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Efemeriden van Zon en Maan

Astronavigatie — 2027–2035

Editie Stille Oceaan

De uren rond de middag en de meridiaandoorgang van de maan op de meridiaan van 180°

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- Elke maand, januari 2027 tot december 2035: de bladzijde van de Zon, dan die van de Maan

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Gebruiksaanwijzing

Een voorbeeld, stap voor stap: de Zon, onderrand, op 12 juni 2027 om 22 h 23 min 41 s UTC, ooghoogte 2,5 m, indexfout +1,4’ (ic = −1,4’).

De hoogte van het hemellichaam

1 Gemeten hoogte. Lees de sextant af (H_i) en breng de indexcorrectie ic aan, het tegengestelde van de indexfout. Met een kunstmatige horizon deel je het resultaat door 2: de aflezing is de dubbele hoogte.

$H_g = H_i + \text{ic}$ — $62°14{,}6’ - 1{,}4’ = 62°13{,}2’$

2 Kimduiking. Boven de kim tel je de kimduiking ks op (tafel 1, altijd negatief) en krijg je de schijnbare hoogte H_a. Met een kunstmatige horizon vervalt ze.

$H_a = H_g + \text{ks}$ — $62°13{,}2’ - 2{,}8’ = 62°10{,}4’$ (oog 2,5 m)

3 Ware hoogte. Tel de totale correctie tc van de Zon (tafel 2) of de Maan (tafel 3) op, afgelezen met H_a en voor de Maan met de horizontale parallax HP van de maandbladzijde. Ze omvat refractie, parallax en halve middellijn: breng die niet nog eens aan.

$H_w = H_a + \text{tc}$ — $62°10{,}4’ + 15{,}4’ = 62°25{,}8’$ (tafel 2)

De positie van het hemellichaam

4 Uurhoek van Greenwich. Lees op de maandbladzijde de GHA af op het hele uur vóór de waarneming en interpoleer voor de minuten en seconden sindsdien: tafel 4, dan tafel 5 voor v, de Δ’/h van de GHA-rij (het overschot boven 15°/h voor de Zon, 14°/h voor de Maan).

$\text{GHA} = \text{GHA}_h + \text{tafel 4} + \text{tafel 5}\,(v)$ — $150°01{,}0’ + 5°55{,}2’ + 0{,}0’ = 155°56{,}2’$

5 Declinatie. Lees de declinatie af op het hele uur en tel de interpolatie van d op, de Δ’/h van de declinatierij, met zijn teken.

$\text{dec} = \text{dec}_h + \text{tafel 5}\,(d)$ — $23°10{,}7’ + 0{,}1’ = 23°10{,}8’$ ($d = +0{,}2$)

De tafels gaan uit van 10 °C en 1010 hPa; onder 10° hoogte varieert de refractie met het weer en zijn waarnemingen minder betrouwbaar. Formules: kimduiking $1{,}76’\sqrt{h}$; refractie volgens Bennett; parallax $0{,}15’ \cos H_a$ (Zon), $\arcsin(\sin HP \cos H_a)$ (Maan); halve middellijn van de Maan $0{,}2725\,HP$.

Tafel 1 — Kimduiking

Oog (m)	ks
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

Tafel 2 — Zon: totale correctie

	Oktober – maart		April – september	
H_a	**Onderrand**	**Bovenrand**	**Onderrand**	**Bovenrand**
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

Refractie, parallax en halve middellijn (16,1’ van oktober tot maart, 15,9’ van april tot september). Optellen bij H_a.

Tafel 3 — Maan: totale correctie

Onderrand									
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

Bovenrand									
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

Kolommen: horizontale parallax HP (maandbladzijde, bij de dag). Refractie, parallax en halve middellijn (0,2725 HP). Optellen bij H_a; interpoleren tussen rijen en kolommen.

Tafel 4 — Interpolatie van de GHA: minuten en seconden

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

De maandbladzijden geven de GHA op hele uren; daartussen neemt ze gelijkmatig toe, met 15° per uur voor de Zon en 14° voor de Maan. Deze tafel geeft de toename in de minuten (links) en seconden (rechts) sinds het hele uur: tel beide op bij de GHA van het hele uur, en daarna de interpolatie van v (tafel 5). Voorbeeld, Zon om 15 h 30 min 52 s: 7°30,0’ + 13,0’ = 7°43,0’.

Tafel 5 — Interpolatie van v en d

Δ'/h \ min	**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

De rest van de interpolatie: de GHA neemt in werkelijkheid v meer toe dan 15° (14°) per uur, de declinatie d per uur (Δ'/h op de maandbladzijde). De tafel geeft $\Delta \times min/60$ voor de minuten sinds het hele uur; tel dit op met het teken van Δ. Voor een Δ die er niet in staat, tel je rijen op: Maan, v = 38,3'/h na 41 min ≈ 30 + 8 + 0,3: 20,5 + 5,5 + 0,2 = 26,2'.

ZON

Januari 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	179° 11.9	194° 11.6	209° 11.3	224° 11.0	239° 10.7	254° 10.5	89° 06.6	104° 06.3	119° 06.0	134° 05.7	149° 05.4	164° 05.1	-0.3
	-23° 02.2	-23° 02.0	-23° 01.8	-23° 01.6	-23° 01.4	-23° 01.2	-22° 58.5	-22° 58.3	-22° 58.1	-22° 57.9	-22° 57.7	-22° 57.4	+0.2
za 2	179° 04.9	194° 04.6	209° 04.3	224° 04.0	239° 03.7	254° 03.4	88° 59.6	103° 59.3	118° 59.0	133° 58.7	148° 58.4	163° 58.1	-0.3
	-22° 57.2	-22° 57.0	-22° 56.8	-22° 56.6	-22° 56.4	-22° 56.1	-22° 53.2	-22° 53.0	-22° 52.7	-22° 52.5	-22° 52.3	-22° 52.0	+0.2
zo 3	178° 57.8	193° 57.6	208° 57.3	223° 57.0	238° 56.7	253° 56.4	88° 52.7	103° 52.4	118° 52.1	133° 51.8	148° 51.5	163° 51.2	-0.3
	-22° 51.8	-22° 51.6	-22° 51.3	-22° 51.1	-22° 50.9	-22° 50.6	-22° 47.4	-22° 47.2	-22° 46.9	-22° 46.7	-22° 46.4	-22° 46.2	+0.2
ma 4	178° 50.9	193° 50.6	208° 50.4	223° 50.1	238° 49.8	253° 49.5	88° 45.8	103° 45.5	118° 45.2	133° 45.0	148° 44.7	163° 44.4	-0.3
	-22° 45.9	-22° 45.7	-22° 45.4	-22° 45.2	-22° 44.9	-22° 44.6	-22° 41.2	-22° 40.9	-22° 40.7	-22° 40.4	-22° 40.1	-22° 39.9	+0.3
di 5	178° 44.1	193° 43.8	208° 43.5	223° 43.3	238° 43.0	253° 42.7	88° 39.1	103° 38.8	118° 38.5	133° 38.2	148° 38.0	163° 37.7	-0.3
	-22° 39.6	-22° 39.3	-22° 39.0	-22° 38.8	-22° 38.5	-22° 38.2	-22° 34.5	-22° 34.3	-22° 34.0	-22° 33.7	-22° 33.4	-22° 33.1	+0.3
wo 6	178° 37.4	193° 37.1	208° 36.8	223° 36.6	238° 36.3	253° 36.0	88° 32.4	103° 32.2	118° 31.9	133° 31.6	148° 31.3	163° 31.1	-0.3
	-22° 32.8	-22° 32.5	-22° 32.2	-22° 31.9	-22° 31.6	-22° 31.3	-22° 27.4	-22° 27.1	-22° 26.8	-22° 26.5	-22° 26.2	-22° 25.9	+0.3
do 7	178° 30.8	193° 30.5	208° 30.2	223° 30.0	238° 29.7	253° 29.4	88° 25.9	103° 25.6	118° 25.4	133° 25.1	148° 24.8	163° 24.6	-0.3
	-22° 25.6	-22° 25.3	-22° 25.0	-22° 24.6	-22° 24.3	-22° 24.0	-22° 19.9	-22° 19.5	-22° 19.2	-22° 18.9	-22° 18.6	-22° 18.2	+0.3
vr 8	178° 24.3	193° 24.0	208° 23.8	223° 23.5	238° 23.2	253° 23.0	88° 19.5	103° 19.3	118° 19.0	133° 18.7	148° 18.5	163° 18.2	-0.3
	-22° 17.9	-22° 17.6	-22° 17.2	-22° 16.9	-22° 16.6	-22° 16.3	-22° 11.9	-22° 11.5	-22° 11.2	-22° 10.8	-22° 10.5	-22° 10.1	+0.3
za 9	178° 17.9	193° 17.7	208° 17.4	223° 17.2	238° 16.9	253° 16.6	88° 13.3	103° 13.0	118° 12.7	133° 12.5	148° 12.2	163° 12.0	-0.3
	-22° 09.8	-22° 09.5	-22° 09.1	-22° 08.8	-22° 08.4	-22° 08.1	-22° 03.4	-22° 03.1	-22° 02.7	-22° 02.3	-22° 02.0	-22° 01.6	+0.3
zo 10	178° 11.7	193° 11.5	208° 11.2	223° 10.9	238° 10.7	253° 10.4	88° 07.1	103° 06.9	118° 06.6	133° 06.4	148° 06.1	163° 05.9	-0.3
	-22° 01.3	-22° 00.9	-22° 00.5	-22° 00.2	-21° 59.8	-21° 59.4	-21° 54.6	-21° 54.2	-21° 53.8	-21° 53.4	-21° 53.0	-21° 52.7	+0.4
ma 11	178° 05.6	193° 05.4	208° 05.1	223° 04.9	238° 04.6	253° 04.4	88° 01.2	103° 00.9	118° 00.7	133° 00.4	148° 00.2	162° 59.9	-0.3
	-21° 52.3	-21° 51.9	-21° 51.5	-21° 51.1	-21° 50.7	-21° 50.4	-21° 45.3	-21° 44.9	-21° 44.5	-21° 44.1	-21° 43.7	-21° 43.3	+0.4
di 12	177° 59.7	192° 59.4	207° 59.2	222° 59.0	237° 58.7	252° 58.5	87° 55.3	102° 55.1	117° 54.9	132° 54.6	147° 54.4	162° 54.1	-0.2
	-21° 42.9	-21° 42.5	-21° 42.1	-21° 41.7	-21° 41.3	-21° 40.9	-21° 35.6	-21° 35.1	-21° 34.7	-21° 34.3	-21° 33.9	-21° 33.5	+0.4
wo 13	177° 53.9	192° 53.7	207° 53.4	222° 53.2	237° 53.0	252° 52.7	87° 49.7	102° 49.4	117° 49.2	132° 49.0	147° 48.7	162° 48.5	-0.2
	-21° 33.1	-21° 32.6	-21° 32.2	-21° 31.8	-21° 31.4	-21° 31.0	-21° 25.4	-21° 25.0	-21° 24.6	-21° 24.1	-21° 23.7	-21° 23.3	+0.4
do 14	177° 48.3	192° 48.0	207° 47.8	222° 47.6	237° 47.4	252° 47.1	87° 44.2	102° 43.9	117° 43.7	132° 43.5	147° 43.3	162° 43.0	-0.2
	-21° 22.8	-21° 22.4	-21° 22.0	-21° 21.5	-21° 21.1	-21° 20.6	-21° 14.9	-21° 14.4	-21° 14.0	-21° 13.5	-21° 13.1	-21° 12.6	+0.4
vr 15	177° 42.8	192° 42.6	207° 42.4	222° 42.1	237° 41.9	252° 41.7	87° 38.8	102° 38.6	117° 38.4	132° 38.2	147° 38.0	162° 37.7	-0.2
	-21° 12.2	-21° 11.7	-21° 11.3	-21° 10.8	-21° 10.4	-21° 09.9	-21° 03.9	-21° 03.5	-21° 03.0	-21° 02.5	-21° 02.1	-21° 01.6	+0.5
za 16	177° 37.5	192° 37.3	207° 37.1	222° 36.9	237° 36.7	252° 36.4	87° 33.7	102° 33.5	117° 33.2	132° 33.0	147° 32.8	162° 32.6	-0.2
	-21° 01.1	-21° 00.6	-21° 00.2	-20° 59.7	-20° 59.2	-20° 58.8	-20° 52.6	-20° 52.1	-20° 51.6	-20° 51.1	-20° 50.6	-20° 50.1	+0.5
zo 17	177° 32.4	192° 32.2	207° 32.0	222° 31.8	237° 31.6	252° 31.4	87° 28.7	102° 28.5	117° 28.3	132° 28.1	147° 27.9	162° 27.7	-0.2
	-20° 49.7	-20° 49.2	-20° 48.7	-20° 48.2	-20° 47.7	-20° 47.2	-20° 40.8	-20° 40.3	-20° 39.8	-20° 39.3	-20° 38.8	-20° 38.3	+0.5
ma 18	177° 27.5	192° 27.3	207° 27.1	222° 26.9	237° 26.7	252° 26.5	87° 23.9	102° 23.7	117° 23.5	132° 23.3	147° 23.1	162° 22.9	-0.2
	-20° 37.8	-20° 37.3	-20° 36.8	-20° 36.3	-20° 35.8	-20° 35.3	-20° 28.7	-20° 28.2	-20° 27.6	-20° 27.1	-20° 26.6	-20° 26.1	+0.5
di 19	177° 22.7	192° 22.5	207° 22.3	222° 22.1	237° 21.9	252° 21.7	87° 19.3	102° 19.1	117° 18.9	132° 18.7	147° 18.5	162° 18.3	-0.2
	-20° 25.6	-20° 25.1	-20° 24.5	-20° 24.0	-20° 23.5	-20° 23.0	-20° 16.1	-20° 15.6	-20° 15.1	-20° 14.5	-20° 14.0	-20° 13.5	+0.5
wo 20	177° 18.1	192° 18.0	207° 17.8	222° 17.6	237° 17.4	252° 17.2	87° 14.8	102° 14.7	117° 14.5	132° 14.3	147° 14.1	162° 13.9	-0.2
	-20° 12.9	-20° 12.4	-20° 11.9	-20° 11.3	-20° 10.8	-20° 10.3	-20° 03.2	-20° 02.7	-20° 02.1	-20° 01.6	-20° 01.0	-20° 00.5	+0.5
do 21	177° 13.8	192° 13.6	207° 13.4	222° 13.2	237° 13.0	252° 12.9	87° 10.6	102° 10.4	117° 10.3	132° 10.1	147° 09.9	162° 09.7	-0.2
	-19° 59.9	-19° 59.4	-19° 58.8	-19° 58.3	-19° 57.7	-19° 57.2	-19° 49.9	-19° 49.4	-19° 48.8	-19° 48.3	-19° 47.7	-19° 47.1	+0.5
vr 22	177° 09.6	192° 09.4	207° 09.2	222° 09.1	237° 08.9	252° 08.7	87° 06.6	102° 06.4	117° 06.2	132° 06.1	147° 05.9	162° 05.7	-0.2
	-19° 46.6	-19° 46.0	-19° 45.4	-19° 44.9	-19° 44.3	-19° 43.7	-19° 36.3	-19° 35.7	-19° 35.1	-19° 34.6	-19° 34.0	-19° 33.4	+0.6
za 23	177° 05.6	192° 05.4	207° 05.2	222° 05.1	237° 04.9	252° 04.8	87° 02.7	102° 02.5	117° 02.4	132° 02.2	147° 02.1	162° 01.9	-0.2
	-19° 32.8	-19° 32.2	-19° 31.7	-19° 31.1	-19° 30.5	-19° 29.9	-19° 22.3	-19° 21.7	-19° 21.1	-19° 20.5	-19° 19.9	-19° 19.3	+0.6
zo 24	177° 01.8	192° 01.6	207° 01.5	222° 01.3	237° 01.1	252° 01.0	86° 59.0	101° 58.9	116° 58.7	131° 58.6	146° 58.4	161° 58.3	-0.2
	-19° 18.7	-19° 18.1	-19° 17.5	-19° 16.9	-19° 16.3	-19° 15.7	-19° 07.9	-19° 07.3	-19° 06.7	-19° 06.1	-19° 05.5	-19° 04.9	+0.6
ma 25	176° 58.2	191° 58.0	206° 57.9	221° 57.7	236° 57.6	251° 57.4	86° 55.6	101° 55.4	116° 55.3	131° 55.2	146° 55.0	161° 54.9	-0.1
	-19° 04.3	-19° 03.7	-19° 03.0	-19° 02.4	-19° 01.8	-19° 01.2	-18° 53.2	-18° 52.6	-18° 51.9	-18° 51.3	-18° 50.7	-18° 50.1	+0.6
di 26	176° 54.7	191° 54.6	206° 54.5	221° 54.3	236° 54.2	251° 54.0	86° 52.3	101° 52.2	116° 52.0	131° 51.9	146° 51.8	161° 51.6	-0.1
	-18° 49.5	-18° 48.8	-18° 48.2	-18° 47.6	-18° 47.0	-18° 46.3	-18° 38.1	-18° 37.5	-18° 36.9	-18° 36.2	-18° 35.6	-18° 34.9	+0.6
wo 27	176° 51.5	191° 51.4	206° 51.3	221° 51.1	236° 51.0	251° 50.9	86° 49.2	101° 49.1	116° 49.0	131° 48.9	146° 48.7	161° 48.6	-0.1
	-18° 34.3	-18° 33.7	-18° 33.0	-18° 32.4	-18° 31.7	-18° 31.1	-18° 22.7	-18° 22.1	-18° 21.4	-18° 20.8	-18° 20.1	-18° 19.5	+0.6
do 28	176° 48.5	191° 48.4	206° 48.2	221° 48.1	236° 48.0	251° 47.9	86° 46.3	101° 46.2	116° 46.1	131° 46.0	146° 45.9	161° 45.8	-0.1
	-18° 18.8	-18° 18.2	-18° 17.5	-18° 16.8	-18° 16.2	-18° 15.5	-18° 07.0	-18° 06.3	-18° 05.6	-18° 05.0	-18° 04.3	-18° 03.6	+0.7
vr 29	176° 45.7	191° 45.5	206° 45.4	221° 45.3	236° 45.2	251° 45.1	86° 43.7	101° 43.6	116° 43.5	131° 43.3	146° 43.2	161° 43.1	-0.1
	-18° 03.0	-18° 02.3	-18° 01.6	-18° 01.0	-18° 00.3	-17° 59.6	-17° 50.9	-17° 50.2	-17° 49.5	-17° 48.9	-17° 48.2	-17° 47.5	+0.7
za 30	176° 43.0	191° 42.9	206° 42.8	221° 42.7	236° 42.6	251° 42.5	86° 41.2	101° 41.1	116° 41.0	131° 40.9	146° 40.8	161° 40.7	-0.1
	-17° 46.8	-17° 46.1	-17° 45.5	-17° 44.8	-17° 44.1	-17° 43.4	-17° 34.5	-17° 33.8	-17° 33.1	-17° 32.4	-17° 31.7	-17° 31.1	+0.7
zo 31	176° 40.6	191° 40.5	206° 40.4	221° 40.3	236° 40.2	251° 40.1	86° 38.9	101° 38.8	116° 38.7	131° 38.6	146° 38.5	161° 38.5	-0.1
	-17° 30.4	-17° 29.7	-17° 29.0	-17° 28.3	-17° 27.6	-17° 26.9	-17° 17.8	-17° 17.1	-17° 16.4	-17° 15.7	-17° 15.0	-17° 14.3	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2027

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
vr 1	59°21.4	73°53.9	88°26.4	102°58.8	117°31.1	132°03.5	146°35.8	161°08.1	175°40.3	190°12.5	204°44.6	+32.3	15.1
	-16°07.2	-16°19.3	-16°31.2	-16°43.1	-16°54.9	-17°06.6	-17°18.3	-17°29.8	-17°41.3	-17°52.6	-18°03.9	-11.7	55.5
za 2	62°42.0	77°13.5	91°44.9	106°16.3	120°47.6	135°18.9	149°50.1	164°21.3	178°52.5	193°23.6	207°54.6	+31.3	15.0
	-20°42.2	-20°52.0	-21°01.7	-21°11.3	-21°20.7	-21°30.1	-21°39.4	-21°48.6	-21°57.6	-22°06.6	-22°15.5	-9.3	54.9
zo 3	65°35.0	80°05.3	94°35.6	109°05.8	123°36.0	138°06.2	152°36.3	167°06.4	181°36.4	196°06.4	210°36.3	+30.1	14.9
	-24°15.2	-24°22.3	-24°29.2	-24°36.1	-24°42.8	-24°49.4	-24°55.9	-25°02.3	-25°08.5	-25°14.6	-25°20.6	-6.5	54.5
ma 4	68°01.1	82°30.5	96°59.9	111°29.2	125°58.5	140°27.8	154°57.1	169°26.3	183°55.6	198°24.8	212°53.9	+29.3	14.8
	-26°35.8	-26°39.8	-26°43.7	-26°47.4	-26°51.0	-26°54.5	-26°57.9	-27°01.1	-27°04.2	-27°07.1	-27°09.9	-3.4	54.2
di 5	70°10.0	84°39.0	99°08.0	113°37.0	128°06.0	142°35.0	157°04.0	171°33.0	186°02.1	200°31.1	215°00.1	+29.0	14.7
	-27°36.3	-27°37.6	-27°37.6	-27°38.0	-27°38.3	-27°38.5	-27°38.5	-27°38.4	-27°38.1	-27°37.7	-27°37.2	-0.1	54.0
wo 6	72°17.6	86°47.0	101°16.3	115°45.7	130°15.2	144°44.6	159°14.1	173°43.7	188°13.2	202°42.8	217°12.4	+29.5	14.7
	-27°13.6	-27°10.9	-27°08.2	-27°05.3	-27°02.3	-26°59.1	-26°55.9	-26°52.4	-26°48.9	-26°45.3	-26°41.5	+3.2	53.9
● do 7	74°41.8	89°12.2	103°42.5	118°13.0	132°43.4	147°14.0	161°44.6	176°15.2	190°45.9	205°16.6	219°47.4	+30.6	14.7
	-25°29.9	-25°24.2	-25°18.3	-25°12.4	-25°06.3	-25°00.1	-24°53.8	-24°47.4	-24°40.8	-24°34.2	-24°27.4	+6.3	53.9
vr 8	77°36.0	92°07.7	106°39.4	121°11.2	135°43.1	150°15.0	164°47.0	179°19.0	193°51.1	208°23.3	222°55.5	+32.0	14.7
	-22°33.1	-22°24.7	-22°16.2	-22°07.5	-21°58.8	-21°50.0	-21°41.0	-21°32.0	-21°22.9	-21°13.7	-21°04.4	+8.9	54.0
za 9	81°05.5	95°38.6	110°11.8	124°45.0	139°18.3	153°51.6	168°25.0	182°58.4	197°31.9	212°05.4	226°39.0	+33.3	14.8
	-18°34.4	-18°23.8	-18°13.0	-18°02.2	-17°51.3	-17°40.4	-17°29.3	-17°18.2	-17°07.0	-16°55.8	-16°44.4	+11.0	54.2
zo 10	85°08.0	99°42.3	114°16.6	128°50.9	143°25.3	157°59.7	172°34.2	187°08.7	201°43.2	216°17.7	230°52.3	+34.4	14.8
	-13°46.4	-13°34.1	-13°21.7	-13°09.2	-12°56.6	-12°44.1	-12°31.4	-12°18.7	-12°06.0	-11°53.2	-11°40.3	+12.6	54.5
ma 11	89°34.3	104°09.3	118°44.3	133°19.3	147°54.3	162°29.3	177°04.4	191°39.4	206°14.5	220°49.6	235°24.7	+35.0	15.0
	-8°21.8	-8°08.3	-7°54.7	-7°41.0	-7°27.3	-7°13.6	-6°59.8	-6°46.0	-6°32.2	-6°18.4	-6°04.5	+13.7	54.8
di 12	94°11.1	108°46.2	123°21.2	137°56.2	152°31.3	167°06.3	181°41.3	196°16.3	210°51.2	225°26.2	240°01.1	+35.0	15.1
	-2°32.7	-2°18.4	-2°04.1	-1°49.8	-1°35.4	-1°21.0	-1°06.6	-0°52.2	-0°37.8	-0°23.4	-0°08.9	+14.4	55.4
wo 13	98°41.7	113°16.1	127°50.5	142°24.9	156°59.2	171°33.4	186°07.6	200°41.8	215°15.9	229°50.0	244°24.0	+34.2	15.3
	3°28.8	3°43.4	3°57.9	4°12.5	4°27.0	4°41.6	4°56.1	5°10.6	5°25.1	5°39.6	5°54.1	+14.5	56.0
do 14	113°16.1	127°50.5	142°24.9	156°59.2	171°33.4	186°07.6	200°41.8	215°15.9	229°50.0	244°24.0	258°58.0	+34.2	15.3
	3°43.4	3°57.9	4°12.5	4°27.0	4°41.6	4°56.1	5°10.6	5°25.1	5°39.6	5°54.1	6°08.6	+14.5	56.0
◐ vr 15	117°20.2	131°53.1	146°25.9	160°58.7	175°31.4	190°04.0	204°36.6	219°09.0	233°41.4	248°13.7	262°45.9	+32.6	15.5
	9°44.2	9°58.4	10°12.5	10°26.7	10°40.8	10°54.9	11°08.9	11°22.9	11°36.9	11°50.8	12°04.8	+14.1	56.8
za 16	120°37.7	135°08.3	149°38.8	164°09.3	178°39.6	193°09.8	207°39.8	222°09.8	236°39.7	251°09.4	265°39.0	+30.1	15.7
	15°28.0	15°41.2	15°54.2	16°07.2	16°20.2	16°33.1	16°45.9	16°58.6	17°11.3	17°23.9	17°36.4	+12.8	57.7
zo 17	122°48.6	137°16.3	151°43.7	166°11.1	180°38.3	195°05.4	209°32.4	223°59.2	238°25.9	252°52.4	267°18.8	+27.0	16.0
	20°34.5	20°45.7	20°56.7	21°07.6	21°18.4	21°29.1	21°39.7	21°50.2	22°00.6	22°10.8	22°21.0	+10.7	58.6
ma 18	123°39.0	138°03.2	152°27.4	166°51.4	181°15.3	195°39.1	210°02.7	224°26.2	238°49.6	253°12.9	267°36.0	+23.7	16.2
	24°37.5	24°45.5	24°53.3	25°01.0	25°08.5	25°15.8	25°23.0	25°30.1	25°37.0	25°43.7	25°50.2	+7.3	59.5
di 19	123°09.7	137°31.1	151°52.5	166°13.8	180°34.9	194°56.0	209°17.1	223°38.0	237°58.9	252°19.7	266°40.5	+21.1	16.5
	27°07.0	27°10.6	27°14.1	27°17.3	27°20.3	27°23.2	27°25.8	27°28.2	27°30.5	27°32.5	27°34.3	+2.7	60.3
wo 20	121°45.9	136°06.0	150°26.1	164°46.2	179°06.3	193°26.4	207°46.5	222°06.6	236°26.7	250°46.9	265°07.0	+20.1	16.6
	27°36.4	27°34.8	27°33.0	27°31.0	27°28.8	27°26.3	27°23.7	27°20.8	27°17.8	27°14.5	27°11.0	-2.5	61.0
do 21	120°13.6	134°34.4	148°55.3	163°16.3	177°37.4	191°58.5	206°19.8	220°41.1	235°02.5	249°23.9	263°45.5	+21.2	16.7
	25°53.0	25°46.2	25°39.2	25°31.9	25°24.5	25°16.9	25°09.1	25°01.0	24°52.8	24°44.5	24°35.9	-7.7	61.3
○ vr 22	119°20.6	133°43.8	148°07.1	162°30.5	176°54.0	191°17.7	205°41.4	220°05.3	234°29.3	248°53.4	263°17.6	+23.7	16.7
	22°06.1	21°54.8	21°43.3	21°31.7	21°20.0	21°08.1	20°56.0	20°43.8	20°31.5	20°19.0	20°06.4	-12.0	61.2
za 23	119°35.3	134°01.4	148°27.6	162°54.0	177°20.5	191°47.0	206°13.7	220°40.5	235°07.5	249°34.5	264°01.6	+26.6	16.6
	16°43.0	16°28.5	16°14.0	15°59.4	15°44.7	15°29.9	15°15.1	15°00.1	14°45.1	14°30.0	14°14.8	-14.8	60.8
zo 24	121°01.4	135°30.2	149°59.1	164°28.0	178°57.1	193°26.2	207°55.5	222°24.8	236°54.2	251°23.7	265°53.3	+29.2	16.4
	10°19.4	10°03.3	9°47.2	9°31.0	9°14.8	8°58.6	8°42.3	8°26.0	8°09.7	7°53.3	7°36.9	-16.3	60.1
ma 25	123°26.1	137°56.8	152°27.6	166°58.4	181°29.3	196°00.3	210°31.3	225°02.4	239°33.5	254°04.7	268°35.9	+31.0	16.2
	3°29.8	3°13.3	2°56.8	2°40.3	2°23.8	2°07.3	1°50.9	1°34.4	1°18.0	1°01.6	0°45.2	-16.5	59.2
di 26	126°29.5	141°01.3	155°33.2	170°05.1	184°37.0	199°09.0	213°41.0	228°13.0	242°45.0	257°17.0	271°49.1	+32.0	15.9
	-3°17.6	-3°33.5	-3°49.4	-4°05.2	-4°21.0	-4°36.8	-4°52.5	-5°08.1	-5°23.7	-5°39.3	-5°54.8	-15.7	58.2
wo 27	129°51.2	144°23.4	158°55.6	173°27.8	188°00.0	202°32.1	217°04.3	231°36.5	246°08.6	260°40.8	275°12.9	+32.2	15.6
	-9°40.9	-9°55.5	-10°10.0	-10°24.5	-10°38.8	-10°53.2	-11°07.4	-11°21.6	-11°35.7	-11°49.7	-12°03.7	-14.3	57.2
do 28	133°13.3	147°45.2	162°17.0	176°48.8	191°20.6	205°52.4	220°24.2	234°55.9	249°27.6	263°59.3	278°30.9	+31.8	15.3
	-15°23.7	-15°36.3	-15°48.9	-16°01.4	-16°13.8	-16°26.1	-16°38.4	-16°50.5	-17°02.6	-17°14.5	-17°26.4	-12.3	56.3
◑ vr 29	136°21.8	150°52.9	165°24.0	179°55.0	194°26.0	208°57.0	223°27.9	237°58.8	252°29.7	267°00.5	281°31.3	+31.0	15.1
	-20°12.7	-20°23.0	-20°33.2	-20°43.3	-20°53.3	-21°03.1	-21°12.9	-21°22.5	-21°32.1	-21°41.5	-21°50.8	-9.8	55.5
za 30	139°08.5	153°38.7	168°08.9	182°39.0	197°09.0	211°39.1	226°09.1	240°39.0	255°09.0	269°38.9	284°08.7	+30.0	15.0
	-23°57.2	-24°04.7	-24°12.0	-24°19.3	-24°26.4	-24°33.4	-24°40.3	-24°47.1	-24°53.8	-25°00.3	-25°06.7	-7.0	54.8
zo 31	141°32.9	156°02.3	170°31.7	185°01.0	199°30.3	213°59.6	228°28.9	242°58.1	257°27.4	271°56.6	286°25.8	+29.3	14.8
	-26°27.8	-26°32.1	-26°36.4	-26°40.5	-26°44.5	-26°48.4	-26°52.1	-26°55.7	-26°59.2	-27°02.5	-27°05.7	-3.8	54.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 7 20h24 — EK: 15 20h34 — VM: 22 12h17 — LK: 29 10h55

ZON

Februari 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	176°38.4	191°38.3	206°38.2	221°38.1	236°38.0	251°37.9	86°36.8	101°36.7	116°36.7	131°36.6	146°36.5	161°36.4	-0.1
	-17°13.6	-17°12.9	-17°12.2	-17°11.5	-17°10.7	-17°10.0	-17°00.8	-17°00.1	-16°59.4	-16°58.6	-16°57.9	-16°57.2	+0.7
di 2	176°36.3	191°36.3	206°36.2	221°36.1	236°36.0	251°35.9	86°34.9	101°34.9	116°34.8	131°34.7	146°34.6	161°34.6	-0.1
	-16°56.5	-16°55.8	-16°55.0	-16°54.3	-16°53.6	-16°52.9	-16°43.5	-16°42.7	-16°42.0	-16°41.3	-16°40.6	-16°39.8	+0.7
wo 3	176°34.5	191°34.4	206°34.4	221°34.3	236°34.2	251°34.1	86°33.3	101°33.2	116°33.1	131°33.1	146°33.0	161°32.9	-0.1
	-16°39.1	-16°38.4	-16°37.6	-16°36.9	-16°36.2	-16°35.4	-16°25.9	-16°25.1	-16°24.4	-16°23.6	-16°22.9	-16°22.2	+0.7
do 4	176°32.9	191°32.8	206°32.7	221°32.7	236°32.6	251°32.6	86°31.8	101°31.7	116°31.7	131°31.6	146°31.6	161°31.5	-0.1
	-16°21.4	-16°20.7	-16°19.9	-16°19.2	-16°18.4	-16°17.7	-16°08.0	-16°07.2	-16°06.5	-16°05.7	-16°05.0	-16°04.2	+0.7
vr 5	176°31.4	191°31.4	206°31.3	221°31.3	236°31.2	251°31.2	86°30.5	101°30.5	116°30.4	131°30.4	146°30.3	161°30.3	-0.1
	-16°03.5	-16°02.7	-16°01.9	-16°01.2	-16°00.4	-15°59.7	-15°49.8	-15°49.0	-15°48.3	-15°47.5	-15°46.7	-15°46.0	+0.8
za 6	176°30.2	191°30.2	206°30.1	221°30.1	236°30.0	251°30.0	86°29.4	101°29.4	116°29.3	131°29.3	146°29.3	161°29.2	-0.0
	-15°45.2	-15°44.4	-15°43.7	-15°42.9	-15°42.1	-15°41.4	-15°31.4	-15°30.6	-15°29.8	-15°29.0	-15°28.3	-15°27.5	+0.8
zo 7	176°29.2	191°29.2	206°29.1	221°29.1	236°29.0	251°29.0	86°28.6	101°28.5	116°28.5	131°28.5	146°28.4	161°28.4	-0.0
	-15°26.7	-15°25.9	-15°25.1	-15°24.4	-15°23.6	-15°22.8	-15°12.6	-15°11.9	-15°11.1	-15°10.3	-15°09.5	-15°08.7	+0.8
ma 8	176°28.4	191°28.3	206°28.3	221°28.3	236°28.2	251°28.2	86°27.9	101°27.8	116°27.8	131°27.8	146°27.8	161°27.8	-0.0
	-15°07.9	-15°07.1	-15°06.3	-15°05.6	-15°04.8	-15°04.0	-14°53.7	-14°52.9	-14°52.1	-14°51.3	-14°50.5	-14°49.7	+0.8
di 9	176°27.7	191°27.7	206°27.7	221°27.7	236°27.6	251°27.6	86°27.4	101°27.4	116°27.4	131°27.3	146°27.3	161°27.3	-0.0
	-14°48.9	-14°48.1	-14°47.3	-14°46.5	-14°45.7	-14°44.9	-14°34.5	-14°33.7	-14°32.8	-14°32.0	-14°31.2	-14°30.4	+0.8
wo 10	176°27.3	191°27.3	206°27.3	221°27.3	236°27.3	251°27.2	86°27.1	101°27.1	116°27.1	131°27.1	146°27.1	161°27.1	-0.0
	-14°29.6	-14°28.8	-14°28.0	-14°27.2	-14°26.4	-14°25.6	-14°15.0	-14°14.2	-14°13.4	-14°12.5	-14°11.7	-14°10.9	+0.8
do 11	176°27.1	191°27.1	206°27.1	221°27.1	236°27.1	251°27.1	86°27.0	101°27.0	116°27.0	131°27.0	146°27.0	161°27.0	-0.0
	-14°10.1	-14°09.3	-14°08.5	-14°07.6	-14°06.8	-14°06.0	-13°55.3	-13°54.5	-13°53.6	-13°52.8	-13°52.0	-13°51.2	+0.8
vr 12	176°27.0	191°27.0	206°27.0	221°27.0	236°27.1	251°27.1	86°27.1	101°27.1	116°27.2	131°27.2	146°27.2	161°27.2	+0.0
	-13°50.3	-13°49.5	-13°48.7	-13°47.9	-13°47.0	-13°46.2	-13°35.4	-13°34.5	-13°33.7	-13°32.9	-13°32.0	-13°31.2	+0.8
za 13	176°27.2	191°27.2	206°27.2	221°27.2	236°27.2	251°27.3	86°27.4	101°27.5	116°27.5	131°27.5	146°27.5	161°27.5	+0.0
	-13°30.4	-13°29.5	-13°28.7	-13°27.8	-13°27.0	-13°26.2	-13°15.2	-13°14.4	-13°13.5	-13°12.7	-13°11.8	-13°11.0	+0.8
zo 14	176°27.5	191°27.6	206°27.6	221°27.6	236°27.6	251°27.6	86°27.9	101°28.0	116°28.0	131°28.0	146°28.0	161°28.1	+0.0
	-13°10.2	-13°09.3	-13°08.5	-13°07.6	-13°06.8	-13°05.9	-12°54.9	-12°54.0	-12°53.2	-12°52.3	-12°51.5	-12°50.6	+0.8
ma 15	176°28.1	191°28.1	206°28.1	221°28.2	236°28.2	251°28.2	86°28.6	101°28.6	116°28.7	131°28.7	146°28.7	161°28.8	+0.0
	-12°49.7	-12°48.9	-12°48.0	-12°47.2	-12°46.3	-12°45.5	-12°34.3	-12°33.4	-12°32.6	-12°31.7	-12°30.8	-12°30.0	+0.9
di 16	176°28.8	191°28.8	206°28.9	221°28.9	236°29.0	251°29.0	86°29.5	101°29.5	116°29.6	131°29.6	146°29.6	161°29.7	+0.0
	-12°29.1	-12°28.3	-12°27.4	-12°26.5	-12°25.7	-12°24.8	-12°13.5	-12°12.7	-12°11.8	-12°10.9	-12°10.0	-12°09.2	+0.9
wo 17	176°29.7	191°29.8	206°29.8	221°29.9	236°29.9	251°29.9	86°30.5	101°30.6	116°30.6	131°30.7	146°30.7	161°30.8	+0.0
	-12°08.3	-12°07.4	-12°06.6	-12°05.7	-12°04.8	-12°03.9	-11°52.6	-11°51.7	-11°50.8	-11°49.9	-11°49.1	-11°48.2	+0.9
do 18	176°30.8	191°30.9	206°30.9	221°31.0	236°31.0	251°31.1	86°31.8	101°31.8	116°31.9	131°31.9	146°32.0	161°32.0	+0.0
	-11°47.3	-11°46.4	-11°45.5	-11°44.7	-11°43.8	-11°42.9	-11°31.4	-11°30.5	-11°29.6	-11°28.8	-11°27.9	-11°27.0	+0.9
vr 19	176°32.1	191°32.1	206°32.2	221°32.3	236°32.3	251°32.4	86°33.1	101°33.2	116°33.3	131°33.3	146°33.4	161°33.5	+0.1
	-11°26.1	-11°25.2	-11°24.3	-11°23.4	-11°22.6	-11°21.7	-11°10.1	-11°09.2	-11°08.3	-11°07.4	-11°06.5	-11°05.6	+0.9
za 20	176°33.5	191°33.6	206°33.6	221°33.7	236°33.8	251°33.8	86°34.7	101°34.8	116°34.8	131°34.9	146°35.0	161°35.1	+0.1
	-11°04.7	-11°03.8	-11°02.9	-11°02.0	-11°01.2	-11°00.3	-10°48.6	-10°47.7	-10°46.8	-10°45.9	-10°45.0	-10°44.1	+0.9
zo 21	176°35.1	191°35.2	206°35.3	221°35.3	236°35.4	251°35.5	86°36.4	101°36.5	116°36.6	131°36.7	146°36.7	161°36.8	+0.1
	-10°43.2	-10°42.3	-10°41.4	-10°40.5	-10°39.6	-10°38.7	-10°26.9	-10°26.0	-10°25.1	-10°24.2	-10°23.3	-10°22.4	+0.9
ma 22	176°36.9	191°37.0	206°37.0	221°37.1	236°37.2	251°37.3	86°38.3	101°38.4	116°38.5	131°38.6	146°38.7	161°38.7	+0.1
	-10°21.5	-10°20.6	-10°19.7	-10°18.8	-10°17.8	-10°16.9	-10°05.1	-10°04.2	-10°03.3	-10°02.4	-10°01.4	-10°00.5	+0.9
di 23	176°38.8	191°38.9	206°39.0	221°39.1	236°39.2	251°39.2	86°40.4	101°40.4	116°40.5	131°40.6	146°40.7	161°40.8	+0.1
	-9°59.6	-9°58.7	-9°57.8	-9°56.9	-9°55.9	-9°55.0	-9°43.1	-9°42.2	-9°41.3	-9°40.3	-9°39.4	-9°38.5	+0.9
wo 24	176°40.9	191°41.0	206°41.1	221°41.2	236°41.3	251°41.3	86°42.5	101°42.6	116°42.7	131°42.8	146°42.9	161°43.0	+0.1
	-9°37.6	-9°36.7	-9°35.7	-9°34.8	-9°33.9	-9°33.0	-9°21.0	-9°20.0	-9°19.1	-9°18.2	-9°17.3	-9°16.3	+0.9
do 25	176°43.1	191°43.2	206°43.3	221°43.4	236°43.5	251°43.6	86°44.9	101°45.0	116°45.1	131°45.2	146°45.3	161°45.4	+0.1
	-9°15.4	-9°14.5	-9°13.6	-9°12.6	-9°11.7	-9°10.8	-8°58.7	-8°57.8	-8°56.8	-8°55.9	-8°55.0	-8°54.0	+0.9
vr 26	176°45.5	191°45.6	206°45.7	221°45.8	236°45.9	251°46.0	86°47.3	101°47.5	116°47.6	131°47.7	146°47.8	161°47.9	+0.1
	-8°53.1	-8°52.2	-8°51.2	-8°50.3	-8°49.4	-8°48.4	-8°36.3	-8°35.3	-8°34.4	-8°33.5	-8°32.5	-8°31.6	+0.9
za 27	176°48.0	191°48.1	206°48.2	221°48.3	236°48.4	251°48.5	86°50.0	101°50.1	116°50.2	131°50.3	146°50.4	161°50.5	+0.1
	-8°30.7	-8°29.7	-8°28.8	-8°27.8	-8°26.9	-8°26.0	-8°13.7	-8°12.8	-8°11.9	-8°10.9	-8°10.0	-8°09.0	+0.9
zo 28	176°50.6	191°50.7	206°50.9	221°51.0	236°51.1	251°51.2	86°52.7	101°52.8	116°52.9	131°53.0	146°53.2	161°53.3	+0.1
	-8°08.1	-8°07.1	-8°06.2	-8°05.2	-8°04.3	-8°03.4	-7°51.1	-7°50.1	-7°49.2	-7°48.2	-7°47.3	-7°46.3	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2027

D	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
ma 1	71°17.0	85°46.1	100°15.1	114°44.2	129°13.2	143°42.3	158°11.3	172°40.3	187°09.4	201°38.4	216°07.5	+29.0	14.8
	-27°30.5	-27°32.2	-27°33.9	-27°35.3	-27°36.7	-27°37.9	-27°39.0	-27°39.9	-27°40.7	-27°41.4	-27°41.9	-1.1	54.1
di 2	73°24.0	87°53.2	102°22.4	116°51.7	131°21.0	145°50.3	160°19.6	174°48.9	189°18.3	203°47.7	218°17.1	+29.3	14.7
	-27°34.0	-27°32.4	-27°30.7	-27°28.9	-27°26.9	-27°24.8	-27°22.5	-27°20.1	-27°17.6	-27°15.0	-27°12.2	+2.2	54.0
wo 3	75°42.4	90°12.3	104°42.4	119°12.4	133°42.5	148°12.7	162°42.9	177°13.1	191°43.4	206°13.7	220°44.1	+30.2	14.7
	-26°15.5	-26°10.7	-26°05.8	-26°00.8	-25°55.7	-25°50.4	-25°45.0	-25°39.5	-25°33.9	-25°28.1	-25°22.3	+5.3	53.9
do 4	78°25.7	92°56.9	107°28.2	121°59.4	136°30.8	151°02.2	165°33.6	180°05.2	194°36.7	209°08.3	223°40.0	+31.4	14.7
	-23°40.8	-23°33.1	-23°25.4	-23°17.5	-23°09.6	-23°01.5	-22°53.3	-22°45.1	-22°36.7	-22°28.2	-22°19.6	+8.1	54.0
vr 5	81°41.6	96°14.1	110°46.7	125°19.4	139°52.1	154°24.8	168°57.6	183°30.5	198°03.4	212°36.3	227°09.3	+32.8	14.8
	-19°59.5	-19°49.5	-19°39.3	-19°29.1	-19°18.8	-19°08.3	-18°57.9	-18°47.3	-18°36.6	-18°25.9	-18°15.1	+10.5	54.2
● za 6	85°30.1	100°03.8	114°37.6	129°11.5	143°45.3	158°19.3	172°53.2	187°27.2	202°01.2	216°35.3	231°09.4	+33.9	14.9
	-15°23.8	-15°11.8	-14°59.7	-14°47.6	-14°35.4	-14°23.2	-14°10.9	-13°58.5	-13°46.1	-13°33.6	-13°21.1	+12.3	54.5
zo 7	89°44.9	104°19.5	118°54.1	133°28.8	148°03.4	162°38.1	177°12.8	191°47.6	206°22.3	220°57.1	235°31.9	+34.7	14.9
	-10°06.3	-9°53.0	-9°39.5	-9°26.1	-9°12.6	-8°59.0	-8°45.4	-8°31.8	-8°18.1	-8°04.4	-7°50.6	+13.6	54.8
ma 8	94°15.0	108°50.0	123°24.9	137°59.8	152°34.8	167°09.7	181°44.6	196°19.5	210°54.4	225°29.4	240°04.3	+34.9	15.1
	-4°20.4	-4°06.1	-3°51.9	-3°37.6	-3°23.3	-3°08.9	-2°54.6	-2°40.2	-2°25.8	-2°11.4	-1°57.0	+14.3	55.2
di 9	98°46.2	113°20.9	127°55.5	142°30.1	157°04.7	171°39.2	186°13.7	200°48.2	215°22.6	229°57.0	244°31.4	+34.5	15.2
	1°40.9	1°55.4	2°10.0	2°24.6	2°39.2	2°53.7	3°08.3	3°22.9	3°37.5	3°52.0	4°06.6	+14.6	55.7
wo 10	103°02.1	117°35.8	132°09.4	146°42.9	161°16.4	175°49.9	190°23.2	204°56.6	219°29.8	234°03.0	248°36.2	+33.4	15.3
	7°43.6	7°57.9	8°12.2	8°26.5	8°40.7	8°55.0	9°09.2	9°23.4	9°37.5	9°51.6	10°05.7	+14.2	56.2
do 11	106°44.7	121°16.7	135°48.5	150°20.3	164°52.0	179°23.6	193°55.2	208°26.6	222°57.9	237°29.2	252°00.4	+31.6	15.5
	13°32.4	13°45.8	13°59.2	14°12.5	14°25.8	14°39.0	14°52.1	15°05.2	15°18.3	15°31.2	15°44.1	+13.2	56.8
vr 12	121°16.7	135°48.5	150°20.3	164°52.0	179°23.6	193°55.2	208°26.6	222°57.9	237°29.2	252°00.4	266°31.4	+31.5	15.5
	13°45.8	13°59.2	14°12.5	14°25.8	14°39.0	14°52.1	15°05.2	15°18.3	15°31.2	15°44.1	15°57.0	+13.1	56.9
za 13	124°05.7	138°35.2	153°04.5	167°33.7	182°02.9	196°31.9	211°00.8	225°29.6	239°58.3	254°26.8	268°55.3	+29.0	15.7
	19°01.1	19°12.7	19°24.3	19°35.7	19°47.1	19°58.4	20°09.6	20°20.6	20°31.6	20°42.5	20°53.3	+11.2	57.5
◐ zo 14	125°48.4	140°15.0	154°41.5	169°07.8	183°34.1	198°00.2	212°26.3	226°52.2	241°18.0	255°43.6	270°09.2	+26.1	15.9
	23°21.9	23°30.9	23°39.7	23°48.4	23°57.0	24°05.4	24°13.7	24°21.9	24°29.9	24°37.8	24°45.5	+8.4	58.3
ma 15	126°19.6	140°43.5	155°07.3	169°30.9	183°54.5	198°18.0	212°41.4	227°04.7	241°27.9	255°51.0	270°14.1	+23.4	16.1
	26°23.5	26°28.8	26°33.8	26°38.8	26°43.5	26°48.1	26°52.5	26°56.7	27°00.8	27°04.6	27°08.3	+4.5	59.0
di 16	125°51.3	140°13.3	154°35.3	168°57.2	183°19.1	197°41.0	212°02.8	226°24.6	240°46.3	255°08.1	269°29.8	+21.8	16.3
	27°41.4	27°42.1	27°42.6	27°42.9	27°43.0	27°42.9	27°42.6	27°42.1	27°41.4	27°40.5	27°39.4	-0.2	59.7
wo 17	124°54.5	139°16.2	153°37.9	167°59.7	182°21.4	196°43.3	211°05.1	225°27.0	239°48.9	254°10.9	268°32.9	+21.8	16.4
	26°58.9	26°54.6	26°50.1	26°45.4	26°40.5	26°35.4	26°30.2	26°24.7	26°19.0	26°13.1	26°07.1	-5.2	60.2
do 18	124°09.6	138°32.5	152°55.6	167°18.7	181°41.9	196°05.2	210°28.6	224°52.0	239°15.6	253°39.2	268°02.9	+23.3	16.5
	24°13.8	24°04.8	23°55.6	23°46.3	23°36.8	23°27.1	23°17.2	23°07.2	22°57.1	22°46.7	22°36.2	-9.8	60.6
vr 19	124°09.5	138°34.7	152°59.9	167°25.3	181°50.8	196°16.4	210°42.1	225°07.9	239°33.7	253°59.7	268°25.8	+25.6	16.5
	19°40.9	19°28.1	19°15.2	19°02.2	18°49.0	18°35.7	18°22.3	18°08.8	17°55.1	17°41.4	17°27.5	-13.3	60.7
○ za 20	125°08.1	139°35.7	154°03.4	168°31.1	182°58.9	197°26.8	211°54.8	226°22.9	240°51.1	255°19.3	269°47.6	+28.0	16.5
	13°47.8	13°32.4	13°17.0	13°01.5	12°46.0	12°30.3	12°14.6	11°58.9	11°43.1	11°27.2	11°11.3	-15.7	60.5
zo 21	127°01.8	141°31.3	156°00.8	170°30.5	185°00.1	199°29.9	213°59.7	228°29.6	242°59.5	257°29.5	271°59.5	+29.8	16.4
	7°06.7	6°50.1	6°33.5	6°16.8	6°00.2	5°43.5	5°26.8	5°10.1	4°53.4	4°36.7	4°19.9	-16.7	60.0
ma 22	129°35.9	144°06.7	158°37.5	173°08.3	187°39.2	202°10.1	216°41.0	231°11.9	245°42.9	260°13.9	274°45.0	+30.9	16.2
	0°09.0	-0°07.7	-0°24.3	-0°40.9	-0°57.5	-1°14.0	-1°30.6	-1°47.1	-2°03.6	-2°20.0	-2°36.4	-16.5	59.2
di 23	132°32.7	147°04.0	161°35.3	176°06.6	190°37.9	205°09.2	219°40.5	234°11.8	248°43.1	263°14.5	277°45.8	+31.3	15.9
	-6°38.0	-6°53.7	-7°09.4	-7°25.0	-7°40.5	-7°56.0	-8°11.5	-8°26.8	-8°42.2	-8°57.4	-9°12.6	-15.5	58.4
wo 24	135°34.7	150°05.9	164°37.1	179°08.2	193°39.4	208°10.5	222°41.6	237°12.6	251°43.7	266°14.7	280°45.7	+31.1	15.7
	-12°51.9	-13°06.0	-13°19.9	-13°33.7	-13°47.5	-14°01.2	-14°14.7	-14°28.2	-14°41.7	-14°55.0	-15°08.2	-13.6	57.4
do 25	138°28.0	152°58.6	167°29.2	181°59.7	196°30.2	211°00.7	225°31.1	240°01.6	254°31.9	269°02.3	283°32.6	+30.5	15.4
	-18°15.3	-18°27.0	-18°38.6	-18°50.0	-19°01.4	-19°12.6	-19°23.8	-19°34.8	-19°45.7	-19°56.6	-20°07.3	-11.2	56.5
vr 26	141°03.6	155°33.4	170°03.2	184°33.0	199°02.7	213°32.4	228°02.0	242°31.6	257°01.2	271°30.8	286°00.3	+29.7	15.2
	-22°34.2	-22°43.1	-22°51.8	-23°00.5	-23°08.9	-23°17.3	-23°25.6	-23°33.7	-23°41.7	-23°49.6	-23°57.3	-8.3	55.7
za 27	143°19.8	157°48.9	172°18.0	186°47.1	201°16.1	215°45.1	230°14.1	244°43.1	259°12.1	273°41.0	288°09.9	+29.0	15.0
	-25°38.3	-25°43.9	-25°49.5	-25°54.9	-26°00.2	-26°05.4	-26°10.4	-26°15.3	-26°20.1	-26°24.7	-26°29.2	-5.1	55.0
◑ zo 28	145°22.4	159°51.2	174°19.9	188°48.7	203°17.5	217°46.2	232°15.0	246°43.8	261°12.6	275°41.4	290°10.1	+28.8	14.9
	-27°20.4	-27°22.7	-27°24.9	-27°27.0	-27°28.9	-27°30.6	-27°32.3	-27°33.8	-27°35.2	-27°36.4	-27°37.5	-1.7	54.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 15h56 — EK: 14 07h58 — VM: 20 23h23 — LK: 28 05h16

ZON

Maart 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	176°53.4	191°53.5	206°53.6	221°53.7	236°53.9	251°54.0	86°55.5	101°55.7	116°55.8	131°55.9	146°56.0	161°56.2	+0.1
	-7°45.4	-7°44.4	-7°43.5	-7°42.5	-7°41.6	-7°40.6	-7°28.3	-7°27.3	-7°26.4	-7°25.4	-7°24.5	-7°23.5	+0.9
di 2	176°56.3	191°56.4	206°56.5	221°56.7	236°56.8	251°56.9	86°58.5	101°58.7	116°58.8	131°58.9	146°59.0	161°59.2	+0.1
	-7°22.6	-7°21.6	-7°20.7	-7°19.7	-7°18.8	-7°17.8	-7°05.4	-7°04.4	-7°03.5	-7°02.5	-7°01.6	-7°00.6	+1.0
wo 3	176°59.3	191°59.4	206°59.6	221°59.7	236°59.8	251°59.9	87°01.6	102°01.8	117°01.9	132°02.0	147°02.2	162°02.3	+0.1
	-6°59.7	-6°58.7	-6°57.7	-6°56.8	-6°55.8	-6°54.9	-6°42.4	-6°41.4	-6°40.5	-6°39.5	-6°38.6	-6°37.6	+1.0
do 4	177°02.4	192°02.6	207°02.7	222°02.8	237°03.0	252°03.1	87°04.8	102°05.0	117°05.1	132°05.3	147°05.4	162°05.5	+0.1
	-6°36.6	-6°35.7	-6°34.7	-6°33.8	-6°32.8	-6°31.8	-6°19.3	-6°18.3	-6°17.4	-6°16.4	-6°15.5	-6°14.5	+1.0
vr 5	177°05.7	192°05.8	207°05.9	222°06.1	237°06.2	252°06.4	87°08.2	102°08.3	117°08.4	132°08.6	147°08.7	162°08.9	+0.1
	-6°13.5	-6°12.6	-6°11.6	-6°10.6	-6°09.7	-6°08.7	-5°56.1	-5°55.2	-5°54.2	-5°53.2	-5°52.3	-5°51.3	+1.0
za 6	177°09.0	192°09.2	207°09.3	222°09.4	237°09.6	252°09.7	87°11.6	102°11.7	117°11.9	132°12.0	147°12.2	162°12.3	+0.1
	-5°50.3	-5°49.4	-5°48.4	-5°47.4	-5°46.5	-5°45.5	-5°32.9	-5°31.9	-5°30.9	-5°30.0	-5°29.0	-5°28.0	+1.0
zo 7	177°12.5	192°12.6	207°12.8	222°12.9	237°13.1	252°13.2	87°15.1	102°15.3	117°15.4	132°15.6	147°15.7	162°15.9	+0.1
	-5°27.0	-5°26.1	-5°25.1	-5°24.1	-5°23.2	-5°22.2	-5°09.5	-5°08.6	-5°07.6	-5°06.6	-5°05.6	-5°04.7	+1.0
ma 8	177°16.0	192°16.2	207°16.3	222°16.5	237°16.6	252°16.8	87°18.7	102°18.9	117°19.1	132°19.2	147°19.4	162°19.5	+0.2
	-5°03.7	-5°02.7	-5°01.7	-5°00.8	-4°59.8	-4°58.8	-4°46.1	-4°45.2	-4°44.2	-4°43.2	-4°42.2	-4°41.3	+1.0
di 9	177°19.7	192°19.8	207°20.0	222°20.1	237°20.3	252°20.4	87°22.5	102°22.6	117°22.8	132°22.9	147°23.1	162°23.2	+0.2
	-4°40.3	-4°39.3	-4°38.3	-4°37.3	-4°36.4	-4°35.4	-4°22.7	-4°21.7	-4°20.7	-4°19.7	-4°18.8	-4°17.8	+1.0
wo 10	177°23.4	192°23.6	207°23.7	222°23.9	237°24.0	252°24.2	87°26.3	102°26.4	117°26.6	132°26.7	147°26.9	162°27.1	+0.2
	-4°16.8	-4°15.8	-4°14.8	-4°13.9	-4°12.9	-4°11.9	-3°59.2	-3°58.2	-3°57.2	-3°56.2	-3°55.2	-3°54.2	+1.0
do 11	177°27.2	192°27.4	207°27.6	222°27.7	237°27.9	252°28.0	87°30.2	102°30.3	117°30.5	132°30.6	147°30.8	162°31.0	+0.2
	-3°53.3	-3°52.3	-3°51.3	-3°50.3	-3°49.3	-3°48.4	-3°35.6	-3°34.6	-3°33.6	-3°32.6	-3°31.7	-3°30.7	+1.0
vr 12	177°31.1	192°31.3	207°31.5	222°31.6	237°31.8	252°32.0	87°34.1	102°34.3	117°34.5	132°34.6	147°34.8	162°35.0	+0.2
	-3°29.7	-3°28.7	-3°27.7	-3°26.7	-3°25.7	-3°24.8	-3°12.0	-3°11.0	-3°10.0	-3°09.0	-3°08.0	-3°07.0	+1.0
za 13	177°35.1	192°35.3	207°35.5	222°35.6	237°35.8	252°36.0	87°38.2	102°38.3	117°38.5	132°38.7	147°38.8	162°39.0	+0.2
	-3°06.1	-3°05.1	-3°04.1	-3°03.1	-3°02.1	-3°01.1	-2°48.3	-2°47.3	-2°46.4	-2°45.4	-2°44.4	-2°43.4	+1.0
zo 14	177°39.2	192°39.4	207°39.5	222°39.7	237°39.9	252°40.0	87°42.3	102°42.5	117°42.6	132°42.8	147°43.0	162°43.1	+0.2
	-2°42.4	-2°41.4	-2°40.4	-2°39.5	-2°38.5	-2°37.5	-2°24.7	-2°23.7	-2°22.7	-2°21.7	-2°20.7	-2°19.7	+1.0
ma 15	177°43.3	192°43.5	207°43.7	222°43.8	237°44.0	252°44.2	87°46.5	102°46.6	117°46.8	132°47.0	147°47.2	162°47.3	+0.2
	-2°18.7	-2°17.7	-2°16.8	-2°15.8	-2°14.8	-2°13.8	-2°01.0	-2°00.0	-1°59.0	-1°58.0	-1°57.0	-1°56.0	+1.0
di 16	177°47.5	192°47.7	207°47.9	222°48.0	237°48.2	252°48.4	87°50.7	102°50.9	117°51.1	132°51.2	147°51.4	162°51.6	+0.2
	-1°55.0	-1°54.0	-1°53.1	-1°52.1	-1°51.1	-1°50.1	-1°37.3	-1°36.3	-1°35.3	-1°34.3	-1°33.3	-1°32.3	+1.0
wo 17	177°51.8	192°51.9	207°52.1	222°52.3	237°52.5	252°52.7	87°55.0	102°55.2	117°55.4	132°55.5	147°55.7	162°55.9	+0.2
	-1°31.3	-1°30.3	-1°29.3	-1°28.4	-1°27.4	-1°26.4	-1°13.5	-1°12.5	-1°11.6	-1°10.6	-1°09.6	-1°08.6	+1.0
do 18	177°56.1	192°56.3	207°56.4	222°56.6	237°56.8	252°57.0	87°59.3	102°59.5	117°59.7	132°59.9	148°00.1	163°00.3	+0.2
	-1°07.6	-1°06.6	-1°05.6	-1°04.6	-1°03.6	-1°02.7	-0°49.8	-0°48.8	-0°47.8	-0°46.8	-0°45.9	-0°44.9	+1.0
vr 19	178°00.4	193°00.6	208°00.8	223°01.0	238°01.2	253°01.4	88°03.7	103°03.9	118°04.1	133°04.3	148°04.5	163°04.7	+0.2
	-0°43.9	-0°42.9	-0°41.9	-0°40.9	-0°39.9	-0°38.9	-0°26.1	-0°25.1	-0°24.1	-0°23.1	-0°22.1	-0°21.2	+1.0
za 20	178°04.8	193°05.0	208°05.2	223°05.4	238°05.6	253°05.8	88°08.2	103°08.4	118°08.5	133°08.7	148°08.9	163°09.1	+0.2
	-0°20.2	-0°19.2	-0°18.2	-0°17.2	-0°16.2	-0°15.2	-0°02.4	-0°01.4	-0°00.4	0°00.6	0°01.6	0°02.6	+1.0
zo 21	178°09.3	193°09.5	208°09.7	223°09.8	238°10.0	253°10.2	88°12.6	103°12.8	118°13.0	133°13.2	148°13.4	163°13.6	+0.2
	0°03.5	0°04.5	0°05.5	0°06.5	0°07.5	0°08.5	0°21.3	0°22.3	0°23.3	0°24.3	0°25.3	0°26.2	+1.0
ma 22	178°13.8	193°14.0	208°14.1	223°14.3	238°14.5	253°14.7	88°17.1	103°17.3	118°17.5	133°17.7	148°17.9	163°18.1	+0.2
	0°27.2	0°28.2	0°29.2	0°30.2	0°31.2	0°32.2	0°45.0	0°46.0	0°47.0	0°48.0	0°48.9	0°49.9	+1.0
di 23	178°18.3	193°18.5	208°18.6	223°18.8	238°19.0	253°19.2	88°21.7	103°21.8	118°22.0	133°22.2	148°22.4	163°22.6	+0.2
	0°50.9	0°51.9	0°52.9	0°53.9	0°54.9	0°55.8	1°08.6	1°09.6	1°10.6	1°11.6	1°12.6	1°13.6	+1.0
wo 24	178°22.8	193°23.0	208°23.2	223°23.4	238°23.5	253°23.7	88°26.2	103°26.4	118°26.6	133°26.8	148°26.9	163°27.1	+0.2
	1°14.6	1°15.5	1°16.5	1°17.5	1°18.5	1°19.5	1°32.3	1°33.3	1°34.2	1°35.2	1°36.2	1°37.2	+1.0
do 25	178°27.3	193°27.5	208°27.7	223°27.9	238°28.1	253°28.3	88°30.7	103°30.9	118°31.1	133°31.3	148°31.5	163°31.7	+0.2
	1°38.2	1°39.2	1°40.1	1°41.1	1°42.1	1°43.1	1°55.9	1°56.8	1°57.8	1°58.8	1°59.8	2°00.8	+1.0
vr 26	178°31.9	193°32.0	208°32.2	223°32.4	238°32.6	253°32.8	88°35.3	103°35.5	118°35.6	133°35.8	148°36.0	163°36.2	+0.2
	2°01.8	2°02.7	2°03.7	2°04.7	2°05.7	2°06.7	2°19.4	2°20.4	2°21.4	2°22.4	2°23.3	2°24.3	+1.0
za 27	178°36.4	193°36.6	208°36.8	223°37.0	238°37.2	253°37.3	88°39.8	103°40.0	118°40.2	133°40.4	148°40.6	163°40.7	+0.2
	2°25.3	2°26.3	2°27.3	2°28.2	2°29.2	2°30.2	2°42.9	2°43.9	2°44.9	2°45.8	2°46.8	2°47.8	+1.0
zo 28	178°40.9	193°41.1	208°41.3	223°41.5	238°41.7	253°41.9	88°44.3	103°44.5	118°44.7	133°44.9	148°45.1	163°45.3	+0.2
	2°48.8	2°49.8	2°50.7	2°51.7	2°52.7	2°53.7	3°06.4	3°07.3	3°08.3	3°09.3	3°10.3	3°11.2	+1.0
ma 29	178°45.5	193°45.7	208°45.8	223°46.0	238°46.2	253°46.4	88°48.9	103°49.0	118°49.2	133°49.4	148°49.6	163°49.8	+0.2
	3°12.2	3°13.2	3°14.2	3°15.1	3°16.1	3°17.1	3°29.8	3°30.7	3°31.7	3°32.7	3°33.6	3°34.6	+1.0
di 30	178°50.0	193°50.2	208°50.4	223°50.5	238°50.7	253°50.9	88°53.4	103°53.5	118°53.7	133°53.9	148°54.1	163°54.3	+0.2
	3°35.6	3°36.6	3°37.5	3°38.5	3°39.5	3°40.5	3°53.1	3°54.1	3°55.0	3°56.0	3°57.0	3°57.9	+1.0
wo 31	178°54.5	193°54.7	208°54.8	223°55.0	238°55.2	253°55.4	88°57.8	103°58.0	118°58.2	133°58.4	148°58.6	163°58.8	+0.2
	3°58.9	3°59.9	4°00.8	4°01.8	4°02.8	4°03.8	4°16.3	4°17.3	4°18.3	4°19.2	4°20.2	4°21.2	+1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2027

