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太陽と月の天測暦

天文航法　2027〜2035

大西洋〜インド洋版

グリニッジ子午線（0°）での正午と月の正中の前後の時間帯

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使い方

順を追った計算例：太陽下辺、2027 年 6 月 12 日 10 時 23 分 41 秒（世界時）、眼高 2.5m、器差+1.4’。

天体の高度

1 **六分儀高度：**六分儀の読み（H_i）から器差 e を除きます。人工水平線を使ったときは、読みが高度の 2 倍になるので 2 で割ります。

$H_s = H_i - e$ 　　$62°14.6’ - 1.4’ = 62°13.2’$

2 **眼高差：**水平線で測ったときは眼高差（表 1、常に負）を加えます。人工水平線では加えません。

$H_a = H_s + \text{眼高差}$ 　　$62°13.2’ - 2.8’ = 62°10.4’$ （眼高 2.5m）

3 **真高度：**太陽は表 2、月は表 3 の総改正量を加えます。表は H_a で引き、月ではその日の地平視差 HP（月のページ）も使います。大気差、視差、視半径をまとめた値なので、重ねて加えないでください。

$H_o = H_a + \text{改正量}$ 　　$62°10.4’ + 15.4’ = 62°25.8’$ （表 2）

天体の位置

4 **時角：**月のページで観測直前の正時の GHA を読み、そこから経過した分と秒を補間します。まず表 4、次に表 5 で v を補間します。v は GHA の行の Δ’/h（太陽は 15°/h、月は 14°/h を超える分）です。

$\text{GHA} = \text{GHA}_h + \text{表 } 4 + \text{表 } 5\,(v)$ 　　$330°02.6’ + 5°55.2’ + 0.0’ = 335°57.8’$

5 **赤緯：**正時の赤緯を読み、d（赤緯の行の Δ’/h）の補間値を符号どおりに加えます。

$\text{Dec} = \text{Dec}_h + \text{表 } 5\,(d)$ 　　$23°08.9’ + 0.1’ = 23°09.0’$ （$d = +0.2$）

各表は気温 10 °C、気圧 1010 hPa を前提としています。高度 10° 未満では大気差が気象によって変わり、観測の信頼性が下がります。公式：眼高差 $1.76’\sqrt{h}$（h は眼高、m）、大気差は Bennett の式、視差 $0.15’\cos H_a$（太陽）、$\arcsin(\sin HP \cos H_a)$（月）、月の視半径 $0.2725\,HP$。

表 1　眼高差

眼高（m）	眼高差
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

表 2　太陽：総改正量

H_a	10 月〜3 月 下辺	10 月〜3 月 上辺	4 月〜9 月 下辺	4 月〜9 月 上辺
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

大気差、視差、視半径（10 月〜3 月は 16.1’、4 月〜9 月は 15.9’）を含みます。H_a に加えます。

表 3　月：総改正量

下辺								
H_a \ HP	**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

上辺								
H_a \ HP	**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

列：地平視差 HP（月のページのその日の値）。大気差、視差、視半径（0.2725 HP）を含みます。H_a に加え、行と列の間は補間します。

表 4　GHA の補間：分と秒

分	太陽	月
0	0°00.0’	0°00.0’
1	0°15.0’	0°14.0’
2	0°30.0’	0°28.0’
3	0°45.0’	0°42.0’
4	1°00.0’	0°56.0’
5	1°15.0’	1°10.0’
6	1°30.0’	1°24.0’
7	1°45.0’	1°38.0’
8	2°00.0’	1°52.0’
9	2°15.0’	2°06.0’
10	2°30.0’	2°20.0’
11	2°45.0’	2°34.0’
12	3°00.0’	2°48.0’
13	3°15.0’	3°02.0’
14	3°30.0’	3°16.0’
15	3°45.0’	3°30.0’
16	4°00.0’	3°44.0’
17	4°15.0’	3°58.0’
18	4°30.0’	4°12.0’
19	4°45.0’	4°26.0’
20	5°00.0’	4°40.0’
21	5°15.0’	4°54.0’
22	5°30.0’	5°08.0’
23	5°45.0’	5°22.0’
24	6°00.0’	5°36.0’
25	6°15.0’	5°50.0’
26	6°30.0’	6°04.0’
27	6°45.0’	6°18.0’
28	7°00.0’	6°32.0’
29	7°15.0’	6°46.0’

分	太陽	月
30	7°30.0’	7°00.0’
31	7°45.0’	7°14.0’
32	8°00.0’	7°28.0’
33	8°15.0’	7°42.0’
34	8°30.0’	7°56.0’
35	8°45.0’	8°10.0’
36	9°00.0’	8°24.0’
37	9°15.0’	8°38.0’
38	9°30.0’	8°52.0’
39	9°45.0’	9°06.0’
40	10°00.0’	9°20.0’
41	10°15.0’	9°34.0’
42	10°30.0’	9°48.0’
43	10°45.0’	10°02.0’
44	11°00.0’	10°16.0’
45	11°15.0’	10°30.0’
46	11°30.0’	10°44.0’
47	11°45.0’	10°58.0’
48	12°00.0’	11°12.0’
49	12°15.0’	11°26.0’
50	12°30.0’	11°40.0’
51	12°45.0’	11°54.0’
52	13°00.0’	12°08.0’
53	13°15.0’	12°22.0’
54	13°30.0’	12°36.0’
55	13°45.0’	12°50.0’
56	14°00.0’	13°04.0’
57	14°15.0’	13°18.0’
58	14°30.0’	13°32.0’
59	14°45.0’	13°46.0’

秒	太陽	月
0	0.0’	0.0’
2	0.5’	0.5’
4	1.0’	0.9’
6	1.5’	1.4’
8	2.0’	1.9’
10	2.5’	2.3’
12	3.0’	2.8’
14	3.5’	3.3’
16	4.0’	3.7’
18	4.5’	4.2’
20	5.0’	4.7’
22	5.5’	5.1’
24	6.0’	5.6’
26	6.5’	6.1’
28	7.0’	6.5’
30	7.5’	7.0’
32	8.0’	7.5’
34	8.5’	7.9’
36	9.0’	8.4’
38	9.5’	8.9’
40	10.0’	9.3’
42	10.5’	9.8’
44	11.0’	10.3’
46	11.5’	10.7’
48	12.0’	11.2’
50	12.5’	11.7’
52	13.0’	12.1’
54	13.5’	12.6’
56	14.0’	13.1’
58	14.5’	13.5’

月のページには正時の GHA が載っています。その間、GHA は一定の速さで増え、1 時間に太陽は 15°、月は 14° 進みます。この表は、正時から経過した分（左）と秒（右）の間に増える量です。両方を正時の GHA に加え、さらに v の補間値（表 5）を加えます。例：太陽、15 時 30 分 52 秒では 7°30.0’ + 13.0’ = 7°43.0’。

表 5　v と d の補間

Δ'/h \ 分	**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

補間の残りの部分です。GHA は実際には 1 時間に 15°（月は 14°）より v だけ多く増え、赤緯は 1 時間に d だけ変わります（月のページの Δ'/h）。この表は、正時から経過した分に対する $\Delta \times$ 分/60 です。Δ の符号どおりに加えます。表にない Δ は行を足し合わせます。例：月、$v = 38.3$'/h、41 分では $\approx 30 + 8 + 0.3$ として $20.5 + 5.5 + 0.2 = 26.2$'。

太陽

2027 年 1 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2027 年 1 月

日	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
○ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：7 日 20:24　上弦：15 日 20:34　満月：22 日 12:17　下弦：29 日 10:55

太陽

2027 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2027 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 15:56　上弦：14 日 07:58　満月：20 日 23:23　下弦：28 日 05:16

太陽

2027 年 3 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2027 年 3 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：8 日 09:29　上弦：15 日 16:25　満月：22 日 10:43　下弦：30 日 00:53

太陽

2027 年 4 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2027 年 4 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 23:51　上弦：13 日 22:56　満月：20 日 22:27　下弦：28 日 20:17

太陽

2027 年 5 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2027 年 5 月

日	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 10:58　上弦：13 日 04:43　満月：20 日 10:59　下弦：28 日 13:57

太陽

2027 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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° 26.0	23° 26.1	+0.0
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2027 年 6 月

日	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	SD/HP
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 19:40　上弦：11 日 10:56　満月：19 日 00:44　下弦：27 日 04:54

太陽

2027 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2027 年 7 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 03:02　上弦：10 日 18:39　満月：18 日 15:44　下弦：26 日 16:54

太陽

2027 年 8 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2027 年 8 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 10:05　上弦：9 日 04:54　満月：17 日 07:28　下弦：25 日 02:27　新月：31 日 17:41

太陽

2027 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2027 年 9 月

日	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：7 日 18:31　満月：15 日 23:03　下弦：23 日 10:20　新月：30 日 02:36

太陽

2027 年 10 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2027 年 10 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：7 日 11:47　満月：15 日 13:47　下弦：22 日 17:29　新月：29 日 13:36

太陽

2027 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2027 年 11 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
月 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
火 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
水 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
木 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
金 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
◐ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
○ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
● 日 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
月 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
火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 08:00　満月：14 日 03:25　下弦：21 日 00:48　新月：28 日 03:24

太陽

2027 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2027 年 12 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
水 1	248° 11.3	262° 41.1	277° 10.9	291° 40.7	306° 10.7	320° 40.7	335° 10.8	349° 41.0	4° 11.3	18° 41.6	33° 12.0	+30.1	14.9
	-24° 10.3	-24° 04.2	-23° 58.0	-23° 51.7	-23° 45.3	-23° 38.7	-23° 32.1	-23° 25.3	-23° 18.5	-23° 11.5	-23° 04.4	+6.6	54.7
木 2	250° 57.6	265° 29.3	280° 01.0	294° 32.8	309° 04.7	323° 36.7	338° 08.7	352° 40.8	7° 13.0	21° 45.3	36° 17.6	+32.0	14.8
	-21° 06.5	-20° 57.9	-20° 49.2	-20° 40.4	-20° 31.5	-20° 22.6	-20° 13.6	-20° 04.4	-19° 55.2	-19° 46.0	-19° 36.6	+9.0	54.4
金 3	254° 31.0	269° 04.4	283° 37.9	298° 11.5	312° 45.1	327° 18.8	341° 52.5	356° 26.3	11° 00.2	25° 34.1	40° 08.1	+33.7	14.8
	-17° 07.2	-16° 56.7	-16° 46.1	-16° 35.5	-16° 24.8	-16° 14.0	-16° 03.2	-15° 52.3	-15° 41.3	-15° 30.3	-15° 19.2	+10.8	54.2
土 4	258° 44.0	273° 18.8	287° 53.6	302° 28.5	317° 03.4	331° 38.3	346° 13.3	0° 48.3	15° 23.4	29° 58.5	44° 33.6	+35.0	14.8
	-12° 26.6	-12° 14.7	-12° 02.7	-11° 50.7	-11° 38.7	-11° 26.6	-11° 14.4	-11° 02.3	-10° 50.1	-10° 37.8	-10° 25.5	+12.1	54.1
日 5	263° 24.0	277° 59.6	292° 35.1	307° 10.7	321° 46.3	336° 21.9	350° 57.5	5° 33.2	20° 08.8	34° 44.5	49° 20.2	+35.6	14.8
	-7° 16.7	-7° 03.8	-6° 50.9	-6° 38.0	-6° 25.1	-6° 12.1	-5° 59.1	-5° 46.1	-5° 33.1	-5° 20.0	-5° 06.9	+13.0	54.3
◐ 月 6	268° 15.5	282° 51.2	297° 26.8	312° 02.5	326° 38.1	341° 13.7	355° 49.3	10° 24.9	25° 00.5	39° 36.0	54° 11.5	+35.6	14.9
	-1° 48.0	-1° 34.6	-1° 21.2	-1° 07.8	-0° 54.3	-0° 40.9	-0° 27.4	-0° 14.0	-0° 00.5	0° 13.0	0° 26.5	+13.5	54.6
火 7	273° 01.4	287° 36.4	302° 11.4	316° 46.4	331° 21.4	345° 56.3	0° 31.1	15° 05.9	29° 40.7	44° 15.4	58° 50.1	+34.9	15.0
	3° 49.5	4° 03.0	4° 16.6	4° 30.1	4° 43.6	4° 57.1	5° 10.6	5° 24.2	5° 37.6	5° 51.1	6° 04.6	+13.5	55.1
水 8	277° 23.3	291° 57.0	306° 30.7	321° 04.3	335° 37.8	350° 11.2	4° 44.5	19° 17.8	33° 51.0	48° 24.2	62° 57.2	+33.4	15.2
	9° 25.0	9° 38.2	9° 51.3	10° 04.5	10° 17.6	10° 30.7	10° 43.8	10° 56.8	11° 09.8	11° 22.8	11° 35.7	+13.1	55.8
木 9	281° 02.7	295° 34.3	310° 05.9	324° 37.3	339° 08.6	353° 39.9	8° 11.0	22° 42.1	37° 13.0	51° 43.8	66° 14.5	+31.2	15.4
	14° 44.9	14° 57.1	15° 09.3	15° 21.4	15° 33.5	15° 45.5	15° 57.5	16° 09.4	16° 21.2	16° 33.0	16° 44.7	+12.0	56.6
金 10	283° 42.2	298° 11.2	312° 40.0	327° 08.7	341° 37.3	356° 05.8	10° 34.1	25° 02.4	39° 30.5	53° 58.5	68° 26.3	+28.4	15.7
	19° 31.4	19° 41.9	19° 52.2	20° 02.5	20° 12.7	20° 22.8	20° 32.8	20° 42.7	20° 52.5	21° 02.2	21° 11.7	+10.0	57.4
土 11	285° 10.3	299° 36.3	314° 02.2	328° 27.9	342° 53.6	357° 19.1	11° 44.6	26° 09.9	40° 35.1	55° 00.2	69° 25.2	+25.5	15.9
	23° 21.9	23° 29.5	23° 37.1	23° 44.5	23° 51.8	23° 59.0	24° 06.0	24° 12.8	24° 19.5	24° 26.1	24° 32.6	+7.1	58.3
日 12	285° 28.0	299° 51.4	314° 14.8	328° 38.1	343° 01.3	357° 24.4	11° 47.5	26° 10.5	40° 33.4	54° 56.3	69° 19.1	+23.1	16.1
	25° 50.4	25° 54.3	25° 58.0	26° 01.6	26° 05.0	26° 08.1	26° 11.2	26° 14.0	26° 16.7	26° 19.2	26° 21.5	+3.1	59.1
○ 月 13	284° 55.1	299° 17.2	313° 39.3	328° 01.4	342° 23.4	356° 45.5	11° 07.5	25° 29.6	39° 51.6	54° 13.7	68° 35.7	+22.1	16.3
	26° 34.0	26° 33.3	26° 32.4	26° 31.4	26° 30.1	26° 28.7	26° 27.1	26° 25.3	26° 23.3	26° 21.1	26° 18.7	-1.5	59.7
火 14	284° 08.5	298° 30.9	312° 53.4	327° 15.9	341° 38.5	356° 01.2	10° 23.9	24° 46.6	39° 09.4	53° 32.3	67° 55.2	+22.7	16.4
	25° 20.2	25° 14.8	25° 09.3	25° 03.5	24° 57.6	24° 51.5	24° 45.2	24° 38.7	24° 32.1	24° 25.3	24° 18.3	-6.2	60.0
水 15	283° 47.9	298° 12.1	312° 36.3	327° 00.7	341° 25.1	355° 49.6	10° 14.2	24° 38.9	39° 03.7	53° 28.6	67° 53.5	+24.6	16.4
	22° 13.6	22° 04.1	21° 54.3	21° 44.5	21° 34.5	21° 24.3	21° 14.0	21° 03.6	20° 53.0	20° 42.3	20° 31.5	-10.2	60.2
木 16	284° 19.6	298° 46.1	313° 12.7	327° 39.4	342° 06.2	356° 33.1	11° 00.0	25° 27.1	39° 54.3	54° 21.5	68° 48.9	+26.9	16.4
	17° 33.9	17° 21.1	17° 08.3	16° 55.3	16° 42.3	16° 29.2	16° 15.9	16° 02.6	15° 49.2	15° 35.6	15° 22.0	-13.2	60.1
金 17	285° 49.6	300° 18.3	314° 47.1	329° 16.0	343° 45.0	358° 14.0	12° 43.1	27° 12.3	41° 41.5	56° 10.8	70° 40.2	+29.1	16.3
	11° 48.7	11° 33.9	11° 19.1	11° 04.3	10° 49.3	10° 34.4	10° 19.3	10° 04.3	9° 49.2	9° 34.0	9° 18.8	-15.0	59.8
土 18	300° 18.3	314° 47.1	329° 16.0	343° 45.0	358° 14.0	12° 43.1	27° 12.3	41° 41.5	56° 10.8	70° 40.2	85° 09.7	+29.1	16.3
	11° 33.9	11° 19.1	11° 04.3	10° 49.3	10° 34.4	10° 19.3	10° 04.3	9° 49.2	9° 34.0	9° 18.8	9° 03.5	-15.0	59.7
日 19	302° 38.9	317° 09.3	331° 39.7	346° 10.2	0° 40.7	15° 11.3	29° 41.9	44° 12.6	58° 43.3	73° 14.0	87° 44.8	+30.6	16.2
	5° 11.0	4° 55.3	4° 39.6	4° 23.9	4° 08.1	3° 52.4	3° 36.6	3° 20.9	3° 05.1	2° 49.4	2° 33.6	-15.7	59.3
◑ 月 20	305° 30.1	320° 01.3	334° 32.5	349° 03.7	3° 35.0	18° 06.2	32° 37.5	47° 08.8	61° 40.1	76° 11.4	90° 42.7	+31.3	16.0
	-1° 22.3	-1° 38.0	-1° 53.6	-2° 09.1	-2° 24.7	-2° 40.2	-2° 55.8	-3° 11.2	-3° 26.7	-3° 42.1	-3° 57.5	-15.5	58.7
火 21	308° 32.1	323° 03.4	337° 34.6	352° 05.8	6° 37.0	21° 08.2	35° 39.3	50° 10.5	64° 41.6	79° 12.7	93° 43.8	+31.2	15.9
	-7° 44.1	-7° 58.9	-8° 13.6	-8° 28.2	-8° 42.8	-8° 57.4	-9° 11.9	-9° 26.3	-9° 40.7	-9° 55.0	-10° 09.2	-14.5	58.2
水 22	311° 26.7	325° 57.3	340° 27.9	354° 58.4	9° 28.9	23° 59.3	38° 29.8	53° 00.1	67° 30.5	82° 00.8	96° 31.0	+30.4	15.7
	-13° 35.3	-13° 48.4	-14° 01.5	-14° 14.5	-14° 27.4	-14° 40.2	-14° 53.0	-15° 05.7	-15° 18.3	-15° 30.8	-15° 43.2	-12.8	57.6
木 23	313° 59.5	328° 29.0	342° 58.5	357° 27.9	11° 57.3	26° 26.7	40° 55.9	55° 25.2	69° 54.4	84° 23.5	98° 52.6	+29.3	15.6
	-18° 38.3	-18° 49.2	-19° 00.0	-19° 10.6	-19° 21.2	-19° 31.7	-19° 42.0	-19° 52.3	-20° 02.4	-20° 12.4	-20° 22.3	-10.4	57.0
金 24	316° 03.2	330° 31.5	344° 59.8	359° 28.1	13° 56.3	28° 24.5	42° 52.6	57° 20.7	71° 48.7	86° 16.7	100° 44.7	+28.1	15.4
	-22° 37.0	-22° 45.0	-22° 52.9	-23° 00.7	-23° 08.3	-23° 15.8	-23° 23.2	-23° 30.4	-23° 37.5	-23° 44.5	-23° 51.3	-7.4	56.5
土 25	317° 40.1	332° 07.6	346° 35.0	1° 02.4	15° 29.8	29° 57.2	44° 24.6	58° 51.9	73° 19.3	87° 46.6	102° 13.9	+27.4	15.3
	-25° 17.7	-25° 22.3	-25° 26.8	-25° 31.2	-25° 35.4	-25° 39.5	-25° 43.4	-25° 47.2	-25° 50.9	-25° 54.4	-25° 57.8	-4.0	56.0
日 26	319° 03.1	333° 30.4	347° 57.7	2° 25.0	16° 52.4	31° 19.7	45° 47.1	60° 14.5	74° 41.9	89° 09.4	103° 36.8	+27.4	15.1
	-26° 30.9	-26° 32.0	-26° 32.9	-26° 33.7	-26° 34.3	-26° 34.8	-26° 35.1	-26° 35.3	-26° 35.3	-26° 35.2	-26° 35.0	-0.4	55.5
● 月 27	320° 32.5	335° 00.5	349° 28.6	3° 56.7	18° 24.8	32° 53.1	47° 21.3	61° 49.6	76° 18.0	90° 46.4	105° 14.9	+28.2	15.0
	-26° 14.5	-26° 12.0	-26° 09.4	-26° 06.7	-26° 03.8	-26° 00.8	-25° 57.6	-25° 54.4	-25° 51.0	-25° 47.4	-25° 43.8	+3.1	55.1
火 28	322° 29.1	336° 58.6	351° 28.1	5° 57.7	20° 27.4	34° 57.1	49° 26.9	63° 56.8	78° 26.7	92° 56.8	107° 26.9	+29.8	14.9
	-24° 33.7	-24° 28.0	-24° 22.3	-24° 16.4	-24° 10.4	-24° 04.3	-23° 58.1	-23° 51.8	-23° 45.4	-23° 38.8	-23° 32.2	+6.2	54.7
水 29	325° 07.2	339° 38.4	354° 09.8	8° 41.2	23° 12.7	37° 44.3	52° 16.0	66° 47.7	81° 19.5	95° 51.4	110° 23.3	+31.6	14.8
	-21° 39.9	-21° 31.7	-21° 23.3	-21° 14.9	-21° 06.3	-20° 57.7	-20° 49.0	-20° 40.2	-20° 31.3	-20° 22.3	-20° 13.3	+8.7	54.4
木 30	328° 31.2	343° 04.3	357° 37.5	12° 10.7	26° 44.0	41° 17.3	55° 50.7	70° 24.2	84° 57.8	99° 31.4	114° 05.0	+33.4	14.8
	-17° 47.8	-17° 37.6	-17° 27.2	-17° 16.8	-17° 06.3	-16° 55.7	-16° 45.1	-16° 34.4	-16° 23.7	-16° 12.9	-16° 02.0	+10.6	54.1
金 31	332° 37.1	347° 11.7	1° 46.3	16° 21.0	30° 55.7	45° 30.4	60° 05.3	74° 40.1	89° 15.0	103° 50.0	118° 25.0	+34.8	14.7
	-13° 12.2	-13° 00.4	-12° 48.7	-12° 36.8	-12° 25.0	-12° 13.0	-12° 01.1	-11° 49.1	-11° 37.0	-11° 24.9	-11° 12.8	+11.9	54.0

