 11.1 18° 11.3	+23.8 +2.9	16.4 60.3
Вс 21	298° 03.9 18° 29.8	312° 27.3 18° 30.0	326° 50.8 18° 30.0	341° 14.2 18° 29.9	355° 37.6 18° 29.7	10° 01.0 18° 29.4	24° 24.5 18° 28.9	38° 47.9 18° 28.3	53° 11.4 18° 27.5	67° 34.8 18° 26.6	81° 58.3 18° 25.6	+23.4 -0.4	16.5 60.4
Пн 22	297° 52.5 17° 54.6	312° 16.3 17° 51.6	326° 40.2 17° 48.3	341° 04.1 17° 45.0	355° 28.0 17° 41.5	9° 52.0 17° 38.0	24° 16.1 17° 34.2	38° 40.1 17° 30.4	53° 04.3 17° 26.5	67° 28.4 17° 22.4	81° 52.6 17° 18.2	+24.0 -3.6	16.4 60.2
Вт 23	298° 02.1 16° 01.7	312° 27.2 15° 55.7	326° 52.4 15° 49.6	341° 17.6 15° 43.4	355° 42.9 15° 37.2	10° 08.3 15° 30.8	24° 33.7 15° 24.3	38° 59.2 15° 17.8	53° 24.8 15° 11.1	67° 50.5 15° 04.3	82° 16.2 14° 57.5	+25.4 -6.4	16.3 59.7
Ср 24	298° 50.5 13° 04.5	313° 17.4 12° 56.3	327° 44.4 12° 48.1	342° 11.4 12° 39.8	356° 38.6 12° 31.4	11° 05.7 12° 23.0	25° 33.0 12° 14.5	40° 00.4 12° 05.9	54° 27.8 11° 57.3	68° 55.3 11° 48.6	83° 22.9 11° 39.8	+27.2 -8.5	16.1 59.1
Чт 25	300° 25.5 9° 22.0	314° 54.3 9° 12.4	329° 23.2 9° 02.8	343° 52.1 8° 53.2	358° 21.1 8° 43.5	12° 50.1 8° 33.8	27° 19.3 8° 24.0	41° 48.5 8° 14.2	56° 17.8 8° 04.4	70° 47.1 7° 54.6	85° 16.5 7° 44.7	+29.1 -9.7	15.9 58.2
Пт 26	302° 45.7 5° 13.7	317° 16.1 5° 03.5	331° 46.6 4° 53.2	346° 17.2 4° 43.0	0° 47.8 4° 32.8	15° 18.5 4° 22.5	29° 49.3 4° 12.2	44° 20.1 4° 02.0	58° 50.9 3° 51.7	73° 21.8 3° 41.4	87° 52.8 3° 31.1	+30.7 -10.3	15.6 57.3
Сб 27	317° 16.1 5° 03.5	331° 46.6 4° 53.2	346° 17.2 4° 43.0	0° 47.8 4° 32.8	15° 18.5 4° 22.5	29° 49.3 4° 12.2	44° 20.1 4° 02.0	58° 50.9 3° 51.7	73° 21.8 3° 41.4	87° 52.8 3° 31.1	102° 23.8 3° 20.8	+30.8 -10.3	15.6 57.3
Вс 28	320° 15.1 0° 46.6	334° 46.9 0° 36.4	349° 18.7 0° 26.2	3° 50.6 0° 16.0	18° 22.5 0° 05.8	32° 54.4 -0° 04.4	47° 26.4 -0° 14.6	61° 58.4 -0° 24.8	76° 30.5 -0° 34.9	91° 02.6 -0° 45.0	105° 34.7 -0° 55.1	+32.0 -10.2	15.4 56.4
Пн 29	323° 40.5 -3° 24.4	338° 13.1 -3° 34.1	352° 45.8 -3° 43.9	7° 18.4 -3° 53.6	21° 51.1 -4° 03.2	36° 23.8 -4° 12.9	50° 56.5 -4° 22.5	65° 29.3 -4° 32.1	80° 02.0 -4° 41.6	94° 34.8 -4° 51.1	109° 07.6 -5° 00.6	+32.7 -9.6	15.2 55.6
Вт 30	327° 21.2 -7° 18.8	341° 54.2 -7° 27.7	356° 27.2 -7° 36.6	11° 00.2 -7° 45.4	25° 33.2 -7° 54.2	40° 06.2 -8° 02.9	54° 39.3 -8° 11.6	69° 12.3 -8° 20.3	83° 45.3 -8° 28.9	98° 18.3 -8° 37.5	112° 51.4 -8° 46.0	+33.0 -8.7	15.0 55.0
Ср 31	331° 06.6 -10° 48.3	345° 39.6 -10° 56.0	0° 12.6 -11° 03.7	14° 45.5 -11° 11.4	29° 18.5 -11° 19.0	43° 51.4 -11° 26.5	58° 24.4 -11° 34.0	72° 57.3 -11° 41.4	87° 30.2 -11° 48.8	102° 03.1 -11° 56.2	116° 36.0 -12° 03.4	+32.9 -7.5	14.9 54.5

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 1 10h01 — Новолуние: 9 15h03 — Первая четв.: 17 04h45 — Полнолуние: 23 20h16 — Последняя четв.: 31 06h02

СОЛНЦЕ

Февраль 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	266° 38.2 -17° 08.2	281° 38.1 -17° 07.5	296° 38.0 -17° 06.8	311° 37.9 -17° 06.1	326° 37.8 -17° 05.3	341° 37.8 -17° 04.6	356° 37.7 -17° 03.9	11° 37.6 -17° 03.2	26° 37.5 -17° 02.5	41° 37.4 -17° 01.8	56° 37.3 -17° 01.1	71° 37.3 -17° 00.4	-0.1 +0.7
Пт 2	266° 36.2 -16° 51.0	281° 36.1 -16° 50.3	296° 36.1 -16° 49.6	311° 36.0 -16° 48.8	326° 35.9 -16° 48.1	341° 35.8 -16° 47.4	356° 35.8 -16° 46.7	11° 35.7 -16° 45.9	26° 35.6 -16° 45.2	41° 35.5 -16° 44.5	56° 35.5 -16° 43.8	71° 35.4 -16° 43.0	-0.1 +0.7
Сб 3	266° 34.5 -16° 33.5	281° 34.4 -16° 32.8	296° 34.3 -16° 32.1	311° 34.3 -16° 31.3	326° 34.2 -16° 30.6	341° 34.1 -16° 29.9	356° 34.0 -16° 29.1	11° 34.0 -16° 28.4	26° 33.9 -16° 27.7	41° 33.8 -16° 26.9	56° 33.8 -16° 26.2	71° 33.7 -16° 25.4	-0.1 +0.7
Вс 4	266° 32.9 -16° 15.8	281° 32.8 -16° 15.0	296° 32.8 -16° 14.3	311° 32.7 -16° 13.5	326° 32.6 -16° 12.8	341° 32.6 -16° 12.0	356° 32.5 -16° 11.3	11° 32.5 -16° 10.5	26° 32.4 -16° 09.8	41° 32.4 -16° 09.0	56° 32.3 -16° 08.3	71° 32.2 -16° 07.5	-0.1 +0.7
Пн 5	266° 31.5 -15° 57.7	281° 31.5 -15° 57.0	296° 31.4 -15° 56.2	311° 31.4 -15° 55.5	326° 31.3 -15° 54.7	341° 31.3 -15° 53.9	356° 31.2 -15° 53.2	11° 31.2 -15° 52.4	26° 31.1 -15° 51.7	41° 31.1 -15° 50.9	56° 31.0 -15° 50.1	71° 31.0 -15° 49.4	-0.1 +0.8
Вт 6	266° 30.4 -15° 39.4	281° 30.3 -15° 38.7	296° 30.3 -15° 37.9	311° 30.2 -15° 37.1	326° 30.2 -15° 36.3	341° 30.1 -15° 35.6	356° 30.1 -15° 34.8	11° 30.0 -15° 34.0	26° 30.0 -15° 33.3	41° 30.0 -15° 32.5	56° 29.9 -15° 31.7	71° 29.9 -15° 30.9	-0.0 +0.8
Ср 7	266° 29.4 -15° 20.8	281° 29.3 -15° 20.1	296° 29.3 -15° 19.3	311° 29.3 -15° 18.5	326° 29.2 -15° 17.7	341° 29.2 -15° 16.9	356° 29.2 -15° 16.2	11° 29.1 -15° 15.4	26° 29.1 -15° 14.6	41° 29.1 -15° 13.8	56° 29.0 -15° 13.0	71° 29.0 -15° 12.2	-0.0 +0.8
Чт 8	266° 28.6 -15° 02.0	281° 28.6 -15° 01.2	296° 28.6 -15° 00.4	311° 28.5 -14° 59.6	326° 28.5 -14° 58.8	341° 28.5 -14° 58.0	356° 28.4 -14° 57.2	11° 28.4 -14° 56.4	26° 28.4 -14° 55.7	41° 28.4 -14° 54.9	56° 28.3 -14° 54.1	71° 28.3 -14° 53.3	-0.0 +0.8
Пт 9	266° 28.0 -14° 42.9	281° 28.0 -14° 42.1	296° 28.0 -14° 41.3	311° 28.0 -14° 40.5	326° 28.0 -14° 39.7	341° 27.9 -14° 38.9	356° 27.9 -14° 38.1	11° 27.9 -14° 37.3	26° 27.9 -14° 36.5	41° 27.9 -14° 35.7	56° 27.9 -14° 34.9	71° 27.8 -14° 34.1	-0.0 +0.8
Сб 10	266° 27.7 -14° 23.5	281° 27.6 -14° 22.7	296° 27.6 -14° 21.9	311° 27.6 -14° 21.1	326° 27.6 -14° 20.3	341° 27.6 -14° 19.5	356° 27.6 -14° 18.7	11° 27.6 -14° 17.9	26° 27.6 -14° 17.0	41° 27.6 -14° 16.2	56° 27.6 -14° 15.4	71° 27.5 -14° 14.6	-0.0 +0.8
Вс 11	266° 27.5 -14° 04.0	281° 27.5 -14° 03.1	296° 27.5 -14° 02.3	311° 27.5 -14° 01.5	326° 27.5 -14° 00.7	341° 27.5 -13° 59.8	356° 27.5 -13° 59.0	11° 27.5 -13° 58.2	26° 27.5 -13° 57.4	41° 27.5 -13° 56.6	56° 27.5 -13° 55.7	71° 27.5 -13° 54.9	-0.0 +0.8
Пн 12	266° 27.5 -13° 44.1	281° 27.5 -13° 43.3	296° 27.5 -13° 42.5	311° 27.5 -13° 41.6	326° 27.5 -13° 40.8	341° 27.5 -13° 40.0	356° 27.5 -13° 39.1	11° 27.5 -13° 38.3	26° 27.5 -13° 37.5	41° 27.5 -13° 36.6	56° 27.5 -13° 35.8	71° 27.6 -13° 35.0	+0.0 +0.8
Вт 13	266° 27.7 -13° 24.1	281° 27.7 -13° 23.3	296° 27.7 -13° 22.4	311° 27.7 -13° 21.6	326° 27.7 -13° 20.7	341° 27.8 -13° 19.9	356° 27.8 -13° 19.0	11° 27.8 -13° 18.2	26° 27.8 -13° 17.4	41° 27.8 -13° 16.5	56° 27.8 -13° 15.7	71° 27.8 -13° 14.8	+0.0 +0.8
Ср 14	266° 28.1 -13° 03.8	281° 28.1 -13° 03.0	296° 28.1 -13° 02.1	311° 28.1 -13° 01.3	326° 28.2 -13° 00.4	341° 28.2 -12° 59.6	356° 28.2 -12° 58.7	11° 28.2 -12° 57.9	26° 28.3 -12° 57.0	41° 28.3 -12° 56.2	56° 28.3 -12° 55.3	71° 28.3 -12° 54.5	+0.0 +0.9
Чт 15	266° 28.7 -12° 43.4	281° 28.7 -12° 42.5	296° 28.7 -12° 41.6	311° 28.8 -12° 40.8	326° 28.8 -12° 39.9	341° 28.8 -12° 39.1	356° 28.8 -12° 38.2	11° 28.9 -12° 37.3	26° 28.9 -12° 36.5	41° 28.9 -12° 35.6	56° 29.0 -12° 34.8	71° 29.0 -12° 33.9	+0.0 +0.9
Пт 16	266° 29.4 -12° 22.7	281° 29.5 -12° 21.8	296° 29.5 -12° 20.9	311° 29.5 -12° 20.1	326° 29.6 -12° 19.2	341° 29.6 -12° 18.3	356° 29.7 -12° 17.5	11° 29.7 -12° 16.6	26° 29.7 -12° 15.7	41° 29.8 -12° 14.9	56° 29.8 -12° 14.0	71° 29.9 -12° 13.1	+0.0 +0.9
Сб 17	266° 30.4 -12° 01.8	281° 30.4 -12° 00.9	296° 30.5 -12° 00.1	311° 30.5 -11° 59.2	326° 30.6 -11° 58.3	341° 30.6 -11° 57.4	356° 30.7 -11° 56.6	11° 30.7 -11° 55.7	26° 30.8 -11° 54.8	41° 30.8 -11° 53.9	56° 30.8 -11° 53.0	71° 30.9 -11° 52.2	+0.0 +0.9
Вс 18	266° 31.5 -11° 40.7	281° 31.6 -11° 39.9	296° 31.6 -11° 39.0	311° 31.7 -11° 38.1	326° 31.7 -11° 37.2	341° 31.8 -11° 36.3	356° 31.8 -11° 35.4	11° 31.9 -11° 34.6	26° 31.9 -11° 33.7	41° 32.0 -11° 32.8	56° 32.1 -11° 31.9	71° 32.1 -11° 31.0	+0.1 +0.9
Пн 19	266° 32.8 -11° 19.5	281° 32.9 -11° 18.6	296° 33.0 -11° 17.7	311° 33.0 -11° 16.8	326° 33.1 -11° 15.9	341° 33.1 -11° 15.0	356° 33.2 -11° 14.1	11° 33.2 -11° 13.3	26° 33.3 -11° 12.4	41° 33.4 -11° 11.5	56° 33.4 -11° 10.6	71° 33.5 -11° 09.7	+0.1 +0.9
Вт 20	266° 34.3 -10° 58.1	281° 34.4 -10° 57.2	296° 34.4 -10° 56.3	311° 34.5 -10° 55.4	326° 34.6 -10° 54.5	341° 34.6 -10° 53.6	356° 34.7 -10° 52.7	11° 34.8 -10° 51.8	26° 34.8 -10° 50.9	41° 34.9 -10° 50.0	56° 35.0 -10° 49.1	71° 35.1 -10° 48.2	+0.1 +0.9
Ср 21	266° 36.0 -10° 36.5	281° 36.0 -10° 35.6	296° 36.1 -10° 34.7	311° 36.2 -10° 33.7	326° 36.3 -10° 32.8	341° 36.3 -10° 31.9	356° 36.4 -10° 31.0	11° 36.5 -10° 30.1	26° 36.5 -10° 29.2	41° 36.6 -10° 28.3	56° 36.7 -10° 27.4	71° 36.8 -10° 26.5	+0.1 +0.9
Чт 22	266° 37.8 -10° 14.7	281° 37.9 -10° 13.8	296° 37.9 -10° 12.9	311° 38.0 -10° 12.0	326° 38.1 -10° 11.1	341° 38.2 -10° 10.1	356° 38.3 -10° 09.2	11° 38.3 -10° 08.3	26° 38.4 -10° 07.4	41° 38.5 -10° 06.5	56° 38.6 -10° 05.6	71° 38.7 -10° 04.7	+0.1 +0.9
Пт 23	266° 39.7 -9° 52.8	281° 39.8 -9° 51.9	296° 39.9 -9° 50.9	311° 40.0 -9° 50.0	326° 40.1 -9° 49.1	341° 40.2 -9° 48.2	356° 40.3 -9° 47.3	11° 40.3 -9° 46.4	26° 40.4 -9° 45.4	41° 40.5 -9° 44.5	56° 40.6 -9° 43.6	71° 40.7 -9° 42.7	+0.1 +0.9
Сб 24	266° 41.9 -9° 30.7	281° 41.9 -9° 29.8	296° 42.0 -9° 28.9	311° 42.1 -9° 27.9	326° 42.2 -9° 27.0	341° 42.3 -9° 26.1	356° 42.4 -9° 25.2	11° 42.5 -9° 24.2	26° 42.6 -9° 23.3	41° 42.7 -9° 22.4	56° 42.8 -9° 21.5	71° 42.9 -9° 20.6	+0.1 +0.9
Вс 25	266° 44.1 -9° 08.5	281° 44.2 -9° 07.6	296° 44.3 -9° 06.6	311° 44.4 -9° 05.7	326° 44.5 -9° 04.8	341° 44.6 -9° 03.9	356° 44.7 -9° 02.9	11° 44.8 -9° 02.0	26° 44.9 -9° 01.1	41° 45.0 -9° 00.1	56° 45.1 -8° 59.2	71° 45.2 -8° 58.3	+0.1 +0.9
Пн 26	266° 46.5 -8° 46.2	281° 46.6 -8° 45.2	296° 46.7 -8° 44.3	311° 46.8 -8° 43.3	326° 46.9 -8° 42.4	341° 47.1 -8° 41.5	356° 47.2 -8° 40.5	11° 47.3 -8° 39.6	26° 47.4 -8° 38.7	41° 47.5 -8° 37.7	56° 47.6 -8° 36.8	71° 47.7 -8° 35.9	+0.1 +0.9
Вт 27	266° 49.1 -8° 23.7	281° 49.2 -8° 22.7	296° 49.3 -8° 21.8	311° 49.4 -8° 20.8	326° 49.5 -8° 19.9	341° 49.6 -8° 19.0	356° 49.7 -8° 18.0	11° 49.8 -8° 17.1	26° 50.0 -8° 16.1	41° 50.1 -8° 15.2	56° 50.2 -8° 14.3	71° 50.3 -8° 13.3	+0.1 +0.9
Ср 28	266° 51.8 -8° 01.1	281° 51.9 -8° 00.1	296° 52.0 -7° 59.2	311° 52.1 -7° 58.2	326° 52.2 -7° 57.3	341° 52.3 -7° 56.3	356° 52.4 -7° 55.4	11° 52.6 -7° 54.4	26° 52.7 -7° 53.5	41° 52.8 -7° 52.6	56° 52.9 -7° 51.6	71° 53.0 -7° 50.7	+0.1 +0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Февраль 2035

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Чт 1	236° 32.7 -15° 29.9	251° 05.0 -15° 35.0	265° 37.2 -15° 40.1	280° 09.5 -15° 45.1	294° 41.7 -15° 50.1	309° 13.9 -15° 55.0	323° 46.1 -15° 59.8	338° 18.2 -16° 04.5	352° 50.4 -16° 09.2	7° 22.5 -16° 13.8	21° 54.6 -16° 18.3	+32.2 -4.8	14.8 54.1
Пт 2	251° 05.0 -15° 35.0	265° 37.2 -15° 40.1	280° 09.5 -15° 45.1	294° 41.7 -15° 50.1	309° 13.9 -15° 55.0	323° 46.1 -15° 59.8	338° 18.2 -16° 04.5	352° 50.4 -16° 09.2	7° 22.5 -16° 13.8	21° 54.6 -16° 18.3	36° 26.6 -16° 22.8	+32.2 -4.8	14.8 54.1
Сб 3	254° 24.5 -17° 20.7	268° 56.2 -17° 23.9	283° 27.8 -17° 27.1	297° 59.4 -17° 30.2	312° 31.0 -17° 33.2	327° 02.6 -17° 36.2	341° 34.1 -17° 39.0	356° 05.6 -17° 41.8	10° 37.1 -17° 44.5	25° 08.6 -17° 47.1	39° 40.0 -17° 49.7	+31.6 -2.9	14.8 54.1
Вс 4	257° 28.9 -18° 17.9	272° 00.0 -18° 19.1	286° 31.0 -18° 20.3	301° 02.1 -18° 21.3	315° 33.1 -18° 22.3	330° 04.1 -18° 23.1	344° 35.0 -18° 23.9	359° 06.0 -18° 24.6	13° 36.9 -18° 25.2	28° 07.8 -18° 25.8	42° 38.7 -18° 26.2	+31.0 -0.8	14.8 54.3
Пн 5	260° 20.0 -18° 22.4	274° 50.6 -18° 21.4	289° 21.2 -18° 20.4	303° 51.8 -18° 19.2	318° 22.4 -18° 18.0	332° 53.0 -18° 16.7	347° 23.5 -18° 15.3	1° 54.1 -18° 13.8	16° 24.6 -18° 12.2	30° 55.1 -18° 10.6	45° 25.7 -18° 08.8	+30.6 +1.4	14.9 54.6
Вт 6	263° 02.3 -17° 31.7	277° 32.7 -17° 28.6	292° 03.0 -17° 25.3	306° 33.4 -17° 22.0	321° 03.8 -17° 18.5	335° 34.1 -17° 15.0	350° 04.5 -17° 11.4	4° 34.9 -17° 07.7	19° 05.2 -17° 03.9	33° 35.6 -17° 00.0	48° 05.9 -16° 56.0	+30.4 +3.6	15.0 55.1
Ср 7	265° 41.2 -15° 46.3	280° 11.6 -15° 41.0	294° 41.9 -15° 35.6	309° 12.3 -15° 30.2	323° 42.7 -15° 24.6	338° 13.0 -15° 19.0	352° 43.4 -15° 13.2	7° 13.8 -15° 07.4	21° 44.2 -15° 01.5	36° 14.6 -14° 55.6	50° 45.0 -14° 49.5	+30.4 +5.7	15.2 55.6
● Чт 8	268° 21.5 -13° 09.7	282° 52.0 -13° 02.5	297° 22.5 -12° 55.2	311° 53.0 -12° 47.8	326° 23.5 -12° 40.4	340° 54.0 -12° 32.8	355° 24.5 -12° 25.2	9° 55.0 -12° 17.6	24° 25.6 -12° 09.9	38° 56.1 -12° 02.1	53° 26.7 -11° 54.2	+30.5 +7.6	15.3 56.1
Пт 9	271° 05.6 -9° 48.8	285° 36.2 -9° 40.0	300° 06.9 -9° 31.1	314° 37.5 -9° 22.1	329° 08.2 -9° 13.1	343° 38.8 -9° 04.1	358° 09.5 -8° 55.0	12° 40.2 -8° 45.8	27° 10.8 -8° 36.6	41° 41.5 -8° 27.4	56° 12.2 -8° 18.1	+30.7 +9.1	15.4 56.7
Сб 10	273° 52.5 -5° 53.2	288° 23.2 -5° 43.3	302° 53.9 -5° 33.2	317° 24.6 -5° 23.2	331° 55.3 -5° 13.1	346° 26.0 -5° 03.0	0° 56.6 -4° 52.9	15° 27.3 -4° 42.7	29° 58.0 -4° 32.5	44° 28.6 -4° 22.2	58° 59.3 -4° 12.0	+30.7 +10.1	15.6 57.2
Вс 11	276° 38.1 -1° 35.1	291° 08.6 -1° 24.5	305° 39.1 -1° 13.9	320° 09.6 -1° 03.3	334° 40.1 -0° 52.7	349° 10.5 -0° 42.0	3° 41.0 -0° 31.4	18° 11.4 -0° 20.7	32° 41.8 -0° 10.0	47° 12.2 0° 00.7	61° 42.5 0° 11.4	+30.4 +10.7	15.7 57.7
Пн 12	279° 15.5 2° 51.7	293° 45.5 3° 02.3	308° 15.5 3° 13.0	322° 45.5 3° 23.6	337° 15.4 3° 34.2	351° 45.3 3° 44.8	6° 15.1 3° 55.4	20° 45.0 4° 05.9	35° 14.8 4° 16.5	49° 44.6 4° 27.0	64° 14.3 4° 37.5	+29.9 +10.6	15.8 58.1
Вт 13	281° 36.3 7° 12.2	296° 05.5 7° 22.3	310° 34.6 7° 32.3	325° 03.7 7° 42.3	339° 32.7 7° 52.3	354° 01.7 8° 02.2	8° 30.7 8° 12.1	22° 59.6 8° 21.9	37° 28.5 8° 31.7	51° 57.3 8° 41.4	66° 26.1 8° 51.1	+29.0 +9.9	15.9 58.5
Ср 14	283° 32.3 11° 10.5	298° 00.4 11° 19.3	312° 28.3 11° 28.1	326° 56.3 11° 36.8	341° 24.2 11° 45.5	355° 52.0 11° 54.1	10° 19.8 12° 02.6	24° 47.5 12° 11.0	39° 15.2 12° 19.4	53° 42.8 12° 27.7	68° 10.4 12° 35.9	+27.8 +8.5	16.0 58.8
◐ Чт 15	284° 58.0 14° 30.2	299° 24.7 14° 37.1	313° 51.4 14° 44.0	328° 18.1 14° 50.8	342° 44.7 14° 57.5	357° 11.3 15° 04.1	11° 37.8 15° 10.6	26° 04.2 15° 17.0	40° 30.7 15° 23.3	54° 57.0 15° 29.5	69° 23.3 15° 35.7	+26.5 +6.6	16.1 59.1
Пт 16	285° 52.6 16° 55.6	300° 18.2 17° 00.0	314° 43.7 17° 04.4	329° 09.3 17° 08.7	343° 34.8 17° 12.8	358° 00.2 17° 16.9	12° 25.6 17° 20.8	26° 51.0 17° 24.6	41° 16.3 17° 28.3	55° 41.6 17° 31.9	70° 06.9 17° 35.4	+25.4 +4.0	16.2 59.3
Сб 17	286° 22.6 18° 13.5	300° 47.5 18° 15.1	315° 12.4 18° 16.5	329° 37.2 18° 17.8	344° 02.0 18° 19.1	358° 26.8 18° 20.1	12° 51.6 18° 21.1	27° 16.4 18° 21.9	41° 41.2 18° 22.7	56° 05.9 18° 23.3	70° 30.7 18° 23.7	+24.8 +1.0	16.2 59.5
Вс 18	286° 41.8 18° 15.9	301° 06.5 18° 14.4	315° 31.3 18° 12.8	329° 56.1 18° 11.0	344° 21.0 18° 09.2	358° 45.8 18° 07.2	13° 10.6 18° 05.0	27° 35.5 18° 02.8	42° 00.4 18° 00.4	56° 25.3 17° 58.0	70° 50.2 17° 55.4	+24.8 -2.1	16.2 59.4
Пн 19	287° 07.5 17° 02.3	301° 32.9 16° 57.8	315° 58.3 16° 53.3	330° 23.8 16° 48.6	344° 49.3 16° 43.8	359° 14.9 16° 38.9	13° 40.5 16° 33.9	28° 06.2 16° 28.8	42° 31.9 16° 23.6	56° 57.6 16° 18.3	71° 23.4 16° 12.9	+25.6 -4.9	16.2 59.3
Вт 20	287° 56.2 14° 39.9	302° 22.8 14° 32.9	316° 49.4 14° 25.9	331° 16.1 14° 18.8	345° 42.9 14° 11.6	0° 09.7 14° 04.3	14° 36.6 13° 56.9	29° 03.6 13° 49.5	43° 30.6 13° 41.9	57° 57.6 13° 34.3	72° 24.7 13° 26.6	+26.9 -7.3	16.1 58.9
Ср 21	289° 18.6 11° 22.6	303° 46.7 11° 13.8	318° 14.8 11° 04.9	332° 43.0 10° 56.0	347° 11.3 10° 47.1	1° 39.6 10° 38.0	16° 07.9 10° 29.0	30° 36.4 10° 19.8	45° 04.9 10° 10.6	59° 33.4 10° 01.4	74° 02.0 9° 52.1	+28.3 -9.1	15.9 58.4
○ Чт 22	291° 18.3 7° 27.7	305° 47.8 7° 17.8	320° 17.4 7° 07.8	334° 47.1 6° 57.9	349° 16.8 6° 47.9	3° 46.6 6° 37.8	18° 16.4 6° 27.8	32° 46.2 6° 17.7	47° 16.2 6° 07.6	61° 46.1 5° 57.4	76° 16.2 5° 47.3	+29.8 -10.0	15.8 57.8
Пт 23	293° 52.5 3° 13.1	308° 23.3 3° 02.8	322° 54.1 2° 52.4	337° 25.0 2° 42.1	351° 56.0 2° 31.7	6° 26.9 2° 21.3	20° 58.0 2° 11.0	35° 29.0 2° 00.6	50° 00.1 1° 50.2	64° 31.2 1° 39.9	79° 02.4 1° 29.5	+31.0 -10.4	15.6 57.1
Сб 24	296° 54.5 -1° 04.9	311° 26.2 -1° 15.1	325° 58.0 -1° 25.3	340° 29.8 -1° 35.4	355° 01.6 -1° 45.6	9° 33.5 -1° 55.7	24° 05.4 -2° 05.8	38° 37.3 -2° 15.9	53° 09.2 -2° 25.9	67° 41.2 -2° 35.9	82° 13.2 -2° 46.0	+31.9 -10.1	15.4 56.3
Вс 25	300° 15.7 -5° 12.8	314° 48.0 -5° 22.4	329° 20.3 -5° 31.9	343° 52.7 -5° 41.3	358° 25.1 -5° 50.8	12° 57.4 -6° 00.2	27° 29.8 -6° 09.5	42° 02.2 -6° 18.9	56° 34.7 -6° 28.1	71° 07.1 -6° 37.4	85° 39.5 -6° 46.6	+32.4 -9.4	15.2 55.6
Пн 26	314° 48.0 -5° 22.4	329° 20.3 -5° 31.9	343° 52.7 -5° 41.3	358° 25.1 -5° 50.8	12° 57.4 -6° 00.2	27° 29.8 -6° 09.5	42° 02.2 -6° 18.9	56° 34.7 -6° 28.1	71° 07.1 -6° 37.4	85° 39.5 -6° 46.6	100° 12.0 -6° 55.8	+32.4 -9.3	15.2 55.6
Вт 27	318° 19.8 -9° 08.1	332° 52.4 -9° 16.6	347° 24.9 -9° 25.0	1° 57.5 -9° 33.3	16° 30.1 -9° 41.6	31° 02.7 -9° 49.9	45° 35.2 -9° 58.1	60° 07.8 -10° 06.3	74° 40.4 -10° 14.4	89° 12.9 -10° 22.4	103° 45.5 -10° 30.4	+32.6 -8.2	15.0 55.0
Ср 28	321° 53.7 -12° 23.8	336° 26.2 -12° 30.9	350° 58.6 -12° 37.9	5° 31.1 -12° 44.9	20° 03.6 -12° 51.8	34° 36.1 -12° 58.7	49° 08.5 -13° 05.4	63° 41.0 -13° 12.2	78° 13.4 -13° 18.8	92° 45.8 -13° 25.5	107° 18.2 -13° 32.0	+32.5 -6.8	14.9 54.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Новолуние: 8 08h22 — Первая четв.: 15 13h17 — Полнолуние: 22 08h53

СОЛНЦЕ

Март 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	266° 54.6 -7° 38.3	281° 54.7 -7° 37.4	296° 54.8 -7° 36.4	311° 54.9 -7° 35.5	326° 55.0 -7° 34.5	341° 55.2 -7° 33.6	356° 55.3 -7° 32.6	11° 55.4 -7° 31.7	26° 55.5 -7° 30.7	41° 55.6 -7° 29.8	56° 55.8 -7° 28.8	71° 55.9 -7° 27.9	+0.1 +1.0
Пт 2	266° 57.5 -7° 15.5	281° 57.6 -7° 14.5	296° 57.7 -7° 13.6	311° 57.9 -7° 12.6	326° 58.0 -7° 11.7	341° 58.1 -7° 10.7	356° 58.2 -7° 09.8	11° 58.4 -7° 08.8	26° 58.5 -7° 07.9	41° 58.6 -7° 06.9	56° 58.7 -7° 06.0	71° 58.9 -7° 05.0	+0.1 +1.0
Сб 3	267° 00.5 -6° 52.6	282° 00.7 -6° 51.6	297° 00.8 -6° 50.6	312° 00.9 -6° 49.7	327° 01.1 -6° 48.7	342° 01.2 -6° 47.8	357° 01.3 -6° 46.8	12° 01.4 -6° 45.8	27° 01.6 -6° 44.9	42° 01.7 -6° 43.9	57° 01.8 -6° 43.0	72° 02.0 -6° 42.0	+0.1 +1.0
Вс 4	267° 03.7 -6° 29.5	282° 03.8 -6° 28.6	297° 04.0 -6° 27.6	312° 04.1 -6° 26.6	327° 04.2 -6° 25.7	342° 04.4 -6° 24.7	357° 04.5 -6° 23.7	12° 04.6 -6° 22.8	27° 04.8 -6° 21.8	42° 04.9 -6° 20.9	57° 05.0 -6° 19.9	72° 05.2 -6° 18.9	+0.1 +1.0
Пн 5	267° 07.0 -6° 06.4	282° 07.1 -6° 05.4	297° 07.2 -6° 04.5	312° 07.4 -6° 03.5	327° 07.5 -6° 02.5	342° 07.7 -6° 01.6	357° 07.8 -6° 00.6	12° 07.9 -5° 59.6	27° 08.1 -5° 58.7	42° 08.2 -5° 57.7	57° 08.4 -5° 56.7	72° 08.5 -5° 55.8	+0.1 +1.0
Вт 6	267° 10.3 -5° 43.2	282° 10.5 -5° 42.2	297° 10.6 -5° 41.2	312° 10.8 -5° 40.3	327° 10.9 -5° 39.3	342° 11.1 -5° 38.3	357° 11.2 -5° 37.4	12° 11.3 -5° 36.4	27° 11.5 -5° 35.4	42° 11.6 -5° 34.4	57° 11.8 -5° 33.5	72° 11.9 -5° 32.5	+0.1 +1.0
Ср 7	267° 13.8 -5° 19.9	282° 14.0 -5° 18.9	297° 14.1 -5° 17.9	312° 14.3 -5° 17.0	327° 14.4 -5° 16.0	342° 14.6 -5° 15.0	357° 14.7 -5° 14.0	12° 14.8 -5° 13.1	27° 15.0 -5° 12.1	42° 15.1 -5° 11.1	57° 15.3 -5° 10.1	72° 15.4 -5° 09.2	+0.1 +1.0
Чт 8	267° 17.4 -4° 56.5	282° 17.5 -4° 55.5	297° 17.7 -4° 54.6	312° 17.8 -4° 53.6	327° 18.0 -4° 52.6	342° 18.1 -4° 51.6	357° 18.3 -4° 50.7	12° 18.4 -4° 49.7	27° 18.6 -4° 48.7	42° 18.7 -4° 47.7	57° 18.9 -4° 46.8	72° 19.1 -4° 45.8	+0.2 +1.0
Пт 9	267° 21.1 -4° 33.1	282° 21.2 -4° 32.1	297° 21.4 -4° 31.1	312° 21.5 -4° 30.1	327° 21.7 -4° 29.2	342° 21.8 -4° 28.2	357° 22.0 -4° 27.2	12° 22.1 -4° 26.2	27° 22.3 -4° 25.2	42° 22.4 -4° 24.3	57° 22.6 -4° 23.3	72° 22.8 -4° 22.3	+0.2 +1.0
Сб 10	267° 24.8 -4° 09.6	282° 25.0 -4° 08.6	297° 25.1 -4° 07.6	312° 25.3 -4° 06.6	327° 25.4 -4° 05.7	342° 25.6 -4° 04.7	357° 25.8 -4° 03.7	12° 25.9 -4° 02.7	27° 26.1 -4° 01.7	42° 26.2 -4° 00.8	57° 26.4 -3° 59.8	72° 26.6 -3° 58.8	+0.2 +1.0
Вс 11	267° 28.6 -3° 46.0	282° 28.8 -3° 45.1	297° 29.0 -3° 44.1	312° 29.1 -3° 43.1	327° 29.3 -3° 42.1	342° 29.5 -3° 41.1	357° 29.6 -3° 40.1	12° 29.8 -3° 39.2	27° 29.9 -3° 38.2	42° 30.1 -3° 37.2	57° 30.3 -3° 36.2	72° 30.4 -3° 35.2	+0.2 +1.0
Пн 12	267° 32.6 -3° 22.5	282° 32.7 -3° 21.5	297° 32.9 -3° 20.5	312° 33.1 -3° 19.5	327° 33.2 -3° 18.5	342° 33.4 -3° 17.5	357° 33.6 -3° 16.5	12° 33.7 -3° 15.6	27° 33.9 -3° 14.6	42° 34.1 -3° 13.6	57° 34.2 -3° 12.6	72° 34.4 -3° 11.6	+0.2 +1.0
Вт 13	267° 36.6 -2° 58.8	282° 36.7 -2° 57.8	297° 36.9 -2° 56.9	312° 37.1 -2° 55.9	327° 37.2 -2° 54.9	342° 37.4 -2° 53.9	357° 37.6 -2° 52.9	12° 37.7 -2° 51.9	27° 37.9 -2° 50.9	42° 38.1 -2° 50.0	57° 38.2 -2° 49.0	72° 38.4 -2° 48.0	+0.2 +1.0
Ср 14	267° 40.6 -2° 35.2	282° 40.8 -2° 34.2	297° 41.0 -2° 33.2	312° 41.1 -2° 32.2	327° 41.3 -2° 31.2	342° 41.5 -2° 30.2	357° 41.7 -2° 29.2	12° 41.8 -2° 28.3	27° 42.0 -2° 27.3	42° 42.2 -2° 26.3	57° 42.3 -2° 25.3	72° 42.5 -2° 24.3	+0.2 +1.0
Чт 15	267° 44.8 -2° 11.5	282° 44.9 -2° 10.5	297° 45.1 -2° 09.5	312° 45.3 -2° 08.5	327° 45.5 -2° 07.5	342° 45.6 -2° 06.5	357° 45.8 -2° 05.6	12° 46.0 -2° 04.6	27° 46.2 -2° 03.6	42° 46.3 -2° 02.6	57° 46.5 -2° 01.6	72° 46.7 -2° 00.6	+0.2 +1.0
Пт 16	267° 49.0 -1° 47.8	282° 49.1 -1° 46.8	297° 49.3 -1° 45.8	312° 49.5 -1° 44.8	327° 49.7 -1° 43.8	342° 49.8 -1° 42.8	357° 50.0 -1° 41.8	12° 50.2 -1° 40.9	27° 50.4 -1° 39.9	42° 50.5 -1° 38.9	57° 50.7 -1° 37.9	72° 50.9 -1° 36.9	+0.2 +1.0
Сб 17	267° 53.2 -1° 24.1	282° 53.4 -1° 23.1	297° 53.6 -1° 22.1	312° 53.8 -1° 21.1	327° 53.9 -1° 20.1	342° 54.1 -1° 19.1	357° 54.3 -1° 18.1	12° 54.5 -1° 17.1	27° 54.6 -1° 16.1	42° 54.8 -1° 15.2	57° 55.0 -1° 14.2	72° 55.2 -1° 13.2	+0.2 +1.0
Вс 18	267° 57.5 -1° 00.3	282° 57.7 -0° 59.3	297° 57.9 -0° 58.4	312° 58.1 -0° 57.4	327° 58.3 -0° 56.4	342° 58.4 -0° 55.4	357° 58.6 -0° 54.4	12° 58.8 -0° 53.4	27° 59.0 -0° 52.4	42° 59.2 -0° 51.4	57° 59.3 -0° 50.4	72° 59.5 -0° 49.5	+0.2 +1.0
Пн 19	268° 01.9 -0° 36.6	283° 02.1 -0° 35.6	298° 02.3 -0° 34.6	313° 02.4 -0° 33.6	328° 02.6 -0° 32.7	343° 02.8 -0° 31.7	358° 03.0 -0° 30.7	13° 03.2 -0° 29.7	28° 03.4 -0° 28.7	43° 03.5 -0° 27.7	58° 03.7 -0° 26.7	73° 03.9 -0° 25.7	+0.2 +1.0
Вт 20	268° 06.3 -0° 12.9	283° 06.5 -0° 11.9	298° 06.7 -0° 10.9	313° 06.8 -0° 09.9	328° 07.0 -0° 08.9	343° 07.2 -0° 07.9	358° 07.4 -0° 07.0	13° 07.6 -0° 06.0	28° 07.8 -0° 05.0	43° 08.0 -0° 04.0	58° 08.1 -0° 03.0	73° 08.3 -0° 02.0	+0.2 +1.0
Ср 21	268° 10.7 0° 10.8	283° 10.9 0° 11.8	298° 11.1 0° 12.8	313° 11.3 0° 13.8	328° 11.5 0° 14.8	343° 11.7 0° 15.8	358° 11.9 0° 16.7	13° 12.0 0° 17.7	28° 12.2 0° 18.7	43° 12.4 0° 19.7	58° 12.6 0° 20.7	73° 12.8 0° 21.7	+0.2 +1.0
Чт 22	268° 15.2 0° 34.5	283° 15.4 0° 35.5	298° 15.6 0° 36.5	313° 15.8 0° 37.5	328° 16.0 0° 38.5	343° 16.1 0° 39.4	358° 16.3 0° 40.4	13° 16.5 0° 41.4	28° 16.7 0° 42.4	43° 16.9 0° 43.4	58° 17.1 0° 44.4	73° 17.3 0° 45.4	+0.2 +1.0
Пт 23	268° 19.7 0° 58.2	283° 19.9 0° 59.2	298° 20.1 1° 00.2	313° 20.3 1° 01.1	328° 20.5 1° 02.1	343° 20.6 1° 03.1	358° 20.8 1° 04.1	13° 21.0 1° 05.1	28° 21.2 1° 06.1	43° 21.4 1° 07.0	58° 21.6 1° 08.0	73° 21.8 1° 09.0	+0.2 +1.0
Сб 24	268° 24.2 1° 21.8	283° 24.4 1° 22.8	298° 24.6 1° 23.8	313° 24.8 1° 24.8	328° 25.0 1° 25.8	343° 25.2 1° 26.7	358° 25.3 1° 27.7	13° 25.5 1° 28.7	28° 25.7 1° 29.7	43° 25.9 1° 30.7	58° 26.1 1° 31.7	73° 26.3 1° 32.6	+0.2 +1.0
Вс 25	268° 28.7 1° 45.4	283° 28.9 1° 46.4	298° 29.1 1° 47.4	313° 29.3 1° 48.4	328° 29.5 1° 49.4	343° 29.7 1° 50.3	358° 29.9 1° 51.3	13° 30.1 1° 52.3	28° 30.3 1° 53.3	43° 30.4 1° 54.3	58° 30.6 1° 55.2	73° 30.8 1° 56.2	+0.2 +1.0
Пн 26	268° 33.3 2° 09.0	283° 33.5 2° 10.0	298° 33.7 2° 11.0	313° 33.8 2° 11.9	328° 34.0 2° 12.9	343° 34.2 2° 13.9	358° 34.4 2° 14.9	13° 34.6 2° 15.9	28° 34.8 2° 16.8	43° 35.0 2° 17.8	58° 35.2 2° 18.8	73° 35.4 2° 19.8	+0.2 +1.0
Вт 27	268° 37.8 2° 32.5	283° 38.0 2° 33.5	298° 38.2 2° 34.5	313° 38.4 2° 35.4	328° 38.6 2° 36.4	343° 38.8 2° 37.4	358° 39.0 2° 38.4	13° 39.1 2° 39.4	28° 39.3 2° 40.3	43° 39.5 2° 41.3	58° 39.7 2° 42.3	73° 39.9 2° 43.3	+0.2 +1.0
Ср 28	268° 42.3 2° 56.0	283° 42.5 2° 57.0	298° 42.7 2° 57.9	313° 42.9 2° 58.9	328° 43.1 2° 59.9	343° 43.3 3° 00.9	358° 43.5 3° 01.8	13° 43.7 3° 02.8	28° 43.9 3° 03.8	43° 44.0 3° 04.8	58° 44.2 3° 05.7	73° 44.4 3° 06.7	+0.2 +1.0
Чт 29	268° 46.9 3° 19.4	283° 47.1 3° 20.4	298° 47.2 3° 21.3	313° 47.4 3° 22.3	328° 47.6 3° 23.3	343° 47.8 3° 24.3	358° 48.0 3° 25.2	13° 48.2 3° 26.2	28° 48.4 3° 27.2	43° 48.6 3° 28.2	58° 48.7 3° 29.1	73° 48.9 3° 30.1	+0.2 +1.0
Пт 30	268° 51.4 3° 42.7	283° 51.6 3° 43.7	298° 51.7 3° 44.7	313° 51.9 3° 45.7	328° 52.1 3° 46.6	343° 52.3 3° 47.6	358° 52.5 3° 48.6	13° 52.7 3° 49.5	28° 52.9 3° 50.5	43° 53.1 3° 51.5	58° 53.2 3° 52.5	73° 53.4 3° 53.4	+0.2 +1.0
Сб 31	268° 55.9 4° 06.0	283° 56.0 4° 07.0	298° 56.2 4° 08.0	313° 56.4 4° 08.9	328° 56.6 4° 09.9	343° 56.8 4° 10.9	358° 57.0 4° 11.8	13° 57.2 4° 12.8	28° 57.3 4° 13.8	43° 57.5 4° 14.7	58° 57.7 4° 15.7	73° 57.9 4° 16.7	+0.2 +1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.1'