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
ma 1	60°29.7	74°58.6	89°27.5	103°56.4	118°25.4	132°54.4	147°23.4	161°52.4	176°21.4	190°50.5	205°19.6	+29.0	14.8
	-27°41.3	-27°41.1	-27°40.7	-27°40.1	-27°39.5	-27°38.7	-27°37.8	-27°36.7	-27°35.5	-27°34.2	-27°32.7	+0.9	54.3
di 2	62°39.3	77°08.9	91°38.5	106°08.2	120°37.9	135°07.6	149°37.4	164°07.2	178°37.1	193°07.0	207°36.9	+29.8	14.7
	-26°55.2	-26°51.7	-26°48.0	-26°44.2	-26°40.3	-26°36.3	-26°32.1	-26°27.9	-26°23.5	-26°18.9	-26°14.3	+4.1	54.1
wo 3	65°11.7	79°42.4	94°13.2	108°44.0	123°14.9	137°45.8	152°16.7	166°47.8	181°18.8	195°49.9	210°21.1	+30.9	14.7
	-24°50.2	-24°43.7	-24°37.1	-24°30.3	-24°23.5	-24°16.5	-24°09.4	-24°02.2	-23°54.9	-23°47.5	-23°40.0	+7.0	54.1
do 4	68°15.0	82°47.0	97°19.1	111°51.2	126°23.4	140°55.6	155°27.9	170°00.2	184°32.6	199°05.0	213°37.5	+32.2	14.8
	-21°34.9	-21°25.8	-21°16.5	-21°07.2	-20°57.8	-20°48.3	-20°38.7	-20°29.0	-20°19.2	-20°09.4	-19°59.4	+9.6	54.2
vr 5	71°50.4	86°23.6	100°56.9	115°30.2	130°03.6	144°37.0	159°10.4	173°43.9	188°17.4	202°51.0	217°24.6	+33.4	14.9
	-17°19.8	-17°09.8	-16°57.2	-16°45.8	-16°34.3	-16°22.7	-16°11.0	-15°59.3	-15°47.5	-15°35.6	-15°23.7	+11.6	54.5
za 6	75°52.8	90°27.0	105°01.1	119°35.3	134°09.5	148°43.8	163°18.0	177°52.3	192°26.6	207°00.9	221°35.3	+34.3	15.0
	-12°16.9	-12°03.9	-11°51.0	-11°37.9	-11°24.8	-11°11.6	-10°58.4	-10°45.2	-10°31.9	-10°18.5	-10°05.1	+13.2	54.9
zo 7	80°12.5	94°47.1	109°21.7	123°56.3	138°30.8	153°05.4	167°40.0	182°14.6	196°49.2	211°23.8	225°58.4	+34.6	15.1
	-6°38.6	-6°24.5	-6°10.4	-5°56.2	-5°42.0	-5°27.8	-5°13.6	-4°59.3	-4°45.0	-4°30.6	-4°16.3	+14.2	55.3
● ma 8	84°36.5	99°11.0	113°45.4	128°19.8	142°54.2	157°28.6	172°02.9	186°37.2	201°11.5	215°45.8	230°20.0	+34.4	15.2
	-0°38.1	-0°23.5	-0°08.8	0°05.9	0°20.6	0°35.4	0°50.1	1°04.8	1°19.6	1°34.3	1°49.1	+14.7	55.8
di 9	88°49.8	103°23.5	117°57.1	132°30.7	147°04.3	161°37.8	176°11.2	190°44.6	205°18.0	219°51.2	234°24.5	+33.5	15.4
	5°30.0	5°44.7	5°59.3	6°14.0	6°28.6	6°43.2	6°57.8	7°12.3	7°26.9	7°41.4	7°55.9	+14.6	56.3
wo 10	92°36.1	107°08.3	121°40.5	136°12.6	150°44.6	165°16.6	179°48.5	194°20.3	208°52.0	223°23.7	237°55.3	+31.9	15.5
	11°29.7	11°43.7	11°57.6	12°11.4	12°25.3	12°39.0	12°52.8	13°06.4	13°20.1	13°33.6	13°47.1	+13.7	56.8
do 11	95°39.0	110°09.2	124°39.3	139°09.4	153°39.3	168°09.1	182°38.9	197°08.5	211°38.1	226°07.5	240°36.9	+29.8	15.6
	17°02.4	17°14.8	17°27.2	17°39.5	17°51.7	18°03.8	18°15.9	18°27.8	18°39.7	18°51.5	19°03.2	+12.1	57.3
vr 12	97°45.2	112°12.9	126°40.6	141°08.1	155°35.5	170°02.9	184°30.1	198°57.2	213°24.3	227°51.2	242°18.0	+27.3	15.8
	21°46.7	21°56.8	22°06.7	22°16.5	22°26.2	22°35.8	22°45.2	22°54.6	23°03.8	23°12.8	23°21.8	+9.5	57.8
za 13	98°48.5	113°13.7	127°38.9	142°04.0	156°29.0	170°53.9	185°18.8	199°43.5	214°08.2	228°32.7	242°57.2	+24.9	15.9
	25°19.6	25°26.3	25°32.8	25°39.2	25°45.4	25°51.5	25°57.4	26°03.2	26°08.8	26°14.2	26°19.5	+6.0	58.3
zo 14	113°13.7	127°38.9	142°04.0	156°29.0	170°53.9	185°18.8	199°43.5	214°08.2	228°32.7	242°57.2	257°21.6	+24.8	15.9
	25°26.3	25°32.8	25°39.2	25°45.4	25°51.5	25°57.4	26°03.2	26°08.8	26°14.2	26°19.5	26°24.6	+5.8	58.3
◐ ma 15	113°19.5	127°42.9	142°06.2	156°29.5	170°52.7	185°15.9	199°39.0	214°02.2	228°25.2	242°48.3	257°11.3	+23.2	16.0
	27°20.9	27°23.2	27°25.4	27°27.4	27°29.2	27°30.8	27°32.2	27°33.5	27°34.5	27°35.4	27°36.1	+1.5	58.8
di 16	112°54.1	127°16.9	141°39.8	156°02.6	170°25.4	184°48.3	199°11.2	213°34.0	227°57.0	242°19.9	256°42.9	+22.9	16.1
	27°24.1	27°21.8	27°19.3	27°16.6	27°13.8	27°10.7	27°07.5	27°04.0	27°00.4	26°56.6	26°52.6	-3.1	59.2
wo 17	112°31.6	126°55.3	141°19.0	155°42.7	170°06.5	184°30.4	198°54.3	213°18.3	227°42.4	242°06.5	256°30.7	+23.9	16.2
	25°31.0	25°24.1	25°17.1	25°09.9	25°02.5	24°54.9	24°47.2	24°39.3	24°31.3	24°23.1	24°14.7	-7.6	59.5
do 18	112°42.6	127°08.1	141°33.6	155°59.2	170°24.8	184°50.6	199°16.4	213°42.4	228°08.4	242°34.5	257°00.7	+25.8	16.3
	21°50.3	21°39.5	21°28.5	21°17.4	21°06.2	20°54.8	20°43.3	20°31.7	20°20.0	20°08.1	19°56.1	-11.4	59.7
vr 19	113°43.5	128°11.0	142°38.6	157°06.3	171°34.0	186°01.8	200°29.8	214°57.8	229°25.8	243°54.0	258°22.2	+27.9	16.3
	16°41.9	16°28.1	16°14.2	16°00.2	15°46.1	15°31.9	15°17.7	15°03.3	14°48.9	14°34.3	14°19.7	-14.2	59.8
za 20	115°34.3	130°03.6	144°33.0	159°02.5	173°32.0	188°01.6	202°31.2	217°00.9	231°30.7	246°00.5	260°30.3	+29.6	16.3
	10°31.9	10°16.2	10°00.5	9°44.7	9°28.9	9°13.0	8°57.0	8°41.1	8°25.1	8°09.0	7°52.9	-15.9	59.6
zo 21	118°04.1	132°34.6	147°05.3	161°35.9	176°06.6	190°37.3	205°08.0	219°38.8	234°09.6	248°40.5	263°11.3	+30.7	16.2
	3°48.1	3°31.7	3°15.2	2°58.7	2°42.2	2°25.7	2°09.2	1°52.7	1°36.2	1°19.7	1°03.2	-16.5	59.3
○ ma 22	120°56.6	135°27.8	149°58.9	164°30.1	179°01.2	193°32.4	208°03.6	222°34.7	237°05.9	251°37.1	266°08.2	+31.2	16.0
	-3°02.6	-3°18.8	-3°35.0	-3°51.2	-4°07.3	-4°23.4	-4°39.5	-4°55.5	-5°11.5	-5°27.4	-5°43.3	-16.1	58.7
di 23	123°55.1	138°26.2	152°57.2	167°28.2	181°59.2	196°30.2	211°01.2	225°32.1	240°03.0	254°33.9	269°04.8	+31.0	15.8
	-9°35.9	-9°50.9	-10°05.9	-10°20.9	-10°35.7	-10°50.5	-11°05.2	-11°19.9	-11°34.4	-11°48.9	-12°03.4	-14.8	58.1
wo 24	126°44.9	141°15.4	155°45.8	170°16.2	184°46.5	199°16.9	213°47.1	228°17.4	242°47.6	257°17.8	271°48.0	+30.3	15.6
	-15°30.1	-15°43.2	-15°56.2	-16°09.1	-16°21.9	-16°34.6	-16°47.2	-16°59.7	-17°12.1	-17°24.4	-17°36.6	-12.7	57.3
do 25	129°16.0	143°45.6	158°15.2	172°44.7	187°14.2	201°43.6	216°13.0	230°42.4	245°11.7	259°41.0	274°10.3	+29.4	15.4
	-20°27.0	-20°37.4	-20°47.8	-20°58.0	-21°08.1	-21°18.1	-21°28.0	-21°37.7	-21°47.4	-21°56.9	-22°06.3	-9.9	56.5
vr 26	131°25.3	145°54.1	160°22.8	174°51.5	189°20.2	203°48.9	218°17.5	232°46.1	247°14.7	261°43.3	276°11.8	+28.6	15.2
	-24°12.0	-24°19.3	-24°26.5	-24°33.6	-24°40.6	-24°47.4	-24°54.0	-25°00.6	-25°07.0	-25°13.3	-25°19.4	-6.7	55.8
za 27	133°17.8	147°46.1	162°14.4	176°42.7	191°11.0	205°39.3	220°07.6	234°35.9	249°04.1	263°32.4	278°00.7	+28.3	15.0
	-26°35.0	-26°38.9	-26°42.7	-26°46.3	-26°49.9	-26°53.2	-26°56.5	-26°59.5	-27°02.5	-27°05.3	-27°08.0	-3.3	55.1
zo 28	135°05.8	149°34.3	164°02.7	178°31.2	192°59.7	207°28.2	221°56.8	236°25.4	250°54.0	265°22.6	279°51.3	+28.5	14.9
	-27°31.2	-27°31.6	-27°31.9	-27°32.0	-27°32.1	-27°31.9	-27°31.7	-27°31.3	-27°30.8	-27°30.1	-27°29.3	+0.2	54.6
ma 29	137°05.1	151°34.3	166°03.6	180°32.9	195°02.2	209°31.6	224°01.1	238°30.5	253°00.1	267°29.7	281°59.3	+29.4	14.8
	-27°01.2	-26°58.3	-26°55.3	-26°52.1	-26°48.8	-26°45.3	-26°41.8	-26°38.1	-26°34.3	-26°30.3	-26°26.3	+3.5	54.3
◑ di 30	139°29.7	154°00.2	168°30.7	183°01.3	197°31.9	212°02.6	226°33.3	241°04.1	255°34.9	270°05.8	284°36.8	+30.7	14.8
	-25°10.9	-25°04.9	-24°58.8	-24°52.6	-24°46.3	-24°39.9	-24°33.4	-24°26.7	-24°20.0	-24°13.1	-24°06.1	+6.5	54.2
wo 31	142°27.8	156°59.7	171°31.6	186°03.5	200°35.5	215°07.6	229°39.7	244°11.9	258°44.1	273°16.4	287°48.8	+32.1	14.8
	-22°09.1	-22°00.5	-21°51.8	-21°43.0	-21°34.1	-21°25.1	-21°16.0	-21°06.9	-20°57.6	-20°48.2	-20°38.8	+9.0	54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 8 09h29 — EK: 15 16h25 — VM: 22 10h43 — LK: 30 00h53

ZON

April 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	178°58.9	193°59.1	208°59.3	223°59.5	238°59.7	253°59.9	89°02.3	104°02.5	119°02.7	134°02.8	149°03.0	164°03.2	+0.2
	4°22.1	4°23.1	4°24.1	4°25.0	4°26.0	4°27.0	4°39.5	4°40.5	4°41.5	4°42.4	4°43.4	4°44.3	+1.0
vr 2	179°03.4	194°03.6	209°03.8	224°03.9	239°04.1	254°04.3	89°06.7	104°06.9	119°07.1	134°07.3	149°07.4	164°07.6	+0.2
	4°45.3	4°46.3	4°47.2	4°48.2	4°49.2	4°50.1	5°02.6	5°03.6	5°04.5	5°05.5	5°06.5	5°07.4	+1.0
za 3	179°07.8	194°08.0	209°08.2	224°08.3	239°08.5	254°08.7	89°11.1	104°11.3	119°11.4	134°11.6	149°11.8	164°12.0	+0.2
	5°08.4	5°09.3	5°10.3	5°11.3	5°12.2	5°13.2	5°25.6	5°26.6	5°27.5	5°28.5	5°29.5	5°30.4	+1.0
zo 4	179°12.2	194°12.4	209°12.5	224°12.7	239°12.9	254°13.1	89°15.4	104°15.6	119°15.8	134°16.0	149°16.1	164°16.3	+0.2
	5°31.4	5°32.3	5°33.3	5°34.2	5°35.2	5°36.1	5°48.5	5°49.5	5°50.5	5°51.4	5°52.4	5°53.3	+1.0
ma 5	179°16.5	194°16.7	209°16.9	224°17.0	239°17.2	254°17.4	89°19.7	104°19.9	119°20.1	134°20.3	149°20.4	164°20.6	+0.2
	5°54.3	5°55.2	5°56.2	5°57.1	5°58.1	5°59.0	6°11.4	6°12.3	6°13.3	6°14.2	6°15.2	6°16.1	+1.0
di 6	179°20.8	194°21.0	209°21.1	224°21.3	239°21.5	254°21.7	89°24.0	104°24.1	119°24.3	134°24.5	149°24.7	164°24.8	+0.2
	6°17.0	6°18.0	6°18.9	6°19.9	6°20.8	6°21.8	6°34.1	6°35.0	6°36.0	6°36.9	6°37.8	6°38.8	+0.9
wo 7	179°25.0	194°25.2	209°25.4	224°25.5	239°25.7	254°25.9	89°28.2	104°28.3	119°28.5	134°28.7	149°28.9	164°29.0	+0.2
	6°39.7	6°40.7	6°41.6	6°42.6	6°43.5	6°44.4	6°56.7	6°57.6	6°58.5	6°59.5	7°00.4	7°01.4	+0.9
do 8	179°29.2	194°29.4	209°29.6	224°29.7	239°29.9	254°30.1	89°32.3	104°32.5	119°32.6	134°32.8	149°33.0	164°33.2	+0.2
	7°02.3	7°03.2	7°04.2	7°05.1	7°06.0	7°07.0	7°19.1	7°20.1	7°21.0	7°21.9	7°22.9	7°23.8	+0.9
vr 9	179°33.3	194°33.5	209°33.7	224°33.8	239°34.0	254°34.2	89°36.4	104°36.6	119°36.7	134°36.9	149°37.1	164°37.2	+0.2
	7°24.7	7°25.7	7°26.6	7°27.5	7°28.5	7°29.4	7°41.5	7°42.4	7°43.3	7°44.3	7°45.2	7°46.1	+0.9
za 10	179°37.4	194°37.6	209°37.7	224°37.9	239°38.1	254°38.2	89°40.4	104°40.6	119°40.7	134°40.9	149°41.1	164°41.2	+0.2
	7°47.1	7°48.0	7°48.9	7°49.8	7°50.8	7°51.7	8°03.7	8°04.6	8°05.6	8°06.5	8°07.4	8°08.3	+0.9
zo 11	179°41.4	194°41.6	209°41.7	224°41.9	239°42.1	254°42.2	89°44.4	104°44.5	119°44.7	134°44.8	149°45.0	164°45.2	+0.2
	8°09.2	8°10.2	8°11.1	8°12.0	8°12.9	8°13.9	8°25.8	8°26.7	8°27.6	8°28.5	8°29.5	8°30.4	+0.9
ma 12	179°45.3	194°45.5	209°45.7	224°45.8	239°46.0	254°46.1	89°48.2	104°48.4	119°48.6	134°48.7	149°48.9	164°49.0	+0.2
	8°31.3	8°32.2	8°33.1	8°34.0	8°35.0	8°35.9	8°47.7	8°48.6	8°49.6	8°50.5	8°51.4	8°52.3	+0.9
di 13	179°49.2	194°49.4	209°49.5	224°49.7	239°49.8	254°50.0	89°52.0	104°52.2	119°52.4	134°52.5	149°52.7	164°52.8	+0.2
	8°53.2	8°54.1	8°55.0	8°55.9	8°56.8	8°57.7	9°09.5	9°10.4	9°11.3	9°12.2	9°13.1	9°14.0	+0.9
wo 14	179°53.0	194°53.1	209°53.3	224°53.5	239°53.6	254°53.8	89°55.8	104°55.9	119°56.1	134°56.2	149°56.4	164°56.6	+0.2
	9°14.9	9°15.9	9°16.8	9°17.7	9°18.6	9°19.5	9°31.2	9°32.1	9°33.0	9°33.9	9°34.8	9°35.6	+0.9
do 15	179°56.7	194°56.9	209°57.0	224°57.2	239°57.3	254°57.5	89°59.4	104°59.6	119°59.7	134°59.9	150°00.0	165°00.2	+0.2
	9°36.5	9°37.4	9°38.3	9°39.2	9°40.1	9°41.0	9°52.6	9°53.5	9°54.4	9°55.3	9°56.2	9°57.1	+0.9
vr 16	180°00.3	195°00.5	210°00.6	225°00.8	240°00.9	255°01.1	90°03.0	105°03.2	120°03.3	135°03.4	150°03.6	165°03.7	+0.1
	9°58.0	9°58.9	9°59.8	10°00.6	10°01.5	10°02.4	10°13.9	10°14.8	10°15.7	10°16.6	10°17.5	10°18.4	+0.9
za 17	180°03.9	195°04.0	210°04.2	225°04.3	240°04.5	255°04.6	90°06.5	105°06.6	120°06.8	135°06.9	150°07.1	165°07.2	+0.1
	10°19.2	10°20.1	10°21.0	10°21.9	10°22.8	10°23.7	10°35.1	10°36.0	10°36.8	10°37.7	10°38.6	10°39.5	+0.9
zo 18	180°07.3	195°07.5	210°07.6	225°07.8	240°07.9	255°08.0	90°09.9	105°10.0	120°10.1	135°10.3	150°10.4	165°10.6	+0.1
	10°40.3	10°41.2	10°42.1	10°43.0	10°43.8	10°44.7	10°56.1	10°56.9	10°57.8	10°58.7	10°59.5	11°00.4	+0.9
ma 19	180°10.7	195°10.8	210°11.0	225°11.1	240°11.3	255°11.4	90°13.2	105°13.3	120°13.4	135°13.6	150°13.7	165°13.8	+0.1
	11°01.3	11°02.1	11°03.0	11°03.9	11°04.7	11°05.6	11°16.8	11°17.7	11°18.6	11°19.4	11°20.3	11°21.1	+0.9
di 20	180°14.0	195°14.1	210°14.2	225°14.4	240°14.5	255°14.6	90°16.3	105°16.5	120°16.6	135°16.7	150°16.9	165°17.0	+0.1
	11°22.0	11°22.9	11°23.7	11°24.6	11°25.4	11°26.3	11°37.4	11°38.3	11°39.1	11°40.0	11°40.8	11°41.7	+0.9
wo 21	180°17.1	195°17.3	210°17.4	225°17.5	240°17.6	255°17.8	90°19.4	105°19.6	120°19.7	135°19.8	150°19.9	165°20.1	+0.1
	11°42.6	11°43.4	11°44.3	11°45.1	11°46.0	11°46.8	11°57.8	11°58.7	11°59.5	12°00.4	12°01.2	12°02.1	+0.9
do 22	180°20.2	195°20.3	210°20.4	225°20.6	240°20.7	255°20.8	90°22.4	105°22.5	120°22.6	135°22.8	150°22.9	165°23.0	+0.1
	12°02.9	12°03.8	12°04.6	12°05.4	12°06.3	12°07.1	12°18.0	12°18.9	12°19.7	12°20.6	12°21.4	12°22.2	+0.8
vr 23	180°23.1	195°23.2	210°23.4	225°23.5	240°23.6	255°23.7	90°25.3	105°25.4	120°25.5	135°25.6	150°25.7	165°25.8	+0.1
	12°23.1	12°23.9	12°24.7	12°25.6	12°26.4	12°27.2	12°38.1	12°38.9	12°39.7	12°40.5	12°41.4	12°42.2	+0.8
za 24	180°25.9	195°26.1	210°26.2	225°26.3	240°26.4	255°26.5	90°28.0	105°28.1	120°28.2	135°28.3	150°28.4	165°28.5	+0.1
	12°43.0	12°43.9	12°44.7	12°45.5	12°46.3	12°47.2	12°57.9	12°58.7	12°59.5	13°00.3	13°01.1	13°02.0	+0.8
zo 25	180°28.7	195°28.8	210°28.9	225°29.0	240°29.1	255°29.2	90°30.6	105°30.7	120°30.8	135°30.9	150°31.0	165°31.1	+0.1
	13°02.8	13°03.6	13°04.4	13°05.2	13°06.0	13°06.9	13°17.5	13°18.3	13°19.1	13°19.9	13°20.7	13°21.5	+0.8
ma 26	180°31.2	195°31.3	210°31.4	225°31.6	240°31.7	255°31.8	90°33.1	105°33.2	120°33.3	135°33.4	150°33.5	165°33.6	+0.1
	13°22.3	13°23.1	13°23.9	13°24.7	13°25.6	13°26.4	13°36.8	13°37.6	13°38.4	13°39.2	13°40.0	13°40.8	+0.8
di 27	180°33.7	195°33.8	210°33.9	225°34.0	240°34.1	255°34.2	90°35.5	105°35.6	120°35.6	135°35.7	150°35.8	165°35.9	+0.1
	13°41.6	13°42.4	13°43.2	13°44.0	13°44.8	13°45.6	13°56.0	13°56.8	13°57.6	13°58.4	13°59.1	13°59.9	+0.8
wo 28	180°36.0	195°36.1	210°36.2	225°36.3	240°36.4	255°36.5	90°37.7	105°37.8	120°37.9	135°38.0	150°38.0	165°38.1	+0.1
	14°00.7	14°01.5	14°02.3	14°03.1	14°03.9	14°04.7	14°14.9	14°15.7	14°16.5	14°17.3	14°18.0	14°18.8	+0.8
do 29	180°38.2	195°38.3	210°38.4	225°38.5	240°38.6	255°38.7	90°39.8	105°39.9	120°40.0	135°40.0	150°40.1	165°40.2	+0.1
	14°19.6	14°20.4	14°21.2	14°21.9	14°22.7	14°23.5	14°33.6	14°34.4	14°35.1	14°35.9	14°36.7	14°37.5	+0.8
vr 30	180°40.3	195°40.4	210°40.5	225°40.5	240°40.6	255°40.7	90°41.7	105°41.8	120°41.9	135°42.0	150°42.1	165°42.1	+0.1
	14°38.2	14°39.0	14°39.8	14°40.5	14°41.3	14°42.1	14°52.0	14°52.8	14°53.6	14°54.3	14°55.1	14°55.9	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2027

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
do 1	58°42.1	73°15.0	87°47.9	102°20.8	116°53.8	131°26.8	145°59.9	160°33.0	175°06.2	189°39.4	204°12.7	+33.1	14.8
	-19°09.8	-18°59.5	-18°49.1	-18°38.6	-18°28.0	-18°17.4	-18°06.7	-17°55.9	-17°45.0	-17°34.0	-17°23.0	+10.7	54.4
vr 2	62°36.4	77°10.3	91°44.2	106°18.1	120°52.1	135°26.1	150°00.1	164°34.2	179°08.2	193°42.3	208°16.5	+34.0	14.9
	-14°28.7	-14°16.5	-14°04.3	-13°52.0	-13°39.6	-13°27.2	-13°14.7	-13°02.2	-12°49.6	-12°36.9	-12°24.2	+12.5	54.8
za 3	66°51.0	81°25.5	95°59.9	110°34.3	125°08.8	139°43.3	154°17.8	168°52.2	183°26.7	198°01.2	212°35.7	+34.5	15.1
	-9°06.7	-8°53.1	-8°39.5	-8°25.9	-8°12.1	-7°58.4	-7°44.6	-7°30.8	-7°16.9	-7°03.0	-6°49.0	+13.8	55.2
zo 4	71°12.9	85°47.3	100°21.7	114°56.1	129°30.5	144°04.9	158°39.2	173°13.5	187°47.8	202°22.1	216°56.3	+34.3	15.2
	-3°15.6	-3°01.1	-2°46.6	-2°32.1	-2°17.5	-2°02.9	-1°48.4	-1°33.7	-1°19.1	-1°04.5	-0°49.8	+14.6	55.8
ma 5	75°26.8	90°00.6	104°34.3	119°08.0	133°41.6	148°15.2	162°48.7	177°22.2	191°55.7	206°29.1	221°02.4	+33.6	15.4
	2°51.7	3°06.5	3°21.3	3°36.1	3°50.9	4°05.7	4°20.5	4°35.3	4°50.1	5°04.9	5°19.7	+14.8	56.4
● di 6	79°16.1	93°48.5	108°20.9	122°53.1	137°25.4	151°57.5	166°29.6	181°01.6	195°33.5	210°05.3	224°37.1	+32.1	15.6
	8°59.6	9°14.1	9°28.5	9°42.9	9°57.3	10°11.7	10°26.0	10°40.3	10°54.5	11°08.7	11°22.9	+14.3	57.0
wo 7	82°24.0	96°54.5	111°24.8	125°55.1	140°25.2	154°55.3	169°25.3	183°55.1	198°24.9	212°54.6	227°24.2	+30.0	15.7
	14°49.6	15°02.9	15°16.2	15°29.4	15°42.5	15°55.5	16°08.5	16°21.4	16°34.3	16°47.0	16°59.7	+13.0	57.6
do 8	84°36.2	99°04.2	113°32.1	127°59.8	142°27.5	156°55.1	171°22.6	185°49.9	200°17.2	214°44.3	229°11.4	+27.5	15.9
	19°59.4	20°10.6	20°21.7	20°32.7	20°43.6	20°54.4	21°05.1	21°15.6	21°26.0	21°36.3	21°46.5	+10.7	58.1
vr 9	85°45.1	100°10.6	114°35.9	129°01.2	143°26.4	157°51.5	172°16.5	186°41.4	201°06.2	215°31.0	229°55.6	+25.0	16.0
	24°04.1	24°12.1	24°20.1	24°27.8	24°35.5	24°42.9	24°50.3	24°57.4	25°04.4	25°11.3	25°18.0	+7.4	58.5
za 10	85°56.3	100°19.8	114°43.2	129°06.6	143°30.0	157°53.3	172°16.5	186°39.7	201°02.9	215°26.0	229°49.1	+23.3	16.0
	26°38.8	26°42.8	26°46.6	26°50.3	26°53.8	26°57.1	27°00.2	27°03.2	27°05.9	27°08.5	27°10.9	+3.2	58.8
zo 11	85°32.1	99°54.9	114°17.6	128°40.4	143°03.2	157°26.0	171°48.8	186°11.6	200°34.4	214°57.2	229°20.1	+22.8	16.1
	27°24.7	27°24.1	27°23.4	27°22.4	27°21.3	27°20.0	27°18.4	27°16.7	27°14.9	27°12.8	27°10.5	-1.4	59.0
ma 12	85°06.9	99°30.4	113°53.9	128°17.5	142°41.2	157°04.9	171°28.6	185°52.5	200°16.4	214°40.3	229°04.4	+23.7	16.1
	26°14.6	26°09.4	26°04.1	25°58.6	25°52.9	25°47.0	25°41.0	25°34.8	25°28.4	25°21.9	25°15.2	-5.9	59.2
◐ di 13	99°30.4	113°53.9	128°17.5	142°41.2	157°04.9	171°28.6	185°52.5	200°16.4	214°40.3	229°04.4	243°28.5	+23.8	16.1
	26°09.4	26°04.1	25°58.6	25°52.9	25°47.0	25°41.0	25°34.8	25°28.4	25°21.9	25°15.2	25°08.3	-6.1	59.2
wo 14	99°39.2	114°04.5	128°30.0	142°55.5	157°21.2	171°46.9	186°12.7	200°38.6	215°04.6	229°30.6	243°56.8	+25.8	16.1
	23°06.2	22°56.8	22°47.3	22°37.7	22°27.9	22°18.0	22°08.0	21°57.8	21°47.4	21°37.0	21°26.4	-10.0	59.2
do 15	100°39.9	115°07.5	129°35.1	144°02.9	158°30.7	172°58.7	187°26.7	201°54.8	216°23.0	230°51.2	245°19.6	+28.0	16.1
	18°32.9	18°20.4	18°07.8	17°55.1	17°42.3	17°29.5	17°16.5	17°03.4	16°50.2	16°37.0	16°23.6	-12.9	59.1
vr 16	102°34.3	117°03.8	131°33.5	146°03.2	160°33.0	175°02.8	189°32.7	204°02.7	218°32.7	233°02.8	247°32.9	+29.9	16.1
	12°53.4	12°38.8	12°24.2	12°09.4	11°54.6	11°39.8	11°24.9	11°09.9	10°54.9	10°39.9	10°24.7	-14.9	59.0
za 17	105°11.8	119°42.7	134°13.8	148°44.8	163°15.9	177°47.0	192°18.2	206°49.4	221°20.7	235°51.9	250°23.2	+31.2	16.0
	6°32.8	6°17.0	6°01.3	5°45.5	5°29.6	5°13.8	4°58.0	4°42.1	4°26.2	4°10.3	3°54.4	-15.8	58.7
zo 18	108°15.9	122°47.5	137°19.2	151°50.9	166°22.6	180°54.3	195°26.0	209°57.7	224°29.4	239°01.2	253°32.9	+31.7	15.9
	-0°05.3	-0°21.2	-0°37.2	-0°53.1	-1°09.1	-1°25.0	-1°40.9	-1°56.8	-2°12.6	-2°28.5	-2°44.3	-15.9	58.4
ma 19	111°28.6	126°00.2	140°31.9	155°03.5	169°35.1	184°06.7	198°38.2	213°09.8	227°41.3	242°12.8	256°44.3	+31.6	15.8
	-6°38.4	-6°53.7	-7°09.0	-7°24.2	-7°39.4	-7°54.5	-8°09.6	-8°24.7	-8°39.6	-8°54.6	-9°09.5	-15.1	57.9
○ di 20	114°33.4	129°04.5	143°35.5	158°06.5	172°37.4	187°08.3	201°39.1	216°10.0	230°40.7	245°11.5	259°42.2	+30.9	15.6
	-12°45.6	-12°59.4	-13°13.2	-13°26.9	-13°40.6	-13°54.1	-14°07.6	-14°21.0	-14°34.4	-14°47.6	-15°00.8	-13.5	57.4
wo 21	117°17.9	131°47.9	146°17.9	160°47.9	175°17.8	189°47.6	204°17.5	218°47.2	233°17.0	247°46.7	262°16.3	+29.8	15.5
	-18°07.3	-18°19.0	-18°30.6	-18°42.0	-18°53.4	-19°04.7	-19°15.8	-19°26.9	-19°37.8	-19°48.6	-19°59.3	-11.2	56.8
do 22	119°35.7	134°04.6	148°33.5	163°02.4	177°31.3	192°00.1	206°28.8	220°57.5	235°26.2	249°54.9	264°23.5	+28.8	15.3
	-22°26.2	-22°35.1	-22°43.8	-22°52.4	-23°00.8	-23°09.2	-23°17.4	-23°25.4	-23°33.4	-23°41.2	-23°48.9	-8.3	56.1
vr 23	121°29.0	135°57.2	150°25.3	164°53.5	179°21.6	193°49.7	208°17.7	222°45.8	237°13.8	251°41.8	266°09.8	+28.1	15.1
	-25°28.2	-25°33.7	-25°39.1	-25°44.4	-25°49.5	-25°54.4	-25°59.3	-26°04.0	-26°08.5	-26°12.9	-26°17.2	-4.9	55.5
za 24	123°09.3	137°37.3	152°05.3	166°33.3	181°01.3	195°29.3	209°57.3	224°25.4	238°53.5	253°21.5	267°49.6	+28.0	15.0
	-27°04.2	-27°06.2	-27°08.1	-27°09.8	-27°11.4	-27°12.8	-27°14.1	-27°15.2	-27°16.2	-27°17.1	-27°17.8	-1.4	55.0
zo 25	124°54.0	139°22.6	153°51.1	168°19.8	182°48.4	197°17.1	211°45.9	226°14.6	240°43.5	255°12.3	269°41.2	+28.7	14.9
	-27°11.9	-27°10.5	-27°08.8	-27°07.1	-27°05.2	-27°03.1	-27°01.0	-26°58.7	-26°56.2	-26°53.7	-26°51.0	+2.1	54.6
ma 26	127°00.9	141°30.6	156°00.4	170°30.3	185°00.2	199°30.1	214°00.2	228°30.2	243°00.4	257°30.6	272°00.9	+30.0	14.8
	-25°55.3	-25°50.6	-25°45.8	-25°40.9	-25°35.8	-25°30.6	-25°25.3	-25°19.9	-25°14.4	-25°08.7	-25°03.0	+5.2	54.3
di 27	129°42.2	144°13.4	158°44.8	173°16.1	187°47.6	202°19.1	216°50.6	231°22.3	245°53.9	260°25.7	274°57.5	+31.5	14.8
	-23°23.3	-23°15.8	-23°08.2	-23°00.5	-22°52.7	-22°44.8	-22°36.8	-22°28.7	-22°20.5	-22°12.2	-22°03.8	+7.9	54.2
◑ wo 28	133°01.8	147°34.5	162°07.3	176°40.1	191°13.0	205°46.0	220°19.0	234°52.1	249°25.2	263°58.4	278°31.6	+33.0	14.8
	-19°47.1	-19°37.3	-19°27.4	-19°17.4	-19°07.3	-18°57.2	-18°46.9	-18°36.6	-18°26.3	-18°15.8	-18°05.3	+10.2	54.3
do 29	136°55.4	151°29.3	166°03.3	180°37.3	195°11.3	209°45.4	224°19.5	238°53.6	253°27.8	268°02.0	282°36.3	+34.1	14.9
	-15°18.4	-15°06.7	-14°55.0	-14°43.2	-14°31.3	-14°19.4	-14°07.4	-13°55.3	-13°43.2	-13°31.0	-13°18.8	+12.0	54.5
vr 30	141°13.0	155°47.6	170°22.2	184°56.9	199°31.5	214°06.2	228°40.9	243°15.6	257°50.3	272°25.0	286°59.7	+34.7	15.0
	-10°08.4	-9°55.3	-9°42.1	-9°28.9	-9°15.7	-9°02.4	-8°49.1	-8°35.7	-8°22.2	-8°08.8	-7°55.2	+13.3	55.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 23h51 — EK: 13 22h56 — VM: 20 22h27 — LK: 28 20h17

ZON

Mei 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	180°42.2	195°42.3	210°42.4	225°42.4	240°42.5	255°42.6	90°43.6	105°43.6	120°43.7	135°43.8	150°43.9	165°43.9	+0.1
	14°56.6	14°57.4	14°58.1	14°58.9	14°59.7	15°00.4	15°10.2	15°11.0	15°11.8	15°12.5	15°13.3	15°14.0	+0.8
zo 2	180°44.0	195°44.1	210°44.2	225°44.2	240°44.3	255°44.4	90°45.3	105°45.3	120°45.4	135°45.5	150°45.5	165°45.6	+0.1
	15°14.8	15°15.5	15°16.3	15°17.0	15°17.8	15°18.5	15°28.2	15°28.9	15°29.7	15°30.4	15°31.2	15°31.9	+0.8
ma 3	180°45.7	195°45.7	210°45.8	225°45.9	240°45.9	255°46.0	90°46.8	105°46.9	120°46.9	135°47.0	150°47.1	165°47.1	+0.1
	15°32.7	15°33.4	15°34.1	15°34.9	15°35.6	15°36.3	15°45.9	15°46.6	15°47.4	15°48.1	15°48.8	15°49.6	+0.7
di 4	180°47.2	195°47.2	210°47.3	225°47.4	240°47.4	255°47.5	90°48.2	105°48.3	120°48.3	135°48.4	150°48.4	165°48.5	+0.1
	15°50.3	15°51.0	15°51.7	15°52.5	15°53.2	15°53.9	16°03.3	16°04.1	16°04.8	16°05.5	16°06.2	16°06.9	+0.7
wo 5	180°48.5	195°48.6	210°48.7	225°48.7	240°48.8	255°48.8	90°49.5	105°49.5	120°49.6	135°49.6	150°49.7	165°49.7	+0.1
	16°07.7	16°08.4	16°09.1	16°09.8	16°10.5	16°11.2	16°20.5	16°21.2	16°21.9	16°22.6	16°23.4	16°24.1	+0.7
do 6	180°49.8	195°49.8	210°49.9	225°49.9	240°50.0	255°50.0	90°50.6	105°50.7	120°50.7	135°50.7	150°50.8	165°50.8	+0.0
	16°24.8	16°25.5	16°26.2	16°26.9	16°27.6	16°28.3	16°37.4	16°38.1	16°38.8	16°39.5	16°40.2	16°40.9	+0.7
vr 7	180°50.9	195°50.9	210°51.0	225°51.0	240°51.0	255°51.1	90°51.6	105°51.6	120°51.7	135°51.7	150°51.7	165°51.8	+0.0
	16°41.6	16°42.3	16°43.0	16°43.7	16°44.4	16°45.1	16°54.0	16°54.7	16°55.4	16°56.1	16°56.8	16°57.5	+0.7
za 8	180°51.8	195°51.9	210°51.9	225°51.9	240°52.0	255°52.0	90°52.4	105°52.5	120°52.5	135°52.5	150°52.6	165°52.6	+0.0
	16°58.1	16°58.8	16°59.5	17°00.2	17°00.9	17°01.6	17°10.4	17°11.1	17°11.7	17°12.4	17°13.1	17°13.7	+0.7
zo 9	180°52.6	195°52.7	210°52.7	225°52.7	240°52.7	255°52.8	90°53.1	105°53.2	120°53.2	135°53.2	150°53.2	165°53.3	+0.0
	17°14.4	17°15.1	17°15.8	17°16.4	17°17.1	17°17.8	17°26.4	17°27.1	17°27.8	17°28.4	17°29.1	17°29.7	+0.7
ma 10	180°53.3	195°53.3	210°53.3	225°53.4	240°53.4	255°53.4	90°53.7	105°53.7	120°53.7	135°53.8	150°53.8	165°53.8	+0.0
	17°30.4	17°31.1	17°31.7	17°32.4	17°33.0	17°33.7	17°42.2	17°42.8	17°43.5	17°44.1	17°44.8	17°45.4	+0.7
di 11	180°53.8	195°53.8	210°53.9	225°53.9	240°53.9	255°53.9	90°54.1	105°54.1	120°54.2	135°54.2	150°54.2	165°54.2	+0.0
	17°46.1	17°46.7	17°47.4	17°48.0	17°48.7	17°49.3	17°57.6	17°58.3	17°58.9	17°59.6	18°00.2	18°00.8	+0.6
wo 12	180°54.2	195°54.2	210°54.2	225°54.3	240°54.3	255°54.3	90°54.4	105°54.4	120°54.4	135°54.4	150°54.4	165°54.5	+0.0
	18°01.5	18°02.1	18°02.7	18°03.4	18°04.0	18°04.6	18°12.8	18°13.4	18°14.1	18°14.7	18°15.3	18°15.9	+0.6
do 13	180°54.5	195°54.5	210°54.5	225°54.5	240°54.5	255°54.5	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.6	+0.0
	18°16.5	18°17.2	18°17.8	18°18.4	18°19.0	18°19.7	18°27.7	18°28.3	18°28.9	18°29.5	18°30.1	18°30.7	+0.6
vr 14	180°54.6	195°54.6	210°54.6	225°54.6	240°54.6	255°54.6	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.6	+0.0
	18°31.3	18°31.9	18°32.5	18°33.1	18°33.8	18°34.4	18°42.2	18°42.8	18°43.4	18°44.0	18°44.6	18°45.2	+0.6
za 15	180°54.6	195°54.6	210°54.5	225°54.5	240°54.5	255°54.5	90°54.5	105°54.4	120°54.4	135°54.4	150°54.4	165°54.4	-0.0
	18°45.8	18°46.4	18°47.0	18°47.6	18°48.2	18°48.7	18°56.4	18°57.0	18°57.6	18°58.2	18°58.7	18°59.3	+0.6
zo 16	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.3	90°54.2	105°54.2	120°54.2	135°54.1	150°54.1	165°54.1	-0.0
	18°59.9	19°00.5	19°01.1	19°01.7	19°02.2	19°02.8	19°10.3	19°10.9	19°11.5	19°12.0	19°12.6	19°13.2	+0.6
ma 17	180°54.1	195°54.1	210°54.1	225°54.1	240°54.0	255°54.0	90°53.8	105°53.8	120°53.8	135°53.7	150°53.7	165°53.7	-0.0
	19°13.7	19°14.3	19°14.9	19°15.4	19°16.0	19°16.6	19°23.9	19°24.4	19°25.0	19°25.6	19°26.1	19°26.7	+0.6
di 18	180°53.7	195°53.7	210°53.6	225°53.6	240°53.6	255°53.6	90°53.3	105°53.2	120°53.2	135°53.2	150°53.2	165°53.1	-0.0
	19°27.2	19°27.8	19°28.3	19°28.9	19°29.4	19°30.0	19°37.1	19°37.7	19°38.2	19°38.8	19°39.3	19°39.8	+0.6
wo 19	180°53.1	195°53.1	210°53.0	225°53.0	240°53.0	255°53.0	90°52.6	105°52.6	120°52.5	135°52.5	150°52.5	165°52.4	-0.0
	19°40.4	19°40.9	19°41.5	19°42.0	19°42.5	19°43.1	19°50.0	19°50.6	19°51.1	19°51.6	19°52.2	19°52.7	+0.5
do 20	180°52.4	195°52.4	210°52.3	225°52.3	240°52.3	255°52.2	90°51.8	105°51.7	120°51.7	135°51.7	150°51.6	165°51.6	-0.0
	19°53.2	19°53.7	19°54.3	19°54.8	19°55.3	19°55.8	20°02.6	20°03.1	20°03.6	20°04.2	20°04.7	20°05.2	+0.5
vr 21	180°51.6	195°51.5	210°51.5	225°51.4	240°51.4	255°51.4	90°50.8	105°50.8	120°50.8	135°50.7	150°50.7	165°50.6	-0.0
	20°05.7	20°06.2	20°06.7	20°07.2	20°07.7	20°08.3	20°14.8	20°15.3	20°15.8	20°16.3	20°16.8	20°17.3	+0.5
za 22	180°50.6	195°50.5	210°50.5	225°50.5	240°50.4	255°50.4	90°49.8	105°49.7	120°49.7	135°49.6	150°49.6	165°49.5	-0.0
	20°17.8	20°18.3	20°18.8	20°19.3	20°19.8	20°20.3	20°26.7	20°27.2	20°27.7	20°28.2	20°28.7	20°29.2	+0.5
zo 23	180°49.5	195°49.4	210°49.4	225°49.3	240°49.3	255°49.2	90°48.6	105°48.5	120°48.5	135°48.4	150°48.3	165°48.3	-0.0
	20°29.6	20°30.1	20°30.6	20°31.1	20°31.6	20°32.1	20°38.3	20°38.7	20°39.2	20°39.7	20°40.1	20°40.6	+0.5
ma 24	180°48.2	195°48.2	210°48.1	225°48.1	240°48.0	255°48.0	90°47.2	105°47.2	120°47.1	135°47.0	150°47.0	165°46.9	-0.1
	20°41.1	20°41.6	20°42.0	20°42.5	20°43.0	20°43.4	20°49.4	20°49.9	20°50.4	20°50.8	20°51.3	20°51.7	+0.5
di 25	180°46.9	195°46.8	210°46.8	225°46.7	240°46.6	255°46.6	90°45.8	105°45.7	120°45.6	135°45.6	150°45.5	165°45.4	-0.1
	20°52.2	20°52.6	20°53.1	20°53.5	20°54.0	20°54.4	21°00.3	21°00.7	21°01.1	21°01.6	21°02.0	21°02.5	+0.5
wo 26	180°45.4	195°45.3	210°45.2	225°45.2	240°45.1	255°45.0	90°44.2	105°44.1	120°44.0	135°44.0	150°43.9	165°43.8	-0.1
	21°02.9	21°03.4	21°03.8	21°04.2	21°04.7	21°05.1	21°10.7	21°11.2	21°11.6	21°12.0	21°12.4	21°12.9	+0.4
do 27	180°43.8	195°43.7	210°43.6	225°43.5	240°43.5	255°43.4	90°42.5	105°42.4	120°42.3	135°42.2	150°42.2	165°42.1	-0.1
	21°13.3	21°13.7	21°14.1	21°14.6	21°15.0	21°15.4	21°20.8	21°21.2	21°21.7	21°22.1	21°22.5	21°22.9	+0.4
vr 28	180°42.0	195°41.9	210°41.9	225°41.8	240°41.7	255°41.6	90°40.6	105°40.5	120°40.5	135°40.4	150°40.3	165°40.2	-0.1
	21°23.3	21°23.7	21°24.1	21°24.5	21°24.9	21°25.3	21°30.6	21°31.0	21°31.3	21°31.7	21°32.1	21°32.5	+0.4
za 29	180°40.1	195°40.1	210°40.0	225°39.9	240°39.8	255°39.7	90°38.7	105°38.6	120°38.5	135°38.4	150°38.3	165°38.2	-0.1
	21°32.9	21°33.3	21°33.7	21°34.1	21°34.5	21°34.9	21°39.9	21°40.3	21°40.7	21°41.1	21°41.4	21°41.8	+0.4
zo 30	180°38.2	195°38.1	210°38.0	225°37.9	240°37.8	255°37.7	90°36.6	105°36.5	120°36.4	135°36.3	150°36.2	165°36.1	-0.1
	21°42.2	21°42.6	21°42.9	21°43.3	21°43.7	21°44.1	21°48.9	21°49.3	21°49.6	21°50.0	21°50.4	21°50.7	+0.4
ma 31	180°36.1	195°36.0	210°35.9	225°35.8	240°35.7	255°35.6	90°34.4	105°34.3	120°34.2	135°34.1	150°34.0	165°33.9	-0.1
	21°51.1	21°51.4	21°51.8	21°52.2	21°52.5	21°52.9	21°57.5	21°57.8	21°58.2	21°58.5	21°58.9	21°59.2	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2027

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
za 1	58°12.4	72°47.1	87°21.8	101°56.5	116°31.3	131°06.0	145°40.7	160°15.4	174°50.1	189°24.7	203°59.4	+34.7	15.1
	-5°51.8	-5°37.9	-5°23.9	-5°09.9	-4°55.9	-4°41.9	-4°27.8	-4°13.7	-3°59.6	-3°45.4	-3°31.2	+14.1	55.4
zo 2	62°36.9	77°11.2	91°45.4	106°19.7	120°53.8	135°28.0	150°02.1	164°36.2	179°10.2	193°44.2	208°18.2	+34.1	15.3
	0°04.6	0°19.2	0°33.7	0°48.3	1°02.9	1°17.5	1°32.1	1°46.7	2°01.3	2°15.9	2°30.6	+14.6	56.1
ma 3	66°41.6	81°14.7	95°47.8	110°20.7	124°53.7	139°26.5	153°59.3	168°32.0	183°04.7	197°37.3	212°09.8	+32.8	15.5
	6°10.4	6°25.0	6°39.6	6°54.2	7°08.8	7°23.3	7°37.9	7°52.4	8°06.9	8°21.4	8°35.9	+14.6	56.9
di 4	70°07.9	84°39.1	99°10.2	113°41.2	128°12.2	142°43.0	157°13.7	171°44.4	186°14.9	200°45.3	215°15.7	+30.8	15.7
	12°09.5	12°23.5	12°37.4	12°51.3	13°05.1	13°18.8	13°32.6	13°46.2	13°59.8	14°13.4	14°26.9	+13.7	57.6
wo 5	72°38.2	87°06.9	101°35.4	116°03.8	130°32.1	145°00.3	159°28.4	173°56.3	188°24.2	202°51.9	217°19.5	+28.1	15.9
	17°41.4	17°53.8	18°06.1	18°18.2	18°30.3	18°42.4	18°54.3	19°06.1	19°17.8	19°29.4	19°41.0	+12.0	58.4
● do 6	73°59.9	88°25.7	102°51.3	117°16.9	131°42.3	146°07.6	160°32.8	174°58.0	189°22.9	203°47.8	218°12.6	+25.3	16.1
	22°20.5	22°30.1	22°39.7	22°49.1	22°58.3	23°07.4	23°16.4	23°25.3	23°34.0	23°42.5	23°50.9	+9.1	59.0
vr 7	74°12.3	88°35.6	102°58.7	117°21.8	131°44.8	146°07.7	160°30.6	174°53.4	189°16.1	203°38.7	218°01.3	+22.9	16.2
	25°38.3	25°44.2	25°49.8	25°55.3	26°00.7	26°05.8	26°10.8	26°15.6	26°20.2	26°24.6	26°28.8	+5.1	59.4
za 8	73°33.9	87°55.7	102°17.6	116°39.4	131°01.3	145°23.1	159°44.9	174°06.7	188°28.5	202°50.2	217°12.0	+21.8	16.3
	27°09.9	27°11.1	27°12.1	27°12.9	27°13.5	27°13.9	27°14.1	27°14.2	27°14.0	27°13.6	27°13.1	+0.3	59.7
zo 9	72°41.0	87°03.2	101°25.4	115°47.7	130°10.1	144°32.5	158°54.9	173°17.4	187°40.0	202°02.7	216°25.4	+22.4	16.3
	26°41.3	26°37.6	26°33.7	26°29.7	26°25.5	26°21.1	26°16.5	26°11.7	26°06.7	26°01.6	25°56.3	-4.5	59.7
ma 10	72°15.0	86°39.0	101°03.1	115°27.2	129°51.5	144°15.9	158°40.3	173°04.9	187°29.6	201°54.3	216°19.2	+24.4	16.3
	24°15.5	24°07.4	23°59.2	23°50.8	23°42.3	23°33.6	23°24.8	23°15.8	23°06.7	22°57.5	22°48.0	-8.7	59.6
di 11	72°44.3	87°10.8	101°37.4	116°04.1	130°30.9	144°57.9	159°24.9	173°52.0	188°19.2	202°46.5	217°14.0	+27.0	16.2
	20°10.5	19°59.0	19°47.4	19°35.7	19°23.8	19°11.9	18°59.8	18°47.7	18°35.4	18°23.0	18°10.5	-12.0	59.4
wo 12	74°17.0	88°46.0	103°15.0	117°44.1	132°13.3	146°42.6	161°12.0	175°41.5	190°11.0	204°40.7	219°10.4	+29.3	16.1
	14°52.3	14°38.5	14°24.5	14°10.5	13°56.4	13°42.3	13°28.1	13°13.8	12°59.4	12°45.0	12°30.6	-14.2	59.0
◐ do 13	88°46.0	103°15.0	117°44.1	132°13.3	146°42.6	161°12.0	175°41.5	190°11.0	204°40.7	219°10.4	233°40.1	+29.4	16.1
	14°38.5	14°24.5	14°10.5	13°56.4	13°42.3	13°28.1	13°13.8	12°59.4	12°45.0	12°30.6	12°16.1	-14.2	59.0
vr 14	91°15.6	105°46.5	120°17.5	134°48.5	149°19.6	163°50.7	178°21.8	192°53.1	207°24.3	221°55.7	236°27.0	+31.1	16.0
	8°32.4	8°17.1	8°01.9	7°46.5	7°31.2	7°15.9	7°00.5	6°45.1	6°29.6	6°14.2	5°58.7	-15.4	58.6
za 15	94°22.6	108°54.6	123°26.6	137°58.6	152°30.7	167°02.8	181°34.9	196°07.0	210°39.1	225°11.3	239°43.5	+32.1	15.8
	2°04.8	1°49.2	1°33.5	1°17.9	1°02.2	0°46.6	0°31.0	0°15.4	-0°00.2	-0°15.8	-0°31.4	-15.6	58.1
zo 16	97°47.3	112°19.5	126°51.8	141°24.1	155°56.3	170°28.6	185°00.8	199°33.1	214°05.3	228°37.5	243°09.8	+32.3	15.7
	-4°23.2	-4°38.4	-4°53.6	-5°08.8	-5°24.0	-5°39.1	-5°54.2	-6°09.3	-6°24.3	-6°39.2	-6°54.2	-15.1	57.6
ma 17	101°10.7	115°42.6	130°14.5	144°46.3	159°18.1	173°49.8	188°21.6	202°53.3	217°24.9	231°56.6	246°28.2	+31.7	15.6
	-10°32.6	-10°46.7	-11°00.8	-11°14.8	-11°28.8	-11°42.7	-11°56.5	-12°10.3	-12°24.0	-12°37.6	-12°51.2	-13.9	57.1
di 18	104°17.4	118°48.4	133°19.3	147°50.1	162°20.9	176°51.7	191°22.4	205°53.1	220°23.7	234°54.3	249°24.8	+30.7	15.4
	-16°05.7	-16°18.0	-16°30.3	-16°42.4	-16°54.5	-17°06.5	-17°18.4	-17°30.1	-17°41.8	-17°53.4	-18°05.0	-11.9	56.6
wo 19	106°56.9	121°26.6	135°56.3	150°26.0	164°55.6	179°25.1	193°54.6	208°24.1	222°53.5	237°22.8	251°52.1	+29.5	15.3
	-20°45.5	-20°55.4	-21°05.1	-21°14.8	-21°24.3	-21°33.7	-21°43.0	-21°52.2	-22°01.2	-22°10.2	-22°19.0	-9.4	56.1
○ do 20	109°06.6	123°35.2	138°03.8	152°32.4	167°00.9	181°29.4	195°57.9	210°26.3	224°54.7	239°23.1	253°51.4	+28.5	15.2
	-24°16.7	-24°23.5	-24°30.2	-24°36.8	-24°43.2	-24°49.5	-24°55.7	-25°01.7	-25°07.6	-25°13.4	-25°19.1	-6.2	55.6
vr 21	110°53.7	125°21.7	139°49.7	154°17.7	168°45.7	183°13.7	197°41.7	212°09.6	226°37.6	241°05.6	255°33.6	+28.0	15.0
	-26°27.1	-26°30.5	-26°33.8	-26°37.0	-26°40.0	-26°42.8	-26°45.5	-26°48.1	-26°50.6	-26°52.9	-26°55.0	-2.8	55.1
za 22	112°34.1	127°02.3	141°30.5	155°58.7	170°26.9	184°55.2	199°23.5	213°51.8	228°20.2	242°48.5	257°16.9	+28.3	14.9
	-27°10.4	-27°10.3	-27°10.0	-27°09.7	-27°09.1	-27°08.5	-27°07.7	-27°06.8	-27°05.7	-27°04.5	-27°03.2	+0.7	54.7
zo 23	114°27.9	128°57.0	143°26.1	157°55.3	172°24.6	186°53.9	201°23.2	215°52.6	230°22.1	244°51.6	259°21.2	+29.3	14.8
	-26°27.0	-26°23.5	-26°20.0	-26°16.3	-26°12.4	-26°08.5	-26°04.4	-26°00.2	-25°55.8	-25°51.4	-25°46.8	+4.0	54.4
ma 24	116°52.1	131°22.6	145°53.2	160°23.9	174°54.7	189°25.5	203°56.4	218°27.3	232°58.4	247°29.4	262°00.6	+30.9	14.8
	-24°24.0	-24°17.5	-24°11.0	-24°04.4	-23°57.6	-23°50.7	-23°43.8	-23°36.7	-23°29.5	-23°22.3	-23°14.9	+6.9	54.2
di 25	119°55.7	134°27.9	149°00.2	163°32.5	178°04.9	192°37.3	207°09.8	221°42.4	236°15.0	250°47.7	265°20.5	+32.5	14.8
	-21°12.4	-21°03.5	-20°54.5	-20°45.4	-20°36.3	-20°27.0	-20°17.7	-20°08.3	-19°58.7	-19°49.1	-19°39.5	+9.3	54.1
wo 26	123°38.8	138°12.4	152°46.1	167°19.9	181°53.7	196°27.5	211°01.4	225°35.4	240°09.4	254°43.4	269°17.5	+33.9	14.8
	-17°05.0	-16°54.1	-16°43.2	-16°32.2	-16°21.1	-16°09.9	-15°58.7	-15°47.4	-15°36.1	-15°24.7	-15°13.2	+11.2	54.2
do 27	127°53.5	142°28.2	157°02.9	171°37.7	186°12.5	200°47.3	215°22.1	229°56.9	244°31.8	259°06.7	273°41.6	+34.8	14.9
	-12°13.9	-12°01.5	-11°49.1	-11°36.6	-11°24.0	-11°11.4	-10°58.8	-10°46.1	-10°33.3	-10°20.6	-10°07.7	+12.6	54.5
◑ vr 28	132°27.4	147°02.6	161°37.7	176°12.9	190°48.0	205°23.2	219°58.3	234°33.4	249°08.6	263°43.7	278°18.9	+35.1	15.0
	-6°50.1	-6°36.6	-6°23.1	-6°09.6	-5°56.0	-5°42.4	-5°28.7	-5°15.0	-5°01.3	-4°47.6	-4°33.8	+13.6	54.9
za 29	137°04.6	151°39.5	166°14.3	180°49.2	195°24.0	209°58.8	224°33.6	239°08.3	253°43.0	268°17.7	282°52.3	+34.8	15.1
	-1°04.1	-0°50.0	-0°35.8	-0°21.6	-0°07.4	0°06.8	0°21.0	0°35.3	0°49.5	1°03.8	1°18.1	+14.2	55.6
zo 30	141°26.9	156°00.8	170°34.6	185°08.4	199°42.2	214°15.9	228°49.5	243°23.0	257°56.5	272°29.9	287°03.3	+33.6	15.4
	4°53.1	5°07.4	5°21.8	5°36.1	5°50.4	6°04.7	6°19.1	6°33.4	6°47.7	7°01.9	7°16.2	+14.3	56.3
ma 31	145°14.8	159°46.9	174°18.9	188°50.8	203°22.7	217°54.4	232°26.1	246°57.7	261°29.1	276°00.5	290°31.8	+31.7	15.6
	10°48.1	11°02.1	11°16.0	11°29.8	11°43.6	11°57.4	12°11.2	12°24.9	12°38.6	12°52.2	13°05.8	+13.8	57.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 10h58 — EK: 13 04h43 — VM: 20 10h59 — LK: 28 13h57

ZON

Juni 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	180°33.9	195°33.8	210°33.7	225°33.6	240°33.5	255°33.4	90°32.1	105°32.0	120°31.9	135°31.8	150°31.7	165°31.6	-0.1
	21°59.6	21°59.9	22°00.3	22°00.6	22°01.0	22°01.3	22°05.7	22°06.0	22°06.4	22°06.7	22°07.0	22°07.4	+0.3
wo 2	180°31.5	195°31.4	210°31.3	225°31.2	240°31.1	255°31.0	90°29.7	105°29.6	120°29.5	135°29.4	150°29.3	165°29.2	-0.1
	22°07.7	22°08.0	22°08.4	22°08.7	22°09.0	22°09.4	22°13.5	22°13.9	22°14.2	22°14.5	22°14.8	22°15.1	+0.3
do 3	180°29.1	195°29.0	210°28.9	225°28.8	240°28.7	255°28.6	90°27.3	105°27.2	120°27.0	135°26.9	150°26.8	165°26.7	-0.1
	22°15.4	22°15.8	22°16.1	22°16.4	22°16.7	22°17.0	22°21.0	22°21.3	22°21.6	22°21.9	22°22.2	22°22.5	+0.3
vr 4	180°26.6	195°26.5	210°26.4	225°26.3	240°26.2	255°26.1	90°24.7	105°24.6	120°24.5	135°24.4	150°24.2	165°24.1	-0.1
	22°22.8	22°23.1	22°23.4	22°23.7	22°24.0	22°24.3	22°28.0	22°28.3	22°28.6	22°28.9	22°29.2	22°29.5	+0.3
za 5	180°24.0	195°23.9	210°23.8	225°23.7	240°23.6	255°23.5	90°22.0	105°21.9	120°21.8	135°21.7	150°21.6	165°21.5	-0.1
	22°29.7	22°30.0	22°30.3	22°30.6	22°30.9	22°31.1	22°34.7	22°35.0	22°35.2	22°35.5	22°35.8	22°36.0	+0.3
zo 6	180°21.3	195°21.2	210°21.1	225°21.0	240°20.9	255°20.8	90°19.3	105°19.2	120°19.1	135°18.9	150°18.8	165°18.7	-0.1
	22°36.3	22°36.6	22°36.8	22°37.1	22°37.4	22°37.6	22°41.0	22°41.2	22°41.5	22°41.7	22°42.0	22°42.2	+0.3
ma 7	180°18.6	195°18.5	210°18.4	225°18.2	240°18.1	255°18.0	90°16.5	105°16.4	120°16.2	135°16.1	150°16.0	165°15.9	-0.1
	22°42.5	22°42.7	22°43.0	22°43.2	22°43.5	22°43.7	22°46.8	22°47.1	22°47.3	22°47.5	22°47.8	22°48.0	+0.2
di 8	180°15.8	195°15.6	210°15.5	225°15.4	240°15.3	255°15.2	90°13.6	105°13.5	120°13.4	135°13.2	150°13.1	165°13.0	-0.1
	22°48.2	22°48.5	22°48.7	22°48.9	22°49.2	22°49.4	22°52.3	22°52.5	22°52.7	22°53.0	22°53.2	22°53.4	+0.2
wo 9	180°12.9	195°12.8	210°12.6	225°12.5	240°12.4	255°12.3	90°10.7	105°10.5	120°10.4	135°10.3	150°10.2	165°10.0	-0.1
	22°53.6	22°53.8	22°54.0	22°54.2	22°54.5	22°54.7	22°57.4	22°57.6	22°57.8	22°58.0	22°58.2	22°58.4	+0.2
do 10	180°09.9	195°09.8	210°09.7	225°09.6	240°09.4	255°09.3	90°07.7	105°07.5	120°07.4	135°07.3	150°07.2	165°07.0	-0.1
	22°58.6	22°58.8	22°59.0	22°59.2	22°59.3	22°59.5	23°02.0	23°02.2	23°02.4	23°02.6	23°02.8	23°02.9	+0.2
vr 11	180°06.9	195°06.8	210°06.7	225°06.5	240°06.4	255°06.3	90°04.6	105°04.5	120°04.4	135°04.3	150°04.1	165°04.0	-0.1
	23°03.1	23°03.3	23°03.5	23°03.7	23°03.8	23°04.0	23°06.3	23°06.4	23°06.6	23°06.8	23°06.9	23°07.1	+0.2
za 12	180°03.9	195°03.7	210°03.6	225°03.5	240°03.4	255°03.2	90°01.6	105°01.4	120°01.3	135°01.2	150°01.0	165°00.9	-0.1
	23°07.3	23°07.4	23°07.6	23°07.8	23°07.9	23°08.1	23°10.1	23°10.3	23°10.4	23°10.6	23°10.7	23°10.9	+0.2
zo 13	180°00.8	195°00.6	210°00.5	225°00.4	240°00.3	255°00.1	89°58.4	104°58.3	119°58.2	134°58.0	149°57.9	164°57.8	-0.1
	23°11.0	23°11.2	23°11.3	23°11.4	23°11.6	23°11.7	23°13.5	23°13.7	23°13.8	23°13.9	23°14.1	23°14.2	+0.1
ma 14	179°57.6	194°57.5	209°57.4	224°57.3	239°57.1	254°57.0	89°55.3	104°55.1	119°55.0	134°54.9	149°54.8	164°54.6	-0.1
	23°14.3	23°14.5	23°14.6	23°14.7	23°14.9	23°15.0	23°16.6	23°16.7	23°16.8	23°16.9	23°17.0	23°17.1	+0.1
di 15	179°54.5	194°54.4	209°54.2	224°54.1	239°54.0	254°53.8	89°52.1	104°52.0	119°51.8	134°51.7	149°51.6	164°51.4	-0.1
	23°17.3	23°17.4	23°17.5	23°17.6	23°17.7	23°17.8	23°19.2	23°19.3	23°19.4	23°19.5	23°19.6	23°19.7	+0.1
wo 16	179°51.3	194°51.2	209°51.0	224°50.9	239°50.8	254°50.6	89°48.9	104°48.8	119°48.6	134°48.5	149°48.4	164°48.2	-0.1
	23°19.8	23°19.9	23°20.0	23°20.1	23°20.2	23°20.2	23°21.4	23°21.5	23°21.6	23°21.6	23°21.7	23°21.8	+0.1
do 17	179°48.1	194°48.0	209°47.8	224°47.7	239°47.6	254°47.4	89°45.7	104°45.5	119°45.4	134°45.3	149°45.1	164°45.0	-0.1
	23°21.9	23°22.0	23°22.0	23°22.1	23°22.2	23°22.3	23°23.2	23°23.2	23°23.3	23°23.4	23°23.4	23°23.5	+0.1
vr 18	179°44.9	194°44.7	209°44.6	224°44.5	239°44.3	254°44.2	89°42.4	104°42.3	119°42.2	134°42.0	149°41.9	164°41.8	-0.1
	23°23.6	23°23.6	23°23.7	23°23.7	23°23.8	23°23.9	23°24.6	23°24.6	23°24.7	23°24.7	23°24.8	23°24.8	+0.1
za 19	179°41.6	194°41.5	209°41.3	224°41.2	239°41.1	254°40.9	89°39.2	104°39.0	119°38.9	134°38.8	149°38.6	164°38.5	-0.1
	23°24.8	23°24.9	23°24.9	23°25.0	23°25.0	23°25.1	23°25.5	23°25.6	23°25.6	23°25.6	23°25.7	23°25.7	+0.0
zo 20	179°38.4	194°38.2	209°38.1	224°38.0	239°37.8	254°37.7	89°35.9	104°35.8	119°35.7	134°35.5	149°35.4	164°35.3	-0.1
	23°25.7	23°25.7	23°25.8	23°25.8	23°25.8	23°25.8	23°26.1	23°26.1	23°26.1	23°26.1	23°26.1	23°26.1	+0.0
ma 21	179°35.1	194°35.0	209°34.9	224°34.7	239°34.6	254°34.4	89°32.7	104°32.6	119°32.4	134°32.3	149°32.1	164°32.0	-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
di 22	179°31.9	194°31.7	209°31.6	224°31.5	239°31.3	254°31.2	89°29.4	104°29.3	119°29.2	134°29.0	149°28.9	164°28.8	-0.1
	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	23°26.0	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	-0.0
wo 23	179°28.6	194°28.5	209°28.4	224°28.2	239°28.1	254°28.0	89°26.2	104°26.1	119°26.0	134°25.8	149°25.7	164°25.5	-0.1
	23°25.8	23°25.8	23°25.8	23°25.8	23°25.7	23°25.7	23°25.3	23°25.2	23°25.2	23°25.2	23°25.1	23°25.1	-0.0
do 24	179°25.4	194°25.3	209°25.1	224°25.0	239°24.9	254°24.7	89°23.0	104°22.9	119°22.7	134°22.6	149°22.5	164°22.3	-0.1
	23°25.0	23°25.0	23°25.0	23°24.9	23°24.9	23°24.8	23°24.2	23°24.1	23°24.1	23°24.0	23°24.0	23°23.9	-0.0
vr 25	179°22.2	194°22.1	209°21.9	224°21.8	239°21.7	254°21.5	89°19.8	104°19.7	119°19.6	134°19.4	149°19.3	164°19.2	-0.1
	23°23.8	23°23.8	23°23.7	23°23.7	23°23.6	23°23.5	23°22.7	23°22.6	23°22.5	23°22.5	23°22.4	23°22.3	-0.1
za 26	179°19.0	194°18.9	209°18.8	224°18.6	239°18.5	254°18.4	89°16.7	104°16.5	119°16.4	134°16.3	149°16.1	164°16.0	-0.1
	23°22.2	23°22.2	23°22.1	23°22.0	23°21.9	23°21.8	23°20.8	23°20.7	23°20.6	23°20.5	23°20.4	23°20.3	-0.1
zo 27	179°15.9	194°15.7	209°15.6	224°15.5	239°15.4	254°15.2	89°13.5	104°13.4	119°13.3	134°13.1	149°13.0	164°12.9	-0.1
	23°20.2	23°20.1	23°20.0	23°19.9	23°19.8	23°19.7	23°18.4	23°18.3	23°18.2	23°18.1	23°18.0	23°17.9	-0.1
ma 28	179°12.8	194°12.6	209°12.5	224°12.4	239°12.2	254°12.1	89°10.4	104°10.3	119°10.2	134°10.1	149°09.9	164°09.8	-0.1
	23°17.8	23°17.7	23°17.6	23°17.4	23°17.3	23°17.2	23°15.7	23°15.6	23°15.4	23°15.3	23°15.2	23°15.1	-0.1
di 29	179°09.7	194°09.6	209°09.4	224°09.3	239°09.2	254°09.0	89°07.4	104°07.3	119°07.1	134°07.0	149°06.9	164°06.8	-0.1
	23°14.9	23°14.8	23°14.7	23°14.5	23°14.4	23°14.3	23°12.5	23°12.4	23°12.3	23°12.1	23°12.0	23°11.8	-0.1
wo 30	179°06.6	194°06.5	209°06.4	224°06.3	239°06.1	254°06.0	89°04.4	104°04.3	119°04.2	134°04.0	149°03.9	164°03.8	-0.1
	23°11.7	23°11.5	23°11.4	23°11.2	23°11.1	23°11.0	23°09.0	23°08.8	23°08.7	23°08.5	23°08.3	23°08.2	-0.1