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 05:22　満月：13 日 16:08　下弦：20 日 09:10　新月：27 日 20:12

太陽

2028 年 1 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
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
土	-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
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
日	-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
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
月	-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
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
火	-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
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
水	-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
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
木	-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
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
金	-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
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
土	-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
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
日	-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
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
月	-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
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
火	-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
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
水	-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
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
木	-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
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
金	-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
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
土	-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
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
日	-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
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
月	-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
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
火	-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
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
水	-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
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
木	-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
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
金	-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
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
土	-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
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
日	-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
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
月	-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
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
火	-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
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
水	-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
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
木	-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
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
金	-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
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
土	-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
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
日	-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
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
月	-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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2028 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：5 日 01:40　満月：12 日 04:03　下弦：18 日 19:25　新月：26 日 15:12

太陽

2028 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2028 年 2 月

日	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
火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
水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
◐ 木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
金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
土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
日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
月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
火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
水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
○ 木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
金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
土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
日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
月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
火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
水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
◑ 木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
金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
土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
日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
月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
火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
水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
木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
● 金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
土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
日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
月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
火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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：3 日 19:10　満月：10 日 15:03　下弦：17 日 08:08　新月：25 日 10:37

太陽

2028 年 3 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2028 年 3 月

日	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	SD/HP
水 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
木 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
金 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
◐ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
● 日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：4 日 09:02　満月：11 日 01:06　下弦：17 日 23:22　新月：26 日 04:31

太陽

2028 年 4 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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°40.9	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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2028 年 4 月

日	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
土 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
◐ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
○ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：2 日 19:15　満月：9 日 10:26　下弦：16 日 16:36　新月：24 日 19:46

太陽

2028 年 5 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2028 年 5 月

日	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
月 1	245° 03.1 19° 00.3	260° 14.7 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
○ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
◑ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
● 水 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
木 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
金 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
土 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
日 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
月 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
火 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
◐ 水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：2 日 02:25　満月：8 日 19:48　下弦：16 日 10:43　新月：24 日 08:16　上弦：31 日 07:36

太陽

2028 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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° 25.9	23° 25.9	23° 25.9	23° 25.9	+0.0
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2028 年 6 月

日	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
木1	254°55.5	269°26.1	283°56.6	298°27.1	312°57.6	327°28.1	341°58.5	356°29.0	10°59.4	25°29.8	40°00.2	+30.5	16.1
	-3°06.1	-3°21.5	-3°36.9	-3°52.2	-4°07.5	-4°22.8	-4°38.1	-4°53.3	-5°08.5	-5°23.7	-5°38.9	-15.3	59.1
金2	257°32.5	272°02.3	286°32.2	301°02.0	315°31.7	330°01.5	344°31.1	359°00.8	13°30.3	27°59.9	42°29.4	+29.7	16.1
	-9°21.7	-9°36.2	-9°50.6	-10°05.0	-10°19.3	-10°33.6	-10°47.8	-11°01.9	-11°16.0	-11°30.0	-11°43.9	-14.2	59.0
土3	259°45.8	274°14.4	288°43.0	303°11.6	317°40.1	332°08.5	346°36.9	1°05.2	15°33.5	30°01.7	44°29.8	+28.4	16.0
	-15°04.3	-15°17.1	-15°29.7	-15°42.2	-15°54.6	-16°07.0	-16°19.2	-16°31.4	-16°43.4	-16°55.4	-17°07.3	-12.3	58.7
日4	261°24.9	275°52.1	290°19.2	304°46.3	319°13.3	333°40.3	348°07.2	2°34.1	17°00.9	31°27.6	45°54.3	+26.9	15.9
	-19°52.2	-20°02.3	-20°12.2	-20°22.1	-20°31.8	-20°41.4	-20°50.8	-21°00.1	-21°09.3	-21°18.4	-21°27.4	-9.5	58.3
月5	262°28.9	276°54.8	291°20.7	305°46.6	320°12.5	334°38.3	349°04.1	3°29.8	17°55.5	32°21.2	46°46.9	+25.8	15.8
	-23°25.0	-23°31.7	-23°38.3	-23°44.7	-23°51.0	-23°57.1	-24°03.1	-24°08.9	-24°14.6	-24°20.1	-24°25.5	-6.0	57.9
火6	263°09.6	277°35.1	292°00.5	306°26.0	320°51.4	335°16.9	349°42.3	4°07.8	18°33.3	32°58.8	47°24.3	+25.5	15.6
	-25°27.4	-25°30.3	-25°33.0	-25°35.6	-25°38.0	-25°40.2	-25°42.3	-25°44.3	-25°46.0	-25°47.7	-25°49.1	-2.2	57.3
○ 水7	263°50.0	278°16.0	292°42.0	307°08.1	321°34.2	336°00.4	350°26.6	4°52.9	19°19.2	33°45.6	48°12.0	+26.2	15.5
	-25°52.4	-25°51.4	-25°50.2	-25°48.9	-25°47.4	-25°45.8	-25°44.0	-25°42.1	-25°40.1	-25°37.9	-25°35.5	+1.7	56.7
木8	264°56.1	279°23.6	293°51.2	308°18.9	322°46.6	337°14.4	351°42.3	6°10.3	20°38.3	35°06.5	49°34.7	+27.9	15.3
	-24°43.4	-24°38.8	-24°34.1	-24°29.3	-24°24.3	-24°19.2	-24°14.0	-24°08.7	-24°03.3	-23°57.7	-23°52.0	+5.1	56.1
金9	266°48.1	281°17.7	295°47.3	310°17.1	324°47.0	339°16.9	353°46.9	8°17.1	22°47.3	37°17.6	51°48.0	+30.0	15.1
	-22°12.6	-22°05.1	-21°57.5	-21°49.8	-21°42.0	-21°34.1	-21°26.1	-21°18.0	-21°09.8	-21°01.5	-20°53.2	+8.0	55.5
土10	269°34.1	284°05.9	298°37.7	313°09.6	327°41.7	342°13.7	356°45.9	11°18.1	25°50.5	40°22.9	54°55.3	+32.1	15.0
	-18°37.0	-18°27.3	-18°17.5	-18°07.6	-17°57.7	-17°47.7	-17°37.6	-17°27.4	-17°17.2	-17°06.9	-16°56.6	+10.0	54.9
日11	273°11.4	287°45.0	302°18.7	316°52.5	331°26.3	346°00.2	0°34.1	15°08.1	29°42.2	44°16.3	58°50.5	+33.9	14.9
	-14°13.9	-14°02.7	-13°51.3	-13°39.9	-13°28.5	-13°17.0	-13°05.5	-12°53.9	-12°42.3	-12°30.7	-12°19.0	+11.5	54.5
月12	277°29.5	292°04.5	306°39.5	321°14.6	335°49.7	350°24.8	5°00.0	19°35.2	34°10.4	48°45.7	63°21.0	+35.2	14.8
	-9°18.8	-9°06.5	-8°54.2	-8°41.8	-8°29.5	-8°17.1	-8°04.6	-7°52.2	-7°39.7	-7°27.2	-7°14.7	+12.4	54.3
火13	292°04.5	306°39.5	321°14.6	335°49.7	350°24.8	5°00.0	19°35.2	34°10.4	48°45.7	63°21.0	77°56.4	+35.2	14.8
	-9°06.5	-8°54.2	-8°41.8	-8°29.5	-8°17.1	-8°04.6	-7°52.2	-7°39.7	-7°27.2	-7°14.7	-7°02.1	+12.4	54.3
水14	296°49.8	311°25.5	326°01.2	340°37.0	355°12.8	9°48.5	24°24.3	39°00.1	53°35.9	68°11.7	82°47.5	+35.8	14.8
	-3°51.5	-3°38.6	-3°25.8	-3°12.9	-3°00.1	-2°47.2	-2°34.3	-2°21.4	-2°08.5	-1°55.6	-1°42.6	+12.9	54.2
◑ 木15	301°44.7	316°20.5	330°56.2	345°32.0	0°07.7	14°43.4	29°19.1	43°54.8	58°30.4	73°06.0	87°41.7	+35.7	14.8
	1°31.7	1°44.7	1°57.7	2°10.6	2°23.6	2°36.5	2°49.4	3°02.4	3°15.3	3°28.2	3°41.1	+12.9	54.3
金16	306°32.5	321°07.6	335°42.7	350°17.7	4°52.7	19°27.7	34°02.6	48°37.4	63°12.2	77°47.0	92°21.7	+34.9	14.9
	6°53.3	7°06.0	7°18.7	7°31.3	7°43.9	7°56.6	8°09.1	8°21.7	8°34.2	8°46.7	8°59.2	+12.6	54.6
土17	310°55.9	325°29.7	340°03.5	354°37.1	9°10.7	23°44.2	38°17.7	52°51.1	67°24.4	81°57.6	96°30.8	+33.5	15.0
	12°02.8	12°14.7	12°26.6	12°38.5	12°50.3	13°02.1	13°13.9	13°25.6	13°37.2	13°48.8	14°00.4	+11.8	55.0
日18	314°38.6	329°10.5	343°42.2	358°13.9	12°45.5	27°17.0	41°48.4	56°19.7	70°50.9	85°22.0	99°53.0	+31.4	15.2
	16°47.4	16°58.1	17°08.7	17°19.2	17°29.7	17°40.1	17°50.4	18°00.6	18°10.8	18°20.9	18°30.9	+10.4	55.7
月19	317°26.6	331°56.1	346°25.4	0°54.7	15°23.8	29°52.8	44°21.8	58°50.6	73°19.3	87°48.0	102°16.5	+29.0	15.4
	20°51.5	21°00.2	21°08.7	21°17.2	21°25.5	21°33.8	21°42.0	21°50.0	21°58.0	22°05.8	22°13.5	+8.2	56.4
火20	319°12.3	333°39.3	348°06.1	2°32.9	16°59.5	31°26.1	45°52.5	60°18.9	74°45.2	89°11.4	103°37.5	+26.5	15.6
	23°55.8	24°01.6	24°07.3	24°12.9	24°18.3	24°23.6	24°28.8	24°33.8	24°38.7	24°43.5	24°48.1	+5.2	57.1
水21	319°59.6	334°24.5	348°49.3	3°14.1	17°38.8	32°03.4	46°28.0	60°52.6	75°17.1	89°41.5	104°05.9	+24.6	15.8
	25°39.7	25°41.9	25°43.9	25°45.8	25°47.6	25°49.1	25°50.6	25°51.8	25°52.9	25°53.8	25°54.6	+1.5	57.9
● 木22	320°07.2	334°31.1	348°55.0	3°18.8	17°42.7	32°06.5	46°30.4	60°54.2	75°18.0	89°41.9	104°05.7	+23.8	16.0
	25°45.8	25°43.9	25°41.7	25°39.5	25°37.0	25°34.4	25°31.6	25°28.6	25°25.4	25°22.1	25°18.6	-2.7	58.6
金23	320°05.2	334°29.4	348°53.6	3°17.8	17°42.1	32°06.5	46°30.8	60°55.2	75°19.7	89°44.2	104°08.4	+24.4	16.1
	24°06.0	23°59.9	23°53.5	23°47.0	23°40.4	23°33.6	23°26.6	23°19.5	23°12.2	23°04.7	22°57.1	-6.9	59.2
土24	320°24.0	334°49.5	349°15.0	3°40.7	18°06.4	32°32.2	46°58.0	61°23.9	75°49.9	90°16.0	104°42.1	+25.8	16.2
	20°45.2	20°35.3	20°25.2	20°15.0	20°04.7	19°54.2	19°43.6	19°32.9	19°22.1	19°11.1	19°00.0	-10.5	59.6
日25	321°22.7	335°50.0	350°17.4	4°44.8	19°12.3	33°39.8	48°07.5	62°35.2	77°03.0	91°30.8	105°58.7	+27.6	16.3
	16°00.1	15°47.2	15°34.3	15°21.3	15°08.1	14°54.9	14°41.6	14°28.3	14°14.8	14°01.2	13°47.6	-13.3	59.7
月26	323°05.2	337°34.1	352°03.1	6°32.1	21°01.2	35°30.3	49°59.5	64°28.7	78°58.0	93°27.4	107°56.7	+29.2	16.3
	10°14.4	9°59.7	9°44.9	9°30.1	9°15.3	9°00.3	8°45.4	8°30.4	8°15.3	8°00.2	7°45.1	-14.9	59.7
火27	325°22.7	339°52.7	354°22.7	8°52.8	23°22.9	37°53.0	52°23.2	66°53.4	81°23.6	95°53.8	110°24.0	+30.1	16.2
	3°54.2	3°38.6	3°23.0	3°07.4	2°51.8	2°36.2	2°20.5	2°04.9	1°49.3	1°33.6	1°18.0	-15.6	59.6
水28	327°59.4	342°29.9	357°00.3	11°30.7	26°01.1	40°31.5	55°01.9	69°32.4	84°02.8	98°33.2	113°03.5	+30.4	16.2
	-2°36.0	-2°51.5	-3°06.9	-3°22.4	-3°37.8	-3°53.2	-4°08.5	-4°23.9	-4°39.2	-4°54.4	-5°09.7	-15.4	59.3
◐ 木29	330°37.6	345°07.7	359°37.8	14°07.8	28°37.9	43°07.8	57°37.8	72°07.8	86°37.7	101°07.5	115°37.4	+30.0	16.1
	-8°53.3	-9°07.8	-9°22.3	-9°36.7	-9°51.0	-10°05.3	-10°19.6	-10°33.7	-10°47.8	-11°01.9	-11°15.8	-14.3	58.9
金30	333°00.4	347°29.6	1°58.7	16°27.8	30°56.9	45°25.9	59°54.9	74°23.8	88°52.6	103°21.5	117°50.2	+29.0	15.9
	-14°36.7	-14°49.4	-15°02.1	-15°14.7	-15°27.1	-15°39.5	-15°51.8	-16°04.0	-16°16.2	-16°28.2	-16°40.1	-12.3	58.4

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：7 日 06:08　下弦：15 日 04:27　新月：22 日 18:27　上弦：29 日 12:10

太陽

2028 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2028 年 7 月

日	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
土 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
日 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
月 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
火 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° 56.7	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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
● 土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：6 日 18:10　下弦：14 日 20:56　新月：22 日 03:01　上弦：28 日 17:40

太陽

2028 年 8 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2028 年 8 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：5 日 08:09　下弦：13 日 11:45　新月：20 日 10:43　上弦：27 日 01:35

太陽

2028 年 9 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2028 年 9 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 23:47　下弦：12 日 00:45　新月：18 日 18:23　上弦：25 日 13:10

太陽

2028 年 10 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2028 年 10 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 16:24　下弦：11 日 11:56　新月：18 日 02:56　上弦：25 日 04:53

太陽

2028 年 11 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2028 年 11 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：2 日 09:17　下弦：9 日 21:25　新月：16 日 13:18　上弦：24 日 00:14