ЛУНА

Март 2035

Д	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	R/p
Чт 1	227° 00.4 -16° 30.2	241° 32.3 -16° 34.4	256° 04.2 -16° 38.5	270° 36.1 -16° 42.6	285° 07.9 -16° 46.5	299° 39.8 -16° 50.4	314° 11.6 -16° 54.3	328° 43.4 -16° 58.0	343° 15.2 -17° 01.7	357° 47.0 -17° 05.2	12° 18.7 -17° 08.7	+31.8 -3.9	14.8 54.2
◑ Пт 2	230° 12.8 -17° 51.9	244° 44.2 -17° 54.2	259° 15.7 -17° 56.3	273° 47.1 -17° 58.4	288° 18.5 -18° 00.4	302° 49.9 -18° 02.3	317° 21.2 -18° 04.1	331° 52.6 -18° 05.9	346° 23.9 -18° 07.5	0° 55.2 -18° 09.1	15° 26.5 -18° 10.6	+31.4 -1.9	14.8 54.2
Сб 3	233° 13.8 -18° 22.9	247° 44.9 -18° 23.1	262° 15.9 -18° 23.1	276° 46.9 -18° 23.1	291° 17.8 -18° 23.0	305° 48.8 -18° 22.8	320° 19.7 -18° 22.5	334° 50.7 -18° 22.1	349° 21.6 -18° 21.6	3° 52.5 -18° 21.1	18° 23.4 -18° 20.5	+31.0 +0.2	14.8 54.4
Вс 4	247° 44.9 -18° 23.1	262° 15.9 -18° 23.1	276° 46.9 -18° 23.1	291° 17.8 -18° 23.0	305° 48.8 -18° 22.8	320° 19.7 -18° 22.5	334° 50.7 -18° 22.1	349° 21.6 -18° 21.6	3° 52.5 -18° 21.1	18° 23.4 -18° 20.5	32° 54.3 -18° 19.7	+30.9 +0.3	14.8 54.5
Пн 5	250° 35.8 -17° 58.4	265° 06.5 -17° 56.2	279° 37.2 -17° 54.0	294° 07.8 -17° 51.7	308° 38.5 -17° 49.3	323° 09.1 -17° 46.9	337° 39.7 -17° 44.3	352° 10.3 -17° 41.6	6° 40.9 -17° 38.9	21° 11.5 -17° 36.1	35° 42.1 -17° 33.2	+30.6 +2.5	15.0 54.9
Вт 6	253° 20.0 -16° 39.0	267° 50.5 -16° 34.7	282° 20.9 -16° 30.3	296° 51.4 -16° 25.8	311° 21.9 -16° 21.3	325° 52.3 -16° 16.6	340° 22.8 -16° 11.9	354° 53.2 -16° 07.1	9° 23.6 -16° 02.2	23° 54.1 -15° 57.2	38° 24.5 -15° 52.2	+30.4 +4.7	15.1 55.4
Ср 7	256° 00.5 -14° 26.3	270° 30.9 -14° 20.0	285° 01.2 -14° 13.5	299° 31.6 -14° 07.0	314° 02.0 -14° 00.4	328° 32.3 -13° 53.7	343° 02.7 -13° 47.0	357° 33.1 -13° 40.2	12° 03.4 -13° 33.3	26° 33.8 -13° 26.3	41° 04.1 -13° 19.2	+30.4 +6.7	15.3 56.0
Чт 8	258° 39.2 -11° 24.7	273° 09.5 -11° 16.5	287° 39.8 -11° 08.3	302° 10.1 -10° 59.9	316° 40.4 -10° 51.5	331° 10.8 -10° 43.1	345° 41.1 -10° 34.6	0° 11.4 -10° 26.0	14° 41.7 -10° 17.4	29° 12.0 -10° 08.7	43° 42.2 -9° 59.9	+30.3 +8.5	15.5 56.7
● Пт 9	261° 16.0 -7° 41.6	275° 46.3 -7° 31.9	290° 16.5 -7° 22.2	304° 46.7 -7° 12.5	319° 16.8 -7° 02.7	333° 47.0 -6° 52.9	348° 17.2 -6° 43.0	2° 47.4 -6° 33.1	17° 17.5 -6° 23.1	31° 47.7 -6° 13.1	46° 17.8 -6° 03.0	+30.2 +9.9	15.7 57.4
Сб 10	263° 48.5 -3° 27.8	278° 18.5 -3° 17.2	292° 48.4 -3° 06.6	307° 18.3 -2° 55.9	321° 48.2 -2° 45.3	336° 18.1 -2° 34.6	350° 48.0 -2° 23.8	5° 17.8 -2° 13.1	19° 47.7 -2° 02.3	34° 17.5 -1° 51.5	48° 47.3 -1° 40.7	+29.9 +10.7	15.8 58.0
Вс 11	266° 11.9 1° 02.7	280° 41.4 1° 13.7	295° 10.8 1° 24.6	309° 40.2 1° 35.6	324° 09.6 1° 46.5	338° 39.0 1° 57.5	353° 08.3 2° 08.4	7° 37.6 2° 19.3	22° 06.9 2° 30.3	36° 36.2 2° 41.2	51° 05.4 2° 52.1	+29.3 +10.9	16.0 58.5
Пн 12	268° 20.2 5° 33.8	282° 48.9 5° 44.4	297° 17.6 5° 55.0	311° 46.3 6° 05.5	326° 14.9 6° 16.1	340° 43.5 6° 26.5	355° 12.1 6° 37.0	9° 40.6 6° 47.4	24° 09.1 6° 57.8	38° 37.5 7° 08.1	53° 05.9 7° 18.4	+28.6 +10.5	16.1 58.9
Вт 13	270° 07.5 9° 47.6	284° 35.3 9° 57.2	299° 03.1 10° 06.6	313° 30.8 10° 16.1	327° 58.5 10° 25.4	342° 26.1 10° 34.7	356° 53.7 10° 43.9	11° 21.2 10° 53.1	25° 48.8 11° 02.2	40° 16.2 11° 11.3	54° 43.6 11° 20.2	+27.6 +9.3	16.1 59.2
Ср 14	271° 30.1 13° 26.2	285° 56.9 13° 33.9	300° 23.7 13° 41.6	314° 50.4 13° 49.2	329° 17.0 13° 56.7	343° 43.6 14° 04.1	358° 10.2 14° 11.5	12° 36.8 14° 18.7	27° 03.3 14° 25.9	41° 29.7 14° 32.9	55° 56.2 14° 39.9	+26.6 +7.4	16.2 59.3
Чт 15	272° 28.4 16° 12.9	286° 54.3 16° 18.3	301° 20.1 16° 23.6	315° 46.0 16° 28.7	330° 11.8 16° 33.8	344° 37.6 16° 38.8	359° 03.3 16° 43.6	13° 29.0 16° 48.4	27° 54.7 16° 53.0	42° 20.4 16° 57.5	56° 46.0 17° 01.9	+25.8 +4.9	16.2 59.3
◐ Пт 16	273° 08.3 17° 54.6	287° 33.7 17° 57.2	301° 59.0 17° 59.6	316° 24.4 18° 02.0	330° 49.7 18° 04.2	345° 15.0 18° 06.3	359° 40.4 18° 08.3	14° 05.7 18° 10.2	28° 31.0 18° 11.9	42° 56.3 18° 13.5	57° 21.6 18° 15.1	+25.3 +2.0	16.1 59.2
Сб 17	273° 41.4 18° 23.3	288° 06.7 18° 22.9	302° 32.1 18° 22.4	316° 57.5 18° 21.7	331° 23.0 18° 21.0	345° 48.4 18° 20.1	0° 13.8 18° 19.1	14° 39.3 18° 18.0	29° 04.8 18° 16.7	43° 30.3 18° 15.4	57° 55.8 18° 13.9	+25.4 -0.9	16.1 59.0
Вс 18	274° 21.8 17° 37.8	288° 47.8 17° 34.5	303° 13.8 17° 31.1	317° 39.8 17° 27.6	332° 05.9 17° 23.9	346° 32.0 17° 20.2	0° 58.2 17° 16.3	15° 24.4 17° 12.4	29° 50.6 17° 08.3	44° 16.9 17° 04.1	58° 43.2 16° 59.8	+26.1 -3.8	16.0 58.7
Пн 19	275° 23.0 15° 43.5	289° 50.0 15° 37.6	304° 17.1 15° 31.6	318° 44.2 15° 25.6	333° 11.3 15° 19.4	347° 38.6 15° 13.2	2° 05.8 15° 06.9	16° 33.1 15° 00.5	31° 00.5 14° 54.0	45° 27.9 14° 47.4	59° 55.4 14° 40.7	+27.2 -6.3	15.9 58.4
Вт 20	276° 53.6 12° 51.1	291° 21.9 12° 43.2	305° 50.3 12° 35.3	320° 18.7 12° 27.2	334° 47.1 12° 19.1	349° 15.7 12° 10.9	3° 44.2 12° 02.7	18° 12.8 11° 54.4	32° 41.5 11° 46.0	47° 10.2 11° 37.6	61° 39.0 11° 29.1	+28.5 -8.2	15.8 58.0
Ср 21	278° 56.7 9° 15.2	293° 26.3 9° 05.9	307° 56.0 8° 56.5	322° 25.6 8° 47.1	336° 55.4 8° 37.7	351° 25.2 8° 28.2	5° 55.0 8° 18.7	20° 24.8 8° 09.1	34° 54.8 7° 59.5	49° 24.7 7° 49.8	63° 54.7 7° 40.2	+29.8 -9.5	15.7 57.5
Чт 22	281° 30.2 5° 11.5	296° 00.9 5° 01.4	310° 31.6 4° 51.2	325° 02.4 4° 41.1	339° 33.2 4° 31.0	354° 04.0 4° 20.8	8° 34.9 4° 10.6	23° 05.8 4° 00.4	37° 36.8 3° 50.2	52° 07.8 3° 39.9	66° 38.8 3° 29.7	+30.9 -10.2	15.5 57.0
○ Пт 23	284° 28.3 0° 55.5	298° 59.8 0° 45.2	313° 31.4 0° 34.9	328° 02.9 0° 24.6	342° 34.6 0° 14.4	357° 06.2 0° 04.1	11° 37.9 -0° 06.1	26° 09.6 -0° 16.4	40° 41.3 -0° 26.6	55° 13.0 -0° 36.9	69° 44.8 -0° 47.1	+31.7 -10.3	15.4 56.5
Сб 24	287° 43.7 -3° 18.4	302° 15.8 -3° 28.3	316° 47.9 -3° 38.2	331° 20.0 -3° 48.1	345° 52.1 -3° 58.0	0° 24.2 -4° 07.8	14° 56.4 -4° 17.6	29° 28.5 -4° 27.4	44° 00.7 -4° 37.1	58° 32.9 -4° 46.8	73° 05.0 -4° 56.5	+32.1 -9.8	15.2 55.9
Вс 25	291° 09.0 -7° 17.6	305° 41.3 -7° 26.7	320° 13.6 -7° 35.8	334° 45.9 -7° 44.8	349° 18.3 -7° 53.8	3° 50.6 -8° 02.7	18° 22.9 -8° 11.6	32° 55.3 -8° 20.5	47° 27.6 -8° 29.3	61° 59.9 -8° 38.0	76° 32.3 -8° 46.8	+32.3 -8.9	15.1 55.3
Пн 26	294° 37.3 -10° 51.5	309° 09.6 -10° 59.4	323° 41.9 -11° 07.3	338° 14.2 -11° 15.1	352° 46.5 -11° 22.8	7° 18.8 -11° 30.5	21° 51.1 -11° 38.1	36° 23.4 -11° 45.7	50° 55.7 -11° 53.2	65° 27.9 -12° 00.6	80° 00.2 -12° 08.0	+32.3 -7.6	15.0 54.9
Вт 27	298° 03.3 -13° 51.4	312° 35.4 -13° 57.8	327° 07.5 -14° 04.1	341° 39.6 -14° 10.3	356° 11.7 -14° 16.5	10° 43.8 -14° 22.6	25° 15.9 -14° 28.7	39° 48.0 -14° 34.6	54° 20.0 -14° 40.5	68° 52.1 -14° 46.4	83° 24.1 -14° 52.2	+32.1 -6.1	14.9 54.5
Ср 28	312° 35.4 -13° 57.8	327° 07.5 -14° 04.1	341° 39.6 -14° 10.3	356° 11.7 -14° 16.5	10° 43.8 -14° 22.6	25° 15.9 -14° 28.7	39° 48.0 -14° 34.6	54° 20.0 -14° 40.5	68° 52.1 -14° 46.4	83° 24.1 -14° 52.2	97° 56.1 -14° 57.9	+32.1 -6.0	14.9 54.5
Чт 29	315° 55.1 -16° 14.8	330° 27.0 -16° 19.3	344° 58.8 -16° 23.8	359° 30.6 -16° 28.2	14° 02.4 -16° 32.5	28° 34.2 -16° 36.7	43° 06.0 -16° 40.9	57° 37.7 -16° 45.0	72° 09.5 -16° 49.0	86° 41.2 -16° 52.9	101° 12.9 -16° 56.8	+31.8 -4.2	14.8 54.2
Пт 30	319° 07.2 -17° 45.1	333° 38.8 -17° 47.7	348° 10.3 -17° 50.2	2° 41.8 -17° 52.6	17° 13.3 -17° 55.0	31° 44.7 -17° 57.2	46° 16.2 -17° 59.4	60° 47.6 -18° 01.5	75° 19.1 -18° 03.5	89° 50.5 -18° 05.5	104° 21.9 -18° 07.3	+31.5 -2.2	14.8 54.1
◑ Сб 31	322° 11.9 -18° 25.0	336° 43.1 -18° 25.5	351° 14.4 -18° 25.9	5° 45.6 -18° 26.2	20° 16.8 -18° 26.5	34° 48.0 -18° 26.7	49° 19.2 -18° 26.7	63° 50.4 -18° 26.7	78° 21.6 -18° 26.6	92° 52.8 -18° 26.5	107° 23.9 -18° 26.2	+31.2 -0.1	14.8 54.2

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Последняя четв.: 2 03h01 — Новолуние: 9 23h09 — Первая четв.: 16 20h15 — Полнолуние: 23 22h42 — Последняя четв.: 31 23h06

СОЛНЦЕ

Апрель 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 00.3 4° 29.2	284° 00.5 4° 30.2	299° 00.7 4° 31.2	314° 00.9 4° 32.1	329° 01.1 4° 33.1	344° 01.2 4° 34.1	359° 01.4 4° 35.0	14° 01.6 4° 36.0	29° 01.8 4° 37.0	44° 02.0 4° 37.9	59° 02.2 4° 38.9	74° 02.4 4° 39.8	+0.2 +1.0
Пн 2	269° 04.7 4° 52.4	284° 04.9 4° 53.3	299° 05.1 4° 54.3	314° 05.3 4° 55.2	329° 05.5 4° 56.2	344° 05.7 4° 57.2	359° 05.8 4° 58.1	14° 06.0 4° 59.1	29° 06.2 5° 00.1	44° 06.4 5° 01.0	59° 06.6 5° 02.0	74° 06.8 5° 02.9	+0.2 +1.0
Вт 3	269° 09.1 5° 15.4	284° 09.3 5° 16.4	299° 09.5 5° 17.3	314° 09.7 5° 18.3	329° 09.9 5° 19.2	344° 10.0 5° 20.2	359° 10.2 5° 21.2	14° 10.4 5° 22.1	29° 10.6 5° 23.1	44° 10.8 5° 24.0	59° 11.0 5° 25.0	74° 11.1 5° 25.9	+0.2 +1.0
Ср 4	269° 13.5 5° 38.4	284° 13.7 5° 39.3	299° 13.9 5° 40.3	314° 14.0 5° 41.2	329° 14.2 5° 42.2	344° 14.4 5° 43.1	359° 14.6 5° 44.1	14° 14.8 5° 45.0	29° 14.9 5° 46.0	44° 15.1 5° 46.9	59° 15.3 5° 47.9	74° 15.5 5° 48.8	+0.2 +1.0
Чт 5	269° 17.8 6° 01.2	284° 18.0 6° 02.2	299° 18.2 6° 03.1	314° 18.3 6° 04.1	329° 18.5 6° 05.0	344° 18.7 6° 06.0	359° 18.9 6° 06.9	14° 19.0 6° 07.9	29° 19.2 6° 08.8	44° 19.4 6° 09.8	59° 19.6 6° 10.7	74° 19.8 6° 11.7	+0.2 +0.9
Пт 6	269° 22.1 6° 24.0	284° 22.2 6° 24.9	299° 22.4 6° 25.9	314° 22.6 6° 26.8	329° 22.8 6° 27.7	344° 22.9 6° 28.7	359° 23.1 6° 29.6	14° 23.3 6° 30.6	29° 23.5 6° 31.5	44° 23.6 6° 32.5	59° 23.8 6° 33.4	74° 24.0 6° 34.4	+0.2 +0.9
Сб 7	269° 26.3 6° 46.6	284° 26.4 6° 47.5	299° 26.6 6° 48.5	314° 26.8 6° 49.4	329° 27.0 6° 50.4	344° 27.1 6° 51.3	359° 27.3 6° 52.2	14° 27.5 6° 53.2	29° 27.7 6° 54.1	44° 27.8 6° 55.1	59° 28.0 6° 56.0	74° 28.2 6° 56.9	+0.2 +0.9
Вс 8	269° 30.4 7° 09.1	284° 30.6 7° 10.1	299° 30.8 7° 11.0	314° 30.9 7° 11.9	329° 31.1 7° 12.9	344° 31.3 7° 13.8	359° 31.4 7° 14.7	14° 31.6 7° 15.7	29° 31.8 7° 16.6	44° 32.0 7° 17.5	59° 32.1 7° 18.5	74° 32.3 7° 19.4	+0.2 +0.9
Пн 9	269° 34.5 7° 31.5	284° 34.7 7° 32.5	299° 34.9 7° 33.4	314° 35.0 7° 34.3	329° 35.2 7° 35.3	344° 35.4 7° 36.2	359° 35.5 7° 37.1	14° 35.7 7° 38.0	29° 35.9 7° 39.0	44° 36.0 7° 39.9	59° 36.2 7° 40.8	74° 36.4 7° 41.8	+0.2 +0.9
Вт 10	269° 38.5 7° 53.8	284° 38.7 7° 54.7	299° 38.9 7° 55.7	314° 39.0 7° 56.6	329° 39.2 7° 57.5	344° 39.4 7° 58.4	359° 39.5 7° 59.4	14° 39.7 8° 00.3	29° 39.9 8° 01.2	44° 40.0 8° 02.1	59° 40.2 8° 03.1	74° 40.4 8° 04.0	+0.2 +0.9
Ср 11	269° 42.5 8° 16.0	284° 42.7 8° 16.9	299° 42.8 8° 17.8	314° 43.0 8° 18.7	329° 43.2 8° 19.6	344° 43.3 8° 20.5	359° 43.5 8° 21.5	14° 43.7 8° 22.4	29° 43.8 8° 23.3	44° 44.0 8° 24.2	59° 44.1 8° 25.1	74° 44.3 8° 26.1	+0.2 +0.9
Чт 12	269° 46.4 8° 38.0	284° 46.6 8° 38.9	299° 46.7 8° 39.8	314° 46.9 8° 40.7	329° 47.1 8° 41.6	344° 47.2 8° 42.5	359° 47.4 8° 43.4	14° 47.5 8° 44.3	29° 47.7 8° 45.3	44° 47.9 8° 46.2	59° 48.0 8° 47.1	74° 48.2 8° 48.0	+0.2 +0.9
Пт 13	269° 50.2 8° 59.8	284° 50.4 9° 00.7	299° 50.6 9° 01.6	314° 50.7 9° 02.5	329° 50.9 9° 03.4	344° 51.0 9° 04.4	359° 51.2 9° 05.3	14° 51.3 9° 06.2	29° 51.5 9° 07.1	44° 51.7 9° 08.0	59° 51.8 9° 08.9	74° 52.0 9° 09.8	+0.2 +0.9
Сб 14	269° 54.0 9° 21.5	284° 54.1 9° 22.4	299° 54.3 9° 23.3	314° 54.4 9° 24.2	329° 54.6 9° 25.1	344° 54.8 9° 26.0	359° 54.9 9° 26.9	14° 55.1 9° 27.8	29° 55.2 9° 28.7	44° 55.4 9° 29.6	59° 55.5 9° 30.5	74° 55.7 9° 31.4	+0.2 +0.9
Вс 15	269° 57.7 9° 43.1	284° 57.8 9° 44.0	299° 58.0 9° 44.9	314° 58.1 9° 45.8	329° 58.3 9° 46.7	344° 58.4 9° 47.5	359° 58.6 9° 48.4	14° 58.7 9° 49.3	29° 58.9 9° 50.2	44° 59.0 9° 51.1	59° 59.2 9° 52.0	74° 59.3 9° 52.9	+0.2 +0.9
Пн 16	270° 01.2 10° 04.5	285° 01.4 10° 05.4	300° 01.5 10° 06.2	315° 01.7 10° 07.1	330° 01.8 10° 08.0	345° 02.0 10° 08.9	0° 02.1 10° 09.8	15° 02.3 10° 10.7	30° 02.4 10° 11.6	45° 02.6 10° 12.4	60° 02.7 10° 13.3	75° 02.9 10° 14.2	+0.1 +0.9
Вт 17	270° 04.8 10° 25.7	285° 04.9 10° 26.6	300° 05.0 10° 27.4	315° 05.2 10° 28.3	330° 05.3 10° 29.2	345° 05.5 10° 30.1	0° 05.6 10° 31.0	15° 05.8 10° 31.8	30° 05.9 10° 32.7	45° 06.0 10° 33.6	60° 06.2 10° 34.5	75° 06.3 10° 35.4	+0.1 +0.9
Ср 18	270° 08.2 10° 46.7	285° 08.3 10° 47.6	300° 08.4 10° 48.5	315° 08.6 10° 49.4	330° 08.7 10° 50.2	345° 08.9 10° 51.1	0° 09.0 10° 52.0	15° 09.1 10° 52.8	30° 09.3 10° 53.7	45° 09.4 10° 54.6	60° 09.6 10° 55.5	75° 09.7 10° 56.3	+0.1 +0.9
Чт 19	270° 11.5 11° 07.6	285° 11.6 11° 08.5	300° 11.8 11° 09.3	315° 11.9 11° 10.2	330° 12.0 11° 11.1	345° 12.2 11° 11.9	0° 12.3 11° 12.8	15° 12.4 11° 13.7	30° 12.6 11° 14.5	45° 12.7 11° 15.4	60° 12.8 11° 16.2	75° 13.0 11° 17.1	+0.1 +0.9
Пт 20	270° 14.7 11° 28.3	285° 14.8 11° 29.1	300° 15.0 11° 30.0	315° 15.1 11° 30.9	330° 15.2 11° 31.7	345° 15.4 11° 32.6	0° 15.5 11° 33.4	15° 15.6 11° 34.3	30° 15.8 11° 35.1	45° 15.9 11° 36.0	60° 16.0 11° 36.8	75° 16.1 11° 37.7	+0.1 +0.9
Сб 21	270° 17.8 11° 48.8	285° 17.9 11° 49.6	300° 18.1 11° 50.5	315° 18.2 11° 51.3	330° 18.3 11° 52.2	345° 18.5 11° 53.0	0° 18.6 11° 53.9	15° 18.7 11° 54.7	30° 18.8 11° 55.6	45° 19.0 11° 56.4	60° 19.1 11° 57.3	75° 19.2 11° 58.1	+0.1 +0.8
Вс 22	270° 20.8 12° 09.1	285° 21.0 12° 09.9	300° 21.1 12° 10.8	315° 21.2 12° 11.6	330° 21.3 12° 12.4	345° 21.4 12° 13.3	0° 21.6 12° 14.1	15° 21.7 12° 15.0	30° 21.8 12° 15.8	45° 21.9 12° 16.6	60° 22.0 12° 17.5	75° 22.2 12° 18.3	+0.1 +0.8
Пн 23	270° 23.7 12° 29.2	285° 23.8 12° 30.0	300° 24.0 12° 30.8	315° 24.1 12° 31.7	330° 24.2 12° 32.5	345° 24.3 12° 33.3	0° 24.4 12° 34.2	15° 24.5 12° 35.0	30° 24.7 12° 35.8	45° 24.8 12° 36.7	60° 24.9 12° 37.5	75° 25.0 12° 38.3	+0.1 +0.8
Вт 24	270° 26.5 12° 49.1	285° 26.6 12° 49.9	300° 26.7 12° 50.7	315° 26.8 12° 51.5	330° 27.0 12° 52.4	345° 27.1 12° 53.2	0° 27.2 12° 54.0	15° 27.3 12° 54.8	30° 27.4 12° 55.6	45° 27.5 12° 56.5	60° 27.6 12° 57.3	75° 27.7 12° 58.1	+0.1 +0.8
Ср 25	270° 29.2 13° 08.7	285° 29.3 13° 09.6	300° 29.4 13° 10.4	315° 29.5 13° 11.2	330° 29.6 13° 12.0	345° 29.7 13° 12.8	0° 29.8 13° 13.6	15° 29.9 13° 14.4	30° 30.0 13° 15.3	45° 30.1 13° 16.1	60° 30.2 13° 16.9	75° 30.3 13° 17.7	+0.1 +0.8
Чт 26	270° 31.7 13° 28.2	285° 31.8 13° 29.0	300° 31.9 13° 29.8	315° 32.0 13° 30.6	330° 32.1 13° 31.4	345° 32.2 13° 32.2	0° 32.3 13° 33.0	15° 32.4 13° 33.8	30° 32.5 13° 34.6	45° 32.6 13° 35.5	60° 32.7 13° 36.3	75° 32.8 13° 37.1	+0.1 +0.8
Пт 27	270° 34.1 13° 47.5	285° 34.2 13° 48.3	300° 34.3 13° 49.0	315° 34.4 13° 49.8	330° 34.5 13° 50.6	345° 34.6 13° 51.4	0° 34.7 13° 52.2	15° 34.8 13° 53.0	30° 34.9 13° 53.8	45° 35.0 13° 54.6	60° 35.1 13° 55.4	75° 35.2 13° 56.2	+0.1 +0.8
Сб 28	270° 36.4 14° 06.5	285° 36.5 14° 07.3	300° 36.6 14° 08.0	315° 36.7 14° 08.8	330° 36.8 14° 09.6	345° 36.9 14° 10.4	0° 37.0 14° 11.2	15° 37.0 14° 12.0	30° 37.1 14° 12.8	45° 37.2 14° 13.5	60° 37.3 14° 14.3	75° 37.4 14° 15.1	+0.1 +0.8
Вс 29	270° 38.6 14° 25.3	285° 38.6 14° 26.0	300° 38.7 14° 26.8	315° 38.8 14° 27.6	330° 38.9 14° 28.4	345° 39.0 14° 29.1	0° 39.1 14° 29.9	15° 39.2 14° 30.7	30° 39.2 14° 31.5	45° 39.3 14° 32.2	60° 39.4 14° 33.0	75° 39.5 14° 33.8	+0.1 +0.8
Пн 30	270° 40.6 14° 43.8	285° 40.7 14° 44.6	300° 40.7 14° 45.3	315° 40.8 14° 46.1	330° 40.9 14° 46.9	345° 41.0 14° 47.6	0° 41.1 14° 48.4	15° 41.1 14° 49.2	30° 41.2 14° 49.9	45° 41.3 14° 50.7	60° 41.4 14° 51.5	75° 41.5 14° 52.2	+0.1 +0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Апрель 2035