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2027

D	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
di 1	61°08.6	75°38.8	90°08.9	104°38.9	119°08.8	133°38.6	148°08.3	162°37.8	177°07.3	191°36.6	206°05.8	+29.7	15.8
	15°05.9	15°19.0	15°32.0	15°44.9	15°57.8	16°10.7	16°23.4	16°36.1	16°48.7	17°01.3	17°13.7	+12.8	57.9
wo 2	63°09.0	77°36.2	92°03.3	106°30.2	120°57.1	135°23.8	149°50.3	164°16.8	178°43.1	193°09.3	207°35.3	+26.6	16.0
	20°10.8	20°21.9	20°32.8	20°43.7	20°54.4	21°05.0	21°15.5	21°25.9	21°36.2	21°46.3	21°56.4	+10.6	58.8
do 3	63°50.9	78°15.0	92°38.9	107°02.7	121°26.5	135°50.1	150°13.5	164°36.9	179°00.2	193°23.3	207°46.4	+23.5	16.2
	24°11.1	24°18.9	24°26.6	24°34.1	24°41.5	24°48.7	24°55.8	25°02.6	25°09.4	25°15.9	25°22.3	+7.1	59.6
● vr 4	63°20.6	77°42.3	92°03.8	106°25.3	120°46.7	135°08.1	149°29.4	163°50.7	178°11.9	192°33.0	206°54.1	+21.3	16.4
	26°36.8	26°40.3	26°43.5	26°46.6	26°49.5	26°52.2	26°54.7	26°57.0	26°59.1	27°01.1	27°02.8	+2.6	60.2
za 5	62°07.5	76°28.3	90°49.1	105°09.9	119°30.8	133°51.7	148°12.5	162°33.5	176°54.4	191°15.4	205°36.4	+20.9	16.5
	27°03.9	27°00.2	27°00.6	26°58.6	26°56.5	26°54.1	26°51.5	26°48.7	26°45.7	26°42.5	26°39.1	-2.5	60.5
zo 6	60°57.4	75°19.3	89°41.3	104°03.3	118°25.5	132°47.7	147°10.1	161°32.5	175°55.0	190°17.6	204°40.3	+22.3	16.5
	25°24.6	25°18.1	25°11.4	25°04.5	24°57.5	24°50.3	24°42.9	24°35.3	24°27.5	24°19.6	24°11.5	-7.3	60.5
ma 7	60°32.8	74°57.2	89°21.7	103°46.2	118°10.9	132°35.7	147°00.7	161°25.7	175°50.9	190°16.1	204°41.5	+24.9	16.4
	21°50.6	21°40.0	21°29.3	21°18.4	21°07.4	20°56.2	20°44.9	20°33.5	20°22.0	20°10.3	19°58.6	-11.2	60.3
di 8	61°15.8	75°43.0	90°10.3	104°37.7	119°05.2	133°32.8	148°00.5	162°28.3	176°56.3	191°24.3	205°52.4	+27.7	16.3
	16°48.4	16°34.9	16°21.3	16°07.7	15°53.9	15°40.1	15°26.2	15°12.2	14°58.1	14°44.0	14°29.8	-13.9	59.9
wo 9	63°05.9	77°35.5	92°05.2	106°35.0	121°04.9	135°34.8	150°04.9	164°35.0	179°05.2	193°35.4	208°05.7	+30.0	16.2
	10°49.1	10°33.9	10°18.7	10°03.5	9°48.3	9°33.0	9°17.6	9°02.2	8°46.8	8°31.4	8°15.9	-15.3	59.3
do 10	65°48.5	80°19.8	94°51.2	109°22.6	123°54.1	138°25.6	152°57.1	167°28.7	182°00.3	196°32.0	211°03.7	+31.5	16.0
	4°21.4	4°05.7	3°49.9	3°34.2	3°18.4	3°02.7	2°46.9	2°31.2	2°15.4	1°59.7	1°43.9	-15.8	58.6
◐ vr 11	69°03.3	83°35.5	98°07.7	112°39.9	127°12.1	141°44.3	156°16.5	170°48.8	185°21.1	199°53.3	214°25.6	+32.2	15.8
	-2°10.6	-2°26.1	-2°41.6	-2°57.0	-3°12.4	-3°27.8	-3°43.1	-3°58.4	-4°13.7	-4°28.9	-4°44.1	-15.4	57.9
za 12	83°35.5	98°07.7	112°39.9	127°12.1	141°44.3	156°16.5	170°48.8	185°21.1	199°53.3	214°25.6	228°57.9	+32.2	15.8
	-2°26.1	-2°41.6	-2°57.0	-3°12.4	-3°27.8	-3°43.1	-3°58.4	-4°13.7	-4°28.9	-4°44.1	-4°59.3	-15.3	57.9
zo 13	87°02.0	101°34.2	116°06.4	130°38.6	145°10.8	159°42.9	174°15.0	188°47.2	203°19.3	217°51.3	232°23.4	+32.1	15.6
	-8°41.8	-8°56.3	-9°10.7	-9°25.0	-9°39.3	-9°53.6	-10°07.7	-10°21.9	-10°35.9	-10°49.9	-11°03.8	-14.2	57.2
ma 14	90°21.1	104°52.7	119°24.3	133°55.8	148°27.3	162°58.7	177°30.1	192°01.5	206°32.8	221°04.1	235°35.4	+31.4	15.4
	-14°24.8	-14°37.6	-14°50.4	-15°03.0	-15°15.6	-15°28.1	-15°40.5	-15°52.8	-16°05.1	-16°17.3	-16°29.3	-12.5	56.6
di 15	93°19.0	107°49.6	122°20.1	136°50.5	151°21.0	165°51.3	180°21.6	194°51.9	209°22.1	223°52.3	238°22.4	+30.3	15.3
	-19°19.6	-19°30.2	-19°40.7	-19°51.1	-20°01.3	-20°11.5	-20°21.6	-20°31.5	-20°41.4	-20°51.2	-21°00.8	-10.1	56.0
wo 16	95°48.6	110°18.0	124°47.3	139°16.6	153°45.9	168°15.1	182°44.3	197°13.4	211°42.5	226°11.5	240°40.6	+29.2	15.1
	-23°11.9	-23°19.7	-23°27.4	-23°35.0	-23°42.4	-23°49.8	-23°57.0	-24°04.0	-24°11.0	-24°17.8	-24°24.5	-7.3	55.5
do 17	97°51.5	112°20.0	126°48.5	141°17.0	155°45.4	170°13.8	184°42.2	199°10.5	213°38.9	228°07.2	242°35.5	+28.4	15.0
	-25°49.4	-25°54.0	-25°58.4	-26°02.7	-26°06.9	-26°11.0	-26°14.9	-26°18.7	-26°22.4	-26°25.9	-26°29.2	-4.0	55.0
vr 18	99°39.2	114°07.4	128°35.6	143°03.9	157°32.1	172°00.4	186°28.7	200°57.0	215°25.3	229°53.6	244°21.9	+28.3	14.9
	-27°03.2	-27°04.4	-27°05.4	-27°06.3	-27°07.0	-27°07.6	-27°08.1	-27°08.4	-27°08.6	-27°08.6	-27°08.6	-0.5	54.7
○ za 19	101°29.7	115°58.5	130°27.3	144°56.1	159°25.0	173°53.9	188°22.9	202°51.9	217°21.0	231°50.0	246°19.2	+28.9	14.8
	-26°50.8	-26°48.6	-26°46.2	-26°43.6	-26°41.0	-26°38.2	-26°35.3	-26°32.2	-26°29.1	-26°25.8	-26°22.3	+2.8	54.4
zo 20	103°42.4	118°12.4	132°42.4	147°12.5	161°42.7	176°12.9	190°43.2	205°13.5	219°43.9	234°14.4	248°45.0	+30.3	14.8
	-25°16.0	-25°10.6	-25°05.1	-24°59.5	-24°53.7	-24°47.9	-24°41.9	-24°35.8	-24°29.7	-24°23.4	-24°16.9	+5.9	54.1
ma 21	106°30.8	121°02.3	135°34.0	150°05.7	164°37.5	179°09.3	193°41.2	208°13.2	222°45.2	237°17.3	251°49.5	+31.9	14.7
	-22°28.2	-22°20.1	-22°11.9	-22°03.7	-21°55.4	-21°46.9	-21°38.4	-21°29.8	-21°21.1	-21°12.3	-21°03.4	+8.5	54.0
di 22	109°59.7	124°32.9	139°06.1	153°39.4	168°12.8	182°46.2	197°19.6	211°53.2	226°26.7	241°00.4	255°34.1	+33.4	14.7
	-18°39.9	-18°29.7	-18°19.4	-18°09.0	-17°58.6	-17°48.1	-17°37.6	-17°26.9	-17°16.2	-17°05.4	-16°54.6	+10.5	54.0
wo 23	114°05.6	128°40.1	143°14.6	157°49.2	172°23.8	186°58.4	201°33.1	216°07.9	230°42.6	245°17.4	259°52.3	+34.7	14.8
	-14°04.3	-13°52.4	-13°40.6	-13°28.6	-13°16.6	-13°04.6	-12°52.5	-12°40.3	-12°28.1	-12°15.9	-12°03.6	+12.1	54.1
do 24	118°38.6	133°13.9	147°49.2	162°24.5	176°59.9	191°35.3	206°10.6	220°46.0	235°21.5	249°56.9	264°32.3	+35.4	14.8
	-8°53.6	-8°40.7	-8°27.6	-8°14.6	-8°01.5	-7°48.3	-7°35.1	-7°21.9	-7°08.7	-6°55.4	-6°42.1	+13.2	54.4
vr 25	123°24.7	138°00.2	152°35.7	167°11.2	181°46.6	196°22.1	210°57.5	225°33.0	240°08.4	254°43.8	269°19.2	+35.5	15.0
	-3°19.1	-3°05.4	-2°51.7	-2°37.9	-2°24.1	-2°10.3	-1°56.5	-1°42.7	-1°28.8	-1°14.9	-1°01.0	+13.8	54.8
za 26	128°07.4	142°42.4	157°17.3	171°52.2	186°27.1	201°01.9	215°36.7	230°11.5	244°46.2	259°20.8	273°55.4	+34.8	15.1
	2°28.6	2°42.7	2°56.7	3°10.7	3°24.8	3°38.8	3°52.8	4°06.9	4°20.9	4°34.9	4°49.0	+14.0	55.4
◑ zo 27	132°28.1	147°01.8	161°35.4	176°09.0	190°42.5	205°15.9	219°49.2	234°22.5	248°55.7	263°28.8	278°01.8	+33.4	15.3
	8°18.4	8°32.2	8°46.0	8°59.8	9°13.6	9°27.4	9°41.1	9°54.9	10°08.5	10°22.2	10°35.9	+13.8	56.2
ma 28	136°06.9	150°38.4	165°09.9	179°41.3	194°12.6	208°43.8	223°14.9	237°45.8	252°16.7	266°47.4	281°18.1	+31.1	15.6
	13°56.3	14°09.3	14°22.3	14°35.2	14°48.1	15°01.0	15°13.7	15°26.4	15°39.1	15°51.7	16°04.3	+12.8	57.1
di 29	138°43.8	153°12.5	167°41.1	182°09.6	196°38.0	211°06.2	225°34.3	240°02.3	254°30.2	268°57.9	283°25.5	+28.2	15.8
	19°04.2	19°15.6	19°26.9	19°38.1	19°49.2	20°00.2	20°11.1	20°21.9	20°32.6	20°43.3	20°53.8	+11.0	58.0
wo 30	140°03.4	154°28.9	168°54.2	183°19.4	197°44.5	212°09.5	226°34.3	240°59.0	255°23.5	269°48.0	284°12.3	+24.9	16.1
	23°18.2	23°26.8	23°35.3	23°43.7	23°51.9	24°00.0	24°07.9	24°15.7	24°23.4	24°30.9	24°38.3	+8.0	59.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 4 19h40 — EK: 11 10h56 — VM: 19 00h44 — LK: 27 04h54

ZON

Juli 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	179°03.7	194°03.5	209°03.4	224°03.3	239°03.2	254°03.1	89°01.5	104°01.3	119°01.2	134°01.1	149°01.0	164°00.9	-0.1
	23°08.0	23°07.9	23°07.7	23°07.5	23°07.4	23°07.2	23°05.0	23°04.8	23°04.7	23°04.5	23°04.3	23°04.1	-0.2
vr 2	179°00.7	194°00.6	209°00.5	224°00.4	239°00.3	254°00.1	88°58.6	103°58.5	118°58.4	133°58.2	148°58.1	163°58.0	-0.1
	23°04.0	23°03.8	23°03.6	23°03.4	23°03.2	23°03.1	23°00.6	23°00.5	23°00.3	23°00.1	22°59.9	22°59.7	-0.2
za 3	178°57.9	193°57.8	208°57.7	223°57.5	238°57.4	253°57.3	88°55.8	103°55.7	118°55.6	133°55.4	148°55.3	163°55.2	-0.1
	22°59.5	22°59.3	22°59.1	22°58.9	22°58.7	22°58.5	22°55.9	22°55.7	22°55.5	22°55.2	22°55.0	22°54.8	-0.2
zo 4	178°55.1	193°55.0	208°54.9	223°54.8	238°54.6	253°54.5	88°53.1	103°53.0	118°52.8	133°52.7	148°52.6	163°52.5	-0.1
	22°54.6	22°54.4	22°54.2	22°54.0	22°53.8	22°53.6	22°50.7	22°50.5	22°50.3	22°50.0	22°49.8	22°49.6	-0.2
ma 5	178°52.4	193°52.3	208°52.2	223°52.1	238°52.0	253°51.8	88°50.4	103°50.3	118°50.2	133°50.1	148°50.0	163°49.9	-0.1
	22°49.3	22°49.1	22°48.9	22°48.7	22°48.4	22°48.2	22°45.1	22°44.9	22°44.7	22°44.4	22°44.2	22°43.9	-0.2
di 6	178°49.8	193°49.7	208°49.6	223°49.5	238°49.3	253°49.2	88°47.9	103°47.8	118°47.7	133°47.6	148°47.5	163°47.3	-0.1
	22°43.7	22°43.4	22°43.2	22°42.9	22°42.7	22°42.5	22°39.2	22°38.9	22°38.7	22°38.4	22°38.1	22°37.9	-0.2
wo 7	178°47.2	193°47.1	208°47.0	223°46.9	238°46.8	253°46.7	88°45.4	103°45.3	118°45.2	133°45.1	148°45.0	163°44.9	-0.1
	22°37.6	22°37.4	22°37.1	22°36.8	22°36.6	22°36.3	22°32.8	22°32.5	22°32.3	22°32.0	22°31.7	22°31.4	-0.3
do 8	178°44.8	193°44.7	208°44.6	223°44.5	238°44.4	253°44.3	88°43.0	103°43.0	118°42.9	133°42.8	148°42.7	163°42.6	-0.1
	22°31.2	22°30.9	22°30.6	22°30.3	22°30.1	22°29.8	22°26.1	22°25.8	22°25.5	22°25.2	22°24.9	22°24.6	-0.3
vr 9	178°42.5	193°42.4	208°42.3	223°42.2	238°42.1	253°42.0	88°40.8	103°40.7	118°40.6	133°40.5	148°40.4	163°40.3	-0.1
	22°24.3	22°24.0	22°23.7	22°23.4	22°23.1	22°22.8	22°18.9	22°18.6	22°18.3	22°18.0	22°17.7	22°17.4	-0.3
za 10	178°40.2	193°40.2	208°40.1	223°40.0	238°39.9	253°39.8	88°38.7	103°38.6	118°38.5	133°38.4	148°38.3	163°38.2	-0.1
	22°17.1	22°16.8	22°16.5	22°16.2	22°15.9	22°15.5	22°11.4	22°11.1	22°10.8	22°10.5	22°10.1	22°09.8	-0.3
zo 11	178°38.1	193°38.0	208°38.0	223°37.9	238°37.8	253°37.7	88°36.6	103°36.5	118°36.5	133°36.4	148°36.3	163°36.2	-0.1
	22°09.5	22°09.2	22°08.8	22°08.5	22°08.2	22°07.8	22°03.5	22°03.2	22°02.8	22°02.5	22°02.2	22°01.8	-0.3
ma 12	178°36.1	193°36.1	208°36.0	223°35.9	238°35.8	253°35.7	88°34.7	103°34.6	118°34.6	133°34.5	148°34.4	163°34.3	-0.1
	22°01.5	22°01.2	22°00.8	22°00.5	22°00.1	21°59.8	21°55.2	21°54.9	21°54.5	21°54.2	21°53.8	21°53.5	-0.3
di 13	178°34.3	193°34.2	208°34.1	223°34.0	238°34.0	253°33.9	88°32.9	103°32.9	118°32.8	133°32.7	148°32.6	163°32.6	-0.1
	21°53.1	21°52.8	21°52.4	21°52.1	21°51.7	21°51.3	21°46.6	21°46.2	21°45.9	21°45.5	21°45.1	21°44.8	-0.4
wo 14	178°32.5	193°32.4	208°32.4	223°32.3	238°32.2	253°32.1	88°31.3	103°31.2	118°31.1	133°31.1	148°31.0	163°30.9	-0.1
	21°44.4	21°44.0	21°43.6	21°43.3	21°42.9	21°42.5	21°37.6	21°37.2	21°36.8	21°36.4	21°36.0	21°35.7	-0.4
do 15	178°30.9	193°30.8	208°30.7	223°30.7	238°30.6	253°30.5	88°29.7	103°29.7	118°29.6	133°29.5	148°29.5	163°29.4	-0.1
	21°35.3	21°34.9	21°34.5	21°34.1	21°33.7	21°33.3	21°28.2	21°27.8	21°27.4	21°27.0	21°26.6	21°26.2	-0.4
vr 16	178°29.4	193°29.3	208°29.2	223°29.2	238°29.1	253°29.1	88°28.3	103°28.3	118°28.2	133°28.1	148°28.1	163°28.0	-0.1
	21°25.8	21°25.4	21°25.0	21°24.6	21°24.2	21°23.8	21°18.4	21°18.0	21°17.6	21°17.2	21°16.8	21°16.4	-0.4
za 17	178°28.0	193°27.9	208°27.9	223°27.8	238°27.8	253°27.7	88°27.0	103°27.0	118°26.9	133°26.9	148°26.8	163°26.8	-0.1
	21°15.9	21°15.5	21°15.1	21°14.7	21°14.3	21°13.9	21°08.3	21°07.9	21°07.5	21°07.0	21°06.6	21°06.2	-0.4
zo 18	178°26.7	193°26.7	208°26.6	223°26.6	238°26.5	253°26.5	88°25.9	103°25.8	118°25.8	133°25.7	148°25.7	163°25.7	-0.0
	21°05.7	21°05.3	21°04.9	21°04.4	21°04.0	21°03.6	20°57.9	20°57.4	20°57.0	20°56.5	20°56.1	20°55.6	-0.4
ma 19	178°25.6	193°25.6	208°25.5	223°25.5	238°25.4	253°25.4	88°24.9	103°24.8	118°24.8	133°24.8	148°24.7	163°24.7	-0.0
	20°55.2	20°54.7	20°54.3	20°53.8	20°53.4	20°52.9	20°47.0	20°46.6	20°46.1	20°45.7	20°45.2	20°44.7	-0.4
di 20	178°24.6	193°24.6	208°24.6	223°24.5	238°24.5	253°24.5	88°24.0	103°24.0	118°23.9	133°23.9	148°23.9	163°23.8	-0.0
	20°44.3	20°43.8	20°43.4	20°42.9	20°42.4	20°42.0	20°35.9	20°35.4	20°34.9	20°34.4	20°34.0	20°33.5	-0.5
wo 21	178°23.8	193°23.8	208°23.7	223°23.7	238°23.7	253°23.6	88°23.3	103°23.2	118°23.2	133°23.2	148°23.2	163°23.1	-0.0
	20°33.0	20°32.5	20°32.1	20°31.6	20°31.1	20°30.6	20°24.4	20°23.9	20°23.4	20°22.9	20°22.4	20°21.9	-0.5
do 22	178°23.1	193°23.1	208°23.1	223°23.0	238°23.0	253°23.0	88°22.7	103°22.7	118°22.6	133°22.6	148°22.6	163°22.6	-0.0
	20°21.4	20°20.9	20°20.4	20°19.9	20°19.5	20°19.0	20°12.5	20°12.0	20°11.5	20°11.0	20°10.5	20°10.0	-0.5
vr 23	178°22.5	193°22.5	208°22.5	223°22.5	238°22.5	253°22.4	88°22.2	103°22.2	118°22.2	133°22.2	148°22.2	163°22.1	-0.0
	20°09.5	20°09.0	20°08.5	20°08.0	20°07.4	20°06.9	20°00.3	19°59.8	19°59.3	19°58.7	19°58.2	19°57.7	-0.5
za 24	178°22.1	193°22.1	208°22.1	223°22.1	238°22.1	253°22.1	88°21.9	103°21.9	118°21.9	133°21.9	148°21.9	163°21.9	-0.0
	19°57.2	19°56.7	19°56.2	19°55.6	19°55.1	19°54.6	19°47.8	19°47.2	19°46.7	19°46.2	19°45.6	19°45.1	-0.5
zo 25	178°21.9	193°21.8	208°21.8	223°21.8	238°21.8	253°21.8	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	19°44.6	19°44.0	19°43.5	19°43.0	19°42.4	19°41.9	19°34.9	19°34.4	19°33.8	19°33.3	19°32.7	19°32.2	-0.5
ma 26	178°21.7	193°21.7	208°21.7	223°21.7	238°21.7	253°21.7	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	19°31.6	19°31.1	19°30.5	19°30.0	19°29.4	19°28.9	19°21.7	19°21.1	19°20.6	19°20.0	19°19.5	19°18.9	-0.5
di 27	178°21.7	193°21.7	208°21.7	223°21.7	238°21.8	253°21.8	88°21.8	103°21.8	118°21.9	133°21.9	148°21.9	163°21.9	+0.0
	19°18.4	19°17.8	19°17.2	19°16.7	19°16.1	19°15.5	19°08.2	19°07.6	19°07.0	19°06.5	19°05.9	19°05.3	-0.6
wo 28	178°21.9	193°21.9	208°21.9	223°21.9	238°21.9	253°21.9	88°22.1	103°22.1	118°22.1	133°22.2	148°22.2	163°22.2	+0.0
	19°04.8	19°04.2	19°03.6	19°03.0	19°02.5	19°01.9	18°54.4	18°53.8	18°53.2	18°52.6	18°52.0	18°51.4	-0.6
do 29	178°22.2	193°22.2	208°22.2	223°22.2	238°22.3	253°22.3	88°22.5	103°22.5	118°22.6	133°22.6	148°22.6	163°22.6	+0.0
	18°50.9	18°50.3	18°49.7	18°49.1	18°48.5	18°47.9	18°40.2	18°39.6	18°39.0	18°38.4	18°37.8	18°37.2	-0.6
vr 30	178°22.6	193°22.7	208°22.7	223°22.7	238°22.7	253°22.8	88°23.1	103°23.1	118°23.1	133°23.2	148°23.2	163°23.2	+0.0
	18°36.6	18°36.0	18°35.4	18°34.8	18°34.2	18°33.6	18°25.8	18°25.2	18°24.5	18°23.9	18°23.3	18°22.7	-0.6
za 31	178°23.2	193°23.3	208°23.3	223°23.3	238°23.4	253°23.4	88°23.8	103°23.8	118°23.9	133°23.9	148°23.9	163°24.0	+0.0
	18°22.1	18°21.5	18°20.9	18°20.3	18°19.7	18°19.0	18°11.0	18°10.4	18°09.8	18°09.1	18°08.5	18°07.9	-0.6

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\mathrm{h} = v$: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), $\Delta'/\mathrm{h} = d$: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2027

D	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
do 1	68°08.7	82°31.7	96°54.6	111°17.3	125°40.0	140°02.6	154°25.1	168°47.4	183°09.7	197°31.9	211°53.9	+22.5	16.3
	25°43.2	25°48.8	25°54.3	25°59.5	26°04.6	26°09.5	26°14.2	26°18.7	26°23.1	26°27.3	26°31.3	+4.8	59.7
vr 2	67°15.4	81°36.4	95°57.2	110°18.0	124°38.8	138°59.6	153°20.3	167°40.9	182°01.6	196°22.2	210°42.8	+20.7	16.5
	27°08.1	27°09.0	27°09.6	27°10.1	27°10.4	27°10.4	27°10.3	27°09.9	27°09.3	27°08.5	27°07.6	-0.1	60.5
za 3	65°51.1	80°11.8	94°32.5	108°53.2	123°14.0	137°34.8	151°55.7	166°16.6	180°37.5	194°58.5	209°19.6	+20.8	16.6
	26°27.8	26°23.5	26°19.0	26°14.3	26°09.3	26°04.2	25°58.9	25°53.4	25°47.6	25°41.7	25°35.6	-5.2	61.0
● zo 4	64°43.7	79°06.0	93°28.4	107°50.8	122°13.3	136°36.0	150°58.7	165°21.6	179°44.5	194°07.5	208°30.7	+22.7	16.7
	23°41.0	23°31.9	23°22.6	23°13.2	23°03.6	22°53.8	22°43.9	22°33.8	22°23.5	22°13.1	22°02.5	-9.9	61.1
ma 5	64°30.7	78°55.6	93°20.6	107°45.7	122°11.0	136°36.3	151°01.8	165°27.3	179°53.0	194°18.8	208°44.7	+25.4	16.6
	19°06.4	18°53.6	18°40.7	18°27.7	18°14.5	18°01.3	17°47.9	17°34.4	17°20.8	17°07.1	16°53.3	-13.3	60.9
di 6	65°26.2	79°53.8	94°21.5	108°49.3	123°17.2	137°45.2	152°13.3	166°41.5	181°09.8	195°38.2	210°06.6	+28.0	16.5
	13°15.7	13°00.5	12°45.3	12°30.1	12°14.8	11°59.4	11°44.0	11°28.5	11°12.9	10°57.4	10°41.7	-15.4	60.5
wo 7	67°23.8	81°53.6	96°23.4	110°53.3	125°23.3	139°53.3	154°23.4	168°53.6	183°23.9	197°54.2	212°24.5	+30.1	16.3
	6°42.6	6°26.5	6°10.3	5°54.1	5°37.9	5°21.7	5°05.5	4°49.3	4°33.0	4°16.8	4°00.5	-16.2	59.7
do 8	70°06.1	84°37.3	99°08.4	113°39.6	128°10.9	142°42.2	157°13.5	171°44.8	186°16.2	200°47.6	215°19.0	+31.3	16.1
	-0°02.6	-0°18.7	-0°34.7	-0°50.8	-1°06.8	-1°22.8	-1°38.8	-1°54.8	-2°10.7	-2°26.6	-2°42.4	-16.0	58.9
vr 9	73°12.6	87°44.3	102°16.0	116°47.6	131°19.3	145°51.0	160°22.7	174°54.4	189°26.1	203°57.8	218°29.5	+31.7	15.8
	-6°35.7	-6°50.9	-7°06.1	-7°21.1	-7°36.2	-7°51.1	-8°06.1	-8°20.9	-8°35.7	-8°50.5	-9°05.2	-14.9	58.0
◐ za 10	76°23.7	90°55.2	105°26.7	119°58.1	134°29.5	149°01.0	163°32.4	178°03.7	192°35.1	207°06.4	221°37.7	+31.4	15.6
	-12°37.6	-12°51.2	-13°04.8	-13°18.2	-13°31.6	-13°44.9	-13°58.1	-14°11.2	-14°24.2	-14°37.2	-14°50.1	-13.2	57.2
zo 11	90°55.2	105°26.7	119°58.1	134°29.5	149°01.0	163°32.4	178°03.7	192°35.1	207°06.4	221°37.7	236°08.9	+31.4	15.6
	-12°51.2	-13°04.8	-13°18.2	-13°31.6	-13°44.9	-13°58.1	-14°11.2	-14°24.2	-14°37.2	-14°50.1	-15°02.9	-13.2	57.1
ma 12	93°54.2	108°25.0	122°55.7	137°26.4	151°57.0	166°27.6	180°58.2	195°28.7	209°59.2	224°29.6	239°00.0	+30.6	15.4
	-18°04.0	-18°15.4	-18°26.6	-18°37.7	-18°48.8	-18°59.7	-19°10.5	-19°21.2	-19°31.9	-19°42.4	-19°52.8	-10.9	56.3
di 13	96°31.4	111°01.1	125°30.8	140°00.5	154°30.2	168°59.8	183°29.4	197°58.9	212°28.4	226°57.9	241°27.3	+29.6	15.2
	-22°15.9	-22°24.5	-22°33.0	-22°41.4	-22°49.7	-22°57.8	-23°05.9	-23°13.8	-23°21.6	-23°29.3	-23°36.8	-8.1	55.7
wo 14	98°44.4	113°13.2	127°42.1	142°10.9	156°39.7	171°08.5	185°37.3	200°06.0	214°34.7	229°03.4	243°32.0	+28.8	15.0
	-25°15.2	-25°20.7	-25°26.1	-25°31.4	-25°36.5	-25°41.5	-25°46.4	-25°51.1	-25°55.7	-26°00.2	-26°04.5	-4.9	55.1
do 15	100°40.0	115°08.5	129°36.9	144°05.4	158°33.8	173°02.3	187°30.7	201°59.2	216°27.6	230°56.1	245°24.6	+28.4	14.9
	-26°53.4	-26°55.6	-26°57.6	-26°59.5	-27°01.2	-27°02.9	-27°04.3	-27°05.7	-27°06.9	-27°08.0	-27°08.9	-1.5	54.7
vr 16	102°33.0	117°01.7	131°30.5	145°59.3	160°28.1	174°56.9	189°25.7	203°54.6	218°23.6	232°52.5	247°21.5	+28.8	14.8
	-27°06.5	-27°05.3	-27°03.9	-27°02.4	-27°00.8	-26°59.0	-26°57.1	-26°55.0	-26°52.9	-26°50.6	-26°48.1	+1.8	54.3
za 17	104°41.2	119°10.8	133°40.6	148°10.3	162°40.2	177°10.0	191°40.0	206°10.0	220°40.0	235°10.1	249°40.3	+29.9	14.8
	-25°56.3	-25°51.8	-25°47.2	-25°42.5	-25°37.7	-25°32.8	-25°27.7	-25°22.6	-25°17.3	-25°11.9	-25°06.3	+5.0	54.1
○ zo 18	107°19.5	121°50.6	136°21.8	150°53.0	165°24.3	179°55.7	194°27.1	208°58.6	223°30.1	238°01.7	252°33.4	+31.4	14.7
	-23°30.0	-23°22.7	-23°15.3	-23°07.9	-23°00.3	-22°52.6	-22°44.8	-22°36.9	-22°28.9	-22°20.8	-22°12.7	+7.7	54.0
ma 19	110°36.1	125°08.7	139°41.5	154°14.3	168°47.2	183°20.1	197°53.1	212°26.1	226°59.2	241°32.4	256°05.6	+33.0	14.7
	-19°59.0	-19°49.4	-19°39.7	-19°29.9	-19°20.1	-19°10.1	-19°00.1	-18°50.0	-18°39.9	-18°29.6	-18°19.3	+10.0	53.9
di 20	114°30.6	129°04.7	143°38.8	158°13.0	172°47.3	187°21.5	201°55.9	216°30.3	231°04.7	245°39.2	260°13.7	+34.3	14.7
	-15°36.2	-15°24.8	-15°13.4	-15°01.8	-14°50.3	-14°38.6	-14°26.9	-14°15.2	-14°03.4	-13°51.5	-13°39.6	+11.7	54.0
wo 21	118°56.2	133°31.3	148°06.5	162°41.7	177°16.9	191°52.1	206°27.4	221°02.7	235°38.0	250°13.3	264°48.7	+35.3	14.8
	-10°34.8	-10°22.1	-10°09.4	-9°56.6	-9°43.8	-9°31.0	-9°18.1	-9°05.2	-8°52.2	-8°39.2	-8°26.2	+12.9	54.1
do 22	123°41.4	138°17.0	152°52.7	167°28.3	182°03.9	196°39.6	211°15.2	225°50.9	240°26.5	255°02.2	269°37.8	+35.6	14.8
	-5°07.0	-4°53.5	-4°39.9	-4°26.4	-4°12.8	-3°59.3	-3°45.6	-3°32.0	-3°18.4	-3°04.7	-2°51.0	+13.6	54.4
vr 23	128°31.8	143°07.3	157°42.8	172°18.2	186°53.7	201°29.1	216°04.5	230°39.8	245°15.2	259°50.5	274°25.8	+35.4	15.0
	0°35.8	0°49.7	1°03.5	1°17.4	1°31.3	1°45.2	1°59.0	2°12.9	2°26.8	2°40.7	2°54.6	+13.9	54.8
za 24	133°10.9	147°45.5	162°20.2	176°54.7	191°29.3	206°03.7	220°38.2	235°12.5	249°46.8	264°21.1	278°55.3	+34.4	15.1
	6°22.2	6°35.9	6°49.7	7°03.4	7°17.1	7°30.8	7°44.5	7°58.2	8°11.8	8°25.4	8°39.0	+13.7	55.4
zo 25	137°20.5	151°53.6	166°26.7	180°59.6	195°32.5	210°05.3	224°38.0	239°10.6	253°43.1	268°15.6	282°47.9	+32.7	15.3
	11°59.8	12°12.9	12°26.0	12°39.0	12°52.0	13°05.0	13°17.9	13°30.7	13°43.6	13°56.4	14°09.1	+12.9	56.1
◑ ma 26	140°42.0	155°12.8	169°43.5	184°14.1	198°44.6	213°14.9	227°45.2	242°15.3	256°45.4	271°15.3	285°45.1	+30.3	15.5
	17°13.5	17°25.3	17°37.1	17°48.7	18°00.3	18°11.8	18°23.3	18°34.6	18°45.9	18°57.1	19°08.2	+11.5	56.9
di 27	142°58.1	157°26.0	171°53.8	186°21.4	200°49.0	215°16.4	229°43.6	244°10.8	258°37.8	273°04.7	287°31.5	+27.3	15.8
	21°44.4	21°54.0	22°03.5	22°12.9	22°22.2	22°31.4	22°40.4	22°49.4	22°58.2	23°06.9	23°15.5	+9.1	57.8
wo 28	143°58.3	158°23.1	172°47.8	187°12.4	201°36.9	216°01.2	230°25.5	244°49.6	259°13.6	273°37.5	288°01.3	+24.3	16.0
	25°08.5	25°14.9	25°21.2	25°27.3	25°33.3	25°39.0	25°44.7	25°50.2	25°55.5	26°00.6	26°05.6	+5.7	58.8
do 29	143°46.5	158°08.8	172°31.1	186°53.2	201°15.3	215°37.3	229°59.3	244°21.2	258°43.0	273°04.8	287°26.5	+22.0	16.3
	26°59.7	27°01.9	27°03.9	27°05.7	27°07.3	27°08.7	27°09.9	27°10.9	27°11.7	27°12.4	27°12.8	+1.3	59.7
vr 30	142°47.4	157°08.6	171°29.8	185°51.0	200°12.2	214°33.4	228°54.5	243°15.7	257°36.9	271°58.2	286°19.4	+21.2	16.5
	26°55.5	26°52.7	26°49.8	26°46.6	26°43.2	26°39.6	26°35.9	26°31.9	26°27.7	26°23.3	26°18.7	-3.7	60.5
za 31	141°41.6	156°03.4	170°25.3	184°47.3	199°09.3	213°31.4	227°53.5	242°15.8	256°38.0	271°00.4	285°22.8	+22.1	16.6
	24°46.2	24°38.5	24°30.6	24°22.5	24°14.3	24°05.8	23°57.2	23°48.4	23°39.4	23°30.2	23°20.9	-8.5	61.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 4 03h02 — EK: 10 18h39 — VM: 18 15h44 — LK: 26 16h54

ZON

Augustus 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	178°24.0	193°24.0	208°24.1	223°24.1	238°24.1	253°24.2	88°24.7	103°24.7	118°24.7	133°24.8	148°24.8	163°24.9	+0.0
	18°07.3	18°06.6	18°06.0	18°05.4	18°04.8	18°04.1	17°56.0	17°55.3	17°54.7	17°54.1	17°53.4	17°52.8	-0.6
ma 2	178°24.9	193°24.9	208°25.0	223°25.0	238°25.1	253°25.1	88°25.7	103°25.7	118°25.8	133°25.8	148°25.8	163°25.9	+0.0
	17°52.1	17°51.5	17°50.9	17°50.2	17°49.6	17°49.0	17°40.6	17°40.0	17°39.3	17°38.7	17°38.0	17°37.4	-0.6
di 3	178°25.9	193°26.0	208°26.0	223°26.1	238°26.1	253°26.2	88°26.8	103°26.9	118°26.9	133°27.0	148°27.0	163°27.1	+0.0
	17°36.7	17°36.1	17°35.4	17°34.8	17°34.1	17°33.5	17°25.0	17°24.3	17°23.7	17°23.0	17°22.3	17°21.7	-0.6
wo 4	178°27.1	193°27.2	208°27.2	223°27.3	238°27.4	253°27.4	88°28.1	103°28.2	118°28.3	133°28.3	148°28.4	163°28.4	+0.1
	17°21.0	17°20.4	17°19.7	17°19.0	17°18.4	17°17.7	17°09.1	17°08.4	17°07.7	17°07.1	17°06.4	17°05.7	-0.7
do 5	178°28.5	193°28.6	208°28.6	223°28.7	238°28.7	253°28.8	88°29.6	103°29.7	118°29.7	133°29.8	148°29.9	163°29.9	+0.1
	17°05.0	17°04.4	17°03.7	17°03.0	17°02.4	17°01.7	16°52.9	16°52.2	16°51.5	16°50.8	16°50.2	16°49.5	-0.7
vr 6	178°30.0	193°30.1	208°30.1	223°30.2	238°30.3	253°30.3	88°31.2	103°31.3	118°31.4	133°31.5	148°31.5	163°31.6	+0.1
	16°48.8	16°48.1	16°47.4	16°46.7	16°46.1	16°45.4	16°36.4	16°35.7	16°35.0	16°34.3	16°33.6	16°33.0	-0.7
za 7	178°31.7	193°31.7	208°31.8	223°31.9	238°32.0	253°32.0	88°33.0	103°33.1	118°33.2	133°33.2	148°33.3	163°33.4	+0.1
	16°32.3	16°31.6	16°30.9	16°30.2	16°29.5	16°28.8	16°19.7	16°19.0	16°18.3	16°17.6	16°16.9	16°16.2	-0.7
zo 8	178°33.5	193°33.6	208°33.6	223°33.7	238°33.8	253°33.9	88°34.9	103°35.0	118°35.1	133°35.2	148°35.3	163°35.4	+0.1
	16°15.5	16°14.8	16°14.1	16°13.3	16°12.6	16°11.9	16°02.7	16°02.0	16°01.3	16°00.6	15°59.8	15°59.1	-0.7
ma 9	178°35.5	193°35.5	208°35.6	223°35.7	238°35.8	253°35.9	88°37.0	103°37.1	118°37.2	133°37.3	148°37.4	163°37.5	+0.1
	15°58.4	15°57.7	15°57.0	15°56.3	15°55.5	15°54.8	15°45.5	15°44.7	15°44.0	15°43.3	15°42.6	15°41.8	-0.7
di 10	178°37.6	193°37.7	208°37.8	223°37.8	238°37.9	253°38.0	88°39.3	103°39.4	118°39.4	133°39.5	148°39.6	163°39.7	+0.1
	15°41.1	15°40.4	15°39.6	15°38.9	15°38.2	15°37.5	15°28.0	15°27.2	15°26.5	15°25.8	15°25.0	15°24.3	-0.7
wo 11	178°39.8	193°39.9	208°40.0	223°40.1	238°40.2	253°40.3	88°41.6	103°41.7	118°41.8	133°41.9	148°42.0	163°42.1	+0.1
	15°23.5	15°22.8	15°22.1	15°21.3	15°20.6	15°19.9	15°10.2	15°09.5	15°08.7	15°08.0	15°07.2	15°06.5	-0.7
do 12	178°42.2	193°42.4	208°42.5	223°42.6	238°42.7	253°42.8	88°44.2	103°44.3	118°44.4	133°44.5	148°44.6	163°44.7	+0.1
	15°05.7	15°05.0	15°04.3	15°03.5	15°02.8	15°02.0	14°52.2	14°51.5	14°50.7	14°50.0	14°49.2	14°48.5	-0.7
vr 13	178°44.8	193°44.9	208°45.0	223°45.1	238°45.2	253°45.4	88°46.8	103°46.9	118°47.0	133°47.2	148°47.3	163°47.4	+0.1
	14°47.7	14°46.9	14°46.2	14°45.4	14°44.7	14°43.9	14°34.0	14°33.3	14°32.5	14°31.7	14°31.0	14°30.2	-0.8
za 14	178°47.5	193°47.6	208°47.7	223°47.9	238°48.0	253°48.1	88°49.6	103°49.7	118°49.9	133°50.0	148°50.1	163°50.2	+0.1
	14°29.4	14°28.7	14°27.9	14°27.1	14°26.4	14°25.6	14°15.6	14°14.8	14°14.0	14°13.3	14°12.5	14°11.7	-0.8
zo 15	178°50.3	193°50.5	208°50.6	223°50.7	238°50.8	253°50.9	88°52.6	103°52.7	118°52.8	133°52.9	148°53.1	163°53.2	+0.1
	14°10.9	14°10.2	14°09.4	14°08.6	14°07.8	14°07.0	13°56.9	13°56.1	13°55.3	13°54.6	13°53.8	13°53.0	-0.8
ma 16	178°53.3	193°53.4	208°53.6	223°53.7	238°53.8	253°53.9	88°55.6	103°55.8	118°55.9	133°56.0	148°56.2	163°56.3	+0.1
	13°52.2	13°51.4	13°50.6	13°49.8	13°49.1	13°48.3	13°38.0	13°37.2	13°36.4	13°35.6	13°34.8	13°34.0	-0.8
di 17	178°56.4	193°56.6	208°56.7	223°56.8	238°56.9	253°57.1	88°58.8	103°59.0	118°59.1	133°59.2	148°59.4	163°59.5	+0.1
	13°33.3	13°32.5	13°31.7	13°30.9	13°30.1	13°29.3	13°18.9	13°18.1	13°17.3	13°16.5	13°15.7	13°14.9	-0.8
wo 18	178°59.7	193°59.8	208°59.9	224°00.1	239°00.2	254°00.3	89°02.2	104°02.3	119°02.4	134°02.6	149°02.7	164°02.9	+0.1
	13°14.1	13°13.3	13°12.5	13°11.7	13°10.9	13°10.1	12°59.6	12°58.8	12°58.0	12°57.2	12°56.3	12°55.5	-0.8
do 19	179°03.0	194°03.2	209°03.3	224°03.4	239°03.6	254°03.7	89°05.6	104°05.8	119°05.9	134°06.1	149°06.2	164°06.3	+0.1
	12°54.7	12°53.9	12°53.1	12°52.3	12°51.5	12°50.7	12°40.1	12°39.2	12°38.4	12°37.6	12°36.8	12°36.0	-0.8
vr 20	179°06.5	194°06.6	209°06.8	224°06.9	239°07.1	254°07.2	89°09.2	104°09.3	119°09.5	134°09.6	149°09.8	164°09.9	+0.1
	12°35.1	12°34.3	12°33.5	12°32.7	12°31.9	12°31.0	12°20.3	12°19.5	12°18.7	12°17.9	12°17.0	12°16.2	-0.8
za 21	179°10.1	194°10.2	209°10.4	224°10.6	239°10.7	254°10.9	89°12.9	104°13.0	119°13.2	134°13.3	149°13.5	164°13.7	+0.2
	12°15.4	12°14.5	12°13.7	12°12.9	12°12.1	12°11.2	12°00.4	11°59.6	11°58.7	11°57.9	11°57.1	11°56.2	-0.8
zo 22	179°13.8	194°14.0	209°14.1	224°14.3	239°14.4	254°14.6	89°16.7	104°16.8	119°17.0	134°17.2	149°17.3	164°17.5	+0.2
	11°55.4	11°54.6	11°53.7	11°52.9	11°52.1	11°51.2	11°40.3	11°39.5	11°38.6	11°37.8	11°36.9	11°36.1	-0.8
ma 23	179°17.6	194°17.8	209°18.0	224°18.1	239°18.3	254°18.4	89°20.6	104°20.7	119°20.9	134°21.1	149°21.2	164°21.4	+0.2
	11°35.2	11°34.4	11°33.5	11°32.7	11°31.9	11°31.0	11°20.0	11°19.1	11°18.3	11°17.4	11°16.6	11°15.7	-0.8
di 24	179°21.6	194°21.7	209°21.9	224°22.1	239°22.2	254°22.4	89°24.6	104°24.8	119°24.9	134°25.1	149°25.3	164°25.4	+0.2
	11°14.9	11°14.0	11°13.2	11°12.3	11°11.5	11°10.6	10°59.5	10°58.7	10°57.8	10°56.9	10°56.1	10°55.2	-0.9
wo 25	179°25.6	194°25.8	209°25.9	224°26.1	239°26.3	254°26.5	89°28.7	104°28.9	119°29.0	134°29.2	149°29.4	164°29.6	+0.2
	10°54.4	10°53.5	10°52.6	10°51.8	10°50.9	10°50.1	10°38.9	10°38.0	10°37.1	10°36.3	10°35.4	10°34.5	-0.9
do 26	179°29.7	194°29.9	209°30.1	224°30.3	239°30.4	254°30.6	89°32.9	104°33.1	119°33.3	134°33.4	149°33.6	164°33.8	+0.2
	10°33.7	10°32.8	10°31.9	10°31.1	10°30.2	10°29.3	10°18.0	10°17.2	10°16.3	10°15.4	10°14.5	10°13.7	-0.9
vr 27	179°34.0	194°34.2	209°34.3	224°34.5	239°34.7	254°34.9	89°37.2	104°37.4	119°37.6	134°37.8	149°37.9	164°38.1	+0.2
	10°12.8	10°11.9	10°11.0	10°10.2	10°09.3	10°08.4	9°57.0	9°56.1	9°55.3	9°54.4	9°53.5	9°52.6	-0.9
za 28	179°38.3	194°38.5	209°38.7	224°38.8	239°39.0	254°39.2	89°41.6	104°41.8	119°42.0	134°42.2	149°42.3	164°42.5	+0.2
	9°51.8	9°50.9	9°50.0	9°49.1	9°48.2	9°47.4	9°35.9	9°35.0	9°34.1	9°33.2	9°32.3	9°31.4	-0.9
zo 29	179°42.7	194°42.9	209°43.1	224°43.3	239°43.5	254°43.6	89°46.1	104°46.3	119°46.4	134°46.6	149°46.8	164°47.0	+0.2
	9°30.6	9°29.7	9°28.8	9°27.9	9°27.0	9°26.1	9°14.6	9°13.7	9°12.8	9°11.9	9°11.0	9°10.1	-0.9
ma 30	179°47.2	194°47.4	209°47.6	224°47.8	239°48.0	254°48.2	89°50.6	104°50.8	119°51.0	134°51.2	149°51.4	164°51.6	+0.2
	9°09.2	9°08.3	9°07.4	9°06.5	9°05.6	9°04.7	8°53.1	8°52.2	8°51.3	8°50.4	8°49.5	8°48.6	-0.9
di 31	179°51.8	194°52.0	209°52.2	224°52.4	239°52.6	254°52.7	89°55.3	104°55.5	119°55.7	134°55.9	149°56.1	164°56.2	+0.2
	8°47.7	8°46.8	8°45.9	8°45.0	8°44.1	8°43.2	8°31.5	8°30.6	8°29.7	8°28.8	8°27.9	8°27.0	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2027

	D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
	zo 1	69°11.5	83°34.9	97°58.3	112°21.8	126°45.4	141°09.1	155°32.9	169°56.8	184°20.8	198°44.9	213°09.1	+23.7	16.7
		21°38.2	21°27.0	21°15.7	21°04.2	20°52.6	20°40.8	20°28.9	20°16.9	20°04.7	19°52.3	19°39.8	-11.8	61.3
●	ma 2	69°23.3	83°49.1	98°14.9	112°40.8	127°06.9	141°33.0	155°59.2	170°25.5	184°51.9	199°18.4	213°45.0	+26.2	16.7
		16°17.6	16°03.2	15°48.7	15°34.1	15°19.4	15°04.6	14°49.8	14°34.8	14°19.8	14°04.6	13°49.4	-14.8	61.2
	di 3	70°34.7	85°02.7	99°30.7	113°58.9	128°27.1	142°55.4	157°23.8	171°52.2	186°20.8	200°49.4	215°18.0	+28.3	16.6
		9°52.8	9°36.5	9°20.2	9°03.9	8°47.5	8°31.1	8°14.7	7°58.2	7°41.7	7°25.2	7°08.6	-16.4	60.8
	wo 4	72°35.7	87°05.4	101°35.0	116°04.8	130°34.6	145°04.4	159°34.3	174°04.2	188°34.2	203°04.2	217°34.2	+29.9	16.4
		2°57.9	2°41.2	2°24.4	2°07.7	1°50.9	1°34.2	1°17.4	1°00.7	0°44.0	0°27.3	0°10.7	-16.7	60.1
	do 5	75°09.0	89°39.5	104°10.1	118°40.7	133°11.2	147°41.8	162°12.5	176°43.1	191°13.8	205°44.4	220°15.1	+30.6	16.2
		-3°56.3	-4°12.5	-4°28.6	-4°44.7	-5°00.7	-5°16.7	-5°32.7	-5°48.6	-6°04.5	-6°20.3	-6°36.0	-16.0	59.3
	vr 6	77°55.8	92°26.5	106°57.2	121°27.8	135°58.5	150°29.2	164°59.9	179°30.5	194°01.2	208°31.8	223°02.4	+30.7	15.9
		-10°24.9	-10°39.6	-10°54.3	-11°08.9	-11°23.4	-11°37.8	-11°52.1	-12°06.4	-12°20.6	-12°34.7	-12°48.7	-14.4	58.3
	za 7	80°39.5	95°09.8	109°40.1	124°10.4	138°40.6	153°10.8	167°41.0	182°11.1	196°41.2	211°11.3	225°41.4	+30.2	15.6
		-16°08.3	-16°20.9	-16°33.4	-16°45.7	-16°58.0	-17°10.2	-17°22.2	-17°34.2	-17°46.1	-17°57.8	-18°09.5	-12.1	57.3
	zo 8	83°08.8	97°38.3	112°07.9	126°37.4	141°06.9	155°36.3	170°05.7	184°35.1	199°04.4	213°33.8	228°03.1	+29.4	15.4
		-20°51.1	-21°00.9	-21°10.7	-21°20.3	-21°29.8	-21°39.2	-21°48.5	-21°57.6	-22°06.7	-22°15.6	-22°24.3	-9.3	56.4
◐	ma 9	97°38.3	112°07.9	126°37.4	141°06.9	155°36.3	170°05.7	184°35.1	199°04.4	213°33.8	228°03.1	242°32.3	+29.4	15.4
		-21°00.9	-21°10.7	-21°20.3	-21°29.8	-21°39.2	-21°48.5	-21°57.6	-22°06.7	-22°15.6	-22°24.3	-22°33.0	-9.2	56.4
	di 10	99°47.6	114°16.4	128°45.2	143°13.9	157°42.7	172°11.4	186°40.0	201°08.7	215°37.3	230°06.0	244°34.6	+28.7	15.2
		-24°27.8	-24°34.4	-24°40.9	-24°47.3	-24°53.5	-24°59.6	-25°05.6	-25°11.4	-25°17.1	-25°22.7	-25°28.1	-6.0	55.6
	wo 11	101°41.7	116°10.1	130°38.5	145°06.9	159°35.3	174°03.7	188°32.0	203°00.4	217°28.8	231°57.2	246°25.6	+28.4	15.0
		-26°33.2	-26°36.5	-26°39.6	-26°42.5	-26°45.4	-26°48.1	-26°50.6	-26°53.1	-26°55.3	-26°57.5	-26°59.5	-2.6	55.0
	do 12	103°32.4	118°00.9	132°29.5	146°58.1	161°26.8	175°55.4	190°24.1	204°52.8	219°21.6	233°50.4	248°19.1	+28.7	14.9
		-27°13.1	-27°12.9	-27°12.6	-27°12.1	-27°11.5	-27°10.8	-27°09.9	-27°08.9	-27°07.8	-27°06.5	-27°05.1	+0.8	54.5
	vr 13	105°35.3	120°04.7	134°34.1	149°03.6	163°33.1	178°02.7	192°32.3	207°02.0	221°31.7	236°01.5	250°31.3	+29.6	14.8
		-26°28.4	-26°25.0	-26°21.4	-26°17.7	-26°13.8	-26°09.8	-26°05.7	-26°01.5	-25°57.2	-25°52.7	-25°48.2	+4.0	54.2
	za 14	108°05.0	122°35.7	137°06.4	151°37.2	166°08.1	180°39.0	195°10.0	209°41.1	224°12.2	238°43.4	253°14.6	+31.0	14.7
		-24°25.4	-24°19.0	-24°12.5	-24°05.8	-23°59.1	-23°52.2	-23°45.3	-23°38.2	-23°31.1	-23°23.8	-23°16.4	+6.9	54.0
	zo 15	111°10.3	125°42.5	140°14.8	154°47.1	169°19.5	183°52.0	198°24.5	212°57.0	227°29.7	242°02.3	256°35.1	+32.5	14.7
		-21°14.0	-21°05.1	-20°56.1	-20°47.0	-20°37.8	-20°28.6	-20°19.2	-20°09.8	-20°00.2	-19°50.6	-19°41.0	+9.3	53.9
	ma 16	114°53.0	129°26.6	144°00.3	158°34.0	173°07.8	187°41.6	202°15.5	216°49.4	231°23.4	245°57.4	260°31.5	+33.9	14.7
		-17°06.3	-16°55.4	-16°44.5	-16°33.4	-16°22.3	-16°11.2	-15°59.9	-15°48.6	-15°37.3	-15°25.8	-15°14.4	+11.2	54.0
○	di 17	119°07.9	133°42.6	148°17.4	162°52.2	177°27.1	192°02.0	206°36.9	221°11.8	235°46.8	250°21.8	264°56.8	+34.9	14.8
		-12°15.2	-12°02.8	-11°50.4	-11°37.9	-11°25.4	-11°12.9	-11°00.3	-10°47.6	-10°34.9	-10°22.2	-10°09.4	+12.6	54.1
	wo 18	123°45.5	138°20.9	152°56.3	167°31.7	182°07.2	196°42.6	211°18.1	225°53.6	240°29.1	255°04.6	269°40.1	+35.5	14.8
		-6°53.3	-6°39.9	-6°26.5	-6°13.1	-5°59.7	-5°46.3	-5°32.8	-5°19.3	-5°05.7	-4°52.2	-4°38.6	+13.5	54.3
	do 19	128°33.1	143°08.6	157°44.1	172°19.6	186°55.1	201°30.5	216°06.0	230°41.4	245°16.9	259°52.3	274°27.7	+35.5	14.9
		-1°12.7	-0°58.9	-0°45.0	-0°31.2	-0°17.3	-0°03.5	0°10.4	0°24.3	0°38.2	0°52.1	1°06.0	+13.9	54.6
	vr 20	133°16.1	147°51.1	162°26.0	177°01.0	191°35.9	206°10.7	220°45.6	235°20.4	249°55.1	264°29.8	279°04.5	+34.8	15.0
		4°34.2	4°48.1	5°01.9	5°15.7	5°29.5	5°43.3	5°57.1	6°10.8	6°24.6	6°38.3	6°52.0	+13.8	55.0
	za 21	137°38.6	152°12.4	166°46.2	181°19.9	195°53.5	210°27.1	225°00.7	239°34.1	254°07.5	268°40.8	283°14.1	+33.6	15.1
		10°14.9	10°28.2	10°41.4	10°54.7	11°07.9	11°21.0	11°34.1	11°47.2	12°00.3	12°13.3	12°26.2	+13.1	55.5
	zo 22	141°23.9	155°55.9	170°27.8	184°59.7	199°31.4	214°03.1	228°34.7	243°06.1	257°37.5	272°08.8	286°40.0	+31.6	15.3
		15°34.9	15°47.0	15°59.1	16°11.1	16°23.0	16°34.9	16°46.8	16°58.5	17°10.2	17°21.8	17°33.4	+11.9	56.1
	ma 23	144°16.4	158°46.0	173°15.5	187°44.9	202°14.2	216°43.4	231°12.5	245°41.4	260°10.3	274°39.1	289°07.7	+29.1	15.5
		20°17.3	20°27.5	20°37.7	20°47.7	20°57.7	21°07.5	21°17.3	21°27.0	21°36.5	21°46.0	21°55.3	+9.8	56.8
	di 24	146°04.4	160°31.3	174°58.1	189°24.8	203°51.4	218°17.9	232°44.3	247°10.5	261°36.7	276°02.8	290°28.7	+26.4	15.7
		24°02.1	24°09.5	24°16.9	24°24.1	24°31.2	24°38.1	24°45.0	24°51.6	24°58.2	25°04.6	25°10.8	+6.9	57.6
◑	wo 25	146°46.2	161°10.6	175°34.9	189°59.2	204°23.3	218°47.4	233°11.4	247°35.4	261°59.2	276°23.0	290°46.7	+24.0	15.9
		26°26.8	26°30.6	26°34.3	26°37.8	26°41.1	26°44.2	26°47.2	26°50.0	26°52.6	26°55.1	26°57.4	+3.1	58.4
	do 26	146°35.0	160°57.8	175°20.6	189°43.3	204°06.1	218°28.7	232°51.4	247°14.0	261°36.6	275°59.2	290°21.8	+22.7	16.2
		27°10.3	27°09.7	27°08.9	27°08.0	27°06.8	27°05.5	27°03.9	27°02.2	27°00.3	26°58.2	26°55.9	-1.4	59.3
	vr 27	145°59.7	160°22.3	174°45.0	189°07.6	203°30.3	217°52.9	232°15.7	246°38.4	261°01.2	275°24.0	289°46.9	+22.7	16.4
		25°58.7	25°53.4	25°47.9	25°42.2	25°36.3	25°30.2	25°24.0	25°17.6	25°10.9	25°04.1	24°57.2	-6.2	60.0
	za 28	145°35.3	159°59.0	174°22.7	188°46.6	203°10.4	217°34.4	231°58.4	246°22.5	260°46.6	275°10.8	289°35.1	+24.0	16.5
		22°51.3	22°41.5	22°31.6	22°21.5	22°11.3	22°00.9	21°50.4	21°39.7	21°28.8	21°17.8	21°06.6	-10.5	60.6
	zo 29	145°48.5	160°14.0	174°39.6	189°05.3	203°31.0	217°56.8	232°22.7	246°48.7	261°14.8	275°40.9	290°07.1	+25.9	16.6
		18°02.3	17°49.0	17°35.5	17°21.9	17°08.2	16°54.4	16°40.5	16°26.5	16°12.3	15°58.1	15°43.8	-13.9	60.9
	ma 30	146°49.5	161°16.9	175°44.4	190°12.0	204°39.6	219°07.2	233°35.0	248°02.8	262°30.7	276°58.6	291°26.6	+27.7	16.6
		11°57.4	11°41.7	11°25.9	11°10.0	10°54.0	10°38.0	10°22.0	10°05.9	9°49.7	9°33.4	9°17.1	-16.0	60.9
●	di 31	148°33.6	163°02.5	177°31.4	192°00.4	206°29.4	220°58.5	235°27.6	249°56.7	264°25.9	278°55.1	293°24.4	+29.1	16.5
		5°07.9	4°51.1	4°34.2	4°17.3	4°00.4	3°43.5	3°26.6	3°09.6	2°52.7	2°35.8	2°18.8	-16.9	60.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