太陽

2028 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2028 年 12 月

日	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
金 1	248°22.7 24°23.3	262°50.2 24°26.8	277°17.7 24°30.3	291°45.0 24°33.6	306°12.3 24°36.7	320°39.6 24°39.8	335°06.8 24°42.7	349°34.0 24°45.5	4°01.1 24°48.1	18°28.1 24°50.6	32°55.1 24°52.9	+27.2 +3.0	15.3 56.2
○ 土 2	249°34.7 25°11.4	264°01.1 25°11.5	278°27.4 25°11.4	292°53.7 25°11.2	307°20.0 25°10.8	321°46.3 25°10.3	336°12.5 25°09.6	350°38.7 25°08.8	5°04.9 25°07.9	19°31.1 25°06.8	33°57.3 25°05.5	+26.3 -0.6	15.5 56.7
日 3	250°29.2 24°29.0	264°55.4 24°25.3	279°21.5 24°21.6	293°47.7 24°17.6	308°13.9 24°13.6	322°40.1 24°09.4	337°06.3 24°05.0	351°32.6 24°00.5	5°58.8 23°55.9	20°25.1 23°51.1	34°51.4 23°46.1	+26.2 -4.3	15.6 57.3
月 4	251°29.5 22°15.2	265°56.3 22°08.1	280°23.2 22°00.8	294°50.1 21°53.3	309°17.0 21°45.8	323°44.0 21°38.1	338°11.1 21°30.3	352°38.1 21°22.3	7°05.3 21°14.3	21°32.4 21°06.1	35°59.6 20°57.7	+27.0 -7.8	15.7 57.7
火 5	252°53.8 18°38.4	267°21.8 18°28.2	281°49.9 18°17.8	296°18.0 18°07.4	310°46.2 17°56.9	325°14.5 17°46.2	339°42.7 17°35.5	354°11.1 17°24.7	8°39.5 17°13.7	23°07.9 17°02.7	37°36.4 16°51.5	+28.3 -10.7	15.9 58.2
水 6	254°49.8 13°53.2	269°19.1 13°40.7	283°48.4 13°28.0	298°17.8 13°15.3	312°47.2 13°02.5	327°16.7 12°49.6	341°46.2 12°36.6	356°15.7 12°23.6	10°45.3 12°10.5	25°15.0 11°57.4	39°44.6 11°44.1	+29.5 -12.9	16.0 58.5
木 7	257°14.1 8°18.2	271°44.3 8°04.0	286°14.6 7°49.8	300°44.8 7°35.6	315°15.1 7°21.3	329°45.4 7°06.9	344°15.8 6°52.6	358°46.1 6°38.1	13°16.5 6°23.7	27°46.9 6°09.2	42°17.3 5°54.6	+30.3 -14.4	16.0 58.8
金 8	259°55.1 2°13.0	274°25.7 1°58.1	288°56.2 1°43.1	303°26.8 1°28.1	317°57.4 1°13.1	332°27.9 0°58.1	346°58.5 0°43.1	1°29.0 0°28.1	15°59.6 0°13.1	30°30.1 -0°01.9	45°00.7 -0°17.0	+30.6 -15.0	16.1 59.1
◑ 土 9	274°25.7 1°58.1	288°56.2 1°43.1	303°26.8 1°28.1	317°57.4 1°13.1	332°27.9 0°58.1	346°58.5 0°43.1	1°29.0 0°28.1	15°59.6 0°13.1	30°30.1 -0°01.9	45°00.7 -0°17.0	59°31.2 -0°32.0	+30.6 -15.0	16.1 59.1
日 10	277°06.9 -4°17.0	291°37.1 -4°31.9	306°07.3 -4°46.7	320°37.5 -5°01.6	335°07.6 -5°16.4	349°37.6 -5°31.2	4°07.7 -5°46.0	18°37.7 -6°00.8	33°07.7 -6°15.5	47°37.6 -6°30.2	62°07.5 -6°44.8	+30.1 -14.8	16.2 59.3
月 11	279°30.7 -10°19.9	293°59.8 -10°33.9	308°28.9 -10°47.8	322°58.0 -11°01.6	337°26.9 -11°15.4	351°55.9 -11°29.1	6°24.7 -11°42.8	20°53.5 -11°56.4	35°22.3 -12°09.9	49°51.0 -12°23.3	64°19.6 -12°36.7	+28.9 -13.7	16.2 59.4
火 12	281°21.4 -15°48.3	295°49.0 -16°00.4	310°16.5 -16°12.4	324°44.0 -16°24.3	339°11.3 -16°36.0	353°38.7 -16°47.7	8°05.9 -16°59.3	22°33.1 -17°10.8	37°00.2 -17°22.2	51°27.2 -17°33.5	65°54.1 -17°44.7	+27.3 -11.6	16.2 59.3
水 13	282°30.2 -20°18.6	296°56.1 -20°27.9	311°21.9 -20°37.0	325°47.6 -20°46.1	340°13.3 -20°55.0	354°38.9 -21°03.7	9°04.4 -21°12.3	23°29.9 -21°20.8	37°55.3 -21°29.1	52°20.7 -21°37.4	66°46.0 -21°45.4	+25.6 -8.7	16.1 59.1
木 14	282°59.4 -23°28.9	297°23.9 -23°34.5	311°48.4 -23°40.1	326°12.9 -23°45.4	340°37.3 -23°50.7	355°01.7 -23°55.7	9°26.1 -24°00.6	23°50.4 -24°05.3	38°14.7 -24°09.9	52°39.0 -24°14.3	67°03.3 -24°18.6	+24.4 -5.0	16.0 58.8
金 15	283°05.9 -25°02.8	297°30.0 -25°04.4	311°54.2 -25°05.9	326°18.4 -25°07.2	340°42.6 -25°08.3	355°06.8 -25°09.3	9°31.0 -25°10.1	23°55.3 -25°10.7	38°19.6 -25°11.2	52°43.9 -25°11.5	67°08.2 -25°11.7	+24.2 -0.9	15.9 58.3
● 土 16	283°17.8 -24°54.7	297°42.8 -24°52.3	312°07.9 -24°49.7	326°33.0 -24°47.0	340°58.2 -24°44.2	355°23.5 -24°41.2	9°48.8 -24°38.0	24°14.2 -24°34.7	38°39.7 -24°31.3	53°05.2 -24°27.7	67°30.9 -24°23.9	+25.3 +3.1	15.7 57.7
日 17	284°04.3 -23°11.0	298°31.2 -23°05.1	312°58.2 -22°59.0	327°25.3 -22°52.9	341°52.5 -22°46.6	356°19.8 -22°40.1	10°47.1 -22°33.6	25°14.6 -22°26.9	39°42.1 -22°20.2	54°09.8 -22°13.3	68°37.5 -22°06.2	+27.3 +6.5	15.5 57.0
月 18	285°45.1 -20°08.0	300°14.4 -19°59.3	314°43.7 -19°50.5	329°13.2 -19°41.7	343°42.8 -19°32.7	358°12.5 -19°23.6	12°42.2 -19°14.5	27°12.1 -19°05.3	41°42.1 -18°56.0	56°12.1 -18°46.6	70°42.3 -18°37.1	+29.7 +9.1	15.4 56.3
火 19	288°25.6 -16°05.8	302°57.2 -15°55.1	317°28.9 -15°44.5	332°00.7 -15°33.7	346°32.6 -15°22.9	1°04.5 -15°12.0	15°36.6 -15°01.1	30°08.7 -14°50.1	44°40.9 -14°39.0	59°13.2 -14°27.9	73°45.6 -14°16.8	+32.0 +10.9	15.2 55.6
水 20	292°00.1 -11°23.9	306°33.6 -11°12.0	321°07.2 -11°00.1	335°40.9 -10°48.2	350°14.6 -10°36.2	4°48.4 -10°24.2	19°22.2 -10°12.2	33°56.2 -10°00.2	48°30.1 -9°48.1	63°04.2 -9°35.9	77°38.2 -9°23.8	+33.8 +12.0	15.0 55.0
木 21	296°15.8 -6°18.7	310°50.6 -6°06.2	325°25.5 -5°53.7	340°00.5 -5°41.2	354°35.5 -5°28.7	9°10.5 -5°16.1	23°45.5 -5°03.6	38°20.6 -4°51.0	52°55.8 -4°38.4	67°30.9 -4°25.8	82°06.1 -4°13.2	+35.0 +12.6	14.9 54.6
金 22	300°57.0 -1°03.5	315°32.6 -0°50.9	330°08.1 -0°38.2	344°43.7 -0°25.6	359°19.3 -0°12.9	13°54.9 -0°00.3	28°30.5 0°12.4	43°06.1 0°25.0	57°41.8 0°37.6	72°17.4 0°50.3	86°53.0 1°02.9	+35.6 +12.6	14.8 54.3
◐ 土 23	305°47.4 4°11.0	320°23.0 4°23.4	334°58.6 4°35.8	349°34.1 4°48.2	4°09.6 5°00.6	18°45.1 5°13.0	33°20.6 5°25.3	47°56.1 5°37.6	62°31.6 5°49.9	77°07.0 6°02.2	91°42.4 6°14.5	+35.5 +12.3	14.8 54.2
日 24	310°30.5 9°15.2	325°05.4 9°27.0	339°40.4 9°38.8	354°15.2 9°50.6	8°50.0 10°02.3	23°24.8 10°14.0	37°59.6 10°25.6	52°34.3 10°37.2	67°08.9 10°48.8	81°43.5 11°00.4	96°18.1 11°11.9	+34.8 +11.7	14.8 54.2
月 25	314°50.5 13°59.2	329°24.2 14°10.0	343°57.8 14°20.7	358°31.4 14°31.4	13°04.9 14°42.0	27°38.4 14°52.6	42°11.8 15°03.1	56°45.1 15°13.6	71°18.4 15°24.0	85°51.6 15°34.3	100°24.7 15°44.6	+33.4 +10.5	14.9 54.5
火 26	318°33.0 18°11.4	333°05.0 18°20.6	347°36.9 18°29.8	2°08.6 18°38.8	16°40.4 18°47.9	31°12.0 18°56.8	45°43.6 19°05.6	60°15.0 19°14.4	74°46.4 19°23.1	89°17.7 19°31.7	103°49.0 19°40.3	+31.6 +8.9	15.0 54.9
水 27	321°27.4 21°37.8	335°57.2 21°44.9	350°27.0 21°51.9	4°56.7 21°58.8	19°26.4 22°05.5	33°55.9 22°12.2	48°25.4 22°18.8	62°54.7 22°25.3	77°24.0 22°31.6	91°53.2 22°37.9	106°22.3 22°44.0	+29.5 +6.6	15.1 55.5
木 28	323°29.2 24°02.6	337°57.1 24°06.8	352°24.8 24°11.0	6°52.5 24°15.0	21°20.1 24°18.9	35°47.6 24°22.7	50°15.1 24°26.3	64°42.5 24°29.8	79°09.8 24°33.2	93°37.0 24°36.4	108°04.2 24°39.5	+27.5 +3.7	15.3 56.2
金 29	324°44.5 25°09.5	339°10.8 25°10.4	353°37.0 25°11.1	8°03.1 25°11.7	22°29.3 25°12.1	36°55.3 25°12.4	51°21.4 25°12.5	65°47.4 25°12.5	80°13.3 25°12.3	94°39.2 25°12.0	109°05.1 25°11.5	+26.1 +0.2	15.5 56.9
土 30	325°30.3 24°46.1	339°55.9 24°43.2	354°21.4 24°40.2	8°47.0 24°36.9	23°12.5 24°33.6	37°38.0 24°30.0	52°03.6 24°26.4	66°29.1 24°22.5	80°54.6 24°18.5	95°20.2 24°14.4	109°45.7 24°10.1	+25.5 -3.6	15.7 57.6
○ 日 31	326°10.8 22°47.7	340°36.6 22°41.0	355°02.5 22°34.2	9°28.4 22°27.2	23°54.4 22°20.1	38°20.4 22°12.8	52°46.4 22°05.5	67°12.4 21°57.9	81°38.5 21°50.3	96°04.7 21°42.5	110°30.8 21°34.5	+26.0 -7.3	15.9 58.3

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：2 日 01:40　下弦：9 日 05:38　新月：16 日 02:06　上弦：23 日 21:44　満月：31 日 16:48

太陽

2029 年 1 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2029 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24
下弦：7 日 13:26　新月：14 日 17:24　上弦：22 日 19:23　満月：30 日 06:03

太陽

2029 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2029 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 21:52　新月：13 日 10:31　上弦：21 日 15:09　満月：28 日 17:10

太陽

2029 年 3 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2029 年 3 月

日	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
木 1	240°53.0 -2°39.0	255°21.1 -2°54.9	269°49.1 -3°10.8	284°17.1 -3°26.7	298°45.1 -3°42.5	313°13.1 -3°58.3	327°41.1 -4°14.1	342°09.0 -4°29.9	356°36.9 -4°45.6	11°04.8 -5°01.3	25°32.7 -5°17.0	+28.0 -15.8	16.7 61.1
金 2	242°27.8 -9°06.8	256°55.2 -9°21.7	271°22.6 -9°36.5	285°50.0 -9°51.2	300°17.3 -10°05.9	314°44.6 -10°20.5	329°11.9 -10°35.1	343°39.1 -10°49.5	358°06.3 -11°03.9	12°33.5 -11°18.2	27°00.6 -11°32.5	+27.3 -14.6	16.6 60.9
土 3	243°42.6 -14°55.4	258°09.1 -15°08.2	272°35.6 -15°20.8	287°02.0 -15°33.4	301°28.3 -15°45.8	315°54.6 -15°58.1	330°20.9 -16°10.3	344°47.1 -16°22.4	359°13.3 -16°34.4	13°39.4 -16°46.2	28°05.5 -16°58.0	+26.3 -12.3	16.5 60.4
日 4	244°32.3 -19°39.2	258°57.8 -19°49.8	273°23.2 -19°58.4	287°48.7 -20°07.9	302°14.0 -20°17.1	316°39.4 -20°26.3	331°04.7 -20°35.3	345°30.0 -20°44.1	359°55.3 -20°52.9	14°20.5 -21°01.4	28°45.7 -21°09.8	+25.3 -9.1	16.3 59.7
月 5	245°00.8 -22°58.3	259°25.7 -23°04.3	273°50.6 -23°10.2	288°15.4 -23°15.9	302°40.3 -23°21.4	317°05.1 -23°26.8	331°30.0 -23°32.0	345°54.8 -23°37.1	0°19.6 -23°42.0	14°44.4 -23°46.8	29°09.3 -23°51.4	+24.8 -5.3	16.0 58.8
火 6	245°22.6 -24°41.4	259°47.6 -24°43.4	274°12.6 -24°45.4	288°37.7 -24°47.1	303°02.8 -24°48.7	317°27.9 -24°50.1	331°53.1 -24°51.4	346°18.3 -24°52.6	0°43.5 -24°53.5	15°08.7 -24°54.4	29°34.0 -24°55.0	+25.1 -1.4	15.8 58.0
◑ 水 7	245°58.5 -24°46.8	260°24.6 -24°45.1	274°50.7 -24°43.2	289°16.8 -24°41.1	303°43.0 -24°39.0	318°09.3 -24°36.7	332°35.6 -24°34.2	347°02.0 -24°31.6	1°28.5 -24°28.9	15°55.0 -24°26.0	30°21.6 -24°23.0	+26.3 +2.4	15.6 57.2
木 8	260°24.6 -24°45.1	274°50.7 -24°43.2	289°16.8 -24°41.1	303°43.0 -24°39.0	318°09.3 -24°36.7	332°35.6 -24°34.2	347°02.0 -24°31.6	1°28.5 -24°28.9	15°55.0 -24°26.0	30°21.6 -24°23.0	44°48.3 -24°19.9	+26.4 +2.5	15.6 57.1
金 9	261°36.7 -23°16.9	276°04.5 -23°11.7	290°32.4 -23°06.3	305°00.4 -23°00.9	319°28.5 -22°55.3	333°56.6 -22°49.6	348°24.9 -22°43.8	2°53.2 -22°37.9	17°21.6 -22°31.8	31°50.0 -22°25.7	46°18.6 -22°19.4	+28.2 +5.7	15.4 56.4
土 10	263°36.6 -20°32.7	278°06.5 -20°24.8	292°36.5 -20°16.8	307°06.5 -20°08.7	321°36.6 -20°00.5	336°06.8 -19°52.2	350°37.1 -19°43.8	5°07.4 -19°35.4	19°37.8 -19°26.8	34°08.4 -19°18.2	48°39.0 -19°09.4	+30.2 +8.3	15.2 55.7
日 11	266°27.3 -16°49.0	280°59.1 -16°39.0	295°31.0 -16°29.0	310°03.0 -16°18.9	324°35.0 -16°08.8	339°07.1 -15°58.5	353°39.3 -15°48.3	8°11.6 -15°37.9	22°43.9 -15°27.5	37°16.3 -15°17.0	51°48.7 -15°06.5	+32.2 +10.3	15.1 55.2
月 12	270°03.4 -12°22.0	284°36.9 -12°10.6	299°10.4 -11°59.2	313°44.0 -11°47.8	328°17.6 -11°36.3	342°51.3 -11°24.8	357°25.0 -11°13.2	11°58.8 -11°01.6	26°32.6 -10°49.9	41°06.5 -10°38.2	55°40.5 -10°26.5	+33.7 +11.6	14.9 54.8
火 13	274°15.1 -7°26.8	288°49.7 -7°14.6	303°24.4 -7°02.3	317°59.1 -6°50.1	332°33.8 -6°37.8	347°08.6 -6°25.5	1°43.4 -6°13.2	16°18.3 -6°00.9	30°53.1 -5°48.6	45°28.0 -5°36.2	60°03.0 -5°23.8	+34.8 +12.3	14.8 54.4
水 14	278°50.0 -2°16.7	293°25.3 -2°04.2	308°00.6 -1°51.6	322°35.9 -1°39.1	337°11.2 -1°26.6	351°46.6 -1°14.0	6°21.9 -1°01.5	20°57.3 -0°48.9	35°32.7 -0°36.4	50°08.1 -0°23.8	64°43.5 -0°11.3	+35.4 +12.5	14.8 54.1
● 木 15	283°35.1 2°56.0	298°10.5 3°08.4	312°45.9 3°20.8	327°21.4 3°33.1	341°56.8 3°45.5	356°32.2 3°57.8	11°07.6 4°10.2	25°43.0 4°22.5	40°18.4 4°34.7	54°53.7 4°47.0	69°29.1 4°59.2	+35.4 +12.3	14.7 54.0
金 16	288°17.7 7°59.9	302°52.7 8°11.7	317°27.8 8°23.5	332°02.8 8°35.3	346°37.8 8°47.0	1°12.8 8°58.7	15°47.8 9°10.3	30°22.7 9°21.9	44°57.6 9°33.5	59°32.4 9°45.1	74°07.3 9°56.6	+35.0 +11.7	14.7 53.9
土 17	292°45.8 12°43.9	307°20.0 12°54.7	321°54.3 13°05.5	336°28.4 13°16.1	351°02.6 13°26.8	5°36.7 13°37.4	20°10.7 13°47.9	34°44.7 13°58.4	49°18.7 14°08.8	63°52.6 14°19.1	78°26.5 14°29.4	+34.1 +10.6	14.7 53.9
日 18	296°48.8 16°56.7	311°21.9 17°06.0	325°54.9 17°15.2	340°27.9 17°24.4	355°00.8 17°33.4	9°33.7 17°42.5	24°06.5 17°51.4	38°39.2 18°00.3	53°11.9 18°09.1	67°44.5 18°17.8	82°17.1 18°26.4	+32.8 +9.0	14.7 54.0
月 19	300°18.8 20°26.4	314°50.4 20°33.8	329°22.0 20°41.0	343°53.5 20°48.2	358°25.0 20°55.2	12°56.3 21°02.2	27°27.7 21°09.1	41°58.9 21°15.8	56°30.2 21°22.5	71°01.3 21°29.1	85°32.4 21°35.6	+31.4 +6.9	14.8 54.3
火 20	303°11.5 23°01.2	317°41.6 23°06.1	332°11.7 23°10.9	346°41.7 23°15.6	1°11.7 23°20.1	15°41.6 23°24.6	30°11.4 23°28.9	44°41.2 23°33.1	59°11.0 23°37.3	73°40.7 23°41.3	88°10.3 23°45.2	+29.9 +4.4	14.9 54.7
水 21	305°28.4 24°29.5	319°57.2 24°31.6	334°26.0 24°33.4	348°54.7 24°35.2	3°23.4 24°36.8	17°52.0 24°38.3	32°20.6 24°39.7	46°49.2 24°41.0	61°17.7 24°42.1	75°46.1 24°43.1	90°14.6 24°44.0	+28.6 +1.4	15.1 55.3
木 22	307°16.9 24°41.5	321°44.8 24°40.3	336°12.7 24°39.0	350°40.5 24°37.5	5°08.3 24°35.9	19°36.2 24°34.1	34°04.0 24°32.3	48°31.7 24°30.3	62°59.5 24°28.1	77°27.2 24°25.8	91°54.9 24°23.4	+27.8 -1.8	15.3 56.0
◐ 金 23	308°49.1 23°30.8	323°16.6 23°26.2	337°44.2 23°21.5	352°11.7 23°16.7	6°39.2 23°11.7	21°06.8 23°06.5	35°34.3 23°01.3	50°01.8 22°55.9	64°29.4 22°50.3	78°56.9 22°44.7	93°24.4 22°38.9	+27.5 -5.2	15.5 56.8
土 24	310°18.2 20°55.9	324°45.9 20°48.0	339°13.5 20°40.0	353°41.2 20°31.8	8°08.9 20°23.5	22°36.6 20°15.1	37°04.3 20°06.6	51°32.1 19°57.9	65°59.8 19°49.1	80°27.6 19°40.2	94°55.4 19°31.2	+27.7 -8.5	15.8 57.8
日 25	311°54.0 17°01.2	326°22.0 16°50.3	340°50.1 16°39.2	355°18.2 16°28.1	9°46.3 16°16.8	24°14.4 16°05.5	38°42.5 15°54.0	53°10.6 15°42.4	67°38.8 15°30.7	82°07.0 15°18.9	96°35.2 15°07.1	+28.1 -11.4	16.0 58.8
月 26	313°39.7 11°56.9	328°08.1 11°43.5	342°36.5 11°30.0	357°04.9 11°16.5	11°33.4 11°02.8	26°01.8 10°49.1	40°30.2 10°35.3	54°58.7 10°21.4	69°27.2 10°07.4	83°55.6 9°53.3	98°24.1 9°39.2	+28.4 -13.8	16.3 59.8
火 27	315°31.4 5°59.4	329°59.9 5°44.3	344°28.3 5°29.1	358°56.8 5°13.9	13°25.2 4°58.7	27°53.7 4°43.4	42°22.1 4°28.0	56°50.5 4°12.6	71°18.9 3°57.2	85°47.3 3°41.8	100°15.7 3°26.2	+28.4 -15.3	16.5 60.6
水 28	317°19.4 -0°29.4	331°47.5 -0°45.2	346°15.5 -1°01.1	0°43.5 -1°16.9	15°11.5 -1°32.8	29°39.5 -1°48.6	44°07.4 -2°04.5	58°35.3 -2°20.3	73°03.1 -2°36.1	87°31.0 -2°52.0	101°58.8 -3°07.8	+27.9 -15.8	16.7 61.2
木 29	318°51.1 -7°02.5	333°18.3 -7°17.9	347°45.4 -7°33.2	2°12.5 -7°48.5	16°39.5 -8°03.8	31°06.4 -8°19.0	45°33.4 -8°34.1	60°00.2 -8°49.2	74°27.0 -9°04.3	88°53.8 -9°19.3	103°20.5 -9°34.2	+26.9 -15.2	16.7 61.4
○ 金 30	319°54.9 -13°09.5	334°20.7 -13°23.2	348°46.5 -13°36.8	3°12.3 -13°50.3	17°38.0 -14°03.7	32°03.6 -14°17.0	46°29.2 -14°30.2	60°54.7 -14°43.3	75°20.1 -14°56.3	89°45.5 -15°09.2	104°10.9 -15°22.0	+25.6 -13.3	16.7 61.3
土 31	320°24.6 -18°19.7	334°49.1 -18°30.5	349°13.5 -18°41.2	3°37.9 -18°51.7	18°02.3 -19°02.2	32°26.6 -19°12.4	46°50.9 -19°22.6	61°15.1 -19°32.6	75°39.3 -19°42.4	90°03.4 -19°52.1	104°27.5 -20°01.7	+24.3 -10.2	16.6 60.8

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：7 日 07:51　新月：15 日 04:19　上弦：23 日 07:33　満月：30 日 02:26

太陽

2029 年 4 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2029 年 4 月

日	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
◐ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 19:51　新月：13 日 21:40　上弦：21 日 19:50　満月：28 日 10:36

太陽

2029 年 5 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2029 年 5 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 09:48　新月：13 日 13:42　上弦：21 日 04:16　満月：27 日 18:37

太陽

2029 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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° 24.7	23° 24.7	-0.0
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2029 年 6 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24
下弦：4 日 01:18　新月：12 日 03:50　上弦：19 日 09:54　満月：26 日 03:22

太陽

2029 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2029 年 7 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：3 日 17:57　新月：11 日 15:51　上弦：18 日 14:14　満月：25 日 13:35

太陽

2029 年 8 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2029 年 8 月

日	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
○ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24
下弦：2 日 11:15　新月：10 日 01:55　上弦：16 日 18:55　満月：24 日 01:51