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Вс 1	240° 59.4	255° 30.3	270° 01.2	284° 32.2	299° 03.1	313° 34.0	328° 04.9	342° 35.9	357° 06.8	11° 37.7	26° 08.6	+30.9	15.0
	-17° 26.2	-17° 22.9	-17° 19.6	-17° 16.2	-17° 12.6	-17° 09.0	-17° 05.3	-17° 01.6	-16° 57.7	-16° 53.8	-16° 49.8	+3.6	54.9
Пн 2	255° 30.3	270° 01.2	284° 32.2	299° 03.1	313° 34.0	328° 04.9	342° 35.9	357° 06.8	11° 37.7	26° 08.6	40° 39.5	+30.9	15.0
	-17° 22.9	-17° 19.6	-17° 16.2	-17° 12.6	-17° 09.0	-17° 05.3	-17° 01.6	-16° 57.7	-16° 53.8	-16° 49.8	-16° 45.6	+3.7	54.9
Вт 3	258° 22.4	272° 53.3	287° 24.1	301° 54.9	316° 25.7	330° 56.6	345° 27.4	359° 58.2	14° 29.0	28° 59.8	43° 30.6	+30.8	15.1
	-15° 34.1	-15° 28.7	-15° 23.2	-15° 17.6	-15° 11.9	-15° 06.2	-15° 00.3	-14° 54.4	-14° 48.5	-14° 42.4	-14° 36.2	+5.8	55.5
Ср 4	261° 11.8	275° 42.5	290° 13.2	304° 43.9	319° 14.6	333° 45.3	348° 16.0	2° 46.6	17° 17.3	31° 47.9	46° 18.6	+30.7	15.3
	-12° 55.0	-12° 47.6	-12° 40.2	-12° 32.7	-12° 25.2	-12° 17.5	-12° 09.8	-12° 02.0	-11° 54.2	-11° 46.3	-11° 38.3	+7.7	56.2
Чт 5	263° 56.9	278° 27.4	292° 57.9	307° 28.3	321° 58.8	336° 29.2	350° 59.6	5° 30.0	20° 00.3	34° 30.7	49° 01.0	+30.4	15.6
	-9° 30.7	-9° 21.7	-9° 12.6	-9° 03.5	-8° 54.3	-8° 45.0	-8° 35.7	-8° 26.4	-8° 17.0	-8° 07.5	-7° 58.0	+9.3	57.1
Пт 6	266° 34.1	281° 04.2	295° 34.2	310° 04.2	324° 34.2	339° 04.1	353° 34.1	8° 04.0	22° 33.9	37° 03.7	51° 33.6	+29.9	15.8
	-5° 29.1	-5° 18.8	-5° 08.5	-4° 58.1	-4° 47.7	-4° 37.3	-4° 26.8	-4° 16.3	-4° 05.7	-3° 55.1	-3° 44.5	+10.5	57.9
Сб 7	268° 57.8	283° 27.2	297° 56.5	312° 25.9	326° 55.1	341° 24.4	355° 53.6	10° 22.8	24° 51.9	39° 21.0	53° 50.1	+29.2	16.0
	-1° 01.6	-0° 50.6	-0° 39.6	-0° 28.5	-0° 17.4	-0° 06.3	0° 04.8	0° 15.9	0° 27.1	0° 38.2	0° 49.4	+11.1	58.7
● Вс 8	271° 01.6	285° 30.0	299° 58.4	314° 26.8	328° 55.1	343° 23.3	357° 51.6	12° 19.8	26° 47.9	41° 16.0	55° 44.0	+28.2	16.2
	3° 36.7	3° 47.8	3° 58.9	4° 10.0	4° 21.1	4° 32.1	4° 43.2	4° 54.2	5° 05.2	5° 16.2	5° 27.1	+11.0	59.4
Пн 9	272° 39.2	287° 06.5	301° 33.8	316° 01.0	330° 28.1	344° 55.2	359° 22.3	13° 49.3	28° 16.2	42° 43.2	57° 10.0	+27.1	16.3
	8° 07.6	8° 18.0	8° 28.4	8° 38.7	8° 48.9	8° 59.1	9° 09.3	9° 19.4	9° 29.4	9° 39.4	9° 49.3	+10.2	59.8
Вт 10	273° 47.2	288° 13.3	302° 39.3	317° 05.3	331° 31.3	345° 57.2	0° 23.1	14° 48.9	29° 14.7	43° 40.5	58° 06.2	+25.9	16.4
	12° 10.6	12° 19.4	12° 28.2	12° 36.9	12° 45.5	12° 54.0	13° 02.4	13° 10.8	13° 19.1	13° 27.2	13° 35.3	+8.5	60.1
Ср 11	274° 26.9	288° 51.9	303° 17.0	317° 42.0	332° 07.0	346° 32.0	0° 56.9	15° 21.8	29° 46.7	44° 11.6	58° 36.4	+24.9	16.4
	15° 25.4	15° 31.9	15° 38.3	15° 44.6	15° 50.8	15° 56.9	16° 02.9	16° 08.8	16° 14.6	16° 20.3	16° 25.8	+6.0	60.1
Чт 12	274° 46.3	289° 10.9	303° 35.4	317° 59.9	332° 24.4	346° 49.0	1° 13.5	15° 38.0	30° 02.5	44° 27.0	58° 51.5	+24.5	16.3
	17° 35.1	17° 38.7	17° 42.3	17° 45.7	17° 49.0	17° 52.2	17° 55.2	17° 58.1	18° 00.9	18° 03.6	18° 06.2	+3.1	59.9
Пт 13	274° 59.9	289° 24.6	303° 49.3	318° 14.0	332° 38.7	347° 03.5	1° 28.2	15° 53.0	30° 17.9	44° 42.7	59° 07.6	+24.8	16.2
	18° 29.4	18° 29.9	18° 30.3	18° 30.6	18° 30.8	18° 30.8	18° 30.7	18° 30.5	18° 30.2	18° 29.7	18° 29.2	-0.0	59.5
Сб 14	275° 24.9	289° 50.4	304° 15.9	318° 41.4	333° 07.1	347° 32.7	1° 58.4	16° 24.1	30° 49.9	45° 15.8	59° 41.7	+25.7	16.1
	18° 06.0	18° 03.5	18° 00.9	17° 58.2	17° 55.3	17° 52.4	17° 49.3	17° 46.1	17° 42.9	17° 39.5	17° 35.9	-3.0	59.0
◐ Вс 15	276° 16.4	290° 43.2	305° 10.0	319° 36.9	334° 03.8	348° 30.8	2° 57.9	17° 25.0	31° 52.2	46° 19.4	60° 46.7	+27.0	15.9
	16° 30.6	16° 25.5	16° 20.2	16° 14.9	16° 09.4	16° 03.9	15° 58.2	15° 52.5	15° 46.7	15° 40.8	15° 34.8	-5.6	58.5
Пн 16	277° 43.5	292° 11.8	306° 40.1	321° 08.5	335° 37.0	350° 05.5	4° 34.1	19° 02.7	33° 31.4	48° 00.2	62° 29.0	+28.5	15.8
	13° 54.6	13° 47.3	13° 40.0	13° 32.5	13° 25.0	13° 17.4	13° 09.7	13° 02.0	12° 54.2	12° 46.3	12° 38.4	-7.6	57.9
Вт 17	279° 48.2	294° 17.9	308° 47.7	323° 17.5	337° 47.4	352° 17.4	6° 47.4	21° 17.4	35° 47.5	50° 17.7	64° 47.9	+30.0	15.6
	10° 32.3	10° 23.4	10° 14.5	10° 05.6	9° 56.6	9° 47.6	9° 38.5	9° 29.3	9° 20.2	9° 11.0	9° 01.7	-9.1	57.3
Ср 18	282° 26.6	296° 57.6	311° 28.6	325° 59.6	340° 30.7	355° 01.8	9° 32.9	24° 04.1	38° 35.3	53° 06.6	67° 37.9	+31.1	15.5
	6° 38.6	6° 28.8	6° 18.9	6° 09.1	5° 59.2	5° 49.3	5° 39.4	5° 29.5	5° 19.5	5° 09.6	4° 59.6	-9.9	56.8
Чт 19	285° 31.5	300° 03.3	314° 35.2	329° 07.0	343° 38.9	358° 10.9	12° 42.8	27° 14.8	41° 46.8	56° 18.8	70° 50.9	+31.9	15.3
	2° 28.0	2° 17.8	2° 07.6	1° 57.4	1° 47.3	1° 37.1	1° 26.9	1° 16.7	1° 06.5	0° 56.3	0° 46.1	-10.2	56.3
Пт 20	288° 54.0	303° 26.4	317° 58.7	332° 31.1	347° 03.5	1° 35.9	16° 08.3	30° 40.7	45° 13.1	59° 45.5	74° 18.0	+32.4	15.2
	-1° 46.0	-1° 56.0	-2° 06.0	-2° 16.1	-2° 26.1	-2° 36.1	-2° 46.0	-2° 56.0	-3° 05.9	-3° 15.8	-3° 25.7	-10.0	55.8
Сб 21	292° 25.5	306° 58.1	321° 30.6	336° 03.1	350° 35.7	5° 08.2	19° 40.7	34° 13.3	48° 45.8	63° 18.4	77° 50.9	+32.5	15.1
	-5° 51.0	-6° 00.5	-6° 09.9	-6° 19.3	-6° 28.7	-6° 38.0	-6° 47.3	-6° 56.5	-7° 05.7	-7° 14.9	-7° 24.1	-9.3	55.3
○ Вс 22	295° 58.5	310° 31.0	325° 03.4	339° 35.9	354° 08.3	8° 40.8	23° 13.2	37° 45.6	52° 18.0	66° 50.4	81° 22.8	+32.4	15.0
	-9° 36.2	-9° 44.6	-9° 53.0	-10° 01.3	-10° 09.6	-10° 17.9	-10° 26.1	-10° 34.2	-10° 42.3	-10° 50.4	-10° 58.4	-8.2	54.9
Пн 23	299° 27.4	313° 59.6	328° 31.8	343° 04.0	357° 36.2	12° 08.4	26° 40.5	41° 12.7	55° 44.8	70° 16.9	84° 49.0	+32.2	14.9
	-12° 51.5	-12° 58.6	-13° 05.6	-13° 12.6	-13° 19.4	-13° 26.3	-13° 33.0	-13° 39.7	-13° 46.3	-13° 52.9	-13° 59.4	-6.8	54.5
Вт 24	302° 48.9	317° 20.8	331° 52.7	346° 24.5	0° 56.4	15° 28.2	30° 00.0	44° 31.8	59° 03.6	73° 35.4	88° 07.2	+31.8	14.8
	-15° 28.8	-15° 34.2	-15° 39.5	-15° 44.7	-15° 49.9	-15° 55.0	-16° 00.1	-16° 05.0	-16° 09.9	-16° 14.7	-16° 19.4	-5.1	54.2
Ср 25	306° 02.1	320° 33.7	335° 05.3	349° 36.8	4° 08.4	18° 39.9	33° 11.4	47° 42.9	62° 14.4	76° 45.9	91° 17.4	+31.5	14.7
	-17° 21.2	-17° 24.7	-17° 28.1	-17° 31.4	-17° 34.7	-17° 37.8	-17° 40.9	-17° 43.9	-17° 46.9	-17° 49.7	-17° 52.5	-3.1	54.1
Чт 26	320° 33.7	335° 05.3	349° 36.8	4° 08.4	18° 39.9	33° 11.4	47° 42.9	62° 14.4	76° 45.9	91° 17.4	105° 48.8	+31.5	14.7
	-17° 24.7	-17° 28.1	-17° 31.4	-17° 34.7	-17° 37.8	-17° 40.9	-17° 43.9	-17° 46.9	-17° 49.7	-17° 52.5	-17° 55.1	-3.0	54.1
Пт 27	323° 39.8	338° 11.2	352° 42.5	7° 13.9	21° 45.2	36° 16.5	50° 47.8	65° 19.1	79° 50.4	94° 21.7	108° 53.0	+31.3	14.7
	-18° 25.4	-18° 26.8	-18° 28.0	-18° 29.2	-18° 30.3	-18° 31.3	-18° 32.2	-18° 33.1	-18° 33.8	-18° 34.5	-18° 35.1	-1.0	54.0
Сб 28	326° 42.0	341° 13.3	355° 44.5	10° 15.8	24° 47.0	39° 18.3	53° 49.5	68° 20.8	82° 52.0	97° 23.2	111° 54.5	+31.2	14.8
	-18° 33.6	-18° 32.8	-18° 32.0	-18° 31.0	-18° 30.0	-18° 28.8	-18° 27.6	-18° 26.3	-18° 25.0	-18° 23.5	-18° 21.9	+1.2	54.2
Вс 29	329° 43.3	344° 14.6	358° 45.9	13° 17.1	27° 48.4	42° 19.7	56° 51.0	71° 22.3	85° 53.5	100° 24.8	114° 56.1	+31.3	14.9
	-17° 48.5	-17° 45.6	-17° 42.7	-17° 39.6	-17° 36.4	-17° 33.2	-17° 29.9	-17° 26.5	-17° 23.0	-17° 19.4	-17° 15.8	+3.3	54.5
◑ Пн 30	332° 45.8	347° 17.2	1° 48.5	16° 19.8	30° 51.2	45° 22.5	59° 53.9	74° 25.2	88° 56.6	103° 27.9	117° 59.3	+31.3	15.0
	-16° 11.3	-16° 06.4	-16° 01.4	-15° 56.3	-15° 51.1	-15° 45.9	-15° 40.5	-15° 35.1	-15° 29.6	-15° 24.1	-15° 18.4	+5.3	54.9

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 8 10h57 — Первая четв.: 15 02h54 — Полнолуние: 22 13h20 — Последняя четв.: 30 16h53

СОЛНЦЕ

Май 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вт 1	270° 42.5 15° 02.1	285° 42.5 15° 02.9	300° 42.6 15° 03.6	315° 42.7 15° 04.4	330° 42.8 15° 05.1	345° 42.8 15° 05.9	0° 42.9 15° 06.7	15° 43.0 15° 07.4	30° 43.1 15° 08.2	45° 43.1 15° 08.9	60° 43.2 15° 09.7	75° 43.3 15° 10.4	+0.1 +0.8
Ср 2	270° 44.2 15° 20.2	285° 44.3 15° 20.9	300° 44.3 15° 21.7	315° 44.4 15° 22.4	330° 44.5 15° 23.2	345° 44.6 15° 23.9	0° 44.6 15° 24.6	15° 44.7 15° 25.4	30° 44.8 15° 26.1	45° 44.8 15° 26.9	60° 44.9 15° 27.6	75° 45.0 15° 28.4	+0.1 +0.7
Чт 3	270° 45.8 15° 38.0	285° 45.9 15° 38.7	300° 45.9 15° 39.4	315° 46.0 15° 40.2	330° 46.1 15° 40.9	345° 46.1 15° 41.7	0° 46.2 15° 42.4	15° 46.3 15° 43.1	30° 46.3 15° 43.9	45° 46.4 15° 44.6	60° 46.4 15° 45.3	75° 46.5 15° 46.1	+0.1 +0.7
Пт 4	270° 47.3 15° 55.5	285° 47.3 15° 56.3	300° 47.4 15° 57.0	315° 47.5 15° 57.7	330° 47.5 15° 58.4	345° 47.6 15° 59.1	0° 47.6 15° 59.9	15° 47.7 16° 00.6	30° 47.7 16° 01.3	45° 47.8 16° 02.0	60° 47.8 16° 02.8	75° 47.9 16° 03.5	+0.1 +0.7
Сб 5	270° 48.6 16° 12.8	285° 48.7 16° 13.5	300° 48.7 16° 14.2	315° 48.8 16° 15.0	330° 48.8 16° 15.7	345° 48.9 16° 16.4	0° 48.9 16° 17.1	15° 49.0 16° 17.8	30° 49.0 16° 18.5	45° 49.1 16° 19.2	60° 49.1 16° 19.9	75° 49.2 16° 20.6	+0.1 +0.7
Вс 6	270° 49.8 16° 29.8	285° 49.8 16° 30.5	300° 49.9 16° 31.2	315° 49.9 16° 31.9	330° 50.0 16° 32.6	345° 50.0 16° 33.3	0° 50.1 16° 34.0	15° 50.1 16° 34.7	30° 50.1 16° 35.4	45° 50.2 16° 36.1	60° 50.2 16° 36.8	75° 50.3 16° 37.5	+0.0 +0.7
Пн 7	270° 50.8 16° 46.6	285° 50.9 16° 47.3	300° 50.9 16° 48.0	315° 50.9 16° 48.6	330° 51.0 16° 49.3	345° 51.0 16° 50.0	0° 51.1 16° 50.7	15° 51.1 16° 51.4	30° 51.1 16° 52.1	45° 51.2 16° 52.8	60° 51.2 16° 53.5	75° 51.2 16° 54.1	+0.0 +0.7
Вт 8	270° 51.7 17° 03.0	285° 51.7 17° 03.7	300° 51.8 17° 04.4	315° 51.8 17° 05.1	330° 51.8 17° 05.7	345° 51.9 17° 06.4	0° 51.9 17° 07.1	15° 51.9 17° 07.8	30° 52.0 17° 08.5	45° 52.0 17° 09.1	60° 52.0 17° 09.8	75° 52.1 17° 10.5	+0.0 +0.7
Ср 9	270° 52.5 17° 19.2	285° 52.5 17° 19.9	300° 52.5 17° 20.5	315° 52.5 17° 21.2	330° 52.6 17° 21.9	345° 52.6 17° 22.5	0° 52.6 17° 23.2	15° 52.7 17° 23.9	30° 52.7 17° 24.5	45° 52.7 17° 25.2	60° 52.7 17° 25.9	75° 52.8 17° 26.5	+0.0 +0.7
Чт 10	270° 53.1 17° 35.1	285° 53.1 17° 35.8	300° 53.1 17° 36.4	315° 53.1 17° 37.1	330° 53.2 17° 37.7	345° 53.2 17° 38.4	0° 53.2 17° 39.0	15° 53.2 17° 39.7	30° 53.2 17° 40.3	45° 53.3 17° 41.0	60° 53.3 17° 41.6	75° 53.3 17° 42.3	+0.0 +0.7
Пт 11	270° 53.5 17° 50.7	285° 53.6 17° 51.3	300° 53.6 17° 52.0	315° 53.6 17° 52.6	330° 53.6 17° 53.3	345° 53.6 17° 53.9	0° 53.6 17° 54.5	15° 53.7 17° 55.2	30° 53.7 17° 55.8	45° 53.7 17° 56.5	60° 53.7 17° 57.1	75° 53.7 17° 57.7	+0.0 +0.6
Сб 12	270° 53.9 18° 06.0	285° 53.9 18° 06.6	300° 53.9 18° 07.2	315° 53.9 18° 07.9	330° 53.9 18° 08.5	345° 53.9 18° 09.1	0° 53.9 18° 09.8	15° 54.0 18° 10.4	30° 54.0 18° 11.0	45° 54.0 18° 11.6	60° 54.0 18° 12.3	75° 54.0 18° 12.9	+0.0 +0.6
Вс 13	270° 54.1 18° 21.0	285° 54.1 18° 21.6	300° 54.1 18° 22.2	315° 54.1 18° 22.8	330° 54.1 18° 23.4	345° 54.1 18° 24.1	0° 54.1 18° 24.7	15° 54.1 18° 25.3	30° 54.1 18° 25.9	45° 54.1 18° 26.5	60° 54.1 18° 27.1	75° 54.1 18° 27.7	+0.0 +0.6
Пн 14	270° 54.1 18° 35.6	285° 54.1 18° 36.3	300° 54.1 18° 36.9	315° 54.1 18° 37.5	330° 54.1 18° 38.1	345° 54.1 18° 38.7	0° 54.1 18° 39.3	15° 54.1 18° 39.9	30° 54.1 18° 40.5	45° 54.1 18° 41.1	60° 54.1 18° 41.7	75° 54.1 18° 42.3	-0.0 +0.6
Вт 15	270° 54.1 18° 50.0	285° 54.0 18° 50.6	300° 54.0 18° 51.2	315° 54.0 18° 51.8	330° 54.0 18° 52.4	345° 54.0 18° 53.0	0° 54.0 18° 53.6	15° 54.0 18° 54.1	30° 54.0 18° 54.7	45° 54.0 18° 55.3	60° 54.0 18° 55.9	75° 54.0 18° 56.5	-0.0 +0.6
Ср 16	270° 53.8 19° 04.1	285° 53.8 19° 04.6	300° 53.8 19° 05.2	315° 53.8 19° 05.8	330° 53.8 19° 06.4	345° 53.8 19° 06.9	0° 53.8 19° 07.5	15° 53.8 19° 08.1	30° 53.7 19° 08.7	45° 53.7 19° 09.2	60° 53.7 19° 09.8	75° 53.7 19° 10.4	-0.0 +0.6
Чт 17	270° 53.5 19° 17.8	285° 53.5 19° 18.3	300° 53.5 19° 18.9	315° 53.4 19° 19.5	330° 53.4 19° 20.0	345° 53.4 19° 20.6	0° 53.4 19° 21.2	15° 53.4 19° 21.7	30° 53.3 19° 22.3	45° 53.3 19° 22.8	60° 53.3 19° 23.4	75° 53.3 19° 23.9	-0.0 +0.6
Пт 18	270° 53.0 19° 31.2	285° 53.0 19° 31.7	300° 53.0 19° 32.3	315° 52.9 19° 32.8	330° 52.9 19° 33.4	345° 52.9 19° 33.9	0° 52.9 19° 34.5	15° 52.8 19° 35.0	30° 52.8 19° 35.6	45° 52.8 19° 36.1	60° 52.8 19° 36.6	75° 52.7 19° 37.2	-0.0 +0.5
Сб 19	270° 52.4 19° 44.2	285° 52.4 19° 44.8	300° 52.3 19° 45.3	315° 52.3 19° 45.8	330° 52.3 19° 46.4	345° 52.2 19° 46.9	0° 52.2 19° 47.4	15° 52.2 19° 48.0	30° 52.1 19° 48.5	45° 52.1 19° 49.0	60° 52.1 19° 49.6	75° 52.1 19° 50.1	-0.0 +0.5
Вс 20	270° 51.6 19° 56.9	285° 51.6 19° 57.5	300° 51.6 19° 58.0	315° 51.5 19° 58.5	330° 51.5 19° 59.0	345° 51.5 19° 59.5	0° 51.4 20° 00.1	15° 51.4 20° 00.6	30° 51.3 20° 01.1	45° 51.3 20° 01.6	60° 51.3 20° 02.1	75° 51.2 20° 02.7	-0.0 +0.5
Пн 21	270° 50.7 20° 09.3	285° 50.7 20° 09.8	300° 50.7 20° 10.3	315° 50.6 20° 10.8	330° 50.6 20° 11.3	345° 50.5 20° 11.9	0° 50.5 20° 12.4	15° 50.5 20° 12.9	30° 50.4 20° 13.4	45° 50.4 20° 13.9	60° 50.3 20° 14.4	75° 50.3 20° 14.9	-0.0 +0.5
Вт 22	270° 49.7 20° 21.3	285° 49.7 20° 21.8	300° 49.6 20° 22.3	315° 49.6 20° 22.8	330° 49.5 20° 23.3	345° 49.5 20° 23.8	0° 49.4 20° 24.3	15° 49.4 20° 24.8	30° 49.3 20° 25.3	45° 49.3 20° 25.8	60° 49.2 20° 26.3	75° 49.2 20° 26.7	-0.0 +0.5
Ср 23	270° 48.6 20° 33.0	285° 48.5 20° 33.5	300° 48.5 20° 34.0	315° 48.4 20° 34.5	330° 48.4 20° 34.9	345° 48.3 20° 35.4	0° 48.3 20° 35.9	15° 48.2 20° 36.4	30° 48.1 20° 36.8	45° 48.1 20° 37.3	60° 48.0 20° 37.8	75° 48.0 20° 38.3	-0.1 +0.5
Чт 24	270° 47.3 20° 44.4	285° 47.2 20° 44.8	300° 47.2 20° 45.3	315° 47.1 20° 45.8	330° 47.1 20° 46.2	345° 47.0 20° 46.7	0° 46.9 20° 47.1	15° 46.9 20° 47.6	30° 46.8 20° 48.1	45° 46.8 20° 48.5	60° 46.7 20° 49.0	75° 46.6 20° 49.4	-0.1 +0.5
Пт 25	270° 45.9 20° 55.3	285° 45.8 20° 55.8	300° 45.7 20° 56.2	315° 45.7 20° 56.7	330° 45.6 20° 57.1	345° 45.6 20° 57.6	0° 45.5 20° 58.0	15° 45.4 20° 58.5	30° 45.4 20° 58.9	45° 45.3 20° 59.4	60° 45.2 20° 59.8	75° 45.2 21° 00.2	-0.1 +0.4
Сб 26	270° 44.3 21° 06.0	285° 44.3 21° 06.4	300° 44.2 21° 06.8	315° 44.1 21° 07.3	330° 44.1 21° 07.7	345° 44.0 21° 08.1	0° 43.9 21° 08.6	15° 43.9 21° 09.0	30° 43.8 21° 09.4	45° 43.7 21° 09.8	60° 43.7 21° 10.3	75° 43.6 21° 10.7	-0.1 +0.4
Вс 27	270° 42.7 21° 16.2	285° 42.6 21° 16.6	300° 42.5 21° 17.0	315° 42.5 21° 17.5	330° 42.4 21° 17.9	345° 42.3 21° 18.3	0° 42.2 21° 18.7	15° 42.2 21° 19.1	30° 42.1 21° 19.5	45° 42.0 21° 20.0	60° 41.9 21° 20.4	75° 41.9 21° 20.8	-0.1 +0.4
Пн 28	270° 40.9 21° 26.1	285° 40.8 21° 26.5	300° 40.7 21° 26.9	315° 40.7 21° 27.3	330° 40.6 21° 27.7	345° 40.5 21° 28.1	0° 40.4 21° 28.5	15° 40.3 21° 28.9	30° 40.3 21° 29.3	45° 40.2 21° 29.7	60° 40.1 21° 30.1	75° 40.0 21° 30.5	-0.1 +0.4
Вт 29	270° 39.0 21° 35.6	285° 38.9 21° 36.0	300° 38.8 21° 36.4	315° 38.7 21° 36.8	330° 38.7 21° 37.2	345° 38.6 21° 37.5	0° 38.5 21° 37.9	15° 38.4 21° 38.3	30° 38.3 21° 38.7	45° 38.2 21° 39.1	60° 38.2 21° 39.5	75° 38.1 21° 39.8	-0.1 +0.4
Ср 30	270° 37.0 21° 44.7	285° 36.9 21° 45.1	300° 36.8 21° 45.5	315° 36.7 21° 45.9	330° 36.6 21° 46.2	345° 36.5 21° 46.6	0° 36.5 21° 47.0	15° 36.4 21° 47.3	30° 36.3 21° 47.7	45° 36.2 21° 48.1	60° 36.1 21° 48.4	75° 36.0 21° 48.8	-0.1 +0.4
Чт 31	270° 34.8 21° 53.5	285° 34.8 21° 53.9	300° 34.7 21° 54.2	315° 34.6 21° 54.6	330° 34.5 21° 54.9	345° 34.4 21° 55.3	0° 34.3 21° 55.6	15° 34.2 21° 56.0	30° 34.1 21° 56.3	45° 34.0 21° 56.7	60° 33.9 21° 57.0	75° 33.8 21° 57.4	-0.1 +0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Май 2035

Д	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	R/p
Вт 1	237° 13.4	251° 44.6	266° 15.9	280° 47.1	295° 18.4	309° 49.6	324° 20.9	338° 52.1	353° 23.3	7° 54.5	22° 25.7	+31.2	15.3
	-11° 31.2	-11° 23.2	-11° 15.1	-11° 06.9	-10° 58.6	-10° 50.3	-10° 41.9	-10° 33.5	-10° 25.0	-10° 16.4	-10° 07.8	+8.3	56.2
Ср 2	251° 44.6	266° 15.9	280° 47.1	295° 18.4	309° 49.6	324° 20.9	338° 52.1	353° 23.3	7° 54.5	22° 25.7	36° 56.8	+31.2	15.3
	-11° 23.2	-11° 15.1	-11° 06.9	-10° 58.6	-10° 50.3	-10° 41.9	-10° 33.5	-10° 25.0	-10° 16.4	-10° 07.8	-9° 59.1	+8.4	56.2
Чт 3	254° 42.8	269° 13.7	283° 44.6	298° 15.5	312° 46.4	327° 17.2	341° 48.1	356° 18.9	10° 49.6	25° 20.4	39° 51.1	+30.8	15.6
	-7° 41.9	-7° 32.3	-7° 22.7	-7° 13.0	-7° 03.3	-6° 53.5	-6° 43.7	-6° 33.8	-6° 23.9	-6° 13.9	-6° 03.9	+9.8	57.1
Пт 4	257° 28.9	271° 59.2	286° 29.4	300° 59.6	315° 29.8	329° 59.9	344° 30.0	359° 00.1	13° 30.1	28° 00.1	42° 30.0	+30.1	15.8
	-3° 28.7	-3° 18.1	-3° 07.4	-2° 56.7	-2° 46.0	-2° 35.2	-2° 24.4	-2° 13.6	-2° 02.7	-1° 51.8	-1° 40.9	+10.8	58.0
Сб 5	259° 54.2	274° 23.4	288° 52.6	303° 21.7	317° 50.8	332° 19.9	346° 48.9	1° 17.8	15° 46.7	30° 15.6	44° 44.3	+29.0	16.1
	1° 05.1	1° 16.2	1° 27.4	1° 38.6	1° 49.8	2° 01.0	2° 12.2	2° 23.5	2° 34.7	2° 45.9	2° 57.1	+11.2	59.0
Вс 6	261° 49.4	276° 17.3	290° 45.1	305° 12.8	319° 40.5	334° 08.1	348° 35.7	3° 03.2	17° 30.6	31° 58.0	46° 25.3	+27.6	16.3
	5° 44.2	5° 55.2	6° 06.2	6° 17.2	6° 28.1	6° 39.1	6° 49.9	7° 00.8	7° 11.6	7° 22.4	7° 33.2	+10.9	59.8
● Пн 7	263° 07.1	277° 33.4	291° 59.6	306° 25.7	320° 51.8	335° 17.8	349° 43.7	4° 09.6	18° 35.4	33° 01.1	47° 26.8	+26.0	16.5
	10° 09.4	10° 19.4	10° 29.4	10° 39.2	10° 49.1	10° 58.8	11° 08.5	11° 18.2	11° 27.7	11° 37.2	11° 46.6	+9.7	60.5
Вт 8	263° 44.5	278° 09.2	292° 33.9	306° 58.5	321° 23.0	335° 47.5	350° 11.9	4° 36.3	19° 00.6	33° 24.9	47° 49.1	+24.5	16.6
	13° 58.4	14° 06.5	14° 14.5	14° 22.3	14° 30.1	14° 37.8	14° 45.4	14° 52.9	15° 00.3	15° 07.6	15° 14.8	+7.6	60.8
Ср 9	263° 47.0	278° 10.6	292° 34.1	306° 57.6	321° 21.1	335° 44.5	350° 07.9	4° 31.3	18° 54.7	33° 18.0	47° 41.4	+23.4	16.6
	16° 49.1	16° 54.4	16° 59.7	17° 04.8	17° 09.7	17° 14.6	17° 19.3	17° 23.9	17° 28.4	17° 32.7	17° 36.9	+4.8	60.9
Чт 10	263° 29.8	277° 53.0	292° 16.2	306° 39.4	321° 02.7	335° 25.9	349° 49.1	4° 12.4	18° 35.7	32° 59.0	47° 22.3	+23.2	16.5
	18° 24.3	18° 26.4	18° 28.4	18° 30.2	18° 31.9	18° 33.4	18° 34.8	18° 36.1	18° 37.2	18° 38.2	18° 39.1	+1.5	60.6
Пт 11	263° 15.1	277° 38.9	292° 02.8	306° 26.6	320° 50.6	335° 14.6	349° 38.6	4° 02.7	18° 26.8	32° 51.0	47° 15.2	+24.0	16.4
	18° 36.0	18° 34.8	18° 33.4	18° 31.9	18° 30.2	18° 28.4	18° 26.5	18° 24.5	18° 22.3	18° 20.0	18° 17.6	-1.8	60.1
Сб 12	263° 25.6	277° 50.8	292° 16.1	306° 41.4	321° 06.8	335° 32.3	349° 57.9	4° 23.5	18° 49.2	33° 14.9	47° 40.8	+25.5	16.2
	17° 27.1	17° 22.8	17° 18.4	17° 13.8	17° 09.2	17° 04.5	16° 59.7	16° 54.7	16° 49.7	16° 44.5	16° 39.3	-4.8	59.4
Вс 13	264° 17.3	278° 44.3	293° 11.4	307° 38.6	322° 05.9	336° 33.2	351° 00.7	5° 28.2	19° 55.8	34° 23.4	48° 51.1	+27.4	16.0
	15° 09.0	15° 02.2	14° 55.4	14° 48.5	14° 41.5	14° 34.4	14° 27.3	14° 20.1	14° 12.8	14° 05.4	13° 57.9	-7.1	58.6
◐ Пн 14	265° 56.1	280° 25.0	294° 54.0	309° 23.0	323° 52.2	338° 21.4	352° 50.6	7° 20.0	21° 49.4	36° 18.8	50° 48.4	+29.2	15.8
	11° 57.9	11° 49.4	11° 40.9	11° 32.3	11° 23.6	11° 14.9	11° 06.1	10° 57.3	10° 48.4	10° 39.5	10° 30.5	-8.7	57.8
Вт 15	268° 19.2	282° 49.7	297° 20.3	311° 51.0	326° 21.7	340° 52.4	355° 23.3	9° 54.1	24° 25.0	38° 56.0	53° 27.1	+30.8	15.6
	8° 10.9	8° 01.3	7° 51.7	7° 42.0	7° 32.3	7° 22.6	7° 12.9	7° 03.1	6° 53.3	6° 43.5	6° 33.6	-9.7	57.1
Ср 16	271° 18.2	285° 49.9	300° 21.7	314° 53.6	329° 25.4	343° 57.3	358° 29.3	13° 01.3	27° 33.3	42° 05.3	56° 37.4	+31.9	15.4
	4° 03.5	3° 53.4	3° 43.3	3° 33.1	3° 23.0	3° 12.8	3° 02.7	2° 52.5	2° 42.3	2° 32.2	2° 22.0	-10.2	56.4
Чт 17	274° 42.2	289° 14.7	303° 47.3	318° 19.8	332° 52.4	347° 25.0	1° 57.6	16° 30.3	31° 02.9	45° 35.6	60° 08.3	+32.6	15.2
	-0° 10.6	-0° 20.8	-0° 30.9	-0° 41.0	-0° 51.1	-1° 01.2	-1° 11.3	-1° 21.4	-1° 31.4	-1° 41.5	-1° 51.5	-10.1	55.8
Пт 18	278° 20.2	292° 53.1	307° 25.9	321° 58.8	336° 31.7	351° 04.6	5° 37.5	20° 10.4	34° 43.3	49° 16.2	63° 49.0	+32.9	15.1
	-4° 19.8	-4° 29.5	-4° 39.2	-4° 48.8	-4° 58.4	-5° 08.0	-5° 17.6	-5° 27.2	-5° 36.7	-5° 46.2	-5° 55.6	-9.6	55.2
Сб 19	282° 02.3	296° 35.1	311° 08.0	325° 40.8	340° 13.7	354° 46.5	9° 19.3	23° 52.1	38° 24.9	52° 57.7	67° 30.4	+32.8	14.9
	-8° 13.3	-8° 22.2	-8° 31.0	-8° 39.8	-8° 48.6	-8° 57.3	-9° 06.0	-9° 14.6	-9° 23.2	-9° 31.7	-9° 40.2	-8.7	54.8
Вс 20	285° 40.6	300° 13.2	314° 45.7	329° 18.3	343° 50.8	358° 23.3	12° 55.8	27° 28.3	42° 00.8	56° 33.2	71° 05.6	+32.5	14.9
	-11° 41.7	-11° 49.3	-11° 57.0	-12° 04.5	-12° 12.1	-12° 19.5	-12° 26.9	-12° 34.3	-12° 41.6	-12° 48.8	-12° 55.9	-7.4	54.5
Пн 21	289° 10.0	303° 42.2	318° 14.3	332° 46.4	347° 18.5	1° 50.6	16° 22.7	30° 54.7	45° 26.8	59° 58.8	74° 30.8	+32.1	14.8
	-14° 36.0	-14° 42.2	-14° 48.3	-14° 54.3	-15° 00.2	-15° 06.1	-15° 11.9	-15° 17.7	-15° 23.4	-15° 29.0	-15° 34.5	-5.8	54.2
○ Вт 22	292° 28.5	307° 00.3	321° 32.0	336° 03.6	350° 35.3	5° 07.0	19° 38.6	34° 10.2	48° 41.8	63° 13.4	77° 45.0	+31.6	14.7
	-16° 48.7	-16° 53.1	-16° 57.4	-17° 01.5	-17° 05.7	-17° 09.7	-17° 13.7	-17° 17.5	-17° 21.3	-17° 25.1	-17° 28.7	-4.0	54.0
Ср 23	295° 37.2	310° 08.6	324° 40.0	339° 11.3	353° 42.7	8° 14.1	22° 45.4	37° 16.7	51° 48.1	66° 19.4	80° 50.7	+31.3	14.7
	-18° 13.6	-18° 16.0	-18° 18.2	-18° 20.4	-18° 22.5	-18° 24.5	-18° 26.4	-18° 28.2	-18° 30.0	-18° 31.6	-18° 33.2	-2.0	53.9
Чт 24	298° 39.7	313° 10.9	327° 42.2	342° 13.4	356° 44.7	11° 15.9	25° 47.1	40° 18.4	54° 49.6	69° 20.8	83° 52.1	+31.2	14.7
	-18° 46.7	-18° 46.9	-18° 47.0	-18° 47.0	-18° 47.0	-18° 46.9	-18° 46.6	-18° 46.3	-18° 45.9	-18° 45.5	-18° 44.9	+0.2	54.0
Пт 25	301° 40.9	316° 12.2	330° 43.5	345° 14.8	359° 46.1	14° 17.4	28° 48.8	43° 20.1	57° 51.4	72° 22.8	86° 54.1	+31.3	14.8
	-18° 26.1	-18° 24.2	-18° 22.2	-18° 20.1	-18° 17.9	-18° 15.6	-18° 13.3	-18° 10.8	-18° 08.3	-18° 05.7	-18° 03.0	+2.3	54.1
Сб 26	316° 12.2	330° 43.5	345° 14.8	359° 46.1	14° 17.4	28° 48.8	43° 20.1	57° 51.4	72° 22.8	86° 54.1	101° 25.5	+31.3	14.8
	-18° 24.2	-18° 22.2	-18° 20.1	-18° 17.9	-18° 15.6	-18° 13.3	-18° 10.8	-18° 08.3	-18° 05.7	-18° 03.0	-18° 00.2	+2.4	54.1
Вс 27	319° 16.8	333° 48.3	348° 19.8	2° 51.4	17° 22.9	31° 54.4	46° 26.0	60° 57.5	75° 29.1	90° 00.7	104° 32.3	+31.5	14.8
	-17° 08.7	-17° 04.6	-17° 00.5	-16° 56.2	-16° 51.9	-16° 47.5	-16° 43.0	-16° 38.5	-16° 33.9	-16° 29.1	-16° 24.4	+4.4	54.4
Пн 28	322° 27.2	336° 58.9	351° 30.7	6° 02.4	20° 34.2	35° 05.9	49° 37.7	64° 09.5	78° 41.3	93° 13.1	107° 44.9	+31.8	15.0
	-15° 03.4	-14° 57.4	-14° 51.3	-14° 45.2	-14° 39.0	-14° 32.7	-14° 26.4	-14° 19.9	-14° 13.5	-14° 06.9	-14° 00.3	+6.3	54.9
Вт 29	325° 42.5	340° 14.4	354° 46.3	9° 18.2	23° 50.0	38° 21.9	52° 53.8	67° 25.7	81° 57.5	96° 29.4	111° 01.3	+31.9	15.1
	-12° 12.8	-12° 05.1	-11° 57.3	-11° 49.5	-11° 41.6	-11° 33.7	-11° 25.7	-11° 17.7	-11° 09.5	-11° 01.4	-10° 53.1	+8.0	55.5
◑ Ср 30	328° 58.8	343° 30.6	358° 02.3	12° 34.1	27° 05.8	41° 37.6	56° 09.3	70° 41.0	85° 12.7	99° 44.3	114° 16.0	+31.7	15.3
	-8° 42.8	-8° 33.7	-8° 24.5	-8° 15.3	-8° 06.1	-7° 56.7	-7° 47.4	-7° 38.0	-7° 28.5	-7° 19.0	-7° 09.4	+9.3	56.2
Чт 31	332° 08.6	346° 39.9	1° 11.2	15° 42.5	30° 13.7	44° 44.9	59° 16.1	73° 47.3	88° 18.4	102° 49.5	117° 20.6	+31.2	15.6
	-4° 41.0	-4° 30.7	-4° 20.5	-4° 10.2	-3° 59.9	-3° 49.5	-3° 39.1	-3° 28.7	-3° 18.3	-3° 07.8	-2° 57.3	+10.4	57.1

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 7 20h03 — Первая четв.: 14 10h28 — Полнолуние: 22 04h25 — Последняя четв.: 30 07h30