NM: 2 10h05 — EK: 9 04h54 — VM: 17 07h28 — LK: 25 02h27 — NM: 31 17h41

ZON

September 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	179°56.4 8°26.1	194°56.6 8°25.2	209°56.8 8°24.3	224°57.0 8°23.4	239°57.2 8°22.5	254°57.4 8°21.6	90°00.0 8°09.8	105°00.2 8°08.9	120°00.4 8°08.0	135°00.6 8°07.1	150°00.8 8°06.1	165°01.0 8°05.2	+0.2 -0.9
do 2	180°01.2 8°04.3	195°01.4 8°03.4	210°01.6 8°02.5	225°01.8 8°01.6	240°02.0 8°00.7	255°02.2 7°59.8	90°04.8 7°47.9	105°05.0 7°47.0	120°05.2 7°46.1	135°05.4 7°45.2	150°05.6 7°44.3	165°05.8 7°43.3	+0.2 -0.9
vr 3	180°06.0 7°42.4	195°06.2 7°41.5	210°06.4 7°40.6	225°06.6 7°39.7	240°06.8 7°38.8	255°07.0 7°37.8	90°09.6 7°25.9	105°09.9 7°25.0	120°10.1 7°24.1	135°10.3 7°23.2	150°10.5 7°22.2	165°10.7 7°21.3	+0.2 -0.9
za 4	180°10.9 7°20.4	195°11.1 7°19.5	210°11.3 7°18.6	225°11.5 7°17.6	240°11.7 7°16.7	255°11.9 7°15.8	90°14.6 7°03.8	105°14.8 7°02.9	120°15.0 7°02.0	135°15.2 7°01.0	150°15.4 7°00.1	165°15.6 6°59.2	+0.2 -0.9
zo 5	180°15.8 6°58.3	195°16.0 6°57.3	210°16.2 6°56.4	225°16.4 6°55.5	240°16.7 6°54.6	255°16.9 6°53.6	90°19.6 6°41.6	105°19.8 6°40.7	120°20.0 6°39.7	135°20.2 6°38.8	150°20.4 6°37.9	165°20.6 6°37.0	+0.2 -0.9
ma 6	180°20.8 6°36.0	195°21.0 6°35.1	210°21.3 6°34.2	225°21.5 6°33.2	240°21.7 6°32.3	255°21.9 6°31.4	90°24.6 6°19.3	105°24.8 6°18.3	120°25.1 6°17.4	135°25.3 6°16.5	150°25.5 6°15.5	165°25.7 6°14.6	+0.2 -0.9
di 7	180°25.9 6°13.7	195°26.1 6°12.7	210°26.3 6°11.8	225°26.5 6°10.9	240°26.7 6°09.9	255°27.0 6°09.0	90°29.7 5°56.8	105°30.0 5°55.9	120°30.2 5°55.0	135°30.4 5°54.0	150°30.6 5°53.1	165°30.8 5°52.1	+0.2 -0.9
wo 8	180°31.0 5°51.2	195°31.2 5°50.3	210°31.5 5°49.3	225°31.7 5°48.4	240°31.9 5°47.5	255°32.1 5°46.5	90°34.9 5°34.3	105°35.1 5°33.4	120°35.3 5°32.4	135°35.5 5°31.5	150°35.8 5°30.5	165°36.0 5°29.6	+0.2 -0.9
do 9	180°36.2 5°28.7	195°36.4 5°27.7	210°36.6 5°26.8	225°36.8 5°25.8	240°37.1 5°24.9	255°37.3 5°23.9	90°40.1 5°11.7	105°40.3 5°10.7	120°40.5 5°09.8	135°40.8 5°08.9	150°41.0 5°07.9	165°41.2 5°07.0	+0.2 -0.9
vr 10	180°41.4 5°06.0	195°41.6 5°05.1	210°41.8 5°04.1	225°42.1 5°03.2	240°42.3 5°02.2	255°42.5 5°01.3	90°45.4 4°49.0	105°45.6 4°48.0	120°45.8 4°47.1	135°46.0 4°46.1	150°46.2 4°45.2	165°46.4 4°44.2	+0.2 -0.9
za 11	180°46.7 4°43.3	195°46.9 4°42.3	210°47.1 4°41.4	225°47.3 4°40.4	240°47.5 4°39.5	255°47.8 4°38.5	90°50.6 4°26.2	105°50.9 4°25.2	120°51.1 4°24.3	135°51.3 4°23.3	150°51.5 4°22.4	165°51.7 4°21.4	+0.2 -0.9
zo 12	180°52.0 4°20.5	195°52.2 4°19.5	210°52.4 4°18.6	225°52.6 4°17.6	240°52.8 4°16.7	255°53.1 4°15.7	90°55.9 4°03.3	105°56.2 4°02.4	120°56.4 4°01.4	135°56.6 4°00.5	150°56.8 3°59.5	165°57.1 3°58.6	+0.2 -1.0
ma 13	180°57.3 3°57.6	195°57.5 3°56.7	210°57.7 3°55.7	225°57.9 3°54.7	240°58.2 3°53.8	255°58.4 3°52.8	91°01.3 3°40.4	106°01.5 3°39.4	121°01.7 3°38.5	136°02.0 3°37.5	151°02.2 3°36.6	166°02.4 3°35.6	+0.2 -1.0
di 14	181°02.6 3°34.7	196°02.8 3°33.7	211°03.1 3°32.7	226°03.3 3°31.8	241°03.5 3°30.8	256°03.7 3°29.9	91°06.6 3°17.4	106°06.9 3°16.5	121°07.1 3°15.5	136°07.3 3°14.5	151°07.5 3°13.6	166°07.8 3°12.6	+0.2 -1.0
wo 15	181°08.0 3°11.7	196°08.2 3°10.7	211°08.4 3°09.7	226°08.7 3°08.8	241°08.9 3°07.8	256°09.1 3°06.9	91°12.0 2°54.4	106°12.2 2°53.4	121°12.5 2°52.4	136°12.7 2°51.5	151°12.9 2°50.5	166°13.1 2°49.5	+0.2 -1.0
do 16	181°13.4 2°48.6	196°13.6 2°47.6	211°13.8 2°46.7	226°14.0 2°45.7	241°14.3 2°44.7	256°14.5 2°43.8	91°17.4 2°31.2	106°17.6 2°30.3	121°17.8 2°29.3	136°18.1 2°28.4	151°18.3 2°27.4	166°18.5 2°26.4	+0.2 -1.0
vr 17	181°18.7 2°25.5	196°19.0 2°24.5	211°19.2 2°23.5	226°19.4 2°22.6	241°19.6 2°21.6	256°19.9 2°20.6	91°22.8 2°08.1	106°23.0 2°07.1	121°23.2 2°06.2	136°23.4 2°05.2	151°23.7 2°04.2	166°23.9 2°03.3	+0.2 -1.0
za 18	181°24.1 2°02.3	196°24.3 2°01.3	211°24.6 2°00.4	226°24.8 1°59.4	241°25.0 1°58.4	256°25.2 1°57.5	91°28.2 1°44.9	106°28.4 1°43.9	121°28.6 1°42.9	136°28.8 1°42.0	151°29.1 1°41.0	166°29.3 1°40.0	+0.2 -1.0
zo 19	181°29.5 1°39.1	196°29.7 1°38.1	211°29.9 1°37.1	226°30.2 1°36.2	241°30.4 1°35.2	256°30.6 1°34.2	91°33.5 1°21.6	106°33.7 1°20.7	121°34.0 1°19.7	136°34.2 1°18.7	151°34.4 1°17.8	166°34.6 1°16.8	+0.2 -1.0
ma 20	181°34.9 1°15.8	196°35.1 1°14.8	211°35.3 1°13.9	226°35.5 1°12.9	241°35.8 1°11.9	256°36.0 1°11.0	91°38.9 0°58.4	106°39.1 0°57.4	121°39.3 0°56.4	136°39.5 0°55.4	151°39.8 0°54.5	166°40.0 0°53.5	+0.2 -1.0
di 21	181°40.2 0°52.5	196°40.4 0°51.6	211°40.7 0°50.6	226°40.9 0°49.6	241°41.1 0°48.6	256°41.3 0°47.7	91°44.2 0°35.0	106°44.4 0°34.1	121°44.7 0°33.1	136°44.9 0°32.1	151°45.1 0°31.2	166°45.3 0°30.2	+0.2 -1.0
wo 22	181°45.5 0°29.2	196°45.8 0°28.2	211°46.0 0°27.3	226°46.2 0°26.3	241°46.4 0°25.3	256°46.7 0°24.3	91°49.5 0°11.7	106°49.7 0°10.7	121°50.0 0°09.8	136°50.2 0°08.8	151°50.4 0°07.8	166°50.6 0°06.8	+0.2 -1.0
do 23	181°50.8 0°05.9	196°51.1 0°04.9	211°51.3 0°03.9	226°51.5 0°03.0	241°51.7 0°02.0	256°51.9 0°01.0	91°54.8 -0°11.6	106°55.0 -0°12.6	121°55.2 -0°13.6	136°55.5 -0°14.6	151°55.7 -0°15.5	166°55.9 -0°16.5	+0.2 -1.0
vr 24	181°56.1 -0°17.5	196°56.3 -0°18.5	211°56.5 -0°19.4	226°56.8 -0°20.4	241°57.0 -0°21.4	256°57.2 -0°22.4	92°00.0 -0°35.0	107°00.3 -0°36.0	122°00.5 -0°37.0	137°00.7 -0°37.9	152°00.9 -0°38.9	167°01.1 -0°39.9	+0.2 -1.0
za 25	182°01.3 -0°40.9	197°01.6 -0°41.8	212°01.8 -0°42.8	227°02.0 -0°43.8	242°02.2 -0°44.7	257°02.4 -0°45.7	92°05.2 -0°58.4	107°05.4 -0°59.4	122°05.7 -1°00.3	137°05.9 -1°01.3	152°06.1 -1°02.3	167°06.3 -1°03.3	+0.2 -1.0
zo 26	182°06.5 -1°04.2	197°06.7 -1°05.2	212°07.0 -1°06.2	227°07.2 -1°07.1	242°07.4 -1°08.1	257°07.6 -1°09.1	92°10.4 -1°21.8	107°10.6 -1°22.7	122°10.8 -1°23.7	137°11.0 -1°24.7	152°11.2 -1°25.7	167°11.4 -1°26.6	+0.2 -1.0
ma 27	182°11.7 -1°27.6	197°11.9 -1°28.6	212°12.1 -1°29.5	227°12.3 -1°30.5	242°12.5 -1°31.5	257°12.7 -1°32.5	92°15.5 -1°45.1	107°15.7 -1°46.1	122°15.9 -1°47.1	137°16.1 -1°48.0	152°16.3 -1°49.0	167°16.5 -1°50.0	+0.2 -1.0
di 28	182°16.7 -1°51.0	197°17.0 -1°51.9	212°17.2 -1°52.9	227°17.4 -1°53.9	242°17.6 -1°54.9	257°17.8 -1°55.8	92°20.5 -2°08.5	107°20.7 -2°09.4	122°20.9 -2°10.4	137°21.1 -2°11.4	152°21.4 -2°12.4	167°21.6 -2°13.3	+0.2 -1.0
wo 29	182°21.8 -2°14.3	197°22.0 -2°15.3	212°22.2 -2°16.3	227°22.4 -2°17.2	242°22.6 -2°18.2	257°22.8 -2°19.2	92°25.5 -2°31.8	107°25.7 -2°32.8	122°25.9 -2°33.8	137°26.1 -2°34.7	152°26.3 -2°35.7	167°26.5 -2°36.7	+0.2 -1.0
do 30	182°26.7 -2°37.6	197°26.9 -2°38.6	212°27.1 -2°39.6	227°27.4 -2°40.6	242°27.6 -2°41.5	257°27.8 -2°42.5	92°30.4 -2°55.1	107°30.6 -2°56.1	122°30.8 -2°57.1	137°31.0 -2°58.0	152°31.2 -2°59.0	167°31.4 -3°00.0	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2027

D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
wo 1	63°49.2	78°18.8	92°48.4	107°18.0	121°47.7	136°17.3	150°47.0	165°16.7	179°46.5	194°16.2	208°46.0	+29.7	16.4
	-0°13.5	-0°30.4	-0°47.2	-1°04.1	-1°20.9	-1°37.7	-1°54.4	-2°11.2	-2°27.9	-2°44.6	-3°01.2	-16.8	60.2
do 2	66°13.7	80°43.6	95°13.5	109°43.4	124°13.3	138°43.1	153°13.0	167°42.9	182°12.8	196°42.6	211°12.5	+29.9	16.2
	-7°06.1	-7°22.0	-7°37.9	-7°53.7	-8°09.5	-8°25.1	-8°40.8	-8°56.3	-9°11.8	-9°27.2	-9°42.6	-15.7	59.4
vr 3	68°38.8	83°08.5	97°38.1	112°07.7	126°37.2	141°06.8	155°36.3	170°05.8	184°35.3	199°04.7	213°34.2	+29.5	16.0
	-13°23.6	-13°37.6	-13°51.6	-14°05.5	-14°19.3	-14°33.0	-14°46.5	-15°00.0	-15°13.4	-15°26.7	-15°39.9	-13.6	58.5
za 4	70°52.5	85°21.5	99°50.5	114°19.4	128°48.3	143°17.2	157°46.1	172°14.9	186°43.7	201°12.5	215°41.2	+28.9	15.7
	-18°45.2	-18°56.6	-19°08.0	-19°19.2	-19°30.3	-19°41.3	-19°52.2	-20°02.9	-20°13.5	-20°24.0	-20°34.4	-10.9	57.5
zo 5	72°48.9	87°17.2	101°45.5	116°13.8	130°42.0	145°10.2	159°38.4	174°06.6	188°34.7	203°02.8	217°30.9	+28.2	15.4
	-22°54.9	-23°03.3	-23°11.5	-23°19.5	-23°27.4	-23°35.2	-23°42.9	-23°50.4	-23°57.8	-24°05.0	-24°12.1	-7.7	56.6
ma 6	74°30.6	88°58.5	103°26.4	117°54.2	132°22.1	146°50.0	161°17.8	175°45.7	190°13.5	204°41.4	219°09.2	+27.9	15.2
	-25°42.1	-25°46.9	-25°51.7	-25°56.2	-26°00.7	-26°05.0	-26°09.1	-26°13.2	-26°17.0	-26°20.8	-26°24.4	-4.2	55.8
◐ di 7	76°07.9	90°35.9	105°03.9	119°32.0	134°00.0	148°28.1	162°56.2	177°24.4	191°52.5	206°20.7	220°48.9	+28.1	15.0
	-27°01.1	-27°02.4	-27°03.6	-27°04.6	-27°05.5	-27°06.3	-27°06.9	-27°07.4	-27°07.7	-27°07.9	-27°08.0	-0.7	55.1
wo 8	90°35.9	105°03.9	119°32.0	134°00.0	148°28.1	162°56.2	177°24.4	191°52.5	206°20.7	220°48.9	235°17.2	+28.1	15.0
	-27°02.4	-27°03.6	-27°04.6	-27°05.5	-27°06.3	-27°06.9	-27°07.4	-27°07.7	-27°07.9	-27°08.0	-27°07.9	-0.5	55.1
do 9	92°24.8	106°53.6	121°22.5	135°51.4	150°20.3	164°49.3	179°18.4	193°47.5	208°16.6	222°45.8	237°15.0	+29.0	14.9
	-26°50.3	-26°48.1	-26°45.7	-26°43.2	-26°40.6	-26°37.8	-26°35.0	-26°31.9	-26°28.8	-26°25.5	-26°22.1	+2.8	54.6
vr 10	94°40.0	109°10.1	123°40.2	138°10.5	152°40.8	167°11.1	181°41.5	196°12.0	210°42.5	225°13.1	239°43.8	+30.4	14.8
	-25°16.4	-25°11.1	-25°05.7	-25°00.1	-24°54.4	-24°48.6	-24°42.7	-24°36.7	-24°30.6	-24°24.4	-24°18.0	+5.8	54.2
za 11	97°30.9	112°02.6	126°34.3	141°06.0	155°37.9	170°09.8	184°41.7	199°13.7	213°45.8	228°17.9	242°50.1	+31.9	14.7
	-22°30.3	-22°22.4	-22°14.3	-22°06.1	-21°57.8	-21°49.5	-21°41.0	-21°32.5	-21°23.8	-21°15.1	-21°06.3	+8.4	54.1
zo 12	101°00.1	115°33.2	130°06.4	144°39.6	159°12.9	173°46.2	188°19.6	202°53.0	217°26.5	232°00.0	246°33.6	+33.4	14.7
	-18°43.7	-18°33.5	-18°23.3	-18°13.0	-18°02.6	-17°52.1	-17°41.6	-17°31.0	-17°20.3	-17°09.6	-16°58.8	+10.5	54.0
ma 13	105°03.1	119°37.5	134°11.8	148°46.2	163°20.6	177°55.1	192°29.6	207°04.1	221°38.7	236°13.3	250°48.0	+34.5	14.8
	-14°08.6	-13°56.8	-13°44.9	-13°33.0	-13°21.0	-13°08.9	-12°56.8	-12°44.6	-12°32.4	-12°20.1	-12°07.8	+12.1	54.2
di 14	109°31.2	124°06.2	138°41.3	153°16.5	167°51.6	182°26.7	197°01.9	211°37.1	226°12.3	240°47.5	255°22.7	+35.2	14.8
	-8°57.4	-8°44.3	-8°31.2	-8°18.1	-8°05.0	-7°51.8	-7°38.6	-7°25.3	-7°12.0	-6°58.7	-6°45.4	+13.2	54.4
○ wo 15	114°12.1	128°47.5	143°22.8	157°58.1	172°33.4	187°08.7	201°44.0	216°19.3	230°54.6	245°29.8	260°05.1	+35.3	14.9
	-3°21.8	-3°08.1	-2°54.3	-2°40.5	-2°26.7	-2°12.9	-1°59.0	-1°45.2	-1°31.3	-1°17.4	-1°03.6	+13.8	54.7
do 16	118°52.3	133°27.3	148°02.2	162°37.1	177°12.0	191°46.9	206°21.7	220°56.5	235°31.3	250°06.1	264°40.8	+34.9	15.0
	2°25.7	2°39.6	2°53.6	3°07.6	3°21.5	3°35.5	3°49.4	4°03.4	4°17.3	4°31.2	4°45.1	+13.9	55.1
vr 17	123°16.7	137°50.7	152°24.7	166°58.6	181°32.5	196°06.3	210°40.1	225°13.8	239°47.4	254°21.0	268°54.6	+33.8	15.1
	8°12.0	8°25.6	8°39.2	8°52.8	9°06.4	9°19.9	9°33.4	9°46.8	10°00.2	10°13.6	10°27.0	+13.5	55.5
za 18	127°10.0	141°42.5	156°14.9	170°47.2	185°19.5	199°51.7	214°23.8	228°55.8	243°27.7	257°59.6	272°31.4	+32.1	15.3
	13°42.4	13°55.1	14°07.7	14°20.2	14°32.7	14°45.1	14°57.5	15°09.8	15°22.1	15°34.3	15°46.4	+12.4	56.0
zo 19	130°18.0	144°48.4	159°18.7	173°48.9	188°19.0	202°49.1	217°19.0	231°48.9	246°18.6	260°48.3	275°17.8	+30.0	15.4
	18°39.9	18°50.9	19°01.7	19°12.5	19°23.2	19°33.8	19°44.3	19°54.8	20°05.1	20°15.3	20°25.5	+10.6	56.5
ma 20	132°29.8	146°57.8	161°25.8	175°53.6	190°21.3	204°49.0	219°16.5	233°44.0	248°11.3	262°38.6	277°05.8	+27.6	15.6
	22°45.3	22°53.7	23°02.1	23°10.3	23°18.3	23°26.3	23°34.1	23°41.8	23°49.4	23°56.9	24°04.2	+7.9	57.1
di 21	133°42.6	148°08.3	162°34.0	176°59.6	191°25.1	205°50.6	220°16.0	234°41.3	249°06.5	263°31.7	277°56.8	+25.4	15.7
	25°37.8	25°42.9	25°47.8	25°52.6	25°57.2	26°01.7	26°06.1	26°10.3	26°14.3	26°18.1	26°21.8	+4.4	57.7
wo 22	134°05.7	148°29.9	162°54.0	177°18.1	191°42.2	206°06.2	220°30.2	234°54.1	249°18.0	263°41.9	278°05.8	+24.0	15.9
	26°57.9	26°58.9	26°59.8	27°00.5	27°01.1	27°01.4	27°01.6	27°01.6	27°01.5	27°01.2	27°00.6	+0.3	58.3
◑ do 23	134°01.9	148°25.6	162°49.3	177°13.1	191°36.8	206°00.5	220°24.3	234°48.1	249°11.9	263°35.7	277°59.5	+23.8	16.1
	26°31.8	26°28.5	26°24.9	26°21.2	26°17.4	26°13.3	26°09.1	26°04.7	26°00.1	25°55.4	25°50.4	-4.1	58.9
vr 24	134°00.8	148°25.2	162°49.6	177°14.1	191°38.7	206°03.3	220°27.9	234°52.6	249°17.4	263°42.2	278°07.1	+24.6	16.2
	24°16.0	24°08.3	24°00.5	23°52.6	23°44.4	23°36.1	23°27.7	23°19.1	23°10.3	23°01.4	22°52.4	-8.4	59.4
za 25	134°27.4	148°53.3	163°19.2	177°45.3	192°11.3	206°37.5	221°03.7	235°29.9	249°56.3	264°22.7	278°49.2	+26.2	16.3
	20°18.6	20°07.3	19°55.7	19°44.1	19°32.3	19°20.5	19°08.4	18°56.3	18°44.0	18°31.6	18°19.1	-12.0	59.9
zo 26	135°34.3	150°01.8	164°29.4	178°57.0	193°24.8	207°52.5	222°20.4	236°48.3	251°16.2	265°44.2	280°12.3	+27.8	16.4
	14°58.1	14°43.9	14°29.6	14°15.2	14°00.7	13°46.1	13°31.5	13°16.7	13°01.9	12°47.0	12°32.0	-14.6	60.2
ma 27	137°19.8	151°48.7	166°17.6	180°46.6	195°15.6	209°44.7	224°13.8	238°42.9	253°12.1	267°41.3	282°10.5	+29.1	16.4
	8°39.0	8°23.0	8°07.0	7°50.9	7°34.7	7°18.6	7°02.3	6°46.1	6°29.8	6°13.5	5°57.1	-16.2	60.3
di 28	139°32.9	154°02.6	168°32.3	183°02.0	197°31.7	212°01.5	226°31.2	241°01.0	255°30.8	270°00.6	284°30.4	+29.8	16.4
	1°48.8	1°32.2	1°15.5	0°58.9	0°42.2	0°25.5	0°08.9	-0°07.8	-0°24.4	-0°41.0	-0°57.7	-16.7	60.1
wo 29	141°58.0	156°27.9	170°57.7	185°27.5	199°57.3	214°27.1	228°56.9	243°26.6	257°56.4	272°26.1	286°55.9	+29.8	16.3
	-5°04.5	-5°20.7	-5°36.8	-5°53.0	-6°09.1	-6°25.1	-6°41.1	-6°57.0	-7°12.9	-7°28.8	-7°44.6	-16.0	59.7
● do 30	144°19.6	158°49.0	173°18.3	187°47.7	202°17.0	216°46.3	231°15.5	245°44.8	260°14.0	274°43.1	289°12.3	+29.3	16.1
	-11°34.1	-11°48.8	-12°03.5	-12°18.0	-12°32.5	-12°46.9	-13°01.3	-13°15.5	-13°29.7	-13°43.7	-13°57.7	-14.4	59.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 7 18h31 — VM: 15 23h03 — LK: 23 10h20 — NM: 30 02h36

ZON

Oktober 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	182°31.6 -3°00.9	197°31.8 -3°01.9	212°32.0 -3°02.9	227°32.2 -3°03.9	242°32.5 -3°04.8	257°32.7 -3°05.8	92°35.3 -3°18.4	107°35.5 -3°19.4	122°35.7 -3°20.3	137°35.9 -3°21.3	152°36.1 -3°22.3	167°36.3 -3°23.2	+0.2 -1.0
za 2	182°36.5 -3°24.2	197°36.7 -3°25.2	212°36.9 -3°26.2	227°37.1 -3°27.1	242°37.3 -3°28.1	257°37.5 -3°29.1	92°40.0 -3°41.6	107°40.2 -3°42.6	122°40.4 -3°43.6	137°40.6 -3°44.5	152°40.8 -3°45.5	167°41.0 -3°46.5	+0.2 -1.0
zo 3	182°41.2 -3°47.4	197°41.4 -3°48.4	212°41.6 -3°49.4	227°41.8 -3°50.3	242°42.0 -3°51.3	257°42.2 -3°52.3	92°44.8 -4°04.8	107°44.9 -4°05.8	122°45.1 -4°06.8	137°45.3 -4°07.7	152°45.5 -4°08.7	167°45.7 -4°09.7	+0.2 -1.0
ma 4	182°45.9 -4°10.6	197°46.1 -4°11.6	212°46.3 -4°12.6	227°46.5 -4°13.5	242°46.7 -4°14.5	257°46.9 -4°15.5	92°49.4 -4°28.0	107°49.6 -4°29.0	122°49.8 -4°29.9	137°49.9 -4°30.9	152°50.1 -4°31.8	167°50.3 -4°32.8	+0.2 -1.0
di 5	182°50.5 -4°33.8	197°50.7 -4°34.7	212°50.9 -4°35.7	227°51.1 -4°36.7	242°51.3 -4°37.6	257°51.5 -4°38.6	92°53.9 -4°51.1	107°54.1 -4°52.0	122°54.3 -4°53.0	137°54.5 -4°54.0	152°54.7 -4°54.9	167°54.8 -4°55.9	+0.2 -1.0
wo 6	182°55.0 -4°56.9	197°55.2 -4°57.8	212°55.4 -4°58.8	227°55.6 -4°59.7	242°55.8 -5°00.7	257°56.0 -5°01.7	92°58.4 -5°14.1	107°58.5 -5°15.1	122°58.7 -5°16.0	137°58.9 -5°17.0	152°59.1 -5°18.0	167°59.3 -5°18.9	+0.2 -1.0
do 7	182°59.5 -5°19.9	197°59.6 -5°20.8	212°59.8 -5°21.8	228°00.0 -5°22.7	243°00.2 -5°23.7	258°00.4 -5°24.7	93°02.7 -5°37.1	108°02.9 -5°38.0	123°03.1 -5°39.0	138°03.2 -5°39.9	153°03.4 -5°40.9	168°03.6 -5°41.9	+0.2 -1.0
vr 8	183°03.8 -5°42.8	198°04.0 -5°43.8	213°04.1 -5°44.7	228°04.3 -5°45.7	243°04.5 -5°46.6	258°04.7 -5°47.6	93°07.0 -6°00.0	108°07.1 -6°00.9	123°07.3 -6°01.9	138°07.5 -6°02.8	153°07.7 -6°03.8	168°07.8 -6°04.7	+0.2 -1.0
za 9	183°08.0 -6°05.7	198°08.2 -6°06.6	213°08.4 -6°07.6	228°08.5 -6°08.5	243°08.7 -6°09.5	258°08.9 -6°10.4	93°11.1 -6°22.8	108°11.3 -6°23.7	123°11.5 -6°24.7	138°11.6 -6°25.6	153°11.8 -6°26.6	168°12.0 -6°27.5	+0.2 -1.0
zo 10	183°12.1 -6°28.5	198°12.3 -6°29.4	213°12.5 -6°30.4	228°12.6 -6°31.3	243°12.8 -6°32.3	258°13.0 -6°33.2	93°15.1 -6°45.5	108°15.3 -6°46.5	123°15.5 -6°47.4	138°15.6 -6°48.3	153°15.8 -6°49.3	168°16.0 -6°50.2	+0.2 -0.9
ma 11	183°16.1 -6°51.2	198°16.3 -6°52.1	213°16.5 -6°53.1	228°16.6 -6°54.0	243°16.8 -6°54.9	258°17.0 -6°55.9	93°19.1 -7°08.1	108°19.2 -7°09.1	123°19.4 -7°10.0	138°19.6 -7°11.0	153°19.7 -7°11.9	168°19.9 -7°12.8	+0.2 -0.9
di 12	183°20.0 -7°13.8	198°20.2 -7°14.7	213°20.4 -7°15.7	228°20.5 -7°16.6	243°20.7 -7°17.5	258°20.8 -7°18.5	93°22.9 -7°30.7	108°23.0 -7°31.6	123°23.2 -7°32.5	138°23.3 -7°33.5	153°23.5 -7°34.4	168°23.7 -7°35.4	+0.2 -0.9
wo 13	183°23.8 -7°36.3	198°24.0 -7°37.2	213°24.1 -7°38.2	228°24.3 -7°39.1	243°24.4 -7°40.0	258°24.6 -7°41.0	93°26.6 -7°53.1	108°26.7 -7°54.0	123°26.9 -7°55.0	138°27.0 -7°55.9	153°27.2 -7°56.8	168°27.3 -7°57.8	+0.2 -0.9
do 14	183°27.5 -7°58.7	198°27.6 -7°59.6	213°27.8 -8°00.6	228°27.9 -8°01.5	243°28.1 -8°02.4	258°28.2 -8°03.3	93°30.1 -8°15.4	108°30.3 -8°16.4	123°30.4 -8°17.3	138°30.5 -8°18.2	153°30.7 -8°19.1	168°30.8 -8°20.1	+0.1 -0.9
vr 15	183°31.0 -8°21.0	198°31.1 -8°21.9	213°31.3 -8°22.8	228°31.4 -8°23.8	243°31.5 -8°24.7	258°31.7 -8°25.6	93°33.5 -8°37.6	108°33.7 -8°38.6	123°33.8 -8°39.5	138°33.9 -8°40.4	153°34.1 -8°41.3	168°34.2 -8°42.2	+0.1 -0.9
za 16	183°34.4 -8°43.2	198°34.5 -8°44.1	213°34.6 -8°45.0	228°34.8 -8°45.9	243°34.9 -8°46.8	258°35.0 -8°47.8	93°36.8 -8°59.7	108°36.9 -9°00.6	123°37.1 -9°01.6	138°37.2 -9°02.5	153°37.3 -9°03.4	168°37.5 -9°04.3	+0.1 -0.9
zo 17	183°37.6 -9°05.2	198°37.7 -9°06.1	213°37.9 -9°07.0	228°38.0 -9°08.0	243°38.1 -9°08.9	258°38.2 -9°09.8	93°39.9 -9°21.7	108°40.1 -9°22.6	123°40.2 -9°23.5	138°40.3 -9°24.4	153°40.4 -9°25.3	168°40.6 -9°26.2	+0.1 -0.9
ma 18	183°40.7 -9°27.1	198°40.8 -9°28.1	213°40.9 -9°29.0	228°41.1 -9°29.9	243°41.2 -9°30.8	258°41.3 -9°31.7	93°42.9 -9°43.5	108°43.0 -9°44.4	123°43.1 -9°45.3	138°43.3 -9°46.2	153°43.4 -9°47.1	168°43.5 -9°48.0	+0.1 -0.9
di 19	183°43.6 -9°48.9	198°43.7 -9°49.8	213°43.9 -9°50.7	228°44.0 -9°51.6	243°44.1 -9°52.6	258°44.2 -9°53.5	93°45.7 -10°05.2	108°45.8 -10°06.1	123°45.9 -10°07.0	138°46.1 -10°07.9	153°46.2 -10°08.8	168°46.3 -10°09.7	+0.1 -0.9
wo 20	183°46.4 -10°10.6	198°46.5 -10°11.5	213°46.6 -10°12.4	228°46.7 -10°13.3	243°46.8 -10°14.2	258°47.0 -10°15.1	93°48.4 -10°26.7	108°48.5 -10°27.6	123°48.6 -10°28.5	138°48.7 -10°29.4	153°48.8 -10°30.3	168°48.9 -10°31.2	+0.1 -0.9
do 21	183°49.0 -10°32.1	198°49.1 -10°33.0	213°49.2 -10°33.9	228°49.3 -10°34.8	243°49.4 -10°35.7	258°49.5 -10°36.5	93°50.9 -10°48.1	108°51.0 -10°49.0	123°51.1 -10°49.9	138°51.2 -10°50.8	153°51.3 -10°51.7	168°51.4 -10°52.6	+0.1 -0.9
vr 22	183°51.5 -10°53.4	198°51.6 -10°54.3	213°51.7 -10°55.2	228°51.8 -10°56.1	243°51.9 -10°57.0	258°52.0 -10°57.9	93°53.2 -11°09.3	108°53.3 -11°10.2	123°53.4 -11°11.1	138°53.5 -11°12.0	153°53.6 -11°12.9	168°53.7 -11°13.7	+0.1 -0.9
za 23	183°53.7 -11°14.6	198°53.8 -11°15.5	213°53.9 -11°16.4	228°54.0 -11°17.3	243°54.1 -11°18.1	258°54.2 -11°19.0	93°55.3 -11°30.4	108°55.4 -11°31.3	123°55.5 -11°32.2	138°55.6 -11°33.0	153°55.7 -11°33.9	168°55.8 -11°34.8	+0.1 -0.9
zo 24	183°55.8 -11°35.6	198°55.9 -11°36.5	213°56.0 -11°37.4	228°56.1 -11°38.3	243°56.2 -11°39.1	258°56.3 -11°40.0	93°57.3 -11°51.3	108°57.4 -11°52.2	123°57.5 -11°53.0	138°57.5 -11°53.9	153°57.6 -11°54.8	168°57.7 -11°55.6	+0.1 -0.9
ma 25	183°57.8 -11°56.5	198°57.8 -11°57.4	213°57.9 -11°58.2	228°58.0 -11°59.1	243°58.1 -12°00.0	258°58.2 -12°00.8	93°59.1 -12°12.0	108°59.2 -12°12.9	123°59.2 -12°13.7	138°59.3 -12°14.6	153°59.4 -12°15.5	168°59.4 -12°16.3	+0.1 -0.9
di 26	183°59.5 -12°17.2	198°59.6 -12°18.0	213°59.7 -12°18.9	228°59.7 -12°19.7	243°59.8 -12°20.6	258°59.9 -12°21.4	94°00.7 -12°32.5	109°00.8 -12°33.4	124°00.8 -12°34.2	139°00.9 -12°35.1	154°00.9 -12°35.9	169°01.0 -12°36.8	+0.1 -0.9
wo 27	184°01.1 -12°37.6	199°01.1 -12°38.5	214°01.2 -12°39.3	229°01.3 -12°40.2	244°01.3 -12°41.0	259°01.4 -12°41.9	94°02.1 -12°52.9	109°02.2 -12°53.7	124°02.2 -12°54.6	139°02.3 -12°55.4	154°02.3 -12°56.2	169°02.4 -12°57.1	+0.1 -0.8
do 28	184°02.4 -12°57.9	199°02.5 -12°58.8	214°02.5 -12°59.6	229°02.6 -13°00.5	244°02.6 -13°01.3	259°02.7 -13°02.1	94°03.3 -13°13.0	109°03.4 -13°13.8	124°03.4 -13°14.7	139°03.5 -13°15.5	154°03.5 -13°16.3	169°03.6 -13°17.2	+0.1 -0.8
vr 29	184°03.6 -13°18.0	199°03.7 -13°18.8	214°03.7 -13°19.7	229°03.8 -13°20.5	244°03.8 -13°21.3	259°03.8 -13°22.2	94°04.4 -13°32.9	109°04.4 -13°33.8	124°04.5 -13°34.6	139°04.5 -13°35.4	154°04.5 -13°36.2	169°04.6 -13°37.1	+0.0 -0.8
za 30	184°04.6 -13°37.9	199°04.6 -13°38.7	214°04.7 -13°39.5	229°04.7 -13°40.4	244°04.7 -13°41.2	259°04.8 -13°42.0	94°05.2 -13°52.7	109°05.2 -13°53.5	124°05.3 -13°54.3	139°05.3 -13°55.1	154°05.3 -13°55.9	169°05.4 -13°56.7	+0.0 -0.8
zo 31	184°05.4 -13°57.5	199°05.4 -13°58.4	214°05.5 -13°59.2	229°05.5 -14°00.0	244°05.5 -14°00.8	259°05.5 -14°01.6	94°05.9 -14°12.1	109°05.9 -14°12.9	124°05.9 -14°13.8	139°05.9 -14°14.6	154°06.0 -14°15.4	169°06.0 -14°16.2	+0.0 -0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2027

D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
vr 1	59°33.0	74°01.8	88°30.6	102°59.3	117°28.0	131°56.6	146°25.3	160°53.8	175°22.4	189°50.9	204°19.4	+28.6	15.9
	-15°59.3	-16°12.3	-16°25.2	-16°38.0	-16°50.7	-17°03.3	-17°15.8	-17°28.2	-17°40.4	-17°52.6	-18°04.6	-12.5	58.4
za 2	61°22.3	75°50.2	90°18.1	104°45.9	119°13.8	133°41.6	148°09.3	162°37.0	177°04.7	191°32.4	206°00.0	+27.8	15.7
	-20°50.9	-21°00.9	-21°10.9	-21°20.7	-21°30.4	-21°40.0	-21°49.4	-21°58.7	-22°07.9	-22°16.9	-22°25.8	-9.5	57.6
zo 3	62°51.5	77°18.8	91°46.0	106°13.2	120°40.4	135°07.7	149°34.8	164°02.0	178°29.2	192°56.4	207°23.5	+27.2	15.5
	-24°22.5	-24°29.2	-24°35.7	-24°42.0	-24°48.2	-24°54.3	-25°00.2	-25°06.0	-25°11.6	-25°17.1	-25°22.4	-6.0	56.7
ma 4	64°10.7	78°37.9	93°05.1	107°32.3	121°59.5	136°26.8	150°54.0	165°21.3	179°48.6	194°15.9	208°43.2	+27.3	15.2
	-26°24.6	-26°27.6	-26°30.4	-26°33.0	-26°35.5	-26°37.9	-26°40.1	-26°42.2	-26°44.1	-26°45.9	-26°47.6	-2.3	55.9
di 5	65°36.7	80°04.6	94°32.5	109°00.4	123°28.4	137°56.4	152°24.5	166°52.6	181°20.7	195°48.9	210°17.2	+28.0	15.1
	-26°54.7	-26°54.1	-26°53.3	-26°52.3	-26°51.2	-26°50.0	-26°48.7	-26°47.2	-26°45.5	-26°43.8	-26°41.9	+1.3	55.2
wo 6	67°27.5	81°56.6	96°25.8	110°55.1	125°24.4	139°53.8	154°23.3	168°52.8	183°22.4	197°52.1	212°21.8	+29.4	14.9
	-25°57.5	-25°53.6	-25°49.5	-25°45.2	-25°40.9	-25°36.4	-25°31.8	-25°27.1	-25°22.3	-25°17.3	-25°12.3	+4.5	54.7
◐ do 7	69°55.6	84°26.4	98°57.3	113°28.2	127°59.2	142°30.3	157°01.4	171°32.6	186°03.9	200°35.3	215°06.7	+31.1	14.8
	-23°42.7	-23°35.9	-23°28.9	-23°21.9	-23°14.7	-23°07.5	-23°00.1	-22°52.7	-22°45.1	-22°37.5	-22°29.8	+7.3	54.3
vr 8	84°26.4	98°57.3	113°28.2	127°59.2	142°30.3	157°01.4	171°32.6	186°03.9	200°35.3	215°06.7	229°38.1	+31.2	14.8
	-23°35.9	-23°28.9	-23°21.9	-23°14.7	-23°07.5	-23°00.1	-22°52.7	-22°45.1	-22°37.5	-22°29.8	-22°21.9	+7.4	54.3
za 9	87°38.3	102°10.8	116°43.4	131°16.0	145°48.7	160°21.5	174°54.3	189°27.2	204°00.1	218°33.2	233°06.2	+32.8	14.8
	-20°13.3	-20°04.0	-19°54.6	-19°45.2	-19°35.7	-19°26.1	-19°16.4	-19°06.6	-18°56.8	-18°46.9	-18°36.9	+9.6	54.2
zo 10	91°28.7	106°02.6	120°36.5	135°10.5	149°44.6	164°18.7	178°52.8	193°27.0	208°01.2	222°35.4	237°09.7	+34.1	14.8
	-15°58.3	-15°47.2	-15°36.0	-15°24.8	-15°13.5	-15°02.1	-14°50.7	-14°39.2	-14°27.6	-14°16.0	-14°04.4	+11.4	54.2
ma 11	95°48.6	110°23.4	124°58.3	139°33.2	154°08.1	168°43.0	183°18.0	197°53.0	212°28.0	227°03.0	241°38.1	+35.0	14.8
	-11°02.9	-10°50.4	-10°37.9	-10°25.3	-10°12.6	-10°00.0	-9°47.2	-9°34.5	-9°21.7	-9°08.8	-8°55.9	+12.7	54.4
di 12	100°25.5	115°00.7	129°35.9	144°11.2	158°46.4	173°21.7	187°56.9	202°32.1	217°07.4	231°42.6	246°17.8	+35.2	14.9
	-5°38.2	-5°24.8	-5°11.3	-4°57.8	-4°44.3	-4°30.8	-4°17.2	-4°03.6	-3°50.0	-3°36.4	-3°22.7	+13.6	54.7
wo 13	105°05.0	119°40.0	134°15.0	148°50.0	163°25.0	177°59.9	192°34.8	207°09.7	221°44.5	236°19.3	250°54.1	+34.9	15.0
	0°04.4	0°18.3	0°32.2	0°46.2	1°00.1	1°14.1	1°28.0	1°42.0	1°55.9	2°09.9	2°23.8	+13.9	55.1
do 14	109°31.8	124°05.9	138°40.1	153°14.2	167°48.2	182°22.2	196°56.1	211°30.0	226°03.8	240°37.6	255°11.3	+34.0	15.2
	5°52.8	6°06.7	6°20.5	6°34.4	6°48.2	7°02.0	7°15.8	7°29.5	7°43.3	7°57.0	8°10.7	+13.8	55.6
○ vr 15	113°29.9	128°02.6	142°35.3	157°07.8	171°40.3	186°12.8	200°45.1	215°17.4	229°49.6	244°21.7	258°53.8	+32.4	15.3
	11°32.7	11°45.9	11°59.1	12°12.2	12°25.2	12°38.3	12°51.2	13°04.2	13°17.0	13°29.8	13°42.6	+13.0	56.1
za 16	116°44.6	131°15.3	145°45.9	160°16.4	174°46.8	189°17.2	203°47.4	218°17.5	232°47.6	247°17.6	261°47.4	+30.3	15.5
	16°47.1	16°58.9	17°10.6	17°22.2	17°33.7	17°45.2	17°56.6	18°07.9	18°19.1	18°30.3	18°41.3	+11.4	56.7
zo 17	119°04.1	133°32.5	148°00.7	162°28.8	176°56.9	191°24.9	205°52.7	220°20.5	234°48.2	249°15.7	263°43.2	+27.9	15.6
	21°15.9	21°25.4	21°34.8	21°44.0	21°53.2	22°02.2	22°11.2	22°20.0	22°28.7	22°37.3	22°45.7	+9.0	57.2
ma 18	120°24.5	134°50.6	149°16.6	163°42.5	178°08.3	192°34.0	206°59.7	221°25.3	235°50.8	250°16.2	264°41.6	+25.7	15.7
	24°37.1	24°43.4	24°49.6	24°55.6	25°01.5	25°07.3	25°12.9	25°18.3	25°23.6	25°28.8	25°33.8	+5.7	57.7
di 19	120°54.2	135°18.6	149°43.0	164°07.3	178°31.6	192°55.8	207°20.0	221°44.2	236°08.3	250°32.4	264°56.5	+24.2	15.8
	26°29.8	26°32.2	26°34.5	26°36.5	26°38.5	26°40.2	26°41.8	26°43.2	26°44.4	26°45.5	26°46.4	+1.7	58.1
wo 20	120°55.4	135°19.3	149°43.1	164°07.0	178°30.9	192°54.8	207°18.7	221°42.7	236°06.6	250°30.6	264°54.6	+23.9	16.0
	26°39.0	26°37.1	26°35.0	26°32.8	26°30.3	26°27.8	26°25.0	26°22.1	26°18.9	26°15.7	26°12.2	-2.7	58.5
do 21	120°58.2	135°22.8	149°47.4	164°12.1	178°36.8	193°01.5	207°26.4	221°51.2	236°16.2	250°41.2	265°06.2	+24.8	16.0
	25°00.0	24°53.9	24°47.6	24°41.1	24°34.5	24°27.7	24°20.8	24°13.7	24°06.4	23°59.0	23°51.4	-6.9	58.8
◑ vr 22	121°29.6	135°55.7	150°21.9	164°48.1	179°14.4	193°40.8	208°07.2	222°33.8	237°00.4	251°27.0	265°53.8	+26.4	16.1
	21°40.1	21°30.3	21°20.3	21°10.1	20°59.8	20°49.4	20°38.9	20°28.2	20°17.4	20°06.5	19°55.4	-10.5	59.1
za 23	122°43.6	137°11.5	151°39.4	166°07.4	180°35.5	195°03.7	209°31.9	224°00.2	238°28.5	252°57.0	267°25.4	+28.2	16.2
	16°55.9	16°43.1	16°30.2	16°17.2	16°04.1	15°50.8	15°37.5	15°24.1	15°10.7	14°57.1	14°43.4	-13.3	59.3
zo 24	124°39.9	139°09.3	153°38.7	168°08.2	182°37.8	197°07.4	211°37.0	226°06.7	240°36.5	255°06.2	269°36.1	+29.6	16.2
	11°09.1	10°54.3	10°39.4	10°24.4	10°09.4	9°54.3	9°39.2	9°24.0	9°08.7	8°53.5	8°38.1	-15.1	59.4
ma 25	127°07.7	141°38.1	156°08.4	170°38.8	185°09.2	199°39.7	214°10.1	228°40.6	243°11.1	257°41.6	272°12.1	+30.4	16.2
	4°43.3	4°27.4	4°11.4	3°55.5	3°39.5	3°23.5	3°07.5	2°51.5	2°35.5	2°19.4	2°03.4	-16.0	59.4
di 26	129°51.0	144°21.6	158°52.2	173°22.8	187°53.3	202°23.9	216°54.5	231°25.1	245°55.6	260°26.1	274°56.7	+30.6	16.1
	-1°57.7	-2°13.7	-2°29.7	-2°45.7	-3°01.7	-3°17.6	-3°33.5	-3°49.4	-4°05.3	-4°21.1	-4°37.0	-15.9	59.2
wo 27	132°32.4	147°02.6	161°32.7	176°02.8	190°33.0	205°03.0	219°33.1	234°03.1	248°33.0	263°03.0	277°32.9	+30.1	16.1
	-8°29.9	-8°45.1	-9°00.2	-9°15.3	-9°30.3	-9°45.2	-10°00.1	-10°15.0	-10°29.7	-10°44.4	-10°59.1	-14.9	58.9
do 28	134°56.8	149°26.1	163°55.3	178°24.4	192°53.6	207°22.7	221°51.7	236°20.7	250°49.6	265°18.5	279°47.4	+29.1	15.9
	-14°29.9	-14°43.4	-14°56.7	-15°09.9	-15°23.0	-15°36.1	-15°49.0	-16°01.9	-16°14.6	-16°27.3	-16°39.9	-13.0	58.4
● vr 29	136°54.4	151°22.5	165°50.6	180°18.6	194°46.6	209°14.5	223°42.3	238°10.2	252°37.9	267°05.7	281°33.4	+27.9	15.8
	-19°35.5	-19°46.3	-19°57.0	-20°07.5	-20°18.0	-20°28.3	-20°38.5	-20°48.6	-20°58.5	-21°08.3	-21°18.0	-10.3	57.8
za 30	138°24.1	152°51.2	167°18.3	181°45.3	196°12.3	210°39.3	225°06.3	239°33.2	254°00.1	268°27.0	282°53.9	+27.0	15.6
	-23°27.3	-23°34.9	-23°42.2	-23°49.5	-23°56.6	-24°03.5	-24°10.3	-24°17.0	-24°23.5	-24°29.9	-24°36.1	-6.9	57.1
zo 31	139°35.2	154°01.9	168°28.6	182°55.3	197°22.0	211°48.7	226°15.4	240°42.2	255°08.9	269°35.7	284°02.4	+26.7	15.4
	-25°51.7	-25°55.5	-25°59.2	-26°02.7	-26°06.1	-26°09.4	-26°12.5	-26°15.4	-26°18.2	-26°20.8	-26°23.3	-3.2	56.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 7 11h47 — VM: 15 13h47 — LK: 22 17h29 — NM: 29 13h36

ZON

November 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	184°06.0	199°06.0	214°06.0	229°06.1	244°06.1	259°06.1	94°06.3	109°06.3	124°06.3	139°06.4	154°06.4	169°06.4	+0.0
	-14°17.0	-14°17.8	-14°18.6	-14°19.4	-14°20.2	-14°21.0	-14°31.4	-14°32.2	-14°33.0	-14°33.8	-14°34.6	-14°35.4	-0.8
di 2	184°06.4	199°06.4	214°06.4	229°06.4	244°06.4	259°06.5	94°06.6	109°06.6	124°06.6	139°06.6	154°06.6	169°06.6	+0.0
	-14°36.2	-14°37.0	-14°37.8	-14°38.6	-14°39.4	-14°40.2	-14°50.4	-14°51.2	-14°52.0	-14°52.8	-14°53.6	-14°54.4	-0.8
wo 3	184°06.6	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.6	109°06.6	124°06.6	139°06.6	154°06.6	169°06.6	+0.0
	-14°55.2	-14°55.9	-14°56.7	-14°57.5	-14°58.3	-14°59.1	-15°09.2	-15°10.0	-15°10.8	-15°11.6	-15°12.3	-15°13.1	-0.8
do 4	184°06.6	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.5	109°06.5	124°06.5	139°06.5	154°06.4	169°06.4	-0.0
	-15°13.9	-15°14.7	-15°15.4	-15°16.2	-15°17.0	-15°17.7	-15°27.8	-15°28.5	-15°29.3	-15°30.1	-15°30.8	-15°31.6	-0.8
vr 5	184°06.4	199°06.4	214°06.4	229°06.4	244°06.4	259°06.4	94°06.1	109°06.1	124°06.1	139°06.1	154°06.1	169°06.0	-0.0
	-15°32.4	-15°33.1	-15°33.9	-15°34.6	-15°35.4	-15°36.2	-15°46.0	-15°46.8	-15°47.6	-15°48.3	-15°49.1	-15°49.8	-0.8
za 6	184°06.0	199°06.0	214°06.0	229°06.0	244°05.9	259°05.9	94°05.6	109°05.6	124°05.5	139°05.5	154°05.5	169°05.4	-0.0
	-15°50.6	-15°51.3	-15°52.1	-15°52.8	-15°53.6	-15°54.3	-16°04.1	-16°04.8	-16°05.5	-16°06.3	-16°07.0	-16°07.8	-0.8
zo 7	184°05.4	199°05.4	214°05.4	229°05.3	244°05.3	259°05.3	94°04.8	109°04.8	124°04.8	139°04.7	154°04.7	169°04.7	-0.0
	-16°08.5	-16°09.3	-16°10.0	-16°10.7	-16°11.5	-16°12.2	-16°21.8	-16°22.5	-16°23.3	-16°24.0	-16°24.7	-16°25.5	-0.7
ma 8	184°04.6	199°04.6	214°04.5	229°04.5	244°04.5	259°04.4	94°03.9	109°03.8	124°03.8	139°03.7	154°03.7	169°03.6	-0.0
	-16°26.2	-16°26.9	-16°27.7	-16°28.4	-16°29.1	-16°29.9	-16°39.3	-16°40.0	-16°40.7	-16°41.4	-16°42.2	-16°42.9	-0.7
di 9	184°03.6	199°03.6	214°03.5	229°03.5	244°03.4	259°03.4	94°02.7	109°02.7	124°02.6	139°02.5	154°02.5	169°02.4	-0.0
	-16°43.6	-16°44.3	-16°45.0	-16°45.8	-16°46.5	-16°47.2	-16°56.5	-16°57.2	-16°57.9	-16°58.6	-16°59.3	-17°00.0	-0.7
wo 10	184°02.4	199°02.3	214°02.3	229°02.2	244°02.2	259°02.1	94°01.3	109°01.3	124°01.2	139°01.1	154°01.1	169°01.0	-0.1
	-17°00.7	-17°01.4	-17°02.1	-17°02.8	-17°03.6	-17°04.3	-17°13.4	-17°14.1	-17°14.8	-17°15.5	-17°16.2	-17°16.9	-0.7
do 11	184°01.0	199°00.9	214°00.8	229°00.8	244°00.7	259°00.6	93°59.8	108°59.7	123°59.6	138°59.5	153°59.5	168°59.4	-0.1
	-17°17.6	-17°18.3	-17°18.9	-17°19.6	-17°20.3	-17°21.0	-17°30.0	-17°30.7	-17°31.4	-17°32.0	-17°32.7	-17°33.4	-0.7
vr 12	183°59.3	198°59.3	213°59.2	228°59.1	243°59.0	258°59.0	93°58.0	108°57.9	123°57.8	138°57.7	153°57.6	168°57.6	-0.1
	-17°34.1	-17°34.8	-17°35.5	-17°36.1	-17°36.8	-17°37.5	-17°46.3	-17°47.0	-17°47.6	-17°48.3	-17°49.0	-17°49.7	-0.7
za 13	183°57.5	198°57.4	213°57.3	228°57.2	243°57.1	258°57.1	93°56.0	108°55.9	123°55.8	138°55.7	153°55.6	168°55.5	-0.1
	-17°50.3	-17°51.0	-17°51.7	-17°52.3	-17°53.0	-17°53.7	-18°02.3	-18°03.0	-18°03.6	-18°04.3	-18°04.9	-18°05.6	-0.7
zo 14	183°55.4	198°55.3	213°55.2	228°55.1	243°55.1	258°55.0	93°53.7	108°53.6	123°53.5	138°53.4	153°53.3	168°53.3	-0.1
	-18°06.2	-18°06.9	-18°07.6	-18°08.2	-18°08.9	-18°09.5	-18°18.0	-18°18.6	-18°19.3	-18°19.9	-18°20.6	-18°21.2	-0.7
ma 15	183°53.2	198°53.1	213°53.0	228°52.9	243°52.8	258°52.7	93°51.3	108°51.2	123°51.1	138°51.0	153°50.9	168°50.8	-0.1
	-18°21.9	-18°22.5	-18°23.1	-18°23.8	-18°24.4	-18°25.1	-18°33.3	-18°34.0	-18°34.6	-18°35.2	-18°35.9	-18°36.5	-0.6
di 16	183°50.7	198°50.6	213°50.5	228°50.3	243°50.2	258°50.1	93°48.7	108°48.6	123°48.4	138°48.3	153°48.2	168°48.1	-0.1
	-18°37.1	-18°37.8	-18°38.4	-18°39.0	-18°39.7	-18°40.3	-18°48.4	-18°49.0	-18°49.6	-18°50.2	-18°50.9	-18°51.5	-0.6
wo 17	183°48.0	198°47.9	213°47.7	228°47.6	243°47.5	258°47.4	93°45.8	108°45.7	123°45.6	138°45.4	153°45.3	168°45.2	-0.1
	-18°52.1	-18°52.7	-18°53.3	-18°53.9	-18°54.6	-18°55.2	-19°03.1	-19°03.7	-19°04.3	-19°04.9	-19°05.5	-19°06.1	-0.6
do 18	183°45.1	198°44.9	213°44.8	228°44.7	243°44.6	258°44.4	93°42.8	108°42.6	123°42.5	138°42.4	153°42.2	168°42.1	-0.1
	-19°06.7	-19°07.3	-19°07.9	-19°08.5	-19°09.1	-19°09.7	-19°17.5	-19°18.1	-19°18.7	-19°19.2	-19°19.8	-19°20.4	-0.6
vr 19	183°42.0	198°41.8	213°41.7	228°41.6	243°41.4	258°41.3	93°39.5	108°39.3	123°39.2	138°39.1	153°38.9	168°38.8	-0.1
	-19°21.0	-19°21.6	-19°22.2	-19°22.8	-19°23.4	-19°23.9	-19°31.5	-19°32.1	-19°32.7	-19°33.2	-19°33.8	-19°34.4	-0.6
za 20	183°38.6	198°38.5	213°38.3	228°38.2	243°38.1	258°37.9	93°36.0	108°35.8	123°35.7	138°35.5	153°35.4	168°35.2	-0.1
	-19°34.9	-19°35.5	-19°36.1	-19°36.7	-19°37.2	-19°37.8	-19°45.2	-19°45.7	-19°46.3	-19°46.9	-19°47.4	-19°48.0	-0.6
zo 21	183°35.1	198°34.9	213°34.8	228°34.6	243°34.5	258°34.3	93°32.3	108°32.1	123°32.0	138°31.8	153°31.7	168°31.5	-0.2
	-19°48.5	-19°49.1	-19°49.7	-19°50.2	-19°50.8	-19°51.3	-19°58.5	-19°59.0	-19°59.6	-20°00.1	-20°00.7	-20°01.2	-0.6
ma 22	183°31.3	198°31.2	213°31.0	228°30.9	243°30.7	258°30.5	93°28.4	108°28.2	123°28.1	138°27.9	153°27.7	168°27.6	-0.2
	-20°01.8	-20°02.3	-20°02.8	-20°03.4	-20°03.9	-20°04.5	-20°11.4	-20°12.0	-20°12.5	-20°13.0	-20°13.6	-20°14.1	-0.5
di 23	183°27.4	198°27.2	213°27.1	228°26.9	243°26.7	258°26.5	93°24.3	108°24.1	123°23.9	138°23.8	153°23.6	168°23.4	-0.2
	-20°14.6	-20°15.1	-20°15.7	-20°16.2	-20°16.7	-20°17.3	-20°24.0	-20°24.5	-20°25.1	-20°25.6	-20°26.1	-20°26.6	-0.5
wo 24	183°23.2	198°23.1	213°22.9	228°22.8	243°22.5	258°22.4	93°20.0	108°19.8	123°19.6	138°19.4	153°19.3	168°19.1	-0.2
	-20°27.1	-20°27.6	-20°28.1	-20°28.6	-20°29.2	-20°29.7	-20°36.2	-20°36.7	-20°37.2	-20°37.7	-20°38.2	-20°38.7	-0.5
do 25	183°18.9	198°18.7	213°18.5	228°18.3	243°18.1	258°18.0	93°15.5	108°15.3	123°15.1	138°14.9	153°14.7	168°14.5	-0.2
	-20°39.2	-20°39.7	-20°40.2	-20°40.7	-20°41.2	-20°41.7	-20°48.1	-20°48.5	-20°49.0	-20°49.5	-20°50.0	-20°50.5	-0.5
vr 26	183°14.3	198°14.2	213°14.0	228°13.8	243°13.6	258°13.4	93°10.8	108°10.6	123°10.4	138°10.2	153°10.0	168°09.8	-0.2
	-20°50.9	-20°51.4	-20°51.9	-20°52.4	-20°52.9	-20°53.3	-20°59.5	-21°00.0	-21°00.4	-21°00.9	-21°01.4	-21°01.8	-0.5
za 27	183°09.6	198°09.4	213°09.2	228°09.0	243°08.8	258°08.6	93°05.9	108°05.7	123°05.5	138°05.3	153°05.1	168°04.9	-0.2
	-21°02.3	-21°02.8	-21°03.2	-21°03.7	-21°04.1	-21°04.6	-21°10.5	-21°11.0	-21°11.4	-21°11.9	-21°12.3	-21°12.8	-0.5
zo 28	183°04.7	198°04.5	213°04.3	228°04.1	243°03.9	258°03.6	93°00.9	108°00.7	123°00.5	138°00.2	153°00.0	167°59.8	-0.2
	-21°13.2	-21°13.7	-21°14.1	-21°14.6	-21°15.0	-21°15.5	-21°21.2	-21°21.6	-21°22.0	-21°22.5	-21°22.9	-21°23.3	-0.4
ma 29	182°59.6	197°59.4	212°59.2	227°58.9	242°58.7	257°58.5	92°55.7	107°55.4	122°55.2	137°55.0	152°54.8	167°54.6	-0.2
	-21°23.8	-21°24.2	-21°24.6	-21°25.1	-21°25.5	-21°25.9	-21°31.4	-21°31.8	-21°32.3	-21°32.7	-21°33.1	-21°33.5	-0.4
di 30	182°54.3	197°54.1	212°53.9	227°53.7	242°53.4	257°53.2	92°50.3	107°50.0	122°49.8	137°49.6	152°49.3	167°49.1	-0.2
	-21°33.9	-21°34.3	-21°34.7	-21°35.2	-21°35.6	-21°36.0	-21°41.2	-21°41.6	-21°42.0	-21°42.4	-21°42.8	-21°43.2	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2027

D	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
ma 1	54°04.0	68°31.0	82°58.0	97°25.0	111°52.1	126°19.1	140°46.3	155°13.4	169°40.6	184°07.8	198°35.1	+27.1	15.2
	-26°38.9	-26°39.9	-26°40.7	-26°41.4	-26°41.9	-26°42.3	-26°42.6	-26°42.7	-26°42.6	-26°42.4	-26°42.1	-0.3	55.8
di 2	55°29.6	69°57.6	84°25.7	98°53.9	113°22.1	127°50.4	142°18.8	156°47.2	171°15.7	185°44.2	200°12.8	+28.3	15.1
	-26°20.0	-26°17.5	-26°14.8	-26°11.9	-26°08.9	-26°05.8	-26°02.6	-25°59.2	-25°55.7	-25°52.1	-25°48.3	+3.2	55.2
wo 3	57°30.2	71°59.9	86°29.7	100°59.6	115°29.5	129°59.6	144°29.7	158°59.8	173°30.1	188°00.4	202°30.8	+30.1	14.9
	-24°37.2	-24°31.5	-24°25.7	-24°19.7	-24°13.7	-24°07.6	-24°01.3	-23°55.0	-23°48.5	-23°41.9	-23°35.2	+6.2	54.7
do 4	60°15.8	74°47.4	89°19.1	103°50.9	118°22.7	132°54.6	147°26.5	161°58.5	176°30.7	191°02.8	205°35.1	+31.9	14.8
	-21°42.9	-21°34.6	-21°26.3	-21°17.8	-21°09.3	-21°00.7	-20°52.0	-20°43.2	-20°34.3	-20°25.4	-20°16.3	+8.7	54.4
vr 5	63°46.8	78°20.1	92°53.4	107°26.8	122°00.3	136°33.8	151°07.4	165°41.0	180°14.7	194°48.5	209°22.3	+33.6	14.8
	-17°51.2	-17°40.9	-17°30.6	-17°20.2	-17°09.7	-16°59.1	-16°48.5	-16°37.8	-16°27.1	-16°16.3	-16°05.4	+10.6	54.2
◐ za 6	67°55.4	82°29.9	97°04.5	111°39.2	126°13.9	140°48.6	155°23.3	169°58.1	184°32.9	199°07.8	213°42.7	+34.7	14.8
	-13°15.1	-13°03.3	-12°51.5	-12°39.6	-12°27.7	-12°15.7	-12°03.6	-11°51.5	-11°39.4	-11°27.2	-11°14.9	+12.0	54.2
zo 7	82°29.9	97°04.5	111°39.2	126°13.9	140°48.6	155°23.3	169°58.1	184°32.9	199°07.8	213°42.7	228°17.6	+34.8	14.8
	-13°03.3	-12°51.5	-12°39.6	-12°27.7	-12°15.7	-12°03.6	-11°51.5	-11°39.4	-11°27.2	-11°14.9	-11°02.7	+12.1	54.2
ma 8	87°04.6	101°39.8	116°15.2	130°50.5	145°25.8	160°01.2	174°36.5	189°11.9	203°47.2	218°22.6	232°58.0	+35.3	14.8
	-7°53.4	-7°40.5	-7°27.6	-7°14.6	-7°01.5	-6°48.5	-6°35.4	-6°22.3	-6°09.1	-5°56.0	-5°42.8	+13.1	54.5
di 9	91°48.8	106°24.2	120°59.5	135°34.8	150°10.1	164°45.4	179°20.7	193°56.0	208°31.2	223°06.4	237°41.6	+35.3	15.0
	-2°21.6	-2°08.0	-1°54.4	-1°40.8	-1°27.2	-1°13.5	-0°59.9	-0°46.2	-0°32.5	-0°18.8	-0°05.1	+13.7	54.8
wo 10	96°26.3	111°01.0	125°35.7	140°10.3	154°44.9	169°19.4	183°54.0	198°28.4	213°02.8	227°37.2	242°11.5	+34.5	15.1
	3°21.6	3°35.4	3°49.2	4°03.0	4°16.8	4°30.6	4°44.3	4°58.1	5°11.9	5°25.7	5°39.4	+13.8	55.4
do 11	100°39.6	115°13.0	129°46.3	144°19.6	158°52.7	173°25.8	187°58.9	202°31.8	217°04.7	231°37.5	246°10.3	+33.1	15.3
	9°04.0	9°17.5	9°31.0	9°44.4	9°57.8	10°11.2	10°24.5	10°37.9	10°51.1	11°04.4	11°17.6	+13.4	56.0
vr 12	104°11.6	118°43.0	133°14.3	147°45.5	162°16.6	176°47.6	191°18.5	205°49.3	220°20.1	234°50.7	249°21.2	+31.0	15.5
	14°30.7	14°43.2	14°55.7	15°08.0	15°20.3	15°32.6	15°44.8	15°56.9	16°09.0	16°21.0	16°32.9	+12.2	56.7
za 13	106°47.1	121°15.9	135°44.7	150°13.4	164°42.0	179°10.4	193°38.8	208°07.0	222°35.2	237°03.2	251°31.1	+28.4	15.7
	19°22.6	19°33.2	19°43.8	19°54.2	20°04.6	20°14.8	20°25.0	20°35.0	20°44.9	20°54.8	21°04.5	+10.2	57.4
○ zo 14	108°17.2	122°43.5	137°09.6	151°35.6	166°01.6	180°27.4	194°53.2	209°18.8	223°44.4	238°09.8	252°35.2	+25.8	15.8
	23°16.6	23°24.4	23°32.1	23°39.6	23°47.0	23°54.3	24°01.4	24°08.4	24°15.2	24°21.9	24°28.5	+7.2	58.0
ma 15	108°45.5	123°09.6	137°33.6	151°57.5	166°21.4	180°45.2	195°09.0	209°32.7	223°56.3	238°19.9	252°43.5	+23.8	16.0
	25°48.4	25°52.4	25°56.3	26°00.0	26°03.5	26°06.9	26°10.1	26°13.2	26°16.0	26°18.7	26°21.2	+3.3	58.6
di 16	108°32.1	122°55.1	137°18.2	151°41.2	166°04.2	180°27.2	194°50.3	209°13.3	223°36.3	237°59.3	252°22.4	+23.0	16.1
	26°37.6	26°37.2	26°36.7	26°36.0	26°35.1	26°34.0	26°32.8	26°31.3	26°29.7	26°27.9	26°25.9	-1.2	59.0
wo 17	108°10.6	122°34.1	136°57.6	151°21.2	165°44.9	180°08.5	194°32.3	208°56.1	223°19.9	237°43.8	252°07.8	+23.7	16.1
	25°34.6	25°29.8	25°24.8	25°19.6	25°14.3	25°08.8	25°03.1	24°57.2	24°51.2	24°45.0	24°38.7	-5.6	59.2
do 18	108°15.5	122°40.6	137°05.8	151°31.1	165°56.4	180°21.8	194°47.4	209°13.0	223°38.7	238°04.4	252°30.3	+25.5	16.2
	22°44.3	22°35.5	22°26.5	22°17.4	22°08.1	21°58.7	21°49.2	21°39.5	21°29.7	21°19.7	21°09.6	-9.5	59.3
vr 19	109°08.4	123°35.7	138°03.0	152°30.4	166°57.9	181°25.5	195°53.1	210°20.9	224°48.7	239°16.6	253°44.6	+27.6	16.2
	18°23.6	18°11.7	17°59.6	17°47.4	17°35.1	17°22.7	17°10.2	16°57.6	16°44.9	16°32.1	16°19.3	-12.4	59.3
za 20	110°53.8	125°23.0	139°52.2	154°21.6	168°51.0	183°20.5	197°50.0	212°19.6	226°49.3	241°19.0	255°48.8	+29.5	16.1
	12°56.1	12°42.0	12°27.8	12°13.5	11°59.2	11°44.8	11°30.3	11°15.8	11°01.2	10°46.6	10°31.9	-14.4	59.2
◑ zo 21	113°22.2	127°52.8	142°23.4	156°54.1	171°24.8	185°55.6	200°26.4	214°57.2	229°28.1	243°59.0	258°30.0	+30.8	16.1
	6°46.3	6°31.0	6°15.6	6°00.2	5°44.8	5°29.3	5°13.9	4°58.4	4°42.9	4°27.3	4°11.8	-15.5	59.0
ma 22	116°16.9	130°48.2	145°19.5	159°50.8	174°22.1	188°53.4	203°24.7	217°56.0	232°27.4	246°58.7	261°30.0	+31.3	16.0
	0°17.4	0°01.7	-0°13.9	-0°29.5	-0°45.2	-1°00.8	-1°16.4	-1°32.0	-1°47.6	-2°03.1	-2°18.7	-15.6	58.7
di 23	119°19.2	133°50.4	148°21.5	162°52.7	177°23.8	191°54.9	206°26.0	220°57.0	235°28.1	249°59.1	264°30.1	+31.1	15.9
	-6°09.2	-6°24.3	-6°39.4	-6°54.4	-7°09.4	-7°24.4	-7°39.3	-7°54.2	-8°09.0	-8°23.8	-8°38.5	-14.9	58.4
wo 24	122°10.9	136°41.4	151°11.8	165°42.1	180°12.4	194°42.7	209°12.9	223°43.1	238°13.2	252°43.3	267°13.3	+30.2	15.8
	-12°12.9	-12°26.7	-12°40.4	-12°54.0	-13°07.6	-13°21.1	-13°34.5	-13°47.9	-14°01.2	-14°14.4	-14°27.5	-13.5	58.0
do 25	124°38.0	139°07.2	153°36.4	168°05.6	182°34.6	197°03.7	211°32.6	226°01.6	240°30.4	254°59.2	269°28.0	+29.0	15.7
	-17°33.8	-17°45.4	-17°57.0	-18°08.5	-18°19.8	-18°31.1	-18°42.2	-18°53.3	-19°04.2	-19°15.1	-19°25.8	-11.2	57.5
vr 26	126°33.2	141°01.1	155°29.0	169°56.9	184°24.7	198°52.5	213°20.2	227°47.8	242°15.5	256°43.1	271°10.6	+27.7	15.5
	-21°52.7	-22°01.5	-22°10.2	-22°18.8	-22°27.2	-22°35.5	-22°43.7	-22°51.8	-22°59.7	-23°07.5	-23°15.1	-8.2	57.0
za 27	127°59.4	142°26.4	156°53.4	171°20.3	185°47.3	200°14.2	214°41.1	229°08.0	243°34.9	258°01.7	272°28.6	+26.9	15.4
	-24°53.2	-24°58.6	-25°03.9	-25°09.0	-25°14.0	-25°18.8	-25°23.5	-25°28.1	-25°32.4	-25°36.7	-25°40.8	-4.8	56.5
● zo 28	129°10.7	143°37.5	158°04.4	172°31.2	186°58.1	201°25.0	215°51.9	230°18.9	244°45.8	259°12.8	273°39.8	+26.9	15.2
	-26°24.4	-26°26.1	-26°27.6	-26°29.0	-26°30.3	-26°31.4	-26°32.4	-26°33.2	-26°33.9	-26°34.4	-26°34.8	-1.0	55.9
ma 29	130°28.9	144°56.5	159°24.2	173°51.9	188°19.7	202°47.5	217°15.3	231°43.2	246°11.2	260°39.2	275°07.3	+27.8	15.1
	-26°23.1	-26°21.2	-26°19.1	-26°16.9	-26°14.6	-26°12.1	-26°09.5	-26°06.8	-26°03.9	-26°00.9	-25°57.7	+2.5	55.4
di 30	132°16.2	146°45.3	161°14.5	175°43.8	190°13.2	204°42.6	219°12.1	233°41.7	248°11.3	262°41.1	277°10.9	+29.5	15.0
	-24°55.0	-24°49.9	-24°44.6	-24°39.2	-24°33.6	-24°28.0	-24°22.2	-24°16.3	-24°10.3	-24°04.2	-23°58.0	+5.7	54.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 08h00 — VM: 14 03h25 — LK: 21 00h48 — NM: 28 03h24