太陽

2029 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2029 年 9 月

日	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
◑ 土 1	234° 39.6	249° 08.4	263° 37.1	278° 05.9	292° 34.6	307° 03.3	321° 31.9	336° 00.5	350° 29.1	4° 57.7	19° 26.2	+28.7	15.1
	24° 08.2	24° 08.3	24° 08.3	24° 08.2	24° 07.9	24° 07.6	24° 07.1	24° 06.4	24° 05.7	24° 04.8	24° 03.8	-0.4	55.3
日 2	236° 31.6	250° 59.8	265° 28.0	279° 56.2	294° 24.4	308° 52.5	323° 20.7	337° 48.8	352° 17.0	6° 45.1	21° 13.2	+28.2	15.3
	23° 33.6	23° 30.6	23° 27.4	23° 24.1	23° 20.7	23° 17.1	23° 13.5	23° 09.7	23° 05.7	23° 01.7	22° 57.5	-3.6	56.1
月 3	250° 59.8	265° 28.0	279° 56.2	294° 24.4	308° 52.5	323° 20.7	337° 48.8	352° 17.0	6° 45.1	21° 13.2	35° 41.3	+28.2	15.3
	23° 30.6	23° 27.4	23° 24.1	23° 20.7	23° 17.1	23° 13.5	23° 09.7	23° 05.7	23° 01.7	22° 57.5	22° 53.1	-3.7	56.1
火 4	252° 42.7	267° 10.8	281° 39.0	296° 07.1	310° 35.2	325° 03.3	339° 31.4	353° 59.6	8° 27.7	22° 55.9	37° 24.0	+28.1	15.5
	21° 33.0	21° 26.7	21° 20.2	21° 13.6	21° 06.9	21° 00.0	20° 53.0	20° 45.9	20° 38.7	20° 31.4	20° 23.9	-6.9	57.0
水 5	254° 27.8	268° 56.2	283° 24.5	297° 52.9	312° 21.3	326° 49.7	341° 18.2	355° 46.6	10° 15.1	24° 43.6	39° 12.0	+28.4	15.8
	18° 17.5	18° 08.2	17° 58.7	17° 49.1	17° 39.5	17° 29.7	17° 19.7	17° 09.7	16° 59.6	16° 49.4	16° 39.0	-9.9	57.9
木 6	256° 21.3	270° 50.0	285° 18.7	299° 47.5	314° 16.3	328° 45.1	343° 13.9	357° 42.7	12° 11.5	26° 40.4	41° 09.2	+28.8	16.0
	13° 51.7	13° 39.8	13° 27.8	13° 15.7	13° 03.5	12° 51.2	12° 38.8	12° 26.4	12° 13.8	12° 01.2	11° 48.5	-12.3	58.8
金 7	258° 23.1	272° 52.1	287° 21.1	301° 50.1	316° 19.1	330° 48.1	345° 17.1	359° 46.1	14° 15.1	28° 44.1	43° 13.1	+29.0	16.2
	8° 28.9	8° 15.1	8° 01.2	7° 47.2	7° 33.2	7° 19.1	7° 05.0	6° 50.8	6° 36.5	6° 22.3	6° 07.9	-14.1	59.6
● 土 8	260° 27.5	274° 56.4	289° 25.2	303° 54.1	318° 23.0	332° 51.8	347° 20.6	1° 49.4	16° 18.2	30° 47.0	45° 15.7	+28.8	16.4
	2° 27.9	2° 13.0	1° 58.1	1° 43.1	1° 28.1	1° 13.1	0° 58.1	0° 43.1	0° 28.0	0° 12.9	-0° 02.1	-15.0	60.2
日 9	262° 24.2	276° 52.6	291° 20.9	305° 49.2	320° 17.4	334° 45.6	349° 13.8	3° 42.0	18° 10.1	32° 38.1	47° 06.2	+28.2	16.5
	-3° 48.1	-4° 03.1	-4° 18.1	-4° 33.0	-4° 48.0	-5° 02.9	-5° 17.7	-5° 32.6	-5° 47.4	-6° 02.2	-6° 16.9	-14.9	60.5
月 10	264° 01.8	278° 29.2	292° 56.5	307° 23.7	321° 50.9	336° 18.1	350° 45.2	5° 12.3	19° 39.3	34° 06.3	48° 33.2	+27.1	16.5
	-9° 52.9	-10° 06.8	-10° 20.7	-10° 34.6	-10° 48.3	-11° 02.0	-11° 15.7	-11° 29.2	-11° 42.7	-11° 56.1	-12° 09.4	-13.7	60.6
火 11	265° 10.7	279° 36.8	294° 02.9	308° 28.9	322° 54.8	337° 20.7	351° 46.5	6° 12.3	20° 38.0	35° 03.7	49° 29.3	+25.9	16.5
	-15° 18.9	-15° 30.7	-15° 42.5	-15° 54.1	-16° 05.7	-16° 17.1	-16° 28.4	-16° 39.6	-16° 50.7	-17° 01.7	-17° 12.6	-11.4	60.4
水 12	265° 47.8	280° 12.7	294° 37.6	309° 02.4	323° 27.1	337° 51.8	352° 16.5	6° 41.2	21° 05.8	35° 30.3	49° 54.9	+24.7	16.3
	-19° 40.5	-19° 49.3	-19° 58.0	-20° 06.5	-20° 14.9	-20° 23.1	-20° 31.3	-20° 39.2	-20° 47.0	-20° 54.7	-21° 02.3	-8.2	59.9
木 13	265° 59.8	280° 24.0	294° 48.1	309° 12.3	323° 36.4	338° 00.6	352° 24.7	6° 48.8	21° 12.9	35° 37.1	50° 01.2	+24.1	16.2
	-22° 37.2	-22° 42.3	-22° 47.3	-22° 52.1	-22° 56.7	-23° 01.2	-23° 05.5	-23° 09.6	-23° 13.6	-23° 17.5	-23° 21.2	-4.4	59.3
金 14	266° 04.0	280° 28.4	294° 52.7	309° 17.1	323° 41.5	338° 06.0	352° 30.5	6° 55.0	21° 19.6	35° 44.1	50° 08.8	+24.5	16.0
	-23° 57.2	-23° 58.4	-23° 59.3	-24° 00.2	-24° 00.8	-24° 01.3	-24° 01.7	-24° 01.9	-24° 01.9	-24° 01.8	-24° 01.5	-0.4	58.6
◐ 土 15	266° 23.9	280° 49.3	295° 14.8	309° 40.4	324° 06.0	338° 31.7	352° 57.5	7° 23.3	21° 49.2	36° 15.2	50° 41.2	+25.7	15.8
	-23° 39.2	-23° 36.5	-23° 33.7	-23° 30.7	-23° 27.6	-23° 24.4	-23° 21.0	-23° 17.5	-23° 13.8	-23° 10.0	-23° 06.1	+3.3	57.9
日 16	267° 20.6	281° 47.9	296° 15.2	310° 42.6	325° 10.1	339° 37.7	354° 05.3	8° 33.1	23° 00.9	37° 28.8	51° 56.8	+27.6	15.6
	-21° 51.5	-21° 45.6	-21° 39.5	-21° 33.3	-21° 27.0	-21° 20.5	-21° 14.0	-21° 07.3	-21° 00.5	-20° 53.7	-20° 46.7	+6.5	57.2
月 17	269° 06.6	283° 35.9	298° 05.4	312° 34.8	327° 04.4	341° 34.1	356° 03.8	10° 33.6	25° 03.5	39° 33.5	54° 03.6	+29.7	15.4
	-18° 49.4	-18° 40.9	-18° 32.2	-18° 23.4	-18° 14.6	-18° 05.6	-17° 56.6	-17° 47.5	-17° 38.3	-17° 29.1	-17° 19.7	+9.0	56.6
火 18	271° 43.9	286° 15.2	300° 46.5	315° 17.9	329° 49.4	344° 21.0	358° 52.7	13° 24.4	27° 56.2	42° 28.0	56° 59.9	+31.6	15.3
	-14° 50.7	-14° 40.2	-14° 29.6	-14° 19.0	-14° 08.4	-13° 57.7	-13° 46.9	-13° 36.1	-13° 25.2	-13° 14.2	-13° 03.2	+10.7	56.0
水 19	275° 06.2	289° 39.1	304° 12.0	318° 45.0	333° 18.0	347° 51.1	2° 24.3	16° 57.5	31° 30.7	46° 04.0	60° 37.4	+33.1	15.1
	-10° 12.8	-10° 01.1	-9° 49.3	-9° 37.6	-9° 25.8	-9° 13.9	-9° 02.1	-8° 50.2	-8° 38.2	-8° 26.3	-8° 14.3	+11.8	55.5
木 20	279° 02.7	293° 36.7	308° 10.7	322° 44.8	337° 18.9	351° 53.0	6° 27.2	21° 01.4	35° 35.6	50° 09.8	64° 44.1	+34.1	15.0
	-5° 11.8	-4° 59.5	-4° 47.2	-4° 34.8	-4° 22.5	-4° 10.1	-3° 57.7	-3° 45.4	-3° 33.0	-3° 20.6	-3° 08.2	+12.4	55.0
金 21	283° 20.9	297° 55.5	312° 30.1	327° 04.7	341° 39.3	356° 13.9	10° 48.6	25° 23.3	39° 57.9	54° 32.6	69° 07.3	+34.6	14.9
	-0° 02.0	0° 10.4	0° 22.8	0° 35.1	0° 47.5	0° 59.9	1° 12.2	1° 24.5	1° 36.9	1° 49.2	2° 01.5	+12.4	54.7
○ 土 22	287° 47.8	302° 22.5	316° 57.2	331° 31.8	346° 06.5	0° 41.2	15° 15.8	29° 50.4	44° 25.1	58° 59.7	73° 34.3	+34.7	14.8
	5° 03.8	5° 15.8	5° 27.7	5° 39.7	5° 51.6	6° 03.4	6° 15.3	6° 27.1	6° 38.9	6° 50.6	7° 02.3	+11.9	54.3
日 23	292° 11.5	306° 45.8	321° 20.1	335° 54.4	350° 28.7	5° 02.9	19° 37.1	34° 11.3	48° 45.4	63° 19.5	77° 53.6	+34.2	14.8
	9° 53.8	10° 04.9	10° 16.0	10° 27.0	10° 38.0	10° 49.0	10° 59.8	11° 10.7	11° 21.5	11° 32.2	11° 42.9	+10.9	54.1
月 24	296° 21.4	310° 55.0	325° 28.5	340° 02.1	354° 35.5	9° 09.0	23° 42.4	38° 15.7	52° 49.0	67° 22.3	81° 55.6	+33.4	14.7
	14° 16.9	14° 26.7	14° 36.4	14° 46.1	14° 55.8	15° 05.3	15° 14.8	15° 24.2	15° 33.6	15° 42.9	15° 52.1	+9.5	54.0
火 25	300° 09.3	314° 41.8	329° 14.3	343° 46.8	358° 19.3	12° 51.7	27° 24.0	41° 56.3	56° 28.6	71° 00.8	85° 32.9	+32.4	14.7
	18° 02.2	18° 10.2	18° 18.2	18° 26.2	18° 34.0	18° 41.8	18° 49.4	18° 57.0	19° 04.5	19° 12.0	19° 19.3	+7.7	54.0
水 26	303° 29.9	318° 01.3	332° 32.7	347° 04.1	1° 35.4	16° 06.6	30° 37.8	45° 09.0	59° 40.1	74° 11.2	88° 42.2	+31.2	14.7
	20° 59.2	21° 05.1	21° 10.9	21° 16.7	21° 22.3	21° 27.9	21° 33.4	21° 38.7	21° 44.0	21° 49.2	21° 54.2	+5.5	54.1
木 27	318° 01.3	332° 32.7	347° 04.1	1° 35.4	16° 06.6	30° 37.8	45° 09.0	59° 40.1	74° 11.2	88° 42.2	103° 13.2	+31.2	14.7
	21° 05.1	21° 10.9	21° 16.7	21° 22.3	21° 27.9	21° 33.4	21° 38.7	21° 44.0	21° 49.2	21° 54.2	21° 59.2	+5.4	54.1
金 28	320° 52.8	335° 23.1	349° 53.4	4° 23.7	18° 53.9	33° 24.0	47° 54.2	62° 24.3	76° 54.3	91° 24.3	105° 54.3	+30.1	14.8
	23° 01.6	23° 04.9	23° 08.1	23° 11.2	23° 14.2	23° 17.1	23° 19.9	23° 22.5	23° 25.1	23° 27.5	23° 29.9	+2.8	54.3
土 29	323° 20.3	337° 49.8	352° 19.3	6° 48.7	21° 18.1	35° 47.5	50° 16.9	64° 46.3	79° 15.6	93° 44.9	108° 14.2	+29.4	14.9
	23° 51.3	23° 51.8	23° 52.2	23° 52.5	23° 52.7	23° 52.7	23° 52.6	23° 52.4	23° 52.1	23° 51.7	23° 51.1	-0.0	54.8
◑ 日 30	325° 31.6	340° 00.7	354° 29.7	8° 58.8	23° 27.8	37° 56.8	52° 25.8	66° 54.9	81° 23.9	95° 52.9	110° 21.9	+29.0	15.1
	23° 28.5	23° 26.0	23° 23.4	23° 20.7	23° 17.9	23° 14.9	23° 11.8	23° 08.6	23° 05.3	23° 01.9	22° 58.3	-3.0	55.4

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：1 日 04:33　新月：8 日 10:44　上弦：15 日 01:29　満月：22 日 16:29　下弦：30 日 20:56

太陽

2029 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2029 年 10 月

日	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
月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
火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
水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
木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
金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
土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
● 日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
月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
火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
水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
木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
金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
土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
◐ 日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
月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
火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
水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
木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
金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
土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
日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
○ 月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
火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
水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
木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
金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
土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
日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
月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
◑ 火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
水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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：7 日 19:14　上弦：14 日 11:08　満月：22 日 09:27　下弦：30 日 11:32

太陽

2029 年 11 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 29	272°55.6	288°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
金 30	272°50.2	288°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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2029 年 11 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 04:24　上弦：13 日 00:35　満月：21 日 04:02　下弦：28 日 23:47

太陽

2029 年 12 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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 -22° 12.0	-0.2 -0.3
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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° 20.2	74° 48.3 -23° 20.1	-0.3 +0.1
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2029 年 12 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：5 日 14:52　上弦：12 日 17:49　満月：20 日 22:46　下弦：28 日 09:49

太陽

2030 年 1 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2030 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 02:49　上弦：11 日 14:06　満月：19 日 15:54　下弦：26 日 18:14

太陽

2030 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2030 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 16:07　上弦：10 日 11:49　満月：18 日 06:19　下弦：25 日 01:57

太陽

2030 年 3 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2030 年 3 月

日	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	SD/HP
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
◑ 火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 06:34　上弦：12 日 08:47　満月：19 日 17:56　下弦：26 日 09:51

太陽

2030 年 4 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2030 年 4 月

日	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
月 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
● 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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
木 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 57.3
金 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
土 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
日 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
月 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
火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 22:02　上弦：11 日 02:56　満月：18 日 03:20　下弦：24 日 18:39

太陽

2030 年 5 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2030 年 5 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 14:12　上弦：10 日 17:11　満月：17 日 11:19　下弦：24 日 04:57

太陽

2030 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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° 20.3	23° 20.2	-0.1
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2030 年 6 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：1 日 06:21　上弦：9 日 03:35　満月：15 日 18:41　下弦：22 日 17:19　新月：30 日 21:34

太陽

2030 年 7 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2030 年 7 月

日	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
月 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
火 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
水 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
木 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
金 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
土 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
日 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
◐ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
○ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
◑ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
● 火 30	330° 00.4 14° 42.5	344° 31.4 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
水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：8 日 11:01　満月：15 日 02:12　下弦：22 日 08:07　新月：30 日 11:11

太陽

2030 年 8 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 1	268° 24.2	283° 24.3	298° 24.3	313° 24.3	328° 24.4	343° 24.4	358° 24.5	13° 24.5	28° 24.5	43° 24.6	58° 24.6	73° 24.7	+0.0
	17° 59.2	17° 58.5	17° 57.9	17° 57.3	17° 56.7	17° 56.0	17° 55.4	17° 54.8	17° 54.1	17° 53.5	17° 52.8	17° 52.2	-0.6
金 2	268° 25.2	283° 25.3	298° 25.3	313° 25.4	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° 43.9	17° 43.3	17° 42.6	17° 42.0	17° 41.3	17° 40.7	17° 40.0	17° 39.4	17° 38.7	17° 38.1	17° 37.5	17° 36.8	-0.6
土 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° 28.3	17° 27.7	17° 27.0	17° 26.4	17° 25.7	17° 25.1	17° 24.4	17° 23.8	17° 23.1	17° 22.4	17° 21.8	17° 21.1	-0.7
日 4	268° 27.7	283° 27.7	298° 27.8	313° 27.8	328° 27.9	343° 27.9	358° 28.0	13° 28.1	28° 28.1	43° 28.2	58° 28.2	73° 28.3	+0.1
	17° 12.5	17° 11.8	17° 11.2	17° 10.5	17° 09.8	17° 09.2	17° 08.5	17° 07.8	17° 07.2	17° 06.5	17° 05.8	17° 05.1	-0.7
月 5	268° 29.1	283° 29.2	298° 29.2	313° 29.3	328° 29.4	343° 29.4	358° 29.5	13° 29.6	28° 29.6	43° 29.7	58° 29.8	73° 29.8	+0.1
	16° 56.4	16° 55.7	16° 55.0	16° 54.3	16° 53.7	16° 53.0	16° 52.3	16° 51.6	16° 50.9	16° 50.3	16° 49.6	16° 48.9	-0.7
火 6	268° 30.7	283° 30.8	298° 30.8	313° 30.9	328° 31.0	343° 31.1	358° 31.1	13° 31.2	28° 31.3	43° 31.3	58° 31.4	73° 31.5	+0.1
	16° 40.0	16° 39.3	16° 38.6	16° 37.9	16° 37.2	16° 36.5	16° 35.8	16° 35.2	16° 34.5	16° 33.8	16° 33.1	16° 32.4	-0.7
水 7	268° 32.5	283° 32.5	298° 32.6	313° 32.7	328° 32.8	343° 32.8	358° 32.9	13° 33.0	28° 33.1	43° 33.2	58° 33.2	73° 33.3	+0.1
	16° 23.3	16° 22.6	16° 21.9	16° 21.2	16° 20.5	16° 19.8	16° 19.1	16° 18.4	16° 17.7	16° 17.0	16° 16.3	16° 15.6	-0.7
木 8	268° 34.4	283° 34.5	298° 34.5	313° 34.6	328° 34.7	343° 34.8	358° 34.9	13° 35.0	28° 35.0	43° 35.1	58° 35.2	73° 35.3	+0.1
	16° 06.4	16° 05.7	16° 05.0	16° 04.3	16° 03.6	16° 02.8	16° 02.1	16° 01.4	16° 00.7	16° 00.0	15° 59.3	15° 58.6	-0.7
金 9	268° 36.4	283° 36.5	298° 36.6	313° 36.7	328° 36.8	343° 36.9	358° 37.0	13° 37.1	28° 37.2	43° 37.2	58° 37.3	73° 37.4	+0.1
	15° 49.2	15° 48.5	15° 47.8	15° 47.1	15° 46.3	15° 45.6	15° 44.9	15° 44.2	15° 43.4	15° 42.7	15° 42.0	15° 41.3	-0.7
土 10	268° 38.6	283° 38.7	298° 38.8	313° 38.9	328° 39.0	343° 39.1	358° 39.2	13° 39.3	28° 39.4	43° 39.5	58° 39.6	73° 39.7	+0.1
	15° 31.8	15° 31.1	15° 30.3	15° 29.6	15° 28.9	15° 28.1	15° 27.4	15° 26.7	15° 25.9	15° 25.2	15° 24.5	15° 23.7	-0.7
日 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° 14.1	15° 13.4	15° 12.6	15° 11.9	15° 11.1	15° 10.4	15° 09.7	15° 08.9	15° 08.2	15° 07.4	15° 06.7	15° 05.9	-0.7
月 12	268° 43.5	283° 43.6	298° 43.7	313° 43.8	328° 43.9	343° 44.0	358° 44.2	13° 44.3	28° 44.4	43° 44.5	58° 44.6	73° 44.7	+0.1
	14° 56.2	14° 55.4	14° 54.7	14° 53.9	14° 53.2	14° 52.4	14° 51.7	14° 50.9	14° 50.2	14° 49.4	14° 48.7	14° 47.9	-0.8
火 13	268° 46.2	283° 46.3	298° 46.4	313° 46.5	328° 46.6	343° 46.7	358° 46.8	13° 46.9	28° 47.1	43° 47.2	58° 47.3	73° 47.4	+0.1
	14° 38.0	14° 37.3	14° 36.5	14° 35.8	14° 35.0	14° 34.2	14° 33.5	14° 32.7	14° 31.9	14° 31.2	14° 30.4	14° 29.6	-0.8
水 14	268° 48.9	283° 49.1	298° 49.2	313° 49.3	328° 49.4	343° 49.5	358° 49.6	13° 49.8	28° 49.9	43° 50.0	58° 50.1	73° 50.3	+0.1
	14° 19.6	14° 18.9	14° 18.1	14° 17.3	14° 16.6	14° 15.8	14° 15.0	14° 14.2	14° 13.5	14° 12.7	14° 11.9	14° 11.1	-0.8
木 15	268° 51.8	283° 52.0	298° 52.1	313° 52.2	328° 52.3	343° 52.5	358° 52.6	13° 52.7	28° 52.8	43° 53.0	58° 53.1	73° 53.2	+0.1
	14° 01.0	14° 00.2	13° 59.5	13° 58.7	13° 57.9	13° 57.1	13° 56.3	13° 55.6	13° 54.8	13° 54.0	13° 53.2	13° 52.4	-0.8
金 16	268° 54.9	283° 55.0	298° 55.2	313° 55.3	328° 55.4	343° 55.5	358° 55.7	13° 55.8	28° 55.9	43° 56.1	58° 56.2	73° 56.3	+0.1
	13° 42.2	13° 41.4	13° 40.6	13° 39.8	13° 39.0	13° 38.2	13° 37.4	13° 36.6	13° 35.9	13° 35.1	13° 34.3	13° 33.5	-0.8
土 17	268° 58.1	283° 58.2	298° 58.3	313° 58.5	328° 58.6	343° 58.7	358° 58.9	13° 59.0	28° 59.2	43° 59.3	58° 59.4	73° 59.6	+0.1
	13° 23.1	13° 22.3	13° 21.5	13° 20.7	13° 19.9	13° 19.1	13° 18.3	13° 17.5	13° 16.7	13° 15.9	13° 15.1	13° 14.3	-0.8
日 18	269° 01.4	284° 01.5	299° 01.6	314° 01.8	329° 01.9	344° 02.1	359° 02.2	14° 02.4	29° 02.5	44° 02.6	59° 02.8	74° 02.9	+0.1
	13° 03.9	13° 03.0	13° 02.2	13° 01.4	13° 00.6	12° 59.8	12° 59.0	12° 58.2	12° 57.4	12° 56.6	12° 55.8	12° 54.9	-0.8
月 19	269° 04.8	284° 04.9	299° 05.1	314° 05.2	329° 05.4	344° 05.5	359° 05.7	14° 05.8	29° 06.0	44° 06.1	59° 06.2	74° 06.4	+0.1
	12° 44.4	12° 43.6	12° 42.7	12° 41.9	12° 41.1	12° 40.3	12° 39.5	12° 38.6	12° 37.8	12° 37.0	12° 36.2	12° 35.4	-0.8
火 20	269° 08.3	284° 08.5	299° 08.6	314° 08.8	329° 08.9	344° 09.1	359° 09.2	14° 09.4	29° 09.5	44° 09.7	59° 09.8	74° 10.0	+0.2
	12° 24.7	12° 23.9	12° 23.0	12° 22.2	12° 21.4	12° 20.6	12° 19.7	12° 18.9	12° 18.1	12° 17.3	12° 16.4	12° 15.6	-0.8
水 21	269° 12.0	284° 12.1	299° 12.3	314° 12.4	329° 12.6	344° 12.8	359° 12.9	14° 13.1	29° 13.2	44° 13.4	59° 13.5	74° 13.7	+0.2
	12° 04.8	12° 04.0	12° 03.1	12° 02.3	12° 01.5	12° 00.6	11° 59.8	11° 59.0	11° 58.1	11° 57.3	11° 56.5	11° 55.6	-0.8
木 22	269° 15.7	284° 15.9	299° 16.1	314° 16.2	329° 16.4	344° 16.5	359° 16.7	14° 16.9	29° 17.0	44° 17.2	59° 17.3	74° 17.5	+0.2
	11° 44.7	11° 43.9	11° 43.0	11° 42.2	11° 41.4	11° 40.5	11° 39.7	11° 38.8	11° 38.0	11° 37.1	11° 36.3	11° 35.5	-0.8
金 23	269° 19.6	284° 19.8	299° 19.9	314° 20.1	329° 20.3	344° 20.4	359° 20.6	14° 20.8	29° 20.9	44° 21.1	59° 21.3	74° 21.4	+0.2
	11° 24.5	11° 23.6	11° 22.8	11° 21.9	11° 21.1	11° 20.2	11° 19.4	11° 18.5	11° 17.7	11° 16.8	11° 16.0	11° 15.1	-0.9
土 24	269° 23.6	284° 23.8	299° 23.9	314° 24.1	329° 24.3	344° 24.4	359° 24.6	14° 24.8	29° 24.9	44° 25.1	59° 25.3	74° 25.4	+0.2
	11° 04.0	11° 03.2	11° 02.3	11° 01.4	11° 00.6	10° 59.7	10° 58.9	10° 58.0	10° 57.2	10° 56.3	10° 55.4	10° 54.6	-0.9
日 25	269° 27.7	284° 27.8	299° 28.0	314° 28.2	329° 28.4	344° 28.5	359° 28.7	14° 28.9	29° 29.1	44° 29.2	59° 29.4	74° 29.6	+0.2
	10° 43.4	10° 42.5	10° 41.7	10° 40.8	10° 39.9	10° 39.1	10° 38.2	10° 37.3	10° 36.5	10° 35.6	10° 34.8	10° 33.9	-0.9
月 26	269° 31.8	284° 32.0	299° 32.2	314° 32.4	329° 32.6	344° 32.7	359° 32.9	14° 33.1	29° 33.3	44° 33.4	59° 33.6	74° 33.8	+0.2
	10° 22.6	10° 21.7	10° 20.9	10° 20.0	10° 19.1	10° 18.2	10° 17.4	10° 16.5	10° 15.6	10° 14.8	10° 13.9	10° 13.0	-0.9
火 27	269° 36.1	284° 36.3	299° 36.5	314° 36.7	329° 36.8	344° 37.0	359° 37.2	14° 37.4	29° 37.6	44° 37.8	59° 37.9	74° 38.1	+0.2
	10° 01.6	10° 00.8	9° 59.9	9° 59.0	9° 58.1	9° 57.3	9° 56.4	9° 55.5	9° 54.6	9° 53.7	9° 52.9	9° 52.0	-0.9
水 28	269° 40.5	284° 40.7	299° 40.9	314° 41.0	329° 41.2	344° 41.4	359° 41.6	14° 41.8	29° 42.0	44° 42.2	59° 42.3	74° 42.5	+0.2
	9° 40.5	9° 39.6	9° 38.8	9° 37.9	9° 37.0	9° 36.1	9° 35.2	9° 34.3	9° 33.5	9° 32.6	9° 31.7	9° 30.8	-0.9
木 29	269° 44.9	284° 45.1	299° 45.3	314° 45.5	329° 45.7	344° 45.9	359° 46.1	14° 46.3	29° 46.5	44° 46.6	59° 46.8	74° 47.0	+0.2
	9° 19.3	9° 18.4	9° 17.5	9° 16.6	9° 15.7	9° 14.8	9° 13.9	9° 13.0	9° 12.1	9° 11.2	9° 10.4	9° 09.5	-0.9
金 30	269° 49.5	284° 49.7	299° 49.9	314° 50.1	329° 50.3	344° 50.4	359° 50.6	14° 50.8	29° 51.0	44° 51.2	59° 51.4	74° 51.6	+0.2
	8° 57.8	8° 56.9	8° 56.1	8° 55.2	8° 54.3	8° 53.4	8° 52.5	8° 51.6	8° 50.7	8° 49.8	8° 48.9	8° 48.0	-0.9
土 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° 36.3	8° 35.4	8° 34.5	8° 33.6	8° 32.7	8° 31.8	8° 30.9	8° 30.0	8° 29.1	8° 28.2	8° 27.3	8° 26.4	-0.9