СОЛНЦЕ

Июнь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пт 1	270° 32.6	285° 32.5	300° 32.4	315° 32.3	330° 32.2	345° 32.1	0° 32.0	15° 31.9	30° 31.8	45° 31.7	60° 31.6	75° 31.5	-0.1
	22° 01.9	22° 02.2	22° 02.6	22° 02.9	22° 03.2	22° 03.6	22° 03.9	22° 04.3	22° 04.6	22° 04.9	22° 05.3	22° 05.6	+0.3
Сб 2	270° 30.3	285° 30.2	300° 30.1	315° 30.0	330° 29.9	345° 29.8	0° 29.7	15° 29.6	30° 29.5	45° 29.4	60° 29.3	75° 29.2	-0.1
	22° 09.9	22° 10.2	22° 10.5	22° 10.9	22° 11.2	22° 11.5	22° 11.8	22° 12.1	22° 12.5	22° 12.8	22° 13.1	22° 13.4	+0.3
Вс 3	270° 27.8	285° 27.7	300° 27.6	315° 27.5	330° 27.4	345° 27.3	0° 27.2	15° 27.1	30° 27.0	45° 26.9	60° 26.8	75° 26.7	-0.1
	22° 17.5	22° 17.8	22° 18.1	22° 18.4	22° 18.7	22° 19.0	22° 19.3	22° 19.6	22° 19.9	22° 20.2	22° 20.5	22° 20.8	+0.3
Пн 4	270° 25.3	285° 25.2	300° 25.1	315° 25.0	330° 24.9	345° 24.8	0° 24.6	15° 24.5	30° 24.4	45° 24.3	60° 24.2	75° 24.1	-0.1
	22° 24.7	22° 25.0	22° 25.3	22° 25.6	22° 25.9	22° 26.2	22° 26.5	22° 26.7	22° 27.0	22° 27.3	22° 27.6	22° 27.9	+0.3
Вт 5	270° 22.7	285° 22.6	300° 22.4	315° 22.3	330° 22.2	345° 22.1	0° 22.0	15° 21.9	30° 21.8	45° 21.7	60° 21.5	75° 21.4	-0.1
	22° 31.5	22° 31.8	22° 32.1	22° 32.4	22° 32.6	22° 32.9	22° 33.2	22° 33.5	22° 33.7	22° 34.0	22° 34.3	22° 34.5	+0.3
Ср 6	270° 20.0	285° 19.8	300° 19.7	315° 19.6	330° 19.5	345° 19.4	0° 19.3	15° 19.2	30° 19.0	45° 18.9	60° 18.8	75° 18.7	-0.1
	22° 38.0	22° 38.2	22° 38.5	22° 38.8	22° 39.0	22° 39.3	22° 39.5	22° 39.8	22° 40.0	22° 40.3	22° 40.5	22° 40.8	+0.3
Чт 7	270° 17.2	285° 17.1	300° 16.9	315° 16.8	330° 16.7	345° 16.6	0° 16.5	15° 16.3	30° 16.2	45° 16.1	60° 16.0	75° 15.9	-0.1
	22° 44.0	22° 44.3	22° 44.5	22° 44.7	22° 45.0	22° 45.2	22° 45.5	22° 45.7	22° 45.9	22° 46.2	22° 46.4	22° 46.7	+0.2
Пт 8	270° 14.3	285° 14.2	300° 14.1	315° 14.0	330° 13.8	345° 13.7	0° 13.6	15° 13.5	30° 13.4	45° 13.2	60° 13.1	75° 13.0	-0.1
	22° 49.7	22° 49.9	22° 50.1	22° 50.3	22° 50.6	22° 50.8	22° 51.0	22° 51.2	22° 51.4	22° 51.7	22° 51.9	22° 52.1	+0.2
Сб 9	270° 11.4	285° 11.3	300° 11.2	315° 11.0	330° 10.9	345° 10.8	0° 10.7	15° 10.5	30° 10.4	45° 10.3	60° 10.2	75° 10.0	-0.1
	22° 54.9	22° 55.1	22° 55.3	22° 55.5	22° 55.7	22° 55.9	22° 56.1	22° 56.4	22° 56.6	22° 56.8	22° 57.0	22° 57.2	+0.2
Вс 10	270° 08.4	285° 08.3	300° 08.2	315° 08.0	330° 07.9	345° 07.8	0° 07.7	15° 07.5	30° 07.4	45° 07.3	60° 07.2	75° 07.0	-0.1
	22° 59.7	22° 59.9	23° 00.1	23° 00.3	23° 00.5	23° 00.7	23° 00.9	23° 01.1	23° 01.3	23° 01.4	23° 01.6	23° 01.8	+0.2
Пн 11	270° 05.4	285° 05.3	300° 05.1	315° 05.0	330° 04.9	345° 04.8	0° 04.6	15° 04.5	30° 04.4	45° 04.2	60° 04.1	75° 04.0	-0.1
	23° 04.2	23° 04.3	23° 04.5	23° 04.7	23° 04.9	23° 05.0	23° 05.2	23° 05.4	23° 05.6	23° 05.7	23° 05.9	23° 06.1	+0.2
Вт 12	270° 02.3	285° 02.2	300° 02.1	315° 01.9	330° 01.8	345° 01.7	0° 01.5	15° 01.4	30° 01.3	45° 01.2	60° 01.0	75° 00.9	-0.1
	23° 08.2	23° 08.3	23° 08.5	23° 08.7	23° 08.8	23° 09.0	23° 09.1	23° 09.3	23° 09.4	23° 09.6	23° 09.7	23° 09.9	+0.2
Ср 13	269° 59.2	284° 59.1	299° 58.9	314° 58.8	329° 58.7	344° 58.6	359° 58.4	14° 58.3	29° 58.2	44° 58.0	59° 57.9	74° 57.8	-0.1
	23° 11.8	23° 11.9	23° 12.1	23° 12.2	23° 12.4	23° 12.5	23° 12.6	23° 12.8	23° 12.9	23° 13.1	23° 13.2	23° 13.3	+0.1
Чт 14	269° 56.1	284° 55.9	299° 55.8	314° 55.7	329° 55.5	344° 55.4	359° 55.3	14° 55.1	29° 55.0	44° 54.9	59° 54.7	74° 54.6	-0.1
	23° 15.0	23° 15.1	23° 15.3	23° 15.4	23° 15.5	23° 15.6	23° 15.7	23° 15.9	23° 16.0	23° 16.1	23° 16.2	23° 16.3	+0.1
Пт 15	269° 52.9	284° 52.7	299° 52.6	314° 52.5	329° 52.4	344° 52.2	359° 52.1	14° 52.0	29° 51.8	44° 51.7	59° 51.6	74° 51.4	-0.1
	23° 17.8	23° 17.9	23° 18.0	23° 18.1	23° 18.2	23° 18.3	23° 18.4	23° 18.5	23° 18.6	23° 18.7	23° 18.8	23° 18.9	+0.1
Сб 16	269° 49.7	284° 49.5	299° 49.4	314° 49.3	329° 49.1	344° 49.0	359° 48.9	14° 48.7	29° 48.6	44° 48.5	59° 48.3	74° 48.2	-0.1
	23° 20.2	23° 20.3	23° 20.4	23° 20.5	23° 20.5	23° 20.6	23° 20.7	23° 20.8	23° 20.9	23° 21.0	23° 21.1	23° 21.1	+0.1
Вс 17	269° 46.5	284° 46.3	299° 46.2	314° 46.1	329° 45.9	344° 45.8	359° 45.7	14° 45.5	29° 45.4	44° 45.2	59° 45.1	74° 45.0	-0.1
	23° 22.2	23° 22.2	23° 22.3	23° 22.4	23° 22.4	23° 22.5	23° 22.6	23° 22.7	23° 22.7	23° 22.8	23° 22.9	23° 22.9	+0.1
Пн 18	269° 43.2	284° 43.1	299° 43.0	314° 42.8	329° 42.7	344° 42.5	359° 42.4	14° 42.3	29° 42.1	44° 42.0	59° 41.9	74° 41.7	-0.1
	23° 23.7	23° 23.8	23° 23.8	23° 23.9	23° 23.9	23° 24.0	23° 24.0	23° 24.1	23° 24.1	23° 24.2	23° 24.2	23° 24.3	+0.1
Вт 19	269° 40.0	284° 39.8	299° 39.7	314° 39.6	329° 39.4	344° 39.3	359° 39.2	14° 39.0	29° 38.9	44° 38.8	59° 38.6	74° 38.5	-0.1
	23° 24.9	23° 24.9	23° 24.9	23° 25.0	23° 25.0	23° 25.0	23° 25.1	23° 25.1	23° 25.2	23° 25.2	23° 25.2	23° 25.2	+0.0
Ср 20	269° 36.7	284° 36.6	299° 36.5	314° 36.3	329° 36.2	344° 36.1	359° 35.9	14° 35.8	29° 35.6	44° 35.5	59° 35.4	74° 35.2	-0.1
	23° 25.6	23° 25.6	23° 25.6	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.8	23° 25.8	23° 25.8	+0.0
Чт 21	269° 33.5	284° 33.3	299° 33.2	314° 33.1	329° 32.9	344° 32.8	359° 32.7	14° 32.5	29° 32.4	44° 32.3	59° 32.1	74° 32.0	-0.1
	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	23° 25.9	+0.0
Пт 22	269° 30.2	284° 30.1	299° 30.0	314° 29.8	329° 29.7	344° 29.6	359° 29.4	14° 29.3	29° 29.2	44° 29.0	59° 28.9	74° 28.8	-0.1
	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.8	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.7	23° 25.6	-0.0
Сб 23	269° 27.0	284° 26.9	299° 26.7	314° 26.6	329° 26.5	344° 26.3	359° 26.2	14° 26.1	29° 25.9	44° 25.8	59° 25.7	74° 25.5	-0.1
	23° 25.3	23° 25.3	23° 25.2	23° 25.2	23° 25.2	23° 25.2	23° 25.1	23° 25.1	23° 25.0	23° 25.0	23° 25.0	23° 24.9	-0.0
Вс 24	269° 23.8	284° 23.7	299° 23.5	314° 23.4	329° 23.3	344° 23.1	359° 23.0	14° 22.9	29° 22.7	44° 22.6	59° 22.5	74° 22.3	-0.1
	23° 24.4	23° 24.3	23° 24.3	23° 24.2	23° 24.2	23° 24.1	23° 24.1	23° 24.0	23° 24.0	23° 23.9	23° 23.9	23° 23.8	-0.1
Пн 25	269° 20.6	284° 20.5	299° 20.3	314° 20.2	329° 20.1	344° 20.0	359° 19.8	14° 19.7	29° 19.6	44° 19.4	59° 19.3	74° 19.2	-0.1
	23° 23.1	23° 23.0	23° 22.9	23° 22.9	23° 22.8	23° 22.7	23° 22.7	23° 22.6	23° 22.5	23° 22.5	23° 22.4	23° 22.3	-0.1
Вт 26	269° 17.4	284° 17.3	299° 17.2	314° 17.1	329° 16.9	344° 16.8	359° 16.7	14° 16.5	29° 16.4	44° 16.3	59° 16.1	74° 16.0	-0.1
	23° 21.3	23° 21.2	23° 21.1	23° 21.1	23° 21.0	23° 20.9	23° 20.8	23° 20.7	23° 20.6	23° 20.6	23° 20.5	23° 20.4	-0.1
Ср 27	269° 14.3	284° 14.2	299° 14.1	314° 13.9	329° 13.8	344° 13.7	359° 13.5	14° 13.4	29° 13.3	44° 13.2	59° 13.0	74° 12.9	-0.1
	23° 19.2	23° 19.1	23° 19.0	23° 18.9	23° 18.8	23° 18.7	23° 18.6	23° 18.5	23° 18.3	23° 18.2	23° 18.1	23° 18.0	-0.1
Чт 28	269° 11.2	284° 11.1	299° 11.0	314° 10.8	329° 10.7	344° 10.6	359° 10.5	14° 10.3	29° 10.2	44° 10.1	59° 09.9	74° 09.8	-0.1
	23° 16.6	23° 16.5	23° 16.4	23° 16.2	23° 16.1	23° 16.0	23° 15.9	23° 15.8	23° 15.6	23° 15.5	23° 15.4	23° 15.3	-0.1
Пт 29	269° 08.2	284° 08.0	299° 07.9	314° 07.8	329° 07.7	344° 07.5	359° 07.4	14° 07.3	29° 07.2	44° 07.0	59° 06.9	74° 06.8	-0.1
	23° 13.6	23° 13.5	23° 13.4	23° 13.2	23° 13.1	23° 12.9	23° 12.8	23° 12.7	23° 12.5	23° 12.4	23° 12.3	23° 12.1	-0.1
Сб 30	269° 05.2	284° 05.0	299° 04.9	314° 04.8	329° 04.7	344° 04.5	359° 04.4	14° 04.3	29° 04.2	44° 04.1	59° 03.9	74° 03.8	-0.1
	23° 10.2	23° 10.1	23° 09.9	23° 09.8	23° 09.6	23° 09.5	23° 09.3	23° 09.2	23° 09.0	23° 08.9	23° 08.7	23° 08.6	-0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

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Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
Пт 1	247° 58.5	262° 29.2	276° 59.8	291° 30.5	306° 01.0	320° 31.6	335° 02.0	349° 32.5	4° 02.9	18° 33.2	33° 03.5	+30.5	15.8
	-1° 21.5	-1° 10.7	-0° 59.9	-0° 49.1	-0° 38.3	-0° 27.4	-0° 16.5	-0° 05.7	0° 05.3	0° 16.2	0° 27.1	+10.9	57.8
Сб 2	250° 31.9	265° 01.3	279° 30.7	294° 00.1	308° 29.3	322° 58.5	337° 27.7	351° 56.8	6° 25.8	20° 54.8	35° 23.6	+29.2	16.0
	3° 12.1	3° 23.2	3° 34.2	3° 45.2	3° 56.2	4° 07.2	4° 18.2	4° 29.2	4° 40.2	4° 51.2	5° 02.1	+11.0	58.8
Вс 3	252° 28.8	266° 56.6	281° 24.3	295° 51.9	310° 19.5	324° 47.0	339° 14.4	353° 41.7	8° 08.9	22° 36.1	37° 03.2	+27.4	16.3
	7° 44.3	7° 54.9	8° 05.4	8° 15.9	8° 26.4	8° 36.9	8° 47.3	8° 57.7	9° 08.0	9° 18.3	9° 28.5	+10.4	59.8
Пн 4	253° 40.1	268° 06.0	282° 31.7	296° 57.4	311° 23.0	325° 48.5	340° 13.9	354° 39.3	9° 04.6	23° 29.8	37° 54.9	+25.5	16.5
	11° 55.7	12° 05.1	12° 14.3	12° 23.5	12° 32.6	12° 41.6	12° 50.6	12° 59.4	13° 08.2	13° 16.9	13° 25.6	+9.0	60.6
Вт 5	254° 02.8	268° 26.7	282° 50.6	297° 14.5	311° 38.2	326° 01.9	340° 25.6	354° 49.1	9° 12.6	23° 36.1	37° 59.5	+23.7	16.7
	15° 24.2	15° 31.3	15° 38.3	15° 45.2	15° 52.0	15° 58.6	16° 05.2	16° 11.7	16° 18.0	16° 24.2	16° 30.3	+6.6	61.1
● Ср 6	253° 44.3	268° 06.9	282° 29.5	296° 52.1	311° 14.6	325° 37.2	339° 59.6	354° 22.1	8° 44.6	23° 07.0	37° 29.4	+22.5	16.7
	17° 47.1	17° 51.2	17° 55.2	17° 59.0	18° 02.7	18° 06.2	18° 09.6	18° 12.9	18° 16.1	18° 19.1	18° 21.9	+3.5	61.3
Чт 7	253° 04.2	267° 26.5	281° 48.9	296° 11.2	310° 33.6	324° 56.0	339° 18.4	353° 40.8	8° 03.3	22° 25.7	36° 48.2	+22.4	16.7
	18° 47.9	18° 48.5	18° 48.9	18° 49.2	18° 49.4	18° 49.4	18° 49.3	18° 49.0	18° 48.6	18° 48.1	18° 47.4	-0.0	61.1
Пт 8	252° 30.2	266° 53.3	281° 16.5	295° 39.8	310° 03.2	324° 26.5	338° 50.0	353° 13.5	7° 37.1	22° 00.7	36° 24.4	+23.4	16.5
	18° 20.5	18° 17.6	18° 14.6	18° 11.5	18° 08.2	18° 04.8	18° 01.3	17° 57.6	17° 53.9	17° 50.0	17° 45.9	-3.5	60.6
Сб 9	252° 28.6	266° 53.5	281° 18.4	295° 43.5	310° 08.6	324° 33.8	338° 59.1	353° 24.5	7° 50.0	22° 15.5	36° 41.2	+25.3	16.3
	16° 31.6	16° 25.7	16° 19.8	16° 13.7	16° 07.5	16° 01.3	15° 54.9	15° 48.5	15° 41.9	15° 35.3	15° 28.5	-6.3	59.9
Вс 10	253° 16.0	267° 43.1	282° 10.2	296° 37.4	311° 04.6	325° 32.0	339° 59.4	354° 27.0	8° 54.6	23° 22.3	37° 50.1	+27.4	16.1
	13° 37.1	13° 29.0	13° 20.9	13° 12.7	13° 04.4	12° 56.1	12° 47.6	12° 39.2	12° 30.6	12° 22.0	12° 13.4	-8.4	59.0
Пн 11	254° 56.8	269° 25.9	283° 55.0	298° 24.3	312° 53.6	327° 23.0	341° 52.4	356° 22.0	10° 51.6	25° 21.3	39° 51.0	+29.4	15.8
	9° 56.8	9° 47.3	9° 37.8	9° 28.3	9° 18.6	9° 09.0	8° 59.3	8° 49.6	8° 39.9	8° 30.1	8° 20.3	-9.7	58.1
◐ Вт 12	257° 25.4	271° 56.2	286° 27.0	300° 57.9	315° 28.9	329° 59.9	344° 31.0	359° 02.1	13° 33.3	28° 04.6	42° 35.9	+31.1	15.6
	5° 49.8	5° 39.6	5° 29.4	5° 19.2	5° 08.9	4° 58.7	4° 48.4	4° 38.1	4° 27.8	4° 17.5	4° 07.2	-10.3	57.1
Ср 13	260° 31.0	275° 03.0	289° 35.1	304° 07.1	318° 39.3	333° 11.4	347° 43.6	2° 15.9	16° 48.1	31° 20.4	45° 52.8	+32.2	15.4
	1° 32.2	1° 21.9	1° 11.5	1° 01.2	0° 50.9	0° 40.6	0° 30.3	0° 20.0	0° 09.7	-0° 00.6	-0° 10.8	-10.3	56.3
Чт 14	264° 01.0	278° 33.8	293° 06.5	307° 39.3	322° 12.1	336° 44.9	351° 17.7	5° 50.5	20° 23.4	34° 56.3	49° 29.1	+32.8	15.2
	-2° 43.0	-2° 53.0	-3° 02.9	-3° 12.9	-3° 22.8	-3° 32.7	-3° 42.6	-3° 52.5	-4° 02.3	-4° 12.1	-4° 21.9	-9.9	55.6
Пт 15	267° 43.4	282° 16.3	296° 49.3	311° 22.3	325° 55.3	340° 28.3	355° 01.3	9° 34.3	24° 07.3	38° 40.3	53° 13.3	+33.0	15.0
	-6° 44.9	-6° 54.2	-7° 03.4	-7° 12.6	-7° 21.8	-7° 30.9	-7° 40.0	-7° 49.0	-7° 58.0	-8° 07.0	-8° 15.9	-9.1	55.0
Сб 16	271° 27.4	286° 00.3	300° 33.2	315° 06.0	329° 38.9	344° 11.7	358° 44.5	13° 17.3	27° 50.1	42° 22.9	56° 55.7	+32.8	14.9
	-10° 24.5	-10° 32.7	-10° 40.8	-10° 48.9	-10° 57.0	-11° 05.0	-11° 12.9	-11° 20.8	-11° 28.6	-11° 36.4	-11° 44.1	-8.0	54.5
Вс 17	275° 05.3	289° 37.8	304° 10.3	318° 42.8	333° 15.2	347° 47.6	2° 20.0	16° 52.4	31° 24.8	45° 57.2	60° 29.5	+32.4	14.8
	-13° 33.3	-13° 40.1	-13° 46.8	-13° 53.5	-14° 00.1	-14° 06.7	-14° 13.2	-14° 19.6	-14° 25.9	-14° 32.2	-14° 38.5	-6.5	54.2
Пн 18	278° 32.1	293° 04.1	307° 36.1	322° 08.1	336° 40.1	351° 12.0	5° 43.9	20° 15.8	34° 47.7	49° 19.5	63° 51.4	+31.9	14.7
	-16° 03.7	-16° 08.8	-16° 13.9	-16° 18.9	-16° 23.8	-16° 28.6	-16° 33.3	-16° 38.0	-16° 42.6	-16° 47.2	-16° 51.6	-4.8	54.0
Вт 19	281° 46.7	296° 18.3	310° 49.8	325° 21.3	339° 52.8	354° 24.3	8° 55.8	23° 27.3	37° 58.7	52° 30.1	67° 01.5	+31.5	14.7
	-17° 49.1	-17° 52.3	-17° 55.4	-17° 58.4	-18° 01.4	-18° 04.2	-18° 07.0	-18° 09.7	-18° 12.4	-18° 14.9	-18° 17.4	-2.8	53.9
○ Ср 20	284° 51.3	299° 22.6	313° 53.8	328° 25.0	342° 56.3	357° 27.5	11° 58.7	26° 29.9	41° 01.1	55° 32.2	70° 03.4	+31.2	14.7
	-18° 44.1	-18° 45.2	-18° 46.2	-18° 47.2	-18° 48.0	-18° 48.8	-18° 49.5	-18° 50.0	-18° 50.5	-18° 51.0	-18° 51.3	-0.7	53.9
Чт 21	287° 50.9	302° 22.0	316° 53.2	331° 24.4	345° 55.5	0° 26.7	14° 57.9	29° 29.1	44° 00.2	58° 31.4	73° 02.6	+31.2	14.7
	-18° 45.8	-18° 44.7	-18° 43.6	-18° 42.3	-18° 41.0	-18° 39.6	-18° 38.1	-18° 36.5	-18° 34.9	-18° 33.1	-18° 31.3	+1.4	54.0
Пт 22	290° 51.3	305° 22.6	319° 54.0	334° 25.3	348° 56.6	3° 28.0	17° 59.4	32° 30.7	47° 02.1	61° 33.5	76° 05.0	+31.4	14.8
	-17° 53.5	-17° 50.4	-17° 47.1	-17° 43.7	-17° 40.3	-17° 36.8	-17° 33.2	-17° 29.5	-17° 25.7	-17° 21.9	-17° 18.0	+3.6	54.2
Сб 23	293° 57.7	308° 29.3	323° 01.0	337° 32.6	352° 04.3	6° 36.0	21° 07.7	35° 39.4	50° 11.1	64° 42.9	79° 14.6	+31.7	14.9
	-16° 09.6	-16° 04.4	-15° 59.2	-15° 53.9	-15° 48.5	-15° 43.0	-15° 37.4	-15° 31.8	-15° 26.1	-15° 20.4	-15° 14.5	+5.5	54.5
Вс 24	297° 12.5	311° 44.5	326° 16.5	340° 48.5	355° 20.5	9° 52.5	24° 24.5	38° 56.5	53° 28.6	68° 00.6	82° 32.7	+32.0	15.0
	-13° 38.5	-13° 31.5	-13° 24.5	-13° 17.4	-13° 10.3	-13° 03.1	-12° 55.8	-12° 48.5	-12° 41.1	-12° 33.7	-12° 26.1	+7.2	54.9
Пн 25	311° 44.5	326° 16.5	340° 48.5	355° 20.5	9° 52.5	24° 24.5	38° 56.5	53° 28.6	68° 00.6	82° 32.7	97° 04.8	+32.0	15.0
	-13° 31.5	-13° 24.5	-13° 17.4	-13° 10.3	-13° 03.1	-12° 55.8	-12° 48.5	-12° 41.1	-12° 33.7	-12° 26.1	-12° 18.6	+7.3	54.9
Вт 26	315° 06.8	329° 39.0	344° 11.2	358° 43.4	13° 15.6	27° 47.8	42° 20.0	56° 52.2	71° 24.4	85° 56.6	100° 28.8	+32.2	15.1
	-10° 17.9	-10° 09.4	-10° 00.9	-9° 52.3	-9° 43.6	-9° 35.0	-9° 26.2	-9° 17.4	-9° 08.6	-8° 59.7	-8° 50.7	+8.7	55.5
Ср 27	318° 31.3	333° 03.4	347° 35.5	2° 07.6	16° 39.7	31° 11.8	45° 43.8	60° 15.9	74° 47.9	89° 19.9	103° 51.9	+32.1	15.3
	-6° 31.2	-6° 21.5	-6° 11.8	-6° 02.1	-5° 52.4	-5° 42.6	-5° 32.7	-5° 22.9	-5° 13.0	-5° 03.1	-4° 53.1	+9.8	56.1
◑ Чт 28	321° 49.6	336° 21.3	350° 52.9	5° 24.5	19° 56.1	34° 27.6	48° 59.2	63° 30.6	78° 02.1	92° 33.5	107° 04.9	+31.5	15.5
	-2° 20.0	-2° 09.6	-1° 59.2	-1° 48.7	-1° 38.2	-1° 27.7	-1° 17.2	-1° 06.7	-0° 56.1	-0° 45.5	-0° 34.9	+10.5	56.9
Пт 29	324° 50.9	339° 21.7	353° 52.3	8° 23.0	22° 53.5	37° 24.1	51° 54.5	66° 25.0	80° 55.3	95° 25.7	109° 55.9	+30.5	15.8
	2° 05.3	2° 16.0	2° 26.7	2° 37.5	2° 48.2	2° 58.9	3° 09.7	3° 20.4	3° 31.1	3° 41.9	3° 52.6	+10.7	57.8
Сб 30	327° 22.9	341° 52.2	356° 21.4	10° 50.5	25° 19.6	39° 48.6	54° 17.6	68° 46.5	83° 15.3	97° 44.0	112° 12.7	+29.0	16.0
	6° 32.0	6° 42.5	6° 53.0	7° 03.4	7° 13.8	7° 24.2	7° 34.6	7° 44.9	7° 55.2	8° 05.5	8° 15.7	+10.4	58.7

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Новолуние: 6 03h20 — Первая четв.: 12 19h50 — Полнолуние: 20 19h37 — Последняя четв.: 28 18h42

СОЛНЦЕ

Июль 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Вс 1	269° 02.2	284° 02.1	299° 02.0	314° 01.8	329° 01.7	344° 01.6	359° 01.5	14° 01.4	29° 01.2	44° 01.1	59° 01.0	74° 00.9	-0.1
	23° 06.5	23° 06.3	23° 06.1	23° 05.9	23° 05.8	23° 05.6	23° 05.4	23° 05.3	23° 05.1	23° 04.9	23° 04.8	23° 04.6	-0.2
Пн 2	268° 59.3	283° 59.2	298° 59.1	313° 59.0	328° 58.8	343° 58.7	358° 58.6	13° 58.5	28° 58.4	43° 58.3	58° 58.1	73° 58.0	-0.1
	23° 02.3	23° 02.1	23° 01.9	23° 01.7	23° 01.5	23° 01.3	23° 01.1	23° 01.0	23° 00.8	23° 00.6	23° 00.4	23° 00.2	-0.2
Вт 3	268° 56.5	283° 56.4	298° 56.3	313° 56.1	328° 56.0	343° 55.9	358° 55.8	13° 55.7	28° 55.6	43° 55.5	58° 55.3	73° 55.2	-0.1
	22° 57.7	22° 57.5	22° 57.3	22° 57.1	22° 56.9	22° 56.7	22° 56.5	22° 56.3	22° 56.0	22° 55.8	22° 55.6	22° 55.4	-0.2
Ср 4	268° 53.7	283° 53.6	298° 53.5	313° 53.4	328° 53.3	343° 53.2	358° 53.1	13° 52.9	28° 52.8	43° 52.7	58° 52.6	73° 52.5	-0.1
	22° 52.7	22° 52.5	22° 52.2	22° 52.0	22° 51.8	22° 51.6	22° 51.4	22° 51.1	22° 50.9	22° 50.7	22° 50.5	22° 50.3	-0.2
Чт 5	268° 51.1	283° 50.9	298° 50.8	313° 50.7	328° 50.6	343° 50.5	358° 50.4	13° 50.3	28° 50.2	43° 50.1	58° 50.0	73° 49.9	-0.1
	22° 47.3	22° 47.0	22° 46.8	22° 46.6	22° 46.3	22° 46.1	22° 45.9	22° 45.6	22° 45.4	22° 45.2	22° 44.9	22° 44.7	-0.2
Пт 6	268° 48.5	283° 48.4	298° 48.3	313° 48.1	328° 48.0	343° 47.9	358° 47.8	13° 47.7	28° 47.6	43° 47.5	58° 47.4	73° 47.3	-0.1
	22° 41.5	22° 41.2	22° 41.0	22° 40.7	22° 40.5	22° 40.2	22° 40.0	22° 39.7	22° 39.5	22° 39.2	22° 39.0	22° 38.7	-0.3
Сб 7	268° 46.0	283° 45.9	298° 45.8	313° 45.7	328° 45.6	343° 45.5	358° 45.4	13° 45.3	28° 45.2	43° 45.0	58° 44.9	73° 44.8	-0.1
	22° 35.3	22° 35.0	22° 34.8	22° 34.5	22° 34.2	22° 34.0	22° 33.7	22° 33.4	22° 33.2	22° 32.9	22° 32.6	22° 32.4	-0.3
Вс 8	268° 43.6	283° 43.5	298° 43.4	313° 43.3	328° 43.2	343° 43.1	358° 43.0	13° 42.9	28° 42.8	43° 42.7	58° 42.6	73° 42.5	-0.1
	22° 28.7	22° 28.5	22° 28.2	22° 27.9	22° 27.6	22° 27.3	22° 27.0	22° 26.8	22° 26.5	22° 26.2	22° 25.9	22° 25.6	-0.3
Пн 9	268° 41.3	283° 41.2	298° 41.1	313° 41.0	328° 40.9	343° 40.8	358° 40.7	13° 40.6	28° 40.5	43° 40.4	58° 40.3	73° 40.2	-0.1
	22° 21.8	22° 21.5	22° 21.2	22° 20.9	22° 20.6	22° 20.3	22° 20.0	22° 19.7	22° 19.4	22° 19.1	22° 18.8	22° 18.5	-0.3
Вт 10	268° 39.1	283° 39.0	298° 38.9	313° 38.8	328° 38.7	343° 38.6	358° 38.5	13° 38.4	28° 38.4	43° 38.3	58° 38.2	73° 38.1	-0.1
	22° 14.4	22° 14.1	22° 13.8	22° 13.5	22° 13.2	22° 12.9	22° 12.5	22° 12.2	22° 11.9	22° 11.6	22° 11.3	22° 10.9	-0.3
Ср 11	268° 37.0	283° 36.9	298° 36.8	313° 36.7	328° 36.6	343° 36.6	358° 36.5	13° 36.4	28° 36.3	43° 36.2	58° 36.1	73° 36.1	-0.1
	22° 06.7	22° 06.4	22° 06.1	22° 05.7	22° 05.4	22° 05.1	22° 04.7	22° 04.4	22° 04.1	22° 03.7	22° 03.4	22° 03.0	-0.3
Чт 12	268° 35.0	283° 34.9	298° 34.9	313° 34.8	328° 34.7	343° 34.6	358° 34.5	13° 34.5	28° 34.4	43° 34.3	58° 34.2	73° 34.1	-0.1
	21° 58.6	21° 58.3	21° 57.9	21° 57.6	21° 57.2	21° 56.9	21° 56.5	21° 56.2	21° 55.8	21° 55.5	21° 55.1	21° 54.8	-0.3
Пт 13	268° 33.2	283° 33.1	298° 33.0	313° 32.9	328° 32.9	343° 32.8	358° 32.7	13° 32.6	28° 32.6	43° 32.5	58° 32.4	73° 32.4	-0.1
	21° 50.1	21° 49.8	21° 49.4	21° 49.0	21° 48.7	21° 48.3	21° 47.9	21° 47.6	21° 47.2	21° 46.8	21° 46.5	21° 46.1	-0.4
Сб 14	268° 31.4	283° 31.4	298° 31.3	313° 31.2	328° 31.2	343° 31.1	358° 31.0	13° 31.0	28° 30.9	43° 30.8	58° 30.8	73° 30.7	-0.1
	21° 41.3	21° 40.9	21° 40.5	21° 40.1	21° 39.8	21° 39.4	21° 39.0	21° 38.6	21° 38.2	21° 37.8	21° 37.5	21° 37.1	-0.4
Вс 15	268° 29.8	283° 29.8	298° 29.7	313° 29.7	328° 29.6	343° 29.5	358° 29.5	13° 29.4	28° 29.3	43° 29.3	58° 29.2	73° 29.2	-0.1
	21° 32.0	21° 31.6	21° 31.3	21° 30.9	21° 30.5	21° 30.1	21° 29.7	21° 29.3	21° 28.9	21° 28.5	21° 28.1	21° 27.7	-0.4
Пн 16	268° 28.4	283° 28.3	298° 28.3	313° 28.2	328° 28.1	343° 28.1	358° 28.0	13° 28.0	28° 27.9	43° 27.9	58° 27.8	73° 27.8	-0.1
	21° 22.4	21° 22.0	21° 21.6	21° 21.2	21° 20.8	21° 20.4	21° 20.0	21° 19.6	21° 19.2	21° 18.8	21° 18.3	21° 17.9	-0.4
Вт 17	268° 27.0	283° 27.0	298° 26.9	313° 26.9	328° 26.8	343° 26.8	358° 26.7	13° 26.7	28° 26.6	43° 26.6	58° 26.5	73° 26.5	-0.1
	21° 12.5	21° 12.1	21° 11.6	21° 11.2	21° 10.8	21° 10.4	21° 09.9	21° 09.5	21° 09.1	21° 08.7	21° 08.2	21° 07.8	-0.4
Ср 18	268° 25.8	283° 25.8	298° 25.8	313° 25.7	328° 25.7	343° 25.6	358° 25.6	13° 25.5	28° 25.5	43° 25.4	58° 25.4	73° 25.3	-0.0
	21° 02.2	21° 01.7	21° 01.3	21° 00.9	21° 00.4	21° 00.0	20° 59.5	20° 59.1	20° 58.7	20° 58.2	20° 57.8	20° 57.3	-0.4
Чт 19	268° 24.8	283° 24.7	298° 24.7	313° 24.7	328° 24.6	343° 24.6	358° 24.5	13° 24.5	28° 24.5	43° 24.4	58° 24.4	73° 24.3	-0.0
	20° 51.5	20° 51.1	20° 50.6	20° 50.1	20° 49.7	20° 49.2	20° 48.8	20° 48.3	20° 47.9	20° 47.4	20° 47.0	20° 46.5	-0.5
Пт 20	268° 23.9	283° 23.8	298° 23.8	313° 23.7	328° 23.7	343° 23.7	358° 23.6	13° 23.6	28° 23.6	43° 23.5	58° 23.5	73° 23.5	-0.0
	20° 40.5	20° 40.0	20° 39.5	20° 39.1	20° 38.6	20° 38.1	20° 37.7	20° 37.2	20° 36.7	20° 36.3	20° 35.8	20° 35.3	-0.5
Сб 21	268° 23.1	283° 23.0	298° 23.0	313° 23.0	328° 23.0	343° 22.9	358° 22.9	13° 22.9	28° 22.8	43° 22.8	58° 22.8	73° 22.8	-0.0
	20° 29.1	20° 28.6	20° 28.1	20° 27.7	20° 27.2	20° 26.7	20° 26.2	20° 25.7	20° 25.2	20° 24.8	20° 24.3	20° 23.8	-0.5
Вс 22	268° 22.4	283° 22.4	298° 22.4	313° 22.4	328° 22.3	343° 22.3	358° 22.3	13° 22.3	28° 22.2	43° 22.2	58° 22.2	73° 22.2	-0.0
	20° 17.4	20° 16.9	20° 16.4	20° 15.9	20° 15.4	20° 14.9	20° 14.4	20° 13.9	20° 13.4	20° 12.9	20° 12.4	20° 11.9	-0.5
Пн 23	268° 21.9	283° 21.9	298° 21.9	313° 21.9	328° 21.9	343° 21.8	358° 21.8	13° 21.8	28° 21.8	43° 21.8	58° 21.8	73° 21.7	-0.0
	20° 05.3	20° 04.8	20° 04.3	20° 03.8	20° 03.3	20° 02.8	20° 02.3	20° 01.8	20° 01.3	20° 00.7	20° 00.2	19° 59.7	-0.5
Вт 24	268° 21.6	283° 21.5	298° 21.5	313° 21.5	328° 21.5	343° 21.5	358° 21.5	13° 21.5	28° 21.5	43° 21.5	58° 21.5	73° 21.4	-0.0
	19° 53.0	19° 52.4	19° 51.9	19° 51.4	19° 50.9	19° 50.3	19° 49.8	19° 49.3	19° 48.8	19° 48.2	19° 47.7	19° 47.2	-0.5
Ср 25	268° 21.3	283° 21.3	298° 21.3	313° 21.3	328° 21.3	343° 21.3	358° 21.3	13° 21.3	28° 21.3	43° 21.3	58° 21.3	73° 21.3	-0.0
	19° 40.2	19° 39.7	19° 39.2	19° 38.6	19° 38.1	19° 37.6	19° 37.0	19° 36.5	19° 35.9	19° 35.4	19° 34.8	19° 34.3	-0.5
Чт 26	268° 21.3	283° 21.3	298° 21.3	313° 21.3	328° 21.3	343° 21.3	358° 21.3	13° 21.3	28° 21.3	43° 21.3	58° 21.3	73° 21.3	+0.0
	19° 27.2	19° 26.6	19° 26.1	19° 25.5	19° 25.0	19° 24.4	19° 23.9	19° 23.3	19° 22.8	19° 22.2	19° 21.7	19° 21.1	-0.6
Пт 27	268° 21.3	283° 21.4	298° 21.4	313° 21.4	328° 21.4	343° 21.4	358° 21.4	13° 21.4	28° 21.4	43° 21.4	58° 21.4	73° 21.4	+0.0
	19° 13.8	19° 13.3	19° 12.7	19° 12.1	19° 11.6	19° 11.0	19° 10.4	19° 09.9	19° 09.3	19° 08.7	19° 08.2	19° 07.6	-0.6
Сб 28	268° 21.6	283° 21.6	298° 21.6	313° 21.6	328° 21.6	343° 21.6	358° 21.6	13° 21.7	28° 21.7	43° 21.7	58° 21.7	73° 21.7	+0.0
	19° 00.1	18° 59.6	18° 59.0	18° 58.4	18° 57.8	18° 57.3	18° 56.7	18° 56.1	18° 55.5	18° 54.9	18° 54.3	18° 53.8	-0.6
Вс 29	268° 21.9	283° 21.9	298° 22.0	313° 22.0	328° 22.0	343° 22.0	358° 22.0	13° 22.1	28° 22.1	43° 22.1	58° 22.1	73° 22.1	+0.0
	18° 46.1	18° 45.6	18° 45.0	18° 44.4	18° 43.8	18° 43.2	18° 42.6	18° 42.0	18° 41.4	18° 40.8	18° 40.2	18° 39.6	-0.6
Пн 30	268° 22.4	283° 22.5	298° 22.5	313° 22.5	328° 22.5	343° 22.6	358° 22.6	13° 22.6	28° 22.6	43° 22.7	58° 22.7	73° 22.7	+0.0
	18° 31.8	18° 31.2	18° 30.6	18° 30.0	18° 29.4	18° 28.8	18° 28.2	18° 27.6	18° 27.0	18° 26.4	18° 25.8	18° 25.2	-0.6
Вт 31	268° 23.1	283° 23.1	298° 23.2	313° 23.2	328° 23.2	343° 23.2	358° 23.3	13° 23.3	28° 23.3	43° 23.4	58° 23.4	73° 23.4	+0.0
	18° 17.2	18° 16.6	18° 16.0	18° 15.4	18° 14.8	18° 14.1	18° 13.5	18° 12.9	18° 12.3	18° 11.7	18° 11.0	18° 10.4	-0.6