ZON

December 2027

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	182°48.9	197°48.7	212°48.4	227°48.2	242°48.0	257°47.7	92°44.7	107°44.5	122°44.2	137°44.0	152°43.8	167°43.5	-0.2
	-21°43.6	-21°44.0	-21°44.4	-21°44.8	-21°45.2	-21°45.6	-21°50.7	-21°51.0	-21°51.4	-21°51.8	-21°52.2	-21°52.6	-0.4
do 2	182°43.3	197°43.1	212°42.8	227°42.6	242°42.3	257°42.1	92°39.0	107°38.7	122°38.5	137°38.3	152°38.0	167°37.8	-0.2
	-21°53.0	-21°53.3	-21°53.7	-21°54.1	-21°54.5	-21°54.8	-21°59.7	-22°00.0	-22°00.4	-22°00.8	-22°01.1	-22°01.5	-0.4
vr 3	182°37.5	197°37.3	212°37.1	227°36.8	242°36.6	257°36.3	92°33.1	107°32.9	122°32.6	137°32.4	152°32.1	167°31.9	-0.2
	-22°01.8	-22°02.2	-22°02.6	-22°02.9	-22°03.3	-22°03.6	-22°08.2	-22°08.6	-22°08.9	-22°09.3	-22°09.6	-22°10.0	-0.4
za 4	182°31.6	197°31.4	212°31.1	227°30.9	242°30.6	257°30.4	92°27.1	107°26.9	122°26.6	137°26.3	152°26.1	167°25.8	-0.2
	-22°10.3	-22°10.7	-22°11.0	-22°11.3	-22°11.7	-22°12.0	-22°16.4	-22°16.7	-22°17.0	-22°17.4	-22°17.7	-22°18.0	-0.3
zo 5	182°25.6	197°25.3	212°25.1	227°24.8	242°24.6	257°24.3	92°21.0	107°20.7	122°20.4	137°20.2	152°19.9	167°19.7	-0.3
	-22°18.3	-22°18.7	-22°19.0	-22°19.3	-22°19.6	-22°20.0	-22°24.1	-22°24.4	-22°24.7	-22°25.0	-22°25.3	-22°25.6	-0.3
ma 6	182°19.4	197°19.1	212°18.9	227°18.6	242°18.4	257°18.1	92°14.7	107°14.4	122°14.2	137°13.9	152°13.6	167°13.4	-0.3
	-22°26.0	-22°26.3	-22°26.6	-22°26.9	-22°27.2	-22°27.5	-22°31.4	-22°31.7	-22°32.0	-22°32.3	-22°32.5	-22°32.8	-0.3
di 7	182°13.1	197°12.8	212°12.6	227°12.3	242°12.0	257°11.8	92°08.3	107°08.0	122°07.7	137°07.5	152°07.2	167°06.9	-0.3
	-22°33.1	-22°33.4	-22°33.7	-22°34.0	-22°34.3	-22°34.6	-22°38.2	-22°38.5	-22°38.8	-22°39.0	-22°39.3	-22°39.6	-0.3
wo 8	182°06.7	197°06.4	212°06.1	227°05.8	242°05.6	257°05.3	92°01.7	107°01.5	122°01.2	137°00.9	152°00.6	167°00.4	-0.3
	-22°39.8	-22°40.1	-22°40.4	-22°40.7	-22°40.9	-22°41.2	-22°44.6	-22°44.9	-22°45.1	-22°45.4	-22°45.6	-22°45.9	-0.3
do 9	182°00.1	196°59.8	211°59.5	226°59.3	241°59.0	256°58.7	91°55.1	106°54.8	121°54.6	136°54.3	151°54.0	166°53.7	-0.3
	-22°46.1	-22°46.4	-22°46.6	-22°46.9	-22°47.1	-22°47.4	-22°50.6	-22°50.8	-22°51.0	-22°51.3	-22°51.5	-22°51.7	-0.3
vr 10	181°53.4	196°53.2	211°52.9	226°52.6	241°52.3	256°52.0	91°48.4	106°48.1	121°47.8	136°47.5	151°47.2	166°47.0	-0.3
	-22°52.0	-22°52.2	-22°52.4	-22°52.7	-22°52.9	-22°53.1	-22°56.1	-22°56.3	-22°56.5	-22°56.7	-22°56.9	-22°57.1	-0.2
za 11	181°46.7	196°46.4	211°46.1	226°45.8	241°45.5	256°45.2	91°41.5	106°41.2	121°41.0	136°40.7	151°40.4	166°40.1	-0.3
	-22°57.4	-22°57.6	-22°57.8	-22°58.0	-22°58.2	-22°58.4	-23°01.1	-23°01.3	-23°01.5	-23°01.7	-23°01.9	-23°02.1	-0.2
zo 12	181°39.8	196°39.5	211°39.2	226°38.9	241°38.7	256°38.4	91°34.6	106°34.3	121°34.0	136°33.7	151°33.4	166°33.1	-0.3
	-23°02.3	-23°02.5	-23°02.7	-23°02.9	-23°03.1	-23°03.3	-23°05.7	-23°05.9	-23°06.1	-23°06.2	-23°06.4	-23°06.6	-0.2
ma 13	181°32.8	196°32.6	211°32.3	226°32.0	241°31.7	256°31.4	91°27.6	106°27.3	121°27.0	136°26.7	151°26.4	166°26.1	-0.3
	-23°06.8	-23°06.9	-23°07.1	-23°07.3	-23°07.5	-23°07.6	-23°09.8	-23°10.0	-23°10.1	-23°10.3	-23°10.5	-23°10.6	-0.2
di 14	181°25.8	196°25.5	211°25.2	226°24.9	241°24.6	256°24.3	91°20.5	106°20.2	121°19.9	136°19.6	151°19.3	166°19.0	-0.3
	-23°10.8	-23°10.9	-23°11.1	-23°11.3	-23°11.4	-23°11.6	-23°13.5	-23°13.6	-23°13.8	-23°13.9	-23°14.1	-23°14.2	-0.2
wo 15	181°18.7	196°18.4	211°18.1	226°17.8	241°17.5	256°17.2	91°13.3	106°13.0	121°12.7	136°12.4	151°12.1	166°11.8	-0.3
	-23°14.3	-23°14.5	-23°14.6	-23°14.8	-23°14.9	-23°15.0	-23°16.7	-23°16.8	-23°17.0	-23°17.1	-23°17.2	-23°17.3	-0.1
do 16	181°11.5	196°11.2	211°10.9	226°10.6	241°10.3	256°10.0	91°06.1	106°05.8	121°05.5	136°05.2	151°04.9	166°04.6	-0.3
	-23°17.4	-23°17.6	-23°17.7	-23°17.8	-23°17.9	-23°18.0	-23°19.5	-23°19.6	-23°19.7	-23°19.8	-23°19.9	-23°20.0	-0.1
vr 17	181°04.3	196°04.0	211°03.7	226°03.3	241°03.0	256°02.7	90°58.8	105°58.5	120°58.2	135°57.9	150°57.6	165°57.3	-0.3
	-23°20.1	-23°20.2	-23°20.3	-23°20.4	-23°20.5	-23°20.6	-23°21.7	-23°21.8	-23°21.9	-23°22.0	-23°22.1	-23°22.2	-0.1
za 18	180°57.0	195°56.6	210°56.3	225°56.0	240°55.7	255°55.4	90°51.4	105°51.1	120°50.8	135°50.5	150°50.2	165°49.9	-0.3
	-23°22.2	-23°22.3	-23°22.4	-23°22.5	-23°22.6	-23°22.6	-23°23.6	-23°23.6	-23°23.7	-23°23.8	-23°23.8	-23°23.9	-0.1
zo 19	180°49.6	195°49.3	210°49.0	225°48.7	240°48.4	255°48.1	90°44.1	105°43.7	120°43.4	135°43.1	150°42.8	165°42.5	-0.3
	-23°23.9	-23°24.0	-23°24.1	-23°24.1	-23°24.2	-23°24.2	-23°24.9	-23°25.0	-23°25.0	-23°25.0	-23°25.1	-23°25.1	-0.1
ma 20	180°42.2	195°41.9	210°41.6	225°41.3	240°41.0	255°40.7	90°36.6	105°36.3	120°36.0	135°35.7	150°35.4	165°35.1	-0.3
	-23°25.2	-23°25.2	-23°25.3	-23°25.3	-23°25.3	-23°25.4	-23°25.8	-23°25.8	-23°25.8	-23°25.9	-23°25.9	-23°25.9	-0.0
di 21	180°34.8	195°34.5	210°34.2	225°33.8	240°33.5	255°33.2	90°29.2	105°28.9	120°28.6	135°28.3	150°27.9	165°27.6	-0.3
	-23°25.9	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-0.0
wo 22	180°27.3	195°27.0	210°26.7	225°26.4	240°26.1	255°25.8	90°21.7	105°21.4	120°21.1	135°20.8	150°20.5	165°20.2	-0.3
	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-23°26.2	-23°26.1	-23°26.1	-23°26.1	-23°26.1	-23°26.1	-23°26.1	-0.0
do 23	180°19.8	195°19.5	210°19.2	225°18.9	240°18.6	255°18.3	90°14.2	105°13.9	120°13.6	135°13.3	150°13.0	165°12.7	-0.3
	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°25.9	-23°25.6	-23°25.6	-23°25.5	-23°25.5	-23°25.5	-23°25.4	+0.0
vr 24	180°12.4	195°12.1	210°11.8	225°11.4	240°11.1	255°10.8	90°06.8	105°06.5	120°06.1	135°05.8	150°05.5	165°05.2	-0.3
	-23°25.4	-23°25.3	-23°25.3	-23°25.3	-23°25.2	-23°25.2	-23°24.6	-23°24.5	-23°24.5	-23°24.4	-23°24.4	-23°24.3	+0.0
za 25	180°04.9	195°04.6	210°04.3	225°04.0	240°03.7	255°03.3	89°59.3	104°59.0	119°58.7	134°58.4	149°58.1	164°57.8	-0.3
	-23°24.3	-23°24.2	-23°24.1	-23°24.1	-23°24.0	-23°24.0	-23°23.1	-23°23.0	-23°23.0	-23°22.9	-23°22.8	-23°22.7	+0.1
zo 26	179°57.4	194°57.1	209°56.8	224°56.5	239°56.2	254°55.9	89°51.9	104°51.6	119°51.2	134°50.9	149°50.6	164°50.3	-0.3
	-23°22.7	-23°22.6	-23°22.5	-23°22.4	-23°22.3	-23°22.3	-23°21.2	-23°21.1	-23°21.0	-23°20.9	-23°20.8	-23°20.7	+0.1
ma 27	179°50.0	194°49.7	209°49.4	224°49.1	239°48.8	254°48.5	89°44.5	104°44.1	119°43.8	134°43.5	149°43.2	164°42.9	-0.3
	-23°20.6	-23°20.5	-23°20.4	-23°20.3	-23°20.2	-23°20.1	-23°18.7	-23°18.6	-23°18.5	-23°18.4	-23°18.3	-23°18.2	+0.1
di 28	179°42.6	194°42.3	209°42.0	224°41.7	239°41.4	254°41.1	89°37.1	104°36.8	119°36.5	134°36.2	149°35.9	164°35.5	-0.3
	-23°18.1	-23°17.9	-23°17.8	-23°17.7	-23°17.6	-23°17.5	-23°15.8	-23°15.7	-23°15.6	-23°15.5	-23°15.3	-23°15.2	+0.1
wo 29	179°35.2	194°34.9	209°34.6	224°34.3	239°34.0	254°33.7	89°29.8	104°29.4	119°29.1	134°28.8	149°28.5	164°28.2	-0.3
	-23°15.1	-23°14.9	-23°14.8	-23°14.6	-23°14.5	-23°14.4	-23°12.5	-23°12.3	-23°12.2	-23°12.0	-23°11.9	-23°11.7	+0.1
do 30	179°27.9	194°27.6	209°27.3	224°27.0	239°26.7	254°26.4	89°22.5	104°22.2	119°21.9	134°21.6	149°21.3	164°21.0	-0.3
	-23°11.6	-23°11.4	-23°11.3	-23°11.1	-23°11.0	-23°10.8	-23°08.7	-23°08.5	-23°08.3	-23°08.2	-23°08.0	-23°07.8	+0.2
vr 31	179°20.7	194°20.4	209°20.1	224°19.8	239°19.5	254°19.2	89°15.3	104°15.0	119°14.7	134°14.4	149°14.1	164°13.8	-0.3
	-23°07.6	-23°07.5	-23°07.3	-23°07.1	-23°06.9	-23°06.8	-23°04.4	-23°04.2	-23°04.0	-23°03.8	-23°03.6	-23°03.4	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2027

D	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
wo 1	47°42.5	62°13.1	76°43.8	91°14.5	105°45.3	120°16.2	134°47.1	149°18.2	163°49.3	178°20.5	192°51.8	+30.9	14.9
	-22°57.2	-22°50.0	-22°42.6	-22°35.1	-22°27.5	-22°19.8	-22°12.1	-22°04.2	-21°56.2	-21°48.2	-21°40.0	+7.7	54.6
do 2	50°50.0	65°22.5	79°55.0	94°27.6	109°00.3	123°33.1	138°05.9	152°38.8	167°11.8	181°44.8	196°17.9	+32.8	14.8
	-19°27.2	-19°17.7	-19°08.1	-18°58.4	-18°48.6	-18°38.8	-18°28.9	-18°19.0	-18°08.9	-17°58.8	-17°48.6	+9.9	54.3
vr 3	54°42.1	69°16.2	83°50.3	98°24.5	112°58.8	127°33.1	142°07.4	156°41.8	171°16.3	185°50.8	200°25.3	+34.3	14.8
	-15°08.1	-14°56.9	-14°45.6	-14°34.3	-14°23.0	-14°11.6	-14°00.1	-13°48.6	-13°37.0	-13°25.4	-13°13.7	+11.4	54.1
za 4	59°08.7	73°43.9	88°19.2	102°54.4	117°29.7	132°05.0	146°40.4	161°15.7	175°51.1	190°26.6	205°02.0	+35.3	14.8
	-10°13.2	-10°00.8	-9°48.4	-9°35.9	-9°23.4	-9°10.9	-8°58.4	-8°45.8	-8°33.1	-8°20.5	-8°07.8	+12.5	54.2
zo 5	63°55.8	78°31.5	93°07.2	107°42.9	122°18.6	136°54.3	151°30.0	166°05.7	180°41.4	195°17.1	209°52.8	+35.7	14.8
	-4°53.8	-4°40.6	-4°27.5	-4°14.3	-4°01.1	-3°47.9	-3°34.6	-3°21.4	-3°08.1	-2°54.8	-2°41.4	+13.2	54.4
◐ ma 6	68°47.0	83°22.5	97°58.0	112°33.4	127°08.9	141°44.2	156°19.6	170°54.9	185°30.2	200°05.5	214°40.8	+35.4	14.9
	0°40.0	0°53.5	1°07.0	1°20.6	1°34.1	1°47.6	2°01.2	2°14.7	2°28.2	2°41.8	2°55.3	+13.5	54.8
di 7	83°22.5	97°58.0	112°33.4	127°08.9	141°44.2	156°19.6	170°54.9	185°30.2	200°05.5	214°40.8	229°16.0	+35.3	14.9
	0°53.5	1°07.0	1°20.6	1°34.1	1°47.6	2°01.2	2°14.7	2°28.2	2°41.8	2°55.3	3°08.9	+13.5	54.8
wo 8	87°59.2	102°33.7	117°08.2	131°42.6	146°16.9	160°51.2	175°25.5	189°59.6	204°33.7	219°07.8	233°41.8	+34.3	15.1
	6°31.5	6°45.0	6°58.4	7°11.8	7°25.2	7°38.6	7°52.0	8°05.3	8°18.6	8°31.9	8°45.2	+13.4	55.4
do 9	92°03.1	106°35.9	121°08.6	135°41.2	150°13.8	164°46.2	179°18.6	193°50.9	208°23.1	222°55.2	237°27.2	+32.4	15.3
	12°01.5	12°14.3	12°27.1	12°39.8	12°52.5	13°05.2	13°17.8	13°30.4	13°42.9	13°55.4	14°07.9	+12.6	56.2
vr 10	95°15.7	109°46.1	124°16.4	138°46.5	153°16.6	167°46.6	182°16.4	196°46.2	211°15.8	225°45.3	240°14.7	+29.9	15.5
	17°07.9	17°19.4	17°30.8	17°42.2	17°53.4	18°04.6	18°15.8	18°26.8	18°37.8	18°48.7	18°59.5	+11.2	57.0
za 11	97°21.7	111°49.3	126°16.7	140°44.0	155°11.1	169°38.2	184°05.1	198°31.9	212°58.6	227°25.2	241°51.6	+27.0	15.8
	21°30.6	21°39.9	21°49.0	21°58.0	22°07.0	22°15.8	22°24.5	22°33.0	22°41.5	22°49.8	22°58.0	+8.7	57.9
zo 12	98°14.8	112°39.5	127°04.1	141°28.5	155°52.9	170°17.2	184°41.3	199°05.4	213°29.4	227°53.3	242°17.1	+24.2	16.0
	24°45.0	24°51.0	24°56.8	25°02.5	25°08.0	25°13.4	25°18.6	25°23.6	25°28.5	25°33.2	25°37.8	+5.3	58.7
○ ma 13	98°04.5	112°27.1	126°49.7	141°12.2	155°34.7	169°57.1	184°19.4	198°41.8	213°04.1	227°26.3	241°48.6	+22.4	16.2
	26°25.5	26°27.3	26°28.9	26°30.3	26°31.5	26°32.5	26°33.4	26°34.0	26°34.5	26°34.8	26°34.8	+0.9	59.4
di 14	97°19.8	111°41.9	126°04.0	140°26.0	154°48.2	169°10.3	183°32.5	197°54.6	212°16.9	226°39.1	241°01.4	+22.1	16.3
	26°13.3	26°10.4	26°07.2	26°03.9	26°00.4	25°56.7	25°52.8	25°48.7	25°44.4	25°39.9	25°35.3	-3.8	59.9
wo 15	96°41.3	111°04.4	125°27.6	139°50.9	154°14.2	168°37.7	183°01.2	197°24.7	211°48.4	226°12.1	240°36.0	+23.5	16.4
	24°03.8	23°56.3	23°48.6	23°40.8	23°32.8	23°24.7	23°16.3	23°07.8	22°59.2	22°50.4	22°41.4	-8.2	60.1
do 16	96°43.8	111°09.0	125°34.4	139°59.8	154°25.4	168°51.0	183°16.8	197°42.6	212°08.5	226°34.5	241°00.7	+25.7	16.4
	20°09.4	19°58.1	19°46.8	19°35.3	19°23.7	19°11.9	19°00.1	18°48.1	18°36.0	18°23.8	18°11.5	-11.8	60.1
vr 17	97°43.8	112°11.5	126°39.2	141°07.0	155°34.8	170°02.8	184°30.9	198°59.0	213°27.2	227°55.6	242°24.0	+28.0	16.3
	14°54.6	14°40.7	14°26.8	14°12.8	13°58.7	13°44.5	13°30.3	13°16.0	13°01.6	12°47.1	12°32.6	-14.2	59.9
za 18	99°39.2	114°08.8	128°38.4	143°08.1	157°37.9	172°07.8	186°37.7	201°07.6	215°37.6	230°07.7	244°37.8	+29.9	16.2
	8°48.2	8°32.9	8°17.6	8°02.2	7°46.7	7°31.3	7°15.8	7°00.3	6°44.7	6°29.1	6°13.5	-15.5	59.6
zo 19	102°15.6	116°46.5	131°17.3	145°48.3	160°19.2	174°50.2	189°21.2	203°52.2	218°23.3	232°54.3	247°25.5	+31.0	16.1
	2°17.8	2°02.0	1°46.3	1°30.5	1°14.8	0°59.0	0°43.3	0°27.5	0°11.8	-0°03.9	-0°19.6	-15.8	59.1
◑ ma 20	105°14.0	119°45.3	134°16.6	148°47.9	163°19.2	177°50.6	192°21.9	206°53.2	221°24.5	235°55.8	250°27.1	+31.3	15.9
	-4°12.9	-4°28.2	-4°43.5	-4°58.8	-5°14.0	-5°29.2	-5°44.4	-5°59.5	-6°14.6	-6°29.6	-6°44.6	-15.2	58.5
di 21	108°14.8	122°45.9	137°16.9	151°47.8	166°18.8	180°49.7	195°20.6	209°51.5	224°22.3	238°53.1	253°23.9	+30.9	15.8
	-10°23.4	-10°37.6	-10°51.7	-11°05.7	-11°19.6	-11°33.5	-11°47.3	-12°01.1	-12°14.7	-12°28.3	-12°41.9	-13.8	57.9
wo 22	111°01.2	125°31.4	140°01.5	154°31.6	169°01.7	183°31.6	198°01.6	212°31.5	227°01.3	241°31.2	256°00.9	+30.0	15.6
	-15°55.5	-16°07.7	-16°19.9	-16°32.0	-16°43.9	-16°55.8	-17°07.6	-17°19.3	-17°30.8	-17°42.3	-17°53.7	-11.8	57.3
do 23	113°21.6	127°50.6	142°19.6	156°48.5	171°17.3	185°46.1	200°14.9	214°43.6	229°12.2	243°40.8	258°09.4	+28.8	15.5
	-20°32.1	-20°41.8	-20°51.4	-21°00.9	-21°10.2	-21°19.4	-21°28.5	-21°37.5	-21°46.4	-21°55.1	-22°03.8	-9.2	56.8
vr 24	115°12.6	129°40.5	144°08.3	158°36.2	173°03.9	187°31.7	201°59.4	216°27.1	230°54.8	245°22.4	259°50.0	+27.7	15.3
	-23°58.0	-24°04.6	-24°11.0	-24°17.3	-24°23.5	-24°29.5	-24°35.4	-24°41.2	-24°46.8	-24°52.3	-24°57.7	-6.0	56.3
za 25	116°41.2	131°08.5	145°35.8	160°03.1	174°30.4	188°57.6	203°24.9	217°52.2	232°19.4	246°46.7	261°14.0	+27.3	15.2
	-26°01.0	-26°04.1	-26°07.0	-26°09.8	-26°12.4	-26°14.9	-26°17.3	-26°19.5	-26°21.6	-26°23.5	-26°25.3	-2.4	55.8
zo 26	118°04.3	132°31.8	146°59.4	161°26.9	175°54.5	190°22.2	204°49.8	219°17.5	233°45.3	248°13.0	262°40.9	+27.6	15.1
	-26°34.6	-26°34.1	-26°33.4	-26°32.6	-26°31.7	-26°30.6	-26°29.3	-26°28.0	-26°26.5	-26°24.8	-26°23.0	+1.2	55.3
● ma 27	119°43.4	134°12.0	148°40.6	163°09.3	177°38.1	192°06.9	206°35.8	221°04.7	235°33.7	250°02.8	264°31.9	+28.8	15.0
	-25°40.0	-25°36.0	-25°32.0	-25°27.8	-25°23.5	-25°19.1	-25°14.5	-25°09.8	-25°05.0	-25°00.1	-24°55.1	+4.5	54.9
di 28	121°57.0	136°27.3	150°57.6	165°28.0	179°58.4	194°29.0	208°59.6	223°30.3	238°01.0	252°31.9	267°02.8	+30.6	14.9
	-23°25.4	-23°18.5	-23°11.6	-23°04.5	-22°57.3	-22°50.0	-22°42.6	-22°35.1	-22°27.5	-22°19.8	-22°12.1	+7.3	54.5
wo 29	124°55.4	139°27.5	153°59.6	168°31.9	183°04.2	197°36.6	212°09.0	226°41.6	241°14.2	255°46.8	270°19.6	+32.4	14.8
	-20°04.1	-19°54.9	-19°45.6	-19°36.2	-19°26.7	-19°17.2	-19°07.5	-18°57.8	-18°48.1	-18°38.2	-18°28.3	+9.6	54.2
do 30	128°38.8	143°12.6	157°46.4	172°20.3	186°54.3	201°28.3	216°02.4	230°36.6	245°10.8	259°45.0	274°19.3	+34.1	14.7
	-15°51.1	-15°40.1	-15°29.0	-15°17.9	-15°06.8	-14°55.6	-14°44.3	-14°32.9	-14°21.6	-14°10.1	-13°58.6	+11.2	54.1
vr 31	143°12.6	157°46.4	172°20.3	186°54.3	201°28.3	216°02.4	230°36.6	245°10.8	259°45.0	274°19.3	288°53.7	+34.1	14.7
	-15°40.1	-15°29.0	-15°17.9	-15°06.8	-14°55.6	-14°44.3	-14°32.9	-14°21.6	-14°10.1	-13°58.6	-13°47.1	+11.3	54.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 05h22 — VM: 13 16h08 — LK: 20 09h10 — NM: 27 20h12

ZON

Januari 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179° 13.5	194° 13.2	209° 12.9	224° 12.6	239° 12.3	254° 12.0	89° 08.2	104° 07.9	119° 07.6	134° 07.3	149° 07.0	164° 06.7	-0.3
	-23° 03.3	-23° 03.1	-23° 02.9	-23° 02.7	-23° 02.5	-23° 02.3	-22° 59.7	-22° 59.4	-22° 59.2	-22° 59.0	-22° 58.8	-22° 58.6	+0.2
zo 2	179° 06.4	194° 06.1	209° 05.8	224° 05.5	239° 05.2	254° 04.9	89° 01.1	104° 00.8	119° 00.5	134° 00.2	148° 59.9	163° 59.7	-0.3
	-22° 58.4	-22° 58.2	-22° 58.0	-22° 57.8	-22° 57.5	-22° 57.3	-22° 54.5	-22° 54.2	-22° 54.0	-22° 53.8	-22° 53.5	-22° 53.3	+0.2
ma 3	178° 59.4	193° 59.1	208° 58.8	223° 58.5	238° 58.2	253° 57.9	88° 54.2	103° 53.9	118° 53.6	133° 53.3	148° 53.0	163° 52.7	-0.3
	-22° 53.1	-22° 52.8	-22° 52.6	-22° 52.4	-22° 52.1	-22° 51.9	-22° 48.8	-22° 48.5	-22° 48.3	-22° 48.1	-22° 47.8	-22° 47.6	+0.2
di 4	178° 52.4	193° 52.2	208° 51.9	223° 51.6	238° 51.3	253° 51.0	88° 47.3	103° 47.0	118° 46.7	133° 46.5	148° 46.2	163° 45.9	-0.3
	-22° 47.3	-22° 47.1	-22° 46.8	-22° 46.6	-22° 46.3	-22° 46.1	-22° 42.7	-22° 42.4	-22° 42.2	-22° 41.9	-22° 41.6	-22° 41.4	+0.2
wo 5	178° 45.6	193° 45.3	208° 45.0	223° 44.8	238° 44.5	253° 44.2	88° 40.6	103° 40.3	118° 40.0	133° 39.7	148° 39.4	163° 39.2	-0.3
	-22° 41.1	-22° 40.8	-22° 40.5	-22° 40.3	-22° 40.0	-22° 39.7	-22° 36.1	-22° 35.8	-22° 35.6	-22° 35.3	-22° 35.0	-22° 34.7	+0.3
do 6	178° 38.9	193° 38.6	208° 38.3	223° 38.1	238° 37.8	253° 37.5	88° 33.9	103° 33.7	118° 33.4	133° 33.1	148° 32.8	163° 32.6	-0.3
	-22° 34.4	-22° 34.1	-22° 33.8	-22° 33.5	-22° 33.3	-22° 33.0	-22° 29.1	-22° 28.8	-22° 28.5	-22° 28.2	-22° 27.9	-22° 27.6	+0.3
vr 7	178° 32.3	193° 32.0	208° 31.7	223° 31.5	238° 31.2	253° 30.9	88° 27.4	103° 27.2	118° 26.9	133° 26.6	148° 26.3	163° 26.1	-0.3
	-22° 27.3	-22° 27.0	-22° 26.7	-22° 26.4	-22° 26.1	-22° 25.8	-22° 21.7	-22° 21.4	-22° 21.0	-22° 20.7	-22° 20.4	-22° 20.1	+0.3
za 8	178° 25.8	193° 25.5	208° 25.3	223° 25.0	238° 24.7	253° 24.5	88° 21.0	103° 20.8	118° 20.5	133° 20.2	148° 20.0	163° 19.7	-0.3
	-22° 19.7	-22° 19.4	-22° 19.1	-22° 18.8	-22° 18.4	-22° 18.1	-22° 13.8	-22° 13.4	-22° 13.1	-22° 12.8	-22° 12.4	-22° 12.1	+0.3
zo 9	178° 19.5	193° 19.2	208° 18.9	223° 18.7	238° 18.4	253° 18.2	88° 14.8	103° 14.5	118° 14.3	133° 14.0	148° 13.8	163° 13.5	-0.3
	-22° 11.7	-22° 11.4	-22° 11.1	-22° 10.7	-22° 10.4	-22° 10.0	-22° 05.5	-22° 05.1	-22° 04.7	-22° 04.4	-22° 04.0	-22° 03.7	+0.3
ma 10	178° 13.2	193° 13.0	208° 12.7	223° 12.5	238° 12.2	253° 12.0	88° 08.7	103° 08.4	118° 08.2	133° 07.9	148° 07.7	163° 07.4	-0.3
	-22° 03.3	-22° 03.0	-22° 02.6	-22° 02.2	-22° 01.9	-22° 01.5	-21° 56.7	-21° 56.3	-21° 56.0	-21° 55.6	-21° 55.2	-21° 54.8	+0.4
di 11	178° 07.2	193° 06.9	208° 06.7	223° 06.4	238° 06.2	253° 05.9	88° 02.7	103° 02.5	118° 02.2	133° 02.0	148° 01.7	163° 01.5	-0.3
	-21° 54.5	-21° 54.1	-21° 53.7	-21° 53.3	-21° 52.9	-21° 52.6	-21° 47.5	-21° 47.1	-21° 46.7	-21° 46.3	-21° 46.0	-21° 45.6	+0.4
wo 12	178° 01.2	193° 01.0	208° 00.7	223° 00.5	238° 00.3	253° 00.0	87° 56.9	102° 56.6	117° 56.4	132° 56.2	147° 55.9	162° 55.7	-0.2
	-21° 45.2	-21° 44.8	-21° 44.4	-21° 44.0	-21° 43.6	-21° 43.2	-21° 37.9	-21° 37.5	-21° 37.1	-21° 36.7	-21° 36.3	-21° 35.9	+0.4
do 13	177° 55.5	192° 55.2	207° 55.0	222° 54.7	237° 54.5	252° 54.3	87° 51.2	102° 51.0	117° 50.7	132° 50.5	147° 50.3	162° 50.1	-0.2
	-21° 35.5	-21° 35.0	-21° 34.6	-21° 34.2	-21° 33.8	-21° 33.4	-21° 27.9	-21° 27.5	-21° 27.0	-21° 26.6	-21° 26.2	-21° 25.8	+0.4
vr 14	177° 49.8	192° 49.6	207° 49.4	222° 49.1	237° 48.9	252° 48.7	87° 45.7	102° 45.5	117° 45.2	132° 45.0	147° 44.8	162° 44.6	-0.2
	-21° 25.3	-21° 24.9	-21° 24.5	-21° 24.0	-21° 23.6	-21° 23.2	-21° 17.5	-21° 17.0	-21° 16.6	-21° 16.1	-21° 15.7	-21° 15.2	+0.4
za 15	177° 44.3	192° 44.1	207° 43.9	222° 43.7	237° 43.4	252° 43.2	87° 40.3	102° 40.1	117° 39.9	132° 39.7	147° 39.5	162° 39.2	-0.2
	-21° 14.8	-21° 14.3	-21° 13.9	-21° 13.4	-21° 13.0	-21° 12.5	-21° 06.6	-21° 06.2	-21° 05.7	-21° 05.2	-21° 04.8	-21° 04.3	+0.4
zo 16	177° 39.0	192° 38.8	207° 38.6	222° 38.4	237° 38.2	252° 37.9	87° 35.2	102° 34.9	117° 34.7	132° 34.5	147° 34.3	162° 34.1	-0.2
	-21° 03.8	-21° 03.4	-21° 02.9	-21° 02.4	-21° 02.0	-21° 01.5	-20° 55.4	-20° 54.9	-20° 54.4	-20° 53.9	-20° 53.5	-20° 53.0	+0.5
ma 17	177° 33.9	192° 33.7	207° 33.5	222° 33.2	237° 33.0	252° 32.8	87° 30.1	102° 29.9	117° 29.7	132° 29.5	147° 29.3	162° 29.1	-0.2
	-20° 52.5	-20° 52.0	-20° 51.5	-20° 51.0	-20° 50.6	-20° 50.1	-20° 43.7	-20° 43.2	-20° 42.7	-20° 42.2	-20° 41.7	-20° 41.2	+0.5
di 18	177° 28.9	192° 28.7	207° 28.5	222° 28.3	237° 28.1	252° 27.9	87° 25.3	102° 25.1	117° 24.9	132° 24.7	147° 24.5	162° 24.3	-0.2
	-20° 40.7	-20° 40.2	-20° 39.7	-20° 39.2	-20° 38.7	-20° 38.2	-20° 31.7	-20° 31.2	-20° 30.6	-20° 30.1	-20° 29.6	-20° 29.1	+0.5
wo 19	177° 24.1	192° 23.9	207° 23.7	222° 23.5	237° 23.3	252° 23.1	87° 20.6	102° 20.4	117° 20.2	132° 20.0	147° 19.8	162° 19.6	-0.2
	-20° 28.6	-20° 28.1	-20° 27.6	-20° 27.0	-20° 26.5	-20° 26.0	-20° 19.2	-20° 18.7	-20° 18.2	-20° 17.6	-20° 17.1	-20° 16.6	+0.5
do 20	177° 19.5	192° 19.3	207° 19.1	222° 18.9	237° 18.7	252° 18.5	87° 16.1	102° 15.9	117° 15.7	132° 15.5	147° 15.4	162° 15.2	-0.2
	-20° 16.1	-20° 15.5	-20° 15.0	-20° 14.5	-20° 13.9	-20° 13.4	-20° 06.4	-20° 05.9	-20° 05.3	-20° 04.8	-20° 04.2	-20° 03.7	+0.5
vr 21	177° 15.0	192° 14.8	207° 14.6	222° 14.5	237° 14.3	252° 14.1	87° 11.8	102° 11.6	117° 11.4	132° 11.3	147° 11.1	162° 10.9	-0.2
	-20° 03.1	-20° 02.6	-20° 02.0	-20° 01.5	-20° 00.9	-20° 00.4	-19° 53.2	-19° 52.6	-19° 52.1	-19° 51.5	-19° 51.0	-19° 50.4	+0.5
za 22	177° 10.7	192° 10.6	207° 10.4	222° 10.2	237° 10.0	252° 09.9	87° 07.6	102° 07.5	117° 07.3	132° 07.1	147° 07.0	162° 06.8	-0.2
	-19° 49.8	-19° 49.3	-19° 48.7	-19° 48.2	-19° 47.6	-19° 47.0	-19° 39.6	-19° 39.1	-19° 38.5	-19° 37.9	-19° 37.3	-19° 36.8	+0.6
zo 23	177° 06.6	192° 06.5	207° 06.3	222° 06.1	237° 06.0	252° 05.8	87° 03.7	102° 03.5	117° 03.4	132° 03.2	147° 03.1	162° 02.9	-0.2
	-19° 36.2	-19° 35.6	-19° 35.0	-19° 34.4	-19° 33.9	-19° 33.3	-19° 25.7	-19° 25.1	-19° 24.5	-19° 23.9	-19° 23.3	-19° 22.7	+0.6
ma 24	177° 02.7	192° 02.6	207° 02.4	222° 02.3	237° 02.1	252° 02.0	87° 00.0	101° 59.8	116° 59.6	131° 59.5	146° 59.3	161° 59.2	-0.2
	-19° 22.1	-19° 21.6	-19° 21.0	-19° 20.4	-19° 19.8	-19° 19.2	-19° 11.4	-19° 10.8	-19° 10.2	-19° 09.6	-19° 09.0	-19° 08.4	+0.6
di 25	176° 59.0	191° 58.9	206° 58.7	221° 58.6	236° 58.4	251° 58.3	86° 56.4	101° 56.3	116° 56.1	131° 56.0	146° 55.8	161° 55.7	-0.2
	-19° 07.8	-19° 07.2	-19° 06.5	-19° 05.9	-19° 05.3	-19° 04.7	-18° 56.7	-18° 56.1	-18° 55.5	-18° 54.9	-18° 54.3	-18° 53.6	+0.6
wo 26	176° 55.5	191° 55.4	206° 55.3	221° 55.1	236° 55.0	251° 54.8	86° 53.0	101° 52.9	116° 52.8	131° 52.6	146° 52.5	161° 52.4	-0.1
	-18° 53.0	-18° 52.4	-18° 51.8	-18° 51.2	-18° 50.5	-18° 49.9	-18° 41.7	-18° 41.1	-18° 40.5	-18° 39.8	-18° 39.2	-18° 38.6	+0.6
do 27	176° 52.2	191° 52.1	206° 52.0	221° 51.8	236° 51.7	251° 51.6	86° 49.9	101° 49.8	116° 49.6	131° 49.5	146° 49.4	161° 49.3	-0.1
	-18° 37.9	-18° 37.3	-18° 36.7	-18° 36.0	-18° 35.4	-18° 34.7	-18° 26.4	-18° 25.7	-18° 25.1	-18° 24.5	-18° 23.8	-18° 23.2	+0.6
vr 28	176° 49.1	191° 49.0	206° 48.9	221° 48.8	236° 48.6	251° 48.5	86° 46.9	101° 46.8	116° 46.7	131° 46.6	146° 46.5	161° 46.3	-0.1
	-18° 22.5	-18° 21.9	-18° 21.2	-18° 20.6	-18° 19.9	-18° 19.3	-18° 10.7	-18° 10.1	-18° 09.4	-18° 08.7	-18° 08.1	-18° 07.4	+0.6
za 29	176° 46.2	191° 46.1	206° 46.0	221° 45.9	236° 45.8	251° 45.6	86° 44.2	101° 44.1	116° 44.0	131° 43.9	146° 43.7	161° 43.6	-0.1
	-18° 06.8	-18° 06.1	-18° 05.4	-18° 04.8	-18° 04.1	-18° 03.4	-17° 54.7	-17° 54.0	-17° 53.4	-17° 52.7	-17° 52.0	-17° 51.3	+0.7
zo 30	176° 43.5	191° 43.4	206° 43.3	221° 43.2	236° 43.1	251° 43.0	86° 41.6	101° 41.5	116° 41.4	131° 41.3	146° 41.2	161° 41.1	-0.1
	-17° 50.7	-17° 50.0	-17° 49.3	-17° 48.6	-17° 48.0	-17° 47.3	-17° 38.4	-17° 37.7	-17° 37.0	-17° 36.3	-17° 35.7	-17° 35.0	+0.7
ma 31	176° 41.0	191° 40.9	206° 40.8	221° 40.7	236° 40.6	251° 40.5	86° 39.3	101° 39.2	116° 39.1	131° 39.0	146° 38.9	161° 38.8	-0.1
	-17° 34.3	-17° 33.6	-17° 32.9	-17° 32.2	-17° 31.5	-17° 30.8	-17° 21.8	-17° 21.1	-17° 20.4	-17° 19.7	-17° 19.0	-17° 18.3	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2028

D	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
za 1	50°12.4 -7°02.6	64°48.1 -6°49.8	79°23.8 -6°36.9	93°59.6 -6°24.1	108°35.3 -6°11.2	123°11.1 -5°58.2	137°46.9 -5°45.3	152°22.7 -5°32.3	166°58.5 -5°19.3	181°34.3 -5°06.3	196°10.2 -4°53.3	+35.8 +12.9	14.7 54.0
zo 2	55°08.9 -1°35.8	69°44.9 -1°22.5	84°20.8 -1°09.2	98°56.7 -0°55.9	113°32.6 -0°42.6	128°08.6 -0°29.3	142°44.5 -0°16.0	157°20.4 -0°02.7	171°56.2 0°10.6	186°32.1 0°23.9	201°08.0 0°37.3	+35.9 +13.3	14.8 54.3
ma 3	60°03.7 3°57.3	74°39.2 4°10.6	89°14.6 4°23.9	103°50.1 4°37.2	118°25.5 4°50.5	133°00.9 5°03.8	147°36.2 5°17.0	162°11.5 5°30.3	176°46.8 5°43.5	191°22.0 5°56.8	205°57.2 6°10.0	+35.4 +13.3	14.9 54.6
di 4	64°39.1 9°26.2	79°13.4 9°39.1	93°47.7 9°52.0	108°21.9 10°04.9	122°56.1 10°17.7	137°30.2 10°30.5	152°04.3 10°43.2	166°38.2 10°56.0	181°12.1 11°08.7	195°46.0 11°21.4	210°19.7 11°34.0	+34.1 +12.8	15.1 55.2
◐ **wo 5**	68°36.8 14°38.9	83°09.3 14°50.9	97°41.6 15°02.8	112°13.9 15°14.7	126°46.1 15°26.5	141°18.2 15°38.2	155°50.2 15°49.9	170°22.1 16°01.6	184°53.9 16°13.2	199°25.6 16°24.7	213°57.2 16°36.2	+32.0 +11.7	15.3 55.9
do 6	83°09.3 14°50.9	97°41.6 15°02.8	112°13.9 15°14.7	126°46.1 15°26.5	141°18.2 15°38.2	155°50.2 15°49.9	170°22.1 16°01.6	184°53.9 16°13.2	199°25.6 16°24.7	213°57.2 16°36.2	228°28.8 16°47.6	+32.0 +11.7	15.3 56.0
vr 7	86°08.8 19°30.3	100°38.6 19°40.6	115°08.3 19°50.7	129°37.9 20°00.8	144°07.3 20°10.8	158°36.7 20°20.6	173°05.9 20°30.4	187°35.0 20°40.1	202°03.9 20°49.7	216°32.8 20°59.3	231°01.6 21°08.7	+29.3 +9.8	15.5 56.9
za 8	87°58.3 23°17.2	102°25.1 23°24.9	116°51.8 23°32.4	131°18.4 23°39.8	145°44.9 23°47.1	160°11.2 23°54.2	174°37.4 24°01.2	189°03.5 24°08.1	203°29.5 24°14.9	217°55.4 24°21.5	232°21.1 24°27.9	+26.3 +7.1	15.8 57.8
zo 9	88°34.0 25°47.5	102°58.0 25°51.5	117°22.0 25°55.4	131°45.8 25°59.1	146°09.5 26°02.7	160°33.2 26°06.1	174°56.7 26°09.3	189°20.2 26°12.4	203°43.5 26°15.3	218°06.8 26°18.0	232°30.0 26°20.5	+23.6 +3.3	16.0 58.8
ma 10	88°09.7 26°36.9	102°31.9 26°36.5	116°54.0 26°36.0	131°16.1 26°35.2	145°38.2 26°34.2	160°00.2 26°33.1	174°22.2 26°31.7	188°44.2 26°30.2	203°06.1 26°28.4	217°28.0 26°26.5	231°49.9 26°24.4	+22.0 -1.2	16.3 59.7
di 11	87°17.6 25°29.5	101°39.6 25°24.3	116°01.5 25°18.9	130°23.5 25°13.3	144°45.5 25°07.5	159°07.5 25°01.6	173°29.6 24°55.4	187°51.7 24°49.1	202°13.8 24°42.6	216°36.0 24°35.9	230°58.2 24°29.0	+22.0 -6.0	16.5 60.4
○ **wo 12**	86°38.1 22°24.5	101°01.3 22°14.8	115°24.6 22°05.0	129°47.9 21°55.0	144°11.3 21°44.9	158°34.8 21°34.6	172°58.4 21°24.2	187°22.0 21°13.6	201°45.7 21°02.8	216°09.5 20°51.9	230°33.4 20°40.9	+23.5 -10.4	16.6 60.9
do 13	86°42.3 17°38.7	101°07.6 17°25.6	115°33.0 17°12.3	129°58.4 16°58.9	144°24.0 16°45.5	158°49.7 16°31.9	173°15.5 16°18.2	187°41.3 16°04.4	202°07.2 15°50.5	216°33.3 15°36.5	230°59.4 15°22.4	+25.7 -13.6	16.6 61.0
vr 14	87°41.8 11°40.7	102°09.3 11°25.3	116°36.9 11°09.9	131°04.5 10°54.4	145°32.3 10°38.9	160°00.1 10°23.3	174°28.0 10°07.6	188°55.9 9°51.9	203°24.0 9°36.2	217°52.1 9°20.4	232°20.3 9°04.5	+27.9 -15.6	16.6 60.8
za 15	89°31.2 5°02.8	104°00.4 4°46.5	118°29.7 4°30.2	132°59.0 4°13.8	147°28.4 3°57.5	161°57.8 3°41.2	176°27.2 3°24.8	190°56.8 3°08.4	205°26.3 2°52.1	219°55.9 2°35.7	234°25.6 2°19.4	+29.4 -16.3	16.4 60.3
zo 16	91°55.0 -1°44.8	106°25.2 -2°00.9	120°55.4 -2°17.0	135°25.7 -2°33.1	149°56.0 -2°49.1	164°26.3 -3°05.1	178°56.6 -3°21.1	193°26.9 -3°37.0	207°57.2 -3°52.9	222°27.6 -4°08.8	236°58.0 -4°24.6	+30.3 -16.0	16.3 59.6
ma 17	94°34.6 -8°16.3	109°05.0 -8°31.3	123°35.4 -8°46.2	138°05.9 -9°01.1	152°36.3 -9°16.0	167°06.7 -9°30.7	181°37.2 -9°45.4	196°07.6 -10°00.1	210°38.0 -10°14.6	225°08.3 -10°29.1	239°38.7 -10°43.5	+30.4 -14.7	16.0 58.8
◑ **di 18**	97°12.2 -14°10.7	111°42.3 -14°23.8	126°12.3 -14°36.9	140°42.3 -14°49.8	155°12.3 -15°02.7	169°42.2 -15°15.5	184°12.2 -15°28.2	198°42.0 -15°40.8	213°11.9 -15°53.3	227°41.7 -16°05.7	242°11.5 -16°18.0	+29.9 -12.7	15.8 58.0
wo 19	99°34.5 -19°10.5	114°03.7 -19°21.1	128°32.9 -19°31.7	143°02.1 -19°42.1	157°31.3 -19°52.4	172°00.4 -20°02.6	186°29.4 -20°12.6	200°58.4 -20°22.6	215°27.4 -20°32.5	229°56.4 -20°42.2	244°25.3 -20°51.8	+29.1 -10.1	15.6 57.2
do 20	101°34.6 -23°01.3	116°03.0 -23°08.9	130°31.3 -23°16.4	144°59.6 -23°23.8	159°27.8 -23°31.0	173°56.0 -23°38.1	188°24.2 -23°45.1	202°52.4 -23°51.9	217°20.5 -23°58.7	231°48.6 -24°05.2	246°16.6 -24°11.7	+28.2 -7.0	15.4 56.4
vr 21	103°14.8 -25°31.9	117°42.5 -25°36.2	132°10.3 -25°40.3	146°38.0 -25°44.2	161°05.6 -25°48.1	175°33.3 -25°51.7	190°01.0 -25°55.3	204°28.7 -25°58.7	218°56.3 -26°01.9	233°24.0 -26°05.1	247°51.6 -26°08.0	+27.7 -3.6	15.2 55.8
za 22	104°46.5 -26°35.7	119°14.2 -26°36.4	133°42.0 -26°36.9	148°09.7 -26°37.4	162°37.5 -26°37.7	177°05.3 -26°37.8	191°33.1 -26°37.8	206°01.0 -26°37.7	220°28.8 -26°37.4	234°56.7 -26°37.0	249°24.6 -26°36.4	+27.8 -0.1	15.1 55.3
zo 23	106°27.2 -26°11.8	120°55.6 -26°09.1	135°24.2 -26°06.2	149°52.7 -26°03.2	164°21.3 -26°00.1	178°50.0 -25°56.9	193°18.7 -25°53.5	207°47.5 -25°50.0	222°16.3 -25°46.4	236°45.2 -25°42.6	251°14.1 -25°38.8	+28.7 +3.3	15.0 54.8
ma 24	108°34.6 -24°25.9	123°04.4 -24°20.1	137°34.3 -24°14.2	152°04.3 -24°08.2	166°34.3 -24°02.0	181°04.5 -23°55.8	195°34.6 -23°49.4	210°04.9 -23°43.0	224°35.2 -23°36.4	239°05.5 -23°29.7	253°36.0 -23°22.9	+30.1 +6.3	14.9 54.5
di 25	111°20.8 -21°28.9	125°52.3 -21°20.5	140°24.0 -21°12.0	154°55.6 -21°03.5	169°27.4 -20°54.8	183°59.2 -20°46.1	198°31.1 -20°37.3	213°03.0 -20°28.4	227°35.1 -20°19.4	242°07.2 -20°10.3	256°39.3 -20°01.1	+31.9 +8.8	14.8 54.2
● **wo 26**	114°49.8 -17°34.2	129°23.0 -17°23.9	143°56.3 -17°13.4	158°29.6 -17°02.9	173°03.0 -16°52.3	187°36.5 -16°41.7	202°10.0 -16°31.0	216°43.6 -16°20.2	231°17.2 -16°09.3	245°50.9 -15°58.4	260°24.7 -15°47.5	+33.5 +10.7	14.7 54.0
do 27	118°57.8 -12°56.3	133°32.4 -12°44.5	148°07.0 -12°32.6	162°41.7 -12°20.7	177°16.5 -12°08.8	191°51.3 -11°56.7	206°26.1 -11°44.7	221°01.0 -11°32.6	235°36.0 -11°20.5	250°10.9 -11°08.3	264°45.9 -10°56.1	+34.8 +12.0	14.7 53.9
vr 28	123°35.6 -7°48.6	138°11.2 -7°35.9	152°46.8 -7°23.1	167°22.4 -7°10.3	181°58.0 -6°57.5	196°33.7 -6°44.6	211°09.4 -6°31.7	225°45.1 -6°18.8	240°20.8 -6°05.9	254°56.6 -5°52.9	269°32.4 -5°40.0	+35.7 +12.9	14.7 53.9
za 29	128°30.9 -2°23.4	143°06.8 -2°10.2	157°42.8 -1°56.9	172°18.8 -1°43.7	186°54.8 -1°30.5	201°30.8 -1°17.2	216°06.8 -1°03.9	230°42.8 -0°50.7	245°18.7 -0°37.4	259°54.7 -0°24.2	274°30.7 -0°10.9	+36.0 +13.3	14.7 54.0
zo 30	143°06.8 -2°10.2	157°42.8 -1°56.9	172°18.8 -1°43.7	186°54.8 -1°30.5	201°30.8 -1°17.2	216°06.8 -1°03.9	230°42.8 -0°50.7	245°18.7 -0°37.4	259°54.7 -0°24.2	274°30.7 -0°10.9	289°06.7 0°02.4	+36.0 +13.3	14.7 54.0
ma 31	148°05.0 3°21.5	162°40.8 3°34.7	177°16.5 3°48.0	191°52.2 4°01.2	206°27.9 4°14.4	221°03.6 4°27.6	235°39.2 4°40.8	250°14.8 4°54.0	264°50.4 5°07.1	279°26.0 5°20.3	294°01.5 5°33.4	+35.7 +13.2	14.8 54.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 5 01h40 — VM: 12 04h03 — LK: 18 19h25 — NM: 26 15h12

ZON

Februari 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	176°38.7 -17°17.6	191°38.7 -17°16.9	206°38.6 -17°16.2	221°38.5 -17°15.5	236°38.4 -17°14.7	251°38.3 -17°14.0	86°37.2 -17°04.8	101°37.1 -17°04.1	116°37.0 -17°03.4	131°36.9 -17°02.7	146°36.8 -17°02.0	161°36.8 -17°01.3	-0.1 +0.7
wo 2	176°36.7 -17°00.5	191°36.6 -16°59.8	206°36.5 -16°59.1	221°36.4 -16°58.4	236°36.3 -16°57.7	251°36.3 -16°57.0	86°35.3 -16°47.6	101°35.2 -16°46.9	116°35.1 -16°46.1	131°35.0 -16°45.4	146°35.0 -16°44.7	161°34.9 -16°44.0	-0.1 +0.7
do 3	176°34.8 -16°43.2	191°34.7 -16°42.5	206°34.7 -16°41.8	221°34.6 -16°41.1	236°34.5 -16°40.3	251°34.4 -16°39.6	86°33.5 -16°30.1	101°33.5 -16°29.3	116°33.4 -16°28.6	131°33.3 -16°27.8	146°33.3 -16°27.1	161°33.2 -16°26.4	-0.1 +0.7
vr 4	176°33.1 -16°25.6	191°33.1 -16°24.9	206°33.0 -16°24.2	221°33.0 -16°23.4	236°32.9 -16°22.7	251°32.8 -16°21.9	86°32.0 -16°12.2	101°32.0 -16°11.5	116°31.9 -16°10.7	131°31.9 -16°10.0	146°31.8 -16°09.2	161°31.7 -16°08.5	-0.1 +0.7
za 5	176°31.7 -16°07.7	191°31.6 -16°07.0	206°31.6 -16°06.2	221°31.5 -16°05.5	236°31.5 -16°04.7	251°31.4 -16°04.0	86°30.7 -15°54.1	101°30.7 -15°53.4	116°30.6 -15°52.6	131°30.6 -15°51.9	146°30.5 -15°51.1	161°30.5 -15°50.3	-0.1 +0.8
zo 6	176°30.4 -15°49.6	191°30.4 -15°48.8	206°30.4 -15°48.1	221°30.3 -15°47.3	236°30.3 -15°46.5	251°30.2 -15°45.8	86°29.6 -15°35.8	101°29.6 -15°35.0	116°29.6 -15°34.2	131°29.5 -15°33.5	146°29.5 -15°32.7	161°29.4 -15°31.9	-0.0 +0.8
ma 7	176°29.4 -15°31.1	191°29.4 -15°30.4	206°29.3 -15°29.6	221°29.3 -15°28.8	236°29.3 -15°28.1	251°29.2 -15°27.3	86°28.8 -15°17.2	101°28.7 -15°16.4	116°28.7 -15°15.6	131°28.7 -15°14.8	146°28.6 -15°14.0	161°28.6 -15°13.2	-0.0 +0.8
di 8	176°28.6 -15°12.5	191°28.5 -15°11.7	206°28.5 -15°10.9	221°28.5 -15°10.1	236°28.5 -15°09.3	251°28.4 -15°08.5	86°28.1 -14°58.3	101°28.1 -14°57.5	116°28.0 -14°56.7	131°28.0 -14°55.9	146°28.0 -14°55.1	161°28.0 -14°54.3	-0.0 +0.8
wo 9	176°27.9 -14°53.5	191°27.9 -14°52.7	206°27.9 -14°51.9	221°27.9 -14°51.1	236°27.8 -14°50.3	251°27.8 -14°49.5	86°27.6 -14°39.1	101°27.6 -14°38.3	116°27.6 -14°37.5	131°27.5 -14°36.7	146°27.5 -14°35.9	161°27.5 -14°35.1	-0.0 +0.8
do 10	176°27.5 -14°34.3	191°27.5 -14°33.5	206°27.5 -14°32.7	221°27.5 -14°31.9	236°27.4 -14°31.1	251°27.4 -14°30.3	86°27.3 -14°19.7	101°27.3 -14°18.9	116°27.3 -14°18.1	131°27.3 -14°17.3	146°27.3 -14°16.5	161°27.3 -14°15.7	-0.0 +0.8
vr 11	176°27.3 -14°14.9	191°27.3 -14°14.0	206°27.2 -14°13.2	221°27.2 -14°12.4	236°27.2 -14°11.6	251°27.2 -14°10.8	86°27.2 -14°00.1	101°27.2 -13°59.3	116°27.2 -13°58.5	131°27.2 -13°57.6	146°27.2 -13°56.8	161°27.2 -13°56.0	-0.0 +0.8
za 12	176°27.2 -13°55.2	191°27.2 -13°54.3	206°27.2 -13°53.5	221°27.2 -13°52.7	236°27.2 -13°51.9	251°27.2 -13°51.0	86°27.3 -13°40.3	101°27.3 -13°39.4	116°27.3 -13°38.6	131°27.3 -13°37.8	146°27.3 -13°36.9	161°27.3 -13°36.1	+0.0 +0.8
zo 13	176°27.4 -13°35.3	191°27.4 -13°34.4	206°27.4 -13°33.6	221°27.4 -13°32.8	236°27.4 -13°31.9	251°27.4 -13°31.1	86°27.6 -13°20.2	101°27.6 -13°19.3	116°27.6 -13°18.5	131°27.6 -13°17.7	146°27.6 -13°16.8	161°27.7 -13°16.0	+0.0 +0.8
ma 14	176°27.7 -13°15.1	191°27.7 -13°14.3	206°27.7 -13°13.4	221°27.7 -13°12.6	236°27.8 -13°11.7	251°27.8 -13°10.9	86°28.0 -12°59.9	101°28.1 -12°59.0	116°28.1 -12°58.2	131°28.1 -12°57.3	146°28.1 -12°56.5	161°28.2 -12°55.6	+0.0 +0.8
di 15	176°28.2 -12°54.8	191°28.2 -12°53.9	206°28.2 -12°53.1	221°28.3 -12°52.2	236°28.3 -12°51.4	251°28.3 -12°50.5	86°28.7 -12°39.4	101°28.7 -12°38.5	116°28.7 -12°37.6	131°28.8 -12°36.8	146°28.8 -12°35.9	161°28.8 -12°35.1	+0.0 +0.9
wo 16	176°28.9 -12°34.2	191°28.9 -12°33.3	206°28.9 -12°32.5	221°29.0 -12°31.6	236°29.0 -12°30.8	251°29.0 -12°29.9	86°29.5 -12°18.6	101°29.5 -12°17.8	116°29.6 -12°16.9	131°29.6 -12°16.0	146°29.7 -12°15.2	161°29.7 -12°14.3	+0.0 +0.9
do 17	176°29.7 -12°13.4	191°29.8 -12°12.6	206°29.8 -12°11.7	221°29.9 -12°10.8	236°29.9 -12°09.9	251°29.9 -12°09.1	86°30.5 -11°57.7	101°30.5 -11°56.8	116°30.6 -11°56.0	131°30.6 -11°55.1	146°30.7 -11°54.2	161°30.7 -11°53.3	+0.0 +0.9
vr 18	176°30.8 -11°52.5	191°30.8 -11°51.6	206°30.9 -11°50.7	221°30.9 -11°49.8	236°31.0 -11°48.9	251°31.0 -11°48.1	86°31.7 -11°36.6	101°31.7 -11°35.7	116°31.8 -11°34.8	131°31.8 -11°34.0	146°31.9 -11°33.1	161°31.9 -11°32.2	+0.0 +0.9
za 19	176°32.0 -11°31.3	191°32.0 -11°30.4	206°32.1 -11°29.5	221°32.1 -11°28.6	236°32.2 -11°27.8	251°32.2 -11°26.9	86°33.0 -11°15.3	101°33.0 -11°14.4	116°33.1 -11°13.5	131°33.2 -11°12.6	146°33.2 -11°11.7	161°33.3 -11°10.8	+0.1 +0.9
zo 20	176°33.3 -11°10.0	191°33.4 -11°09.1	206°33.5 -11°08.2	221°33.5 -11°07.3	236°33.6 -11°06.4	251°33.6 -11°05.5	86°34.5 -10°53.8	101°34.5 -10°52.9	116°34.6 -10°52.0	131°34.7 -10°51.1	146°34.7 -10°50.2	161°34.8 -10°49.3	+0.1 +0.9
ma 21	176°34.9 -10°48.4	191°34.9 -10°47.5	206°35.0 -10°46.6	221°35.1 -10°45.7	236°35.1 -10°44.8	251°35.2 -10°43.9	86°36.1 -10°32.2	101°36.2 -10°31.3	116°36.3 -10°30.4	131°36.3 -10°29.5	146°36.4 -10°28.6	161°36.5 -10°27.7	+0.1 +0.9
di 22	176°36.6 -10°26.7	191°36.6 -10°25.8	206°36.7 -10°24.9	221°36.8 -10°24.0	236°36.9 -10°23.1	251°36.9 -10°22.2	86°37.9 -10°10.4	101°38.0 -10°09.5	116°38.1 -10°08.6	131°38.2 -10°07.6	146°38.3 -10°06.7	161°38.3 -10°05.8	+0.1 +0.9
wo 23	176°38.4 -10°04.9	191°38.5 -10°04.0	206°38.6 -10°03.1	221°38.7 -10°02.2	236°38.7 -10°01.2	251°38.8 -10°00.3	86°39.9 -9°48.4	101°40.0 -9°47.5	116°40.1 -9°46.6	131°40.2 -9°45.7	146°40.2 -9°44.7	161°40.3 -9°43.8	+0.1 +0.9
do 24	176°40.4 -9°42.9	191°40.5 -9°42.0	206°40.6 -9°41.1	221°40.7 -9°40.1	236°40.8 -9°39.2	251°40.9 -9°38.3	86°42.0 -9°26.3	101°42.1 -9°25.4	116°42.2 -9°24.4	131°42.3 -9°23.5	146°42.4 -9°22.6	161°42.5 -9°21.7	+0.1 +0.9
vr 25	176°42.6 -9°20.7	191°42.7 -9°19.8	206°42.8 -9°18.9	221°42.8 -9°18.0	236°42.9 -9°17.0	251°43.0 -9°16.1	86°44.3 -9°04.0	101°44.4 -9°03.1	116°44.5 -9°02.2	131°44.6 -9°01.2	146°44.7 -9°00.3	161°44.8 -8°59.4	+0.1 +0.9
za 26	176°44.9 -8°58.4	191°45.0 -8°57.5	206°45.1 -8°56.6	221°45.2 -8°55.7	236°45.3 -8°54.7	251°45.4 -8°53.8	86°46.7 -8°41.6	101°46.8 -8°40.7	116°46.9 -8°39.8	131°47.0 -8°38.8	146°47.1 -8°37.9	161°47.2 -8°37.0	+0.1 +0.9
zo 27	176°47.3 -8°36.0	191°47.4 -8°35.1	206°47.5 -8°34.1	221°47.6 -8°33.2	236°47.7 -8°32.3	251°47.8 -8°31.3	86°49.2 -8°19.1	101°49.3 -8°18.2	116°49.5 -8°17.2	131°49.6 -8°16.3	146°49.7 -8°15.4	161°49.8 -8°14.4	+0.1 +0.9
ma 28	176°49.9 -8°13.5	191°50.0 -8°12.5	206°50.1 -8°11.6	221°50.2 -8°10.6	236°50.3 -8°09.7	251°50.5 -8°08.8	86°51.9 -7°56.5	101°52.0 -7°55.5	116°52.2 -7°54.6	131°52.3 -7°53.6	146°52.4 -7°52.7	161°52.5 -7°51.7	+0.1 +0.9
di 29	176°52.6 -7°50.8	191°52.7 -7°49.8	206°52.8 -7°48.9	221°53.0 -7°48.0	236°53.1 -7°47.0	251°53.2 -7°46.1	86°54.7 -7°33.7	101°54.9 -7°32.8	116°55.0 -7°31.8	131°55.1 -7°30.9	146°55.2 -7°29.9	161°55.3 -7°29.0	+0.1 +0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2028