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2030 年 8 月

日	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	SD/HP
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
● 水 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
木 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
金 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
土 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 16:42　満月：13 日 10:44　下弦：21 日 01:15　新月：28 日 23:07

太陽

2030 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2030 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
日 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
月 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
火 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
◐ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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 9° 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
水 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
木 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
● 金 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
土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：4 日 21:55　満月：11 日 21:17　下弦：19 日 19:56　新月：27 日 09:54

太陽

2030 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2030 年 10 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：4 日 03:56　満月：11 日 10:46　下弦：19 日 14:50　新月：26 日 20:17

太陽

2030 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2030 年 11 月

日	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
金 1	254°26.9	268°53.6	283°20.4	297°47.3	312°14.3	326°41.4	341°08.6	355°35.8	10°03.2	24°30.6	38°58.2	+27.1	16.1
	-17°18.5	-17°10.1	-17°01.6	-16°53.1	-16°44.4	-16°35.6	-16°26.8	-16°17.8	-16°08.8	-15°59.7	-15°50.5	+8.8	58.9
◐ 土 2	256°01.5	270°30.4	284°59.3	299°28.4	313°57.5	328°26.7	342°56.0	357°25.4	11°54.8	26°24.4	40°54.0	+29.3	15.9
	-13°23.2	-13°12.8	-13°02.4	-12°51.9	-12°41.3	-12°30.7	-12°20.0	-12°09.3	-11°58.5	-11°47.7	-11°36.8	+10.6	58.2
日 3	258°26.5	272°57.2	287°28.0	301°58.8	316°29.7	331°00.6	345°31.6	0°02.7	14°33.8	29°05.0	43°36.2	+31.0	15.7
	-8°47.9	-8°36.3	-8°24.7	-8°13.1	-8°01.4	-7°49.7	-7°38.0	-7°26.2	-7°14.5	-7°02.7	-6°50.8	+11.7	57.4
月 4	261°30.6	276°02.6	290°34.6	305°06.7	319°38.8	334°10.9	348°43.1	3°15.3	17°47.6	32°19.8	46°52.1	+32.2	15.5
	-3°51.3	-3°39.3	-3°27.2	-3°15.1	-3°03.0	-2°50.9	-2°38.9	-2°26.8	-2°14.7	-2°02.6	-1°50.5	+12.1	56.8
火 5	264°59.9	279°32.6	294°05.3	308°38.1	323°10.8	337°43.6	352°16.3	6°49.1	21°21.9	35°54.7	50°27.6	+32.8	15.3
	1°10.3	1°22.3	1°34.2	1°46.2	1°58.1	2°10.0	2°21.9	2°33.7	2°45.6	2°57.4	3°09.2	+11.9	56.2
水 6	268°40.6	283°13.4	297°46.3	312°19.2	326°52.1	341°24.9	355°57.8	10°30.7	25°03.5	39°36.4	54°09.2	+32.9	15.2
	6°03.1	6°14.4	6°25.8	6°37.0	6°48.3	6°59.5	7°10.7	7°21.8	7°32.9	7°43.9	7°54.9	+11.2	55.6
木 7	272°20.5	286°53.1	301°25.7	315°58.4	330°30.9	345°03.5	359°36.1	14°08.6	28°41.1	43°13.6	57°46.1	+32.6	15.0
	10°34.6	10°44.8	10°55.0	11°05.2	11°15.3	11°25.3	11°35.3	11°45.2	11°55.0	12°04.9	12°14.6	+10.0	55.2
金 8	275°50.6	290°22.7	304°54.8	319°26.8	333°58.9	348°30.9	3°02.9	17°34.8	32°06.7	46°38.6	61°10.5	+32.0	14.9
	14°33.2	14°41.9	14°50.6	14°59.1	15°07.6	15°16.0	15°24.4	15°32.7	15°40.9	15°49.0	15°57.0	+8.4	54.8
土 9	279°05.6	293°37.0	308°08.5	322°39.9	337°11.3	351°42.6	6°14.0	20°45.3	35°16.6	49°47.8	64°19.1	+31.3	14.8
	17°48.4	17°55.1	18°01.8	18°08.4	18°14.9	18°21.3	18°27.7	18°33.9	18°40.1	18°46.2	18°52.1	+6.4	54.5
○ 日 10	282°04.9	296°35.8	311°06.7	325°37.5	340°08.3	354°39.2	9°10.0	23°40.7	38°11.5	52°42.3	67°13.0	+30.8	14.8
	20°10.9	20°15.4	20°19.8	20°24.1	20°28.3	20°32.4	20°36.4	20°40.4	20°44.2	20°47.9	20°51.5	+4.1	54.2
月 11	284°52.6	299°23.1	313°53.7	328°24.3	342°54.8	357°25.3	11°55.9	26°26.4	40°57.0	55°27.5	69°58.0	+30.5	14.7
	21°33.9	21°35.9	21°37.8	21°39.6	21°41.3	21°42.9	21°44.4	21°45.8	21°47.1	21°48.3	21°49.4	+1.6	54.0
火 12	287°36.3	302°06.9	316°37.5	331°08.1	345°38.7	0°09.3	14°39.9	29°10.6	43°41.3	58°11.9	72°42.6	+30.6	14.7
	21°53.5	21°53.0	21°52.3	21°51.6	21°50.7	21°49.7	21°48.7	21°47.5	21°46.3	21°44.9	21°43.4	-1.0	54.0
水 13	290°24.8	304°55.8	319°26.8	333°57.8	348°28.8	2°59.8	17°30.9	32°02.0	46°33.1	61°04.2	75°35.4	+31.1	14.7
	21°09.5	21°06.4	21°03.3	21°00.0	20°56.7	20°53.2	20°49.7	20°46.1	20°42.3	20°38.5	20°34.6	-3.5	54.0
木 14	293°25.6	307°57.2	322°28.8	337°00.4	351°32.0	6°03.7	20°35.3	35°07.1	49°38.8	64°10.5	78°42.3	+31.7	14.8
	19°24.7	19°19.3	19°13.9	19°08.3	19°02.7	18°56.9	18°51.1	18°45.2	18°39.2	18°33.1	18°27.0	-5.8	54.2
金 15	307°57.2	322°28.8	337°00.4	351°32.0	6°03.7	20°35.3	35°07.1	49°38.8	64°10.5	78°42.3	93°14.1	+31.7	14.8
	19°19.3	19°13.9	19°08.3	19°02.7	18°56.9	18°51.1	18°45.2	18°39.2	18°33.1	18°27.0	18°20.7	-5.9	54.2
土 16	311°14.4	325°46.6	340°18.9	354°51.1	9°23.4	23°55.7	38°28.0	53°00.4	67°32.8	82°05.2	96°37.6	+32.3	14.9
	16°37.2	16°29.7	16°22.1	16°14.4	16°06.6	15°58.8	15°50.9	15°42.9	15°34.8	15°26.7	15°18.5	-7.9	54.6
日 17	314°46.1	329°18.8	343°51.5	358°24.2	12°56.9	27°29.7	42°02.4	56°35.2	71°08.0	85°40.7	100°13.5	+32.8	15.0
	13°07.1	12°57.8	12°48.4	12°39.0	12°29.5	12°20.0	12°10.4	12°00.7	11°51.0	11°41.2	11°31.3	-9.6	55.1
◑ 月 18	318°26.1	332°58.9	347°31.7	2°04.6	16°37.4	31°10.2	45°43.1	60°15.9	74°48.7	89°21.5	103°54.3	+32.8	15.2
	8°56.8	8°46.1	8°35.3	8°24.5	8°13.6	8°02.7	7°51.7	7°40.7	7°29.6	7°18.5	7°07.3	-10.9	55.8
火 19	322°04.5	336°37.0	351°09.5	5°42.0	20°14.4	34°46.9	49°19.3	63°51.6	78°24.0	92°56.3	107°28.5	+32.4	15.4
	4°15.1	4°03.3	3°51.5	3°39.6	3°27.7	3°15.8	3°03.9	2°51.9	2°39.9	2°27.9	2°15.8	-11.9	56.6
水 20	325°28.3	339°59.9	354°31.5	9°03.1	23°34.6	38°06.0	52°37.4	67°08.8	81°40.0	96°11.3	110°42.4	+31.4	15.7
	-0°47.9	-1°00.2	-1°12.6	-1°25.1	-1°37.5	-1°49.9	-2°02.4	-2°14.8	-2°27.3	-2°39.7	-2°52.2	-12.4	57.6
木 21	328°22.7	342°52.8	357°22.9	11°52.9	26°22.8	40°52.6	55°22.4	69°52.1	84°21.7	98°51.2	113°20.7	+29.8	16.0
	-5°59.1	-6°11.5	-6°23.9	-6°36.2	-6°48.6	-7°00.9	-7°13.2	-7°25.5	-7°37.8	-7°50.0	-8°02.2	-12.3	58.6
金 22	330°32.4	345°00.4	359°28.4	13°56.3	28°24.1	42°51.8	57°19.4	71°46.9	86°14.3	100°41.6	115°08.8	+27.6	16.2
	-11°01.6	-11°13.2	-11°24.8	-11°36.3	-11°47.7	-11°59.1	-12°10.5	-12°21.8	-12°33.0	-12°44.2	-12°55.3	-11.4	59.6
土 23	331°45.2	346°10.8	0°36.3	15°01.8	29°27.1	43°52.3	58°17.5	72°42.5	87°07.4	101°32.3	115°57.0	+25.2	16.5
	-15°33.3	-15°43.1	-15°52.9	-16°02.6	-16°12.2	-16°21.7	-16°31.0	-16°40.3	-16°49.5	-16°58.6	-17°07.6	-9.4	60.4
日 24	331°57.0	346°20.3	0°43.5	15°06.7	29°29.7	43°52.7	58°15.6	72°38.4	87°01.2	101°23.8	115°46.4	+22.9	16.6
	-19°08.2	-19°15.2	-19°22.1	-19°28.9	-19°35.5	-19°42.0	-19°48.4	-19°54.6	-20°00.6	-20°06.6	-20°12.3	-6.4	61.0
● 月 25	331°18.2	345°40.0	0°01.6	14°23.3	28°44.9	43°06.5	57°28.1	71°49.6	86°11.1	100°32.6	114°54.1	+21.6	16.7
	-21°20.6	-21°23.9	-21°27.0	-21°30.0	-21°32.8	-21°35.4	-21°37.9	-21°40.1	-21°42.3	-21°44.2	-21°46.0	-2.5	61.3
火 26	330°15.5	344°37.0	358°58.6	13°20.1	27°41.7	42°03.3	56°24.9	70°46.6	85°08.3	99°30.1	113°51.9	+21.6	16.7
	-21°52.6	-21°51.6	-21°50.5	-21°49.3	-21°47.9	-21°46.3	-21°44.5	-21°42.6	-21°40.5	-21°38.3	-21°35.8	+1.7	61.2
水 27	329°25.1	343°47.8	358°10.6	12°33.5	26°56.4	41°19.5	55°42.6	70°05.8	84°29.0	98°52.4	113°15.8	+23.1	16.6
	-20°40.5	-20°35.6	-20°30.5	-20°25.3	-20°19.9	-20°14.4	-20°08.8	-20°03.0	-19°57.1	-19°51.0	-19°44.8	+5.6	60.7
木 28	329°18.3	343°43.3	358°08.3	12°33.4	26°58.6	41°24.0	55°49.4	70°14.9	84°40.5	99°06.3	113°32.1	+25.4	16.4
	-17°56.5	-17°48.4	-17°40.1	-17°31.7	-17°23.2	-17°14.6	-17°05.9	-16°57.1	-16°48.2	-16°39.2	-16°30.1	+8.7	60.0
金 29	330°11.5	344°38.9	359°06.4	13°34.0	28°01.8	42°29.6	56°57.5	71°25.5	85°53.5	100°21.7	114°50.0	+27.9	16.1
	-14°03.0	-13°52.6	-13°42.1	-13°31.5	-13°20.8	-13°10.1	-12°59.4	-12°48.5	-12°37.7	-12°26.7	-12°15.7	+10.7	59.2
土 30	332°04.8	346°34.5	1°04.2	15°34.0	30°03.9	44°33.9	59°03.9	73°34.1	88°04.2	102°34.5	117°04.9	+30.0	15.9
	-9°24.7	-9°13.0	-9°01.2	-8°49.4	-8°37.6	-8°25.7	-8°13.8	-8°01.9	-7°50.0	-7°38.0	-7°26.0	+11.9	58.3

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：2 日 11:56　満月：10 日 03:30　下弦：18 日 08:32　新月：25 日 06:46

太陽

2030 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2030 年 12 月

日	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
◐ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
○ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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
木 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
金 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
土 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
日 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
月 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
● 火 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
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：1 日 22:56　満月：9 日 22:40　下弦：18 日 00:01　新月：24 日 17:32　上弦：31 日 13:36

太陽

2031 年 1 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2031 年 1 月

日	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
水 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
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：8 日 18:25　下弦：16 日 12:47　新月：23 日 04:31　上弦：30 日 07:43

太陽

2031 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2031 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：7 日 12:46　下弦：14 日 22:49　新月：21 日 15:48

太陽

2031 年 3 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2031 年 3 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：1 日 04:02　満月：9 日 04:29　下弦：16 日 06:35　新月：23 日 03:49　上弦：31 日 00:32

太陽

2031 年 4 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2031 年 4 月

日	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
火 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
水 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
木 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
金 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
土 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
日 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
○ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
◑ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：7 日 17:21　下弦：14 日 12:57　新月：21 日 16:57　上弦：29 日 19:19

太陽

2031 年 5 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2031 年 5 月

日	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 8	262°27.5 -20°53.1	276°50.4 -20°56.7	291°13.3 -20°56.7	305°36.2 -20°58.3	319°59.1 -20°58.8	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
金 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
土 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
日 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
月 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
◑ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
● 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：7 日 03:39　下弦：13 日 19:06　新月：21 日 07:17　上弦：29 日 11:19

太陽

2031 年 6 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2031 年 6 月

日	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
日 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
月 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
火 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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
◐ 土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：5 日 11:58　下弦：12 日 02:20　新月：19 日 22:24　上弦：28 日 00:19

太陽

2031 年 7 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2031 年 7 月

日	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
火 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
水 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
木 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
○ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
● 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
◐ 日 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° 29.8	101° 01.0 -16° 37.4	115° 28.8 -16° 45.0	+28.2 -7.9	15.8 57.9
月 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
火 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
水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：4 日 19:01　下弦：11 日 11:49　新月：19 日 13:40　上弦：27 日 10:34

太陽

2031 年 8 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2031 年 8 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 01:45　下弦：10 日 00:23　新月：18 日 04:32　上弦：25 日 18:39

太陽

2031 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2031 年 9 月

	日	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
○	月 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
	火 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
	水 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
	木 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
	金 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
	土 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
	日 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
◑	月 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
	火 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
	水 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
	木 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
	金 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
	土 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
	日 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
	月 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
●	火 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
	水 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
	木 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
	金 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
	土 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
	日 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
	月 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
	火 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
◐	水 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
	木 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
	金 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
	土 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
	日 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
	月 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
○	火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：1 日 09:20　下弦：8 日 16:14　新月：16 日 18:46　上弦：24 日 01:19　満月：30 日 18:57

太陽

2031 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2031 年 10 月

日	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
水 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
木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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	61°32.4 18°23.7	+31.4 -4.2	14.8 54.3
木 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
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
○ 木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：8 日 10:50　新月：16 日 08:20　上弦：23 日 07:36　満月：30 日 07:32

太陽

2031 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2031 年 11 月

日	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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 -6.9	16.0 58.7
土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
○ 金 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
土 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
日 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：7 日 07:02　新月：14 日 21:09　上弦：21 日 14:44　満月：28 日 23:18