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.7'

ЛУНА

Июль 2035

Д	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	R/p
Вс 1	242° 27.3 9° 46.2	256° 55.2 9° 56.1	271° 23.1 10° 05.9	285° 50.8 10° 15.6	300° 18.5 10° 25.3	314° 46.1 10° 35.0	329° 13.6 10° 44.6	343° 41.0 10° 54.1	358° 08.4 11° 03.6	12° 35.6 11° 13.0	27° 02.8 11° 22.4	+27.6 +9.6	16.2 59.4
Пн 2	243° 40.8 13° 35.2	258° 06.7 13° 43.5	272° 32.5 13° 51.7	286° 58.2 13° 59.8	301° 23.8 14° 07.8	315° 49.3 14° 15.8	330° 14.8 14° 23.6	344° 40.2 14° 31.4	359° 05.5 14° 39.1	13° 30.7 14° 46.7	27° 55.8 14° 54.2	+25.5 +7.9	16.4 60.2
Вт 3	244° 03.5 16° 34.7	258° 27.4 16° 40.5	272° 51.2 16° 46.3	287° 15.0 16° 51.9	301° 38.7 16° 57.4	316° 02.4 17° 02.7	330° 26.0 17° 08.0	344° 49.5 17° 13.1	359° 13.0 17° 18.2	13° 36.4 17° 23.1	27° 59.7 17° 27.8	+23.6 +5.3	16.6 60.8
Ср 4	243° 43.6 18° 24.0	258° 06.2 18° 26.7	272° 28.7 18° 29.2	286° 51.2 18° 31.6	301° 13.7 18° 33.9	315° 36.1 18° 36.0	329° 58.6 18° 38.0	344° 21.0 18° 39.8	358° 43.3 18° 41.5	13° 05.7 18° 43.1	27° 28.0 18° 44.5	+22.4 +2.1	16.7 61.2
● Чт 5	243° 02.0 18° 48.6	257° 24.2 18° 47.7	271° 46.5 18° 46.7	286° 08.8 18° 45.5	300° 31.2 18° 44.2	314° 53.5 18° 42.8	329° 15.9 18° 41.2	343° 38.3 18° 39.5	358° 00.7 18° 37.6	12° 23.1 18° 35.6	26° 45.6 18° 33.5	+22.4 -1.5	16.7 61.2
Пт 6	242° 27.2 17° 44.9	256° 50.3 17° 40.7	271° 13.5 17° 36.2	285° 36.8 17° 31.7	300° 00.1 17° 27.0	314° 23.5 17° 22.2	328° 46.9 17° 17.3	343° 10.4 17° 12.3	357° 34.0 17° 07.1	11° 57.7 17° 01.9	26° 21.4 16° 56.5	+23.4 -4.9	16.6 60.8
Сб 7	242° 25.6 15° 22.2	256° 50.5 15° 15.1	271° 15.5 15° 07.9	285° 40.5 15° 00.6	300° 05.7 14° 53.2	314° 30.9 14° 45.7	328° 56.2 14° 38.1	343° 21.6 14° 30.5	357° 47.1 14° 22.7	12° 12.6 14° 14.8	26° 38.3 14° 06.9	+25.3 -7.5	16.4 60.2
Вс 8	243° 13.2 11° 58.7	257° 40.2 11° 49.6	272° 07.3 11° 40.5	286° 34.5 11° 31.2	301° 01.8 11° 22.0	315° 29.1 11° 12.6	329° 56.6 11° 03.2	344° 24.1 10° 53.8	358° 51.7 10° 44.3	13° 19.4 10° 34.7	27° 47.2 10° 25.1	+27.4 -9.4	16.2 59.3
Пн 9	244° 33.5 7° 56.0	259° 02.5 7° 45.8	273° 31.6 7° 35.6	288° 00.8 7° 25.3	302° 30.2 7° 15.0	317° 00.1 7° 04.6	331° 48.9 6° 54.3	346° 18.3 6° 43.9	0° 47.9 6° 33.5	15° 17.5 6° 23.1	29° 47.2 6° 12.6	+29.4 -10.3	15.9 58.4
Вт 10	247° 20.4 3° 34.4	261° 51.1 3° 23.8	276° 21.9 3° 13.2	290° 52.7 3° 02.6	305° 23.5 2° 52.0	319° 54.5 2° 41.4	334° 25.4 2° 30.8	348° 56.5 2° 20.1	3° 27.5 2° 09.5	17° 58.7 1° 58.9	32° 29.8 1° 48.3	+30.9 -10.6	15.6 57.4
Ср 11	250° 22.9 -0° 49.5	264° 54.8 -0° 59.9	279° 26.7 -1° 10.3	293° 58.6 -1° 20.7	308° 30.6 -1° 31.0	323° 02.6 -1° 41.3	337° 34.7 -1° 51.6	352° 06.7 -2° 01.9	6° 38.8 -2° 12.2	21° 11.0 -2° 22.5	35° 43.1 -2° 32.7	+32.0 -10.3	15.4 56.5
◐ Чт 12	253° 48.6 -5° 02.7	268° 21.1 -5° 12.5	282° 53.7 -5° 22.2	297° 26.2 -5° 31.9	311° 58.8 -5° 41.5	326° 31.4 -5° 51.2	341° 04.0 -6° 00.7	355° 36.6 -6° 10.3	10° 09.3 -6° 19.8	24° 41.9 -6° 29.3	39° 14.6 -6° 38.7	+32.6 -9.6	15.2 55.6
Пт 13	257° 25.4 -8° 55.2	271° 58.1 -9° 03.9	286° 30.9 -9° 12.6	301° 03.6 -9° 21.3	315° 36.4 -9° 29.9	330° 09.1 -9° 38.4	344° 41.9 -9° 46.9	359° 14.6 -9° 55.4	13° 47.4 -10° 03.8	28° 20.1 -10° 12.1	42° 52.9 -10° 20.4	+32.8 -8.5	15.0 55.0
Сб 14	261° 03.2 -12° 18.6	275° 35.8 -12° 26.0	290° 08.4 -12° 33.4	304° 41.0 -12° 40.7	319° 13.6 -12° 47.9	333° 46.2 -12° 55.1	348° 18.7 -13° 02.2	2° 51.3 -13° 09.3	17° 23.8 -13° 16.3	31° 56.3 -13° 23.3	46° 28.8 -13° 30.1	+32.6 -7.2	14.9 54.5
Вс 15	264° 34.6 -15° 05.6	279° 06.8 -15° 11.5	293° 39.1 -15° 17.2	308° 11.3 -15° 22.9	322° 43.5 -15° 28.6	337° 15.7 -15° 34.1	351° 47.8 -15° 39.6	6° 20.0 -15° 45.0	20° 52.1 -15° 50.4	35° 24.2 -15° 55.6	49° 56.3 -16° 00.8	+32.2 -5.5	14.8 54.2
Пн 16	267° 55.3 -17° 10.0	282° 27.1 -17° 14.0	296° 58.9 -17° 17.9	311° 30.6 -17° 21.7	326° 02.3 -17° 25.5	340° 34.1 -17° 29.2	355° 05.7 -17° 32.8	9° 37.4 -17° 36.3	24° 09.1 -17° 39.8	38° 40.7 -17° 43.2	53° 12.3 -17° 46.4	+31.7 -3.6	14.7 54.0
Вт 17	271° 04.7 -18° 26.0	285° 36.1 -18° 28.0	300° 07.4 -18° 29.9	314° 38.8 -18° 31.7	329° 10.1 -18° 33.4	343° 41.4 -18° 35.1	358° 12.7 -18° 36.6	12° 44.0 -18° 38.1	27° 15.3 -18° 39.5	41° 46.6 -18° 40.8	56° 17.8 -18° 42.0	+31.3 -1.6	14.7 53.9
Ср 18	274° 05.5 -18° 49.8	288° 36.6 -18° 49.6	303° 07.7 -18° 49.4	317° 38.9 -18° 49.0	332° 10.0 -18° 48.6	346° 41.1 -18° 48.1	1° 12.2 -18° 47.5	15° 43.2 -18° 46.8	30° 14.3 -18° 46.0	44° 45.4 -18° 45.1	59° 16.5 -18° 44.2	+31.1 +0.6	14.7 54.0
Чт 19	277° 02.8 -18° 19.4	291° 33.9 -18° 17.0	306° 05.0 -18° 14.6	320° 36.1 -18° 12.1	335° 07.2 -18° 09.5	349° 38.3 -18° 06.8	4° 09.5 -18° 04.0	18° 40.6 -18° 01.2	33° 11.7 -17° 58.3	47° 42.9 -17° 55.2	62° 14.0 -17° 52.1	+31.1 +2.7	14.8 54.2
○ Пт 20	280° 02.3 -16° 55.5	294° 33.6 -16° 51.1	309° 04.9 -16° 46.6	323° 36.2 -16° 42.0	338° 07.6 -16° 37.4	352° 38.9 -16° 32.6	7° 10.3 -16° 27.8	21° 41.7 -16° 22.9	36° 13.0 -16° 17.9	50° 44.4 -16° 12.9	65° 15.8 -16° 07.7	+31.4 +4.8	14.9 54.5
Сб 21	283° 08.6 -14° 41.8	297° 40.3 -14° 35.4	312° 11.9 -14° 29.1	326° 43.6 -14° 22.6	341° 15.3 -14° 16.1	355° 47.0 -14° 09.5	10° 18.7 -14° 02.8	24° 50.4 -13° 56.1	39° 22.1 -13° 49.3	53° 53.9 -13° 42.4	68° 25.6 -13° 35.5	+31.7 +6.6	14.9 54.8
Вс 22	286° 23.6 -11° 43.9	300° 55.6 -11° 36.0	315° 27.6 -11° 28.0	329° 59.6 -11° 20.0	344° 31.6 -11° 11.9	359° 03.6 -11° 03.7	13° 35.6 -10° 55.5	28° 07.6 -10° 47.3	42° 39.7 -10° 38.9	57° 11.7 -10° 30.6	71° 43.8 -10° 22.1	+32.0 +8.2	15.1 55.2
Пн 23	289° 45.5 -8° 09.8	304° 17.7 -8° 00.6	318° 49.8 -7° 51.4	333° 22.0 -7° 42.1	347° 54.1 -7° 32.8	2° 26.3 -7° 23.5	16° 58.5 -7° 14.1	31° 30.6 -7° 04.6	46° 02.8 -6° 55.1	60° 35.0 -6° 45.6	75° 07.1 -6° 36.1	+32.2 +9.4	15.2 55.7
Вт 24	293° 09.0 -4° 08.7	307° 41.1 -3° 58.6	322° 13.2 -3° 48.5	336° 45.2 -3° 38.4	351° 17.2 -3° 28.3	5° 49.2 -3° 18.1	20° 21.3 -3° 07.9	34° 53.2 -2° 57.7	49° 25.2 -2° 47.5	63° 57.2 -2° 37.2	78° 29.1 -2° 26.9	+32.0 +10.2	15.3 56.3
Ср 25	307° 41.1 -3° 58.6	322° 13.2 -3° 48.5	336° 45.2 -3° 38.4	351° 17.2 -3° 28.3	5° 49.2 -3° 18.1	20° 21.3 -3° 07.9	34° 53.2 -2° 57.7	49° 25.2 -2° 47.5	63° 57.2 -2° 37.2	78° 29.1 -2° 26.9	93° 01.0 -2° 16.6	+32.0 +10.2	15.4 56.3
Чт 26	310° 57.5 0° 19.7	325° 29.0 0° 30.2	340° 00.6 0° 40.7	354° 32.1 0° 51.2	9° 03.5 1° 01.8	23° 35.0 1° 12.3	38° 06.4 1° 22.8	52° 37.8 1° 33.4	67° 09.1 1° 43.9	81° 40.4 1° 54.4	96° 11.7 2° 05.0	+31.4 +10.5	15.5 57.0
Пт 27	313° 56.1 4° 42.5	328° 26.8 4° 52.9	342° 57.3 5° 03.4	357° 27.8 5° 13.7	11° 58.3 5° 24.1	26° 28.7 5° 34.5	40° 59.1 5° 44.8	55° 29.4 5° 55.1	69° 59.7 6° 05.4	84° 29.9 6° 15.7	99° 00.1 6° 26.0	+30.4 +10.3	15.7 57.9
◑ Сб 28	316° 25.7 8° 56.4	330° 54.9 9° 06.1	345° 24.0 9° 15.9	359° 53.1 9° 25.5	14° 22.1 9° 35.2	28° 51.1 9° 44.7	43° 20.0 9° 54.3	57° 48.8 10° 03.8	72° 17.6 10° 13.2	86° 46.2 10° 22.6	101° 14.9 10° 32.0	+28.9 +9.6	15.9 58.4
Вс 29	318° 15.6 12° 45.6	332° 43.1 12° 54.0	347° 10.4 13° 02.3	1° 37.8 13° 10.6	16° 05.0 13° 18.8	30° 32.2 13° 26.9	44° 59.2 13° 34.9	59° 26.3 13° 42.9	73° 53.2 13° 50.8	88° 20.1 13° 58.6	102° 46.8 14° 06.4	+27.1 +8.1	16.1 59.1
Пн 30	319° 19.6 15° 52.2	333° 45.2 15° 58.5	348° 10.7 16° 04.7	2° 36.2 16° 10.9	17° 01.5 16° 16.9	31° 26.8 16° 22.8	45° 52.1 16° 28.6	60° 17.2 16° 34.3	74° 42.3 16° 39.9	89° 07.4 16° 45.4	103° 32.3 16° 50.8	+25.3 +5.9	16.3 59.8
Вт 31	319° 39.2 17° 57.9	334° 03.2 18° 01.4	348° 27.1 18° 04.8	2° 51.0 18° 08.1	17° 14.8 18° 11.2	31° 38.6 18° 14.2	46° 02.4 18° 17.1	60° 26.1 18° 19.9	74° 49.7 18° 22.5	89° 13.3 18° 25.0	103° 36.9 18° 27.4	+23.8 +3.0	16.5 60.3

Строка 1: $t_{тр}$, Δ'/h = изменение $t_{тр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC − число) mod 24

Новолуние: 5 09h59 — Первая четв.: 12 07h32 — Полнолуние: 20 10h36 — Последняя четв.: 28 02h55

СОЛНЦЕ

Август 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Ср 1	268° 23.9	283° 23.9	298° 24.0	313° 24.0	328° 24.0	343° 24.1	358° 24.1	13° 24.2	28° 24.2	43° 24.2	58° 24.3	73° 24.3	+0.0
	18° 02.3	18° 01.7	18° 01.0	18° 00.4	17° 59.8	17° 59.2	17° 58.5	17° 57.9	17° 57.3	17° 56.6	17° 56.0	17° 55.4	-0.6
Чт 2	268° 24.9	283° 24.9	298° 24.9	313° 25.0	328° 25.0	343° 25.1	358° 25.1	13° 25.2	28° 25.2	43° 25.2	58° 25.3	73° 25.3	+0.0
	17° 47.1	17° 46.5	17° 45.8	17° 45.2	17° 44.5	17° 43.9	17° 43.2	17° 42.6	17° 42.0	17° 41.3	17° 40.7	17° 40.0	-0.6
Пт 3	268° 26.0	283° 26.0	298° 26.1	313° 26.1	328° 26.2	343° 26.2	358° 26.3	13° 26.3	28° 26.4	43° 26.4	58° 26.5	73° 26.5	+0.1
	17° 31.6	17° 30.9	17° 30.3	17° 29.6	17° 29.0	17° 28.3	17° 27.7	17° 27.0	17° 26.4	17° 25.7	17° 25.1	17° 24.4	-0.7
Сб 4	268° 27.2	283° 27.3	298° 27.3	313° 27.4	328° 27.4	343° 27.5	358° 27.5	13° 27.6	28° 27.7	43° 27.7	58° 27.8	73° 27.8	+0.1
	17° 15.8	17° 15.1	17° 14.5	17° 13.8	17° 13.2	17° 12.5	17° 11.8	17° 11.2	17° 10.5	17° 09.8	17° 09.2	17° 08.5	-0.7
Вс 5	268° 28.6	283° 28.7	298° 28.7	313° 28.8	328° 28.9	343° 28.9	358° 29.0	13° 29.1	28° 29.1	43° 29.2	58° 29.2	73° 29.3	+0.1
	16° 59.8	16° 59.1	16° 58.4	16° 57.7	16° 57.0	16° 56.4	16° 55.7	16° 55.0	16° 54.3	16° 53.7	16° 53.0	16° 52.3	-0.7
Пн 6	268° 30.2	283° 30.2	298° 30.3	313° 30.4	328° 30.4	343° 30.5	358° 30.6	13° 30.7	28° 30.7	43° 30.8	58° 30.9	73° 30.9	+0.1
	16° 43.4	16° 42.7	16° 42.0	16° 41.4	16° 40.7	16° 40.0	16° 39.3	16° 38.6	16° 37.9	16° 37.2	16° 36.5	16° 35.8	-0.7
Вт 7	268° 31.9	283° 32.0	298° 32.0	313° 32.1	328° 32.2	343° 32.3	358° 32.3	13° 32.4	28° 32.5	43° 32.6	58° 32.6	73° 32.7	+0.1
	16° 26.8	16° 26.1	16° 25.4	16° 24.7	16° 24.0	16° 23.3	16° 22.6	16° 21.9	16° 21.2	16° 20.5	16° 19.8	16° 19.1	-0.7
Ср 8	268° 33.7	283° 33.8	298° 33.9	313° 34.0	328° 34.1	343° 34.2	358° 34.2	13° 34.3	28° 34.4	43° 34.5	58° 34.6	73° 34.6	+0.1
	16° 09.9	16° 09.2	16° 08.5	16° 07.8	16° 07.1	16° 06.4	16° 05.7	16° 05.0	16° 04.3	16° 03.5	16° 02.8	16° 02.1	-0.7
Чт 9	268° 35.8	283° 35.8	298° 35.9	313° 36.0	328° 36.1	343° 36.2	358° 36.3	13° 36.4	28° 36.5	43° 36.6	58° 36.6	73° 36.7	+0.1
	15° 52.8	15° 52.1	15° 51.4	15° 50.7	15° 49.9	15° 49.2	15° 48.5	15° 47.8	15° 47.0	15° 46.3	15° 45.6	15° 44.9	-0.7
Пт 10	268° 37.9	283° 38.0	298° 38.1	313° 38.2	328° 38.3	343° 38.4	358° 38.5	13° 38.6	28° 38.7	43° 38.8	58° 38.9	73° 39.0	+0.1
	15° 35.4	15° 34.7	15° 34.0	15° 33.2	15° 32.5	15° 31.8	15° 31.0	15° 30.3	15° 29.6	15° 28.9	15° 28.1	15° 27.4	-0.7
Сб 11	268° 40.2	283° 40.3	298° 40.4	313° 40.5	328° 40.6	343° 40.7	358° 40.8	13° 40.9	28° 41.0	43° 41.1	58° 41.2	73° 41.3	+0.1
	15° 17.8	15° 17.1	15° 16.3	15° 15.6	15° 14.8	15° 14.1	15° 13.4	15° 12.6	15° 11.9	15° 11.1	15° 10.4	15° 09.6	-0.7
Вс 12	268° 42.7	283° 42.8	298° 42.9	313° 43.0	328° 43.1	343° 43.2	358° 43.3	13° 43.4	28° 43.5	43° 43.7	58° 43.8	73° 43.9	+0.1
	14° 59.9	14° 59.2	14° 58.4	14° 57.7	14° 56.9	14° 56.2	14° 55.4	14° 54.7	14° 53.9	14° 53.2	14° 52.4	14° 51.7	-0.8
Пн 13	268° 45.3	283° 45.4	298° 45.5	313° 45.6	328° 45.7	343° 45.9	358° 46.0	13° 46.1	28° 46.2	43° 46.3	58° 46.4	73° 46.5	+0.1
	14° 41.8	14° 41.1	14° 40.3	14° 39.5	14° 38.8	14° 38.0	14° 37.3	14° 36.5	14° 35.7	14° 35.0	14° 34.2	14° 33.4	-0.8
Вт 14	268° 48.0	283° 48.2	298° 48.3	313° 48.4	328° 48.5	343° 48.6	358° 48.7	13° 48.9	28° 49.0	43° 49.1	58° 49.2	73° 49.3	+0.1
	14° 23.5	14° 22.7	14° 21.9	14° 21.2	14° 20.4	14° 19.6	14° 18.9	14° 18.1	14° 17.3	14° 16.5	14° 15.8	14° 15.0	-0.8
Ср 15	268° 50.9	283° 51.0	298° 51.2	313° 51.3	328° 51.4	343° 51.5	358° 51.7	13° 51.8	28° 51.9	43° 52.0	58° 52.2	73° 52.3	+0.1
	14° 04.9	14° 04.1	14° 03.3	14° 02.6	14° 01.8	14° 01.0	14° 00.2	13° 59.4	13° 58.7	13° 57.9	13° 57.1	13° 56.3	-0.8
Чт 16	268° 53.9	283° 54.1	298° 54.2	313° 54.3	328° 54.5	343° 54.6	358° 54.7	13° 54.8	28° 55.0	43° 55.1	58° 55.2	73° 55.4	+0.1
	13° 46.1	13° 45.3	13° 44.5	13° 43.7	13° 43.0	13° 42.2	13° 41.4	13° 40.6	13° 39.8	13° 39.0	13° 38.2	13° 37.4	-0.8
Пт 17	268° 57.1	283° 57.2	298° 57.4	313° 57.5	328° 57.6	343° 57.8	358° 57.9	13° 58.0	28° 58.2	43° 58.3	58° 58.4	73° 58.6	+0.1
	13° 27.1	13° 26.3	13° 25.5	13° 24.7	13° 23.9	13° 23.1	13° 22.3	13° 21.5	13° 20.7	13° 19.9	13° 19.1	13° 18.3	-0.8
Сб 18	269° 00.4	284° 00.5	299° 00.7	314° 00.8	329° 00.9	344° 01.1	359° 01.2	14° 01.4	29° 01.5	44° 01.6	59° 01.8	74° 01.9	+0.1
	13° 07.9	13° 07.1	13° 06.3	13° 05.5	13° 04.6	13° 03.8	13° 03.0	13° 02.2	13° 01.4	13° 00.6	12° 59.8	12° 59.0	-0.8
Вс 19	269° 03.8	284° 03.9	299° 04.1	314° 04.2	329° 04.4	344° 04.5	359° 04.7	14° 04.8	29° 04.9	44° 05.1	59° 05.2	74° 05.4	+0.1
	12° 48.4	12° 47.6	12° 46.8	12° 46.0	12° 45.2	12° 44.4	12° 43.5	12° 42.7	12° 41.9	12° 41.1	12° 40.3	12° 39.5	-0.8
Пн 20	269° 07.3	284° 07.5	299° 07.6	314° 07.8	329° 07.9	344° 08.1	359° 08.2	14° 08.4	29° 08.5	44° 08.7	59° 08.8	74° 09.0	+0.2
	12° 28.8	12° 28.0	12° 27.2	12° 26.3	12° 25.5	12° 24.7	12° 23.9	12° 23.0	12° 22.2	12° 21.4	12° 20.6	12° 19.7	-0.8
Вт 21	269° 11.0	284° 11.1	299° 11.3	314° 11.4	329° 11.6	344° 11.7	359° 11.9	14° 12.0	29° 12.2	44° 12.4	59° 12.5	74° 12.7	+0.2
	12° 09.0	12° 08.1	12° 07.3	12° 06.5	12° 05.6	12° 04.8	12° 04.0	12° 03.2	12° 02.3	12° 01.5	12° 00.7	11° 59.8	-0.8
Ср 22	269° 14.7	284° 14.9	299° 15.0	314° 15.2	329° 15.4	344° 15.5	359° 15.7	14° 15.8	29° 16.0	44° 16.2	59° 16.3	74° 16.5	+0.2
	11° 48.9	11° 48.1	11° 47.3	11° 46.4	11° 45.6	11° 44.8	11° 43.9	11° 43.1	11° 42.2	11° 41.4	11° 40.5	11° 39.7	-0.8
Чт 23	269° 18.6	284° 18.8	299° 18.9	314° 19.1	329° 19.3	344° 19.4	359° 19.6	14° 19.8	29° 19.9	44° 20.1	59° 20.2	74° 20.4	+0.2
	11° 28.7	11° 27.9	11° 27.0	11° 26.2	11° 25.3	11° 24.5	11° 23.7	11° 22.8	11° 22.0	11° 21.1	11° 20.3	11° 19.4	-0.8
Пт 24	269° 22.6	284° 22.7	299° 22.9	314° 23.1	329° 23.3	344° 23.4	359° 23.6	14° 23.8	29° 23.9	44° 24.1	59° 24.3	74° 24.4	+0.2
	11° 08.3	11° 07.5	11° 06.6	11° 05.8	11° 04.9	11° 04.1	11° 03.2	11° 02.4	11° 01.5	11° 00.6	10° 59.8	10° 58.9	-0.9
Сб 25	269° 26.7	284° 26.8	299° 27.0	314° 27.2	329° 27.4	344° 27.5	359° 27.7	14° 27.9	29° 28.0	44° 28.2	59° 28.4	74° 28.6	+0.2
	10° 47.8	10° 46.9	10° 46.0	10° 45.2	10° 44.3	10° 43.5	10° 42.6	10° 41.7	10° 40.9	10° 40.0	10° 39.1	10° 38.3	-0.9
Вс 26	269° 30.8	284° 31.0	299° 31.2	314° 31.4	329° 31.5	344° 31.7	359° 31.9	14° 32.1	29° 32.3	44° 32.4	59° 32.6	74° 32.8	+0.2
	10° 27.0	10° 26.2	10° 25.3	10° 24.4	10° 23.6	10° 22.7	10° 21.8	10° 20.9	10° 20.1	10° 19.2	10° 18.3	10° 17.5	-0.9
Пн 27	269° 35.1	284° 35.3	299° 35.5	314° 35.7	329° 35.8	344° 36.0	359° 36.2	14° 36.4	29° 36.6	44° 36.7	59° 36.9	74° 37.1	+0.2
	10° 06.1	10° 05.2	10° 04.4	10° 03.5	10° 02.6	10° 01.7	10° 00.9	10° 00.0	9° 59.1	9° 58.2	9° 57.4	9° 56.5	-0.9
Вт 28	269° 39.5	284° 39.7	299° 39.8	314° 40.0	329° 40.2	344° 40.4	359° 40.6	14° 40.8	29° 41.0	44° 41.1	59° 41.3	74° 41.5	+0.2
	9° 45.0	9° 44.2	9° 43.3	9° 42.4	9° 41.5	9° 40.6	9° 39.7	9° 38.9	9° 38.0	9° 37.1	9° 36.2	9° 35.3	-0.9
Ср 29	269° 43.9	284° 44.1	299° 44.3	314° 44.5	329° 44.7	344° 44.9	359° 45.1	14° 45.2	29° 45.4	44° 45.6	59° 45.8	74° 46.0	+0.2
	9° 23.8	9° 22.9	9° 22.0	9° 21.1	9° 20.3	9° 19.4	9° 18.5	9° 17.6	9° 16.7	9° 15.8	9° 14.9	9° 14.0	-0.9
Чт 30	269° 48.5	284° 48.7	299° 48.8	314° 49.0	329° 49.2	344° 49.4	359° 49.6	14° 49.8	29° 50.0	44° 50.2	59° 50.4	74° 50.6	+0.2
	9° 02.4	9° 01.5	9° 00.6	8° 59.8	8° 58.9	8° 58.0	8° 57.1	8° 56.2	8° 55.3	8° 54.4	8° 53.5	8° 52.6	-0.9
Пт 31	269° 53.1	284° 53.3	299° 53.5	314° 53.7	329° 53.8	344° 54.0	359° 54.2	14° 54.4	29° 54.6	44° 54.8	59° 55.0	74° 55.2	+0.2
	8° 40.9	8° 40.0	8° 39.1	8° 38.2	8° 37.3	8° 36.4	8° 35.5	8° 34.6	8° 33.7	8° 32.8	8° 31.9	8° 31.0	-0.9

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.8'

ЛУНА

Август 2035

Д	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	R/p
Ср 1	247° 30.6	261° 53.8	276° 17.0	290° 40.2	305° 03.3	319° 26.4	333° 49.5	348° 12.6	2° 35.7	16° 58.8	31° 21.8	+23.1	16.5
	18° 43.9	18° 44.8	18° 45.6	18° 46.2	18° 46.7	18° 47.0	18° 47.3	18° 47.4	18° 47.3	18° 47.1	18° 46.8	+0.3	60.6
Чт 2	247° 07.4	261° 30.5	275° 53.7	290° 16.8	304° 40.0	319° 03.2	333° 26.4	347° 49.6	2° 12.9	16° 36.2	30° 59.5	+23.2	16.6
	18° 25.4	18° 22.9	18° 20.2	18° 17.5	18° 14.5	18° 11.5	18° 08.3	18° 05.0	18° 01.5	17° 58.0	17° 54.2	-3.1	60.7
● Пт 3	246° 54.0	261° 18.0	275° 42.0	290° 06.1	304° 30.3	318° 54.5	333° 18.8	347° 43.1	2° 07.5	16° 32.0	30° 56.5	+24.2	16.5
	16° 43.5	16° 37.8	16° 32.0	16° 26.1	16° 20.0	16° 13.9	16° 07.6	16° 01.3	15° 54.8	15° 48.2	15° 41.5	-6.2	60.5
Сб 4	247° 12.0	261° 37.6	276° 03.3	290° 29.0	304° 54.8	319° 20.7	333° 46.7	348° 12.7	2° 38.8	17° 05.0	31° 31.2	+25.9	16.4
	13° 49.3	13° 41.1	13° 32.8	13° 24.4	13° 16.0	13° 07.4	12° 58.8	12° 50.1	12° 41.3	12° 32.5	12° 23.6	-8.8	60.0
Вс 5	248° 13.9	262° 41.4	277° 08.9	291° 36.5	306° 04.2	320° 31.9	334° 59.7	349° 27.6	3° 55.6	18° 23.6	32° 51.7	+27.8	16.2
	10° 02.0	9° 52.1	9° 42.2	9° 32.2	9° 22.1	9° 12.1	9° 01.9	8° 51.8	8° 41.6	8° 31.3	8° 21.0	-10.1	59.3
Пн 6	250° 01.5	264° 30.7	279° 00.0	293° 29.3	307° 58.7	322° 28.1	336° 57.6	351° 27.2	5° 56.8	20° 26.5	34° 56.2	+29.5	15.9
	5° 43.1	5° 32.4	5° 21.6	5° 10.9	5° 00.1	4° 49.3	4° 38.5	4° 27.7	4° 16.9	4° 06.1	3° 55.3	-10.8	58.4
Вт 7	252° 29.0	266° 59.6	281° 30.2	296° 00.9	310° 31.7	325° 02.4	339° 33.3	354° 04.1	8° 35.1	23° 06.0	37° 37.0	+30.8	15.7
	1° 12.7	1° 01.9	0° 51.1	0° 40.3	0° 29.5	0° 18.8	0° 08.0	-0° 02.7	-0° 13.4	-0° 24.1	-0° 34.8	-10.8	57.5
Ср 8	255° 26.6	269° 58.1	284° 29.7	299° 01.4	313° 33.0	328° 04.7	342° 36.4	357° 08.2	11° 40.0	26° 11.7	40° 43.6	+31.7	15.4
	-3° 12.5	-3° 22.8	-3° 33.1	-3° 43.3	-3° 53.6	-4° 03.7	-4° 13.9	-4° 24.0	-4° 34.1	-4° 44.1	-4° 54.2	-10.2	56.6
Чт 9	258° 43.3	273° 15.4	287° 47.6	302° 19.7	316° 51.9	331° 24.0	345° 56.2	0° 28.4	15° 00.6	29° 32.8	44° 05.1	+32.2	15.2
	-7° 19.7	-7° 29.0	-7° 38.3	-7° 47.6	-7° 56.8	-8° 06.0	-8° 15.2	-8° 24.2	-8° 33.3	-8° 42.3	-8° 51.2	-9.2	55.8
◐ Пт 10	262° 09.0	276° 41.3	291° 13.6	305° 45.9	320° 18.2	334° 50.5	349° 22.7	3° 55.0	18° 27.3	32° 59.6	47° 31.9	+32.3	15.0
	-10° 58.9	-11° 07.0	-11° 15.0	-11° 23.0	-11° 30.9	-11° 38.7	-11° 46.5	-11° 54.3	-12° 01.9	-12° 09.5	-12° 17.1	-7.8	55.1
Сб 11	265° 35.2	280° 07.4	294° 39.6	309° 11.7	323° 43.8	338° 16.0	352° 48.1	7° 20.2	21° 52.3	36° 24.4	50° 56.4	+32.1	14.9
	-14° 02.6	-14° 09.2	-14° 15.6	-14° 22.0	-14° 28.3	-14° 34.5	-14° 40.7	-14° 46.8	-14° 52.9	-14° 58.8	-15° 04.7	-6.2	54.6
Вс 12	268° 56.0	283° 27.8	297° 59.7	312° 31.5	327° 03.3	341° 35.2	356° 06.9	10° 38.7	25° 10.5	39° 42.2	54° 14.0	+31.8	14.8
	-16° 24.5	-16° 29.2	-16° 33.9	-16° 38.4	-16° 42.9	-16° 47.4	-16° 51.7	-16° 56.0	-17° 00.2	-17° 04.3	-17° 08.3	-4.4	54.2
Пн 13	272° 08.3	286° 39.8	301° 11.3	315° 42.7	330° 14.2	344° 45.7	359° 17.1	13° 48.5	28° 19.9	42° 51.3	57° 22.7	+31.4	14.7
	-17° 59.3	-18° 02.0	-18° 04.7	-18° 07.3	-18° 09.8	-18° 12.2	-18° 14.5	-18° 16.8	-18° 19.0	-18° 21.1	-18° 23.1	-2.4	54.1
Вт 14	275° 12.1	289° 43.4	304° 14.6	318° 45.8	333° 16.9	347° 48.1	2° 19.3	16° 50.4	31° 21.6	45° 52.7	60° 23.9	+31.2	14.7
	-18° 42.9	-18° 43.6	-18° 44.1	-18° 44.6	-18° 45.0	-18° 45.3	-18° 45.5	-18° 45.6	-18° 45.6	-18° 45.6	-18° 45.4	-0.3	54.1
Ср 15	278° 10.3	292° 41.4	307° 12.4	321° 43.5	336° 14.6	350° 45.6	5° 16.7	19° 47.8	34° 18.8	48° 49.9	63° 20.9	+31.1	14.8
	-18° 32.9	-18° 31.4	-18° 29.8	-18° 28.1	-18° 26.3	-18° 24.4	-18° 22.4	-18° 20.4	-18° 18.2	-18° 16.0	-18° 13.7	+1.9	54.2
Чт 16	281° 07.0	295° 38.1	310° 09.3	324° 40.4	339° 11.5	353° 42.6	8° 13.7	22° 44.9	37° 16.0	51° 47.2	66° 18.3	+31.1	14.9
	-17° 28.8	-17° 25.1	-17° 21.4	-17° 17.5	-17° 13.6	-17° 09.6	-17° 05.5	-17° 01.3	-16° 57.1	-16° 52.7	-16° 48.3	+4.0	54.5
Пт 17	284° 06.6	298° 37.9	313° 09.2	327° 40.5	342° 11.9	356° 43.2	11° 14.5	25° 45.9	40° 17.2	54° 48.6	69° 20.0	+31.3	15.0
	-15° 32.5	-15° 26.8	-15° 21.1	-15° 15.3	-15° 09.4	-15° 03.4	-14° 57.3	-14° 51.2	-14° 45.0	-14° 38.7	-14° 32.4	+6.0	54.9
Сб 18	287° 11.9	301° 43.5	316° 15.0	330° 46.6	345° 18.2	359° 49.7	14° 21.3	28° 52.9	43° 24.6	57° 56.2	72° 27.8	+31.6	15.1
	-12° 48.8	-12° 41.3	-12° 33.8	-12° 26.2	-12° 18.6	-12° 10.9	-12° 03.1	-11° 55.3	-11° 47.4	-11° 39.5	-11° 31.5	+7.7	55.3
○ Вс 19	290° 23.2	304° 54.9	319° 26.7	333° 58.4	348° 30.2	3° 02.0	17° 33.7	32° 05.5	46° 37.3	61° 09.1	75° 40.9	+31.8	15.2
	-9° 24.6	-9° 15.7	-9° 06.7	-8° 57.8	-8° 48.7	-8° 39.7	-8° 30.5	-8° 21.4	-8° 12.1	-8° 02.9	-7° 53.6	+9.1	55.8
Пн 20	293° 37.6	308° 09.4	322° 41.2	337° 13.0	351° 44.7	6° 16.5	20° 48.2	35° 20.0	49° 51.7	64° 23.4	78° 55.1	+31.8	15.3
	-5° 29.2	-5° 19.2	-5° 09.3	-4° 59.3	-4° 49.3	-4° 39.3	-4° 29.2	-4° 19.1	-4° 09.0	-3° 58.8	-3° 48.6	+10.1	56.3
Вт 21	296° 49.6	311° 21.1	325° 52.6	340° 24.1	354° 55.6	9° 27.0	23° 58.5	38° 29.9	53° 01.3	67° 32.6	82° 04.0	+31.4	15.5
	-1° 13.4	-1° 03.0	-0° 52.5	-0° 42.0	-0° 31.4	-0° 20.9	-0° 10.4	0° 00.1	0° 10.7	0° 21.2	0° 31.8	+10.5	56.8
Ср 22	299° 51.1	314° 22.0	328° 52.9	343° 23.8	357° 54.6	12° 25.4	26° 56.1	41° 26.8	55° 57.5	70° 28.1	84° 58.7	+30.8	15.6
	3° 10.2	3° 20.7	3° 31.2	3° 41.7	3° 52.2	4° 02.7	4° 13.2	4° 23.6	4° 34.0	4° 44.5	4° 54.9	+10.5	57.3
Чт 23	314° 22.0	328° 52.9	343° 23.8	357° 54.6	12° 25.4	26° 56.1	41° 26.8	55° 57.5	70° 28.1	84° 58.7	99° 29.3	+30.7	15.6
	3° 20.7	3° 31.2	3° 41.7	3° 52.2	4° 02.7	4° 13.2	4° 23.6	4° 34.0	4° 44.5	4° 54.9	5° 05.2	+10.5	57.4
Пт 24	317° 02.9	331° 32.7	346° 02.6	0° 32.4	15° 02.1	29° 31.8	44° 01.4	58° 31.0	73° 00.6	87° 30.0	101° 59.5	+29.7	15.8
	7° 38.1	7° 48.0	7° 57.9	8° 07.8	8° 17.7	8° 27.5	8° 37.3	8° 47.0	8° 56.7	9° 06.3	9° 15.9	+9.8	57.9
Сб 25	319° 14.5	333° 43.1	348° 11.6	2° 40.0	17° 08.4	31° 36.7	46° 05.0	60° 33.2	75° 01.3	89° 29.4	103° 57.4	+28.3	15.9
	11° 34.1	11° 42.8	11° 51.6	12° 00.2	12° 08.8	12° 17.3	12° 25.8	12° 34.2	12° 42.5	12° 50.7	12° 58.9	+8.5	58.4
◑ Вс 26	320° 50.4	335° 17.4	349° 44.4	4° 11.3	18° 38.2	33° 05.0	47° 31.7	61° 58.4	76° 25.0	90° 51.6	105° 18.1	+26.8	16.1
	14° 52.7	14° 59.6	15° 06.5	15° 13.2	15° 19.9	15° 26.5	15° 33.0	15° 39.4	15° 45.7	15° 51.9	15° 58.0	+6.5	58.9
Пн 27	321° 48.7	336° 14.3	350° 39.9	5° 05.4	19° 30.8	33° 56.2	48° 21.6	62° 46.9	77° 12.2	91° 37.4	106° 02.6	+25.4	16.2
	17° 17.8	17° 22.2	17° 26.6	17° 30.8	17° 35.0	17° 39.0	17° 42.9	17° 46.7	17° 50.4	17° 54.0	17° 57.4	+4.0	59.3
Вт 28	322° 15.3	336° 39.9	351° 04.5	5° 29.0	19° 53.5	34° 17.9	48° 42.4	63° 06.8	77° 31.2	91° 55.6	106° 19.9	+24.5	16.3
	18° 34.9	18° 36.4	18° 37.8	18° 39.0	18° 40.2	18° 41.2	18° 42.0	18° 42.8	18° 43.4	18° 43.9	18° 44.3	+0.9	59.7
Ср 29	322° 24.0	336° 48.2	351° 12.4	5° 36.7	20° 00.9	34° 25.2	48° 49.4	63° 13.7	77° 38.0	92° 02.3	106° 26.6	+24.3	16.3
	18° 34.3	18° 32.6	18° 30.8	18° 28.9	18° 26.8	18° 24.6	18° 22.2	18° 19.8	18° 17.2	18° 14.4	18° 11.6	-2.3	59.9
Чт 30	322° 33.5	336° 58.2	351° 22.9	5° 47.6	20° 12.4	34° 37.2	49° 02.0	63° 26.9	77° 51.8	92° 16.8	106° 41.8	+24.8	16.3
	17° 14.0	17° 09.2	17° 04.3	16° 59.3	16° 54.1	16° 48.9	16° 43.5	16° 38.0	16° 32.4	16° 26.7	16° 20.8	-5.3	59.9
Пт 31	323° 02.3	337° 28.0	351° 53.8	6° 19.7	20° 45.6	35° 11.6	49° 37.6	64° 03.7	78° 29.8	92° 56.0	107° 22.3	+26.0	16.3
	14° 40.8	14° 33.4	14° 25.8	14° 18.2	14° 10.4	14° 02.6	13° 54.7	13° 46.7	13° 38.6	13° 30.4	13° 22.2	-7.9	59.7