D	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ'/h	SD/HP
di 1	55°09.8	69°43.7	84°17.5	98°51.2	113°24.9	127°58.5	142°32.0	157°05.4	171°38.8	186°12.1	200°45.3	+33.5	15.0
	12°34.0	12°46.2	12°58.3	13°10.4	13°22.5	13°34.5	13°46.5	13°58.4	14°10.3	14°22.1	14°33.9	+12.0	55.0
wo 2	58°53.7	73°25.6	87°57.4	102°29.1	117°00.7	131°32.2	146°03.6	160°34.9	175°06.1	189°37.2	204°08.2	+31.5	15.2
	17°24.0	17°34.8	17°45.6	17°56.3	18°06.9	18°17.5	18°28.0	18°38.4	18°48.7	18°59.0	19°09.2	+10.5	55.7
◐ do 3	61°41.2	76°10.5	90°39.8	105°08.9	119°38.0	134°06.9	148°35.7	163°04.4	177°33.0	192°01.5	206°29.9	+28.9	15.4
	21°32.0	21°40.8	21°49.4	21°58.0	22°06.5	22°14.9	22°23.2	22°31.3	22°39.4	22°47.4	22°55.2	+8.3	56.5
vr 4	63°22.3	77°49.0	92°15.5	106°41.9	121°08.2	135°34.4	150°00.6	164°26.6	178°52.5	193°18.3	207°44.0	+26.2	15.7
	24°38.7	24°44.6	24°50.4	24°56.0	25°01.5	25°06.8	25°12.0	25°17.1	25°22.0	25°26.8	25°31.4	+5.3	57.5
za 5	77°49.0	92°15.5	106°41.9	121°08.2	135°34.4	150°00.6	164°26.6	178°52.5	193°18.3	207°44.0	222°09.6	+26.1	15.7
	24°44.6	24°50.4	24°56.0	25°01.5	25°06.8	25°12.0	25°17.1	25°22.0	25°26.8	25°31.4	25°35.9	+5.1	57.5
zo 6	78°22.4	92°46.6	107°10.7	121°34.7	135°58.6	150°22.5	164°46.3	179°10.1	193°33.7	207°57.3	222°20.9	+23.8	16.0
	26°24.7	26°26.6	26°28.4	26°30.1	26°31.5	26°32.8	26°33.9	26°34.9	26°35.6	26°36.2	26°36.7	+1.2	58.5
ma 7	78°07.9	92°30.8	106°53.6	121°16.3	135°39.1	150°01.8	164°24.6	178°47.3	193°10.0	207°32.7	221°55.3	+22.7	16.2
	26°21.4	26°18.9	26°16.3	26°13.4	26°10.4	26°07.2	26°03.8	26°00.2	25°56.4	25°52.4	25°48.3	-3.3	59.5
di 8	77°36.2	91°59.0	106°21.9	120°44.8	135°07.8	149°30.8	163°53.8	178°16.9	192°40.0	207°03.1	221°26.3	+23.0	16.5
	24°23.8	24°16.8	24°09.5	24°02.0	23°54.4	23°46.6	23°38.6	23°30.5	23°22.2	23°13.7	23°05.0	-7.9	60.4
wo 9	77°20.2	91°44.2	106°08.3	120°32.5	134°56.8	149°21.1	163°45.5	178°09.9	192°34.5	206°59.1	221°23.7	+24.4	16.6
	20°35.2	20°23.9	20°12.5	20°01.0	19°49.3	19°37.5	19°25.5	19°13.4	19°01.2	18°48.8	18°36.3	-11.9	61.0
○ do 10	77°42.2	92°08.0	106°33.9	120°59.8	135°25.9	149°52.0	164°18.1	178°44.4	193°10.7	207°37.1	222°03.5	+26.1	16.7
	15°13.5	14°59.1	14°44.6	14°30.0	14°15.3	14°00.5	13°45.6	13°30.6	13°15.5	13°00.3	12°45.1	-14.9	61.4
vr 11	78°48.1	93°15.6	107°43.2	122°10.8	136°38.4	151°06.1	165°33.9	180°01.7	194°29.5	208°57.5	223°25.4	+27.7	16.7
	8°47.5	8°31.2	8°14.9	7°58.5	7°42.0	7°25.5	7°09.0	6°52.4	6°35.8	6°19.2	6°02.5	-16.5	61.3
za 12	80°30.4	94°59.0	109°27.7	123°56.4	138°25.2	152°53.9	167°22.7	181°51.6	196°20.4	210°49.3	225°18.2	+28.8	16.6
	1°50.1	1°33.2	1°16.3	0°59.5	0°42.6	0°25.7	0°08.9	-0°08.0	-0°24.8	-0°41.6	-0°58.4	-16.9	60.9
zo 13	82°34.1	97°03.3	111°32.5	126°01.6	140°30.8	155°00.0	169°29.2	183°58.4	198°27.6	212°56.8	227°26.0	+29.2	16.4
	-5°06.8	-5°23.0	-5°39.2	-5°55.4	-6°11.5	-6°27.5	-6°43.5	-6°59.4	-7°15.3	-7°31.1	-7°46.9	-16.0	60.2
ma 14	84°43.1	99°12.2	113°41.3	128°10.3	142°39.3	157°08.3	171°37.3	186°06.3	200°35.2	215°04.1	229°33.0	+29.0	16.2
	-11°35.0	-11°49.6	-12°04.1	-12°18.5	-12°32.8	-12°47.1	-13°01.2	-13°15.3	-13°29.3	-13°43.1	-13°56.9	-14.2	59.4
di 15	86°43.9	101°12.4	115°40.9	130°09.4	144°37.8	159°06.3	173°34.6	188°03.0	202°31.3	216°59.6	231°27.9	+28.4	15.9
	-17°11.6	-17°23.7	-17°35.7	-17°47.6	-17°59.4	-18°11.0	-18°22.6	-18°34.0	-18°45.3	-18°56.5	-19°07.6	-11.6	58.4
wo 16	88°28.7	102°56.6	117°24.4	131°52.2	146°19.9	160°47.7	175°15.4	189°43.1	204°10.8	218°38.4	233°06.0	+27.7	15.7
	-21°38.7	-21°47.7	-21°56.7	-22°05.4	-22°14.1	-22°22.6	-22°31.0	-22°39.2	-22°47.3	-22°55.3	-23°03.1	-8.4	57.4
◑ do 17	89°58.2	104°25.6	118°53.0	133°20.3	147°47.6	162°15.0	176°42.3	191°09.6	205°36.9	220°04.3	234°31.6	+27.3	15.4
	-24°43.9	-24°49.5	-24°54.9	-25°00.2	-25°05.4	-25°10.4	-25°15.2	-25°20.0	-25°24.5	-25°29.0	-25°33.3	-4.9	56.5
vr 18	91°21.7	105°49.1	120°16.5	134°44.0	149°11.5	163°39.0	178°06.5	192°34.0	207°01.6	221°29.1	235°56.7	+27.5	15.2
	-26°20.2	-26°22.2	-26°24.0	-26°25.7	-26°27.3	-26°28.7	-26°29.9	-26°31.0	-26°32.0	-26°32.8	-26°33.5	-1.3	55.7
za 19	92°54.5	107°22.7	121°50.8	136°19.1	150°47.4	165°15.7	179°44.0	194°12.5	208°40.9	223°09.4	237°38.0	+28.3	15.0
	-26°27.0	-26°25.5	-26°23.8	-26°22.0	-26°20.0	-26°18.0	-26°15.8	-26°13.4	-26°11.0	-26°08.4	-26°05.6	+2.1	55.1
zo 20	94°53.0	109°22.4	123°52.0	138°21.5	152°51.2	167°20.9	181°50.7	196°20.5	210°50.4	225°20.4	239°50.4	+29.7	14.9
	-25°09.5	-25°04.7	-24°59.9	-24°54.9	-24°49.9	-24°44.7	-24°39.3	-24°33.9	-24°28.4	-24°22.7	-24°17.0	+5.3	54.6
ma 21	97°28.9	112°00.0	126°31.2	141°02.4	155°33.7	170°05.1	184°36.6	199°08.1	213°39.6	228°11.3	242°43.0	+31.4	14.8
	-22°37.6	-22°30.1	-22°22.6	-22°15.0	-22°07.2	-21°59.4	-21°51.5	-21°43.4	-21°35.3	-21°27.1	-21°18.8	+7.9	54.3
di 22	100°46.8	115°19.5	129°52.4	144°25.2	158°58.2	173°31.2	188°04.3	202°37.4	217°10.7	231°43.9	246°17.2	+33.1	14.7
	-19°04.0	-18°54.4	-18°44.7	-18°34.9	-18°25.0	-18°15.1	-18°05.1	-17°55.0	-17°44.8	-17°34.6	-17°24.3	+10.0	54.0
wo 23	104°43.9	119°18.1	133°52.3	148°26.6	163°01.0	177°35.4	192°09.8	206°44.3	221°18.9	235°53.5	250°28.1	+34.4	14.7
	-14°42.2	-14°30.9	-14°19.5	-14°08.1	-13°56.7	-13°45.2	-13°33.6	-13°22.0	-13°10.4	-12°58.7	-12°46.9	+11.5	53.9
do 24	109°12.4	123°47.7	138°22.9	152°58.2	167°33.6	182°09.0	196°44.3	211°19.8	225°55.2	240°30.7	255°06.2	+35.4	14.7
	-9°45.2	-9°32.8	-9°20.4	-9°07.9	-8°55.3	-8°42.8	-8°30.2	-8°17.5	-8°04.9	-7°52.2	-7°39.5	+12.6	53.9
● vr 25	114°01.2	128°37.0	143°12.9	157°48.7	172°24.5	187°00.3	201°36.2	216°12.0	230°47.9	245°23.7	259°59.6	+35.8	14.7
	-4°25.6	-4°12.5	-3°59.4	-3°46.3	-3°33.2	-3°20.0	-3°06.9	-2°53.7	-2°40.5	-2°27.3	-2°14.1	+13.2	54.0
za 26	118°57.5	133°33.3	148°09.1	162°44.9	177°20.6	191°56.4	206°32.1	221°07.9	235°43.6	250°19.3	264°54.9	+35.8	14.8
	1°04.9	1°18.2	1°31.5	1°44.8	1°58.1	2°11.3	2°24.6	2°37.9	2°51.1	3°04.4	3°17.6	+13.3	54.1
zo 27	123°47.2	138°22.4	152°57.6	167°32.8	182°08.0	196°43.1	211°18.1	225°53.2	240°28.1	255°03.1	269°38.0	+35.1	14.8
	6°34.8	6°47.8	7°00.8	7°13.8	7°26.8	7°39.7	7°52.6	8°05.5	8°18.3	8°31.2	8°43.9	+12.9	54.4
ma 28	128°15.9	142°50.0	157°24.1	171°58.0	186°32.0	201°05.9	215°39.7	230°13.4	244°47.1	259°20.7	273°54.3	+33.8	14.9
	11°52.1	12°04.3	12°16.5	12°28.7	12°40.8	12°52.9	13°04.9	13°16.9	13°28.8	13°40.7	13°52.5	+12.0	54.7
di 29	142°50.0	157°24.1	171°58.0	186°32.0	201°05.9	215°39.7	230°13.4	244°47.1	259°20.7	273°54.3	288°27.8	+33.8	14.9
	12°04.3	12°16.5	12°28.7	12°40.8	12°52.9	13°04.9	13°16.9	13°28.8	13°40.7	13°52.5	14°04.3	+12.0	54.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 3 19h10 — VM: 10 15h03 — LK: 17 08h08 — NM: 25 10h37

ZON

Maart 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	176°55.5 -7°28.0	191°55.6 -7°27.1	206°55.7 -7°26.1	221°55.8 -7°25.2	236°56.0 -7°24.2	251°56.1 -7°23.2	86°57.7 -7°10.9	101°57.8 -7°09.9	116°57.9 -7°08.9	131°58.1 -7°08.0	146°58.2 -7°07.0	161°58.3 -7°06.1	+0.1 +1.0
do 2	176°58.4 -7°05.1	191°58.6 -7°04.2	206°58.7 -7°03.2	221°58.8 -7°02.3	236°59.0 -7°01.3	251°59.1 -7°00.3	87°00.8 -6°47.9	102°00.9 -6°46.9	117°01.0 -6°46.0	132°01.2 -6°45.0	147°01.3 -6°44.0	162°01.4 -6°43.1	+0.1 +1.0
vr 3	177°01.6 -6°42.1	192°01.7 -6°41.2	207°01.8 -6°40.2	222°01.9 -6°39.2	237°02.1 -6°38.3	252°02.2 -6°37.3	87°04.0 -6°24.8	102°04.1 -6°23.9	117°04.2 -6°22.9	132°04.4 -6°21.9	147°04.5 -6°21.0	162°04.6 -6°20.0	+0.1 +1.0
za 4	177°04.8 -6°19.0	192°04.9 -6°18.1	207°05.0 -6°17.1	222°05.2 -6°16.2	237°05.3 -6°15.2	252°05.5 -6°14.2	87°07.3 -6°01.7	102°07.4 -6°00.7	117°07.6 -5°59.7	132°07.7 -5°58.8	147°07.8 -5°57.8	162°08.0 -5°56.8	+0.1 +1.0
zo 5	177°08.1 -5°55.9	192°08.3 -5°54.9	207°08.4 -5°53.9	222°08.5 -5°53.0	237°08.7 -5°52.0	252°08.8 -5°51.0	87°10.7 -5°38.5	102°10.8 -5°37.5	117°11.0 -5°36.5	132°11.1 -5°35.5	147°11.3 -5°34.6	162°11.4 -5°33.6	+0.1 +1.0
ma 6	177°11.6 -5°32.6	192°11.7 -5°31.7	207°11.9 -5°30.7	222°12.0 -5°29.7	237°12.2 -5°28.8	252°12.3 -5°27.8	87°14.2 -5°15.1	102°14.4 -5°14.2	117°14.5 -5°13.2	132°14.7 -5°12.2	147°14.8 -5°11.3	162°15.0 -5°10.3	+0.1 +1.0
di 7	177°15.1 -5°09.3	192°15.3 -5°08.3	207°15.4 -5°07.4	222°15.6 -5°06.4	237°15.7 -5°05.4	252°15.9 -5°04.4	87°17.9 -4°51.8	102°18.0 -4°50.8	117°18.2 -4°49.8	132°18.3 -4°48.9	147°18.5 -4°47.9	162°18.6 -4°46.9	+0.2 +1.0
wo 8	177°18.8 -4°45.9	192°18.9 -4°45.0	207°19.1 -4°44.0	222°19.2 -4°43.0	237°19.4 -4°42.0	252°19.6 -4°41.0	87°21.6 -4°28.3	102°21.7 -4°27.4	117°21.9 -4°26.4	132°22.1 -4°25.4	147°22.2 -4°24.4	162°22.4 -4°23.5	+0.2 +1.0
do 9	177°22.5 -4°22.5	192°22.7 -4°21.5	207°22.9 -4°20.5	222°23.0 -4°19.5	237°23.2 -4°18.6	252°23.3 -4°17.6	87°25.4 -4°04.9	102°25.6 -4°03.9	117°25.7 -4°02.9	132°25.9 -4°01.9	147°26.1 -4°00.9	162°26.2 -4°00.0	+0.2 +1.0
vr 10	177°26.4 -3°59.0	192°26.5 -3°58.0	207°26.7 -3°57.0	222°26.9 -3°56.0	237°27.0 -3°55.1	252°27.2 -3°54.1	87°29.3 -3°41.3	102°29.5 -3°40.3	117°29.6 -3°39.4	132°29.8 -3°38.4	147°30.0 -3°37.4	162°30.1 -3°36.4	+0.2 +1.0
za 11	177°30.3 -3°35.4	192°30.5 -3°34.5	207°30.6 -3°33.5	222°30.8 -3°32.5	237°31.0 -3°31.5	252°31.1 -3°30.5	87°33.3 -3°17.7	102°33.5 -3°16.8	117°33.6 -3°15.8	132°33.8 -3°14.8	147°34.0 -3°13.8	162°34.1 -3°12.8	+0.2 +1.0
zo 12	177°34.3 -3°11.8	192°34.5 -3°10.9	207°34.6 -3°09.9	222°34.8 -3°08.9	237°35.0 -3°07.9	252°35.2 -3°06.9	87°37.4 -2°54.1	102°37.5 -2°53.1	117°37.7 -2°52.2	132°37.9 -2°51.2	147°38.0 -2°50.2	162°38.2 -2°49.2	+0.2 +1.0
ma 13	177°38.4 -2°48.2	192°38.6 -2°47.2	207°38.7 -2°46.2	222°38.9 -2°45.3	237°39.1 -2°44.3	252°39.2 -2°43.3	87°41.5 -2°30.5	102°41.7 -2°29.5	117°41.8 -2°28.5	132°42.0 -2°27.5	147°42.2 -2°26.5	162°42.4 -2°25.5	+0.2 +1.0
di 14	177°42.5 -2°24.6	192°42.7 -2°23.6	207°42.9 -2°22.6	222°43.1 -2°21.6	237°43.2 -2°20.6	252°43.4 -2°19.6	87°45.7 -2°06.8	102°45.8 -2°05.8	117°46.0 -2°04.8	132°46.2 -2°03.8	147°46.4 -2°02.8	162°46.6 -2°01.9	+0.2 +1.0
wo 15	177°46.7 -2°00.9	192°46.9 -1°59.9	207°47.1 -1°58.9	222°47.3 -1°57.9	237°47.4 -1°56.9	252°47.6 -1°55.9	87°49.9 -1°43.1	102°50.1 -1°42.1	117°50.3 -1°41.1	132°50.4 -1°40.1	147°50.6 -1°39.1	162°50.8 -1°38.2	+0.2 +1.0
do 16	177°51.0 -1°37.2	192°51.2 -1°36.2	207°51.3 -1°35.2	222°51.5 -1°34.2	237°51.7 -1°33.3	252°51.9 -1°32.2	87°54.2 -1°19.4	102°54.4 -1°18.4	117°54.6 -1°17.4	132°54.7 -1°16.4	147°54.9 -1°15.4	162°55.1 -1°14.4	+0.2 +1.0
vr 17	177°55.3 -1°13.4	192°55.5 -1°12.5	207°55.6 -1°11.5	222°55.8 -1°10.5	237°56.0 -1°09.5	252°56.2 -1°08.5	87°58.5 -0°55.6	102°58.7 -0°54.7	117°58.9 -0°53.7	132°59.1 -0°52.7	147°59.3 -0°51.7	162°59.4 -0°50.7	+0.2 +1.0
za 18	177°59.6 -0°49.7	192°59.8 -0°48.7	208°00.0 -0°47.7	223°00.2 -0°46.7	238°00.3 -0°45.8	253°00.5 -0°44.8	88°02.9 -0°31.9	103°03.1 -0°30.9	118°03.3 -0°29.9	133°03.5 -0°28.9	148°03.6 -0°28.0	163°03.8 -0°27.0	+0.2 +1.0
zo 19	178°04.0 -0°26.0	193°04.2 -0°25.0	208°04.4 -0°24.0	223°04.6 -0°23.0	238°04.7 -0°22.0	253°04.9 -0°21.0	88°07.3 -0°08.2	103°07.5 -0°07.2	118°07.7 -0°06.2	133°07.9 -0°05.2	148°08.0 -0°04.2	163°08.2 -0°03.2	+0.2 +1.0
ma 20	178°08.4 -0°02.3	193°08.6 -0°01.3	208°08.8 -0°00.3	223°09.0 0°00.7	238°09.1 0°01.7	253°09.3 0°02.7	88°11.7 0°15.5	103°11.9 0°16.5	118°12.1 0°17.5	133°12.3 0°18.5	148°12.5 0°19.5	163°12.7 0°20.5	+0.2 +1.0
di 21	178°12.9 0°21.5	193°13.0 0°22.4	208°13.2 0°23.4	223°13.4 0°24.4	238°13.6 0°25.4	253°13.8 0°26.4	88°16.2 0°39.2	103°16.4 0°40.2	118°16.6 0°41.2	133°16.8 0°42.2	148°16.9 0°43.2	163°17.1 0°44.2	+0.2 +1.0
wo 22	178°17.3 0°45.2	193°17.5 0°46.1	208°17.7 0°47.1	223°17.9 0°48.1	238°18.1 0°49.1	253°18.2 0°50.1	88°20.7 1°02.9	103°20.9 1°03.9	118°21.0 1°04.9	133°21.2 1°05.9	148°21.4 1°06.9	163°21.6 1°07.8	+0.2 +1.0
do 23	178°21.8 1°08.8	193°22.0 1°09.8	208°22.2 1°10.8	223°22.4 1°11.8	238°22.5 1°12.8	253°22.7 1°13.8	88°25.2 1°26.6	103°25.3 1°27.5	118°25.5 1°28.5	133°25.7 1°29.5	148°25.9 1°30.5	163°26.1 1°31.5	+0.2 +1.0
vr 24	178°26.3 1°32.5	193°26.5 1°33.5	208°26.7 1°34.4	223°26.8 1°35.4	238°27.0 1°36.4	253°27.2 1°37.4	88°29.7 1°50.2	103°29.8 1°51.2	118°30.0 1°52.1	133°30.2 1°53.1	148°30.4 1°54.1	163°30.6 1°55.1	+0.2 +1.0
za 25	178°30.8 1°56.1	193°31.0 1°57.1	208°31.2 1°58.0	223°31.4 1°59.0	238°31.5 2°00.0	253°31.7 2°01.0	88°34.2 2°13.7	103°34.4 2°14.7	118°34.5 2°15.7	133°34.7 2°16.7	148°34.9 2°17.7	163°35.1 2°18.7	+0.2 +1.0
zo 26	178°35.3 2°19.6	193°35.5 2°20.6	208°35.7 2°21.6	223°35.9 2°22.6	238°36.0 2°23.6	253°36.2 2°24.5	88°38.7 2°37.3	103°38.9 2°38.3	118°39.1 2°39.2	133°39.2 2°40.2	148°39.4 2°41.2	163°39.6 2°42.2	+0.2 +1.0
ma 27	178°39.8 2°43.1	193°40.0 2°44.1	208°40.2 2°45.1	223°40.4 2°46.1	238°40.6 2°47.1	253°40.7 2°48.0	88°43.2 3°00.7	103°43.4 3°01.7	118°43.6 3°02.7	133°43.7 3°03.7	148°43.9 3°04.7	163°44.1 3°05.6	+0.2 +1.0
di 28	178°44.3 3°06.6	193°44.5 3°07.6	208°44.7 3°08.6	223°44.9 3°09.5	238°45.1 3°10.5	253°45.2 3°11.5	88°47.7 3°24.2	103°47.9 3°25.1	118°48.1 3°26.1	133°48.2 3°27.1	148°48.4 3°28.1	163°48.6 3°29.0	+0.2 +1.0
wo 29	178°48.8 3°30.0	193°49.0 3°31.0	208°49.2 3°32.0	223°49.4 3°32.9	238°49.6 3°33.9	253°49.7 3°34.9	88°52.2 3°47.5	103°52.4 3°48.5	118°52.5 3°49.5	133°52.7 3°50.4	148°52.9 3°51.4	163°53.1 3°52.4	+0.2 +1.0
do 30	178°53.3 3°53.3	193°53.5 3°54.3	208°53.7 3°55.3	223°53.8 3°56.2	238°54.0 3°57.2	253°54.2 3°58.2	88°56.6 4°10.8	103°56.8 4°11.8	118°57.0 4°12.7	133°57.2 4°13.7	148°57.4 4°14.7	163°57.6 4°15.6	+0.2 +1.0
vr 31	178°57.8 4°16.6	193°57.9 4°17.6	208°58.1 4°18.5	223°58.3 4°19.5	238°58.5 4°20.5	253°58.7 4°21.4	89°01.1 4°34.0	104°01.3 4°34.9	119°01.5 4°35.9	134°01.6 4°36.9	149°01.8 4°37.8	164°02.0 4°38.8	+0.2 +1.0

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\mathrm{h} = v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), $\Delta'/\mathrm{h} = d$: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2028

D	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ'/h	SD/HP
wo 1	62°42.1	77°12.8	91°43.5	106°14.0	120°44.5	135°14.9	149°45.2	164°15.4	178°45.5	193°15.5	207°45.4	+30.3	15.2
	20°07.9	20°17.3	20°26.6	20°35.8	20°44.9	20°53.9	21°02.8	21°11.7	21°20.4	21°29.1	21°37.6	+9.0	55.7
do 2	65°02.9	79°31.3	93°59.7	108°27.9	122°56.1	137°24.1	151°52.1	166°19.9	180°47.7	195°15.4	209°43.0	+28.0	15.4
	23°33.4	23°40.2	23°46.9	23°53.5	24°00.0	24°06.3	24°12.5	24°18.7	24°24.6	24°30.5	24°36.2	+6.3	56.4
vr 3	66°26.5	80°52.8	95°19.0	109°45.0	124°11.1	138°37.0	153°02.9	167°28.7	181°54.4	196°20.0	210°45.6	+25.9	15.6
	25°46.1	25°49.6	25°53.0	25°56.3	25°59.4	26°02.3	26°05.1	26°07.8	26°10.3	26°12.6	26°14.8	+2.9	57.2
◐ za 4	67°02.1	81°26.8	95°51.5	110°16.1	124°40.6	139°05.1	153°29.6	167°54.1	182°18.5	196°42.9	211°07.2	+24.5	15.8
	26°28.6	26°28.3	26°27.7	26°27.0	26°26.1	26°25.1	26°23.9	26°22.5	26°20.9	26°19.2	26°17.3	-1.1	58.1
zo 5	81°26.8	95°51.5	110°16.1	124°40.6	139°05.1	153°29.6	167°54.1	182°18.5	196°42.9	211°07.2	225°31.6	+24.5	15.8
	26°28.3	26°27.7	26°27.0	26°26.1	26°25.1	26°23.9	26°22.5	26°20.9	26°19.2	26°17.3	26°15.2	-1.3	58.1
ma 6	81°34.4	95°58.5	110°22.7	124°46.8	139°11.0	153°35.1	167°59.3	182°23.4	196°47.6	211°11.8	225°36.0	+24.2	16.1
	25°23.7	25°18.9	25°13.9	25°08.7	25°03.4	24°57.9	24°52.3	24°46.4	24°40.4	24°34.2	24°27.9	-5.6	59.0
di 7	81°41.9	96°06.5	110°31.2	124°55.9	139°20.6	153°45.4	168°10.2	182°35.1	197°00.0	211°25.0	225°50.0	+24.8	16.3
	22°32.9	22°23.9	22°14.8	22°05.5	21°56.1	21°46.5	21°36.7	21°26.9	21°16.8	21°06.6	20°56.3	-9.7	59.9
wo 8	82°10.8	96°36.6	111°02.4	125°28.3	139°54.3	154°20.3	168°46.3	183°12.4	197°38.6	212°04.8	226°31.1	+26.0	16.5
	18°04.2	17°51.7	17°39.0	17°26.2	17°13.3	17°00.3	16°47.1	16°33.8	16°20.5	16°07.0	15°53.3	-13.1	60.6
do 9	83°11.2	97°38.3	112°05.4	126°32.6	140°59.8	155°27.1	169°54.4	184°21.7	198°49.1	213°16.5	227°44.0	+27.3	16.7
	12°16.8	12°01.6	11°46.3	11°31.0	11°15.6	11°00.1	10°44.5	10°28.9	10°13.1	9°57.4	9°41.5	-15.5	61.1
vr 10	84°40.7	99°08.8	113°36.8	128°05.0	142°33.1	157°01.2	171°29.4	185°57.6	200°25.9	214°54.1	229°22.4	+28.2	16.7
	5°37.1	5°20.4	5°03.8	4°47.1	4°30.3	4°13.5	3°56.8	3°39.9	3°23.1	3°06.2	2°49.4	-16.8	61.2
○ za 11	86°28.4	100°56.8	115°25.3	129°53.8	144°22.3	158°50.8	173°19.3	187°47.8	202°16.3	216°44.8	231°13.3	+28.5	16.6
	-1°24.3	-1°41.1	-1°58.0	-2°14.8	-2°31.6	-2°48.4	-3°05.1	-3°21.9	-3°38.6	-3°55.2	-4°11.9	-16.8	61.0
zo 12	88°19.7	102°48.0	117°16.3	131°44.6	146°12.9	160°41.1	175°09.4	189°37.6	204°05.8	218°33.9	233°02.1	+28.2	16.5
	-8°16.1	-8°32.0	-8°47.8	-9°03.5	-9°19.1	-9°34.7	-9°50.2	-10°05.7	-10°21.1	-10°36.3	-10°51.6	-15.5	60.5
ma 13	90°01.2	104°29.0	118°56.6	133°24.3	147°51.9	162°19.5	176°47.1	191°14.6	205°42.1	220°09.6	234°37.0	+27.6	16.3
	-14°29.4	-14°43.1	-14°56.8	-15°10.3	-15°23.8	-15°37.1	-15°50.3	-16°03.5	-16°16.5	-16°29.3	-16°42.1	-13.3	59.7
di 14	91°24.8	105°51.8	120°18.7	134°45.6	149°12.4	163°39.2	178°06.0	192°32.8	206°59.5	221°26.3	235°52.9	+26.8	16.0
	-19°39.3	-19°50.1	-20°00.8	-20°11.3	-20°21.7	-20°31.9	-20°42.1	-20°52.0	-21°01.9	-21°11.6	-21°21.2	-10.2	58.8
wo 15	92°30.6	106°57.0	121°23.3	135°49.7	150°16.0	164°42.3	179°08.7	193°35.0	208°01.3	222°27.6	236°53.9	+26.3	15.7
	-23°27.5	-23°34.7	-23°41.8	-23°48.8	-23°55.6	-24°02.2	-24°08.7	-24°15.0	-24°21.2	-24°27.3	-24°33.1	-6.6	57.7
do 16	93°28.4	107°54.8	122°21.2	136°47.6	151°14.0	165°40.5	180°06.9	194°33.4	208°59.9	223°26.5	237°53.0	+26.5	15.5
	-25°43.1	-25°46.5	-25°49.8	-25°52.9	-25°55.9	-25°58.7	-26°01.4	-26°03.9	-26°06.3	-26°08.5	-26°10.5	-2.7	56.8
◑ vr 17	94°35.4	109°02.5	123°29.7	137°56.9	152°24.2	166°51.6	181°18.9	195°46.4	210°13.8	224°41.4	239°09.0	+27.4	15.2
	-26°23.6	-26°23.3	-26°22.8	-26°22.2	-26°21.5	-26°20.6	-26°19.6	-26°18.5	-26°17.2	-26°15.7	-26°14.1	+0.9	55.9
za 18	96°09.9	110°38.5	125°07.1	139°35.8	154°04.6	168°33.5	183°02.4	197°31.3	212°00.4	226°29.5	240°58.7	+28.9	15.0
	-25°34.3	-25°30.6	-25°26.8	-25°22.8	-25°18.7	-25°14.5	-25°10.2	-25°05.8	-25°01.2	-24°56.5	-24°51.7	+4.3	55.2
zo 19	98°25.5	112°55.8	127°26.3	141°56.8	156°27.4	170°58.1	185°28.8	199°59.7	214°30.6	229°01.6	243°32.6	+30.7	14.9
	-23°25.9	-23°19.3	-23°12.6	-23°05.8	-22°58.9	-22°51.9	-22°44.8	-22°37.6	-22°30.3	-22°22.9	-22°15.4	+7.1	54.6
ma 20	101°27.2	115°59.4	130°31.7	145°04.0	159°36.4	174°08.9	188°41.5	203°14.1	217°46.8	232°19.5	246°52.4	+32.5	14.8
	-20°12.0	-20°03.1	-19°54.1	-19°45.0	-19°35.8	-19°26.6	-19°17.3	-19°07.9	-18°58.4	-18°48.8	-18°39.2	+9.3	54.2
di 21	105°12.2	119°46.0	134°19.9	148°53.8	163°27.8	178°01.8	192°35.8	207°10.0	221°44.1	236°18.4	250°52.6	+34.0	14.7
	-16°06.4	-15°55.7	-15°44.9	-15°34.1	-15°23.2	-15°12.2	-15°01.2	-14°50.1	-14°39.0	-14°27.8	-14°16.6	+11.0	54.0
wo 22	109°32.2	124°07.2	138°42.2	153°17.2	167°52.3	182°27.4	197°02.5	211°37.7	226°12.9	240°48.2	255°23.4	+35.1	14.7
	-11°22.1	-11°10.1	-10°58.0	-10°45.9	-10°33.8	-10°21.6	-10°09.4	-9°57.2	-9°44.9	-9°32.6	-9°20.2	+12.2	53.9
do 23	114°15.4	128°51.0	143°26.7	158°02.3	172°38.0	187°13.7	201°49.4	216°25.1	231°00.8	245°36.5	260°12.3	+35.7	14.7
	-6°11.0	-5°58.2	-5°45.3	-5°32.4	-5°19.5	-5°06.6	-4°53.6	-4°40.7	-4°27.7	-4°14.7	-4°01.6	+12.9	54.0
vr 24	119°08.6	133°44.3	148°20.1	162°55.8	177°31.5	192°07.2	206°42.9	221°18.6	235°54.3	250°29.9	265°05.6	+35.7	14.8
	-0°44.5	-0°31.3	-0°18.0	-0°04.8	0°08.4	0°21.7	0°34.9	0°48.2	1°01.4	1°14.7	1°27.9	+13.2	54.2
za 25	123°57.8	138°33.1	153°08.4	167°43.6	182°18.8	196°53.9	211°29.1	226°04.2	240°39.2	255°14.2	269°49.2	+35.1	14.8
	4°46.1	4°59.3	5°12.4	5°25.5	5°38.6	5°51.7	6°04.8	6°17.8	6°30.9	6°43.9	6°56.9	+13.1	54.4
● zo 26	128°29.0	143°03.2	157°37.5	172°11.6	186°45.8	201°19.8	215°53.8	230°27.8	245°01.7	259°35.5	274°09.3	+34.0	14.9
	10°08.8	10°21.3	10°33.8	10°46.3	10°58.8	11°11.2	11°23.5	11°35.9	11°48.1	12°00.4	12°12.6	+12.4	54.7
ma 27	132°28.5	147°01.2	161°33.9	176°06.5	190°39.0	205°11.5	219°43.9	234°16.2	248°48.4	263°20.6	277°52.7	+32.4	15.0
	15°09.8	15°21.2	15°32.5	15°43.8	15°55.0	16°06.1	16°17.2	16°28.2	16°39.2	16°50.0	17°00.8	+11.1	55.1
di 28	135°44.6	150°15.4	164°46.1	179°16.8	193°47.3	208°17.8	222°48.2	237°18.5	251°48.8	266°18.9	280°49.0	+30.4	15.2
	19°34.0	19°43.6	19°53.0	20°02.4	20°11.7	20°20.9	20°30.1	20°39.1	20°48.0	20°56.8	21°05.6	+9.2	55.6
wo 29	150°15.4	164°46.1	179°16.8	193°47.3	208°17.8	222°48.2	237°18.5	251°48.8	266°18.9	280°49.0	295°18.9	+30.4	15.2
	19°43.6	19°53.0	20°02.4	20°11.7	20°20.9	20°30.1	20°39.1	20°48.0	20°56.8	21°05.6	21°14.2	+9.1	55.6
do 30	152°38.5	167°07.1	181°35.6	196°04.1	210°32.5	225°00.8	239°29.0	253°57.2	268°25.2	282°53.2	297°21.1	+28.3	15.3
	23°11.3	23°18.3	23°25.1	23°31.8	23°38.3	23°44.8	23°51.1	23°57.3	24°03.4	24°09.4	24°15.2	+6.4	56.1
vr 31	154°10.8	168°37.6	183°04.3	197°30.9	211°57.5	226°24.0	240°50.4	255°16.8	269°43.1	284°09.4	298°35.6	+26.5	15.5
	25°27.0	25°30.7	25°34.2	25°37.6	25°40.9	25°44.0	25°47.0	25°49.8	25°52.5	25°55.1	25°57.4	+3.0	56.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 4 09h02 — VM: 11 01h06 — LK: 17 23h22 — NM: 26 04h31

ZON

April 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°02.2	194°02.4	209°02.6	224°02.8	239°02.9	254°03.1	89°05.5	104°05.7	119°05.9	134°06.1	149°06.3	164°06.4	+0.2
	4°39.8	4°40.7	4°41.7	4°42.7	4°43.6	4°44.6	4°57.1	4°58.1	4°59.0	5°00.0	5°00.9	5°01.9	+1.0
zo 2	179°06.6	194°06.8	209°07.0	224°07.2	239°07.4	254°07.5	89°09.9	104°10.1	119°10.3	134°10.5	149°10.7	164°10.8	+0.2
	5°02.9	5°03.8	5°04.8	5°05.7	5°06.7	5°07.7	5°20.1	5°21.1	5°22.0	5°23.0	5°23.9	5°24.9	+1.0
ma 3	179°11.0	194°11.2	209°11.4	224°11.6	239°11.8	254°11.9	89°14.3	104°14.5	119°14.7	134°14.8	149°15.0	164°15.2	+0.2
	5°25.9	5°26.8	5°27.8	5°28.7	5°29.7	5°30.6	5°43.0	5°44.0	5°45.0	5°45.9	5°46.9	5°47.8	+1.0
di 4	179°15.4	194°15.6	209°15.7	224°15.9	239°16.1	254°16.3	89°18.6	104°18.8	119°19.0	134°19.2	149°19.3	164°19.5	+0.2
	5°48.8	5°49.7	5°50.7	5°51.6	5°52.6	5°53.5	6°05.9	6°06.8	6°07.8	6°08.7	6°09.7	6°10.6	+1.0
wo 5	179°19.7	194°19.9	209°20.1	224°20.2	239°20.4	254°20.6	89°22.9	104°23.1	119°23.3	134°23.5	149°23.6	164°23.8	+0.2
	6°11.6	6°12.5	6°13.5	6°14.4	6°15.3	6°16.3	6°28.6	6°29.5	6°30.5	6°31.4	6°32.4	6°33.3	+0.9
do 6	179°24.0	194°24.2	209°24.3	224°24.5	239°24.7	254°24.9	89°27.2	104°27.3	119°27.5	134°27.7	149°27.9	164°28.0	+0.2
	6°34.2	6°35.2	6°36.1	6°37.1	6°38.0	6°39.0	6°51.2	6°52.1	6°53.1	6°54.0	6°54.9	6°55.9	+0.9
vr 7	179°28.2	194°28.4	209°28.6	224°28.7	239°28.9	254°29.1	89°31.4	104°31.5	119°31.7	134°31.9	149°32.1	164°32.2	+0.2
	6°56.8	6°57.8	6°58.7	6°59.6	7°00.6	7°01.5	7°13.7	7°14.6	7°15.5	7°16.5	7°17.4	7°18.3	+0.9
za 8	179°32.4	194°32.6	209°32.7	224°32.9	239°33.1	254°33.3	89°35.5	104°35.7	119°35.8	134°36.0	149°36.2	164°36.4	+0.2
	7°19.3	7°20.2	7°21.1	7°22.1	7°23.0	7°23.9	7°36.0	7°37.0	7°37.9	7°38.8	7°39.8	7°40.7	+0.9
zo 9	179°36.5	194°36.7	209°36.9	224°37.0	239°37.2	254°37.4	89°39.6	104°39.7	119°39.9	134°40.1	149°40.2	164°40.4	+0.2
	7°41.6	7°42.5	7°43.5	7°44.4	7°45.3	7°46.2	7°58.3	7°59.2	8°00.1	8°01.0	8°02.0	8°02.9	+0.9
ma 10	179°40.6	194°40.7	209°40.9	224°41.1	239°41.2	254°41.4	89°43.6	104°43.7	119°43.9	134°44.1	149°44.2	164°44.4	+0.2
	8°03.8	8°04.7	8°05.7	8°06.6	8°07.5	8°08.4	8°20.4	8°21.3	8°22.2	8°23.1	8°24.0	8°25.0	+0.9
di 11	179°44.6	194°44.7	209°44.9	224°45.1	239°45.2	254°45.4	89°47.5	104°47.7	119°47.8	134°48.0	149°48.2	164°48.3	+0.2
	8°25.9	8°26.8	8°27.7	8°28.6	8°29.5	8°30.5	8°42.3	8°43.3	8°44.2	8°45.1	8°46.0	8°46.9	+0.9
wo 12	179°48.5	194°48.6	209°48.8	224°49.0	239°49.1	254°49.3	89°51.4	104°51.5	119°51.7	134°51.8	149°52.0	164°52.2	+0.2
	8°47.8	8°48.7	8°49.6	8°50.5	8°51.4	8°52.4	9°04.2	9°05.1	9°06.0	9°06.9	9°07.8	9°08.7	+0.9
do 13	179°52.3	194°52.5	209°52.6	224°52.8	239°52.9	254°53.1	89°55.1	104°55.3	119°55.4	134°55.6	149°55.7	164°55.9	+0.2
	9°09.6	9°10.5	9°11.4	9°12.3	9°13.2	9°14.1	9°25.8	9°26.7	9°27.6	9°28.5	9°29.4	9°30.3	+0.9
vr 14	179°56.1	194°56.2	209°56.4	224°56.5	239°56.7	254°56.8	89°58.8	104°59.0	119°59.1	134°59.3	149°59.4	164°59.6	+0.2
	9°31.2	9°32.1	9°33.0	9°33.9	9°34.8	9°35.7	9°47.3	9°48.2	9°49.1	9°50.0	9°50.9	9°51.8	+0.9
za 15	179°59.7	194°59.9	210°00.0	225°00.2	240°00.3	255°00.5	90°02.4	105°02.5	120°02.7	135°02.8	150°03.0	165°03.1	+0.2
	9°52.7	9°53.6	9°54.5	9°55.4	9°56.3	9°57.2	10°08.7	10°09.6	10°10.5	10°11.4	10°12.2	10°13.1	+0.9
zo 16	180°03.3	195°03.4	210°03.6	225°03.7	240°03.9	255°04.0	90°05.9	105°06.0	120°06.2	135°06.3	150°06.5	165°06.6	+0.1
	10°14.0	10°14.9	10°15.8	10°16.7	10°17.6	10°18.4	10°29.9	10°30.8	10°31.7	10°32.5	10°33.4	10°34.3	+0.9
ma 17	180°06.7	195°06.9	210°07.0	225°07.2	240°07.3	255°07.5	90°09.3	105°09.4	120°09.6	135°09.7	150°09.8	165°10.0	+0.1
	10°35.2	10°36.0	10°36.9	10°37.8	10°38.7	10°39.5	10°50.9	10°51.8	10°52.7	10°53.5	10°54.4	10°55.3	+0.9
di 18	180°10.1	195°10.3	210°10.4	225°10.5	240°10.7	255°10.8	90°12.6	105°12.7	120°12.8	135°13.0	150°13.1	165°13.2	+0.1
	10°56.1	10°57.0	10°57.9	10°58.7	10°59.6	11°00.5	11°11.8	11°12.6	11°13.5	11°14.3	11°15.2	11°16.1	+0.9
wo 19	180°13.4	195°13.5	210°13.6	225°13.8	240°13.9	255°14.0	90°15.8	105°15.9	120°16.0	135°16.1	150°16.3	165°16.4	+0.1
	11°16.9	11°17.8	11°18.7	11°19.5	11°20.4	11°21.2	11°32.4	11°33.3	11°34.1	11°35.0	11°35.8	11°36.7	+0.9
do 20	180°16.5	195°16.7	210°16.8	225°16.9	240°17.0	255°17.2	90°18.8	105°19.0	120°19.1	135°19.2	150°19.3	165°19.5	+0.1
	11°37.5	11°38.4	11°39.3	11°40.1	11°41.0	11°41.8	11°52.9	11°53.7	11°54.6	11°55.4	11°56.3	11°57.1	+0.9
vr 21	180°19.6	195°19.7	210°19.8	225°20.0	240°20.1	255°20.2	90°21.8	105°21.9	120°22.0	135°22.1	150°22.3	165°22.4	+0.1
	11°58.0	11°58.8	11°59.7	12°00.5	12°01.3	12°02.2	12°13.1	12°14.0	12°14.8	12°15.7	12°16.5	12°17.3	+0.8
za 22	180°22.5	195°22.6	210°22.7	225°22.9	240°23.0	255°23.1	90°24.6	105°24.7	120°24.9	135°25.0	150°25.1	165°25.2	+0.1
	12°18.2	12°19.0	12°19.9	12°20.7	12°21.5	12°22.4	12°33.2	12°34.1	12°34.9	12°35.7	12°36.5	12°37.4	+0.8
zo 23	180°25.3	195°25.4	210°25.6	225°25.7	240°25.8	255°25.9	90°27.4	105°27.5	120°27.6	135°27.7	150°27.8	165°27.9	+0.1
	12°38.2	12°39.0	12°39.9	12°40.7	12°41.5	12°42.4	12°53.1	12°53.9	12°54.7	12°55.6	12°56.4	12°57.2	+0.8
ma 24	180°28.0	195°28.1	210°28.2	225°28.4	240°28.5	255°28.6	90°30.0	105°30.1	120°30.2	135°30.3	150°30.4	165°30.5	+0.1
	12°58.0	12°58.8	12°59.7	13°00.5	13°01.3	13°02.1	13°12.7	13°13.6	13°14.4	13°15.2	13°16.0	13°16.8	+0.8
di 25	180°30.6	195°30.7	210°30.8	225°30.9	240°31.0	255°31.1	90°32.5	105°32.6	120°32.7	135°32.8	150°32.9	165°33.0	+0.1
	13°17.6	13°18.4	13°19.2	13°20.1	13°20.9	13°21.7	13°32.2	13°33.0	13°33.8	13°34.6	13°35.4	13°36.2	+0.8
wo 26	180°33.1	195°33.2	210°33.3	225°33.4	240°33.5	255°33.6	90°34.8	105°34.9	120°35.0	135°35.1	150°35.2	165°35.3	+0.1
	13°37.0	13°37.8	13°38.6	13°39.4	13°40.2	13°41.0	13°51.4	13°52.2	13°53.0	13°53.8	13°54.6	13°55.4	+0.8
do 27	180°35.4	195°35.5	210°35.6	225°35.7	240°35.8	255°35.9	90°37.1	105°37.2	120°37.2	135°37.3	150°37.4	165°37.5	+0.1
	13°56.1	13°56.9	13°57.7	13°58.5	13°59.3	14°00.1	14°10.4	14°11.2	14°11.9	14°12.7	14°13.5	14°14.3	+0.8
vr 28	180°37.6	195°37.7	210°37.8	225°37.9	240°38.0	255°38.0	90°39.2	105°39.3	120°39.3	135°39.4	150°39.5	165°39.6	+0.1
	14°15.1	14°15.9	14°16.6	14°17.4	14°18.2	14°19.0	14°29.1	14°29.9	14°30.7	14°31.4	14°32.2	14°33.0	+0.8
za 29	180°39.7	195°39.8	210°39.9	225°39.9	240°40.0	255°40.1	90°41.2	105°41.2	120°41.3	135°41.4	150°41.5	165°41.6	+0.1
	14°33.8	14°34.5	14°35.3	14°36.1	14°36.9	14°37.6	14°47.6	14°48.4	14°49.1	14°49.9	14°50.7	14°51.4	+0.8
zo 30	180°41.6	195°41.7	210°41.8	225°41.9	240°42.0	255°42.0	90°43.0	105°43.1	120°43.2	135°43.2	150°43.3	165°43.4	+0.1
	14°52.2	14°53.0	14°53.7	14°54.5	14°55.3	14°56.0	15°05.9	15°06.6	15°07.4	15°08.1	15°08.9	15°09.7	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2028

D	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
za 1	54°39.1	69°04.3	83°29.5	97°54.7	112°19.9	126°45.0	141°10.2	155°35.4	170°00.7	184°25.9	198°51.1	+25.2	15.8
	25°49.4	25°46.4	25°43.3	25°40.0	25°36.6	25°33.0	25°29.3	25°25.3	25°21.3	25°17.0	25°12.6	-3.7	57.9
◐ zo 2	55°11.4	69°36.9	84°02.5	98°28.1	112°53.7	127°19.4	141°45.1	156°10.8	170°36.6	185°02.4	199°28.2	+25.7	16.0
	23°47.7	23°40.8	23°33.7	23°26.5	23°19.2	23°11.6	23°04.0	22°56.2	22°48.2	22°40.1	22°31.8	-7.6	58.6
ma 3	56°00.7	70°27.2	84°53.8	99°20.4	113°47.1	128°13.8	142°40.5	157°07.3	171°34.2	186°01.1	200°28.0	+26.7	16.2
	20°11.0	20°00.5	19°49.9	19°39.1	19°28.3	19°17.3	19°06.2	18°54.9	18°43.5	18°32.0	18°20.4	-11.1	59.3
di 4	70°27.2	84°53.8	99°20.4	113°47.1	128°13.8	142°40.5	157°07.3	171°34.2	186°01.1	200°28.0	214°55.0	+26.8	16.2
	20°00.5	19°49.9	19°39.1	19°28.3	19°17.3	19°06.2	18°54.9	18°43.5	18°32.0	18°20.4	18°08.7	-11.2	59.3
wo 5	71°45.4	86°13.1	100°40.9	115°08.7	129°36.6	144°04.4	158°32.4	173°00.4	187°28.4	201°56.4	216°24.5	+27.9	16.3
	14°59.1	14°45.6	14°32.1	14°18.4	14°04.6	13°50.8	13°36.8	13°22.8	13°08.6	12°54.4	12°40.1	-13.9	59.9
do 6	73°30.3	87°58.9	102°27.6	116°56.3	131°25.0	145°53.7	160°22.5	174°51.3	189°20.1	203°48.9	218°17.7	+28.7	16.5
	8°56.4	8°41.0	8°25.4	8°09.9	7°54.2	7°38.6	7°22.8	7°07.1	6°51.2	6°35.4	6°19.4	-15.7	60.4
vr 7	75°32.1	90°01.1	104°30.1	118°59.1	133°28.2	147°57.2	162°26.2	176°55.2	191°24.3	205°53.3	220°22.3	+29.0	16.5
	2°16.4	2°00.0	1°43.6	1°27.2	1°10.8	0°54.3	0°37.9	0°21.4	0°04.9	-0°11.5	-0°28.0	-16.5	60.6
za 8	77°36.2	92°05.0	106°33.8	121°02.5	135°31.3	150°00.0	164°28.6	178°57.3	193°25.9	207°54.5	222°23.1	+28.7	16.5
	-4°33.9	-4°50.1	-5°06.3	-5°22.5	-5°38.6	-5°54.7	-6°10.7	-6°26.8	-6°42.7	-6°58.7	-7°14.6	-16.1	60.5
○ zo 9	79°27.7	93°55.7	108°23.7	122°51.6	137°19.5	151°47.3	166°15.1	180°42.9	195°10.6	209°38.3	224°05.9	+27.8	16.4
	-11°06.2	-11°21.1	-11°35.9	-11°50.7	-12°05.4	-12°20.0	-12°34.5	-12°48.9	-13°03.3	-13°17.6	-13°31.7	-14.6	60.2
ma 10	80°55.0	95°21.9	109°48.8	124°15.6	138°42.3	153°09.0	167°35.7	182°02.4	196°28.9	210°55.5	225°22.0	+26.7	16.3
	-16°52.5	-17°05.1	-17°17.5	-17°29.8	-17°41.9	-17°54.0	-18°05.9	-18°17.8	-18°29.4	-18°41.0	-18°52.4	-12.0	59.6
di 11	81°54.5	96°20.3	110°46.2	125°12.0	139°37.7	154°03.5	168°29.2	182°54.9	197°20.5	211°46.1	226°11.7	+25.7	16.0
	-21°28.0	-21°37.3	-21°46.4	-21°55.4	-22°04.2	-22°12.9	-22°21.4	-22°29.8	-22°38.0	-22°46.1	-22°54.0	-8.6	58.8
wo 12	82°33.6	96°58.9	111°24.3	125°49.6	140°15.0	154°40.4	169°05.7	183°31.1	197°56.5	212°21.9	226°47.3	+25.4	15.8
	-24°34.2	-24°39.7	-24°44.9	-24°50.0	-24°55.0	-24°59.8	-25°04.4	-25°08.8	-25°13.1	-25°17.3	-25°21.3	-4.7	57.9
do 13	83°10.4	97°36.2	112°02.0	126°27.8	140°53.7	155°19.6	169°45.5	184°11.5	198°37.5	213°03.6	227°29.8	+25.9	15.5
	-26°01.9	-26°03.3	-26°04.6	-26°05.7	-26°06.7	-26°07.5	-26°08.1	-26°08.6	-26°09.0	-26°09.2	-26°09.2	-0.7	57.0
vr 14	84°08.3	98°35.4	113°02.5	127°29.7	141°57.0	156°24.3	170°51.7	185°19.2	199°46.8	214°14.4	228°42.1	+27.4	15.3
	-25°52.1	-25°49.8	-25°47.3	-25°44.7	-25°42.0	-25°39.2	-25°36.2	-25°33.1	-25°29.8	-25°26.4	-25°22.9	+2.9	56.1
za 15	85°47.1	100°16.1	114°45.2	129°14.3	143°43.6	158°12.9	172°42.3	187°11.8	201°41.4	216°11.0	230°40.8	+29.4	15.1
	-24°14.7	-24°09.2	-24°03.6	-23°57.8	-23°51.9	-23°46.0	-23°39.9	-23°33.7	-23°27.4	-23°21.0	-23°14.5	+6.0	55.4
◑ zo 16	88°17.1	102°48.2	117°19.4	131°50.6	146°22.0	160°53.4	175°24.9	189°56.5	204°28.1	218°59.9	233°31.7	+31.5	14.9
	-21°24.4	-21°16.3	-21°08.2	-20°59.9	-20°51.5	-20°43.1	-20°34.5	-20°25.9	-20°17.2	-20°08.4	-19°59.5	+8.5	54.8
ma 17	91°38.1	106°11.1	120°44.1	135°17.3	149°50.5	164°23.8	178°57.1	193°30.5	208°04.0	222°37.5	237°11.1	+33.3	14.8
	-17°37.1	-17°27.0	-17°16.9	-17°06.7	-16°56.4	-16°46.1	-16°35.7	-16°25.2	-16°14.7	-16°04.1	-15°53.5	+10.4	54.4
di 18	95°42.0	110°16.5	124°51.0	139°25.6	154°00.2	168°34.9	183°09.6	197°44.4	212°19.2	226°54.0	241°28.9	+34.7	14.8
	-13°07.1	-12°55.6	-12°44.0	-12°32.4	-12°20.8	-12°09.1	-11°57.4	-11°45.6	-11°33.8	-11°21.9	-11°10.0	+11.7	54.1
wo 19	100°16.5	114°51.9	129°27.3	144°02.8	158°38.2	173°13.8	187°49.3	202°24.8	217°00.4	231°36.0	246°11.6	+35.5	14.7
	-8°06.9	-7°54.5	-7°42.0	-7°29.4	-7°16.9	-7°04.3	-6°51.7	-6°39.0	-6°26.4	-6°13.7	-6°01.0	+12.6	54.1
do 20	105°07.0	119°42.7	134°18.5	148°54.2	163°29.9	178°05.7	192°41.4	207°17.1	221°52.9	236°28.6	251°04.3	+35.7	14.8
	-2°47.7	-2°34.7	-2°21.6	-2°08.6	-1°55.5	-1°42.5	-1°29.4	-1°16.3	-1°03.2	-0°50.1	-0°37.0	+13.1	54.2
vr 21	109°58.3	124°33.8	139°09.2	153°44.6	168°20.0	182°55.4	197°30.7	212°06.0	226°41.3	241°16.5	255°51.7	+35.3	14.8
	2°40.2	2°53.3	3°06.5	3°19.6	3°32.7	3°45.9	3°59.0	4°12.1	4°25.2	4°38.3	4°51.3	+13.1	54.4
za 22	114°35.3	129°09.8	143°44.3	158°18.8	172°53.2	187°27.6	202°01.9	216°36.2	231°10.4	245°44.5	260°18.6	+34.3	14.9
	8°05.6	8°18.4	8°31.2	8°44.0	8°56.7	9°09.4	9°22.0	9°34.7	9°47.3	9°59.8	10°12.4	+12.7	54.8
zo 23	118°42.9	133°16.0	147°49.0	162°22.0	176°54.9	191°27.7	206°00.4	220°33.1	235°05.7	249°38.2	264°10.7	+32.8	15.1
	13°15.9	13°27.8	13°39.7	13°51.5	14°03.2	14°14.9	14°26.5	14°38.1	14°49.6	15°01.1	15°12.5	+11.7	55.2
● ma 24	122°08.1	136°39.3	151°10.3	165°41.4	180°12.3	194°43.1	209°13.9	223°44.5	238°15.1	252°45.6	267°16.0	+30.8	15.2
	17°56.0	18°06.3	18°16.6	18°26.8	18°36.9	18°46.9	18°56.8	19°06.6	19°16.4	19°26.1	19°35.7	+10.0	55.7
di 25	124°41.7	139°10.7	153°39.6	168°08.5	182°37.3	197°05.9	211°34.5	226°03.0	240°31.4	254°59.8	269°28.0	+28.6	15.3
	21°48.3	21°56.3	22°04.2	22°12.1	22°19.8	22°27.4	22°34.8	22°42.2	22°49.5	22°56.6	23°03.6	+7.5	56.2
wo 26	126°22.2	140°49.2	155°16.1	169°43.0	184°09.8	198°36.5	213°03.2	227°29.8	241°56.3	256°22.8	270°49.2	+26.7	15.5
	24°34.0	24°39.0	24°43.9	24°48.6	24°53.1	24°57.6	25°01.9	25°06.0	25°10.0	25°13.9	25°17.6	+4.4	56.7
do 27	127°18.9	141°44.5	156°10.1	170°35.6	185°01.1	199°26.6	213°52.1	228°17.5	242°42.9	257°08.2	271°33.6	+25.5	15.6
	25°55.8	25°57.2	25°58.3	25°59.4	26°00.2	26°00.9	26°01.5	26°01.9	26°02.1	26°02.2	26°02.1	+0.6	57.2
vr 28	141°44.5	156°10.1	170°35.6	185°01.1	199°26.6	213°52.1	228°17.5	242°42.9	257°08.2	271°33.6	285°58.9	+25.4	15.6
	25°57.2	25°58.3	25°59.4	26°00.2	26°00.9	26°01.5	26°01.9	26°02.1	26°02.2	26°02.1	26°01.9	+0.5	57.3
za 29	142°17.3	156°42.5	171°07.7	185°32.9	199°58.1	214°23.4	228°48.6	243°13.9	257°39.2	272°04.5	286°29.8	+25.2	15.8
	25°39.1	25°36.4	25°33.4	25°30.3	25°27.0	25°23.6	25°20.0	25°16.3	25°12.3	25°08.3	25°04.1	-3.5	57.8
zo 30	142°52.9	157°18.8	171°44.6	186°10.5	200°36.5	215°02.4	229°28.5	243°54.5	258°20.7	272°46.8	287°13.1	+26.0	15.9
	23°42.2	23°35.6	23°28.8	23°21.8	23°14.7	23°07.5	23°00.1	22°52.5	22°44.8	22°37.0	22°29.1	-7.3	58.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 2 19h15 — VM: 9 10h26 — LK: 16 16h36 — NM: 24 19h46

ZON

Mei 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	180°43.5	195°43.5	210°43.6	225°43.7	240°43.8	255°43.8	90°44.8	105°44.8	120°44.9	135°45.0	150°45.0	165°45.1	+0.1
	15°10.4	15°11.2	15°11.9	15°12.7	15°13.4	15°14.2	15°23.9	15°24.6	15°25.4	15°26.1	15°26.9	15°27.6	+0.8
di 2	180°45.2	195°45.2	210°45.3	225°45.4	240°45.4	255°45.5	90°46.4	105°46.4	120°46.5	135°46.5	150°46.6	165°46.7	+0.1
	15°28.4	15°29.1	15°29.8	15°30.6	15°31.3	15°32.1	15°41.6	15°42.4	15°43.1	15°43.8	15°44.6	15°45.3	+0.7
wo 3	180°46.7	195°46.8	210°46.9	225°46.9	240°47.0	255°47.0	90°47.8	105°47.9	120°47.9	135°48.0	150°48.1	165°48.1	+0.1
	15°46.0	15°46.8	15°47.5	15°48.2	15°49.0	15°49.7	15°59.1	15°59.9	16°00.6	16°01.3	16°02.0	16°02.7	+0.7
do 4	180°48.2	195°48.2	210°48.3	225°48.3	240°48.4	255°48.4	90°49.2	105°49.2	120°49.3	135°49.3	150°49.4	165°49.4	+0.1
	16°03.5	16°04.2	16°04.9	16°05.6	16°06.3	16°07.1	16°16.4	16°17.1	16°17.8	16°18.5	16°19.2	16°19.9	+0.7
vr 5	180°49.5	195°49.5	210°49.6	225°49.6	240°49.7	255°49.7	90°50.4	105°50.4	120°50.4	135°50.5	150°50.5	165°50.6	+0.1
	16°20.6	16°21.3	16°22.0	16°22.7	16°23.5	16°24.2	16°33.3	16°34.0	16°34.7	16°35.4	16°36.1	16°36.8	+0.7
za 6	180°50.6	195°50.7	210°50.7	225°50.8	240°50.8	255°50.9	90°51.4	105°51.5	120°51.5	135°51.5	150°51.6	165°51.6	+0.0
	16°37.5	16°38.2	16°38.9	16°39.6	16°40.3	16°41.0	16°50.0	16°50.7	16°51.4	16°52.1	16°52.7	16°53.4	+0.7
zo 7	180°51.7	195°51.7	210°51.7	225°51.8	240°51.8	255°51.9	90°52.3	105°52.4	120°52.4	135°52.4	150°52.5	165°52.5	+0.0
	16°54.1	16°54.8	16°55.5	16°56.2	16°56.9	16°57.5	17°06.4	17°07.1	17°07.7	17°08.4	17°09.1	17°09.8	+0.7
ma 8	180°52.5	195°52.6	210°52.6	225°52.6	240°52.7	255°52.7	90°53.1	105°53.1	120°53.2	135°53.2	150°53.2	165°53.3	+0.0
	17°10.4	17°11.1	17°11.8	17°12.5	17°13.1	17°13.8	17°22.5	17°23.2	17°23.8	17°24.5	17°25.1	17°25.8	+0.7
di 9	180°53.3	195°53.3	210°53.3	225°53.4	240°53.4	255°53.4	90°53.8	105°53.8	120°53.8	135°53.8	150°53.9	165°53.9	+0.0
	17°26.5	17°27.1	17°27.8	17°28.5	17°29.1	17°29.8	17°38.3	17°39.0	17°39.6	17°40.3	17°40.9	17°41.6	+0.7
wo 10	180°53.9	195°53.9	210°53.9	225°54.0	240°54.0	255°54.0	90°54.3	105°54.3	120°54.3	135°54.3	150°54.3	165°54.3	+0.0
	17°42.2	17°42.9	17°43.5	17°44.2	17°44.8	17°45.5	17°53.8	17°54.5	17°55.1	17°55.8	17°56.4	17°57.0	+0.7
do 11	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.4	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.7	+0.0
	17°57.7	17°58.3	17°58.9	17°59.6	18°00.2	18°00.9	18°09.1	18°09.7	18°10.3	18°10.9	18°11.6	18°12.2	+0.6
vr 12	180°54.7	195°54.7	210°54.7	225°54.7	240°54.7	255°54.7	90°54.8	105°54.8	120°54.8	135°54.8	150°54.8	165°54.8	+0.0
	18°12.8	18°13.5	18°14.1	18°14.7	18°15.3	18°15.9	18°24.0	18°24.6	18°25.2	18°25.8	18°26.4	18°27.1	+0.6
za 13	180°54.8	195°54.8	210°54.8	225°54.8	240°54.9	255°54.9	90°54.9	105°54.9	120°54.9	135°54.9	150°54.9	165°54.9	+0.0
	18°27.7	18°28.3	18°28.9	18°29.5	18°30.1	18°30.7	18°38.6	18°39.2	18°39.8	18°40.4	18°41.0	18°41.6	+0.6
zo 14	180°54.9	195°54.9	210°54.9	225°54.9	240°54.8	255°54.8	90°54.8	105°54.8	120°54.8	135°54.8	150°54.8	165°54.7	-0.0
	18°42.2	18°42.8	18°43.4	18°44.0	18°44.6	18°45.2	18°52.9	18°53.5	18°54.1	18°54.7	18°55.3	18°55.8	+0.6
ma 15	180°54.7	195°54.7	210°54.7	225°54.7	240°54.7	255°54.7	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	-0.0
	18°56.4	18°57.0	18°57.6	18°58.2	18°58.8	18°59.4	19°06.9	19°07.5	19°08.0	19°08.6	19°09.2	19°09.8	+0.6
di 16	180°54.5	195°54.5	210°54.4	225°54.4	240°54.4	255°54.4	90°54.2	105°54.2	120°54.1	135°54.1	150°54.1	165°54.1	-0.0
	19°10.3	19°10.9	19°11.5	19°12.0	19°12.6	19°13.2	19°20.5	19°21.1	19°21.7	19°22.2	19°22.8	19°23.4	+0.6
wo 17	180°54.1	195°54.0	210°54.0	225°54.0	240°54.0	255°53.9	90°53.6	105°53.6	120°53.6	135°53.6	150°53.5	165°53.5	-0.0
	19°23.9	19°24.5	19°25.0	19°25.6	19°26.1	19°26.7	19°33.9	19°34.4	19°35.0	19°35.5	19°36.1	19°36.6	+0.6
do 18	180°53.5	195°53.5	210°53.4	225°53.4	240°53.4	255°53.4	90°53.0	105°53.0	120°52.9	135°52.9	150°52.9	165°52.8	-0.0
	19°37.2	19°37.7	19°38.3	19°38.8	19°39.3	19°39.9	19°46.9	19°47.4	19°47.9	19°48.5	19°49.0	19°49.5	+0.5
vr 19	180°52.8	195°52.8	210°52.7	225°52.7	240°52.7	255°52.6	90°52.2	105°52.1	120°52.1	135°52.1	150°52.0	165°52.0	-0.0
	19°50.1	19°50.6	19°51.1	19°51.7	19°52.2	19°52.7	19°59.5	20°00.1	20°00.6	20°01.1	20°01.6	20°02.1	+0.5
za 20	180°52.0	195°51.9	210°51.9	225°51.8	240°51.8	255°51.8	90°51.2	105°51.2	120°51.2	135°51.1	150°51.1	165°51.0	-0.0
	20°02.7	20°03.2	20°03.7	20°04.2	20°04.7	20°05.2	20°11.9	20°12.4	20°12.9	20°13.4	20°13.9	20°14.4	+0.5
zo 21	180°51.0	195°50.9	210°50.9	225°50.8	240°50.8	255°50.8	90°50.2	105°50.1	120°50.1	135°50.0	150°50.0	165°49.9	-0.0
	20°14.9	20°15.4	20°15.9	20°16.4	20°16.9	20°17.4	20°23.8	20°24.3	20°24.8	20°25.3	20°25.8	20°26.3	+0.5
ma 22	180°49.9	195°49.8	210°49.8	225°49.7	240°49.7	255°49.6	90°48.9	105°48.9	120°48.8	135°48.8	150°48.7	165°48.7	-0.0
	20°26.8	20°27.3	20°27.8	20°28.2	20°28.7	20°29.2	20°35.5	20°35.9	20°36.4	20°36.9	20°37.4	20°37.8	+0.5
di 23	180°48.6	195°48.6	210°48.5	225°48.5	240°48.4	255°48.3	90°47.6	105°47.5	120°47.5	135°47.4	150°47.4	165°47.3	-0.1
	20°38.3	20°38.8	20°39.3	20°39.7	20°40.2	20°40.7	20°46.7	20°47.2	20°47.7	20°48.1	20°48.6	20°49.0	+0.5
wo 24	180°47.2	195°47.2	210°47.1	225°47.1	240°47.0	255°46.9	90°46.1	105°46.1	120°46.0	135°45.9	150°45.9	165°45.8	-0.1
	20°49.5	20°50.0	20°50.4	20°50.9	20°51.3	20°51.8	20°57.6	20°58.1	20°58.5	20°59.0	20°59.4	20°59.9	+0.5
do 25	180°45.7	195°45.7	210°45.6	225°45.5	240°45.5	255°45.4	90°44.5	105°44.5	120°44.4	135°44.3	150°44.3	165°44.2	-0.1
	21°00.3	21°00.8	21°01.2	21°01.6	21°02.1	21°02.5	21°08.2	21°08.6	21°09.1	21°09.5	21°09.9	21°10.4	+0.4
vr 26	180°44.1	195°44.0	210°44.0	225°43.9	240°43.8	255°43.8	90°42.8	105°42.7	120°42.7	135°42.6	150°42.5	165°42.4	-0.1
	21°10.8	21°11.2	21°11.6	21°12.1	21°12.5	21°12.9	21°18.4	21°18.8	21°19.2	21°19.6	21°20.0	21°20.5	+0.4
za 27	180°42.4	195°42.3	210°42.2	225°42.1	240°42.1	255°42.0	90°41.0	105°40.9	120°40.8	135°40.8	150°40.7	165°40.6	-0.1
	21°20.9	21°21.3	21°21.7	21°22.1	21°22.5	21°22.9	21°28.2	21°28.6	21°29.0	21°29.4	21°29.8	21°30.2	+0.4
zo 28	180°40.5	195°40.4	210°40.4	225°40.3	240°40.2	255°40.1	90°39.1	105°39.0	120°38.9	135°38.8	150°38.7	165°38.6	-0.1
	21°30.6	21°31.0	21°31.4	21°31.8	21°32.2	21°32.6	21°37.6	21°38.0	21°38.4	21°38.8	21°39.2	21°39.6	+0.4
ma 29	180°38.6	195°38.5	210°38.4	225°38.3	240°38.2	255°38.1	90°37.0	105°36.9	120°36.8	135°36.7	150°36.7	165°36.6	-0.1
	21°40.0	21°40.3	21°40.7	21°41.1	21°41.5	21°41.9	21°46.7	21°47.1	21°47.5	21°47.8	21°48.2	21°48.6	+0.4
di 30	180°36.5	195°36.4	210°36.3	225°36.2	240°36.1	255°36.0	90°34.9	105°34.8	120°34.7	135°34.6	150°34.5	165°34.4	-0.1
	21°48.9	21°49.3	21°49.7	21°50.0	21°50.4	21°50.7	21°55.4	21°55.8	21°56.1	21°56.5	21°56.8	21°57.2	+0.4
wo 31	180°34.3	195°34.2	210°34.1	225°34.0	240°33.9	255°33.8	90°32.6	105°32.5	120°32.4	135°32.3	150°32.2	165°32.1	-0.1
	21°57.5	21°57.9	21°58.2	21°58.6	21°58.9	21°59.3	22°03.7	22°04.0	22°04.4	22°04.7	22°05.1	22°05.4	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2028