太陽

2031 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2031 年 12 月

日	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
● 日 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
月 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
火 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
水 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
木 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
金 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
土 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
◐ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
○ 日 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
月 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
火 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
水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：7 日 03:19　新月：14 日 09:05　上弦：21 日 00:00　満月：28 日 17:33

太陽

2032 年 1 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2032 年 1 月

日	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
木 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
金 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
土 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
日 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
◑ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
◐ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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
金 30	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	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
土 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 22:04　新月：12 日 20:06　上弦：19 日 12:14　満月：27 日 12:52

太陽

2032 年 2 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2032 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：4 日 13:48　新月：11 日 06:24　上弦：18 日 03:29　満月：26 日 07:43

太陽

2032 年 3 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2032 年 3 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 01:47　新月：11 日 16:24　上弦：18 日 20:56　満月：27 日 00:46

太陽

2032 年 4 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2032 年 4 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：3 日 10:10　新月：10 日 02:39　上弦：17 日 15:24　満月：25 日 15:09

太陽

2032 年 5 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2032 年 5 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：2 日 16:01　新月：9 日 13:35　上弦：17 日 09:43　満月：25 日 02:37　下弦：31 日 20:51

太陽

2032 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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° 25.7	23° 25.7	23° 25.7	23° 25.7	+0.0
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2032 年 6 月

日	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
火 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
水 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
木 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
金 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
土 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
日 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
月 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
● 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
◐ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：8 日 01:32　上弦：16 日 02:59　満月：23 日 11:32　下弦：30 日 02:11

太陽

2032 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2032 年 7 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：7 日 14:41　上弦：15 日 18:32　満月：22 日 18:51　下弦：29 日 09:25

太陽

2032 年 8 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2032 年 8 月

日	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
◐ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 05:11　上弦：14 日 07:51　満月：21 日 01:46　下弦：27 日 19:33

太陽

2032 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2032 年 9 月

日	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	SD/HP
水 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
木 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
金 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
● 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
◐ 日 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
月 13	291°39.6 -18°55.5	306°06.0 -18°53.6	320°32.2 -18°51.5	334°58.3 -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
火 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
水 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
木 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
金 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
土 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
○ 日 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	+27.2 +12.0	16.6 60.8
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 20:56　上弦：12 日 18:49　満月：19 日 09:30　下弦：26 日 09:12

太陽

2032 年 10 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2032 年 10 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：4 日 13:26　上弦：12 日 03:47　満月：18 日 18:58　下弦：26 日 02:28

太陽

2032 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2032 年 11 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：3 日 05:44　上弦：10 日 11:33　満月：17 日 06:42　下弦：24 日 22:47

太陽

2032 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2032 年 12 月

日	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
水 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
◐ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 20:52　上弦：9 日 19:08　満月：16 日 20:49　下弦：24 日 20:39

太陽

2033 年 1 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 8	268° 19.5	283° 19.2	298° 19.0	313° 18.7	328° 18.5	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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2033 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：1 日 10:17　上弦：8 日 03:34　満月：15 日 13:07　下弦：23 日 17:45　新月：30 日 21:59

太陽

2033 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2033 年 2 月

日	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	SD/HP
火 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	+27.9 +11.5	16.6 60.8
水 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
木 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
金 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
土 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
◐ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
○ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
◑ 火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 13:34　満月：14 日 07:04　下弦：22 日 11:53

太陽

2033 年 3 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2033 年 3 月

日	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
● 火 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
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
● 水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：1 日 08:23　上弦：8 日 01:27　満月：16 日 01:37　下弦：24 日 01:49　新月：30 日 17:51

太陽

2033 年 4 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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° 04.4	13° 05.2	13° 06.0	13° 06.8	13° 07.6	+0.8
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2033 年 4 月

日	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	SD/HP
金 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
土 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
日 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
月 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
火 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
◐ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
○ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 15:13　満月：14 日 19:17　下弦：22 日 11:42　新月：29 日 02:46

太陽

2033 年 5 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2033 年 5 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
◑ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
● 土 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
日 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
月 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
火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：6 日 06:45　満月：14 日 10:42　下弦：21 日 18:29　新月：28 日 11:36

太陽

2033 年 6 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2033 年 6 月

日	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	SD/HP
水 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
木 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
金 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
◐ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
○ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
◑ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
● 日 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
月 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
火 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
水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：4 日 23:38　満月：12 日 23:19　下弦：19 日 23:29　新月：26 日 21:07

太陽

2033 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2033 年 7 月

日	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	SD/HP
金 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
土 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
日 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
◐ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
◑ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
● 火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：4 日 17:12　満月：12 日 09:28　下弦：19 日 04:07　新月：26 日 08:12

太陽

2033 年 8 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2033 年 8 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：3 日 10:25　満月：10 日 18:07　下弦：17 日 09:42　新月：24 日 21:39

太陽

2033 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2033 年 9 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：2 日 02:23　満月：9 日 02:20　下弦：15 日 17:33　新月：23 日 13:39

太陽

2033 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2033 年 10 月

日	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
◐ 土 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
日 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
月 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
火 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°52.3	-10°44.1	-10°34.9	-10°25.7	-10°16.3	-10°06.9	-9°57.5	+9.1	59.3
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
◑ 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
● 日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
◐ 月 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：1 日 16:32　満月：8 日 10:58　下弦：15 日 04:47　新月：23 日 07:28　上弦：31 日 04:46

太陽

2033 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2033 年 11 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：6 日 20:32　下弦：13 日 20:08　新月：22 日 01:39　上弦：29 日 15:15

太陽

2033 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2033 年 12 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：6 日 07:22　下弦：13 日 15:28　新月：21 日 18:46　上弦：29 日 00:20

太陽

2034 年 1 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2034 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：4 日 19:47　下弦：12 日 13:17　新月：20 日 10:01　上弦：27 日 08:32

太陽

2034 年 2 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2034 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 10:04　下弦：11 日 11:09　新月：18 日 23:10　上弦：25 日 16:34

太陽

2034 年 3 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2034 年 3 月

日	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
水 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
木 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
金 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
土 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
○ 日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
◑ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
◐ 月 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
火 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
水 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
木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：5 日 02:10　下弦：13 日 06:44　新月：20 日 10:14　上弦：27 日 01:18

太陽

2034 年 4 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2034 年 4 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 19:18　下弦：11 日 22:45　新月：18 日 19:25　上弦：25 日 11:34

太陽

2034 年 5 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2034 年 5 月

日	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	SD/HP
月 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
火 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
○ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
◑ 木 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
金 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
土 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
日 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
月 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
火 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
水 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
● 木 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
金 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
土 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
日 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
月 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
火 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
◐ 水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：3 日 12:15　下弦：11 日 10:56　新月：18 日 03:12　上弦：24 日 23:57

太陽

2034 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2034 年 6 月

日	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
木 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
○ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：2 日 03:54　下弦：9 日 19:43　新月：16 日 10:25　上弦：23 日 14:35

太陽

2034 年 7 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2034 年 7 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

満月：1 日 17:44　下弦：9 日 01:59　新月：15 日 18:15　上弦：23 日 07:05　満月：31 日 05:54

太陽

2034 年 8 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2034 年 8 月

日	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
火 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
水 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
木 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
金 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
土 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
日 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
◑ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
◐ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：7 日 06:50　新月：14 日 03:53　上弦：22 日 00:43　満月：29 日 16:49

太陽

2034 年 9 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2034 年 9 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：5 日 11:41　新月：12 日 16:13　上弦：20 日 18:39　満月：28 日 02:56

太陽

2034 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2034 年 10 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：4 日 18:04　新月：12 日 07:32　上弦：20 日 12:03　満月：27 日 12:42

太陽

2034 年 11 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2034 年 11 月

日	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
水 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
木 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
◑ 金 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 56.9
土 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
日 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
月 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
火 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
水 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
木 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
金 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
● 土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
◐ 日 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
月 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
火 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
水 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
木 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
金 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
○ 土 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
日 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
月 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
火 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
水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：3 日 03:27　新月：11 日 01:16　上弦：19 日 04:01　満月：25 日 22:32

太陽

2034 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2034 年 12 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：2 日 16:46　新月：10 日 20:14　上弦：18 日 17:44　満月：25 日 08:54

太陽

2035 年 1 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.3'

月

2035 年 1 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：1 日 10:01　新月：9 日 15:03　上弦：17 日 04:45　満月：23 日 20:16　下弦：31 日 06:02

太陽

2035 年 2 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2035 年 2 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：8 日 08:22　上弦：15 日 13:17　満月：22 日 08:53

太陽

2035 年 3 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.1'

月

2035 年 3 月

日	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
木 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
◑ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
● 金 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
土 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
日 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
月 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
火 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
水 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
木 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
◐ 金 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
土 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
日 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
月 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
火 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
水 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
木 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
○ 金 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
土 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
日 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
月 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
火 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
木 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
木 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
金 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
◑ 土 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

下弦：2 日 03:01　新月：9 日 23:09　上弦：16 日 20:15　満月：23 日 22:42　下弦：31 日 23:06

太陽

2035 年 4 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2035 年 4 月

日	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
日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
月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
火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
水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
木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
金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
土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
● 日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°06.3	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
月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
火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
水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
木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
金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
土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
◐ 日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
月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
火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
水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
木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
金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
土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
○ 日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
月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
火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
水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
木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
金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
土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
日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
◑ 月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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：8 日 10:57　上弦：15 日 02:54　満月：22 日 13:20　下弦：30 日 16:53

太陽

2035 年 5 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2035 年 5 月

日	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
火 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
水 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
木 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
金 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
土 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
日 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
● 月 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
火 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
水 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
木 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
金 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
土 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
日 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
◐ 月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
○ 火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
◑ 水 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
木 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：7 日 20:03　上弦：14 日 10:28　満月：22 日 04:25　下弦：30 日 07:30

太陽

2035 年 6 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2035 年 6 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：6 日 03:20　上弦：12 日 19:50　満月：20 日 19:37　下弦：28 日 18:42

太陽

2035 年 7 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.7'

月

2035 年 7 月

日	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 9	244° 53.5 7° 56.0	259° 22.5 7° 45.8	273° 51.6 7° 35.6	288° 20.8 7° 25.3	302° 50.1 7° 15.0	317° 19.4 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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 57.7
土 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
日 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
月 30	319° 19.6 15° 52.2	333° 47.2 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
火 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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：5 日 09:59　上弦：12 日 07:32　満月：20 日 10:36　下弦：28 日 02:55

太陽

2035 年 8 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.8'

月

2035 年 8 月

日	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	SD/HP
水 1	247° 30.6 18° 43.9	261° 53.8 18° 44.8	276° 17.0 18° 45.6	290° 40.2 18° 46.2	305° 03.3 18° 46.7	319° 26.4 18° 47.0	333° 49.5 18° 47.3	348° 12.6 18° 47.4	2° 35.7 18° 47.3	16° 58.8 18° 47.1	31° 21.8 18° 46.8	+23.1 +0.3	16.5 60.6
木 2	247° 07.4 18° 25.4	261° 30.5 18° 22.9	275° 53.7 18° 20.2	290° 16.8 18° 17.5	304° 40.0 18° 14.5	319° 03.2 18° 11.5	333° 26.4 18° 08.3	347° 49.6 18° 05.0	2° 12.9 18° 01.5	16° 36.2 17° 58.0	30° 59.5 17° 54.2	+23.2 -3.1	16.6 60.7
● 金 3	246° 54.0 16° 43.5	261° 18.0 16° 37.8	275° 42.0 16° 32.0	290° 06.1 16° 26.1	304° 30.3 16° 20.0	318° 54.5 16° 13.9	333° 18.8 16° 07.6	347° 43.1 16° 01.3	2° 07.5 15° 54.8	16° 32.0 15° 48.2	30° 56.5 15° 41.5	+24.2 -6.2	16.5 60.5
土 4	247° 12.0 13° 49.3	261° 37.6 13° 41.1	276° 03.3 13° 32.8	290° 29.0 13° 24.4	304° 54.8 13° 16.0	319° 20.7 13° 07.4	333° 46.7 12° 58.8	348° 12.7 12° 50.1	2° 38.8 12° 41.3	17° 05.0 12° 32.5	31° 31.2 12° 23.6	+25.9 -8.6	16.4 60.0
日 5	248° 13.9 10° 02.0	262° 41.4 9° 52.1	277° 08.9 9° 42.2	291° 36.5 9° 32.2	306° 04.2 9° 22.1	320° 31.9 9° 12.1	334° 59.7 9° 01.9	349° 27.6 8° 51.8	3° 55.6 8° 41.6	18° 23.6 8° 31.3	32° 51.7 8° 21.0	+27.8 -10.1	16.2 59.3
月 6	250° 01.5 5° 43.1	264° 30.7 5° 32.4	279° 00.0 5° 21.6	293° 29.3 5° 10.9	307° 58.7 5° 00.1	322° 28.1 4° 49.3	336° 57.6 4° 38.5	351° 27.2 4° 27.7	5° 56.8 4° 16.9	20° 26.5 4° 06.1	34° 56.2 3° 55.3	+29.5 -10.8	15.9 58.4
火 7	252° 29.0 1° 12.7	266° 59.6 1° 01.9	281° 30.2 0° 51.1	296° 00.9 0° 40.3	310° 31.7 0° 29.5	325° 02.4 0° 18.8	339° 33.3 0° 08.0	354° 04.1 -0° 02.7	8° 35.1 -0° 13.4	23° 06.0 -0° 24.1	37° 37.0 -0° 34.8	+30.8 -10.8	15.7 57.5
水 8	255° 26.6 -3° 12.5	269° 58.1 -3° 22.8	284° 29.7 -3° 33.1	299° 01.4 -3° 43.3	313° 33.0 -3° 53.6	328° 04.7 -4° 03.7	342° 36.4 -4° 13.9	357° 08.2 -4° 24.0	11° 40.0 -4° 34.1	26° 11.7 -4° 44.1	40° 43.6 -4° 54.2	+31.7 -10.2	15.4 56.6
木 9	258° 43.3 -7° 19.7	273° 15.4 -7° 29.0	287° 47.6 -7° 38.3	302° 19.7 -7° 47.6	316° 51.9 -7° 56.8	331° 24.0 -8° 06.0	345° 56.2 -8° 15.2	0° 28.4 -8° 24.2	15° 00.6 -8° 33.3	29° 32.8 -8° 42.3	44° 05.1 -8° 51.2	+32.2 -9.2	15.2 55.8
◐ 金 10	262° 09.0 -10° 58.9	276° 41.3 -11° 07.0	291° 13.6 -11° 15.0	305° 45.9 -11° 23.0	320° 18.2 -11° 30.9	334° 50.5 -11° 38.7	349° 22.7 -11° 46.5	3° 55.0 -11° 54.3	18° 27.3 -12° 01.9	32° 59.6 -12° 09.5	47° 31.9 -12° 17.1	+32.3 -7.8	15.0 55.1
土 11	265° 35.2 -14° 02.6	280° 07.4 -14° 09.2	294° 39.6 -14° 15.6	309° 11.7 -14° 22.0	323° 43.8 -14° 28.3	338° 16.0 -14° 34.5	352° 48.1 -14° 40.7	7° 20.2 -14° 46.8	21° 52.3 -14° 52.9	36° 24.4 -14° 58.8	50° 56.4 -15° 04.7	+32.1 -6.2	14.9 54.6
日 12	268° 56.0 -16° 24.5	283° 27.8 -16° 29.2	297° 59.7 -16° 33.9	312° 31.5 -16° 38.4	327° 03.3 -16° 42.9	341° 35.2 -16° 47.4	356° 06.9 -16° 51.7	10° 38.7 -16° 56.0	25° 10.5 -17° 00.2	39° 42.2 -17° 04.3	54° 14.0 -17° 08.3	+31.8 -4.4	14.8 54.2
月 13	272° 08.3 -17° 59.3	286° 39.8 -18° 02.0	301° 11.3 -18° 04.7	315° 42.7 -18° 07.3	330° 14.2 -18° 09.8	344° 45.7 -18° 12.2	359° 17.1 -18° 14.5	13° 48.5 -18° 16.8	28° 19.9 -18° 19.0	42° 51.3 -18° 21.1	57° 22.7 -18° 23.1	+31.4 -2.4	14.7 54.1
火 14	275° 12.1 -18° 42.9	289° 43.4 -18° 43.6	304° 14.6 -18° 44.1	318° 45.8 -18° 44.6	333° 16.9 -18° 45.0	347° 48.1 -18° 45.3	2° 19.3 -18° 45.5	16° 50.4 -18° 45.6	31° 21.6 -18° 45.6	45° 52.7 -18° 45.6	60° 23.9 -18° 45.4	+31.2 -0.3	14.7 54.1
水 15	278° 10.3 -18° 32.9	292° 41.4 -18° 31.4	307° 12.4 -18° 29.8	321° 43.5 -18° 28.1	336° 14.6 -18° 26.3	350° 45.6 -18° 24.4	5° 16.7 -18° 22.4	19° 47.8 -18° 20.4	34° 18.8 -18° 18.2	48° 49.9 -18° 16.0	63° 20.9 -18° 13.7	+31.1 +1.9	14.8 54.2
木 16	281° 07.0 -17° 28.8	295° 38.1 -17° 25.1	310° 09.3 -17° 21.4	324° 40.4 -17° 17.5	339° 11.5 -17° 13.6	353° 42.6 -17° 09.6	8° 13.7 -17° 05.5	22° 44.9 -17° 01.3	37° 16.0 -16° 57.1	51° 47.2 -16° 52.7	66° 18.3 -16° 48.3	+31.1 +4.0	14.9 54.5
金 17	284° 06.6 -15° 32.5	298° 37.9 -15° 26.8	313° 09.2 -15° 21.1	327° 40.5 -15° 15.3	342° 11.9 -15° 09.4	356° 43.2 -15° 03.4	11° 14.5 -14° 57.3	25° 45.9 -14° 51.2	40° 17.2 -14° 45.0	54° 48.6 -14° 38.7	69° 20.0 -14° 32.4	+31.3 +6.0	15.0 54.9
土 18	287° 11.9 -12° 48.8	301° 43.5 -12° 41.3	316° 15.0 -12° 33.8	330° 46.6 -12° 26.2	345° 18.2 -12° 18.6	359° 49.7 -12° 10.9	14° 21.3 -12° 03.1	28° 52.9 -11° 55.3	43° 24.6 -11° 47.4	57° 56.2 -11° 39.5	72° 27.8 -11° 31.5	+31.6 +7.7	15.1 55.3
○ 日 19	290° 23.2 -9° 24.6	304° 54.9 -9° 15.7	319° 26.7 -9° 06.7	333° 58.4 -8° 57.8	348° 30.2 -8° 48.7	3° 02.0 -8° 39.7	17° 33.7 -8° 30.5	32° 05.5 -8° 21.4	46° 37.3 -8° 12.1	61° 09.1 -8° 02.9	75° 40.9 -7° 53.6	+31.8 +9.1	15.2 55.8
月 20	293° 37.6 -5° 29.2	308° 09.4 -5° 19.2	322° 41.2 -5° 09.3	337° 13.0 -4° 59.3	351° 44.7 -4° 49.3	6° 16.5 -4° 39.3	20° 48.2 -4° 29.2	35° 20.0 -4° 19.1	49° 51.7 -4° 09.0	64° 23.4 -3° 58.8	78° 55.1 -3° 48.6	+31.8 +10.1	15.3 56.3
火 21	296° 49.6 -1° 13.4	311° 21.1 -1° 03.0	325° 52.6 -0° 52.5	340° 24.1 -0° 42.0	354° 55.6 -0° 31.4	9° 27.0 -0° 20.9	23° 58.5 -0° 10.4	38° 29.9 0° 00.1	53° 01.3 0° 10.7	67° 32.6 0° 21.2	82° 04.0 0° 31.8	+31.4 +10.5	15.5 56.8
水 22	299° 51.1 3° 10.2	314° 22.0 3° 20.7	328° 52.9 3° 31.2	343° 23.8 3° 41.7	357° 54.6 3° 52.2	12° 25.4 4° 02.7	26° 56.1 4° 13.2	41° 26.8 4° 23.6	55° 57.5 4° 34.0	70° 28.1 4° 44.5	84° 58.7 4° 54.9	+30.8 +10.5	15.6 57.3
木 23	314° 22.0 3° 20.7	328° 52.9 3° 31.2	343° 23.8 3° 41.7	357° 54.6 3° 52.2	12° 25.4 4° 02.7	26° 56.1 4° 13.2	41° 26.8 4° 23.6	55° 57.5 4° 34.0	70° 28.1 4° 44.5	84° 58.7 4° 54.9	99° 29.3 5° 05.2	+30.7 +10.5	15.6 57.4
金 24	317° 02.9 7° 38.1	331° 32.7 7° 48.0	346° 02.6 7° 57.9	0° 32.4 8° 07.8	15° 02.1 8° 17.7	29° 31.8 8° 27.5	44° 01.4 8° 37.3	58° 31.0 8° 47.0	73° 00.6 8° 56.7	87° 30.0 9° 06.3	101° 59.5 9° 15.9	+29.7 +9.8	15.8 57.9
土 25	319° 14.5 11° 34.1	333° 43.1 11° 42.8	348° 11.6 11° 51.6	2° 40.0 12° 00.2	17° 08.4 12° 08.8	31° 36.7 12° 17.3	46° 05.0 12° 25.8	60° 33.2 12° 34.2	75° 01.3 12° 42.5	89° 29.4 12° 50.7	103° 57.4 12° 58.9	+28.3 +8.5	15.9 58.4
◑ 日 26	320° 50.4 14° 52.7	335° 17.4 14° 59.6	349° 44.4 15° 06.5	4° 11.3 15° 13.2	18° 38.2 15° 19.9	33° 05.0 15° 26.5	47° 31.7 15° 33.0	61° 58.4 15° 39.4	76° 25.0 15° 45.7	90° 51.6 15° 51.9	105° 18.1 15° 58.0	+26.8 +6.5	16.1 58.9
月 27	321° 48.7 17° 17.8	336° 14.3 17° 22.2	350° 39.9 17° 26.6	5° 05.4 17° 30.8	19° 30.8 17° 35.0	33° 56.2 17° 39.0	48° 21.6 17° 42.9	62° 46.9 17° 46.7	77° 12.2 17° 50.4	91° 37.4 17° 54.0	106° 02.6 17° 57.4	+25.4 +4.0	16.2 59.3
火 28	322° 15.3 18° 34.9	336° 39.9 18° 36.4	351° 04.5 18° 37.8	5° 29.0 18° 39.0	19° 53.5 18° 40.2	34° 17.9 18° 41.2	48° 42.4 18° 42.0	63° 06.8 18° 42.8	77° 31.2 18° 43.4	91° 55.6 18° 43.9	106° 19.9 18° 44.3	+24.5 +0.9	16.3 59.7
水 29	322° 24.0 18° 34.3	336° 48.2 18° 32.6	351° 12.4 18° 30.8	5° 36.7 18° 28.9	20° 00.9 18° 26.8	34° 25.2 18° 24.6	48° 49.4 18° 22.2	63° 13.7 18° 19.8	77° 38.0 18° 17.2	92° 02.3 18° 14.4	106° 26.6 18° 11.6	+24.3 -2.3	16.3 59.9
木 30	322° 33.5 17° 14.0	336° 58.2 17° 09.2	351° 22.9 17° 04.3	5° 47.6 16° 59.3	20° 12.4 16° 54.1	34° 37.2 16° 48.9	49° 02.0 16° 43.5	63° 26.9 16° 38.0	77° 51.8 16° 32.4	92° 16.8 16° 26.7	106° 41.8 16° 20.8	+24.8 -5.3	16.3 59.9
金 31	323° 02.3 14° 40.8	337° 28.0 14° 33.4	351° 53.8 14° 25.8	6° 19.7 14° 18.2	20° 45.6 14° 10.4	35° 11.6 14° 02.6	49° 37.6 13° 54.7	64° 03.7 13° 46.7	78° 29.8 13° 38.6	92° 56.0 13° 30.4	107° 22.3 13° 22.2	+26.0 -7.9	16.3 59.7