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 3 17h11 — Первая четв.: 10 21h52 — Полнолуние: 19 01h00 — Последняя четв.: 26 09h08

СОЛНЦЕ

Сентябрь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	269° 57.8 8° 19.2	284° 58.0 8° 18.3	299° 58.2 8° 17.4	314° 58.4 8° 16.5	329° 58.6 8° 15.6	344° 58.8 8° 14.7	359° 58.9 8° 13.8	14° 59.1 8° 12.9	29° 59.3 8° 12.0	44° 59.5 8° 11.1	59° 59.7 8° 10.2	74° 59.9 8° 09.3	+0.2 -0.9
Вс 2	270° 02.5 7° 57.5	285° 02.7 7° 56.5	300° 02.9 7° 55.6	315° 03.1 7° 54.7	330° 03.3 7° 53.8	345° 03.5 7° 52.9	0° 03.7 7° 52.0	15° 03.9 7° 51.1	30° 04.1 7° 50.2	45° 04.3 7° 49.2	60° 04.5 7° 48.3	75° 04.7 7° 47.4	+0.2 -0.9
Пн 3	270° 07.4 7° 35.5	285° 07.6 7° 34.6	300° 07.8 7° 33.7	315° 08.0 7° 32.8	330° 08.2 7° 31.9	345° 08.4 7° 30.9	0° 08.6 7° 30.0	15° 08.8 7° 29.1	30° 09.0 7° 28.2	45° 09.2 7° 27.3	60° 09.4 7° 26.4	75° 09.6 7° 25.4	+0.2 -0.9
Вт 4	270° 12.3 7° 13.5	285° 12.5 7° 12.6	300° 12.7 7° 11.6	315° 12.9 7° 10.7	330° 13.1 7° 09.8	345° 13.3 7° 08.9	0° 13.5 7° 08.0	15° 13.7 7° 07.0	30° 13.9 7° 06.1	45° 14.1 7° 05.2	60° 14.3 7° 04.3	75° 14.5 7° 03.3	+0.2 -0.9
Ср 5	270° 17.2 6° 51.3	285° 17.4 6° 50.4	300° 17.7 6° 49.5	315° 17.9 6° 48.5	330° 18.1 6° 47.6	345° 18.3 6° 46.7	0° 18.5 6° 45.8	15° 18.7 6° 44.8	30° 18.9 6° 43.9	45° 19.1 6° 43.0	60° 19.3 6° 42.0	75° 19.5 6° 41.1	+0.2 -0.9
Чт 6	270° 22.3 6° 29.0	285° 22.5 6° 28.1	300° 22.7 6° 27.2	315° 22.9 6° 26.3	330° 23.1 6° 25.3	345° 23.3 6° 24.4	0° 23.5 6° 23.5	15° 23.7 6° 22.5	30° 24.0 6° 21.6	45° 24.2 6° 20.7	60° 24.4 6° 19.7	75° 24.6 6° 18.8	+0.2 -0.9
Пт 7	270° 27.4 6° 06.7	285° 27.6 6° 05.7	300° 27.8 6° 04.8	315° 28.0 6° 03.9	330° 28.2 6° 02.9	345° 28.4 6° 02.0	0° 28.6 6° 01.1	15° 28.8 6° 00.1	30° 29.1 5° 59.2	45° 29.3 5° 58.2	60° 29.5 5° 57.3	75° 29.7 5° 56.4	+0.2 -0.9
Сб 8	270° 32.5 5° 44.2	285° 32.7 5° 43.2	300° 32.9 5° 42.3	315° 33.1 5° 41.4	330° 33.4 5° 40.4	345° 33.6 5° 39.5	0° 33.8 5° 38.5	15° 34.0 5° 37.6	30° 34.2 5° 36.7	45° 34.4 5° 35.7	60° 34.6 5° 34.8	75° 34.9 5° 33.8	+0.2 -0.9
Вс 9	270° 37.7 5° 21.6	285° 37.9 5° 20.7	300° 38.1 5° 19.7	315° 38.3 5° 18.8	330° 38.5 5° 17.8	345° 38.8 5° 16.9	0° 39.0 5° 15.9	15° 39.2 5° 15.0	30° 39.4 5° 14.1	45° 39.6 5° 13.1	60° 39.9 5° 12.2	75° 40.1 5° 11.2	+0.2 -0.9
Пн 10	270° 42.9 4° 58.9	285° 43.1 4° 58.0	300° 43.3 4° 57.0	315° 43.6 4° 56.1	330° 43.8 4° 55.2	345° 44.0 4° 54.2	0° 44.2 4° 53.3	15° 44.4 4° 52.3	30° 44.7 4° 51.4	45° 44.9 4° 50.4	60° 45.1 4° 49.5	75° 45.3 4° 48.5	+0.2 -0.9
Вт 11	270° 48.2 4° 36.2	285° 48.4 4° 35.2	300° 48.6 4° 34.3	315° 48.8 4° 33.3	330° 49.1 4° 32.4	345° 49.3 4° 31.4	0° 49.5 4° 30.5	15° 49.7 4° 29.5	30° 49.9 4° 28.6	45° 50.2 4° 27.6	60° 50.4 4° 26.7	75° 50.6 4° 25.7	+0.2 -1.0
Ср 12	270° 53.5 4° 13.4	285° 53.7 4° 12.4	300° 53.9 4° 11.5	315° 54.1 4° 10.5	330° 54.4 4° 09.6	345° 54.6 4° 08.6	0° 54.8 4° 07.7	15° 55.0 4° 06.7	30° 55.3 4° 05.7	45° 55.5 4° 04.8	60° 55.7 4° 03.8	75° 55.9 4° 02.9	+0.2 -1.0
Чт 13	270° 58.8 3° 50.5	285° 59.0 3° 49.5	300° 59.3 3° 48.6	315° 59.5 3° 47.6	330° 59.7 3° 46.6	345° 59.9 3° 45.7	1° 00.1 3° 44.7	16° 00.4 3° 43.8	31° 00.6 3° 42.8	46° 00.8 3° 41.9	61° 01.0 3° 40.9	76° 01.3 3° 40.0	+0.2 -1.0
Пт 14	271° 04.2 3° 27.5	286° 04.4 3° 26.5	301° 04.6 3° 25.6	316° 04.8 3° 24.6	331° 05.1 3° 23.7	346° 05.3 3° 22.7	1° 05.5 3° 21.8	16° 05.7 3° 20.8	31° 06.0 3° 19.8	46° 06.2 3° 18.9	61° 06.4 3° 17.9	76° 06.6 3° 17.0	+0.2 -1.0
Сб 15	271° 09.5 3° 04.5	286° 09.8 3° 03.5	301° 10.0 3° 02.6	316° 10.2 3° 01.6	331° 10.4 3° 00.6	346° 10.7 2° 59.7	1° 10.9 2° 58.7	16° 11.1 2° 57.8	31° 11.3 2° 56.8	46° 11.6 2° 55.8	61° 11.8 2° 54.9	76° 12.0 2° 53.9	+0.2 -1.0
Вс 16	271° 14.9 2° 41.4	286° 15.1 2° 40.4	301° 15.4 2° 39.5	316° 15.6 2° 38.5	331° 15.8 2° 37.5	346° 16.0 2° 36.6	1° 16.3 2° 35.6	16° 16.5 2° 34.7	31° 16.7 2° 33.7	46° 16.9 2° 32.7	61° 17.2 2° 31.8	76° 17.4 2° 30.8	+0.2 -1.0
Пн 17	271° 20.3 2° 18.3	286° 20.5 2° 17.3	301° 20.8 2° 16.3	316° 21.0 2° 15.4	331° 21.2 2° 14.4	346° 21.4 2° 13.4	1° 21.7 2° 12.5	16° 21.9 2° 11.5	31° 22.1 2° 10.5	46° 22.3 2° 09.6	61° 22.6 2° 08.6	76° 22.8 2° 07.6	+0.2 -1.0
Вт 18	271° 25.7 1° 55.1	286° 25.9 1° 54.1	301° 26.1 1° 53.1	316° 26.4 1° 52.2	331° 26.6 1° 51.2	346° 26.8 1° 50.2	1° 27.0 1° 49.3	16° 27.3 1° 48.3	31° 27.5 1° 47.3	46° 27.7 1° 46.4	61° 27.9 1° 45.4	76° 28.2 1° 44.4	+0.2 -1.0
Ср 19	271° 31.1 1° 31.9	286° 31.3 1° 30.9	301° 31.5 1° 29.9	316° 31.8 1° 29.0	331° 32.0 1° 28.0	346° 32.2 1° 27.0	1° 32.4 1° 26.0	16° 32.7 1° 25.1	31° 32.9 1° 24.1	46° 33.1 1° 23.1	61° 33.3 1° 22.2	76° 33.5 1° 21.2	+0.2 -1.0
Чт 20	271° 36.5 1° 08.6	286° 36.7 1° 07.6	301° 36.9 1° 06.7	316° 37.1 1° 05.7	331° 37.4 1° 04.7	346° 37.6 1° 03.8	1° 37.8 1° 02.8	16° 38.0 1° 01.8	31° 38.2 1° 00.8	46° 38.5 0° 59.9	61° 38.7 0° 58.9	76° 38.9 0° 57.9	+0.2 -1.0
Пт 21	271° 41.8 0° 45.3	286° 42.0 0° 44.3	301° 42.3 0° 43.4	316° 42.5 0° 42.4	331° 42.7 0° 41.4	346° 42.9 0° 40.5	1° 43.1 0° 39.5	16° 43.4 0° 38.5	31° 43.6 0° 37.5	46° 43.8 0° 36.6	61° 44.0 0° 35.6	76° 44.3 0° 34.6	+0.2 -1.0
Сб 22	271° 47.1 0° 22.0	286° 47.4 0° 21.0	301° 47.6 0° 20.1	316° 47.8 0° 19.1	331° 48.0 0° 18.1	346° 48.3 0° 17.1	1° 48.5 0° 16.2	16° 48.7 0° 15.2	31° 48.9 0° 14.2	46° 49.1 0° 13.3	61° 49.4 0° 12.3	76° 49.6 0° 11.3	+0.2 -1.0
Вс 23	271° 52.4 -0° 01.3	286° 52.7 -0° 02.3	301° 52.9 -0° 03.3	316° 53.1 -0° 04.2	331° 53.3 -0° 05.2	346° 53.5 -0° 06.2	1° 53.8 -0° 07.2	16° 54.0 -0° 08.1	31° 54.2 -0° 09.1	46° 54.4 -0° 10.1	61° 54.6 -0° 11.1	76° 54.9 -0° 12.0	+0.2 -1.0
Пн 24	271° 57.7 -0° 24.7	286° 57.9 -0° 25.6	301° 58.2 -0° 26.6	316° 58.4 -0° 27.6	331° 58.6 -0° 28.6	346° 58.8 -0° 29.5	1° 59.0 -0° 30.5	16° 59.2 -0° 31.5	31° 59.5 -0° 32.5	46° 59.7 -0° 33.4	61° 59.9 -0° 34.4	77° 00.1 -0° 35.4	+0.2 -1.0
Вт 25	272° 02.9 -0° 48.0	287° 03.2 -0° 49.0	302° 03.4 -0° 50.0	317° 03.6 -0° 50.9	332° 03.8 -0° 51.9	347° 04.0 -0° 52.9	2° 04.2 -0° 53.9	17° 04.5 -0° 54.8	32° 04.7 -0° 55.8	47° 04.9 -0° 56.8	62° 05.1 -0° 57.8	77° 05.3 -0° 58.7	+0.2 -1.0
Ср 26	272° 08.1 -1° 11.4	287° 08.3 -1° 12.4	302° 08.6 -1° 13.3	317° 08.8 -1° 14.3	332° 09.0 -1° 15.3	347° 09.2 -1° 16.3	2° 09.4 -1° 17.2	17° 09.6 -1° 18.2	32° 09.8 -1° 19.2	47° 10.1 -1° 20.1	62° 10.3 -1° 21.1	77° 10.5 -1° 22.1	+0.2 -1.0
Чт 27	272° 13.3 -1° 34.7	287° 13.5 -1° 35.7	302° 13.7 -1° 36.7	317° 13.9 -1° 37.7	332° 14.1 -1° 38.6	347° 14.3 -1° 39.6	2° 14.5 -1° 40.6	17° 14.7 -1° 41.6	32° 15.0 -1° 42.5	47° 15.2 -1° 43.5	62° 15.4 -1° 44.5	77° 15.6 -1° 45.4	+0.2 -1.0
Пт 28	272° 18.3 -1° 58.1	287° 18.5 -1° 59.1	302° 18.7 -2° 00.0	317° 19.0 -2° 01.0	332° 19.2 -2° 02.0	347° 19.4 -2° 03.0	2° 19.6 -2° 03.9	17° 19.8 -2° 04.9	32° 20.0 -2° 05.9	47° 20.2 -2° 06.8	62° 20.4 -2° 07.8	77° 20.6 -2° 08.8	+0.2 -1.0
Сб 29	272° 23.3 -2° 21.4	287° 23.6 -2° 22.4	302° 23.8 -2° 23.4	317° 24.0 -2° 24.3	332° 24.2 -2° 25.3	347° 24.4 -2° 26.3	2° 24.6 -2° 27.2	17° 24.8 -2° 28.2	32° 25.0 -2° 29.2	47° 25.2 -2° 30.2	62° 25.4 -2° 31.1	77° 25.6 -2° 32.1	+0.2 -1.0
Вс 30	272° 28.3 -2° 44.7	287° 28.5 -2° 45.7	302° 28.7 -2° 46.7	317° 28.9 -2° 47.6	332° 29.1 -2° 48.6	347° 29.3 -2° 49.6	2° 29.5 -2° 50.6	17° 29.7 -2° 51.5	32° 29.9 -2° 52.5	47° 30.1 -2° 53.5	62° 30.3 -2° 54.4	77° 30.5 -2° 55.4	+0.2 -1.0

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 15.9'

ЛУНА

Сентябрь 2035

Д	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	R/p
Сб 1	251° 47.9 11° 55.3	266° 14.8 11° 46.2	280° 41.7 11° 37.0	295° 08.7 11° 27.8	309° 35.8 11° 18.5	324° 02.9 11° 09.2	338° 30.1 10° 59.7	352° 57.3 10° 50.3	7° 24.6 10° 40.7	21° 52.0 10° 31.1	36° 19.4 10° 21.5	+27.2 -9.4	16.2 59.4
● Вс 2	253° 17.8 7° 50.5	267° 46.2 7° 40.1	282° 14.6 7° 29.6	296° 43.1 7° 19.2	311° 11.6 7° 08.6	325° 40.2 6° 58.1	340° 08.8 6° 47.5	354° 37.5 6° 36.9	9° 06.2 6° 26.3	23° 35.1 6° 15.6	38° 03.9 6° 04.9	+28.6 -10.6	16.0 58.8
Пн 3	255° 23.0 3° 22.4	269° 52.7 3° 11.5	284° 22.4 3° 00.5	298° 52.2 2° 49.6	313° 22.0 2° 38.6	327° 51.8 2° 27.7	342° 21.7 2° 16.7	356° 51.7 2° 05.8	11° 21.7 1° 54.8	25° 51.7 1° 43.9	40° 21.8 1° 32.9	+29.9 -11.0	15.9 58.1
Вт 4	257° 57.6 -1° 10.2	272° 28.3 -1° 21.0	286° 59.0 -1° 31.7	301° 29.8 -1° 42.4	316° 00.6 -1° 53.1	330° 31.4 -2° 03.8	345° 02.2 -2° 14.4	359° 33.1 -2° 25.1	14° 04.0 -2° 35.7	28° 34.9 -2° 46.3	43° 05.9 -2° 56.8	+30.8 -10.7	15.6 57.3
Ср 5	260° 53.5 -5° 31.3	275° 24.8 -5° 41.3	289° 56.2 -5° 51.3	304° 27.6 -6° 01.2	318° 59.0 -6° 11.1	333° 30.4 -6° 21.0	348° 01.9 -6° 30.8	2° 33.3 -6° 40.5	17° 04.8 -6° 50.2	31° 36.3 -6° 59.9	46° 07.8 -7° 09.6	+31.4 -9.8	15.4 56.5
Чт 6	264° 02.1 -9° 28.2	278° 33.8 -9° 37.0	293° 05.5 -9° 45.8	307° 37.2 -9° 54.5	322° 08.9 -10° 03.1	336° 40.6 -10° 11.7	351° 12.4 -10° 20.3	5° 44.1 -10° 28.8	20° 15.9 -10° 37.2	34° 47.6 -10° 45.6	49° 19.4 -10° 53.9	+31.7 -8.6	15.2 55.8
Пт 7	267° 15.9 -12° 51.1	281° 47.7 -12° 58.4	296° 19.5 -13° 05.7	310° 51.3 -13° 12.8	325° 23.0 -13° 19.9	339° 54.8 -13° 27.0	354° 26.6 -13° 33.9	8° 58.3 -13° 40.8	23° 30.1 -13° 47.6	38° 01.9 -13° 54.4	52° 33.6 -14° 01.1	+31.8 -7.0	15.0 55.1
Сб 8	270° 29.4 -15° 32.8	285° 01.0 -15° 38.3	299° 32.7 -15° 43.8	314° 04.4 -15° 49.2	328° 36.0 -15° 54.5	343° 07.7 -15° 59.7	357° 39.3 -16° 04.8	12° 10.9 -16° 09.9	26° 42.6 -16° 14.9	41° 14.2 -16° 19.8	55° 45.8 -16° 24.6	+31.6 -5.2	14.9 54.6
◐ Вс 9	273° 38.9 -17° 27.7	288° 10.4 -17° 31.3	302° 41.9 -17° 34.8	317° 13.3 -17° 38.2	331° 44.8 -17° 41.5	346° 16.2 -17° 44.7	0° 47.7 -17° 47.9	15° 19.1 -17° 50.9	29° 50.5 -17° 53.9	44° 21.9 -17° 56.8	58° 53.3 -17° 59.7	+31.4 -3.2	14.8 54.3
Пн 10	276° 43.5 -18° 31.9	291° 14.8 -18° 33.4	305° 46.1 -18° 34.8	320° 17.3 -18° 36.1	334° 48.6 -18° 37.3	349° 19.9 -18° 38.4	3° 51.1 -18° 39.5	18° 22.4 -18° 40.4	32° 53.6 -18° 41.3	47° 24.9 -18° 42.1	61° 56.1 -18° 42.8	+31.3 -1.1	14.8 54.2
Вт 11	279° 44.1 -18° 42.9	294° 15.2 -18° 42.2	308° 46.4 -18° 41.5	323° 17.6 -18° 40.6	337° 48.7 -18° 39.7	352° 19.9 -18° 38.6	6° 51.0 -18° 37.5	21° 22.2 -18° 36.3	35° 53.3 -18° 35.0	50° 24.5 -18° 33.6	64° 55.6 -18° 32.2	+31.2 +1.1	14.8 54.2
Ср 12	282° 42.9 -17° 59.9	297° 14.1 -17° 57.0	311° 45.2 -17° 54.1	326° 16.4 -17° 51.1	340° 47.6 -17° 48.0	355° 18.7 -17° 44.8	9° 49.9 -17° 41.6	24° 21.1 -17° 38.2	38° 52.3 -17° 34.8	53° 23.4 -17° 31.3	67° 54.6 -17° 27.7	+31.2 +3.2	14.8 54.4
Чт 13	285° 42.8 -16° 23.8	300° 14.0 -16° 18.8	314° 45.3 -16° 13.9	329° 16.5 -16° 08.8	343° 47.8 -16° 03.6	358° 19.0 -15° 58.4	12° 50.3 -15° 53.1	27° 21.6 -15° 47.7	41° 52.9 -15° 42.2	56° 24.1 -15° 36.7	70° 55.4 -15° 31.1	+31.3 +5.3	14.9 54.8
Пт 14	288° 45.4 -13° 57.7	303° 16.8 -13° 50.9	317° 48.2 -13° 44.0	332° 19.5 -13° 37.1	346° 50.9 -13° 30.0	1° 22.3 -13° 22.9	15° 53.7 -13° 15.8	30° 25.1 -13° 08.6	44° 56.5 -13° 01.3	59° 27.9 -12° 53.9	73° 59.3 -12° 46.4	+31.4 +7.1	15.1 55.3
Сб 15	291° 50.9 -10° 47.2	306° 22.4 -10° 38.7	320° 53.9 -10° 30.2	335° 25.3 -10° 21.7	349° 56.8 -10° 13.0	4° 28.2 -10° 04.4	18° 59.7 -9° 55.6	33° 31.2 -9° 46.8	48° 02.6 -9° 38.0	62° 34.1 -9° 29.1	77° 05.6 -9° 20.2	+31.5 +8.7	15.2 55.9
Вс 16	294° 57.2 -6° 59.9	309° 28.6 -6° 50.2	324° 00.0 -6° 40.5	338° 31.4 -6° 30.7	353° 02.8 -6° 20.8	7° 34.2 -6° 10.9	22° 05.5 -6° 01.0	36° 36.9 -5° 51.1	51° 08.3 -5° 41.1	65° 39.6 -5° 31.1	80° 11.0 -5° 21.0	+31.4 +9.9	15.4 56.5
○ Пн 17	297° 59.7 -2° 46.3	312° 30.8 -2° 35.8	327° 01.9 -2° 25.2	341° 33.0 -2° 14.6	356° 04.1 -2° 04.1	10° 35.2 -1° 53.5	25° 06.2 -1° 42.8	39° 37.2 -1° 32.2	54° 08.3 -1° 21.5	68° 39.2 -1° 10.9	83° 10.2 -1° 00.2	+31.1 +10.6	15.6 57.0
Вт 18	300° 52.0 1° 41.2	315° 22.6 1° 52.0	329° 53.1 2° 02.8	344° 23.6 2° 13.6	358° 54.1 2° 24.4	13° 24.6 2° 35.1	27° 55.0 2° 45.9	42° 25.4 2° 56.7	56° 55.8 3° 07.4	71° 26.1 3° 18.2	85° 56.4 3° 28.9	+30.4 +10.8	15.7 57.6
Ср 19	303° 26.7 6° 08.0	317° 56.5 6° 18.4	332° 26.1 6° 28.8	346° 55.8 6° 39.2	1° 25.4 6° 49.5	15° 54.9 6° 59.8	30° 24.4 7° 10.1	44° 53.9 7° 20.4	59° 23.3 7° 30.6	73° 52.7 7° 40.8	88° 22.0 7° 50.9	+29.5 +10.3	15.8 58.1
Чт 20	305° 36.7 10° 17.8	320° 05.3 10° 27.2	334° 33.8 10° 36.5	349° 02.3 10° 45.8	3° 30.8 10° 55.1	17° 59.2 11° 04.2	32° 27.5 11° 13.3	46° 55.9 11° 22.4	61° 24.1 11° 31.4	75° 52.3 11° 40.3	90° 20.5 11° 49.2	+28.4 +9.1	15.9 58.5
Пт 21	320° 05.3 10° 27.2	334° 33.8 10° 36.5	349° 02.3 10° 45.8	3° 30.8 10° 55.1	17° 59.2 11° 04.2	32° 27.5 11° 13.3	46° 55.9 11° 22.4	61° 24.1 11° 31.4	75° 52.3 11° 40.3	90° 20.5 11° 49.2	104° 48.6 11° 58.0	+28.3 +9.1	16.0 58.5
Сб 22	321° 44.0 14° 01.4	336° 11.3 14° 09.0	350° 38.6 14° 16.5	5° 05.8 14° 23.9	19° 32.9 14° 31.3	34° 00.0 14° 38.6	48° 27.1 14° 45.8	62° 54.1 14° 52.9	77° 21.0 14° 59.9	91° 47.9 15° 06.8	106° 14.8 15° 13.6	+27.1 +7.2	16.0 58.8
Вс 23	322° 51.9 16° 44.5	337° 18.0 16° 49.8	351° 44.1 16° 54.9	6° 10.2 17° 00.0	20° 36.2 17° 04.9	35° 02.1 17° 09.8	49° 28.1 17° 14.5	63° 54.0 17° 19.1	78° 19.8 17° 23.6	92° 45.6 17° 28.0	107° 11.4 17° 32.3	+25.9 +4.8	16.1 59.0
◑ Пн 24	323° 34.2 18° 22.7	337° 59.5 18° 25.2	352° 24.8 18° 27.5	6° 50.0 18° 29.6	21° 15.3 18° 31.7	35° 40.5 18° 33.6	50° 05.7 18° 35.5	64° 30.9 18° 37.2	78° 56.0 18° 38.7	93° 21.2 18° 40.2	107° 46.3 18° 41.5	+25.2 +1.9	16.1 59.2
Вт 25	324° 02.3 18° 46.6	338° 27.3 18° 46.0	352° 52.3 18° 45.2	7° 17.4 18° 44.3	21° 42.4 18° 43.3	36° 07.5 18° 42.1	50° 32.6 18° 40.9	64° 57.6 18° 39.5	79° 22.7 18° 38.0	93° 47.8 18° 36.3	108° 12.9 18° 34.6	+25.1 -1.2	16.2 59.2
Ср 26	324° 31.5 17° 53.5	338° 56.9 17° 49.9	353° 22.4 17° 46.1	7° 47.8 17° 42.1	22° 13.3 17° 38.1	36° 38.9 17° 34.0	51° 04.4 17° 29.7	65° 30.0 17° 25.3	79° 55.6 17° 20.8	94° 21.3 17° 16.2	108° 47.0 17° 11.5	+25.5 -4.2	16.1 59.2
Чт 27	325° 16.8 15° 48.0	339° 43.1 15° 41.6	354° 09.5 15° 35.1	8° 35.9 15° 28.5	23° 02.4 15° 21.9	37° 28.8 15° 15.1	51° 55.4 15° 08.2	66° 22.0 15° 01.2	80° 48.6 14° 54.2	95° 15.3 14° 47.0	109° 42.0 14° 39.8	+26.5 -6.8	16.1 59.1
Пт 28	326° 28.7 12° 41.1	340° 56.2 12° 32.5	355° 23.8 12° 23.9	9° 51.4 12° 15.2	24° 19.1 12° 06.4	38° 46.8 11° 57.6	53° 14.5 11° 48.7	67° 42.3 11° 39.7	82° 10.2 11° 30.7	96° 38.1 11° 21.6	111° 06.1 11° 12.5	+27.7 -8.9	16.0 58.8
Сб 29	328° 11.4 8° 48.2	342° 40.1 8° 38.2	357° 08.9 8° 28.1	11° 37.8 8° 18.0	26° 06.6 8° 07.8	40° 35.6 7° 57.6	55° 04.5 7° 47.4	69° 33.6 7° 37.1	84° 02.6 7° 26.8	98° 31.7 7° 16.5	113° 00.9 7° 06.1	+29.0 -10.2	15.9 58.4
Вс 30	330° 23.3 4° 27.0	344° 53.1 4° 16.2	359° 23.0 4° 05.4	13° 52.8 3° 54.6	28° 22.8 3° 43.8	42° 52.7 3° 32.9	57° 22.7 3° 22.1	71° 52.8 3° 11.2	86° 22.8 3° 00.3	100° 53.0 2° 49.5	115° 23.1 2° 38.6	+30.0 -10.8	15.8 58.0

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 2 01h59 — Первая четв.: 9 14h47 — Полнолуние: 17 14h23 — Последняя четв.: 24 14h39

СОЛНЦЕ

Октябрь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Пн 1	272° 33.2 -3° 08.0	287° 33.4 -3° 09.0	302° 33.6 -3° 10.0	317° 33.8 -3° 10.9	332° 34.0 -3° 11.9	347° 34.2 -3° 12.9	2° 34.4 -3° 13.8	17° 34.6 -3° 14.8	32° 34.8 -3° 15.8	47° 35.0 -3° 16.7	62° 35.2 -3° 17.7	77° 35.4 -3° 18.7	+0.2 -1.0
Вт 2	272° 38.0 -3° 31.3	287° 38.2 -3° 32.2	302° 38.4 -3° 33.2	317° 38.6 -3° 34.2	332° 38.8 -3° 35.1	347° 39.0 -3° 36.1	2° 39.2 -3° 37.1	17° 39.4 -3° 38.0	32° 39.6 -3° 39.0	47° 39.8 -3° 40.0	62° 40.0 -3° 40.9	77° 40.2 -3° 41.9	+0.2 -1.0
Ср 3	272° 42.7 -3° 54.5	287° 42.9 -3° 55.4	302° 43.1 -3° 56.4	317° 43.3 -3° 57.4	332° 43.5 -3° 58.3	347° 43.7 -3° 59.3	2° 43.9 -4° 00.3	17° 44.1 -4° 01.2	32° 44.3 -4° 02.2	47° 44.5 -4° 03.2	62° 44.7 -4° 04.1	77° 44.9 -4° 05.1	+0.2 -1.0
Чт 4	272° 47.4 -4° 17.6	287° 47.6 -4° 18.6	302° 47.8 -4° 19.6	317° 48.0 -4° 20.5	332° 48.2 -4° 21.5	347° 48.4 -4° 22.5	2° 48.5 -4° 23.4	17° 48.7 -4° 24.4	32° 48.9 -4° 25.3	47° 49.1 -4° 26.3	62° 49.3 -4° 27.3	77° 49.5 -4° 28.2	+0.2 -1.0
Пт 5	272° 52.0 -4° 40.8	287° 52.2 -4° 41.7	302° 52.4 -4° 42.7	317° 52.5 -4° 43.6	332° 52.7 -4° 44.6	347° 52.9 -4° 45.6	2° 53.1 -4° 46.5	17° 53.3 -4° 47.5	32° 53.5 -4° 48.4	47° 53.7 -4° 49.4	62° 53.9 -4° 50.4	77° 54.0 -4° 51.3	+0.2 -1.0
Сб 6	272° 56.5 -5° 03.8	287° 56.6 -5° 04.8	302° 56.8 -5° 05.7	317° 57.0 -5° 06.7	332° 57.2 -5° 07.6	347° 57.4 -5° 08.6	2° 57.6 -5° 09.6	17° 57.8 -5° 10.5	32° 57.9 -5° 11.5	47° 58.1 -5° 12.4	62° 58.3 -5° 13.4	77° 58.5 -5° 14.4	+0.2 -1.0
Вс 7	273° 00.9 -5° 26.8	288° 01.0 -5° 27.8	303° 01.2 -5° 28.7	318° 01.4 -5° 29.7	333° 01.6 -5° 30.6	348° 01.8 -5° 31.6	3° 01.9 -5° 32.5	18° 02.1 -5° 33.5	33° 02.3 -5° 34.4	48° 02.5 -5° 35.4	63° 02.7 -5° 36.4	78° 02.8 -5° 37.3	+0.2 -1.0
Пн 8	273° 05.2 -5° 49.7	288° 05.3 -5° 50.7	303° 05.5 -5° 51.6	318° 05.7 -5° 52.6	333° 05.9 -5° 53.5	348° 06.0 -5° 54.5	3° 06.2 -5° 55.4	18° 06.4 -5° 56.4	33° 06.6 -5° 57.3	48° 06.7 -5° 58.3	63° 06.9 -5° 59.2	78° 07.1 -6° 00.2	+0.2 -1.0
Вт 9	273° 09.3 -6° 12.6	288° 09.5 -6° 13.5	303° 09.7 -6° 14.5	318° 09.9 -6° 15.4	333° 10.0 -6° 16.4	348° 10.2 -6° 17.3	3° 10.4 -6° 18.3	18° 10.5 -6° 19.2	33° 10.7 -6° 20.2	48° 10.9 -6° 21.1	63° 11.1 -6° 22.1	78° 11.2 -6° 23.0	+0.2 -0.9
Ср 10	273° 13.4 -6° 35.3	288° 13.6 -6° 36.3	303° 13.8 -6° 37.2	318° 13.9 -6° 38.2	333° 14.1 -6° 39.1	348° 14.3 -6° 40.1	3° 14.4 -6° 41.0	18° 14.6 -6° 41.9	33° 14.8 -6° 42.9	48° 14.9 -6° 43.8	63° 15.1 -6° 44.8	78° 15.3 -6° 45.7	+0.2 -0.9
Чт 11	273° 17.4 -6° 58.0	288° 17.6 -6° 58.9	303° 17.7 -6° 59.9	318° 17.9 -7° 00.8	333° 18.1 -7° 01.8	348° 18.2 -7° 02.7	3° 18.4 -7° 03.7	18° 18.5 -7° 04.6	33° 18.7 -7° 05.5	48° 18.9 -7° 06.5	63° 19.0 -7° 07.4	78° 19.2 -7° 08.4	+0.2 -0.9
Пт 12	273° 21.3 -7° 20.6	288° 21.4 -7° 21.5	303° 21.6 -7° 22.5	318° 21.7 -7° 23.4	333° 21.9 -7° 24.3	348° 22.1 -7° 25.3	3° 22.2 -7° 26.2	18° 22.4 -7° 27.1	33° 22.5 -7° 28.1	48° 22.7 -7° 29.0	63° 22.8 -7° 30.0	78° 23.0 -7° 30.9	+0.2 -0.9
Сб 13	273° 25.0 -7° 43.1	288° 25.2 -7° 44.0	303° 25.3 -7° 44.9	318° 25.5 -7° 45.9	333° 25.6 -7° 46.8	348° 25.8 -7° 47.7	3° 25.9 -7° 48.7	18° 26.1 -7° 49.6	33° 26.2 -7° 50.5	48° 26.4 -7° 51.5	63° 26.5 -7° 52.4	78° 26.7 -7° 53.3	+0.2 -0.9
Вс 14	273° 28.6 -8° 05.4	288° 28.8 -8° 06.4	303° 28.9 -8° 07.3	318° 29.1 -8° 08.2	333° 29.2 -8° 09.1	348° 29.4 -8° 10.1	3° 29.5 -8° 11.0	18° 29.6 -8° 11.9	33° 29.8 -8° 12.9	48° 29.9 -8° 13.8	63° 30.1 -8° 14.7	78° 30.2 -8° 15.6	+0.1 -0.9
Пн 15	273° 32.1 -8° 27.7	288° 32.2 -8° 28.6	303° 32.4 -8° 29.5	318° 32.5 -8° 30.4	333° 32.7 -8° 31.4	348° 32.8 -8° 32.3	3° 32.9 -8° 33.2	18° 33.1 -8° 34.1	33° 33.2 -8° 35.1	48° 33.4 -8° 36.0	63° 33.5 -8° 36.9	78° 33.7 -8° 37.8	+0.1 -0.9
Вт 16	273° 35.4 -8° 49.8	288° 35.6 -8° 50.7	303° 35.7 -8° 51.6	318° 35.9 -8° 52.6	333° 36.0 -8° 53.5	348° 36.1 -8° 54.4	3° 36.3 -8° 55.3	18° 36.4 -8° 56.2	33° 36.5 -8° 57.2	48° 36.7 -8° 58.1	63° 36.8 -8° 59.0	78° 36.9 -8° 59.9	+0.1 -0.9
Ср 17	273° 38.6 -9° 11.8	288° 38.8 -9° 12.7	303° 38.9 -9° 13.6	318° 39.0 -9° 14.6	333° 39.2 -9° 15.5	348° 39.3 -9° 16.4	3° 39.4 -9° 17.3	18° 39.6 -9° 18.2	33° 39.7 -9° 19.1	48° 39.8 -9° 20.0	63° 39.9 -9° 21.0	78° 40.1 -9° 21.9	+0.1 -0.9
Чт 18	273° 41.7 -9° 33.7	288° 41.8 -9° 34.6	303° 41.9 -9° 35.5	318° 42.1 -9° 36.4	333° 42.2 -9° 37.3	348° 42.3 -9° 38.2	3° 42.4 -9° 39.1	18° 42.6 -9° 40.1	33° 42.7 -9° 41.0	48° 42.8 -9° 41.9	63° 42.9 -9° 42.8	78° 43.0 -9° 43.7	+0.1 -0.9
Пт 19	273° 44.6 -9° 55.4	288° 44.7 -9° 56.3	303° 44.8 -9° 57.2	318° 44.9 -9° 58.1	333° 45.1 -9° 59.0	348° 45.2 -9° 59.9	3° 45.3 -10° 00.8	18° 45.4 -10° 01.7	33° 45.5 -10° 02.6	48° 45.6 -10° 03.6	63° 45.8 -10° 04.5	78° 45.9 -10° 05.4	+0.1 -0.9
Сб 20	273° 47.3 -10° 17.0	288° 47.4 -10° 17.9	303° 47.6 -10° 18.8	318° 47.7 -10° 19.7	333° 47.8 -10° 20.6	348° 47.9 -10° 21.5	3° 48.0 -10° 22.4	18° 48.1 -10° 23.3	33° 48.2 -10° 24.2	48° 48.3 -10° 25.1	63° 48.4 -10° 26.0	78° 48.5 -10° 26.9	+0.1 -0.9
Вс 21	273° 49.9 -10° 38.5	288° 50.0 -10° 39.4	303° 50.1 -10° 40.3	318° 50.2 -10° 41.1	333° 50.3 -10° 42.0	348° 50.4 -10° 42.9	3° 50.5 -10° 43.8	18° 50.6 -10° 44.7	33° 50.7 -10° 45.6	48° 50.8 -10° 46.5	63° 50.9 -10° 47.4	78° 51.0 -10° 48.3	+0.1 -0.9
Пн 22	273° 52.3 -10° 59.8	288° 52.4 -11° 00.6	303° 52.5 -11° 01.5	318° 52.6 -11° 02.4	333° 52.7 -11° 03.3	348° 52.8 -11° 04.2	3° 52.9 -11° 05.1	18° 53.0 -11° 05.9	33° 53.1 -11° 06.8	48° 53.2 -11° 07.7	63° 53.3 -11° 08.6	78° 53.4 -11° 09.5	+0.1 -0.9
Вт 23	273° 54.6 -11° 20.9	288° 54.6 -11° 21.8	303° 54.7 -11° 22.6	318° 54.8 -11° 23.5	333° 54.9 -11° 24.4	348° 55.0 -11° 25.3	3° 55.1 -11° 26.1	18° 55.2 -11° 27.0	33° 55.3 -11° 27.9	48° 55.4 -11° 28.8	63° 55.4 -11° 29.6	78° 55.5 -11° 30.5	+0.1 -0.9
Ср 24	273° 56.6 -11° 41.9	288° 56.7 -11° 42.7	303° 56.8 -11° 43.6	318° 56.9 -11° 44.5	333° 56.9 -11° 45.3	348° 57.0 -11° 46.2	3° 57.1 -11° 47.1	18° 57.2 -11° 47.9	33° 57.3 -11° 48.8	48° 57.3 -11° 49.7	63° 57.4 -11° 50.5	78° 57.5 -11° 51.4	+0.1 -0.9
Чт 25	273° 58.5 -12° 02.6	288° 58.6 -12° 03.5	303° 58.6 -12° 04.4	318° 58.7 -12° 05.2	333° 58.8 -12° 06.1	348° 58.9 -12° 06.9	3° 58.9 -12° 07.8	18° 59.0 -12° 08.7	33° 59.1 -12° 09.5	48° 59.2 -12° 10.4	63° 59.2 -12° 11.2	78° 59.3 -12° 12.1	+0.1 -0.9
Пт 26	274° 00.2 -12° 23.2	289° 00.3 -12° 24.1	304° 00.3 -12° 24.9	319° 00.4 -12° 25.8	334° 00.5 -12° 26.6	349° 00.5 -12° 27.5	4° 00.6 -12° 28.4	19° 00.7 -12° 29.2	34° 00.7 -12° 30.1	49° 00.8 -12° 30.9	64° 00.8 -12° 31.8	79° 00.9 -12° 32.6	+0.1 -0.9
Сб 27	274° 01.7 -12° 43.6	289° 01.8 -12° 44.5	304° 01.8 -12° 45.3	319° 01.9 -12° 46.2	334° 01.9 -12° 47.0	349° 02.0 -12° 47.9	4° 02.0 -12° 48.7	19° 02.1 -12° 49.6	34° 02.2 -12° 50.4	49° 02.2 -12° 51.2	64° 02.3 -12° 52.1	79° 02.3 -12° 52.9	+0.1 -0.8
Вс 28	274° 03.0 -13° 03.9	289° 03.1 -13° 04.7	304° 03.1 -13° 05.5	319° 03.2 -13° 06.4	334° 03.2 -13° 07.2	349° 03.3 -13° 08.0	4° 03.3 -13° 08.9	19° 03.4 -13° 09.7	34° 03.4 -13° 10.5	49° 03.5 -13° 11.4	64° 03.5 -13° 12.2	79° 03.6 -13° 13.1	+0.0 -0.8
Пн 29	274° 04.1 -13° 23.9	289° 04.2 -13° 24.7	304° 04.2 -13° 25.5	319° 04.3 -13° 26.4	334° 04.3 -13° 27.2	349° 04.4 -13° 28.0	4° 04.4 -13° 28.8	19° 04.4 -13° 29.7	34° 04.5 -13° 30.5	49° 04.5 -13° 31.3	64° 04.6 -13° 32.1	79° 04.6 -13° 33.0	+0.0 -0.8
Вт 30	274° 05.1 -13° 43.7	289° 05.1 -13° 44.5	304° 05.2 -13° 45.3	319° 05.2 -13° 46.1	334° 05.2 -13° 46.9	349° 05.3 -13° 47.8	4° 05.3 -13° 48.6	19° 05.3 -13° 49.4	34° 05.4 -13° 50.2	49° 05.4 -13° 51.0	64° 05.4 -13° 51.9	79° 05.4 -13° 52.7	+0.0 -0.8
Ср 31	274° 05.8 -14° 03.3	289° 05.8 -14° 04.1	304° 05.9 -14° 04.9	319° 05.9 -14° 05.7	334° 05.9 -14° 06.5	349° 06.0 -14° 07.3	4° 06.0 -14° 08.1	19° 06.0 -14° 08.9	34° 06.0 -14° 09.7	49° 06.0 -14° 10.5	64° 06.1 -14° 11.3	79° 06.1 -14° 12.2	+0.0 -0.8