	D	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
	ma 1	58°36.3	73°04.4	87°32.6	102°00.8	116°29.1	130°57.4	145°25.8	159°54.3	174°22.8	188°51.3	203°19.9	+28.4	16.1
		16°42.0	16°29.8	16°17.5	16°05.1	15°52.6	15°40.0	15°27.3	15°14.5	15°01.6	14°48.6	14°35.6	-12.7	59.0
◐	di 2	60°34.3	75°03.6	89°33.0	104°02.4	118°31.8	133°01.2	147°30.7	162°00.2	176°29.8	190°59.3	205°28.9	+29.5	16.2
		11°09.8	10°55.5	10°41.1	10°26.6	10°12.1	9°57.6	9°42.9	9°28.2	9°13.5	8°58.7	8°43.8	-14.6	59.4
	wo 3	75°03.6	89°33.0	104°02.4	118°31.8	133°01.2	147°30.7	162°00.2	176°29.8	190°59.3	205°28.9	219°58.6	+29.5	16.2
		10°55.5	10°41.1	10°26.6	10°12.1	9°57.6	9°42.9	9°28.2	9°13.5	8°58.7	8°43.8	8°28.9	-14.7	59.4
	do 4	77°26.0	91°56.0	106°25.9	120°55.9	135°25.9	149°55.9	164°26.0	178°56.0	193°26.0	207°56.0	222°26.1	+30.0	16.3
		4°39.9	4°24.3	4°08.7	3°53.1	3°37.4	3°21.8	3°06.1	2°50.4	2°34.6	2°18.9	2°03.1	-15.7	59.6
	vr 5	79°56.2	94°26.1	108°56.0	123°25.9	137°55.8	152°25.7	166°55.5	181°25.3	195°55.1	210°24.9	224°54.6	+29.8	16.3
		-1°54.4	-2°10.2	-2°26.0	-2°41.8	-2°57.6	-3°13.4	-3°29.2	-3°44.9	-4°00.6	-4°16.3	-4°32.0	-15.8	59.8
	za 6	82°17.2	96°46.4	111°15.5	125°44.7	140°13.8	154°42.8	169°11.8	183°40.8	198°09.7	212°38.6	227°07.4	+29.0	16.3
		-8°23.5	-8°38.6	-8°53.7	-9°08.7	-9°23.6	-9°38.5	-9°53.3	-10°08.1	-10°22.8	-10°37.5	-10°52.1	-14.9	59.7
	zo 7	84°13.6	98°41.6	113°09.6	127°37.4	142°05.2	156°33.0	171°00.7	185°28.4	199°56.0	214°23.5	228°51.0	+27.7	16.2
		-14°22.4	-14°35.8	-14°49.1	-15°02.3	-15°15.4	-15°28.4	-15°41.3	-15°54.1	-16°06.8	-16°19.4	-16°31.9	-13.0	59.4
○	ma 8	85°36.2	100°02.7	114°29.3	128°55.7	143°22.1	157°48.5	172°14.8	186°41.0	201°07.2	215°33.3	229°59.4	+26.3	16.1
		-19°26.2	-19°36.9	-19°47.4	-19°57.8	-20°08.1	-20°18.3	-20°28.3	-20°38.2	-20°48.0	-20°57.6	-21°07.1	-10.1	59.0
	di 9	86°25.6	100°51.0	115°16.4	129°41.8	144°07.1	158°32.4	172°57.7	187°23.0	201°48.2	216°13.4	230°38.6	+25.3	15.9
		-23°12.3	-23°19.5	-23°26.5	-23°33.4	-23°40.1	-23°46.7	-23°53.1	-23°59.3	-24°05.4	-24°11.3	-24°17.1	-6.5	58.3
	wo 10	86°55.4	101°20.5	115°45.6	130°10.7	144°35.9	159°01.0	173°26.2	187°51.4	202°16.6	216°41.8	231°07.1	+25.2	15.7
		-25°24.7	-25°27.9	-25°30.9	-25°33.8	-25°36.6	-25°39.1	-25°41.6	-25°43.8	-25°45.9	-25°47.8	-25°49.6	-2.5	57.6
	do 11	87°29.7	101°55.6	116°21.5	130°47.4	145°13.4	159°39.5	174°05.6	188°31.8	202°58.0	217°24.3	231°50.7	+26.1	15.5
		-25°57.1	-25°56.4	-25°55.5	-25°54.4	-25°53.2	-25°51.9	-25°50.3	-25°48.7	-25°46.9	-25°45.0	-25°42.9	+1.4	56.8
	vr 12	88°34.5	103°02.1	117°29.7	131°57.4	146°25.2	160°53.0	175°21.0	189°49.0	204°17.1	218°45.3	233°13.6	+27.9	15.3
		-24°54.5	-24°50.2	-24°45.7	-24°41.2	-24°36.5	-24°31.6	-24°26.7	-24°21.6	-24°16.4	-24°11.1	-24°05.6	+4.9	56.1
	za 13	90°28.4	104°58.1	119°27.9	133°57.8	148°27.7	162°57.8	177°28.0	191°58.2	206°28.5	220°59.0	235°29.5	+30.1	15.1
		-22°30.1	-22°22.8	-22°15.5	-22°08.1	-22°00.5	-21°52.9	-21°45.1	-21°37.3	-21°29.3	-21°21.3	-21°13.2	+7.7	55.4
	zo 14	93°17.6	107°49.5	122°21.5	136°53.5	151°25.6	165°57.9	180°30.2	195°02.5	209°35.0	224°07.5	238°40.1	+32.3	15.0
		-19°00.9	-18°51.4	-18°41.8	-18°32.2	-18°22.5	-18°12.8	-18°02.9	-17°53.0	-17°43.0	-17°33.0	-17°22.8	+9.8	54.8
	ma 15	96°57.8	111°31.6	126°05.3	140°39.2	155°13.1	169°47.1	184°21.1	198°55.2	213°29.3	228°03.5	242°37.8	+34.0	14.8
		-14°43.6	-14°32.5	-14°21.4	-14°10.2	-13°59.0	-13°47.7	-13°36.3	-13°25.0	-13°13.5	-13°02.1	-12°50.5	+11.3	54.4
◑	di 16	101°17.7	115°52.8	130°27.8	145°02.9	159°38.0	174°13.2	188°48.4	203°23.7	217°58.9	232°34.2	247°09.6	+35.2	14.8
		-9°52.7	-9°40.6	-9°28.4	-9°16.1	-9°03.9	-8°51.6	-8°39.3	-8°26.9	-8°14.6	-8°02.1	-7°49.7	+12.3	54.2
	wo 17	106°02.6	120°38.3	135°14.0	149°49.7	164°25.4	179°01.1	193°36.9	208°12.6	222°48.4	237°24.1	251°59.9	+35.7	14.8
		-4°40.3	-4°27.5	-4°14.6	-4°01.8	-3°49.0	-3°36.1	-3°23.2	-3°10.3	-2°57.4	-2°44.5	-2°31.6	+12.9	54.2
	do 18	110°56.2	125°31.9	140°07.5	154°43.2	169°18.9	183°54.5	198°30.1	213°05.7	227°41.3	242°16.8	256°52.4	+35.6	14.8
		0°43.4	0°56.5	1°09.5	1°22.5	1°35.6	1°48.6	2°01.7	2°14.7	2°27.7	2°40.8	2°53.8	+13.0	54.3
	vr 19	115°42.0	130°17.0	144°52.0	159°26.9	174°01.9	188°36.7	203°11.5	217°46.3	232°21.1	246°55.7	261°30.4	+34.8	14.9
		6°08.3	6°21.1	6°34.0	6°46.8	6°59.7	7°12.5	7°25.2	7°38.0	7°50.7	8°03.4	8°16.1	+12.8	54.7
	za 20	120°03.4	134°37.1	149°10.8	163°44.4	178°17.9	192°51.4	207°24.8	221°58.1	236°31.3	251°04.5	265°37.6	+33.4	15.0
		11°23.2	11°35.5	11°47.6	11°59.8	12°11.9	12°23.9	12°35.9	12°47.9	12°59.8	13°11.7	13°23.6	+12.0	55.1
	zo 21	123°44.9	138°16.8	152°48.5	167°20.2	181°51.8	196°23.3	210°54.7	225°26.0	239°57.2	254°28.3	268°59.4	+31.4	15.2
		16°14.9	16°25.9	16°36.8	16°47.6	16°58.3	17°09.0	17°19.7	17°30.2	17°40.7	17°51.1	18°01.4	+10.7	55.7
	ma 22	126°33.9	141°03.4	155°32.9	170°02.2	184°31.5	199°00.7	213°29.7	227°58.7	242°27.6	256°56.4	271°25.0	+29.1	15.4
		20°26.7	20°35.7	20°44.6	20°53.3	21°02.0	21°10.6	21°19.1	21°27.5	21°35.7	21°43.9	21°52.0	+8.5	56.3
	di 23	128°24.1	142°51.3	157°18.5	171°45.5	186°12.5	200°39.3	215°06.1	229°32.8	243°59.5	258°26.0	272°52.5	+26.8	15.5
		23°39.2	23°45.4	23°51.5	23°57.4	24°03.2	24°08.8	24°14.4	24°19.8	24°25.0	24°30.1	24°35.1	+5.6	56.9
●	wo 24	129°20.7	143°46.1	158°11.4	172°36.7	187°01.9	201°27.0	215°52.1	230°17.2	244°42.2	259°07.2	273°32.1	+25.1	15.7
		25°32.6	25°35.2	25°37.7	25°40.0	25°42.2	25°44.2	25°46.0	25°47.7	25°49.3	25°50.7	25°51.9	+1.9	57.5
	do 25	129°42.3	144°06.8	158°31.3	172°55.8	187°20.3	201°44.8	216°09.3	230°33.8	244°58.3	259°22.8	273°47.3	+24.5	15.8
		25°50.6	25°49.2	25°47.7	25°45.9	25°44.0	25°42.0	25°39.7	25°37.4	25°34.8	25°32.1	25°29.2	-2.1	58.1
	vr 26	129°57.1	144°22.0	158°46.9	173°11.8	187°36.8	202°01.8	216°26.9	230°52.0	245°17.2	259°42.4	274°07.6	+25.0	16.0
		24°26.3	24°20.8	24°15.2	24°09.4	24°03.4	23°57.3	23°51.1	23°44.7	23°38.1	23°31.4	23°24.5	-6.2	58.5
	za 27	144°22.0	158°46.9	173°11.8	187°36.8	202°01.8	216°26.9	230°52.0	245°17.2	259°42.4	274°07.6	288°32.9	+25.1	16.0
		24°20.8	24°15.2	24°09.4	24°03.4	23°57.3	23°51.1	23°44.7	23°38.1	23°31.4	23°24.5	23°17.5	-6.3	58.5
	zo 28	144°59.1	159°25.3	173°51.6	188°17.9	202°44.4	217°10.8	231°37.4	246°04.0	260°30.7	274°57.4	289°24.3	+26.5	16.0
		21°15.0	21°05.7	20°56.3	20°46.8	20°37.1	20°27.3	20°17.4	20°07.4	19°57.2	19°46.9	19°36.5	-9.9	58.8
	ma 29	146°14.6	160°42.5	175°10.5	189°38.5	204°06.6	218°34.8	233°03.0	247°31.3	261°59.6	276°28.0	290°56.5	+28.2	16.1
		16°46.8	16°34.6	16°22.4	16°10.0	15°57.6	15°45.0	15°32.4	15°19.7	15°06.9	14°54.0	14°41.0	-12.6	59.1
	di 30	148°10.8	162°40.1	177°09.6	191°39.1	206°08.6	220°38.2	235°07.8	249°37.5	264°07.2	278°37.0	293°06.8	+29.6	16.1
		11°16.9	11°02.8	10°48.5	10°34.3	10°19.9	10°05.5	9°51.1	9°36.6	9°22.0	9°07.4	8°52.7	-14.4	59.2
◐	wo 31	150°38.3	165°08.6	179°39.0	194°09.4	208°39.8	223°10.2	237°40.7	252°11.2	266°41.7	281°12.2	295°42.7	+30.4	16.2
		5°07.9	4°52.6	4°37.3	4°22.0	4°06.7	3°51.3	3°36.0	3°20.6	3°05.2	2°49.7	2°34.3	-15.4	59.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 2 02h25 — VM: 8 19h48 — LK: 16 10h43 — NM: 24 08h16 — EK: 31 07h36

ZON

Juni 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	180°32.0	195°32.0	210°31.9	225°31.8	240°31.7	255°31.6	90°30.3	105°30.2	120°30.1	135°30.0	150°29.9	165°29.8	-0.1
	22°05.7	22°06.1	22°06.4	22°06.7	22°07.1	22°07.4	22°11.6	22°12.0	22°12.3	22°12.6	22°12.9	22°13.2	+0.3
vr 2	180°29.7	195°29.6	210°29.5	225°29.4	240°29.3	255°29.2	90°27.9	105°27.8	120°27.7	135°27.6	150°27.5	165°27.3	-0.1
	22°13.6	22°13.9	22°14.2	22°14.5	22°14.8	22°15.1	22°19.2	22°19.5	22°19.8	22°20.1	22°20.4	22°20.7	+0.3
za 3	180°27.2	195°27.1	210°27.0	225°26.9	240°26.8	255°26.7	90°25.4	105°25.2	120°25.1	135°25.0	150°24.9	165°24.8	-0.1
	22°21.0	22°21.3	22°21.6	22°21.9	22°22.2	22°22.5	22°26.3	22°26.6	22°26.9	22°27.2	22°27.5	22°27.7	+0.3
zo 4	180°24.7	195°24.6	210°24.5	225°24.4	240°24.3	255°24.2	90°22.8	105°22.7	120°22.5	135°22.4	150°22.3	165°22.2	-0.1
	22°28.0	22°28.3	22°28.6	22°28.9	22°29.2	22°29.5	22°33.1	22°33.3	22°33.6	22°33.9	22°34.1	22°34.4	+0.3
ma 5	180°22.1	195°22.0	210°21.9	225°21.8	240°21.7	255°21.5	90°20.1	105°20.0	120°19.9	135°19.8	150°19.6	165°19.5	-0.1
	22°34.7	22°35.0	22°35.2	22°35.5	22°35.8	22°36.0	22°39.4	22°39.7	22°39.9	22°40.2	22°40.4	22°40.7	+0.3
di 6	180°19.4	195°19.3	210°19.2	225°19.1	240°19.0	255°18.8	90°17.3	105°17.2	120°17.1	135°17.0	150°16.9	165°16.8	-0.1
	22°40.9	22°41.2	22°41.4	22°41.7	22°41.9	22°42.2	22°45.4	22°45.6	22°45.9	22°46.1	22°46.3	22°46.6	+0.3
wo 7	180°16.6	195°16.5	210°16.4	225°16.3	240°16.2	255°16.1	90°14.5	105°14.4	120°14.3	135°14.2	150°14.1	165°13.9	-0.1
	22°46.8	22°47.0	22°47.3	22°47.5	22°47.7	22°48.0	22°50.9	22°51.2	22°51.4	22°51.6	22°51.8	22°52.0	+0.2
do 8	180°13.8	195°13.7	210°13.6	225°13.5	240°13.3	255°13.2	90°11.6	105°11.5	120°11.4	135°11.3	150°11.2	165°11.0	-0.1
	22°52.3	22°52.5	22°52.7	22°52.9	22°53.1	22°53.4	22°56.1	22°56.3	22°56.5	22°56.7	22°56.9	22°57.1	+0.2
vr 9	180°10.9	195°10.8	210°10.7	225°10.6	240°10.4	255°10.3	90°08.7	105°08.6	120°08.5	135°08.3	150°08.2	165°08.1	-0.1
	22°57.3	22°57.5	22°57.7	22°57.9	22°58.1	22°58.3	23°00.9	23°01.0	23°01.2	23°01.4	23°01.6	23°01.8	+0.2
za 10	180°08.0	195°07.8	210°07.7	225°07.6	240°07.5	255°07.3	90°05.7	105°05.6	120°05.5	135°05.3	150°05.2	165°05.1	-0.1
	23°02.0	23°02.2	23°02.4	23°02.5	23°02.7	23°02.9	23°05.2	23°05.4	23°05.6	23°05.7	23°05.9	23°06.1	+0.2
zo 11	180°04.9	195°04.8	210°04.7	225°04.6	240°04.4	255°04.3	90°02.6	105°02.5	120°02.4	135°02.3	150°02.1	165°02.0	-0.1
	23°06.2	23°06.4	23°06.6	23°06.7	23°06.9	23°07.1	23°09.2	23°09.3	23°09.5	23°09.6	23°09.8	23°09.9	+0.2
ma 12	180°01.9	195°01.7	210°01.6	225°01.5	240°01.4	255°01.2	89°59.5	104°59.4	119°59.3	134°59.2	149°59.0	164°58.9	-0.1
	23°10.1	23°10.2	23°10.4	23°10.5	23°10.7	23°10.8	23°12.7	23°12.8	23°13.0	23°13.1	23°13.2	23°13.4	+0.2
di 13	179°58.8	194°58.6	209°58.5	224°58.4	239°58.2	254°58.1	89°56.4	104°56.3	119°56.1	134°56.0	149°55.9	164°55.7	-0.1
	23°13.5	23°13.7	23°13.8	23°13.9	23°14.1	23°14.2	23°15.8	23°15.9	23°16.1	23°16.2	23°16.3	23°16.4	+0.1
wo 14	179°55.6	194°55.5	209°55.3	224°55.2	239°55.1	254°54.9	89°53.2	104°53.1	119°52.9	134°52.8	149°52.7	164°52.5	-0.1
	23°16.5	23°16.7	23°16.8	23°16.9	23°17.0	23°17.1	23°18.5	23°18.7	23°18.8	23°18.9	23°19.0	23°19.1	+0.1
do 15	179°52.4	194°52.3	209°52.1	224°52.0	239°51.9	254°51.7	89°50.0	104°49.9	119°49.7	134°49.6	149°49.5	164°49.3	-0.1
	23°19.2	23°19.3	23°19.4	23°19.5	23°19.6	23°19.7	23°20.9	23°20.9	23°21.0	23°21.1	23°21.2	23°21.3	+0.1
vr 16	179°49.2	194°49.0	209°48.9	224°48.8	239°48.6	254°48.5	89°46.7	104°46.6	119°46.5	134°46.3	149°46.2	164°46.1	-0.1
	23°21.4	23°21.4	23°21.5	23°21.6	23°21.7	23°21.8	23°22.7	23°22.8	23°22.9	23°23.0	23°23.0	23°23.1	+0.1
za 17	179°45.9	194°45.8	209°45.7	224°45.5	239°45.4	254°45.3	89°43.5	104°43.3	119°43.2	134°43.1	149°42.9	164°42.8	-0.1
	23°23.2	23°23.2	23°23.3	23°23.4	23°23.4	23°23.5	23°24.2	23°24.3	23°24.3	23°24.4	23°24.4	23°24.5	+0.1
zo 18	179°42.7	194°42.5	209°42.4	224°42.3	239°42.1	254°42.0	89°40.2	104°40.1	119°39.9	134°39.8	149°39.7	164°39.5	-0.1
	23°24.5	23°24.6	23°24.6	23°24.7	23°24.7	23°24.8	23°25.3	23°25.3	23°25.4	23°25.4	23°25.4	23°25.5	+0.0
ma 19	179°39.4	194°39.2	209°39.1	224°39.0	239°38.8	254°38.7	89°36.9	104°36.8	119°36.6	134°36.5	149°36.4	164°36.2	-0.1
	23°25.5	23°25.5	23°25.6	23°25.6	23°25.6	23°25.6	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	+0.0
di 20	179°36.1	194°36.0	209°35.8	224°35.7	239°35.5	254°35.4	89°33.6	104°33.5	119°33.4	134°33.2	149°33.1	164°32.9	-0.1
	23°26.1	23°26.1	23°26.1	23°26.1	23°26.1	23°26.1	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	+0.0
wo 21	179°32.8	194°32.7	209°32.5	224°32.4	239°32.3	254°32.1	89°30.3	104°30.2	119°30.1	134°29.9	149°29.8	164°29.7	-0.1
	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	23°26.2	23°26.0	23°26.0	23°26.0	23°26.0	23°25.9	23°25.9	-0.0
do 22	179°29.5	194°29.4	209°29.2	224°29.1	239°29.0	254°28.8	89°27.1	104°26.9	119°26.8	134°26.7	149°26.5	164°26.4	-0.1
	23°25.9	23°25.9	23°25.9	23°25.8	23°25.8	23°25.8	23°25.4	23°25.4	23°25.4	23°25.3	23°25.3	23°25.3	-0.0
vr 23	179°26.3	194°26.1	209°26.0	224°25.8	239°25.7	254°25.6	89°23.8	104°23.7	119°23.5	134°23.4	149°23.3	164°23.1	-0.1
	23°25.2	23°25.2	23°25.1	23°25.1	23°25.1	23°25.0	23°24.4	23°24.4	23°24.3	23°24.3	23°24.2	23°24.2	-0.0
za 24	179°23.0	194°22.9	209°22.7	224°22.6	239°22.5	254°22.3	89°20.6	104°20.5	119°20.3	134°20.2	149°20.1	164°19.9	-0.1
	23°24.1	23°24.1	23°24.0	23°23.9	23°23.9	23°23.8	23°23.0	23°22.9	23°22.9	23°22.8	23°22.7	23°22.7	-0.1
zo 25	179°19.8	194°19.7	209°19.5	224°19.4	239°19.3	254°19.1	89°17.4	104°17.3	119°17.1	134°17.0	149°16.9	164°16.7	-0.1
	23°22.6	23°22.5	23°22.5	23°22.4	23°22.3	23°22.2	23°21.2	23°21.1	23°21.0	23°20.9	23°20.8	23°20.8	-0.1
ma 26	179°16.6	194°16.5	209°16.3	224°16.2	239°16.1	254°15.9	89°14.2	104°14.1	119°14.0	134°13.9	149°13.7	164°13.6	-0.1
	23°20.7	23°20.6	23°20.5	23°20.4	23°20.3	23°20.2	23°19.0	23°18.9	23°18.8	23°18.6	23°18.5	23°18.4	-0.1
di 27	179°13.5	194°13.3	209°13.2	224°13.1	239°12.9	254°12.8	89°11.1	104°11.0	119°10.9	134°10.8	149°10.6	164°10.5	-0.1
	23°18.3	23°18.2	23°18.1	23°18.0	23°17.9	23°17.8	23°16.3	23°16.2	23°16.1	23°16.0	23°15.8	23°15.7	-0.1
wo 28	179°10.4	194°10.2	209°10.1	224°10.0	239°09.9	254°09.7	89°08.1	104°08.0	119°07.8	134°07.7	149°07.6	164°07.5	-0.1
	23°15.6	23°15.5	23°15.3	23°15.2	23°15.1	23°15.0	23°13.3	23°13.1	23°13.0	23°12.9	23°12.7	23°12.6	-0.1
do 29	179°07.3	194°07.2	209°07.1	224°07.0	239°06.8	254°06.7	89°05.1	104°05.0	119°04.9	134°04.7	149°04.6	164°04.5	-0.1
	23°12.4	23°12.3	23°12.2	23°12.0	23°11.9	23°11.7	23°09.8	23°09.6	23°09.5	23°09.3	23°09.2	23°09.0	-0.1
vr 30	179°04.4	194°04.2	209°04.1	224°04.0	239°03.9	254°03.8	89°02.2	104°02.1	119°01.9	134°01.8	149°01.7	164°01.6	-0.1
	23°08.9	23°08.7	23°08.6	23°08.4	23°08.2	23°08.1	23°05.9	23°05.8	23°05.6	23°05.4	23°05.3	23°05.1	-0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2028

D	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
do 1	54°30.5	69°00.9	83°31.2	98°01.4	112°31.7	127°01.9	141°32.1	156°02.3	170°32.4	185°02.5	199°32.6	+30.2	16.1
	-5°54.0	-6°09.1	-6°24.2	-6°39.2	-6°54.2	-7°09.1	-7°24.0	-7°38.9	-7°53.7	-8°08.5	-8°23.3	-14.9	59.1
vr 2	69°00.9	83°31.2	98°01.4	112°31.7	127°01.9	141°32.1	156°02.3	170°32.4	185°02.5	199°32.6	214°02.6	+30.2	16.1
	-6°09.1	-6°24.2	-6°39.2	-6°54.2	-7°09.1	-7°24.0	-7°38.9	-7°53.7	-8°08.5	-8°23.3	-8°37.9	-14.9	59.1
za 3	71°28.2	85°57.6	100°26.9	114°56.1	129°25.3	143°54.5	158°23.6	172°52.6	187°21.6	201°50.6	216°19.4	+29.1	16.0
	-12°11.6	-12°25.4	-12°39.1	-12°52.7	-13°06.2	-13°19.6	-13°33.0	-13°46.3	-13°59.5	-14°12.6	-14°25.7	-13.4	58.9
zo 4	73°25.9	87°53.9	102°21.8	116°49.6	131°17.4	145°45.2	160°12.8	174°40.4	189°08.0	203°35.5	218°02.9	+27.7	16.0
	-17°30.7	-17°42.2	-17°53.7	-18°05.0	-18°16.2	-18°27.3	-18°38.4	-18°49.2	-19°00.0	-19°10.7	-19°21.3	-11.1	58.5
ma 5	74°47.5	89°14.1	103°40.6	118°07.0	132°33.4	146°59.8	161°26.0	175°52.3	190°18.5	204°44.7	219°10.8	+26.3	15.8
	-21°44.8	-21°53.4	-22°01.8	-22°10.0	-22°18.2	-22°26.2	-22°34.0	-22°41.7	-22°49.3	-22°56.7	-23°04.0	-7.9	58.1
di 6	75°38.1	90°03.7	104°29.3	118°54.8	133°20.4	147°45.9	162°11.4	176°36.9	191°02.4	205°27.8	219°53.3	+25.5	15.7
	-24°35.7	-24°40.6	-24°45.4	-24°50.0	-24°54.4	-24°58.7	-25°02.9	-25°06.8	-25°10.7	-25°14.3	-25°17.8	-4.2	57.6
○ wo 7	76°15.4	90°41.0	105°06.6	119°32.2	133°57.8	148°23.5	162°49.2	177°14.9	191°40.6	206°06.4	220°32.3	+25.7	15.5
	-25°51.6	-25°52.6	-25°53.4	-25°54.1	-25°54.6	-25°55.0	-25°55.2	-25°55.3	-25°55.2	-25°54.9	-25°54.5	-0.3	57.0
do 8	77°05.0	91°31.6	105°58.3	120°25.1	134°51.9	149°18.7	163°45.7	178°12.7	192°39.7	207°06.9	221°34.1	+26.9	15.4
	-25°30.4	-25°27.6	-25°24.7	-25°21.6	-25°18.4	-25°15.1	-25°11.6	-25°08.0	-25°04.2	-25°00.3	-24°56.3	+3.4	56.4
vr 9	78°31.3	92°59.8	107°28.4	121°57.0	136°25.7	150°54.5	165°23.4	179°52.4	194°21.5	208°50.6	223°19.8	+28.8	15.2
	-23°40.2	-23°34.2	-23°28.0	-23°21.7	-23°15.3	-23°08.8	-23°02.1	-22°55.4	-22°48.5	-22°41.5	-22°34.5	+6.6	55.8
za 10	80°49.0	95°19.6	109°50.4	124°21.2	138°52.1	153°23.1	167°54.2	182°25.3	196°56.6	211°27.9	225°59.4	+31.0	15.1
	-20°36.1	-20°27.5	-20°18.7	-20°09.9	-20°01.0	-19°52.0	-19°42.9	-19°33.7	-19°24.5	-19°15.1	-19°05.7	+9.0	55.2
zo 11	84°00.5	98°33.2	113°06.0	127°38.9	142°11.8	156°44.8	171°17.9	185°51.1	200°24.3	214°57.6	229°30.9	+33.0	14.9
	-16°35.7	-16°25.1	-16°14.5	-16°03.8	-15°53.1	-15°42.3	-15°31.4	-15°20.5	-15°09.6	-14°58.6	-14°47.5	+10.8	54.7
ma 12	87°59.0	102°33.4	117°07.8	131°42.2	146°16.7	160°51.3	175°25.9	190°00.6	204°35.3	219°10.0	233°44.8	+34.6	14.8
	-11°55.4	-11°43.6	-11°31.7	-11°19.8	-11°07.9	-10°55.9	-10°43.9	-10°31.8	-10°19.7	-10°07.6	-9°55.5	+12.0	54.4
di 13	92°31.8	107°07.2	121°42.6	136°18.1	150°53.6	165°29.1	180°04.6	194°40.2	209°15.8	223°51.4	238°27.0	+35.5	14.8
	-6°49.6	-6°37.0	-6°24.3	-6°11.7	-5°59.0	-5°46.4	-5°33.7	-5°21.0	-5°08.2	-4°55.5	-4°42.7	+12.7	54.2
wo 14	97°23.4	111°59.2	126°35.0	141°10.8	155°46.7	170°22.5	184°58.3	199°34.1	214°10.0	228°45.8	243°21.6	+35.8	14.8
	-1°29.7	-1°16.8	-1°03.8	-0°50.9	-0°37.9	-0°24.9	-0°12.0	0°01.0	0°13.9	0°26.9	0°39.9	+13.0	54.2
◑ do 15	102°17.2	116°52.8	131°28.3	146°03.9	160°39.3	175°14.8	189°50.2	204°25.6	219°01.0	233°36.3	248°11.6	+35.4	14.8
	3°54.0	4°06.9	4°19.8	4°32.7	4°45.5	4°58.4	5°11.2	5°24.0	5°36.8	5°49.6	6°02.4	+12.8	54.4
vr 16	106°56.4	121°31.0	136°05.6	150°40.1	165°14.6	179°49.0	194°23.3	208°57.6	223°31.8	238°06.0	252°40.1	+34.4	14.9
	9°11.7	9°24.1	9°36.5	9°48.9	10°01.2	10°13.5	10°25.8	10°38.0	10°50.2	11°02.4	11°14.6	+12.3	54.8
za 17	111°03.9	125°36.9	140°09.8	154°42.7	169°15.4	183°48.1	198°20.7	212°53.3	227°25.7	241°58.1	256°30.4	+32.7	15.1
	14°11.9	14°23.4	14°34.8	14°46.2	14°57.5	15°08.7	15°19.9	15°31.1	15°42.2	15°53.2	16°04.2	+11.2	55.3
zo 18	114°23.9	128°54.8	143°25.5	157°56.1	172°26.7	186°57.1	201°27.5	215°57.7	230°27.9	244°57.9	259°27.9	+30.4	15.3
	18°40.9	18°50.8	19°00.6	19°10.3	19°19.9	19°29.5	19°38.9	19°48.3	19°57.6	20°06.8	20°15.9	+9.5	56.0
ma 19	116°44.9	131°13.2	145°41.5	160°09.6	174°37.6	189°05.5	203°33.3	218°01.0	232°28.7	246°56.2	261°23.6	+27.9	15.5
	22°21.2	22°28.7	22°36.1	22°43.4	22°50.6	22°57.6	23°04.6	23°11.4	23°18.1	23°24.7	23°31.2	+7.0	56.7
di 20	118°03.6	132°29.5	146°55.4	161°21.1	175°46.8	190°12.5	204°38.0	219°03.4	233°28.8	247°54.1	262°19.4	+25.6	15.7
	24°52.6	24°56.9	25°01.1	25°05.1	25°09.0	25°12.8	25°16.4	25°19.8	25°23.1	25°26.2	25°29.2	+3.7	57.5
wo 21	118°30.2	132°54.5	147°18.8	161°43.0	176°07.1	190°31.3	204°55.4	219°19.5	233°43.5	248°07.5	262°31.5	+24.1	15.9
	25°55.2	25°55.6	25°55.9	25°55.9	25°55.9	25°55.6	25°55.2	25°54.6	25°53.9	25°53.0	25°51.9	-0.3	58.2
● do 22	118°29.6	132°53.4	147°17.3	161°41.2	176°05.0	190°29.0	204°52.9	219°16.8	233°40.8	248°04.8	262°28.8	+23.9	16.1
	25°15.0	25°11.2	25°07.2	25°03.0	24°58.6	24°54.1	24°49.5	24°44.6	24°39.6	24°34.4	24°29.1	-4.6	58.9
vr 23	118°33.4	132°58.1	147°22.8	161°47.6	176°12.4	190°37.3	205°02.2	219°27.2	233°52.3	248°17.4	262°42.6	+24.9	16.2
	22°49.4	22°41.4	22°33.4	22°25.2	22°16.8	22°08.3	21°59.6	21°50.8	21°41.9	21°32.8	21°23.5	-8.6	59.4
za 24	119°08.3	133°34.6	148°00.9	162°27.4	176°53.8	191°20.4	205°47.0	220°13.7	234°40.5	249°07.4	263°34.3	+26.6	16.3
	18°48.8	18°37.5	18°26.0	18°14.5	18°02.8	17°51.0	17°39.1	17°27.1	17°15.0	17°02.7	16°50.4	-11.8	59.7
zo 25	120°26.7	134°54.7	149°22.9	163°51.0	178°19.3	192°47.6	207°16.0	221°44.4	236°12.9	250°41.5	265°10.1	+28.3	16.3
	13°33.9	13°20.1	13°06.2	12°52.3	12°38.3	12°24.2	12°10.0	11°55.8	11°41.5	11°27.2	11°12.7	-14.1	59.8
ma 26	134°54.7	149°22.9	163°51.0	178°19.3	192°47.6	207°16.0	221°44.4	236°12.9	250°41.5	265°10.1	279°38.8	+28.4	16.3
	13°20.1	13°06.2	12°52.3	12°38.3	12°24.2	12°10.0	11°55.8	11°41.5	11°27.2	11°12.7	10°58.2	-14.2	59.8
di 27	136°55.7	151°25.2	165°54.8	180°24.4	194°54.0	209°23.7	223°53.5	238°23.2	252°53.1	267°22.9	281°52.8	+29.7	16.3
	7°14.7	6°59.4	6°44.1	6°28.8	6°13.5	5°58.1	5°42.7	5°27.2	5°11.8	4°56.3	4°40.8	-15.4	59.7
wo 28	139°24.6	153°54.9	168°25.2	182°55.6	197°25.9	211°56.3	226°26.6	240°57.0	255°27.4	269°57.8	284°28.2	+30.4	16.2
	0°46.7	0°31.0	0°15.4	-0°00.2	-0°15.9	-0°31.5	-0°47.1	-1°02.7	-1°18.3	-1°33.9	-1°49.4	-15.6	59.4
◐ do 29	142°04.3	156°34.6	171°05.0	185°35.3	200°05.6	214°35.9	229°06.2	243°36.5	258°06.7	272°36.9	287°07.1	+30.3	16.1
	-5°40.0	-5°55.2	-6°10.2	-6°25.3	-6°40.3	-6°55.3	-7°10.2	-7°25.1	-7°39.9	-7°54.7	-8°09.4	-14.9	59.1
vr 30	144°36.9	159°06.7	173°36.4	188°06.0	202°35.6	217°05.2	231°34.8	246°04.3	260°33.7	275°03.1	289°32.5	+29.6	16.0
	-11°43.6	-11°57.4	-12°11.1	-12°24.7	-12°38.2	-12°51.7	-13°05.1	-13°18.4	-13°31.7	-13°44.8	-13°57.9	-13.4	58.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

VM: 7 06h08 — LK: 15 04h27 — NM: 22 18h27 — EK: 29 12h10

ZON

Juli 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°01.5	194°01.3	209°01.2	224°01.1	239°01.0	254°00.9	88°59.3	103°59.2	118°59.1	133°59.0	148°58.9	163°58.7	-0.1
	23°04.9	23°04.7	23°04.6	23°04.4	23°04.2	23°04.0	23°01.7	23°01.5	23°01.3	23°01.1	23°00.9	23°00.7	-0.2
zo 2	178°58.6	193°58.5	208°58.4	223°58.3	238°58.2	253°58.0	88°56.5	103°56.4	118°56.3	133°56.2	148°56.1	163°56.0	-0.1
	23°00.5	23°00.4	23°00.2	23°00.0	22°59.8	22°59.6	22°57.0	22°56.8	22°56.6	22°56.4	22°56.2	22°56.0	-0.2
ma 3	178°55.9	193°55.7	208°55.6	223°55.5	238°55.4	253°55.3	88°53.8	103°53.7	118°53.6	133°53.5	148°53.4	163°53.3	-0.1
	22°55.8	22°55.6	22°55.4	22°55.1	22°54.9	22°54.7	22°51.9	22°51.7	22°51.5	22°51.3	22°51.1	22°50.8	-0.2
di 4	178°53.2	193°53.1	208°53.0	223°52.8	238°52.7	253°52.6	88°51.2	103°51.1	118°51.0	133°50.9	148°50.8	163°50.7	-0.1
	22°50.6	22°50.4	22°50.2	22°49.9	22°49.7	22°49.5	22°46.5	22°46.2	22°46.0	22°45.8	22°45.5	22°45.3	-0.2
wo 5	178°50.6	193°50.5	208°50.4	223°50.3	238°50.2	253°50.0	88°48.7	103°48.6	118°48.5	133°48.4	148°48.3	163°48.2	-0.1
	22°45.0	22°44.8	22°44.6	22°44.3	22°44.1	22°43.8	22°40.6	22°40.4	22°40.1	22°39.9	22°39.6	22°39.3	-0.2
do 6	178°48.1	193°48.0	208°47.9	223°47.8	238°47.7	253°47.6	88°46.2	103°46.1	118°46.0	133°46.0	148°45.9	163°45.8	-0.1
	22°39.1	22°38.8	22°38.6	22°38.3	22°38.1	22°37.8	22°34.4	22°34.1	22°33.8	22°33.6	22°33.3	22°33.0	-0.3
vr 7	178°45.7	193°45.6	208°45.5	223°45.4	238°45.3	253°45.2	88°43.9	103°43.8	118°43.7	133°43.6	148°43.5	163°43.4	-0.1
	22°32.7	22°32.5	22°32.2	22°31.9	22°31.6	22°31.4	22°27.7	22°27.4	22°27.2	22°26.9	22°26.6	22°26.3	-0.3
za 8	178°43.3	193°43.2	208°43.1	223°43.0	238°43.0	253°42.9	88°41.7	103°41.6	118°41.5	133°41.4	148°41.3	163°41.2	-0.1
	22°26.0	22°25.7	22°25.4	22°25.1	22°24.8	22°24.5	22°20.7	22°20.4	22°20.1	22°19.8	22°19.5	22°19.2	-0.3
zo 9	178°41.1	193°41.0	208°40.9	223°40.8	238°40.8	253°40.7	88°39.5	103°39.4	118°39.3	133°39.3	148°39.2	163°39.1	-0.1
	22°18.9	22°18.6	22°18.3	22°18.0	22°17.7	22°17.3	22°13.3	22°13.0	22°12.6	22°12.3	22°12.0	22°11.7	-0.3
ma 10	178°39.0	193°38.9	208°38.8	223°38.7	238°38.6	253°38.6	88°37.5	103°37.4	118°37.3	133°37.2	148°37.1	163°37.1	-0.1
	22°11.4	22°11.0	22°10.7	22°10.4	22°10.1	22°09.8	22°05.5	22°05.1	22°04.8	22°04.5	22°04.1	22°03.8	-0.3
di 11	178°37.0	193°36.9	208°36.8	223°36.7	238°36.7	253°36.6	88°35.5	103°35.5	118°35.4	133°35.3	148°35.2	163°35.2	-0.1
	22°03.5	22°03.1	22°02.8	22°02.5	22°02.1	22°01.8	21°57.3	21°57.0	21°56.6	21°56.3	21°55.9	21°55.6	-0.3
wo 12	178°35.1	193°35.0	208°34.9	223°34.8	238°34.8	253°34.7	88°33.7	103°33.6	118°33.6	133°33.5	148°33.4	163°33.4	-0.1
	21°55.2	21°54.8	21°54.5	21°54.1	21°53.8	21°53.4	21°48.8	21°48.4	21°48.0	21°47.7	21°47.3	21°46.9	-0.4
do 13	178°33.3	193°33.2	208°33.1	223°33.1	238°33.0	253°32.9	88°32.0	103°32.0	118°31.9	133°31.8	148°31.7	163°31.7	-0.1
	21°46.6	21°46.2	21°45.8	21°45.4	21°45.1	21°44.7	21°39.8	21°39.4	21°39.1	21°38.7	21°38.3	21°37.9	-0.4
vr 14	178°31.6	193°31.5	208°31.5	223°31.4	238°31.3	253°31.3	88°30.4	103°30.4	118°30.3	133°30.2	148°30.2	163°30.1	-0.1
	21°37.5	21°37.1	21°36.8	21°36.4	21°36.0	21°35.6	21°30.5	21°30.1	21°29.7	21°29.3	21°28.9	21°28.5	-0.4
za 15	178°30.1	193°30.0	208°29.9	223°29.9	238°29.8	253°29.7	88°29.0	103°28.9	118°28.9	133°28.8	148°28.7	163°28.7	-0.1
	21°28.1	21°27.7	21°27.3	21°26.9	21°26.5	21°26.1	21°20.9	21°20.4	21°20.0	21°19.6	21°19.2	21°18.8	-0.4
zo 16	178°28.6	193°28.6	208°28.5	223°28.5	238°28.4	253°28.3	88°27.6	103°27.6	118°27.5	133°27.5	148°27.4	163°27.4	-0.1
	21°18.4	21°18.0	21°17.6	21°17.1	21°16.7	21°16.3	21°10.8	21°10.4	21°10.0	21°09.5	21°09.1	21°08.7	-0.4
ma 17	178°27.3	193°27.3	208°27.2	223°27.2	238°27.1	253°27.1	88°26.4	103°26.4	118°26.3	133°26.3	148°26.2	163°26.2	-0.1
	21°08.3	21°07.8	21°07.4	21°07.0	21°06.5	21°06.1	21°00.4	21°00.0	20°59.6	20°59.1	20°58.7	20°58.2	-0.4
di 18	178°26.1	193°26.1	208°26.0	223°26.0	238°26.0	253°25.9	88°25.3	103°25.3	118°25.3	133°25.2	148°25.2	163°25.1	-0.0
	20°57.8	20°57.3	20°56.9	20°56.4	20°56.0	20°55.6	20°49.7	20°49.2	20°48.8	20°48.3	20°47.9	20°47.4	-0.4
wo 19	178°25.1	193°25.0	208°25.0	223°25.0	238°24.9	253°24.9	88°24.4	103°24.4	118°24.3	133°24.3	148°24.2	163°24.2	-0.0
	20°46.9	20°46.5	20°46.0	20°45.6	20°45.1	20°44.6	20°38.6	20°38.1	20°37.6	20°37.2	20°36.7	20°36.2	-0.5
do 20	178°24.2	193°24.1	208°24.1	223°24.1	238°24.0	253°24.0	88°23.6	103°23.6	118°23.5	133°23.5	148°23.5	163°23.4	-0.0
	20°35.8	20°35.3	20°34.8	20°34.3	20°33.9	20°33.4	20°27.1	20°26.7	20°26.2	20°25.7	20°25.2	20°24.7	-0.5
vr 21	178°23.4	193°23.4	208°23.3	223°23.3	238°23.3	253°23.3	88°22.9	103°22.9	118°22.9	133°22.8	148°22.8	163°22.8	-0.0
	20°24.2	20°23.7	20°23.3	20°22.8	20°22.3	20°21.8	20°15.4	20°14.9	20°14.4	20°13.9	20°13.4	20°12.9	-0.5
za 22	178°22.8	193°22.7	208°22.7	223°22.7	238°22.7	253°22.7	88°22.4	103°22.4	118°22.3	133°22.3	148°22.3	163°22.3	-0.0
	20°12.4	20°11.9	20°11.3	20°10.8	20°10.3	20°09.8	20°03.2	20°02.7	20°02.2	20°01.7	20°01.2	20°00.7	-0.5
zo 23	178°22.3	193°22.3	208°22.2	223°22.2	238°22.2	253°22.2	88°22.0	103°22.0	118°22.0	133°22.0	148°22.0	163°21.9	-0.0
	20°00.1	19°59.6	19°59.1	19°58.6	19°58.1	19°57.6	19°50.8	19°50.2	19°49.7	19°49.2	19°48.7	19°48.1	-0.5
ma 24	178°21.9	193°21.9	208°21.9	223°21.9	238°21.9	253°21.9	88°21.8	103°21.8	118°21.8	133°21.8	148°21.8	163°21.7	-0.0
	19°47.6	19°47.1	19°46.5	19°46.0	19°45.5	19°44.9	19°38.0	19°37.4	19°36.9	19°36.3	19°35.8	19°35.3	-0.5
di 25	178°21.7	193°21.7	208°21.7	223°21.7	238°21.7	253°21.7	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	19°34.7	19°34.2	19°33.6	19°33.1	19°32.5	19°32.0	19°24.9	19°24.3	19°23.7	19°23.2	19°22.6	19°22.1	-0.5
wo 26	178°21.7	193°21.7	208°21.7	223°21.7	238°21.7	253°21.7	88°21.8	103°21.8	118°21.8	133°21.8	148°21.8	163°21.8	+0.0
	19°21.5	19°21.0	19°20.4	19°19.8	19°19.3	19°18.7	19°11.4	19°10.8	19°10.3	19°09.7	19°09.1	19°08.6	-0.6
do 27	178°21.8	193°21.8	208°21.8	223°21.8	238°21.8	253°21.9	88°22.0	103°22.0	118°22.0	133°22.0	148°22.1	163°22.1	+0.0
	19°08.0	19°07.4	19°06.9	19°06.3	19°05.7	19°05.1	18°57.7	18°57.1	18°56.5	18°55.9	18°55.3	18°54.8	-0.6
vr 28	178°22.1	193°22.1	208°22.1	223°22.1	238°22.1	253°22.2	88°22.4	103°22.4	118°22.4	133°22.4	148°22.5	163°22.5	+0.0
	18°54.2	18°53.6	18°53.0	18°52.4	18°51.8	18°51.3	18°43.6	18°43.0	18°42.4	18°41.8	18°41.2	18°40.6	-0.6
za 29	178°22.5	193°22.5	208°22.6	223°22.6	238°22.6	253°22.6	88°22.9	103°23.0	118°23.0	133°23.0	148°23.0	163°23.1	+0.0
	18°40.0	18°39.4	18°38.8	18°38.2	18°37.6	18°37.0	18°29.2	18°28.6	18°28.0	18°27.4	18°26.8	18°26.2	-0.6
zo 30	178°23.1	193°23.1	208°23.1	223°23.2	238°23.2	253°23.2	88°23.6	103°23.7	118°23.7	133°23.7	148°23.8	163°23.8	+0.0
	18°25.6	18°25.0	18°24.4	18°23.8	18°23.1	18°22.5	18°14.6	18°13.9	18°13.3	18°12.7	18°12.1	18°11.5	-0.6
ma 31	178°23.8	193°23.9	208°23.9	223°23.9	238°24.0	253°24.0	88°24.5	103°24.5	118°24.6	133°24.6	148°24.6	163°24.7	+0.0
	18°10.8	18°10.2	18°09.6	18°09.0	18°08.4	18°07.7	17°59.6	17°59.0	17°58.3	17°57.7	17°57.1	17°56.4	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2028

D	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
za 1	74°23.8 -16°04.0	88°52.6 -16°16.2	103°21.5 -16°28.2	117°50.2 -16°40.1	132°19.0 -16°51.9	146°47.6 -17°03.6	161°16.2 -17°15.3	175°44.8 -17°26.8	190°13.3 -17°38.2	204°41.8 -17°49.5	219°10.2 -18°00.7	+28.6 -11.7	15.9 58.3
zo 2	76°10.2 -20°35.5	90°37.8 -20°44.9	105°05.4 -20°54.1	119°32.9 -21°03.3	134°00.3 -21°12.3	148°27.7 -21°21.2	162°55.0 -21°29.9	177°22.3 -21°38.6	191°49.6 -21°47.1	206°16.8 -21°55.4	220°43.9 -22°03.7	+27.4 -8.8	15.8 57.8
ma 3	77°26.1 -23°51.0	91°52.6 -23°57.0	106°19.1 -24°02.9	120°45.5 -24°08.7	135°11.9 -24°14.3	149°38.3 -24°19.7	164°04.6 -24°25.1	178°31.0 -24°30.2	192°57.3 -24°35.2	207°23.6 -24°40.1	221°49.8 -24°44.8	+26.4 -5.4	15.6 57.3
di 4	78°21.8 -25°37.8	92°47.9 -25°40.1	107°13.9 -25°42.3	121°40.0 -25°44.3	136°06.1 -25°46.1	150°32.2 -25°47.9	164°58.3 -25°49.4	179°24.4 -25°50.8	193°50.5 -25°52.1	208°16.6 -25°53.2	222°42.8 -25°54.1	+26.1 -1.6	15.5 56.8
wo 5	79°17.7 -25°50.4	93°44.2 -25°49.0	108°10.9 -25°47.4	122°37.5 -25°45.7	137°04.2 -25°43.8	151°31.0 -25°41.8	165°57.8 -25°39.6	180°24.6 -25°37.3	194°51.5 -25°34.9	209°18.4 -25°32.3	223°45.4 -25°29.6	+26.8 +2.1	15.3 56.3
○ **do 6**	80°37.2 -24°32.3	95°05.2 -24°27.5	109°33.2 -24°22.5	124°01.3 -24°17.3	138°29.5 -24°12.1	152°57.8 -24°06.7	167°26.1 -24°01.2	181°54.5 -23°55.6	196°23.0 -23°49.9	210°51.5 -23°44.0	225°20.1 -23°38.0	+28.3 +5.4	15.2 55.8
vr 7	82°38.8 -21°54.8	97°08.7 -21°47.1	111°38.7 -21°39.2	126°08.7 -21°31.3	140°38.9 -21°23.3	155°09.1 -21°15.1	169°39.4 -21°06.9	184°09.8 -20°58.6	198°40.2 -20°50.2	213°10.8 -20°41.7	227°41.4 -20°33.1	+30.3 +8.2	15.1 55.3
za 8	85°30.6 -18°13.8	100°02.5 -18°03.8	114°34.5 -17°53.8	129°06.6 -17°43.8	143°38.7 -17°33.6	158°10.9 -17°23.4	172°43.2 -17°13.2	187°15.6 -17°02.8	201°48.1 -16°52.4	216°20.6 -16°41.9	230°53.2 -16°31.4	+32.3 +10.2	15.0 54.8
zo 9	89°10.6 -13°46.1	103°44.2 -13°34.6	118°18.0 -13°23.1	132°51.8 -13°11.6	147°25.7 -13°00.0	161°59.6 -12°48.4	176°33.6 -12°36.7	191°07.7 -12°24.9	205°41.8 -12°13.2	220°15.9 -12°01.4	234°50.2 -11°49.5	+34.0 +11.7	14.9 54.5
ma 10	93°29.6 -8°47.3	108°04.6 -8°34.9	122°39.7 -8°22.5	137°14.7 -8°10.0	151°49.9 -7°57.5	166°25.0 -7°45.0	181°00.2 -7°32.5	195°35.4 -7°19.9	210°10.7 -7°07.4	224°46.0 -6°54.8	239°21.3 -6°42.1	+35.2 +12.5	14.8 54.2
di 11	98°14.7 -3°30.7	112°50.4 -3°17.9	127°26.1 -3°05.0	142°01.9 -2°52.1	156°37.7 -2°39.2	171°13.5 -2°26.3	185°49.3 -2°13.4	200°25.1 -2°00.5	215°00.9 -1°47.6	229°36.8 -1°34.7	244°12.6 -1°21.7	+35.8 +12.9	14.8 54.1
wo 12	103°10.6 1°52.3	117°46.5 2°05.2	132°22.3 2°18.1	146°58.1 2°31.0	161°33.9 2°43.9	176°09.7 2°56.8	190°45.5 3°09.6	205°21.3 3°22.5	219°57.1 3°35.3	234°32.8 3°48.2	249°08.5 4°01.0	+35.8 +12.9	14.8 54.1
do 13	108°01.5 7°11.5	122°36.9 7°24.1	137°12.1 7°36.6	151°47.3 7°49.1	166°22.5 8°01.6	180°57.7 8°14.1	195°32.8 8°26.5	210°07.9 8°38.9	224°42.9 8°51.3	239°17.9 9°03.6	253°52.8 9°15.9	+35.1 +12.4	14.8 54.3
◑ **vr 14**	112°31.0 12°16.7	127°05.2 12°28.5	141°39.2 12°40.2	156°13.2 12°51.9	170°47.1 13°03.5	185°20.9 13°15.1	199°54.7 13°26.6	214°28.4 13°38.1	229°02.1 13°49.5	243°35.7 14°00.9	258°09.2 14°12.3	+33.8 +11.6	14.9 54.7
za 15	116°23.0 16°56.0	130°55.3 17°06.5	145°27.5 17°16.9	159°59.6 17°27.2	174°31.6 17°37.4	189°03.6 17°47.6	203°35.4 17°57.7	218°07.2 18°07.7	232°38.9 18°17.7	247°10.5 18°27.6	261°42.0 18°37.4	+31.9 +10.1	15.1 55.3
zo 16	119°23.2 20°55.1	133°53.2 21°03.5	148°23.0 21°11.9	162°52.8 21°20.2	177°22.5 21°28.4	191°52.1 21°36.5	206°21.6 21°44.5	220°50.9 21°52.4	235°20.2 22°00.2	249°49.4 22°07.9	264°18.5 22°15.5	+29.5 +8.1	15.3 56.0
ma 17	121°22.5 23°56.2	135°49.9 24°02.0	150°17.3 24°07.6	164°44.6 24°13.1	179°11.8 24°18.5	193°38.9 24°23.8	208°05.8 24°28.9	222°32.7 24°33.9	236°59.5 24°38.7	251°26.2 24°43.5	265°52.9 24°48.1	+27.0 +5.2	15.5 56.9
di 18	122°21.6 25°39.9	136°46.9 25°42.1	151°12.1 25°44.2	165°37.2 25°46.2	180°02.3 25°48.0	194°27.3 25°49.6	208°52.2 25°51.1	223°17.0 25°52.5	237°41.8 25°53.6	252°06.6 25°54.6	266°31.2 25°55.5	+25.0 +1.6	15.8 57.8
wo 19	122°35.2 25°48.2	136°59.2 25°46.4	151°23.1 25°44.3	165°47.0 25°42.2	180°10.9 25°39.8	194°34.7 25°37.3	208°58.6 25°34.6	223°22.4 25°31.7	237°46.2 25°28.7	252°10.0 25°25.5	266°33.7 25°22.1	+23.8 -2.6	16.0 58.7
do 20	122°30.3 24°10.6	136°54.1 24°04.5	151°18.0 23°58.2	165°41.9 23°51.7	180°05.8 23°45.1	194°29.8 23°38.3	208°53.7 23°31.3	223°17.8 23°24.2	237°41.8 23°16.9	252°05.9 23°09.5	266°30.0 23°01.9	+24.0 -6.9	16.2 59.5
vr 21	122°36.7 20°48.8	137°01.6 20°38.8	151°26.5 20°28.6	165°51.5 20°18.2	180°16.5 20°07.7	194°41.6 19°57.1	209°06.7 19°46.3	223°31.9 19°35.4	237°57.2 19°24.4	252°22.5 19°13.2	266°47.9 19°01.9	+25.1 -10.7	16.4 60.1
● **za 22**	123°16.3 15°57.7	137°42.7 15°44.5	152°09.1 15°31.2	166°35.7 15°17.8	181°02.3 15°04.3	195°29.0 14°50.7	209°55.7 14°37.0	224°22.5 14°23.3	238°49.4 14°09.4	253°16.4 13°55.4	267°43.4 13°41.4	+26.7 -13.6	16.5 60.5
zo 23	124°35.8 10°01.3	139°03.7 9°46.1	153°31.8 9°30.8	167°59.8 9°15.5	182°28.0 9°00.1	196°56.1 8°44.7	211°24.4 8°29.2	225°52.6 8°13.7	240°21.0 7°58.2	254°49.4 7°42.5	269°17.8 7°26.9	+28.2 -15.5	16.5 60.6
ma 24	126°29.4 3°28.3	140°58.4 3°12.2	155°27.5 2°56.1	169°56.7 2°40.0	184°25.8 2°23.9	198°55.0 2°07.8	213°24.2 1°51.7	227°53.5 1°35.6	242°22.8 1°19.5	256°52.1 1°03.3	271°21.4 0°47.2	+29.2 -16.1	16.5 60.4
di 25	140°58.4 3°12.2	155°27.5 2°56.1	169°56.7 2°40.0	184°25.8 2°23.9	198°55.0 2°07.8	213°24.2 1°51.7	227°53.5 1°35.6	242°22.8 1°19.5	256°52.1 1°03.3	271°21.4 0°47.2	285°50.7 0°31.1	+29.2 -16.1	16.5 60.4
wo 26	143°12.8 -3°28.9	157°42.3 -3°44.7	172°11.9 -4°00.5	186°41.4 -4°16.2	201°11.0 -4°31.9	215°40.5 -4°47.6	230°10.1 -5°03.3	244°39.6 -5°18.9	259°09.2 -5°34.4	273°38.7 -5°49.9	288°08.3 -6°05.4	+29.6 -15.7	16.3 59.9
do 27	145°30.2 -9°51.3	159°59.5 -10°05.8	174°28.9 -10°20.4	188°58.2 -10°34.8	203°27.4 -10°49.2	217°56.7 -11°03.5	232°25.9 -11°17.7	246°55.1 -11°31.8	261°24.3 -11°45.9	275°53.4 -11°59.9	290°22.6 -12°13.8	+29.2 -14.3	16.2 59.4
◐ **vr 28**	147°35.7 -15°32.2	162°04.3 -15°44.7	176°32.9 -15°57.1	191°01.4 -16°09.4	205°29.9 -16°21.6	219°58.4 -16°33.7	234°26.8 -16°45.7	248°55.2 -16°57.6	263°23.5 -17°09.3	277°51.8 -17°21.0	292°20.1 -17°32.6	+28.4 -12.0	16.0 58.7
za 29	149°19.3 -20°12.3	163°46.9 -20°22.0	178°14.5 -20°31.6	192°42.0 -20°41.0	207°09.5 -20°50.3	221°37.0 -20°59.5	236°04.4 -21°08.6	250°31.8 -21°17.5	264°59.2 -21°26.3	279°26.5 -21°35.0	293°53.8 -21°43.5	+27.4 -9.1	15.8 58.0
zo 30	150°38.9 -23°35.5	165°05.7 -23°41.9	179°32.4 -23°48.1	193°59.1 -23°54.1	208°25.8 -24°00.1	222°52.5 -24°05.8	237°19.1 -24°11.5	251°45.8 -24°17.0	266°12.4 -24°22.3	280°39.0 -24°27.5	295°05.5 -24°32.6	+26.7 -5.7	15.6 57.3
ma 31	151°42.8 -25°30.8	166°09.3 -25°33.5	180°35.7 -25°36.0	195°02.2 -25°38.4	209°28.6 -25°40.7	223°55.1 -25°42.8	238°21.6 -25°44.7	252°48.1 -25°46.5	267°14.6 -25°48.2	281°41.1 -25°49.7	296°07.6 -25°51.1	+26.5 -2.0	15.5 56.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 6 18h10 — LK: 14 20h56 — NM: 22 03h01 — EK: 28 17h40