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：3 日 17:11　上弦：10 日 21:52　満月：19 日 01:00　下弦：26 日 09:08

太陽

2035 年 9 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 15.9'

月

2035 年 9 月

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

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：2 日 01:59　上弦：9 日 14:47　満月：17 日 14:23　下弦：24 日 14:39

太陽

2035 年 10 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.0'

月

2035 年 10 月

日	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	SD/HP
● 月 1	245° 55.8 1° 00.4	260° 26.3 0° 49.5	274° 56.8 0° 38.6	289° 27.3 0° 27.7	303° 57.8 0° 16.9	318° 28.4 0° 06.0	332° 59.0 -0° 04.9	347° 29.6 -0° 15.7	2° 00.3 -0° 26.6	16° 30.9 -0° 37.4	31° 01.7 -0° 48.3	+30.6 -10.9	15.7 57.5
火 2	248° 44.9 -3° 28.5	263° 15.9 -3° 39.0	277° 47.0 -3° 49.5	292° 18.1 -3° 59.9	306° 49.2 -4° 10.3	321° 20.3 -4° 20.7	335° 51.4 -4° 31.1	350° 22.5 -4° 41.4	4° 53.7 -4° 51.7	19° 24.9 -5° 02.0	33° 56.1 -5° 12.2	+31.1 -10.4	15.5 56.9
水 3	251° 45.2 -7° 40.8	266° 16.5 -7° 50.4	280° 47.9 -7° 59.9	295° 19.3 -8° 09.4	309° 50.6 -8° 18.8	324° 22.0 -8° 28.2	338° 53.4 -8° 37.5	353° 24.8 -8° 46.7	7° 56.2 -8° 56.0	22° 27.6 -9° 05.1	36° 59.0 -9° 14.2	+31.4 -9.3	15.3 56.2
木 4	254° 50.3 -11° 24.2	269° 21.8 -11° 32.4	283° 53.2 -11° 40.5	298° 24.7 -11° 48.6	312° 56.1 -11° 56.6	327° 27.5 -12° 04.5	341° 59.0 -12° 12.4	356° 30.4 -12° 20.2	11° 01.8 -12° 28.0	25° 33.2 -12° 35.6	40° 04.7 -12° 43.2	+31.4 -7.9	15.2 55.6
金 5	257° 55.8 -14° 29.1	272° 27.2 -14° 35.6	286° 58.5 -14° 42.0	301° 29.9 -14° 48.3	316° 01.3 -14° 54.6	330° 32.6 -15° 00.8	345° 04.0 -15° 06.9	359° 35.4 -15° 12.9	14° 06.7 -15° 18.9	28° 38.1 -15° 24.7	43° 09.4 -15° 30.6	+31.4 -6.1	15.0 55.0
土 6	260° 59.0 -16° 48.2	275° 30.3 -16° 52.8	290° 01.6 -16° 57.2	304° 32.9 -17° 01.6	319° 04.1 -17° 05.9	333° 35.4 -17° 10.1	348° 06.6 -17° 14.2	2° 37.9 -17° 18.3	17° 09.1 -17° 22.3	31° 40.4 -17° 26.1	46° 11.6 -17° 29.9	+31.3 -4.2	14.9 54.6
日 7	263° 59.8 -18° 16.8	278° 31.0 -18° 19.2	293° 02.2 -18° 21.6	307° 33.4 -18° 23.9	322° 04.6 -18° 26.1	336° 35.8 -18° 28.2	351° 07.0 -18° 30.2	5° 38.1 -18° 32.1	20° 09.3 -18° 34.0	34° 40.5 -18° 35.7	49° 11.7 -18° 37.4	+31.2 -2.1	14.8 54.3
月 8	266° 59.5 -18° 52.2	281° 30.7 -18° 52.3	296° 01.9 -18° 52.5	310° 33.0 -18° 52.6	325° 04.2 -18° 52.6	339° 35.5 -18° 52.5	354° 06.7 -18° 52.4	8° 37.9 -18° 52.1	23° 09.1 -18° 51.8	37° 40.3 -18° 51.4	52° 11.5 -18° 50.9	+31.2 +0.1	14.8 54.2
◐ 火 9	270° 00.2 -18° 33.0	284° 31.5 -18° 31.1	299° 02.8 -18° 29.1	313° 34.1 -18° 27.1	328° 05.4 -18° 24.9	342° 36.7 -18° 22.7	357° 08.0 -18° 20.4	11° 39.3 -18° 18.0	26° 10.6 -18° 15.5	40° 41.9 -18° 12.9	55° 13.3 -18° 10.3	+31.3 +2.3	14.8 54.2
水 10	273° 04.1 -17° 20.5	287° 35.5 -17° 16.5	302° 06.9 -17° 12.5	316° 38.4 -17° 08.3	331° 09.8 -17° 04.1	345° 41.3 -16° 59.8	0° 12.8 -16° 55.4	14° 44.3 -16° 51.0	29° 15.7 -16° 46.4	43° 47.2 -16° 41.8	58° 18.7 -16° 37.1	+31.5 +4.3	14.9 54.5
木 11	276° 11.9 -15° 17.1	290° 43.5 -15° 11.2	305° 15.1 -15° 05.1	319° 46.7 -14° 59.1	334° 18.3 -14° 52.9	348° 49.9 -14° 46.6	3° 21.5 -14° 40.3	17° 53.2 -14° 33.9	32° 24.8 -14° 27.5	46° 56.4 -14° 20.9	61° 28.0 -14° 14.3	+31.6 +6.3	15.0 54.9
金 12	279° 22.8 -12° 26.8	293° 54.5 -12° 19.1	308° 26.1 -12° 11.4	322° 57.8 -12° 03.5	337° 29.5 -11° 55.6	352° 01.1 -11° 47.7	6° 32.8 -11° 39.6	21° 04.4 -11° 31.5	35° 36.1 -11° 23.4	50° 07.8 -11° 15.2	64° 39.4 -11° 06.9	+31.7 +8.0	15.1 55.5
土 13	282° 33.6 -8° 55.6	297° 05.2 -8° 46.4	311° 36.7 -8° 37.2	326° 08.3 -8° 27.9	340° 39.8 -8° 18.5	355° 11.3 -8° 09.1	9° 42.8 -7° 59.7	24° 14.3 -7° 50.2	38° 45.8 -7° 40.6	53° 17.3 -7° 31.0	67° 48.8 -7° 21.4	+31.5 +9.4	15.3 56.2
日 14	285° 38.9 -4° 51.5	300° 10.2 -4° 41.1	314° 41.3 -4° 30.8	329° 12.5 -4° 20.4	343° 43.6 -4° 10.0	358° 14.8 -3° 59.6	12° 45.9 -3° 49.1	27° 16.9 -3° 38.6	41° 48.0 -3° 28.0	56° 19.0 -3° 17.5	70° 50.0 -3° 06.9	+31.1 +10.5	15.5 57.0
月 15	288° 31.8 -0° 25.0	303° 02.4 -0° 14.1	317° 32.9 -0° 03.1	332° 03.4 0° 07.8	346° 33.8 0° 18.8	1° 04.2 0° 29.8	15° 34.6 0° 40.8	30° 05.0 0° 51.8	44° 35.3 1° 02.8	59° 05.5 1° 13.8	73° 35.8 1° 24.8	+30.4 +11.0	15.7 57.7
火 16	291° 04.4 4° 10.0	305° 33.9 4° 21.0	320° 03.5 4° 31.9	334° 32.9 4° 42.8	349° 02.4 4° 53.7	3° 31.7 5° 04.6	18° 01.1 5° 15.5	32° 30.4 5° 26.4	46° 59.6 5° 37.2	61° 28.8 5° 48.0	75° 57.9 5° 58.8	+29.4 +10.9	15.9 58.4
○ 水 17	293° 09.0 8° 37.0	307° 37.3 8° 47.3	322° 05.5 8° 57.5	336° 33.7 9° 07.7	351° 01.9 9° 17.8	5° 30.0 9° 27.8	19° 58.0 9° 37.9	34° 26.0 9° 47.8	48° 54.0 9° 57.7	63° 21.8 10° 07.6	77° 49.7 10° 17.4	+28.1 +10.0	16.1 59.0
木 18	294° 40.4 12° 37.2	309° 07.3 12° 46.0	323° 34.2 12° 54.6	338° 01.0 13° 03.3	352° 27.8 13° 11.8	6° 54.5 13° 20.3	21° 21.2 13° 28.6	35° 47.8 13° 36.9	50° 14.3 13° 45.2	64° 40.8 13° 53.3	79° 07.3 14° 01.3	+26.7 +8.4	16.2 59.4
金 19	295° 38.1 15° 51.1	310° 03.8 15° 57.6	324° 29.4 16° 04.0	338° 55.0 16° 10.4	353° 20.5 16° 16.6	7° 46.0 16° 22.7	22° 11.5 16° 28.7	36° 36.9 16° 34.6	51° 02.3 16° 40.4	65° 27.6 16° 46.1	79° 52.9 16° 51.7	+25.5 +6.1	16.2 59.6
土 20	296° 08.4 18° 01.5	310° 33.3 18° 05.3	324° 58.0 18° 08.8	339° 22.8 18° 12.3	353° 47.6 18° 15.7	8° 12.3 18° 18.9	22° 37.0 18° 22.0	37° 01.7 18° 24.9	51° 26.4 18° 27.8	65° 51.1 18° 30.5	80° 15.7 18° 33.1	+24.7 +3.2	16.3 59.6
日 21	310° 33.3 18° 05.3	324° 58.0 18° 08.8	339° 22.8 18° 12.3	353° 47.6 18° 15.7	8° 12.3 18° 18.9	22° 37.0 18° 22.0	37° 01.7 18° 24.9	51° 26.4 18° 27.8	65° 51.1 18° 30.5	80° 15.7 18° 33.1	94° 40.4 18° 35.6	+24.7 +3.0	16.3 59.6
月 22	310° 49.4 18° 57.4	325° 14.0 18° 57.8	339° 38.6 18° 58.1	354° 03.3 18° 58.3	8° 27.9 18° 58.3	22° 52.6 18° 58.2	37° 17.2 18° 58.0	51° 41.9 18° 57.7	66° 06.6 18° 57.2	80° 31.3 18° 56.7	94° 56.0 18° 55.9	+24.7 -0.1	16.2 59.5
◑ 火 23	311° 09.8 18° 30.2	325° 35.0 18° 27.5	340° 00.2 18° 24.6	354° 25.4 18° 21.7	8° 50.6 18° 18.6	23° 15.9 18° 15.5	37° 41.3 18° 12.2	52° 06.7 18° 08.7	66° 32.1 18° 05.2	80° 57.5 18° 01.6	95° 23.0 17° 57.8	+25.3 -3.2	16.2 59.2
水 24	311° 51.0 16° 48.0	326° 17.3 16° 42.5	340° 43.6 16° 36.8	355° 10.0 16° 31.1	9° 36.4 16° 25.3	24° 02.8 16° 19.4	38° 29.4 16° 13.4	52° 55.9 16° 07.3	67° 22.6 16° 01.1	81° 49.3 15° 54.8	96° 16.0 15° 48.4	+26.5 -6.0	16.1 58.9
木 25	313° 03.9 14° 01.6	327° 31.5 13° 53.9	341° 59.2 13° 46.0	356° 27.0 13° 38.0	10° 54.8 13° 30.0	25° 22.6 13° 21.9	39° 50.6 13° 13.8	54° 18.5 13° 05.5	68° 46.6 12° 57.2	83° 14.7 12° 48.8	97° 42.8 12° 40.4	+27.9 -8.1	16.0 58.5
金 26	314° 51.7 10° 25.9	329° 20.7 10° 16.5	343° 49.8 10° 07.0	358° 18.9 9° 57.4	12° 48.1 9° 47.9	27° 17.3 9° 38.2	41° 46.6 9° 28.5	56° 15.9 9° 18.8	70° 45.2 9° 09.0	85° 14.7 8° 59.2	99° 44.1 8° 49.4	+29.2 -9.7	15.8 58.1
土 27	317° 11.5 6° 16.9	331° 41.7 6° 06.4	346° 11.9 5° 56.0	0° 42.2 5° 45.5	15° 12.4 5° 35.0	29° 42.8 5° 24.5	44° 13.1 5° 14.0	58° 43.5 5° 03.4	73° 14.0 4° 52.8	87° 44.4 4° 42.2	102° 14.9 4° 31.6	+30.3 -10.5	15.7 57.6
日 28	319° 56.3 1° 50.7	334° 27.3 1° 39.9	348° 58.3 1° 29.1	3° 29.4 1° 18.3	18° 00.4 1° 07.5	32° 31.5 0° 56.8	47° 02.6 0° 46.0	61° 33.8 0° 35.2	76° 04.9 0° 24.4	90° 36.1 0° 13.6	105° 07.3 0° 02.9	+31.1 -10.8	15.6 57.1
月 29	322° 57.4 -2° 37.4	337° 28.9 -2° 48.0	352° 00.4 -2° 58.5	6° 31.9 -3° 09.0	21° 03.4 -3° 19.5	35° 34.9 -3° 30.0	50° 06.4 -3° 40.5	64° 37.9 -3° 50.9	79° 09.4 -4° 01.3	93° 41.0 -4° 11.7	108° 12.5 -4° 22.0	+31.5 -10.5	15.4 56.6
火 30	326° 06.4 -6° 53.4	340° 38.0 -7° 03.2	355° 09.6 -7° 13.0	9° 41.3 -7° 22.7	24° 12.9 -7° 32.4	38° 44.5 -7° 42.0	53° 16.1 -7° 51.6	67° 47.7 -8° 01.2	82° 19.3 -8° 10.7	96° 51.0 -8° 20.1	111° 22.6 -8° 29.5	+31.6 -9.6	15.3 56.1
● 水 31	329° 16.3 -10° 44.7	343° 47.8 -10° 53.3	358° 19.4 -11° 01.8	12° 50.9 -11° 10.3	27° 22.4 -11° 18.7	41° 53.9 -11° 27.1	56° 25.5 -11° 35.4	70° 57.0 -11° 43.6	85° 28.4 -11° 51.7	99° 59.9 -11° 59.8	114° 31.4 -12° 07.9	+31.5 -8.3	15.2 55.6

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

新月：1 日 13:06　上弦：9 日 09:49　満月：17 日 02:35　下弦：23 日 20:56　新月：31 日 02:58

太陽

2035 年 11 月

日	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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
土 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
日 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
月 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
火 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
水 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
木 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
金 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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2035 年 11 月