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.0'

ЛУНА

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	Д	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	R/p
●	Пн 1	245° 55.8	260° 26.3	274° 56.8	289° 27.3	303° 57.8	318° 28.4	332° 59.0	347° 29.6	2° 00.3	16° 30.9	31° 01.7	+30.6	15.7
		1° 00.4	0° 49.5	0° 38.6	0° 27.7	0° 16.9	0° 06.0	-0° 04.9	-0° 15.7	-0° 26.6	-0° 37.4	-0° 48.3	-10.9	57.5
	Вт 2	248° 44.9	263° 15.9	277° 47.0	292° 18.1	306° 49.2	321° 20.3	335° 51.4	350° 22.5	4° 53.7	19° 24.9	33° 56.1	+31.1	15.5
		-3° 28.5	-3° 39.0	-3° 49.5	-3° 59.9	-4° 10.3	-4° 20.7	-4° 31.1	-4° 41.4	-4° 51.7	-5° 02.0	-5° 12.2	-10.4	56.9
	Ср 3	251° 45.2	266° 16.5	280° 47.9	295° 19.3	309° 50.6	324° 22.0	338° 53.4	353° 24.8	7° 56.2	22° 27.6	36° 59.0	+31.4	15.3
		-7° 40.8	-7° 50.4	-7° 59.9	-8° 09.4	-8° 18.8	-8° 28.2	-8° 37.5	-8° 46.7	-8° 56.0	-9° 05.1	-9° 14.2	-9.3	56.2
	Чт 4	254° 50.3	269° 21.8	283° 53.2	298° 24.7	312° 56.1	327° 27.5	341° 59.0	356° 30.4	11° 01.8	25° 33.2	40° 04.7	+31.4	15.2
		-11° 24.2	-11° 32.4	-11° 40.5	-11° 48.6	-11° 56.6	-12° 04.5	-12° 12.4	-12° 20.2	-12° 28.0	-12° 35.6	-12° 43.2	-7.9	55.6
	Пт 5	257° 55.8	272° 27.2	286° 58.5	301° 29.9	316° 01.3	330° 32.6	345° 04.0	359° 35.4	14° 06.7	28° 38.1	43° 09.4	+31.4	15.0
		-14° 29.1	-14° 35.6	-14° 42.0	-14° 48.3	-14° 54.6	-15° 00.8	-15° 06.9	-15° 12.9	-15° 18.9	-15° 24.7	-15° 30.6	-6.1	55.0
	Сб 6	260° 59.0	275° 30.3	290° 01.6	304° 32.9	319° 04.1	333° 35.4	348° 06.6	2° 37.9	17° 09.1	31° 40.4	46° 11.6	+31.3	14.9
		-16° 48.2	-16° 52.8	-16° 57.2	-17° 01.6	-17° 05.9	-17° 10.1	-17° 14.2	-17° 18.3	-17° 22.3	-17° 26.1	-17° 29.9	-4.2	54.6
	Вс 7	263° 59.8	278° 31.0	293° 02.2	307° 33.4	322° 04.6	336° 35.8	351° 07.0	5° 38.1	20° 09.3	34° 40.5	49° 11.7	+31.2	14.8
		-18° 16.8	-18° 19.2	-18° 21.6	-18° 23.9	-18° 26.1	-18° 28.2	-18° 30.2	-18° 32.1	-18° 34.0	-18° 35.7	-18° 37.4	-2.1	54.3
	Пн 8	266° 59.5	281° 30.7	296° 01.9	310° 33.0	325° 04.2	339° 35.5	354° 06.7	8° 37.9	23° 09.1	37° 40.3	52° 11.5	+31.2	14.8
		-18° 52.0	-18° 52.3	-18° 52.5	-18° 52.6	-18° 52.6	-18° 52.5	-18° 52.4	-18° 52.1	-18° 51.8	-18° 51.4	-18° 50.9	+0.1	54.2
◐	Вт 9	270° 00.2	284° 31.5	299° 02.8	313° 34.1	328° 05.4	342° 36.7	357° 08.0	11° 39.3	26° 10.6	40° 41.9	55° 13.3	+31.3	14.8
		-18° 33.0	-18° 31.1	-18° 29.1	-18° 27.1	-18° 24.9	-18° 22.7	-18° 20.4	-18° 18.0	-18° 15.5	-18° 12.9	-18° 10.3	+2.3	54.2
	Ср 10	273° 04.1	287° 35.5	302° 06.9	316° 38.4	331° 09.8	345° 41.3	0° 12.8	14° 44.3	29° 15.7	43° 47.2	58° 18.7	+31.5	14.9
		-17° 20.5	-17° 16.5	-17° 12.5	-17° 08.3	-17° 04.1	-16° 59.8	-16° 55.4	-16° 51.0	-16° 46.4	-16° 41.8	-16° 37.1	+4.3	54.5
	Чт 11	276° 11.9	290° 43.5	305° 15.1	319° 46.7	334° 18.3	348° 49.9	3° 21.5	17° 53.2	32° 24.8	46° 56.4	61° 28.0	+31.6	15.0
		-15° 17.1	-15° 11.2	-15° 05.1	-14° 59.1	-14° 52.9	-14° 46.6	-14° 40.3	-14° 33.9	-14° 27.5	-14° 20.9	-14° 14.3	+6.3	54.9
	Пт 12	279° 22.8	293° 54.5	308° 26.1	322° 57.8	337° 29.5	352° 01.1	6° 32.8	21° 04.4	35° 36.1	50° 07.8	64° 39.4	+31.7	15.1
		-12° 26.8	-12° 19.1	-12° 11.4	-12° 03.5	-11° 55.6	-11° 47.7	-11° 39.6	-11° 31.5	-11° 23.4	-11° 15.2	-11° 06.9	+8.0	55.5
	Сб 13	282° 33.6	297° 05.2	311° 36.7	326° 08.3	340° 39.8	355° 11.3	9° 42.8	24° 14.3	38° 45.8	53° 17.3	67° 48.8	+31.5	15.3
		-8° 55.6	-8° 46.4	-8° 37.2	-8° 27.9	-8° 18.5	-8° 09.1	-7° 59.7	-7° 50.2	-7° 40.6	-7° 31.0	-7° 21.4	+9.4	56.2
	Вс 14	285° 38.9	300° 10.2	314° 41.3	329° 12.5	343° 43.6	358° 14.8	12° 45.9	27° 16.9	41° 48.0	56° 19.0	70° 50.0	+31.1	15.5
		-4° 51.5	-4° 41.1	-4° 30.8	-4° 20.4	-4° 10.0	-3° 59.6	-3° 49.1	-3° 38.6	-3° 28.0	-3° 17.5	-3° 06.9	+10.5	57.0
	Пн 15	288° 31.8	303° 02.4	317° 32.9	332° 03.4	346° 33.8	1° 04.2	15° 34.6	30° 05.0	44° 35.3	59° 05.5	73° 35.8	+30.4	15.7
		-0° 25.0	-0° 14.1	-0° 03.1	0° 07.8	0° 18.8	0° 29.8	0° 40.8	0° 51.8	1° 02.8	1° 13.8	1° 24.8	+11.0	57.7
	Вт 16	291° 04.4	305° 33.9	320° 03.5	334° 32.9	349° 02.4	3° 31.7	18° 01.1	32° 30.4	46° 59.6	61° 28.8	75° 57.9	+29.4	15.9
		4° 10.0	4° 21.0	4° 31.9	4° 42.8	4° 53.7	5° 04.6	5° 15.5	5° 26.4	5° 37.2	5° 48.0	5° 58.8	+10.9	58.4
○	Ср 17	293° 09.0	307° 37.3	322° 05.5	336° 33.7	351° 01.9	5° 30.0	19° 58.0	34° 26.0	48° 54.0	63° 21.8	77° 49.7	+28.1	16.1
		8° 37.0	8° 47.3	8° 57.5	9° 07.7	9° 17.8	9° 27.8	9° 37.9	9° 47.8	9° 57.7	10° 07.6	10° 17.4	+10.0	59.0
	Чт 18	294° 40.4	309° 07.3	323° 34.2	338° 01.0	352° 27.8	6° 54.5	21° 21.2	35° 47.8	50° 14.3	64° 40.8	79° 07.3	+26.7	16.2
		12° 37.2	12° 46.0	12° 54.6	13° 03.3	13° 11.8	13° 20.3	13° 28.6	13° 36.9	13° 45.2	13° 53.3	14° 01.3	+8.4	59.4
	Пт 19	295° 38.1	310° 03.8	324° 29.4	338° 55.0	353° 20.5	7° 46.0	22° 11.5	36° 36.9	51° 02.3	65° 27.6	79° 52.9	+25.5	16.2
		15° 51.1	15° 57.6	16° 04.0	16° 10.4	16° 16.6	16° 22.7	16° 28.7	16° 34.6	16° 40.4	16° 46.1	16° 51.7	+6.1	59.6
	Сб 20	296° 08.4	310° 33.3	324° 58.0	339° 22.8	353° 47.6	8° 12.3	22° 37.0	37° 01.7	51° 26.4	65° 51.1	80° 15.7	+24.7	16.3
		18° 01.5	18° 05.3	18° 08.8	18° 12.3	18° 15.7	18° 18.9	18° 22.0	18° 24.9	18° 27.8	18° 30.5	18° 33.1	+3.2	59.6
	Вс 21	310° 33.3	324° 58.0	339° 22.8	353° 47.6	8° 12.3	22° 37.0	37° 01.7	51° 26.4	65° 51.1	80° 15.7	94° 40.4	+24.7	16.3
		18° 05.3	18° 08.8	18° 12.3	18° 15.7	18° 18.9	18° 22.0	18° 24.9	18° 27.8	18° 30.5	18° 33.1	18° 35.6	+3.0	59.6
	Пн 22	310° 49.4	325° 14.0	339° 38.6	354° 03.3	8° 27.9	22° 52.6	37° 17.2	51° 41.9	66° 06.6	80° 31.3	94° 56.0	+24.7	16.2
		18° 57.4	18° 57.8	18° 58.1	18° 58.3	18° 58.3	18° 58.2	18° 58.0	18° 57.7	18° 57.2	18° 56.7	18° 55.9	-0.1	59.5
◑	Вт 23	311° 09.8	325° 35.0	340° 00.2	354° 25.4	8° 50.6	23° 15.9	37° 41.3	52° 06.7	66° 32.1	80° 57.5	95° 23.0	+25.3	16.2
		18° 30.2	18° 27.5	18° 24.6	18° 21.7	18° 18.6	18° 15.5	18° 12.2	18° 08.7	18° 05.2	18° 01.6	17° 57.8	-3.2	59.2
	Ср 24	311° 51.0	326° 17.3	340° 43.6	355° 10.0	9° 36.4	24° 02.8	38° 29.4	52° 55.9	67° 22.6	81° 49.3	96° 16.0	+26.5	16.1
		16° 48.0	16° 42.5	16° 36.8	16° 31.1	16° 25.3	16° 19.4	16° 13.4	16° 07.3	16° 01.1	15° 54.8	15° 48.4	-6.0	58.9
	Чт 25	313° 03.9	327° 31.5	341° 59.2	356° 27.0	10° 54.8	25° 22.6	39° 50.6	54° 18.5	68° 46.6	83° 14.7	97° 42.8	+27.9	16.0
		14° 01.6	13° 53.9	13° 46.0	13° 38.0	13° 30.0	13° 21.9	13° 13.8	13° 05.5	12° 57.2	12° 48.8	12° 40.4	-8.1	58.5
	Пт 26	314° 51.7	329° 20.7	343° 49.8	358° 18.9	12° 48.1	27° 17.3	41° 46.6	56° 15.9	70° 45.2	85° 14.7	99° 44.1	+29.2	15.8
		10° 25.9	10° 16.5	10° 07.0	9° 57.4	9° 47.9	9° 38.2	9° 28.5	9° 18.8	9° 09.0	8° 59.2	8° 49.4	-9.7	58.1
	Сб 27	317° 11.5	331° 41.7	346° 11.9	0° 42.2	15° 12.4	29° 42.8	44° 13.1	58° 43.5	73° 14.0	87° 44.4	102° 14.9	+30.3	15.7
		6° 16.9	6° 06.4	5° 56.0	5° 45.5	5° 35.0	5° 24.5	5° 14.0	5° 03.4	4° 52.8	4° 42.2	4° 31.6	-10.5	57.6
	Вс 28	319° 56.3	334° 27.3	348° 58.3	3° 29.4	18° 00.4	32° 31.5	47° 02.6	61° 33.8	76° 04.9	90° 36.1	105° 07.3	+31.1	15.6
		1° 50.7	1° 39.9	1° 29.1	1° 18.3	1° 07.5	0° 56.8	0° 46.0	0° 35.2	0° 24.4	0° 13.6	0° 02.9	-10.8	57.1
	Пн 29	322° 57.4	337° 28.9	352° 00.4	6° 31.9	21° 03.4	35° 34.9	50° 06.4	64° 37.9	79° 09.4	93° 41.0	108° 12.5	+31.5	15.4
		-2° 37.4	-2° 48.0	-2° 58.5	-3° 09.0	-3° 19.5	-3° 30.0	-3° 40.5	-3° 50.9	-4° 01.3	-4° 11.7	-4° 22.0	-10.5	56.6
	Вт 30	326° 06.4	340° 38.0	355° 09.6	9° 41.3	24° 12.9	38° 44.5	53° 16.1	67° 47.7	82° 19.3	96° 51.0	111° 22.6	+31.6	15.3
		-6° 53.4	-7° 03.2	-7° 13.0	-7° 22.7	-7° 32.4	-7° 42.0	-7° 51.6	-8° 01.2	-8° 10.7	-8° 20.1	-8° 29.5	-9.6	56.1
●	Ср 31	329° 16.3	343° 47.8	358° 19.4	12° 50.9	27° 22.4	41° 53.9	56° 25.5	70° 57.0	85° 28.4	99° 59.9	114° 31.4	+31.5	15.2
		-10° 44.7	-10° 53.3	-11° 01.8	-11° 10.3	-11° 18.7	-11° 27.1	-11° 35.4	-11° 43.6	-11° 51.7	-11° 59.8	-12° 07.9	-8.3	55.6

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Новолуние: 1 13h06 — Первая четв.: 9 09h49 — Полнолуние: 17 02h35 — Последняя четв.: 23 20h56 — Новолуние: 31 02h58

СОЛНЦЕ

Ноябрь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Чт 1	274° 06.4	289° 06.4	304° 06.4	319° 06.4	334° 06.4	349° 06.5	4° 06.5	19° 06.5	34° 06.5	49° 06.5	64° 06.5	79° 06.5	+0.0
	-14° 22.6	-14° 23.4	-14° 24.2	-14° 25.0	-14° 25.8	-14° 26.6	-14° 27.4	-14° 28.2	-14° 29.0	-14° 29.8	-14° 30.6	-14° 31.4	-0.8
Пт 2	274° 06.7	289° 06.7	304° 06.7	319° 06.7	334° 06.7	349° 06.8	4° 06.8	19° 06.8	34° 06.8	49° 06.8	64° 06.8	79° 06.8	+0.0
	-14° 41.7	-14° 42.5	-14° 43.3	-14° 44.1	-14° 44.9	-14° 45.7	-14° 46.5	-14° 47.3	-14° 48.1	-14° 48.9	-14° 49.6	-14° 50.4	-0.8
Сб 3	274° 06.9	289° 06.9	304° 06.9	319° 06.9	334° 06.9	349° 06.9	4° 06.9	19° 06.9	34° 06.9	49° 06.9	64° 06.9	79° 06.9	-0.0
	-15° 00.6	-15° 01.4	-15° 02.2	-15° 03.0	-15° 03.8	-15° 04.5	-15° 05.3	-15° 06.1	-15° 06.9	-15° 07.7	-15° 08.4	-15° 09.2	-0.8
Вс 4	274° 06.8	289° 06.8	304° 06.8	319° 06.8	334° 06.8	349° 06.8	4° 06.8	19° 06.7	34° 06.7	49° 06.7	64° 06.7	79° 06.7	-0.0
	-15° 19.3	-15° 20.1	-15° 20.8	-15° 21.6	-15° 22.4	-15° 23.1	-15° 23.9	-15° 24.7	-15° 25.4	-15° 26.2	-15° 27.0	-15° 27.7	-0.8
Пн 5	274° 06.5	289° 06.5	304° 06.5	319° 06.5	334° 06.5	349° 06.5	4° 06.5	19° 06.4	34° 06.4	49° 06.4	64° 06.4	79° 06.4	-0.0
	-15° 37.7	-15° 38.4	-15° 39.2	-15° 40.0	-15° 40.7	-15° 41.5	-15° 42.2	-15° 43.0	-15° 43.8	-15° 44.5	-15° 45.3	-15° 46.0	-0.8
Вт 6	274° 06.1	289° 06.1	304° 06.0	319° 06.0	334° 06.0	349° 06.0	4° 05.9	19° 05.9	34° 05.9	49° 05.9	64° 05.8	79° 05.8	-0.0
	-15° 55.8	-15° 56.6	-15° 57.3	-15° 58.1	-15° 58.8	-15° 59.6	-16° 00.3	-16° 01.1	-16° 01.8	-16° 02.6	-16° 03.3	-16° 04.0	-0.7
Ср 7	274° 05.4	289° 05.4	304° 05.4	319° 05.3	334° 05.3	349° 05.3	4° 05.2	19° 05.2	34° 05.2	49° 05.1	64° 05.1	79° 05.0	-0.0
	-16° 13.7	-16° 14.4	-16° 15.2	-16° 15.9	-16° 16.6	-16° 17.4	-16° 18.1	-16° 18.9	-16° 19.6	-16° 20.3	-16° 21.1	-16° 21.8	-0.7
Чт 8	274° 04.6	289° 04.5	304° 04.5	319° 04.4	334° 04.4	349° 04.3	4° 04.3	19° 04.3	34° 04.2	49° 04.2	64° 04.1	79° 04.1	-0.0
	-16° 31.3	-16° 32.0	-16° 32.7	-16° 33.5	-16° 34.2	-16° 34.9	-16° 35.6	-16° 36.4	-16° 37.1	-16° 37.8	-16° 38.5	-16° 39.3	-0.7
Пт 9	274° 03.5	289° 03.4	304° 03.4	319° 03.3	334° 03.3	349° 03.2	4° 03.2	19° 03.1	34° 03.1	49° 03.0	64° 03.0	79° 02.9	-0.1
	-16° 48.6	-16° 49.3	-16° 50.0	-16° 50.8	-16° 51.5	-16° 52.2	-16° 52.9	-16° 53.6	-16° 54.3	-16° 55.0	-16° 55.7	-16° 56.5	-0.7
Сб 10	274° 02.2	289° 02.1	304° 02.1	319° 02.0	334° 02.0	349° 01.9	4° 01.8	19° 01.8	34° 01.7	49° 01.7	64° 01.6	79° 01.5	-0.1
	-17° 05.6	-17° 06.3	-17° 07.1	-17° 07.8	-17° 08.5	-17° 09.2	-17° 09.9	-17° 10.6	-17° 11.3	-17° 12.0	-17° 12.7	-17° 13.4	-0.7
Вс 11	274° 00.7	289° 00.6	304° 00.6	319° 00.5	334° 00.4	349° 00.4	4° 00.3	19° 00.2	34° 00.2	49° 00.1	64° 00.0	79° 00.0	-0.1
	-17° 22.4	-17° 23.1	-17° 23.8	-17° 24.5	-17° 25.1	-17° 25.8	-17° 26.5	-17° 27.2	-17° 27.9	-17° 28.6	-17° 29.3	-17° 30.0	-0.7
Пн 12	273° 59.0	288° 58.9	303° 58.9	318° 58.8	333° 58.7	348° 58.6	3° 58.5	18° 58.5	33° 58.4	48° 58.3	63° 58.2	78° 58.2	-0.1
	-17° 38.8	-17° 39.5	-17° 40.2	-17° 40.9	-17° 41.5	-17° 42.2	-17° 42.9	-17° 43.6	-17° 44.2	-17° 44.9	-17° 45.6	-17° 46.3	-0.7
Вт 13	273° 57.1	288° 57.0	303° 56.9	318° 56.8	333° 56.8	348° 56.7	3° 56.6	18° 56.5	33° 56.4	48° 56.3	63° 56.2	78° 56.2	-0.1
	-17° 55.0	-17° 55.6	-17° 56.3	-17° 57.0	-17° 57.6	-17° 58.3	-17° 59.0	-17° 59.6	-18° 00.3	-18° 00.9	-18° 01.6	-18° 02.3	-0.7
Ср 14	273° 55.0	288° 54.9	303° 54.8	318° 54.7	333° 54.6	348° 54.5	3° 54.4	18° 54.3	33° 54.2	48° 54.1	63° 54.0	78° 53.9	-0.1
	-18° 10.8	-18° 11.4	-18° 12.1	-18° 12.7	-18° 13.4	-18° 14.0	-18° 14.7	-18° 15.3	-18° 16.0	-18° 16.6	-18° 17.3	-18° 17.9	-0.6
Чт 15	273° 52.7	288° 52.6	303° 52.5	318° 52.3	333° 52.2	348° 52.1	3° 52.0	18° 51.9	33° 51.8	48° 51.7	63° 51.6	78° 51.5	-0.1
	-18° 26.3	-18° 26.9	-18° 27.6	-18° 28.2	-18° 28.8	-18° 29.5	-18° 30.1	-18° 30.8	-18° 31.4	-18° 32.0	-18° 32.7	-18° 33.3	-0.6
Пт 16	273° 50.1	288° 50.0	303° 49.9	318° 49.8	333° 49.7	348° 49.6	3° 49.5	18° 49.3	33° 49.2	48° 49.1	63° 49.0	78° 48.9	-0.1
	-18° 41.5	-18° 42.1	-18° 42.7	-18° 43.4	-18° 44.0	-18° 44.6	-18° 45.2	-18° 45.8	-18° 46.5	-18° 47.1	-18° 47.7	-18° 48.3	-0.6
Сб 17	273° 47.4	288° 47.2	303° 47.1	318° 47.0	333° 46.9	348° 46.8	3° 46.6	18° 46.5	33° 46.4	48° 46.3	63° 46.2	78° 46.0	-0.1
	-18° 56.3	-18° 56.9	-18° 57.6	-18° 58.2	-18° 58.8	-18° 59.4	-19° 00.0	-19° 00.6	-19° 01.2	-19° 01.8	-19° 02.4	-19° 03.0	-0.6
Вс 18	273° 44.4	288° 44.3	303° 44.2	318° 44.0	333° 43.9	348° 43.8	3° 43.6	18° 43.5	33° 43.4	48° 43.2	63° 43.1	78° 43.0	-0.1
	-19° 10.8	-19° 11.4	-19° 12.0	-19° 12.6	-19° 13.2	-19° 13.8	-19° 14.4	-19° 15.0	-19° 15.6	-19° 16.2	-19° 16.8	-19° 17.4	-0.6
Пн 19	273° 41.2	288° 41.1	303° 41.0	318° 40.8	333° 40.7	348° 40.6	3° 40.4	18° 40.3	33° 40.1	48° 40.0	63° 39.9	78° 39.7	-0.1
	-19° 25.0	-19° 25.6	-19° 26.2	-19° 26.8	-19° 27.3	-19° 27.9	-19° 28.5	-19° 29.1	-19° 29.7	-19° 30.2	-19° 30.8	-19° 31.4	-0.6
Вт 20	273° 37.9	288° 37.7	303° 37.6	318° 37.4	333° 37.3	348° 37.1	3° 37.0	18° 36.8	33° 36.7	48° 36.5	63° 36.4	78° 36.2	-0.1
	-19° 38.8	-19° 39.4	-19° 40.0	-19° 40.5	-19° 41.1	-19° 41.7	-19° 42.2	-19° 42.8	-19° 43.4	-19° 43.9	-19° 44.5	-19° 45.1	-0.6
Ср 21	273° 34.3	288° 34.1	303° 34.0	318° 33.8	333° 33.6	348° 33.5	3° 33.3	18° 33.2	33° 33.0	48° 32.9	63° 32.7	78° 32.6	-0.2
	-19° 52.3	-19° 52.9	-19° 53.4	-19° 54.0	-19° 54.5	-19° 55.1	-19° 55.6	-19° 56.2	-19° 56.7	-19° 57.3	-19° 57.8	-19° 58.4	-0.5
Чт 22	273° 30.5	288° 30.3	303° 30.1	318° 30.0	333° 29.8	348° 29.7	3° 29.5	18° 29.3	33° 29.2	48° 29.0	63° 28.8	78° 28.7	-0.2
	-20° 05.4	-20° 06.0	-20° 06.5	-20° 07.0	-20° 07.6	-20° 08.1	-20° 08.6	-20° 09.2	-20° 09.7	-20° 10.2	-20° 10.8	-20° 11.3	-0.5
Пт 23	273° 26.5	288° 26.3	303° 26.1	318° 26.0	333° 25.8	348° 25.6	3° 25.4	18° 25.3	33° 25.1	48° 24.9	63° 24.7	78° 24.6	-0.2
	-20° 18.2	-20° 18.7	-20° 19.2	-20° 19.7	-20° 20.2	-20° 20.8	-20° 21.3	-20° 21.8	-20° 22.3	-20° 22.8	-20° 23.4	-20° 23.9	-0.5
Сб 24	273° 22.3	288° 22.1	303° 21.9	318° 21.7	333° 21.6	348° 21.4	3° 21.2	18° 21.0	33° 20.8	48° 20.6	63° 20.5	78° 20.3	-0.2
	-20° 30.5	-20° 31.0	-20° 31.5	-20° 32.0	-20° 32.6	-20° 33.1	-20° 33.6	-20° 34.1	-20° 34.6	-20° 35.1	-20° 35.6	-20° 36.1	-0.5
Вс 25	273° 17.9	288° 17.7	303° 17.5	318° 17.3	333° 17.1	348° 16.9	3° 16.7	18° 16.6	33° 16.4	48° 16.2	63° 16.0	78° 15.8	-0.2
	-20° 42.5	-20° 43.0	-20° 43.5	-20° 44.0	-20° 44.5	-20° 45.0	-20° 45.5	-20° 45.9	-20° 46.4	-20° 46.9	-20° 47.4	-20° 47.9	-0.5
Пн 26	273° 13.3	288° 13.1	303° 12.9	318° 12.7	333° 12.5	348° 12.3	3° 12.1	18° 11.9	33° 11.7	48° 11.5	63° 11.3	78° 11.1	-0.2
	-20° 54.1	-20° 54.6	-20° 55.1	-20° 55.5	-20° 56.0	-20° 56.5	-20° 57.0	-20° 57.4	-20° 57.9	-20° 58.4	-20° 58.8	-20° 59.3	-0.5
Вт 27	273° 08.5	288° 08.3	303° 08.1	318° 07.9	333° 07.7	348° 07.5	3° 07.3	18° 07.1	33° 06.9	48° 06.7	63° 06.5	78° 06.2	-0.2
	-21° 05.3	-21° 05.8	-21° 06.3	-21° 06.7	-21° 07.2	-21° 07.6	-21° 08.1	-21° 08.5	-21° 09.0	-21° 09.4	-21° 09.9	-21° 10.3	-0.5
Ср 28	273° 03.5	288° 03.3	303° 03.1	318° 02.9	333° 02.7	348° 02.5	3° 02.3	18° 02.1	33° 01.8	48° 01.6	63° 01.4	78° 01.2	-0.2
	-21° 16.2	-21° 16.6	-21° 17.0	-21° 17.5	-21° 17.9	-21° 18.4	-21° 18.8	-21° 19.2	-21° 19.7	-21° 20.1	-21° 20.6	-21° 21.0	-0.4
Чт 29	272° 58.4	287° 58.2	302° 58.0	317° 57.7	332° 57.5	347° 57.3	2° 57.1	17° 56.9	32° 56.6	47° 56.4	62° 56.2	77° 56.0	-0.2
	-21° 26.6	-21° 27.0	-21° 27.4	-21° 27.9	-21° 28.3	-21° 28.7	-21° 29.1	-21° 29.5	-21° 30.0	-21° 30.4	-21° 30.8	-21° 31.2	-0.4
Пт 30	272° 53.1	287° 52.8	302° 52.6	317° 52.4	332° 52.2	347° 51.9	2° 51.7	17° 51.5	32° 51.3	47° 51.0	62° 50.8	77° 50.6	-0.2
	-21° 36.6	-21° 37.0	-21° 37.4	-21° 37.8	-21° 38.2	-21° 38.6	-21° 39.0	-21° 39.4	-21° 39.8	-21° 40.2	-21° 40.6	-21° 41.0	-0.4

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час − 15°
Строка 2: δ (склонение, − = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