日	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
木 1	245° 14.3	259° 45.7	274° 17.1	288° 48.5	303° 19.9	317° 51.2	332° 22.6	346° 53.9	1° 25.3	15° 56.6	30° 27.9	+31.4	15.1
	-13° 17.4	-13° 24.8	-13° 32.1	-13° 39.3	-13° 46.5	-13° 53.6	-14° 00.7	-14° 07.6	-14° 14.5	-14° 21.3	-14° 28.1	-7.1	55.2
金 2	248° 16.6	262° 47.8	277° 19.0	291° 50.1	306° 21.3	320° 52.4	335° 23.6	349° 54.7	4° 25.9	18° 57.0	33° 28.1	+31.1	14.9
	-16° 00.4	-16° 06.0	-16° 11.4	-16° 16.8	-16° 22.1	-16° 27.3	-16° 32.5	-16° 37.5	-16° 42.5	-16° 47.4	-16° 52.2	-5.2	54.8
土 3	251° 14.2	265° 45.3	280° 16.3	294° 47.3	309° 18.4	323° 49.4	338° 20.4	352° 51.5	7° 22.5	21° 53.5	36° 24.5	+31.0	14.8
	-17° 54.4	-17° 57.9	-18° 01.3	-18° 04.6	-18° 07.8	-18° 10.9	-18° 14.0	-18° 16.9	-18° 19.8	-18° 22.6	-18° 25.3	-3.1	54.4
日 4	254° 10.0	268° 41.1	283° 12.1	297° 43.2	312° 14.2	326° 45.3	341° 16.4	355° 47.4	10° 18.5	24° 49.6	39° 20.7	+31.1	14.8
	-18° 55.2	-18° 56.4	-18° 57.6	-18° 58.7	-18° 59.8	-19° 00.7	-19° 01.6	-19° 02.3	-19° 03.0	-19° 03.6	-19° 04.1	-0.9	54.2
月 5	257° 08.0	271° 39.2	286° 10.5	300° 41.7	315° 13.0	329° 44.2	344° 15.5	358° 46.8	13° 18.1	27° 49.4	42° 20.7	+31.3	14.7
	-19° 00.9	-19° 00.0	-18° 59.0	-18° 57.9	-18° 56.7	-18° 55.5	-18° 54.1	-18° 52.7	-18° 51.2	-18° 49.6	-18° 47.9	+1.3	54.1
火 6	260° 12.0	274° 43.5	289° 15.1	303° 46.6	318° 18.2	332° 49.8	347° 21.3	1° 53.0	16° 24.6	30° 56.2	45° 27.8	+31.6	14.8
	-18° 12.3	-18° 09.3	-18° 06.2	-18° 03.0	-17° 59.7	-17° 56.3	-17° 52.8	-17° 49.3	-17° 45.7	-17° 42.0	-17° 38.2	+3.4	54.1
水 7	263° 24.2	277° 56.0	292° 27.9	306° 59.8	321° 31.7	336° 03.6	350° 35.5	5° 07.5	19° 39.4	34° 11.4	48° 43.3	+31.9	14.8
	-16° 32.0	-16° 27.0	-16° 21.9	-16° 16.7	-16° 11.4	-16° 06.1	-16° 00.7	-15° 55.2	-15° 49.6	-15° 44.0	-15° 38.3	+5.4	54.4
◐ 木 8	266° 44.1	281° 16.2	295° 48.3	310° 20.5	324° 52.6	339° 24.7	353° 56.9	8° 29.1	23° 01.2	37° 33.4	52° 05.6	+32.1	15.0
	-14° 04.0	-13° 57.2	-13° 50.3	-13° 43.3	-13° 36.2	-13° 29.1	-13° 21.9	-13° 14.7	-13° 07.4	-13° 00.0	-12° 52.6	+7.1	54.9
金 9	270° 08.4	284° 40.6	299° 12.8	313° 44.9	328° 17.1	342° 49.3	357° 21.5	11° 53.6	26° 25.8	40° 57.9	55° 30.1	+32.2	15.1
	-10° 53.4	-10° 45.0	-10° 36.5	-10° 28.0	-10° 19.4	-10° 10.7	-10° 02.0	-9° 53.3	-9° 44.5	-9° 35.6	-9° 26.7	+8.7	55.5
土 10	273° 31.0	288° 02.9	302° 34.9	317° 06.8	331° 38.7	346° 10.6	0° 42.5	15° 14.3	29° 46.1	44° 17.9	58° 49.7	+31.9	15.3
	-7° 06.6	-6° 56.9	-6° 47.1	-6° 37.3	-6° 27.5	-6° 17.6	-6° 07.7	-5° 57.7	-5° 47.7	-5° 37.6	-5° 27.5	+9.9	56.3
日 11	276° 43.4	291° 14.8	305° 46.1	320° 17.4	334° 48.6	349° 19.8	3° 51.0	18° 22.1	32° 53.2	47° 24.3	61° 55.3	+31.2	15.6
	-2° 51.7	-2° 41.0	-2° 30.3	-2° 19.6	-2° 08.9	-1° 58.2	-1° 47.4	-1° 36.6	-1° 25.8	-1° 14.9	-1° 04.1	+10.8	57.2
月 12	279° 35.6	294° 05.9	308° 36.2	323° 06.4	337° 36.6	352° 06.7	6° 36.8	21° 06.8	35° 36.7	50° 06.6	64° 36.5	+30.1	15.8
	1° 40.9	1° 52.0	2° 03.1	2° 14.2	2° 25.3	2° 36.4	2° 47.5	2° 58.6	3° 09.7	3° 20.8	3° 31.9	+11.1	58.1
火 13	281° 57.1	296° 26.0	310° 54.8	325° 23.6	339° 52.3	354° 20.9	8° 49.5	23° 18.0	37° 46.4	52° 14.7	66° 43.0	+28.6	16.1
	6° 17.2	6° 28.1	6° 39.0	6° 49.8	7° 00.7	7° 11.4	7° 22.2	7° 32.9	7° 43.6	7° 54.3	8° 04.9	+10.8	59.0
水 14	283° 38.9	298° 06.1	312° 33.2	327° 00.2	341° 27.1	355° 54.0	10° 20.8	24° 47.5	39° 14.2	53° 40.8	68° 07.3	+26.8	16.3
	10° 39.5	10° 49.4	10° 59.3	11° 09.1	11° 18.8	11° 28.5	11° 38.1	11° 47.6	11° 57.1	12° 06.5	12° 15.9	+9.6	59.7
○ 木 15	284° 36.4	299° 01.8	313° 27.2	327° 52.4	342° 17.6	356° 42.7	11° 07.8	25° 32.8	39° 57.7	54° 22.6	68° 47.4	+25.1	16.4
	14° 26.8	14° 34.9	14° 42.8	14° 50.7	14° 58.5	15° 06.2	15° 13.7	15° 21.2	15° 28.6	15° 35.9	15° 43.0	+7.6	60.2
金 16	284° 52.9	299° 16.9	313° 40.8	328° 04.7	342° 28.5	356° 52.3	11° 16.1	25° 39.8	40° 03.5	54° 27.2	68° 50.8	+23.8	16.5
	17° 17.5	17° 22.9	17° 28.1	17° 33.2	17° 38.2	17° 43.1	17° 47.9	17° 52.5	17° 57.0	18° 01.4	18° 05.6	+4.8	60.5
土 17	284° 42.0	299° 05.3	313° 28.5	327° 51.8	342° 15.1	356° 38.3	11° 01.6	25° 24.9	39° 48.1	54° 11.4	68° 34.7	+23.3	16.5
	18° 53.4	18° 55.5	18° 57.5	18° 59.3	19° 01.0	19° 02.6	19° 04.0	19° 05.3	19° 06.4	19° 07.4	19° 08.3	+1.5	60.5
日 18	284° 25.6	298° 49.2	313° 12.8	327° 36.4	342° 00.1	356° 23.8	10° 47.6	25° 11.4	39° 35.2	53° 59.1	68° 23.0	+23.7	16.4
	19° 04.8	19° 03.4	19° 02.0	19° 00.4	18° 58.7	18° 56.8	18° 54.8	18° 52.7	18° 50.4	18° 48.0	18° 45.5	-1.9	60.2
月 19	284° 27.8	298° 52.5	313° 17.3	327° 42.2	342° 07.2	356° 32.2	10° 57.3	25° 22.4	39° 47.6	54° 12.9	68° 38.3	+25.0	16.3
	17° 52.6	17° 48.1	17° 43.5	17° 38.8	17° 33.9	17° 29.0	17° 23.9	17° 18.7	17° 13.4	17° 08.0	17° 02.5	-5.0	59.7
火 20	298° 52.5	313° 17.3	327° 42.2	342° 07.2	356° 32.2	10° 57.3	25° 22.4	39° 47.6	54° 12.9	68° 38.3	83° 03.7	+25.1	16.3
	17° 48.1	17° 43.5	17° 38.8	17° 33.9	17° 29.0	17° 23.9	17° 18.7	17° 13.4	17° 08.0	17° 02.5	16° 56.9	-5.1	59.7
水 21	299° 33.2	313° 59.8	328° 26.4	342° 53.1	357° 19.9	11° 46.7	26° 13.6	40° 40.6	55° 07.7	69° 34.8	84° 02.1	+26.9	16.1
	15° 20.5	15° 13.3	15° 06.1	14° 58.7	14° 51.3	14° 43.7	14° 36.1	14° 28.4	14° 20.6	14° 12.8	14° 04.8	-7.6	59.1
◑ 木 22	300° 58.9	315° 27.3	329° 55.7	344° 24.2	358° 52.8	13° 21.4	27° 50.1	42° 18.9	56° 47.7	71° 16.6	85° 45.6	+28.7	15.9
	11° 57.1	11° 48.1	11° 39.0	11° 29.9	11° 20.6	11° 11.4	11° 02.0	10° 52.7	10° 43.2	10° 33.8	10° 24.2	-9.3	58.4
金 23	303° 07.6	317° 37.6	332° 07.6	346° 37.6	1° 07.7	15° 37.9	30° 08.1	44° 38.4	59° 08.7	73° 39.0	88° 09.4	+30.2	15.7
	7° 56.0	7° 45.8	7° 35.6	7° 25.3	7° 15.1	7° 04.7	6° 54.4	6° 44.0	6° 33.7	6° 23.2	6° 12.8	-10.3	57.7
土 24	305° 51.1	320° 22.3	334° 53.4	349° 24.6	3° 55.8	18° 27.1	32° 58.4	47° 29.7	62° 01.1	76° 32.4	91° 03.9	+31.3	15.6
	3° 34.0	3° 23.3	3° 12.6	3° 01.9	2° 51.1	2° 40.4	2° 29.7	2° 19.0	2° 08.2	1° 57.5	1° 46.8	-10.7	57.1
日 25	308° 58.5	323° 30.3	338° 02.2	352° 34.0	7° 05.9	21° 37.8	36° 09.7	50° 41.7	65° 13.6	79° 45.6	94° 17.6	+31.9	15.4
	-0° 53.9	-1° 04.5	-1° 15.2	-1° 25.8	-1° 36.4	-1° 47.0	-1° 57.6	-2° 08.1	-2° 18.6	-2° 29.2	-2° 39.7	-10.6	56.5
月 26	312° 18.4	326° 50.6	341° 22.7	355° 54.8	10° 26.9	24° 59.0	39° 31.2	54° 03.3	68° 35.4	83° 07.5	97° 39.7	+32.1	15.3
	-5° 14.4	-5° 24.5	-5° 34.6	-5° 44.6	-5° 54.6	-6° 04.6	-6° 14.5	-6° 24.4	-6° 34.3	-6° 44.1	-6° 53.9	-9.9	55.9
火 27	315° 41.2	330° 13.2	344° 45.3	359° 17.3	13° 49.3	28° 21.4	42° 53.4	57° 25.4	71° 57.4	86° 29.3	101° 01.3	+32.0	15.1
	-9° 15.8	-9° 24.9	-9° 33.9	-9° 42.9	-9° 51.9	-10° 00.8	-10° 09.6	-10° 18.4	-10° 27.2	-10° 35.9	-10° 44.5	-8.9	55.5
水 28	318° 59.4	333° 31.2	348° 02.9	2° 34.7	17° 06.4	31° 38.1	46° 09.8	60° 41.5	75° 13.1	89° 44.8	104° 16.4	+31.7	15.0
	-12° 47.3	-12° 55.0	-13° 02.6	-13° 10.2	-13° 17.7	-13° 25.1	-13° 32.5	-13° 39.8	-13° 47.1	-13° 54.3	-14° 01.4	-7.4	55.0
● 木 29	322° 09.1	336° 40.5	351° 11.9	5° 43.3	20° 14.6	34° 46.0	49° 17.3	63° 48.6	78° 19.9	92° 51.2	107° 22.5	+31.3	14.9
	-15° 39.5	-15° 45.5	-15° 51.4	-15° 57.2	-16° 02.9	-16° 08.6	-16° 14.1	-16° 19.6	-16° 25.1	-16° 30.4	-16° 35.7	-5.6	54.6
金 30	325° 10.1	339° 41.2	354° 12.3	8° 43.4	23° 14.5	37° 45.5	52° 16.6	66° 47.6	81° 18.7	95° 49.7	110° 20.7	+31.1	14.8
	-17° 44.8	-17° 48.7	-17° 52.6	-17° 56.4	-18° 00.1	-18° 03.7	-18° 07.2	-18° 10.6	-18° 14.0	-18° 17.2	-18° 20.4	-3.6	54.3

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：8 日 05:50　満月：15 日 13:48　下弦：22 日 05:16　新月：29 日 19:37

太陽

2035 年 12 月

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

1 行目：GHA（グリニッジ時角）、Δ'/h = GHA の毎時変化量 − 15°
2 行目：Dec（赤緯、− = 南）、Δ'/h = 赤緯の毎時変化量
視半径: 16.2'

月

2035 年 12 月

日	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
土1	240°59.7 -18°45.1	255°30.7 -18°47.4	270°01.7 -18°49.6	284°32.6 -18°51.7	299°03.6 -18°53.7	313°34.6 -18°55.7	328°05.6 -18°57.5	342°36.5 -18°59.3	357°07.5 -19°01.0	11°38.5 -19°02.6	26°09.5 -19°04.1	+31.0 -1.9	14.8 54.1
日2	243°54.5 -19°15.9	258°25.6 -19°16.0	272°56.6 -19°16.0	287°27.7 -19°15.9	301°58.8 -19°15.7	316°29.9 -19°15.4	331°01.0 -19°15.0	345°32.1 -19°14.6	0°03.2 -19°14.0	14°34.3 -19°13.4	29°05.4 -19°12.7	+31.1 +0.3	14.7 54.0
月3	246°53.9 -18°51.3	261°25.3 -18°49.2	275°56.7 -18°47.0	290°28.1 -18°44.7	304°59.5 -18°42.4	319°30.9 -18°39.9	334°02.3 -18°37.4	348°33.8 -18°34.7	3°05.2 -18°32.0	17°36.7 -18°29.2	32°08.2 -18°26.4	+31.4 +2.5	14.7 53.9
火4	250°03.1 -17°33.4	264°34.9 -17°29.2	279°06.7 -17°25.0	293°38.6 -17°20.7	308°10.4 -17°16.3	322°42.3 -17°11.8	337°14.2 -17°07.2	351°46.2 -17°02.6	6°18.1 -16°57.9	20°50.1 -16°53.1	35°22.1 -16°48.2	+31.9 +4.5	14.7 54.0
水5	253°24.3 -15°26.4	267°56.6 -15°20.4	282°28.9 -15°14.3	297°01.3 -15°08.1	311°33.6 -15°01.8	326°06.0 -14°55.5	340°38.4 -14°49.2	355°10.8 -14°42.7	9°43.2 -14°36.2	24°15.7 -14°29.7	38°48.1 -14°23.0	+32.4 +6.3	14.8 54.3
木6	256°56.7 -12°35.7	271°29.3 -12°28.1	286°02.0 -12°20.4	300°34.7 -12°12.6	315°07.4 -12°04.8	329°40.1 -11°56.9	344°12.8 -11°49.0	358°45.5 -11°41.0	13°18.3 -11°32.9	27°51.0 -11°24.8	42°23.7 -11°16.7	+32.7 +7.9	14.9 54.7
金7	260°35.3 -9°07.8	275°08.1 -8°58.9	289°40.9 -8°49.8	304°13.6 -8°40.7	318°46.4 -8°31.6	333°19.1 -8°22.4	347°51.9 -8°13.2	2°24.7 -8°03.9	16°57.4 -7°54.6	31°30.1 -7°45.2	46°02.9 -7°35.8	+32.8 +9.2	15.1 55.3
◐ 土8	264°12.3 -5°09.9	278°44.8 -4°59.8	293°17.3 -4°49.8	307°49.8 -4°39.6	322°22.2 -4°29.5	336°54.6 -4°19.3	351°27.0 -4°09.1	5°59.4 -3°58.9	20°31.7 -3°48.6	35°04.1 -3°38.4	49°36.4 -3°28.0	+32.4 +10.2	15.3 56.0
日9	267°37.1 -0°50.0	282°08.9 -0°39.3	296°40.6 -0°28.6	311°12.3 -0°17.9	325°43.9 -0°07.1	340°15.5 0°03.7	354°47.1 0°14.5	9°18.6 0°25.3	23°50.1 0°36.1	38°21.5 0°46.9	52°52.9 0°57.8	+31.6 +10.8	15.5 57.0
月10	270°37.3 3°41.2	285°07.9 3°52.1	299°38.3 4°03.1	314°08.7 4°14.0	328°39.0 4°24.9	343°09.3 4°35.7	357°39.5 4°46.6	12°09.6 4°57.5	26°39.7 5°08.4	41°09.7 5°19.2	55°39.7 5°30.1	+30.2 +10.9	15.8 57.9
火11	273°00.2 8°10.5	287°29.0 8°20.9	301°57.7 8°31.4	316°26.3 8°41.8	330°54.8 8°52.2	345°23.3 9°02.6	359°51.6 9°12.9	14°19.9 9°23.2	28°48.1 9°33.4	43°16.3 9°43.6	57°44.3 9°53.8	+28.4 +10.3	16.1 59.0
水12	274°34.7 12°20.0	289°01.4 12°29.3	303°28.0 12°38.5	317°54.5 12°47.7	332°20.9 12°56.7	346°47.2 13°05.7	1°13.4 13°14.7	15°39.6 13°23.5	30°05.6 13°32.3	44°31.6 13°41.0	58°57.5 13°49.6	+26.3 +9.0	16.3 59.9
木13	275°15.5 15°48.6	289°40.0 15°55.7	304°04.4 16°02.8	318°28.8 16°09.7	332°53.1 16°16.6	347°17.3 16°23.3	1°41.5 16°30.0	16°05.5 16°36.5	30°29.5 16°42.9	44°53.5 16°49.2	59°17.3 16°55.4	+24.2 +6.7	16.5 60.6
金14	275°07.1 18°13.5	289°29.9 18°17.7	303°52.8 18°21.7	318°15.5 18°25.6	332°38.2 18°29.4	347°00.9 18°33.0	1°23.5 18°36.5	15°46.1 18°39.9	30°08.6 18°43.1	44°31.1 18°46.2	58°53.6 18°49.2	+22.6 +3.6	16.7 61.1
○ 土15	274°27.5 19°16.2	288°49.6 19°16.8	303°11.8 19°17.3	317°33.9 19°17.7	331°56.0 19°17.9	346°18.2 19°17.9	0°40.3 19°17.8	15°02.5 19°17.6	29°24.6 19°17.2	43°46.8 19°16.6	58°09.0 19°16.0	+22.1 -0.0	16.7 61.2
日16	273°44.6 18°48.3	288°07.3 18°45.3	302°30.0 18°42.2	316°52.7 18°38.9	331°15.5 18°35.6	345°38.4 18°32.0	0°01.2 18°28.4	14°24.2 18°24.6	28°47.2 18°20.6	43°10.2 18°16.6	57°33.3 18°12.4	+22.9 -3.6	16.6 61.0
月17	273°27.6 16°54.5	287°51.8 16°48.3	302°16.1 16°42.1	316°40.4 16°35.7	331°04.8 16°29.2	345°29.3 16°22.6	359°53.9 16°15.9	14°18.6 16°09.1	28°43.3 16°02.2	43°08.1 15°55.2	57°33.0 15°48.1	+24.5 -6.6	16.5 60.5
火18	273°56.5 13°50.4	288°22.7 13°41.8	302°49.1 13°33.2	317°15.5 13°24.5	331°42.0 13°15.8	346°08.6 13°06.9	0°35.3 12°58.0	15°02.0 12°49.1	29°28.9 12°40.0	43°55.8 12°30.9	58°22.8 12°21.7	+26.6 -8.9	16.3 59.7
水19	275°18.0 9°57.0	289°46.3 9°46.9	304°14.7 9°36.8	318°43.2 9°26.7	333°11.8 9°16.5	347°40.4 9°06.3	2°09.1 8°56.0	16°37.9 8°45.7	31°06.8 8°35.4	45°35.7 8°25.0	60°04.7 8°14.6	+28.7 -10.2	16.0 58.8
木20	289°46.3 9°46.9	304°14.7 9°36.8	318°43.2 9°26.7	333°11.8 9°16.5	347°40.4 9°06.3	2°09.1 8°56.0	16°37.9 8°45.7	31°06.8 8°35.4	45°35.7 8°25.0	60°04.7 8°14.6	74°33.8 8°04.2	+28.7 -10.3	16.0 58.8
◑ 金21	291°58.0 5°24.5	306°28.2 5°13.6	320°58.4 5°02.8	335°28.6 4°52.0	349°58.9 4°41.1	4°29.3 4°30.3	18°59.7 4°19.4	33°30.2 4°08.6	48°00.7 3°57.7	62°31.3 3°46.8	77°01.9 3°35.9	+30.4 -10.9	15.8 57.9
土22	294°47.1 0°52.4	309°18.5 0°41.5	323°49.8 0°30.6	338°21.3 0°19.8	352°52.7 0°08.9	7°24.3 -0°01.9	21°55.8 -0°12.7	36°27.4 -0°23.5	50°59.0 -0°34.3	65°30.6 -0°45.1	80°02.3 -0°55.8	+31.5 -10.8	15.6 57.0
日23	298°00.6 -3°34.8	312°32.7 -3°45.2	327°04.7 -3°55.6	341°36.8 -4°05.9	356°09.0 -4°16.3	10°41.1 -4°26.6	25°13.3 -4°36.8	39°45.4 -4°47.1	54°17.6 -4°57.3	68°49.8 -5°07.4	83°22.0 -5°17.6	+32.1 -10.3	15.3 56.3
月24	301°26.1 -7°45.2	315°58.4 -7°54.7	330°30.7 -8°04.2	345°03.0 -8°13.6	359°35.3 -8°23.0	14°07.7 -8°32.4	28°40.0 -8°41.7	43°12.3 -8°50.9	57°44.6 -9°00.1	72°16.9 -9°09.3	86°49.2 -9°18.4	+32.3 -9.3	15.2 55.6
火25	304°53.1 -11°28.8	319°25.3 -11°37.1	333°57.5 -11°45.3	348°29.7 -11°53.4	3°01.8 -12°01.5	17°34.0 -12°09.5	32°06.1 -12°17.5	46°38.3 -12°25.4	61°10.4 -12°33.2	75°42.5 -12°41.0	90°14.6 -12°48.7	+32.1 -8.0	15.0 55.0
水26	308°14.2 -14°36.8	322°46.1 -14°43.5	337°17.9 -14°50.1	351°49.8 -14°56.6	6°21.6 -15°03.1	20°53.4 -15°09.5	35°25.1 -15°15.8	49°56.9 -15°22.0	64°28.6 -15°28.2	79°00.4 -15°34.3	93°32.1 -15°40.3	+31.8 -6.3	14.9 54.6
木27	311°25.7 -17°01.5	325°57.2 -17°06.3	340°28.6 -17°11.0	355°00.1 -17°15.7	9°31.5 -17°20.2	24°02.9 -17°24.7	38°34.2 -17°29.1	53°05.6 -17°33.4	67°36.9 -17°37.6	82°08.3 -17°41.7	96°39.6 -17°45.8	+31.4 -4.4	14.8 54.3
金28	314°28.0 -18°36.6	328°59.1 -18°39.3	343°30.2 -18°41.9	358°01.4 -18°44.4	12°32.5 -18°46.9	27°03.6 -18°49.2	41°34.7 -18°51.5	56°05.8 -18°53.7	70°36.9 -18°55.8	85°08.0 -18°57.8	99°39.0 -18°59.7	+31.1 -2.3	14.7 54.1
● 土29	317°24.9 -19°17.7	331°55.9 -19°18.2	346°27.0 -19°18.6	0°58.0 -19°19.0	15°29.1 -19°19.2	30°00.2 -19°19.3	44°31.2 -19°19.4	59°02.3 -19°19.3	73°33.4 -19°19.2	88°04.4 -19°19.0	102°35.5 -19°18.7	+31.1 -0.1	14.7 53.9
日30	320°22.8 -19°03.4	334°54.0 -19°01.7	349°25.2 -18°59.8	3°56.5 -18°58.0	18°27.8 -18°56.0	32°59.1 -18°53.9	47°30.4 -18°51.7	62°01.7 -18°49.5	76°33.0 -18°47.2	91°04.4 -18°44.8	105°35.7 -18°42.3	+31.3 +2.1	14.7 53.9
月31	323°28.2 -17°54.8	337°59.9 -17°51.0	352°31.6 -17°47.0	7°03.3 -17°43.1	21°35.0 -17°39.0	36°06.7 -17°34.9	50°38.5 -17°30.6	65°10.2 -17°26.3	79°42.0 -17°22.0	94°13.9 -17°17.5	108°45.7 -17°13.0	+31.7 +4.2	14.7 53.9

1 行目：GHA、Δ'/h = GHA の毎時変化量 − 14°、SD/HP = 視半径 SD
2 行目：Dec（− = 南）、Δ'/h = 赤緯の毎時変化量、SD/HP = 地平視差 HP
列 =（世界時の時 − 日）mod 24

上弦：8 日 01:05　満月：15 日 00:33　下弦：21 日 16:28　新月：29 日 14:30