ЛУНА

Ноябрь 2035

Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
Чт 1	245° 14.3 -13° 17.4	259° 45.7 -13° 24.8	274° 17.1 -13° 32.1	288° 48.5 -13° 39.3	303° 19.9 -13° 46.5	317° 51.2 -13° 53.6	332° 22.6 -14° 00.7	346° 53.9 -14° 07.6	1° 25.3 -14° 14.5	15° 56.6 -14° 21.3	30° 27.9 -14° 28.1	+31.4 -7.1	15.1 55.2
Пт 2	248° 16.6 -16° 00.4	262° 47.8 -16° 06.0	277° 19.0 -16° 11.4	291° 50.1 -16° 16.8	306° 21.3 -16° 22.1	320° 52.4 -16° 27.3	335° 23.6 -16° 32.5	349° 54.7 -16° 37.5	4° 25.9 -16° 42.5	18° 57.0 -16° 47.4	33° 28.1 -16° 52.2	+31.1 -5.2	14.9 54.8
Сб 3	251° 14.2 -17° 54.4	265° 45.3 -17° 57.9	280° 16.3 -18° 01.3	294° 47.3 -18° 04.6	309° 18.4 -18° 07.8	323° 49.4 -18° 10.9	338° 20.4 -18° 14.0	352° 51.5 -18° 16.9	7° 22.5 -18° 19.8	21° 53.5 -18° 22.6	36° 24.5 -18° 25.3	+31.0 -3.1	14.8 54.4
Вс 4	254° 10.0 -18° 55.2	268° 41.1 -18° 56.4	283° 12.1 -18° 57.6	297° 43.2 -18° 58.7	312° 14.2 -18° 59.8	326° 45.3 -19° 00.7	341° 16.4 -19° 01.6	355° 47.4 -19° 02.3	10° 18.5 -19° 03.0	24° 49.6 -19° 03.6	39° 20.7 -19° 04.1	+31.1 -0.9	14.8 54.2
Пн 5	257° 08.0 -19° 00.9	271° 39.2 -19° 00.0	286° 10.5 -18° 59.0	300° 41.7 -18° 57.9	315° 13.0 -18° 56.7	329° 44.2 -18° 55.5	344° 15.5 -18° 54.1	358° 46.8 -18° 52.7	13° 18.1 -18° 51.2	27° 49.4 -18° 49.6	42° 20.7 -18° 47.9	+31.3 +1.3	14.7 54.1
Вт 6	260° 12.0 -18° 12.3	274° 43.5 -18° 09.3	289° 15.1 -18° 06.2	303° 46.6 -18° 03.0	318° 18.2 -17° 59.7	332° 49.8 -17° 56.3	347° 21.3 -17° 52.8	1° 53.0 -17° 49.3	16° 24.6 -17° 45.7	30° 56.2 -17° 42.0	45° 27.8 -17° 38.2	+31.6 +3.4	14.8 54.1
Ср 7	263° 24.2 -16° 32.0	277° 56.0 -16° 27.0	292° 27.9 -16° 21.9	306° 59.8 -16° 16.7	321° 31.7 -16° 11.4	336° 03.6 -16° 06.1	350° 35.5 -16° 00.7	5° 07.5 -15° 55.2	19° 39.4 -15° 49.6	34° 11.4 -15° 44.0	48° 43.3 -15° 38.3	+31.9 +5.4	14.8 54.4
◐ Чт 8	266° 44.1 -14° 04.0	281° 16.2 -13° 57.2	295° 48.3 -13° 50.3	310° 20.5 -13° 43.3	324° 52.6 -13° 36.2	339° 24.7 -13° 29.1	353° 56.9 -13° 21.9	8° 29.1 -13° 14.7	23° 01.2 -13° 07.4	37° 33.4 -13° 00.0	52° 05.6 -12° 52.6	+32.1 +7.1	15.0 54.9
Пт 9	270° 08.4 -10° 53.4	284° 40.6 -10° 45.0	299° 12.8 -10° 36.5	313° 44.9 -10° 28.0	328° 17.1 -10° 19.4	342° 49.3 -10° 10.7	357° 21.5 -10° 02.0	11° 53.6 -9° 53.3	26° 25.8 -9° 44.5	40° 57.9 -9° 35.6	55° 30.1 -9° 26.7	+32.2 +8.7	15.1 55.5
Сб 10	273° 31.0 -7° 06.6	288° 02.9 -6° 56.9	302° 34.9 -6° 47.1	317° 06.8 -6° 37.3	331° 38.7 -6° 27.5	346° 10.6 -6° 17.6	0° 42.5 -6° 07.7	15° 14.3 -5° 57.7	29° 46.1 -5° 47.7	44° 17.9 -5° 37.6	58° 49.7 -5° 27.5	+31.9 +9.9	15.3 56.3
Вс 11	276° 43.4 -2° 51.7	291° 14.8 -2° 41.0	305° 46.1 -2° 30.3	320° 17.4 -2° 19.6	334° 48.6 -2° 08.9	349° 19.8 -1° 58.2	3° 51.0 -1° 47.4	18° 22.1 -1° 36.6	32° 53.2 -1° 25.8	47° 24.3 -1° 14.9	61° 55.3 -1° 04.1	+31.2 +10.8	15.6 57.2
Пн 12	279° 35.6 1° 40.9	294° 05.9 1° 52.0	308° 36.2 2° 03.1	323° 06.4 2° 14.2	337° 36.6 2° 25.3	352° 06.7 2° 36.4	6° 36.8 2° 47.5	21° 06.8 2° 58.6	35° 36.7 3° 09.7	50° 06.6 3° 20.8	64° 36.5 3° 31.9	+30.1 +11.1	15.8 58.1
Вт 13	281° 57.1 6° 17.2	296° 26.0 6° 28.1	310° 54.8 6° 39.0	325° 23.6 6° 49.8	339° 52.3 7° 00.7	354° 20.9 7° 11.4	8° 49.5 7° 22.2	23° 18.0 7° 32.9	37° 46.4 7° 43.6	52° 14.7 7° 54.3	66° 43.0 8° 04.9	+28.6 +10.8	16.1 59.0
Ср 14	283° 38.9 10° 39.5	298° 06.1 10° 49.4	312° 33.2 10° 59.3	327° 00.2 11° 09.1	341° 27.1 11° 18.8	355° 54.0 11° 28.5	10° 20.8 11° 38.1	24° 47.5 11° 47.6	39° 14.2 11° 57.1	53° 40.8 12° 06.5	68° 07.3 12° 15.9	+26.8 +9.6	16.3 59.7
○ Чт 15	284° 36.4 14° 26.8	299° 01.8 14° 34.9	313° 27.2 14° 42.8	327° 52.4 14° 50.7	342° 17.6 14° 58.5	356° 42.7 15° 06.2	11° 07.8 15° 13.7	25° 32.8 15° 21.2	39° 57.7 15° 28.6	54° 22.6 15° 35.9	68° 47.4 15° 43.0	+25.1 +7.6	16.4 60.2
Пт 16	284° 52.9 17° 17.5	299° 16.9 17° 22.9	313° 40.8 17° 28.1	328° 04.7 17° 33.2	342° 28.5 17° 38.2	356° 52.3 17° 43.1	11° 16.1 17° 47.9	25° 39.8 17° 52.5	40° 03.5 17° 57.0	54° 27.2 18° 01.4	68° 50.8 18° 05.6	+23.8 +4.8	16.5 60.5
Сб 17	284° 42.0 18° 53.4	299° 05.3 18° 55.5	313° 28.5 18° 57.5	327° 51.8 18° 59.3	342° 15.1 19° 01.0	356° 38.3 19° 02.6	11° 01.6 19° 04.0	25° 24.9 19° 05.3	39° 48.1 19° 06.4	54° 11.4 19° 07.4	68° 34.7 19° 08.3	+23.3 +1.5	16.5 60.5
Вс 18	284° 25.6 19° 04.8	298° 49.2 19° 03.4	313° 12.8 19° 02.0	327° 36.4 19° 00.4	342° 00.1 18° 58.7	356° 23.8 18° 56.8	10° 47.6 18° 54.8	25° 11.4 18° 52.7	39° 35.2 18° 50.4	53° 59.1 18° 48.0	68° 23.0 18° 45.5	+23.7 -1.9	16.4 60.2
Пн 19	284° 27.8 17° 52.6	298° 52.5 17° 48.1	313° 17.3 17° 43.5	327° 42.2 17° 38.8	342° 07.2 17° 33.9	356° 32.2 17° 29.0	10° 57.3 17° 23.9	25° 22.4 17° 18.7	39° 47.6 17° 13.4	54° 12.9 17° 08.0	68° 38.3 17° 02.5	+23.8 -5.0	16.3 59.7
Вт 20	298° 52.5 17° 48.1	313° 17.3 17° 43.5	327° 42.2 17° 38.8	342° 07.2 17° 33.9	356° 32.2 17° 29.0	10° 57.3 17° 23.9	25° 22.4 17° 18.7	39° 47.6 17° 13.4	54° 12.9 17° 08.0	68° 38.3 17° 02.5	83° 03.7 16° 56.9	+25.1 -5.1	16.3 59.7
Ср 21	299° 33.2 15° 20.5	313° 59.8 15° 13.3	328° 26.4 15° 06.1	342° 53.1 14° 58.7	357° 19.9 14° 51.3	11° 46.7 14° 43.7	26° 13.6 14° 36.1	40° 40.6 14° 28.4	55° 07.7 14° 20.6	69° 34.8 14° 12.8	84° 02.1 14° 04.8	+26.9 -7.6	16.1 59.1
◑ Чт 22	300° 58.9 11° 57.1	315° 27.3 11° 48.1	329° 55.7 11° 39.0	344° 24.2 11° 29.9	358° 52.8 11° 20.6	13° 21.4 11° 11.4	27° 50.1 11° 02.0	42° 18.9 10° 52.7	56° 47.7 10° 43.2	71° 16.6 10° 33.8	85° 45.6 10° 24.2	+28.7 -9.3	15.9 58.4
Пт 23	303° 07.6 7° 56.0	317° 37.6 7° 45.8	332° 07.6 7° 35.6	346° 37.6 7° 25.3	1° 07.7 7° 15.1	15° 37.9 7° 04.7	30° 08.1 6° 54.4	44° 38.4 6° 44.0	59° 08.7 6° 33.7	73° 39.0 6° 23.2	88° 09.4 6° 12.8	+30.2 -10.3	15.7 57.7
Сб 24	305° 51.1 3° 34.0	320° 22.3 3° 23.3	334° 53.4 3° 12.6	349° 24.6 3° 01.9	3° 55.8 2° 51.1	18° 27.1 2° 40.4	32° 58.4 2° 29.7	47° 29.7 2° 19.0	62° 01.1 2° 08.2	76° 32.4 1° 57.5	91° 03.9 1° 46.8	+31.3 -10.7	15.6 57.1
Вс 25	308° 58.5 -0° 53.9	323° 30.3 -1° 04.5	338° 02.2 -1° 15.2	352° 34.0 -1° 25.8	7° 05.9 -1° 36.4	21° 37.8 -1° 47.0	36° 09.7 -1° 57.6	50° 41.7 -2° 08.1	65° 13.6 -2° 18.6	79° 45.6 -2° 29.2	94° 17.6 -2° 39.7	+31.9 -10.6	15.4 56.5
Пн 26	312° 18.4 -5° 14.4	326° 50.6 -5° 24.5	341° 22.7 -5° 34.6	355° 54.8 -5° 44.6	10° 26.9 -5° 54.6	24° 59.0 -6° 04.6	39° 31.2 -6° 14.5	54° 03.3 -6° 24.4	68° 35.4 -6° 34.3	83° 07.5 -6° 44.1	97° 39.7 -6° 53.9	+32.1 -9.9	15.3 55.9
Вт 27	315° 41.2 -9° 15.8	330° 13.2 -9° 24.9	344° 45.3 -9° 33.9	359° 17.3 -9° 42.9	13° 49.3 -9° 51.9	28° 21.4 -10° 00.8	42° 53.4 -10° 09.6	57° 25.4 -10° 18.4	71° 57.4 -10° 27.2	86° 29.3 -10° 35.9	101° 01.3 -10° 44.5	+32.0 -8.9	15.1 55.5
Ср 28	318° 59.4 -12° 47.3	333° 31.2 -12° 55.0	348° 02.9 -13° 02.6	2° 34.7 -13° 10.2	17° 06.4 -13° 17.7	31° 38.1 -13° 25.1	46° 09.8 -13° 32.5	60° 41.5 -13° 39.8	75° 13.1 -13° 47.1	89° 44.8 -13° 54.3	104° 16.4 -14° 01.4	+31.7 -7.4	15.0 55.0
● Чт 29	322° 09.1 -15° 39.5	336° 40.5 -15° 45.5	351° 11.9 -15° 51.4	5° 43.3 -15° 57.2	20° 14.6 -16° 02.9	34° 46.0 -16° 08.6	49° 17.3 -16° 14.1	63° 48.6 -16° 19.6	78° 19.9 -16° 25.1	92° 51.2 -16° 30.4	107° 22.5 -16° 35.7	+31.3 -5.6	14.9 54.6
Пт 30	325° 10.1 -17° 44.8	339° 41.2 -17° 48.7	354° 12.3 -17° 52.6	8° 43.4 -17° 56.4	23° 14.5 -18° 00.1	37° 45.5 -18° 03.7	52° 16.6 -18° 07.2	66° 47.6 -18° 10.6	81° 18.7 -18° 14.0	95° 49.7 -18° 17.2	110° 20.7 -18° 20.4	+31.1 -3.6	14.8 54.3

Строка 1: $t_{\text{гр}}$, Δ'/h = изменение $t_{\text{гр}}$ за час — 14°, R/p = полудиаметр R
Строка 2: δ (— = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24

Первая четв.: 8 05h50 — Полнолуние: 15 13h48 — Последняя четв.: 22 05h16 — Новолуние: 29 19h37

СОЛНЦЕ

Декабрь 2035

Д	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
Сб 1	272° 47.6	287° 47.4	302° 47.1	317° 46.9	332° 46.7	347° 46.4	2° 46.2	17° 46.0	32° 45.7	47° 45.5	62° 45.3	77° 45.0	-0.2
	-21° 46.2	-21° 46.6	-21° 47.0	-21° 47.4	-21° 47.8	-21° 48.1	-21° 48.5	-21° 48.9	-21° 49.3	-21° 49.7	-21° 50.1	-21° 50.5	-0.4
Вс 2	272° 41.9	287° 41.7	302° 41.5	317° 41.2	332° 41.0	347° 40.7	2° 40.5	17° 40.3	32° 40.0	47° 39.8	62° 39.5	77° 39.3	-0.2
	-21° 55.4	-21° 55.8	-21° 56.1	-21° 56.5	-21° 56.9	-21° 57.2	-21° 57.6	-21° 58.0	-21° 58.4	-21° 58.7	-21° 59.1	-21° 59.5	-0.4
Пн 3	272° 36.1	287° 35.9	302° 35.7	317° 35.4	332° 35.2	347° 34.9	2° 34.7	17° 34.4	32° 34.2	47° 33.9	62° 33.7	77° 33.4	-0.2
	-22° 04.2	-22° 04.5	-22° 04.9	-22° 05.2	-22° 05.6	-22° 05.9	-22° 06.3	-22° 06.6	-22° 07.0	-22° 07.3	-22° 07.7	-22° 08.0	-0.4
Вт 4	272° 30.2	287° 29.9	302° 29.7	317° 29.4	332° 29.2	347° 28.9	2° 28.7	17° 28.4	32° 28.2	47° 27.9	62° 27.7	77° 27.4	-0.3
	-22° 12.5	-22° 12.8	-22° 13.2	-22° 13.5	-22° 13.8	-22° 14.2	-22° 14.5	-22° 14.8	-22° 15.2	-22° 15.5	-22° 15.8	-22° 16.2	-0.3
Ср 5	272° 24.1	287° 23.8	302° 23.6	317° 23.3	332° 23.1	347° 22.8	2° 22.6	17° 22.3	32° 22.0	47° 21.8	62° 21.5	77° 21.3	-0.3
	-22° 20.4	-22° 20.7	-22° 21.0	-22° 21.4	-22° 21.7	-22° 22.0	-22° 22.3	-22° 22.6	-22° 22.9	-22° 23.3	-22° 23.6	-22° 23.9	-0.3
Чт 6	272° 17.9	287° 17.6	302° 17.4	317° 17.1	332° 16.8	347° 16.6	2° 16.3	17° 16.0	32° 15.8	47° 15.5	62° 15.2	77° 15.0	-0.3
	-22° 27.9	-22° 28.2	-22° 28.5	-22° 28.8	-22° 29.1	-22° 29.4	-22° 29.7	-22° 30.0	-22° 30.3	-22° 30.6	-22° 30.9	-22° 31.2	-0.3
Пт 7	272° 11.5	287° 11.3	302° 11.0	317° 10.7	332° 10.4	347° 10.2	2° 09.9	17° 09.6	32° 09.4	47° 09.1	62° 08.8	77° 08.6	-0.3
	-22° 34.9	-22° 35.2	-22° 35.5	-22° 35.8	-22° 36.1	-22° 36.3	-22° 36.6	-22° 36.9	-22° 37.2	-22° 37.4	-22° 37.7	-22° 38.0	-0.3
Сб 8	272° 05.0	287° 04.8	302° 04.5	317° 04.2	332° 04.0	347° 03.7	2° 03.4	17° 03.1	32° 02.9	47° 02.6	62° 02.3	77° 02.0	-0.3
	-22° 41.5	-22° 41.8	-22° 42.0	-22° 42.3	-22° 42.6	-22° 42.8	-22° 43.1	-22° 43.4	-22° 43.6	-22° 43.9	-22° 44.1	-22° 44.4	-0.3
Вс 9	271° 58.5	286° 58.2	301° 57.9	316° 57.6	331° 57.3	346° 57.1	1° 56.8	16° 56.5	31° 56.2	46° 56.0	61° 55.7	76° 55.4	-0.3
	-22° 47.7	-22° 47.9	-22° 48.2	-22° 48.4	-22° 48.7	-22° 48.9	-22° 49.1	-22° 49.4	-22° 49.6	-22° 49.9	-22° 50.1	-22° 50.3	-0.2
Пн 10	271° 51.8	286° 51.5	301° 51.2	316° 50.9	331° 50.6	346° 50.3	1° 50.1	16° 49.8	31° 49.5	46° 49.2	61° 48.9	76° 48.7	-0.3
	-22° 53.4	-22° 53.6	-22° 53.8	-22° 54.1	-22° 54.3	-22° 54.5	-22° 54.7	-22° 54.9	-22° 55.2	-22° 55.4	-22° 55.6	-22° 55.8	-0.2
Вт 11	271° 45.0	286° 44.7	301° 44.4	316° 44.1	331° 43.8	346° 43.5	1° 43.2	16° 43.0	31° 42.7	46° 42.4	61° 42.1	76° 41.8	-0.3
	-22° 58.6	-22° 58.8	-22° 59.0	-22° 59.2	-22° 59.5	-22° 59.7	-22° 59.9	-23° 00.1	-23° 00.3	-23° 00.5	-23° 00.7	-23° 00.9	-0.2
Ср 12	271° 38.1	286° 37.8	301° 37.5	316° 37.2	331° 36.9	346° 36.6	1° 36.3	16° 36.0	31° 35.7	46° 35.5	61° 35.2	76° 34.9	-0.3
	-23° 03.4	-23° 03.6	-23° 03.8	-23° 04.0	-23° 04.2	-23° 04.4	-23° 04.5	-23° 04.7	-23° 04.9	-23° 05.1	-23° 05.3	-23° 05.5	-0.2
Чт 13	271° 31.1	286° 30.8	301° 30.5	316° 30.2	331° 29.9	346° 29.6	1° 29.3	16° 29.0	31° 28.7	46° 28.4	61° 28.2	76° 27.9	-0.3
	-23° 07.8	-23° 07.9	-23° 08.1	-23° 08.3	-23° 08.4	-23° 08.6	-23° 08.8	-23° 08.9	-23° 09.1	-23° 09.3	-23° 09.4	-23° 09.6	-0.2
Пт 14	271° 24.0	286° 23.7	301° 23.4	316° 23.1	331° 22.8	346° 22.5	1° 22.2	16° 22.0	31° 21.7	46° 21.4	61° 21.1	76° 20.8	-0.3
	-23° 11.6	-23° 11.8	-23° 11.9	-23° 12.1	-23° 12.2	-23° 12.4	-23° 12.5	-23° 12.7	-23° 12.8	-23° 13.0	-23° 13.1	-23° 13.3	-0.1
Сб 15	271° 16.9	286° 16.6	301° 16.3	316° 16.0	331° 15.7	346° 15.4	1° 15.1	16° 14.8	31° 14.5	46° 14.2	61° 13.9	76° 13.6	-0.3
	-23° 15.1	-23° 15.2	-23° 15.3	-23° 15.4	-23° 15.6	-23° 15.7	-23° 15.8	-23° 16.0	-23° 16.1	-23° 16.2	-23° 16.3	-23° 16.5	-0.1
Вс 16	271° 09.7	286° 09.4	301° 09.1	316° 08.8	331° 08.5	346° 08.2	1° 07.9	16° 07.6	31° 07.3	46° 07.0	61° 06.7	76° 06.4	-0.3
	-23° 18.0	-23° 18.1	-23° 18.2	-23° 18.3	-23° 18.5	-23° 18.6	-23° 18.7	-23° 18.8	-23° 18.9	-23° 19.0	-23° 19.1	-23° 19.2	-0.1
Пн 17	271° 02.4	286° 02.1	301° 01.8	316° 01.5	331° 01.2	346° 00.9	1° 00.6	16° 00.3	31° 00.0	45° 59.7	60° 59.4	75° 59.1	-0.3
	-23° 20.5	-23° 20.6	-23° 20.7	-23° 20.8	-23° 20.9	-23° 21.0	-23° 21.0	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.5	-0.1
Вт 18	270° 55.1	285° 54.8	300° 54.5	315° 54.2	330° 53.9	345° 53.6	0° 53.3	15° 53.0	30° 52.7	45° 52.4	60° 52.1	75° 51.8	-0.3
	-23° 22.5	-23° 22.6	-23° 22.7	-23° 22.7	-23° 22.8	-23° 22.9	-23° 22.9	-23° 23.0	-23° 23.1	-23° 23.2	-23° 23.2	-23° 23.3	-0.1
Ср 19	270° 47.8	285° 47.5	300° 47.2	315° 46.8	330° 46.5	345° 46.2	0° 45.9	15° 45.6	30° 45.3	45° 45.0	60° 44.7	75° 44.4	-0.3
	-23° 24.1	-23° 24.1	-23° 24.2	-23° 24.2	-23° 24.3	-23° 24.3	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-0.1
Чт 20	270° 40.4	285° 40.1	300° 39.8	315° 39.4	330° 39.1	345° 38.8	0° 38.5	15° 38.2	30° 37.9	45° 37.6	60° 37.3	75° 37.0	-0.3
	-23° 25.2	-23° 25.2	-23° 25.2	-23° 25.3	-23° 25.3	-23° 25.3	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-0.0
Пт 21	270° 32.9	285° 32.6	300° 32.3	315° 32.0	330° 31.7	345° 31.4	0° 31.1	15° 30.8	30° 30.5	45° 30.2	60° 29.8	75° 29.5	-0.3
	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-0.0
Сб 22	270° 25.5	285° 25.2	300° 24.9	315° 24.6	330° 24.3	345° 23.9	0° 23.6	15° 23.3	30° 23.0	45° 22.7	60° 22.4	75° 22.1	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.8	-23° 25.8	-23° 25.8	+0.0
Вс 23	270° 18.0	285° 17.7	300° 17.4	315° 17.1	330° 16.8	345° 16.5	0° 16.2	15° 15.9	30° 15.6	45° 15.2	60° 14.9	75° 14.6	-0.3
	-23° 25.6	-23° 25.6	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.3	-23° 25.3	-23° 25.3	+0.0
Пн 24	270° 10.6	285° 10.3	300° 10.0	315° 09.6	330° 09.3	345° 09.0	0° 08.7	15° 08.4	30° 08.1	45° 07.8	60° 07.5	75° 07.2	-0.3
	-23° 24.8	-23° 24.8	-23° 24.7	-23° 24.7	-23° 24.6	-23° 24.6	-23° 24.5	-23° 24.5	-23° 24.4	-23° 24.4	-23° 24.3	-23° 24.3	+0.0
Вт 25	270° 03.1	285° 02.8	300° 02.5	315° 02.2	330° 01.9	345° 01.6	0° 01.3	15° 00.9	30° 00.6	45° 00.3	60° 00.0	74° 59.7	-0.3
	-23° 23.5	-23° 23.5	-23° 23.4	-23° 23.3	-23° 23.3	-23° 23.2	-23° 23.1	-23° 23.1	-23° 23.0	-23° 22.9	-23° 22.9	-23° 22.8	+0.1
Ср 26	269° 55.7	284° 55.4	299° 55.1	314° 54.7	329° 54.4	344° 54.1	359° 53.8	14° 53.5	29° 53.2	44° 52.9	59° 52.6	74° 52.3	-0.3
	-23° 21.8	-23° 21.7	-23° 21.6	-23° 21.5	-23° 21.5	-23° 21.4	-23° 21.3	-23° 21.2	-23° 21.1	-23° 21.0	-23° 20.9	-23° 20.8	+0.1
Чт 27	269° 48.3	284° 47.9	299° 47.6	314° 47.3	329° 47.0	344° 46.7	359° 46.4	14° 46.1	29° 45.8	44° 45.5	59° 45.2	74° 44.9	-0.3
	-23° 19.6	-23° 19.5	-23° 19.4	-23° 19.3	-23° 19.2	-23° 19.1	-23° 19.0	-23° 18.9	-23° 18.7	-23° 18.6	-23° 18.5	-23° 18.4	+0.1
Пт 28	269° 40.9	284° 40.6	299° 40.3	314° 39.9	329° 39.6	344° 39.3	359° 39.0	14° 38.7	29° 38.4	44° 38.1	59° 37.8	74° 37.5	-0.3
	-23° 16.9	-23° 16.8	-23° 16.7	-23° 16.5	-23° 16.4	-23° 16.3	-23° 16.2	-23° 16.0	-23° 15.9	-23° 15.8	-23° 15.7	-23° 15.5	+0.1
Сб 29	269° 33.5	284° 33.2	299° 32.9	314° 32.6	329° 32.3	344° 32.0	359° 31.7	14° 31.4	29° 31.1	44° 30.8	59° 30.5	74° 30.2	-0.3
	-23° 13.8	-23° 13.6	-23° 13.5	-23° 13.3	-23° 13.2	-23° 13.1	-23° 12.9	-23° 12.8	-23° 12.6	-23° 12.5	-23° 12.3	-23° 12.2	+0.1
Вс 30	269° 26.2	284° 25.9	299° 25.6	314° 25.3	329° 25.0	344° 24.7	359° 24.4	14° 24.1	29° 23.8	44° 23.5	59° 23.2	74° 22.9	-0.3
	-23° 10.2	-23° 10.0	-23° 09.8	-23° 09.7	-23° 09.5	-23° 09.4	-23° 09.2	-23° 09.0	-23° 08.9	-23° 08.7	-23° 08.5	-23° 08.4	+0.2
Пн 31	269° 19.0	284° 18.7	299° 18.4	314° 18.1	329° 17.8	344° 17.5	359° 17.2	14° 16.9	29° 16.6	44° 16.3	59° 16.0	74° 15.7	-0.3
	-23° 06.1	-23° 05.9	-23° 05.7	-23° 05.6	-23° 05.4	-23° 05.2	-23° 05.0	-23° 04.8	-23° 04.6	-23° 04.5	-23° 04.3	-23° 04.1	+0.2

Строка 1: $t_{гр}$ (гринвичский часовой угол), Δ'/h = изменение $t_{гр}$ за час — 15°
Строка 2: δ (склонение, — = южное), Δ'/h = изменение δ за час
Полудиаметр R: 16.2'

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Д	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	R/p
Сб 1	240° 59.7	255° 30.7	270° 01.7	284° 32.6	299° 03.6	313° 34.6	328° 05.6	342° 36.5	357° 07.5	11° 38.5	26° 09.5	+31.0	14.8
	-18° 45.1	-18° 47.4	-18° 49.6	-18° 51.7	-18° 53.7	-18° 55.7	-18° 57.5	-18° 59.3	-19° 01.0	-19° 02.6	-19° 04.1	-1.9	54.1
Вс 2	243° 54.5	258° 25.6	272° 56.6	287° 27.7	301° 58.8	316° 29.9	331° 01.0	345° 32.1	0° 03.2	14° 34.3	29° 05.4	+31.1	14.7
	-19° 15.9	-19° 16.0	-19° 16.0	-19° 15.9	-19° 15.7	-19° 15.4	-19° 15.0	-19° 14.6	-19° 14.0	-19° 13.4	-19° 12.7	+0.3	54.0
Пн 3	246° 53.9	261° 25.3	275° 56.7	290° 28.1	304° 59.5	319° 30.9	334° 02.3	348° 33.8	3° 05.2	17° 36.7	32° 08.2	+31.4	14.7
	-18° 51.3	-18° 49.2	-18° 47.0	-18° 44.7	-18° 42.4	-18° 39.9	-18° 37.4	-18° 34.7	-18° 32.0	-18° 29.2	-18° 26.4	+2.5	53.9
Вт 4	250° 03.1	264° 34.9	279° 06.7	293° 38.6	308° 10.4	322° 42.3	337° 14.2	351° 46.2	6° 18.1	20° 50.1	35° 22.1	+31.9	14.7
	-17° 33.4	-17° 29.2	-17° 25.0	-17° 20.7	-17° 16.3	-17° 11.8	-17° 07.2	-17° 02.6	-16° 57.9	-16° 53.1	-16° 48.2	+4.5	54.0
Ср 5	253° 24.3	267° 56.6	282° 28.9	297° 01.3	311° 33.6	326° 06.0	340° 38.4	355° 10.8	9° 43.2	24° 15.7	38° 48.1	+32.4	14.8
	-15° 26.4	-15° 20.4	-15° 14.3	-15° 08.1	-15° 01.8	-14° 55.5	-14° 49.2	-14° 42.7	-14° 36.2	-14° 29.7	-14° 23.0	+6.3	54.3
Чт 6	256° 56.7	271° 29.3	286° 02.0	300° 34.7	315° 07.4	329° 40.1	344° 12.8	358° 45.5	13° 18.3	27° 51.0	42° 23.7	+32.7	14.9
	-12° 35.7	-12° 28.1	-12° 20.4	-12° 12.6	-12° 04.8	-11° 56.9	-11° 49.0	-11° 41.0	-11° 32.9	-11° 24.8	-11° 16.7	+7.9	54.7
Пт 7	260° 35.3	275° 08.1	289° 40.9	304° 13.6	318° 46.4	333° 19.1	347° 51.9	2° 24.7	16° 57.4	31° 30.1	46° 02.9	+32.8	15.1
	-9° 07.8	-8° 58.9	-8° 49.8	-8° 40.7	-8° 31.6	-8° 22.4	-8° 13.2	-8° 03.9	-7° 54.6	-7° 45.2	-7° 35.8	+9.2	55.3
◐ Сб 8	264° 12.3	278° 44.8	293° 17.3	307° 49.8	322° 22.2	336° 54.6	351° 27.0	5° 59.4	20° 31.7	35° 04.1	49° 36.4	+32.4	15.3
	-5° 09.9	-4° 59.8	-4° 49.8	-4° 39.6	-4° 29.5	-4° 19.3	-4° 09.1	-3° 58.9	-3° 48.6	-3° 38.4	-3° 28.0	+10.2	56.0
Вс 9	267° 37.1	282° 08.9	296° 40.6	311° 12.3	325° 43.9	340° 15.5	354° 47.1	9° 18.6	23° 50.1	38° 21.5	52° 52.9	+31.6	15.5
	-0° 50.0	-0° 39.3	-0° 28.6	-0° 17.9	-0° 07.1	0° 03.7	0° 14.5	0° 25.3	0° 36.1	0° 46.9	0° 57.8	+10.8	57.0
Пн 10	270° 37.3	285° 07.9	299° 38.3	314° 08.7	328° 39.0	343° 09.3	357° 39.5	12° 09.6	26° 39.7	41° 09.7	55° 39.7	+30.2	15.8
	3° 41.2	3° 52.1	4° 03.1	4° 14.0	4° 24.9	4° 35.7	4° 46.4	4° 57.5	5° 08.4	5° 19.2	5° 30.1	+10.9	57.9
Вт 11	273° 00.2	287° 29.0	301° 57.7	316° 26.3	330° 54.8	345° 23.3	359° 51.6	14° 19.9	28° 48.1	43° 16.3	57° 44.3	+28.4	16.1
	8° 10.5	8° 20.9	8° 31.4	8° 41.8	8° 52.2	9° 02.6	9° 12.9	9° 23.2	9° 33.4	9° 43.6	9° 53.8	+10.3	59.0
Ср 12	274° 34.7	289° 01.4	303° 28.0	317° 54.5	332° 20.9	346° 47.2	1° 13.4	15° 39.6	30° 05.6	44° 31.6	58° 57.5	+26.3	16.3
	12° 20.0	12° 29.3	12° 38.5	12° 47.7	12° 56.7	13° 05.7	13° 14.7	13° 23.5	13° 32.3	13° 41.0	13° 49.6	+9.0	59.9
Чт 13	275° 15.5	289° 40.0	304° 04.4	318° 28.8	332° 53.1	347° 17.3	1° 41.5	16° 05.5	30° 29.5	44° 53.5	59° 17.3	+24.2	16.5
	15° 48.6	15° 55.7	16° 02.8	16° 09.7	16° 16.6	16° 23.3	16° 30.0	16° 36.5	16° 42.9	16° 49.2	16° 55.4	+6.7	60.6
Пт 14	275° 07.1	289° 29.9	303° 52.8	318° 15.5	332° 38.2	347° 00.9	1° 23.5	15° 46.1	30° 08.6	44° 31.1	58° 53.6	+22.6	16.7
	18° 13.5	18° 17.7	18° 21.7	18° 25.6	18° 29.4	18° 33.0	18° 36.5	18° 39.9	18° 43.1	18° 46.2	18° 49.2	+3.6	61.1
○ Сб 15	274° 27.5	288° 49.6	303° 11.8	317° 33.9	331° 56.0	346° 18.2	0° 40.3	15° 02.5	29° 24.6	43° 46.8	58° 09.0	+22.1	16.7
	19° 16.2	19° 16.8	19° 17.3	19° 17.7	19° 17.9	19° 17.9	19° 17.8	19° 17.6	19° 17.2	19° 16.6	19° 16.0	-0.0	61.2
Вс 16	273° 44.6	288° 07.3	302° 30.0	316° 52.7	331° 15.5	345° 38.4	0° 01.2	14° 24.2	28° 47.2	43° 10.2	57° 33.3	+22.9	16.6
	18° 48.3	18° 45.3	18° 42.2	18° 38.9	18° 35.6	18° 32.0	18° 28.4	18° 24.6	18° 20.6	18° 16.6	18° 12.4	-3.6	61.0
Пн 17	273° 27.6	287° 51.8	302° 16.1	316° 40.4	331° 04.8	345° 29.3	359° 53.9	14° 18.6	28° 43.3	43° 08.1	57° 33.0	+24.5	16.5
	16° 54.5	16° 48.3	16° 42.1	16° 35.7	16° 29.2	16° 22.6	16° 15.9	16° 09.1	16° 02.2	15° 55.2	15° 48.1	-6.6	60.5
Вт 18	273° 56.5	288° 22.7	302° 49.1	317° 15.5	331° 42.0	346° 08.6	0° 35.3	15° 02.0	29° 28.9	43° 55.8	58° 22.8	+26.6	16.3
	13° 50.4	13° 41.8	13° 33.2	13° 24.5	13° 15.8	13° 06.9	12° 58.0	12° 49.1	12° 40.0	12° 30.9	12° 21.7	-8.9	59.7
Ср 19	275° 18.0	289° 46.3	304° 14.7	318° 43.2	333° 11.8	347° 40.4	2° 09.1	16° 37.9	31° 06.8	45° 35.7	60° 04.7	+28.7	16.0
	9° 57.0	9° 46.9	9° 36.8	9° 26.7	9° 16.5	9° 06.3	8° 56.0	8° 45.7	8° 35.4	8° 25.0	8° 14.6	-10.2	58.8
Чт 20	289° 46.3	304° 14.7	318° 43.2	333° 11.8	347° 40.4	2° 09.1	16° 37.9	31° 06.8	45° 35.7	60° 04.7	74° 33.8	+28.7	16.0
	9° 46.9	9° 36.8	9° 26.7	9° 16.5	9° 06.3	8° 56.0	8° 45.7	8° 35.4	8° 25.0	8° 14.6	8° 04.2	-10.3	58.8
◑ Пт 21	291° 58.0	306° 28.2	320° 58.4	335° 28.6	349° 58.9	4° 29.3	18° 59.7	33° 30.2	48° 00.7	62° 31.3	77° 01.9	+30.4	15.8
	5° 24.5	5° 13.6	5° 02.8	4° 52.0	4° 41.1	4° 30.3	4° 19.4	4° 08.6	3° 57.7	3° 46.8	3° 35.9	-10.9	57.9
Сб 22	294° 47.1	309° 18.5	323° 49.8	338° 21.3	352° 52.7	7° 24.3	21° 55.8	36° 27.4	50° 59.0	65° 30.6	80° 02.3	+31.5	15.6
	0° 52.4	0° 41.5	0° 30.6	0° 19.8	0° 08.9	-0° 01.9	-0° 12.7	-0° 23.5	-0° 34.3	-0° 45.1	-0° 55.8	-10.8	57.0
Вс 23	298° 00.6	312° 32.7	327° 04.7	341° 36.8	356° 09.0	10° 41.1	25° 13.3	39° 45.4	54° 17.6	68° 49.8	83° 22.0	+32.1	15.3
	-3° 34.8	-3° 45.2	-3° 55.6	-4° 05.9	-4° 16.3	-4° 26.6	-4° 36.8	-4° 47.1	-4° 57.3	-5° 07.4	-5° 17.6	-10.3	56.3
Пн 24	301° 26.1	315° 58.4	330° 30.7	345° 03.0	359° 35.3	14° 07.7	28° 40.0	43° 12.3	57° 44.6	72° 16.9	86° 49.2	+32.3	15.2
	-7° 45.2	-7° 54.7	-8° 04.2	-8° 13.6	-8° 23.0	-8° 32.4	-8° 41.7	-8° 50.9	-9° 00.1	-9° 09.3	-9° 18.4	-9.3	55.6
Вт 25	304° 53.1	319° 25.3	333° 57.5	348° 29.7	3° 01.8	17° 34.0	32° 06.1	46° 38.3	61° 10.4	75° 42.5	90° 14.6	+32.1	15.0
	-11° 28.8	-11° 37.1	-11° 45.3	-11° 53.4	-12° 01.5	-12° 09.5	-12° 17.5	-12° 25.4	-12° 33.2	-12° 41.0	-12° 48.7	-8.0	55.0
Ср 26	308° 14.2	322° 46.1	337° 17.9	351° 49.8	6° 21.6	20° 53.4	35° 25.1	49° 56.9	64° 28.6	79° 00.4	93° 32.1	+31.8	14.9
	-14° 36.8	-14° 43.5	-14° 50.1	-14° 56.6	-15° 03.1	-15° 09.5	-15° 15.8	-15° 22.0	-15° 28.2	-15° 34.3	-15° 40.3	-6.3	54.6
Чт 27	311° 25.7	325° 57.2	340° 28.6	355° 00.1	9° 31.5	24° 02.9	38° 34.2	53° 05.6	67° 36.9	82° 08.3	96° 39.6	+31.4	14.8
	-17° 01.5	-17° 06.3	-17° 11.0	-17° 15.7	-17° 20.2	-17° 24.7	-17° 29.1	-17° 33.4	-17° 37.6	-17° 41.7	-17° 45.8	-4.4	54.3
Пт 28	314° 28.0	328° 59.1	343° 30.2	358° 01.4	12° 32.5	27° 03.6	41° 34.7	56° 05.8	70° 36.9	85° 08.0	99° 39.0	+31.1	14.7
	-18° 36.6	-18° 39.3	-18° 41.9	-18° 44.4	-18° 46.9	-18° 49.2	-18° 51.5	-18° 53.7	-18° 55.8	-18° 57.8	-18° 59.7	-2.3	54.1
● Сб 29	317° 24.9	331° 55.9	346° 27.0	0° 58.0	15° 29.1	30° 00.2	44° 31.2	59° 02.3	73° 33.4	88° 04.4	102° 35.5	+31.1	14.7
	-19° 17.7	-19° 18.2	-19° 18.6	-19° 19.0	-19° 19.2	-19° 19.3	-19° 19.4	-19° 19.3	-19° 19.2	-19° 19.0	-19° 18.7	-0.1	53.9
Вс 30	320° 22.8	334° 54.0	349° 25.2	3° 56.5	18° 27.8	32° 59.1	47° 30.4	62° 01.7	76° 33.0	91° 04.4	105° 35.7	+31.3	14.7
	-19° 03.4	-19° 01.7	-18° 59.8	-18° 58.0	-18° 56.0	-18° 53.9	-18° 51.7	-18° 49.5	-18° 47.2	-18° 44.8	-18° 42.3	+2.1	53.9
Пн 31	323° 28.2	337° 59.9	352° 31.6	7° 03.3	21° 35.0	36° 06.7	50° 38.5	65° 10.2	79° 42.0	94° 13.9	108° 45.7	+31.7	14.7
	-17° 54.8	-17° 51.0	-17° 47.0	-17° 43.1	-17° 39.0	-17° 34.9	-17° 30.6	-17° 26.3	-17° 22.0	-17° 17.5	-17° 13.0	+4.2	53.9

Строка 1: $t_{гр}$, Δ'/h = изменение $t_{гр}$ за час − 14°, R/p = полудиаметр R
Строка 2: δ (− = южное), Δ'/h = изменение δ за час, R/p = горизонтальный параллакс p
Столбец = (час UTC — число) mod 24
Первая четв.: 8 01h05 — Полнолуние: 15 00h33 — Последняя четв.: 21 16h28 — Новолуние: 29 14h30