ZON

Augustus 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	178° 24.7	193° 24.8	208° 24.8	223° 24.9	238° 24.9	253° 24.9	88° 25.5	103° 25.5	118° 25.6	133° 25.6	148° 25.7	163° 25.7	+0.0
	17° 55.8	17° 55.2	17° 54.5	17° 53.9	17° 53.3	17° 52.6	17° 44.3	17° 43.7	17° 43.0	17° 42.4	17° 41.8	17° 41.1	-0.6
wo 2	178° 25.8	193° 25.8	208° 25.9	223° 25.9	238° 26.0	253° 26.0	88° 26.7	103° 26.7	118° 26.8	133° 26.8	148° 26.9	163° 26.9	+0.0
	17° 40.5	17° 39.8	17° 39.2	17° 38.5	17° 37.9	17° 37.2	17° 28.8	17° 28.1	17° 27.5	17° 26.8	17° 26.2	17° 25.5	-0.6
do 3	178° 27.0	193° 27.0	208° 27.1	223° 27.1	238° 27.2	253° 27.3	88° 28.0	103° 28.0	118° 28.1	133° 28.2	148° 28.2	163° 28.3	+0.1
	17° 24.8	17° 24.2	17° 23.5	17° 22.9	17° 22.2	17° 21.6	17° 12.9	17° 12.3	17° 11.6	17° 10.9	17° 10.3	17° 09.6	-0.7
vr 4	178° 28.3	193° 28.4	208° 28.5	223° 28.5	238° 28.6	253° 28.6	88° 29.5	103° 29.5	118° 29.6	133° 29.7	148° 29.7	163° 29.8	+0.1
	17° 08.9	17° 08.3	17° 07.6	17° 06.9	17° 06.3	17° 05.6	16° 56.8	16° 56.2	16° 55.5	16° 54.8	16° 54.1	16° 53.4	-0.7
za 5	178° 29.8	193° 29.9	208° 30.0	223° 30.0	238° 30.1	253° 30.2	88° 31.1	103° 31.1	118° 31.2	133° 31.3	148° 31.4	163° 31.4	+0.1
	16° 52.8	16° 52.1	16° 51.4	16° 50.7	16° 50.0	16° 49.4	16° 40.5	16° 39.8	16° 39.1	16° 38.4	16° 37.7	16° 37.0	-0.7
zo 6	178° 31.5	193° 31.6	208° 31.7	223° 31.7	238° 31.8	253° 31.9	88° 32.8	103° 32.9	118° 33.0	133° 33.1	148° 33.2	163° 33.2	+0.1
	16° 36.3	16° 35.6	16° 34.9	16° 34.2	16° 33.6	16° 32.9	16° 23.8	16° 23.1	16° 22.4	16° 21.7	16° 21.0	16° 20.3	-0.7
ma 7	178° 33.3	193° 33.4	208° 33.5	223° 33.6	238° 33.6	253° 33.7	88° 34.8	103° 34.8	118° 34.9	133° 35.0	148° 35.1	163° 35.2	+0.1
	16° 19.6	16° 18.9	16° 18.2	16° 17.5	16° 16.8	16° 16.1	16° 06.9	16° 06.2	16° 05.5	16° 04.8	16° 04.0	16° 03.3	-0.7
di 8	178° 35.3	193° 35.4	208° 35.4	223° 35.5	238° 35.6	253° 35.7	88° 36.8	103° 36.9	118° 37.0	133° 37.1	148° 37.2	163° 37.3	+0.1
	16° 02.6	16° 01.9	16° 01.2	16° 00.5	15° 59.8	15° 59.1	15° 49.7	15° 49.0	15° 48.3	15° 47.6	15° 46.8	15° 46.1	-0.7
wo 9	178° 37.4	193° 37.5	208° 37.5	223° 37.6	238° 37.7	253° 37.8	88° 39.0	103° 39.1	118° 39.2	133° 39.3	148° 39.4	163° 39.5	+0.1
	15° 45.4	15° 44.7	15° 43.9	15° 43.2	15° 42.5	15° 41.8	15° 32.3	15° 31.6	15° 30.8	15° 30.1	15° 29.4	15° 28.6	-0.7
do 10	178° 39.6	193° 39.7	208° 39.8	223° 39.9	238° 40.0	253° 40.1	88° 41.4	103° 41.5	118° 41.6	133° 41.7	148° 41.8	163° 41.9	+0.1
	15° 27.9	15° 27.2	15° 26.4	15° 25.7	15° 25.0	15° 24.2	15° 14.6	15° 13.9	15° 13.1	15° 12.4	15° 11.6	15° 10.9	-0.7
vr 11	178° 42.0	193° 42.1	208° 42.2	223° 42.3	238° 42.4	253° 42.5	88° 43.9	103° 44.0	118° 44.1	133° 44.2	148° 44.3	163° 44.4	+0.1
	15° 10.2	15° 09.4	15° 08.7	15° 07.9	15° 07.2	15° 06.4	14° 56.7	14° 55.9	14° 55.2	14° 54.4	14° 53.7	14° 52.9	-0.7
za 12	178° 44.5	193° 44.6	208° 44.7	223° 44.8	238° 44.9	253° 45.0	88° 46.5	103° 46.6	118° 46.7	133° 46.8	148° 46.9	163° 47.0	+0.1
	14° 52.2	14° 51.4	14° 50.7	14° 49.9	14° 49.2	14° 48.4	14° 38.5	14° 37.8	14° 37.0	14° 36.2	14° 35.5	14° 34.7	-0.8
zo 13	178° 47.1	193° 47.3	208° 47.4	223° 47.5	238° 47.6	253° 47.7	88° 49.2	103° 49.3	118° 49.5	133° 49.6	148° 49.7	163° 49.8	+0.1
	14° 33.9	14° 33.2	14° 32.4	14° 31.7	14° 30.9	14° 30.1	14° 20.1	14° 19.4	14° 18.6	14° 17.8	14° 17.0	14° 16.3	-0.8
ma 14	178° 49.9	193° 50.1	208° 50.2	223° 50.3	238° 50.4	253° 50.5	88° 52.1	103° 52.2	118° 52.4	133° 52.5	148° 52.6	163° 52.7	+0.1
	14° 15.5	14° 14.7	14° 13.9	14° 13.2	14° 12.4	14° 11.6	14° 01.5	14° 00.7	13° 59.9	13° 59.2	13° 58.4	13° 57.6	-0.8
di 15	178° 52.8	193° 53.0	208° 53.1	223° 53.2	238° 53.3	253° 53.5	88° 55.1	103° 55.2	118° 55.4	133° 55.5	148° 55.6	163° 55.8	+0.1
	13° 56.8	13° 56.0	13° 55.2	13° 54.5	13° 53.7	13° 52.9	13° 42.6	13° 41.9	13° 41.1	13° 40.3	13° 39.5	13° 38.7	-0.8
wo 16	178° 55.9	193° 56.0	208° 56.1	223° 56.3	238° 56.4	253° 56.5	88° 58.3	103° 58.4	118° 58.5	133° 58.7	148° 58.8	163° 58.9	+0.1
	13° 37.9	13° 37.1	13° 36.3	13° 35.5	13° 34.7	13° 33.9	13° 23.6	13° 22.8	13° 22.0	13° 21.2	13° 20.4	13° 19.6	-0.8
do 17	178° 59.1	193° 59.2	208° 59.3	223° 59.5	238° 59.6	253° 59.7	89° 01.5	104° 01.6	119° 01.8	134° 01.9	149° 02.1	164° 02.2	+0.1
	13° 18.8	13° 18.0	13° 17.2	13° 16.4	13° 15.6	13° 14.8	13° 04.3	13° 03.5	13° 02.7	13° 01.9	13° 01.1	13° 00.2	-0.8
vr 18	179° 02.3	194° 02.5	209° 02.6	224° 02.8	239° 02.9	254° 03.0	89° 04.9	104° 05.0	119° 05.2	134° 05.3	149° 05.5	164° 05.6	+0.1
	12° 59.4	12° 58.6	12° 57.8	12° 57.0	12° 56.2	12° 55.4	12° 44.8	12° 44.0	12° 43.2	12° 42.3	12° 41.5	12° 40.7	-0.8
za 19	179° 05.8	194° 05.9	209° 06.0	224° 06.2	239° 06.3	254° 06.5	89° 08.4	104° 08.5	119° 08.7	134° 08.8	149° 09.0	164° 09.1	+0.1
	12° 39.9	12° 39.1	12° 38.3	12° 37.4	12° 36.6	12° 35.8	12° 25.1	12° 24.3	12° 23.4	12° 22.6	12° 21.8	12° 21.0	-0.8
zo 20	179° 09.3	194° 09.4	209° 09.6	224° 09.7	239° 09.9	254° 10.0	89° 12.0	104° 12.2	119° 12.3	134° 12.5	149° 12.6	164° 12.8	+0.1
	12° 20.1	12° 19.3	12° 18.5	12° 17.7	12° 16.8	12° 16.0	12° 05.2	12° 04.4	12° 03.5	12° 02.7	12° 01.9	12° 01.0	-0.8
ma 21	179° 12.9	194° 13.1	209° 13.2	224° 13.4	239° 13.6	254° 13.7	89° 15.7	104° 15.9	119° 16.1	134° 16.2	149° 16.4	164° 16.5	+0.2
	12° 00.2	11° 59.4	11° 58.5	11° 57.7	11° 56.9	11° 56.0	11° 45.1	11° 44.3	11° 43.4	11° 42.6	11° 41.8	11° 40.9	-0.8
di 22	179° 16.7	194° 16.9	209° 17.0	224° 17.2	239° 17.3	254° 17.5	89° 19.6	104° 19.8	119° 19.9	134° 20.1	149° 20.3	164° 20.4	+0.2
	11° 40.1	11° 39.2	11° 38.4	11° 37.5	11° 36.7	11° 35.9	11° 24.9	11° 24.0	11° 23.2	11° 22.3	11° 21.5	11° 20.6	-0.8
wo 23	179° 20.6	194° 20.7	209° 20.9	224° 21.1	239° 21.2	254° 21.4	89° 23.6	104° 23.7	119° 23.9	134° 24.1	149° 24.2	164° 24.4	+0.2
	11° 19.8	11° 18.9	11° 18.1	11° 17.2	11° 16.4	11° 15.5	11° 04.4	11° 03.6	11° 02.7	11° 01.8	11° 01.0	11° 00.1	-0.9
do 24	179° 24.6	194° 24.7	209° 24.9	224° 25.1	239° 25.2	254° 25.4	89° 27.6	104° 27.8	119° 28.0	134° 28.1	149° 28.3	164° 28.5	+0.2
	10° 59.3	10° 58.4	10° 57.6	10° 56.7	10° 55.8	10° 55.0	10° 43.8	10° 42.9	10° 42.1	10° 41.2	10° 40.3	10° 39.5	-0.9
vr 25	179° 28.7	194° 28.8	209° 29.0	224° 29.2	239° 29.4	254° 29.5	89° 31.8	104° 32.0	119° 32.2	134° 32.3	149° 32.5	164° 32.7	+0.2
	10° 38.6	10° 37.7	10° 36.9	10° 36.0	10° 35.1	10° 34.3	10° 23.0	10° 22.1	10° 21.3	10° 20.4	10° 19.5	10° 18.6	-0.9
za 26	179° 32.9	194° 33.0	209° 33.2	224° 33.4	239° 33.6	254° 33.8	89° 36.1	104° 36.3	119° 36.5	134° 36.6	149° 36.8	164° 37.0	+0.2
	10° 17.8	10° 16.9	10° 16.0	10° 15.2	10° 14.3	10° 13.4	10° 02.0	10° 01.2	10° 00.3	9° 59.4	9° 58.5	9° 57.7	-0.9
zo 27	179° 37.2	194° 37.4	209° 37.5	224° 37.7	239° 37.9	254° 38.1	89° 40.5	104° 40.7	119° 40.8	134° 41.0	149° 41.2	164° 41.4	+0.2
	9° 56.8	9° 55.9	9° 55.0	9° 54.1	9° 53.3	9° 52.4	9° 40.9	9° 40.1	9° 39.2	9° 38.3	9° 37.4	9° 36.5	-0.9
ma 28	179° 41.6	194° 41.8	209° 41.9	224° 42.1	239° 42.3	254° 42.5	89° 44.9	104° 45.1	119° 45.3	134° 45.5	149° 45.7	164° 45.9	+0.2
	9° 35.6	9° 34.8	9° 33.9	9° 33.0	9° 32.1	9° 31.2	9° 19.7	9° 18.8	9° 17.9	9° 17.0	9° 16.1	9° 15.2	-0.9
di 29	179° 46.1	194° 46.3	209° 46.5	224° 46.6	239° 46.8	254° 47.0	89° 49.5	104° 49.7	119° 49.9	134° 50.1	149° 50.3	164° 50.5	+0.2
	9° 14.3	9° 13.5	9° 12.6	9° 11.7	9° 10.8	9° 09.9	8° 58.3	8° 57.4	8° 56.5	8° 55.6	8° 54.7	8° 53.8	-0.9
wo 30	179° 50.7	194° 50.9	209° 51.0	224° 51.2	239° 51.4	254° 51.6	89° 54.2	104° 54.4	119° 54.5	134° 54.7	149° 54.9	164° 55.1	+0.2
	8° 52.9	8° 52.0	8° 51.1	8° 50.2	8° 49.3	8° 48.4	8° 36.7	8° 35.8	8° 34.9	8° 34.0	8° 33.1	8° 32.2	-0.9
do 31	179° 55.3	194° 55.5	209° 55.7	224° 55.9	239° 56.1	254° 56.3	89° 58.9	104° 59.1	119° 59.3	134° 59.5	149° 59.7	164° 59.9	+0.2
	8° 31.3	8° 30.4	8° 29.5	8° 28.6	8° 27.7	8° 26.8	8° 15.0	8° 14.1	8° 13.2	8° 12.3	8° 11.4	8° 10.5	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2028

D	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	SD/HP
di 1	66°07.2	80°33.9	95°00.7	109°27.4	123°54.3	138°21.1	152°48.0	167°14.9	181°41.9	196°08.9	210°35.9	+26.9	15.3
	-25°56.6	-25°56.5	-25°56.2	-25°55.8	-25°55.3	-25°54.6	-25°53.7	-25°52.7	-25°51.6	-25°50.3	-25°48.9	+0.8	56.2
wo 2	67°27.0	81°54.8	96°22.7	110°50.6	125°18.6	139°46.6	154°14.8	168°42.9	183°11.2	197°39.5	212°07.8	+28.1	15.2
	-25°11.0	-25°07.4	-25°03.7	-24°59.8	-24°55.8	-24°51.7	-24°47.4	-24°43.0	-24°38.5	-24°33.9	-24°29.1	+4.2	55.7
do 3	69°21.6	83°51.0	98°20.6	112°50.2	127°19.9	141°49.7	156°19.6	170°49.5	185°19.5	199°49.6	214°19.8	+29.8	15.1
	-23°03.2	-22°56.6	-22°49.8	-22°43.0	-22°36.0	-22°28.9	-22°21.8	-22°14.5	-22°07.1	-21°59.6	-21°52.0	+7.1	55.2
vr 4	72°01.3	86°32.6	101°04.1	115°35.6	130°07.2	144°38.9	159°10.6	173°42.5	188°14.4	202°46.3	217°18.4	+31.7	14.9
	-19°46.7	-19°37.7	-19°28.5	-19°19.3	-19°10.0	-19°00.6	-18°51.1	-18°41.5	-18°31.9	-18°22.2	-18°12.4	+9.4	54.8
○ za 5	75°27.4	90°00.6	104°33.8	119°07.0	133°40.4	148°13.8	162°47.2	177°20.8	191°54.4	206°28.0	221°01.7	+33.4	14.8
	-15°37.2	-15°26.4	-15°15.4	-15°04.5	-14°53.4	-14°42.3	-14°31.2	-14°20.0	-14°08.7	-13°57.4	-13°46.1	+11.1	54.5
zo 6	79°33.9	94°08.5	108°43.1	123°17.8	137°52.5	152°27.2	167°02.0	181°36.8	196°11.7	210°46.6	225°21.6	+34.8	14.8
	-10°50.2	-10°38.1	-10°26.0	-10°13.9	-10°01.7	-9°49.5	-9°37.3	-9°25.0	-9°12.7	-9°00.4	-8°48.1	+12.2	54.2
ma 7	84°10.2	98°45.7	113°21.2	127°56.8	142°32.4	157°07.9	171°43.6	186°19.2	200°54.8	215°30.5	230°06.2	+35.6	14.7
	-5°39.7	-5°27.0	-5°14.3	-5°01.5	-4°48.7	-4°36.0	-4°23.2	-4°10.4	-3°57.5	-3°44.7	-3°31.9	+12.8	54.0
di 8	89°03.2	103°39.1	118°15.0	132°50.8	147°26.7	162°02.6	176°38.5	191°14.3	205°50.2	220°26.1	235°01.9	+35.9	14.7
	-0°18.4	-0°05.5	0°07.5	0°20.4	0°33.3	0°46.2	0°59.1	1°12.0	1°24.9	1°37.8	1°50.7	+12.9	54.0
wo 9	93°58.7	108°34.4	123°10.0	137°45.6	152°21.2	166°56.8	181°32.4	196°07.9	210°43.4	225°18.9	239°54.3	+35.6	14.7
	5°02.7	5°15.4	5°28.1	5°40.7	5°53.3	6°05.9	6°18.5	6°31.1	6°43.6	6°56.2	7°08.7	+12.6	54.0
do 10	98°41.9	113°16.8	127°51.6	142°26.4	157°01.1	171°35.8	186°10.5	200°45.0	215°19.6	229°54.1	244°28.5	+34.7	14.8
	10°12.8	10°24.9	10°36.9	10°48.8	11°00.7	11°12.6	11°24.4	11°36.2	11°48.0	11°59.7	12°11.4	+11.9	54.2
vr 11	102°58.2	117°31.7	132°05.1	146°38.5	161°11.8	175°45.0	190°18.1	204°51.2	219°24.2	233°57.1	248°30.0	+33.2	14.9
	15°01.0	15°11.9	15°22.7	15°33.5	15°44.2	15°54.9	16°05.5	16°16.0	16°26.5	16°37.0	16°47.3	+10.6	54.6
za 12	106°33.7	121°05.3	135°36.8	150°08.2	164°39.5	179°10.8	193°42.0	208°13.1	222°44.1	237°15.0	251°45.8	+31.2	15.0
	19°14.6	19°23.8	19°33.0	19°42.0	19°51.0	19°59.9	20°08.7	20°17.5	20°26.1	20°34.7	20°43.2	+8.9	55.2
◑ zo 13	109°17.3	123°46.7	138°16.0	152°45.2	167°14.3	181°43.3	196°12.2	210°41.0	225°09.8	239°38.4	254°07.0	+29.0	15.2
	22°39.0	22°46.0	22°52.8	22°59.5	23°06.1	23°12.6	23°19.0	23°25.2	23°31.4	23°37.4	23°43.4	+6.4	55.9
ma 14	111°04.5	125°31.6	139°58.7	154°25.7	168°52.6	183°19.4	197°46.1	212°12.8	226°39.4	241°05.9	255°32.3	+26.8	15.5
	24°57.6	25°01.6	25°05.3	25°09.0	25°12.5	25°15.9	25°19.1	25°22.2	25°25.2	25°28.0	25°30.7	+3.3	56.7
di 15	112°00.4	126°25.7	140°51.0	155°16.3	169°41.5	184°06.7	198°31.8	212°56.8	227°21.9	241°46.8	256°11.8	+25.1	15.7
	25°53.1	25°53.4	25°53.5	25°53.5	25°53.3	25°52.9	25°52.4	25°51.7	25°50.9	25°49.9	25°48.7	-0.4	57.7
wo 16	112°21.7	126°46.2	141°10.7	155°35.1	169°59.6	184°24.0	198°48.4	213°12.8	227°37.2	242°01.7	256°26.1	+24.4	16.0
	25°11.6	25°07.8	25°03.8	24°59.7	24°55.4	24°50.9	24°46.3	24°41.5	24°36.5	24°31.4	24°26.0	-4.6	58.7
do 17	112°33.2	126°57.8	141°22.5	155°47.1	170°11.8	184°36.5	199°01.3	213°26.1	227°50.9	242°15.7	256°40.6	+24.7	16.3
	22°46.8	22°38.9	22°30.8	22°22.6	22°14.2	22°05.6	21°56.9	21°48.1	21°39.1	21°29.9	21°20.6	-8.6	59.6
vr 18	112°58.4	127°23.9	141°49.5	156°15.1	170°40.8	185°06.5	199°32.3	213°58.1	228°23.9	242°49.9	257°15.8	+25.7	16.5
	18°43.6	18°32.1	18°20.4	18°08.5	17°56.6	17°44.5	17°32.3	17°19.9	17°07.5	16°54.9	16°42.2	-12.2	60.4
za 19	113°51.2	128°18.0	142°44.8	157°11.6	171°38.5	186°05.5	200°32.4	214°59.5	229°26.6	243°53.7	258°20.9	+27.0	16.6
	13°18.5	13°04.1	12°49.7	12°35.1	12°20.5	12°05.8	11°50.9	11°36.1	11°21.1	11°06.0	10°50.9	-14.8	60.9
● zo 20	115°13.4	129°41.2	144°09.1	158°36.9	173°04.8	187°32.8	202°00.8	216°28.8	230°56.8	245°24.8	259°52.9	+28.0	16.7
	6°56.4	6°40.4	6°24.3	6°08.1	5°51.9	5°35.7	5°19.5	5°03.2	4°46.9	4°30.5	4°14.2	-16.2	61.2
ma 21	116°56.8	131°25.1	145°53.6	160°22.0	174°50.4	189°18.8	203°47.3	218°15.7	232°44.1	247°12.6	261°41.1	+28.4	16.6
	0°06.9	-0°09.6	-0°26.1	-0°42.6	-0°59.1	-1°15.6	-1°32.0	-1°48.5	-2°04.9	-2°21.3	-2°37.7	-16.5	61.0
di 22	118°47.8	133°16.2	147°44.5	162°12.9	176°41.3	191°09.6	205°37.9	220°06.2	234°34.5	249°02.8	263°31.1	+28.3	16.5
	-6°39.5	-6°55.2	-7°11.0	-7°26.6	-7°42.2	-7°57.8	-8°13.3	-8°28.7	-8°44.1	-8°59.4	-9°14.6	-15.5	60.6
wo 23	120°32.4	135°00.3	149°28.1	163°56.0	178°23.8	192°51.5	207°19.3	221°47.0	236°14.6	250°42.3	265°09.9	+27.8	16.3
	-12°54.2	-13°08.2	-13°22.1	-13°35.8	-13°49.5	-14°03.1	-14°16.6	-14°30.0	-14°43.3	-14°56.5	-15°09.6	-13.5	59.9
do 24	135°00.3	149°28.1	163°56.0	178°23.8	192°51.5	207°19.3	221°47.0	236°14.6	250°42.3	265°09.9	279°37.5	+27.7	16.3
	-13°08.2	-13°22.1	-13°35.8	-13°49.5	-14°03.1	-14°16.6	-14°30.0	-14°43.3	-14°56.5	-15°09.6	-15°22.6	-13.4	59.9
vr 25	136°27.3	150°54.3	165°21.4	179°48.3	194°15.3	208°42.2	223°09.1	237°36.0	252°02.8	266°29.6	280°56.3	+26.9	16.1
	-18°24.0	-18°35.1	-18°46.2	-18°57.1	-19°07.8	-19°18.5	-19°29.0	-19°39.4	-19°49.7	-19°59.8	-20°09.8	-10.6	59.0
za 26	137°34.3	152°00.6	166°26.9	180°53.2	195°19.5	209°45.7	224°12.0	238°38.2	253°04.4	267°30.5	281°56.7	+26.2	15.9
	-22°23.4	-22°38.8	-22°38.8	-22°46.3	-22°53.7	-23°00.9	-23°07.9	-23°14.8	-23°21.6	-23°28.2	-23°34.7	-7.1	58.1
◐ zo 27	138°28.1	152°54.1	167°20.2	181°46.3	196°12.4	210°38.5	225°04.6	239°30.7	253°56.8	268°22.9	282°49.1	+26.1	15.6
	-24°53.7	-24°57.7	-25°01.6	-25°05.4	-25°09.0	-25°12.4	-25°15.7	-25°18.9	-25°21.8	-25°24.7	-25°27.4	-3.4	57.3
ma 28	139°23.8	153°50.4	168°17.0	182°43.6	197°10.2	211°36.9	226°03.7	240°30.4	254°57.2	269°24.1	283°51.0	+26.7	15.4
	-25°49.6	-25°49.9	-25°50.0	-25°50.0	-25°49.8	-25°49.5	-25°49.1	-25°48.5	-25°47.8	-25°46.9	-25°45.9	+0.4	56.5
di 29	140°40.7	155°08.5	169°36.3	184°04.2	198°32.2	213°00.2	227°28.3	241°56.4	256°24.6	270°52.9	285°21.2	+28.0	15.2
	-25°13.8	-25°10.6	-25°07.2	-25°03.7	-25°00.1	-24°56.4	-24°52.5	-24°48.5	-24°44.3	-24°40.1	-24°35.7	+3.8	55.8
wo 30	142°34.9	157°04.4	171°34.0	186°03.6	200°33.3	215°03.1	229°33.0	244°02.9	258°33.0	273°03.1	287°33.2	+29.8	15.1
	-23°15.6	-23°09.4	-23°03.0	-22°56.5	-22°50.0	-22°43.3	-22°36.5	-22°29.6	-22°22.6	-22°15.5	-22°08.3	+6.7	55.2
do 31	145°15.0	159°46.4	174°17.8	188°49.3	203°20.9	217°52.6	232°24.4	246°56.2	261°28.1	276°00.1	290°32.1	+31.7	14.9
	-20°08.6	-19°59.9	-19°51.1	-19°42.3	-19°33.3	-19°24.3	-19°15.1	-19°05.9	-18°56.7	-18°47.3	-18°37.9	+9.1	54.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 5 08h09 — LK: 13 11h45 — NM: 20 10h43 — EK: 27 01h35

ZON

September 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	180° 00.1 8° 09.6	195° 00.3 8° 08.7	210° 00.5 8° 07.8	225° 00.7 8° 06.9	240° 00.9 8° 06.0	255° 01.1 8° 05.1	90° 03.7 7° 53.2	105° 03.9 7° 52.3	120° 04.1 7° 51.4	135° 04.3 7° 50.5	150° 04.5 7° 49.6	165° 04.7 7° 48.7	+0.2 -0.9
za 2	180° 04.9 7° 47.8	195° 05.1 7° 46.8	210° 05.3 7° 45.9	225° 05.5 7° 45.0	240° 05.7 7° 44.1	255° 05.9 7° 43.2	90° 08.6 7° 31.3	105° 08.8 7° 30.4	120° 09.0 7° 29.5	135° 09.2 7° 28.5	150° 09.4 7° 27.6	165° 09.6 7° 26.7	+0.2 -0.9
zo 3	180° 09.8 7° 25.8	195° 10.0 7° 24.9	210° 10.2 7° 23.9	225° 10.4 7° 23.0	240° 10.6 7° 22.1	255° 10.8 7° 21.2	90° 13.5 7° 09.2	105° 13.7 7° 08.3	120° 13.9 7° 07.4	135° 14.1 7° 06.5	150° 14.4 7° 05.5	165° 14.6 7° 04.6	+0.2 -0.9
ma 4	180° 14.8 7° 03.7	195° 15.0 7° 02.8	210° 15.2 7° 01.8	225° 15.4 7° 00.9	240° 15.6 7° 00.0	255° 15.8 6° 59.1	90° 18.5 6° 47.0	105° 18.7 6° 46.1	120° 19.0 6° 45.2	135° 19.2 6° 44.3	150° 19.4 6° 43.3	165° 19.6 6° 42.4	+0.2 -0.9
di 5	180° 19.8 6° 41.5	195° 20.0 6° 40.6	210° 20.2 6° 39.6	225° 20.4 6° 38.7	240° 20.6 6° 37.8	255° 20.8 6° 36.8	90° 23.6 6° 24.8	105° 23.8 6° 23.8	120° 24.0 6° 22.9	135° 24.2 6° 22.0	150° 24.4 6° 21.0	165° 24.7 6° 20.1	+0.2 -0.9
wo 6	180° 24.9 6° 19.2	195° 25.1 6° 18.2	210° 25.3 6° 17.3	225° 25.5 6° 16.4	240° 25.7 6° 15.4	255° 25.9 6° 14.5	90° 28.7 6° 02.4	105° 28.9 6° 01.4	120° 29.1 6° 00.5	135° 29.4 5° 59.5	150° 29.6 5° 58.6	165° 29.8 5° 57.7	+0.2 -0.9
do 7	180° 30.0 5° 56.7	195° 30.2 5° 55.8	210° 30.4 5° 54.9	225° 30.6 5° 53.9	240° 30.9 5° 53.0	255° 31.1 5° 52.1	90° 33.9 5° 39.9	105° 34.1 5° 38.9	120° 34.3 5° 38.0	135° 34.5 5° 37.0	150° 34.7 5° 36.1	165° 35.0 5° 35.2	+0.2 -0.9
vr 8	180° 35.2 5° 34.2	195° 35.4 5° 33.3	210° 35.6 5° 32.3	225° 35.8 5° 31.4	240° 36.0 5° 30.5	255° 36.3 5° 29.5	90° 39.1 5° 17.3	105° 39.3 5° 16.3	120° 39.5 5° 15.4	135° 39.7 5° 14.4	150° 40.0 5° 13.5	165° 40.2 5° 12.5	+0.2 -0.9
za 9	180° 40.4 5° 11.6	195° 40.6 5° 10.7	210° 40.8 5° 09.7	225° 41.0 5° 08.8	240° 41.3 5° 07.8	255° 41.5 5° 06.9	90° 44.3 4° 54.6	105° 44.5 4° 53.6	120° 44.8 4° 52.7	135° 45.0 4° 51.7	150° 45.2 4° 50.8	165° 45.4 4° 49.8	+0.2 -0.9
zo 10	180° 45.6 4° 48.9	195° 45.9 4° 47.9	210° 46.1 4° 47.0	225° 46.3 4° 46.0	240° 46.5 4° 45.1	255° 46.7 4° 44.1	90° 49.6 4° 31.8	105° 49.8 4° 30.9	120° 50.0 4° 29.9	135° 50.2 4° 29.0	150° 50.5 4° 28.0	165° 50.7 4° 27.1	+0.2 -0.9
ma 11	180° 50.9 4° 26.1	195° 51.1 4° 25.1	210° 51.3 4° 24.2	225° 51.6 4° 23.2	240° 51.8 4° 22.3	255° 52.0 4° 21.3	90° 54.9 4° 09.0	105° 55.1 4° 08.0	120° 55.3 4° 07.0	135° 55.5 4° 06.1	150° 55.8 4° 05.1	165° 56.0 4° 04.2	+0.2 -1.0
di 12	180° 56.2 4° 03.2	195° 56.4 4° 02.3	210° 56.6 4° 01.3	225° 56.9 4° 00.4	240° 57.1 3° 59.4	255° 57.3 3° 58.5	91° 00.2 3° 46.0	106° 00.4 3° 45.1	121° 00.6 3° 44.1	136° 00.9 3° 43.2	151° 01.1 3° 42.2	166° 01.3 3° 41.2	+0.2 -1.0
wo 13	181° 01.5 3° 40.3	196° 01.7 3° 39.3	211° 02.0 3° 38.4	226° 02.2 3° 37.4	241° 02.4 3° 36.5	256° 02.6 3° 35.5	91° 05.5 3° 23.0	106° 05.7 3° 22.1	121° 06.0 3° 21.1	136° 06.2 3° 20.1	151° 06.4 3° 19.2	166° 06.6 3° 18.2	+0.2 -1.0
do 14	181° 06.8 3° 17.3	196° 07.1 3° 16.3	211° 07.3 3° 15.3	226° 07.5 3° 14.4	241° 07.7 3° 13.4	256° 08.0 3° 12.5	91° 10.8 3° 00.0	106° 11.1 2° 59.0	121° 11.3 2° 58.0	136° 11.5 2° 57.1	151° 11.7 2° 56.1	166° 12.0 2° 55.2	+0.2 -1.0
vr 15	181° 12.2 2° 54.2	196° 12.4 2° 53.2	211° 12.6 2° 52.3	226° 12.9 2° 51.3	241° 13.1 2° 50.3	256° 13.3 2° 49.4	91° 16.2 2° 36.8	106° 16.4 2° 35.9	121° 16.6 2° 34.9	136° 16.9 2° 34.0	151° 17.1 2° 33.0	166° 17.3 2° 32.0	+0.2 -1.0
za 16	181° 17.5 2° 31.1	196° 17.7 2° 30.1	211° 18.0 2° 29.1	226° 18.2 2° 28.2	241° 18.4 2° 27.2	256° 18.6 2° 26.2	91° 21.5 2° 13.7	106° 21.8 2° 12.7	121° 22.0 2° 11.7	136° 22.2 2° 10.8	151° 22.4 2° 09.8	166° 22.6 2° 08.8	+0.2 -1.0
zo 17	181° 22.9 2° 07.9	196° 23.1 2° 06.9	211° 23.3 2° 05.9	226° 23.5 2° 05.0	241° 23.8 2° 04.0	256° 24.0 2° 03.0	91° 26.9 1° 50.5	106° 27.1 1° 49.5	121° 27.3 1° 48.5	136° 27.5 1° 47.6	151° 27.8 1° 46.6	166° 28.0 1° 45.6	+0.2 -1.0
ma 18	181° 28.2 1° 44.7	196° 28.4 1° 43.7	211° 28.6 1° 42.7	226° 28.9 1° 41.7	241° 29.1 1° 40.8	256° 29.3 1° 39.8	91° 32.2 1° 27.2	106° 32.4 1° 26.2	121° 32.6 1° 25.3	136° 32.9 1° 24.3	151° 33.1 1° 23.3	166° 33.3 1° 22.4	+0.2 -1.0
di 19	181° 33.5 1° 21.4	196° 33.8 1° 20.4	211° 34.0 1° 19.5	226° 34.2 1° 18.5	241° 34.4 1° 17.5	256° 34.6 1° 16.5	91° 37.5 1° 03.9	106° 37.7 1° 03.0	121° 38.0 1° 02.0	136° 38.2 1° 01.0	151° 38.4 1° 00.0	166° 38.6 0° 59.1	+0.2 -1.0
wo 20	181° 38.8 0° 58.1	196° 39.1 0° 57.1	211° 39.3 0° 56.2	226° 39.5 0° 55.2	241° 39.7 0° 54.2	256° 40.0 0° 53.2	91° 42.8 0° 40.6	106° 43.0 0° 39.6	121° 43.3 0° 38.7	136° 43.5 0° 37.7	151° 43.7 0° 36.7	166° 43.9 0° 35.7	+0.2 -1.0
do 21	181° 44.1 0° 34.8	196° 44.4 0° 33.8	211° 44.6 0° 32.8	226° 44.8 0° 31.9	241° 45.0 0° 30.9	256° 45.3 0° 29.9	91° 48.1 0° 17.3	106° 48.3 0° 16.3	121° 48.5 0° 15.3	136° 48.8 0° 14.3	151° 49.0 0° 13.4	166° 49.2 0° 12.4	+0.2 -1.0
vr 22	181° 49.4 0° 11.4	196° 49.6 0° 10.5	211° 49.9 0° 09.5	226° 50.1 0° 08.5	241° 50.3 0° 07.5	256° 50.5 0° 06.6	91° 53.4 -0° 06.1	106° 53.6 -0° 07.1	121° 53.8 -0° 08.0	136° 54.0 -0° 09.0	151° 54.2 -0° 10.0	166° 54.5 -0° 11.0	+0.2 -1.0
za 23	181° 54.7 -0° 11.9	196° 54.9 -0° 12.9	211° 55.1 -0° 13.9	226° 55.3 -0° 14.8	241° 55.6 -0° 15.8	256° 55.8 -0° 16.8	91° 58.6 -0° 29.5	106° 58.8 -0° 30.4	121° 59.0 -0° 31.4	136° 59.3 -0° 32.4	151° 59.5 -0° 33.3	166° 59.7 -0° 34.3	+0.2 -1.0
zo 24	181° 59.9 -0° 35.3	197° 00.1 -0° 36.3	212° 00.3 -0° 37.2	227° 00.6 -0° 38.2	242° 00.8 -0° 39.2	257° 01.0 -0° 40.2	92° 03.8 -0° 52.8	107° 04.0 -0° 53.8	122° 04.2 -0° 54.8	137° 04.5 -0° 55.7	152° 04.7 -0° 56.7	167° 04.9 -0° 57.7	+0.2 -1.0
ma 25	182° 05.1 -0° 58.7	197° 05.3 -0° 59.6	212° 05.5 -1° 00.6	227° 05.8 -1° 01.6	242° 06.0 -1° 02.6	257° 06.2 -1° 03.5	92° 09.0 -1° 16.2	107° 09.2 -1° 17.2	122° 09.4 -1° 18.1	137° 09.6 -1° 19.1	152° 09.8 -1° 20.1	167° 10.0 -1° 21.0	+0.2 -1.0
di 26	182° 10.3 -1° 22.0	197° 10.5 -1° 23.0	212° 10.7 -1° 24.0	227° 10.9 -1° 24.9	242° 11.1 -1° 25.9	257° 11.3 -1° 26.9	92° 14.1 -1° 39.5	107° 14.3 -1° 40.5	122° 14.5 -1° 41.5	137° 14.7 -1° 42.5	152° 14.9 -1° 43.4	167° 15.2 -1° 44.4	+0.2 -1.0
wo 27	182° 15.4 -1° 45.4	197° 15.6 -1° 46.4	212° 15.8 -1° 47.3	227° 16.0 -1° 48.3	242° 16.2 -1° 49.3	257° 16.4 -1° 50.2	92° 19.2 -2° 02.9	107° 19.4 -2° 03.9	122° 19.6 -2° 04.8	137° 19.8 -2° 05.8	152° 20.0 -2° 06.8	167° 20.2 -2° 07.7	+0.2 -1.0
do 28	182° 20.4 -2° 08.7	197° 20.6 -2° 09.7	212° 20.9 -2° 10.7	227° 21.1 -2° 11.6	242° 21.3 -2° 12.6	257° 21.5 -2° 13.6	92° 24.2 -2° 26.2	107° 24.4 -2° 27.2	122° 24.6 -2° 28.2	137° 24.8 -2° 29.1	152° 25.0 -2° 30.1	167° 25.2 -2° 31.1	+0.2 -1.0
vr 29	182° 25.4 -2° 32.0	197° 25.6 -2° 33.0	212° 25.9 -2° 34.0	227° 26.1 -2° 34.9	242° 26.3 -2° 35.9	257° 26.5 -2° 36.9	92° 29.2 -2° 49.5	107° 29.4 -2° 50.5	122° 29.6 -2° 51.4	137° 29.8 -2° 52.4	152° 30.0 -2° 53.4	167° 30.2 -2° 54.4	+0.2 -1.0
za 30	182° 30.4 -2° 55.3	197° 30.6 -2° 56.3	212° 30.8 -2° 57.3	227° 31.0 -2° 58.2	242° 31.2 -2° 59.2	257° 31.4 -3° 00.2	92° 34.1 -3° 12.8	107° 34.3 -3° 13.7	122° 34.5 -3° 14.7	137° 34.7 -3° 15.7	152° 34.9 -3° 16.7	167° 35.1 -3° 17.6	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2028

D	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	SD/HP
vr 1	61°23.6	75°56.4	90°29.2	105°02.0	119°35.0	134°08.0	148°41.0	163°14.1	177°47.3	192°20.6	206°53.9	+33.0	14.8
	-17°09.7	-16°59.5	-16°49.3	-16°39.0	-16°28.6	-16°18.2	-16°07.7	-15°57.2	-15°46.6	-15°35.9	-15°25.2	+10.4	54.4
za 2	65°20.6	79°54.8	94°29.0	109°03.4	123°37.7	138°12.1	152°46.6	167°21.1	181°55.6	196°30.2	211°04.9	+34.4	14.8
	-12°37.8	-12°26.2	-12°14.6	-12°03.0	-11°51.3	-11°39.5	-11°27.8	-11°15.9	-11°04.1	-10°52.2	-10°40.3	+11.8	54.2
○ zo 3	69°49.3	84°24.5	98°59.8	113°35.1	128°10.5	142°45.8	157°21.2	171°56.6	186°32.1	201°07.5	215°43.0	+35.4	14.7
	-7°37.2	-7°24.8	-7°12.3	-6°59.8	-6°47.3	-6°34.8	-6°22.2	-6°09.6	-5°57.1	-5°44.4	-5°31.8	+12.5	54.0
ma 4	74°37.7	89°13.5	103°49.3	118°25.1	133°00.8	147°36.6	162°12.4	176°48.2	191°24.1	205°59.9	220°35.7	+35.8	14.7
	-2°20.6	-2°07.7	-1°54.9	-1°42.1	-1°29.2	-1°16.4	-1°03.5	-0°50.6	-0°37.8	-0°24.9	-0°12.1	+12.9	53.9
di 5	79°32.7	94°08.5	108°44.2	123°19.9	137°55.6	152°31.3	167°07.0	181°42.7	196°18.3	210°53.9	225°29.5	+35.7	14.7
	3°00.4	3°13.2	3°26.0	3°38.7	3°51.5	4°04.2	4°16.9	4°29.6	4°42.3	4°54.9	5°07.6	+12.7	53.9
wo 6	84°20.8	98°56.0	113°31.1	128°06.3	142°41.4	157°16.4	171°51.4	186°26.4	201°01.3	215°36.2	230°11.1	+35.0	14.7
	8°14.6	8°26.9	8°39.1	8°51.3	9°03.5	9°15.6	9°27.7	9°39.8	9°51.8	10°03.8	10°15.8	+12.1	54.0
do 7	88°48.7	103°22.8	117°56.8	132°30.9	147°04.8	161°38.7	176°12.5	190°46.3	205°20.1	219°53.7	234°27.3	+33.9	14.8
	13°10.5	13°21.8	13°33.0	13°44.2	13°55.3	14°06.4	14°17.5	14°28.4	14°39.4	14°50.2	15°01.0	+11.1	54.3
vr 8	92°43.9	107°16.5	121°49.0	136°21.5	150°53.8	165°26.1	179°58.4	194°30.5	209°02.6	223°34.6	238°06.5	+32.3	14.9
	17°35.9	17°45.7	17°55.4	18°05.1	18°14.7	18°24.2	18°33.6	18°43.0	18°52.2	19°01.5	19°10.6	+9.5	54.6
za 9	95°56.5	110°27.2	124°57.8	139°28.4	153°58.8	168°29.2	182°59.6	197°29.8	212°00.0	226°30.0	241°00.0	+30.4	15.0
	21°17.4	21°25.1	21°32.8	21°40.3	21°47.8	21°55.2	22°02.4	22°09.6	22°16.6	22°23.6	22°30.4	+7.3	55.1
zo 10	98°20.6	112°49.4	127°18.1	141°46.7	156°15.2	170°43.6	185°12.0	199°40.3	214°08.6	228°36.7	243°04.8	+28.4	15.2
	24°00.3	24°05.4	24°10.4	24°15.2	24°19.9	24°24.5	24°29.0	24°33.4	24°37.6	24°41.7	24°45.7	+4.5	55.7
ma 11	99°58.0	114°25.1	128°52.1	143°19.0	157°45.9	172°12.7	186°39.5	201°06.2	215°32.8	229°59.4	244°26.0	+26.8	15.4
	25°29.6	25°31.5	25°33.2	25°34.8	25°36.2	25°37.5	25°38.6	25°39.6	25°40.4	25°41.1	25°41.7	+1.2	56.5
◑ di 12	100°59.3	115°25.2	129°51.1	144°17.0	158°42.9	173°08.7	187°34.5	202°00.3	216°26.1	230°51.8	245°17.5	+25.8	15.7
	25°32.2	25°30.4	25°28.4	25°26.3	25°24.0	25°21.5	25°18.9	25°16.1	25°13.2	25°10.1	25°06.9	-2.5	57.4
wo 13	101°42.2	116°07.9	130°33.5	144°59.1	159°24.8	173°50.4	188°16.1	202°41.7	217°07.4	231°33.1	245°58.8	+25.6	15.9
	23°59.8	23°54.1	23°48.2	23°42.2	23°36.0	23°29.7	23°23.2	23°16.6	23°09.8	23°02.9	22°55.8	-6.4	58.4
do 14	102°26.4	116°52.4	131°18.5	145°44.6	160°10.7	174°36.8	189°03.0	203°29.1	217°55.4	232°21.6	246°47.9	+26.1	16.2
	20°51.6	20°42.2	20°32.6	20°22.9	20°13.1	20°03.1	19°53.0	19°42.7	19°32.3	19°21.8	19°11.1	-10.1	59.3
vr 15	103°26.1	117°52.9	132°19.7	146°46.6	161°13.5	175°40.5	190°07.5	204°34.5	219°01.5	233°28.6	247°55.7	+27.0	16.4
	16°16.0	16°03.4	15°50.6	15°37.8	15°24.8	15°11.7	14°58.5	14°45.2	14°31.8	14°18.4	14°04.8	-13.1	60.2
za 16	104°46.1	119°13.7	133°41.3	148°08.9	162°36.6	177°04.3	191°32.0	205°59.7	220°27.5	234°55.2	249°23.0	+27.7	16.6
	10°29.6	10°14.6	9°59.5	9°44.4	9°29.1	9°13.8	8°58.5	8°43.0	8°27.5	8°12.0	7°56.4	-15.3	60.9
zo 17	106°21.9	120°49.9	135°17.9	149°45.9	164°14.0	178°42.0	193°10.0	207°38.1	222°06.1	236°34.2	251°02.2	+28.0	16.7
	3°56.1	3°39.8	3°23.5	3°07.1	2°50.7	2°34.3	2°17.8	2°01.3	1°44.9	1°28.4	1°11.8	-16.4	61.3
● ma 18	108°02.4	122°30.3	136°58.2	151°26.1	165°54.0	180°21.9	194°49.7	209°17.5	223°45.3	238°13.1	252°40.9	+27.9	16.7
	-2°55.9	-3°12.4	-3°28.8	-3°45.2	-4°01.5	-4°17.9	-4°34.2	-4°50.5	-5°06.7	-5°22.9	-5°39.1	-16.3	61.3
di 19	109°34.3	124°01.7	138°29.0	152°56.2	167°23.4	181°50.6	196°17.8	210°44.9	225°12.0	239°39.0	254°06.1	+27.2	16.6
	-9°35.8	-9°51.1	-10°06.4	-10°21.5	-10°36.6	-10°51.6	-11°06.6	-11°21.4	-11°36.2	-11°50.9	-12°05.5	-15.0	61.0
wo 20	110°46.6	125°13.0	139°39.3	154°05.6	168°31.9	182°58.1	197°24.3	211°50.5	226°16.6	240°42.6	255°08.7	+26.2	16.5
	-15°33.3	-15°46.3	-15°59.2	-16°12.0	-16°24.7	-16°37.2	-16°49.7	-17°02.0	-17°14.2	-17°26.3	-17°38.2	-12.5	60.4
do 21	111°34.7	126°00.1	140°25.5	154°50.9	169°16.3	183°41.6	198°07.0	212°32.2	226°57.5	241°22.7	255°48.0	+25.3	16.2
	-20°21.8	-20°31.6	-20°41.2	-20°50.7	-21°00.1	-21°09.3	-21°18.4	-21°27.3	-21°36.1	-21°44.7	-21°53.2	-9.1	59.5
vr 22	112°04.1	126°29.1	140°54.1	155°19.0	169°44.0	184°09.0	198°34.0	212°59.0	227°24.0	241°49.0	256°14.0	+25.0	16.0
	-23°41.8	-23°47.8	-23°53.6	-23°59.3	-24°04.8	-24°10.1	-24°15.3	-24°20.3	-24°25.2	-24°29.9	-24°34.4	-5.3	58.5
za 23	126°29.1	140°54.1	155°19.0	169°44.0	184°09.0	198°34.0	212°59.0	227°24.0	241°49.0	256°14.0	270°39.0	+25.0	15.9
	-23°47.8	-23°53.6	-23°59.3	-24°04.8	-24°10.1	-24°15.3	-24°20.3	-24°25.2	-24°29.9	-24°34.4	-24°38.8	-5.1	58.5
zo 24	126°56.3	141°21.7	155°47.1	170°12.5	184°38.0	199°03.5	213°29.0	227°54.6	242°20.2	256°45.9	271°11.6	+25.5	15.7
	-25°25.2	-25°27.1	-25°28.7	-25°30.2	-25°31.6	-25°32.8	-25°33.8	-25°34.7	-25°35.4	-25°36.0	-25°36.4	-1.1	57.5
◐ ma 25	127°43.7	142°10.3	156°37.0	171°03.7	185°30.6	199°57.4	214°24.4	228°51.4	243°18.5	257°45.7	272°12.9	+26.9	15.4
	-25°24.6	-25°22.6	-25°20.5	-25°18.3	-25°15.9	-25°13.3	-25°10.7	-25°07.9	-25°05.0	-25°01.9	-24°58.7	+2.6	56.6
di 26	129°10.7	143°39.2	158°07.8	172°36.4	187°05.2	201°34.0	216°02.9	230°31.9	245°01.0	259°30.1	273°59.4	+28.9	15.2
	-23°55.1	-23°49.8	-23°44.5	-23°39.0	-23°33.4	-23°27.7	-23°21.9	-23°16.0	-23°10.0	-23°03.8	-22°57.6	+5.8	55.8
wo 27	131°28.1	145°58.7	160°29.4	175°00.2	189°31.0	204°01.9	218°32.9	233°04.0	247°35.2	262°06.4	276°37.7	+31.0	15.0
	-21°11.3	-21°03.4	-20°55.4	-20°47.4	-20°39.2	-20°31.0	-20°22.7	-20°14.3	-20°05.8	-19°57.2	-19°48.5	+8.3	55.1
do 28	134°37.0	149°09.5	163°42.1	178°14.8	192°47.6	207°20.4	221°53.3	236°26.3	250°59.3	265°32.4	280°05.5	+32.9	14.9
	-17°29.2	-17°19.3	-17°09.4	-16°59.4	-16°49.3	-16°39.1	-16°28.9	-16°18.7	-16°08.3	-15°58.0	-15°47.5	+10.2	54.6
vr 29	138°30.4	153°04.6	167°38.7	182°12.9	196°47.2	211°21.5	225°55.9	240°30.3	255°04.8	269°39.3	284°13.9	+34.4	14.8
	-13°04.0	-12°52.7	-12°41.4	-12°30.0	-12°18.6	-12°07.1	-11°55.5	-11°44.0	-11°32.4	-11°20.7	-11°09.0	+11.5	54.2
za 30	142°57.4	157°32.6	172°07.8	186°43.1	201°18.3	215°53.7	230°29.0	245°04.4	259°39.8	274°15.2	288°50.6	+35.3	14.7
	-8°09.4	-7°57.2	-7°44.9	-7°32.6	-7°20.3	-7°08.0	-6°55.6	-6°43.3	-6°30.9	-6°18.4	-6°06.0	+12.3	54.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 3 23h47 — LK: 12 00h45 — NM: 18 18h23 — EK: 25 13h10

ZON

Oktober 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	182°35.3 -3°18.6	197°35.5 -3°19.6	212°35.7 -3°20.5	227°35.9 -3°21.5	242°36.1 -3°22.5	257°36.3 -3°23.4	92°38.9 -3°36.0	107°39.1 -3°37.0	122°39.3 -3°37.9	137°39.5 -3°38.9	152°39.7 -3°39.9	167°39.9 -3°40.9	+0.2 -1.0
ma 2	182°40.1 -3°41.8	197°40.3 -3°42.8	212°40.5 -3°43.8	227°40.7 -3°44.7	242°40.9 -3°45.7	257°41.1 -3°46.7	92°43.6 -3°59.2	107°43.8 -4°00.2	122°44.0 -4°01.1	137°44.2 -4°02.1	152°44.4 -4°03.1	167°44.6 -4°04.0	+0.2 -1.0
di 3	182°44.8 -4°05.0	197°45.0 -4°06.0	212°45.2 -4°06.9	227°45.4 -4°07.9	242°45.6 -4°08.9	257°45.8 -4°09.8	92°48.3 -4°22.4	107°48.5 -4°23.3	122°48.7 -4°24.3	137°48.9 -4°25.2	152°49.1 -4°26.2	167°49.3 -4°27.2	+0.2 -1.0
wo 4	182°49.5 -4°28.1	197°49.7 -4°29.1	212°49.9 -4°30.1	227°50.0 -4°31.0	242°50.2 -4°32.0	257°50.4 -4°32.9	92°52.9 -4°45.5	107°53.1 -4°46.4	122°53.3 -4°47.4	137°53.5 -4°48.3	152°53.7 -4°49.3	167°53.8 -4°50.3	+0.2 -1.0
do 5	182°54.0 -4°51.2	197°54.2 -4°52.2	212°54.4 -4°53.1	227°54.6 -4°54.1	242°54.8 -4°55.1	257°55.0 -4°56.0	92°57.4 -5°08.5	107°57.6 -5°09.4	122°57.8 -5°10.4	137°57.9 -5°11.4	152°58.1 -5°12.3	167°58.3 -5°13.3	+0.2 -1.0
vr 6	182°58.5 -5°14.2	197°58.7 -5°15.2	212°58.9 -5°16.2	227°59.0 -5°17.1	242°59.2 -5°18.1	257°59.4 -5°19.0	93°01.8 -5°31.5	108°02.0 -5°32.4	123°02.1 -5°33.4	138°02.3 -5°34.3	153°02.5 -5°35.3	168°02.7 -5°36.2	+0.2 -1.0
za 7	183°02.9 -5°37.2	198°03.0 -5°38.2	213°03.2 -5°39.1	228°03.4 -5°40.1	243°03.6 -5°41.0	258°03.8 -5°42.0	93°06.1 -5°54.4	108°06.2 -5°55.3	123°06.4 -5°56.3	138°06.6 -5°57.2	153°06.8 -5°58.2	168°06.9 -5°59.1	+0.2 -1.0
zo 8	183°07.1 -6°00.1	198°07.3 -6°01.0	213°07.5 -6°02.0	228°07.6 -6°02.9	243°07.8 -6°03.9	258°08.0 -6°04.8	93°10.2 -6°17.2	108°10.4 -6°18.2	123°10.6 -6°19.1	138°10.8 -6°20.1	153°10.9 -6°21.0	168°11.1 -6°22.0	+0.2 -1.0
ma 9	183°11.3 -6°22.9	198°11.4 -6°23.8	213°11.6 -6°24.8	228°11.8 -6°25.7	243°12.0 -6°26.7	258°12.1 -6°27.6	93°14.3 -6°40.0	108°14.5 -6°40.9	123°14.6 -6°41.8	138°14.8 -6°42.8	153°15.0 -6°43.7	168°15.1 -6°44.7	+0.2 -0.9
di 10	183°15.3 -6°45.6	198°15.5 -6°46.6	213°15.6 -6°47.5	228°15.8 -6°48.5	243°16.0 -6°49.4	258°16.1 -6°50.4	93°18.3 -7°02.6	108°18.4 -7°03.6	123°18.6 -7°04.5	138°18.7 -7°05.4	153°18.9 -7°06.4	168°19.1 -7°07.3	+0.2 -0.9
wo 11	183°19.2 -7°08.3	198°19.4 -7°09.2	213°19.5 -7°10.2	228°19.7 -7°11.1	243°19.9 -7°12.0	258°20.0 -7°13.0	93°22.1 -7°25.2	108°22.2 -7°26.1	123°22.4 -7°27.1	138°22.5 -7°28.0	153°22.7 -7°28.9	168°22.8 -7°29.9	+0.2 -0.9
do 12	183°23.0 -7°30.8	198°23.2 -7°31.8	213°23.3 -7°32.7	228°23.5 -7°33.6	243°23.6 -7°34.6	258°23.8 -7°35.5	93°25.8 -7°47.7	108°25.9 -7°48.6	123°26.1 -7°49.5	138°26.2 -7°50.5	153°26.4 -7°51.4	168°26.5 -7°52.3	+0.2 -0.9
vr 13	183°26.7 -7°53.3	198°26.8 -7°54.2	213°27.0 -7°55.1	228°27.1 -7°56.1	243°27.3 -7°57.0	258°27.4 -7°57.9	93°29.3 -8°10.0	108°29.4 -8°11.0	123°29.6 -8°11.9	138°29.7 -8°12.8	153°29.9 -8°13.7	168°30.0 -8°14.7	+0.1 -0.9
za 14	183°30.2 -8°15.6	198°30.3 -8°16.5	213°30.5 -8°17.5	228°30.6 -8°18.4	243°30.7 -8°19.3	258°30.9 -8°20.2	93°32.7 -8°32.3	108°32.9 -8°33.2	123°33.0 -8°34.1	138°33.1 -8°35.0	153°33.3 -8°36.0	168°33.4 -8°36.9	+0.1 -0.9
zo 15	183°33.5 -8°37.8	198°33.7 -8°38.7	213°33.8 -8°39.7	228°34.0 -8°40.6	243°34.1 -8°41.5	258°34.2 -8°42.4	93°36.0 -8°54.4	108°36.1 -8°55.3	123°36.2 -8°56.2	138°36.4 -8°57.2	153°36.5 -8°58.1	168°36.6 -8°59.0	+0.1 -0.9
ma 16	183°36.8 -8°59.9	198°36.9 -9°00.8	213°37.0 -9°01.8	228°37.2 -9°02.7	243°37.3 -9°03.6	258°37.4 -9°04.5	93°39.1 -9°16.4	108°39.2 -9°17.3	123°39.4 -9°18.2	138°39.5 -9°19.2	153°39.6 -9°20.1	168°39.7 -9°21.0	+0.1 -0.9
di 17	183°39.9 -9°21.9	198°40.0 -9°22.8	213°40.1 -9°23.7	228°40.2 -9°24.6	243°40.4 -9°25.5	258°40.5 -9°26.5	93°42.1 -9°38.3	108°42.2 -9°39.2	123°42.3 -9°40.1	138°42.4 -9°41.0	153°42.5 -9°41.9	168°42.7 -9°42.8	+0.1 -0.9
wo 18	183°42.8 -9°43.7	198°42.9 -9°44.6	213°43.0 -9°45.5	228°43.1 -9°46.5	243°43.3 -9°47.4	258°43.4 -9°48.3	93°44.9 -10°00.0	108°45.0 -10°00.9	123°45.1 -10°01.8	138°45.2 -10°02.7	153°45.3 -10°03.6	168°45.4 -10°04.5	+0.1 -0.9
do 19	183°45.6 -10°05.4	198°45.7 -10°06.3	213°45.8 -10°07.2	228°45.9 -10°08.1	243°46.0 -10°09.0	258°46.1 -10°09.9	93°47.5 -10°21.6	108°47.6 -10°22.5	123°47.8 -10°23.4	138°47.9 -10°24.3	153°48.0 -10°25.2	168°48.1 -10°26.1	+0.1 -0.9
vr 20	183°48.2 -10°27.0	198°48.3 -10°27.9	213°48.4 -10°28.8	228°48.5 -10°29.7	243°48.6 -10°30.6	258°48.7 -10°31.5	93°50.0 -10°43.0	108°50.1 -10°43.9	123°50.2 -10°44.8	138°50.3 -10°45.7	153°50.4 -10°46.6	168°50.5 -10°47.5	+0.1 -0.9
za 21	183°50.6 -10°48.4	198°50.7 -10°49.3	213°50.8 -10°50.1	228°50.9 -10°51.0	243°51.0 -10°51.9	258°51.1 -10°52.8	93°52.4 -11°04.3	108°52.5 -11°05.2	123°52.6 -11°06.1	138°52.7 -11°07.0	153°52.7 -11°07.8	168°52.8 -11°08.7	+0.1 -0.9
zo 22	183°52.9 -11°09.6	198°53.0 -11°10.5	213°53.1 -11°11.4	228°53.2 -11°12.2	243°53.3 -11°13.1	258°53.4 -11°14.0	93°54.5 -11°25.4	108°54.6 -11°26.3	123°54.7 -11°27.2	138°54.8 -11°28.0	153°54.9 -11°28.9	168°55.0 -11°29.8	+0.1 -0.9
ma 23	183°55.1 -11°30.7	198°55.1 -11°31.5	213°55.2 -11°32.4	228°55.3 -11°33.3	243°55.4 -11°34.2	258°55.5 -11°35.0	93°56.5 -11°46.4	108°56.6 -11°47.2	123°56.7 -11°48.1	138°56.8 -11°49.0	153°56.9 -11°49.8	168°56.9 -11°50.7	+0.1 -0.9
di 24	183°57.0 -11°51.6	198°57.1 -11°52.4	213°57.2 -11°53.3	228°57.3 -11°54.2	243°57.3 -11°55.0	258°57.4 -11°55.9	93°58.4 -12°07.1	108°58.4 -12°08.0	123°58.5 -12°08.8	138°58.6 -12°09.7	153°58.7 -12°10.5	168°58.7 -12°11.4	+0.1 -0.9
wo 25	183°58.8 -12°12.3	198°58.9 -12°13.1	213°58.9 -12°14.0	228°59.0 -12°14.8	243°59.1 -12°15.7	258°59.2 -12°16.6	94°00.0 -12°27.7	109°00.1 -12°28.5	124°00.2 -12°29.4	139°00.2 -12°30.2	154°00.3 -12°31.1	169°00.4 -12°31.9	+0.1 -0.9
do 26	184°00.4 -12°32.8	199°00.5 -12°33.6	214°00.5 -12°34.5	229°00.6 -12°35.3	244°00.7 -12°36.2	259°00.7 -12°37.0	94°01.5 -12°48.0	109°01.6 -12°48.9	124°01.6 -12°49.7	139°01.7 -12°50.6	154°01.7 -12°51.4	169°01.8 -12°52.3	+0.1 -0.9
vr 27	184°01.8 -12°53.1	199°01.9 -12°53.9	214°02.0 -12°54.8	229°02.0 -12°55.6	244°02.1 -12°56.5	259°02.1 -12°57.3	94°02.8 -13°08.2	109°02.9 -13°09.0	124°02.9 -13°09.9	139°03.0 -13°10.7	154°03.0 -13°11.6	169°03.1 -13°12.4	+0.1 -0.8
za 28	184°03.1 -13°13.2	199°03.1 -13°14.1	214°03.2 -13°14.9	229°03.2 -13°15.7	244°03.3 -13°16.6	259°03.3 -13°17.4	94°03.9 -13°28.2	109°04.0 -13°29.0	124°04.0 -13°29.8	139°04.0 -13°30.7	154°04.1 -13°31.5	169°04.1 -13°32.3	+0.0 -0.8
zo 29	184°04.2 -13°33.1	199°04.2 -13°34.0	214°04.2 -13°34.8	229°04.3 -13°35.6	244°04.3 -13°36.4	259°04.4 -13°37.3	94°04.8 -13°47.9	109°04.9 -13°48.7	124°04.9 -13°49.6	139°04.9 -13°50.4	154°05.0 -13°51.2	169°05.0 -13°52.0	+0.0 -0.8
ma 30	184°05.0 -13°52.8	199°05.1 -13°53.6	214°05.1 -13°54.5	229°05.1 -13°55.3	244°05.2 -13°56.1	259°05.2 -13°56.9	94°05.6 -14°07.5	109°05.6 -14°08.3	124°05.6 -14°09.1	139°05.6 -14°09.9	154°05.7 -14°10.7	169°05.7 -14°11.5	+0.0 -0.8
di 31	184°05.7 -14°12.3	199°05.7 -14°13.1	214°05.8 -14°13.9	229°05.8 -14°14.7	244°05.8 -14°15.5	259°05.8 -14°16.3	94°06.1 -14°26.8	109°06.1 -14°27.6	124°06.1 -14°28.4	139°06.2 -14°29.2	154°06.2 -14°30.0	169°06.2 -14°30.8	+0.0 -0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2028

D	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	Δ'/h	SD/HP
zo 1	60°10.6	74°46.3	89°21.9	103°57.6	118°33.3	133°09.0	147°44.7	162°20.4	176°56.1	191°31.9	206°07.6	+35.7	14.7
	-4°13.1	-4°00.5	-3°47.9	-3°35.2	-3°22.6	-3°09.9	-2°57.2	-2°44.5	-2°31.8	-2°19.1	-2°06.4	+12.7	53.9
ma 2	65°04.2	79°39.9	94°15.7	108°51.4	123°27.1	138°02.9	152°38.6	167°14.3	181°50.0	196°25.6	211°01.3	+35.7	14.7
	1°04.8	1°17.6	1°30.3	1°43.1	1°55.8	2°08.5	2°21.2	2°34.0	2°46.7	2°59.4	3°12.1	+12.7	53.9
○ di 3	69°54.0	84°29.3	99°04.6	113°39.8	128°15.1	142°50.3	157°25.5	172°00.6	186°35.7	201°10.8	215°45.8	+35.2	14.7
	6°20.7	6°33.1	6°45.6	6°57.9	7°10.3	7°22.6	7°35.0	7°47.2	7°59.5	8°11.7	8°23.9	+12.3	54.0
wo 4	74°26.8	89°01.2	103°35.5	118°09.8	132°44.0	147°18.2	161°52.4	176°26.5	191°00.5	205°34.5	220°08.4	+34.2	14.8
	11°23.1	11°34.7	11°46.3	11°57.9	12°09.4	12°20.9	12°32.3	12°43.6	12°55.0	13°06.3	13°17.5	+11.4	54.2
do 5	78°30.6	93°03.6	107°36.6	122°09.5	136°42.3	151°15.0	165°47.7	180°20.3	194°52.9	209°25.4	223°57.8	+32.7	14.9
	15°59.5	16°09.8	16°20.1	16°30.3	16°40.4	16°50.5	17°00.5	17°10.4	17°20.3	17°30.1	17°39.8	+10.0	54.5
vr 6	81°55.9	96°27.2	110°58.5	125°29.6	140°00.7	154°31.8	169°02.7	183°33.6	198°04.4	212°35.2	227°05.8	+31.0	15.0
	19°56.4	20°04.8	20°13.2	20°21.4	20°29.6	20°37.7	20°45.7	20°53.6	21°01.4	21°09.2	21°16.8	+8.0	54.8
za 7	84°37.3	99°06.9	113°36.3	128°05.7	142°35.1	157°04.3	171°33.5	186°02.7	200°31.7	215°00.7	229°29.6	+29.2	15.1
	22°59.2	23°05.1	23°11.0	23°16.8	23°22.4	23°27.9	23°33.4	23°38.7	23°43.9	23°48.9	23°53.9	+5.5	55.3
zo 8	86°36.3	101°04.2	115°32.2	130°00.0	144°27.9	158°55.6	173°23.4	187°51.0	202°18.7	216°46.3	231°13.8	+27.7	15.2
	24°53.5	24°56.5	24°59.3	25°02.0	25°04.6	25°07.0	25°09.3	25°11.5	25°13.5	25°15.4	25°17.2	+2.4	55.8
ma 9	88°02.1	102°29.1	116°56.0	131°22.9	145°49.8	160°16.6	174°43.5	189°10.3	203°37.1	218°03.8	232°30.6	+26.8	15.4
	25°27.0	25°26.6	25°25.9	25°25.2	25°24.3	25°23.2	25°22.0	25°20.7	25°19.2	25°17.6	25°15.8	-1.1	56.5
di 10	89°10.7	103°37.4	118°04.0	132°30.7	146°57.3	161°24.0	175°50.6	190°17.3	204°44.0	219°10.7	233°37.4	+26.7	15.6
	24°31.9	24°27.8	24°23.5	24°19.2	24°14.6	24°09.9	24°05.1	24°00.2	23°55.1	23°49.8	23°44.4	-4.7	57.2
◑ wo 11	90°19.8	104°46.7	119°13.8	133°40.8	148°07.8	162°34.9	177°02.0	191°29.2	205°56.3	220°23.5	234°50.7	+27.1	15.8
	22°06.5	21°58.9	21°51.1	21°43.2	21°35.2	21°27.0	21°18.7	21°10.3	21°01.7	20°53.0	20°44.2	-8.2	58.0
do 12	91°42.5	106°10.2	120°37.9	135°05.7	149°33.5	164°01.3	178°29.1	192°57.0	207°24.9	221°52.9	236°20.8	+27.8	16.0
	18°16.5	18°05.7	17°54.8	17°43.7	17°32.6	17°21.3	17°09.9	16°58.4	16°46.8	16°35.1	16°23.2	-11.3	58.8
vr 13	93°23.8	107°52.3	122°20.7	136°49.2	151°17.6	165°46.1	180°14.7	194°43.2	209°11.8	223°40.4	238°09.0	+28.5	16.3
	13°13.6	13°00.2	12°46.7	12°33.1	12°19.4	12°05.7	11°51.8	11°37.9	11°23.9	11°09.8	10°55.7	-13.8	59.6
za 14	95°19.9	109°48.7	124°17.5	138°46.3	153°15.1	167°44.0	182°12.8	196°41.6	211°10.5	225°39.3	240°08.1	+28.8	16.5
	7°14.9	6°59.7	6°44.4	6°29.1	6°13.8	5°58.3	5°42.9	5°27.4	5°11.8	4°56.2	4°40.6	-15.4	60.3
zo 15	97°19.8	111°48.5	126°17.2	140°45.8	155°14.4	169°43.0	184°11.6	198°40.2	213°08.7	227°37.2	242°05.7	+28.6	16.6
	0°42.3	0°26.2	0°10.1	-0°05.9	-0°22.0	-0°38.1	-0°54.2	-1°10.3	-1°26.4	-1°42.5	-1°58.6	-16.1	60.8
ma 16	99°09.4	113°37.4	128°05.3	142°33.2	157°01.0	171°28.8	185°56.6	200°24.3	214°51.9	229°19.6	243°47.1	+27.8	16.6
	-5°58.4	-6°14.2	-6°30.0	-6°45.7	-7°01.4	-7°17.0	-7°32.6	-7°48.2	-8°03.7	-8°19.2	-8°34.6	-15.6	61.0
di 17	100°34.7	115°01.5	129°28.2	143°54.8	158°21.4	172°47.9	187°14.4	201°40.8	216°07.2	230°33.5	244°59.7	+26.5	16.6
	-12°18.2	-12°32.5	-12°46.8	-13°00.9	-13°15.0	-13°29.0	-13°42.9	-13°56.7	-14°10.4	-14°24.0	-14°37.5	-13.9	60.9
● wo 18	101°26.6	115°52.0	130°17.3	144°42.5	159°07.7	173°32.8	187°57.9	202°23.0	216°47.9	231°12.9	245°37.8	+25.1	16.5
	-17°47.1	-17°58.8	-18°10.4	-18°21.8	-18°33.1	-18°44.3	-18°55.4	-19°06.3	-19°17.1	-19°27.7	-19°38.2	-11.1	60.4
do 19	101°46.0	116°10.2	130°34.5	144°58.7	159°22.8	173°47.0	188°11.1	202°35.2	216°59.3	231°23.3	245°47.3	+24.1	16.3
	-21°58.2	-22°06.3	-22°14.3	-22°22.1	-22°29.7	-22°37.2	-22°44.5	-22°51.7	-22°58.7	-23°05.5	-23°12.2	-7.4	59.7
vr 20	101°46.9	116°10.9	130°34.9	144°58.9	159°22.9	173°47.0	188°11.0	202°35.1	216°59.2	231°23.4	245°47.5	+24.1	16.0
	-24°32.3	-24°36.3	-24°40.2	-24°43.8	-24°47.3	-24°50.6	-24°53.8	-24°56.8	-24°59.6	-25°02.3	-25°04.7	-3.2	58.8
za 21	101°54.4	116°19.2	130°44.1	145°09.0	159°34.1	173°59.1	188°24.3	202°49.4	217°14.7	231°40.0	246°05.4	+25.1	15.8
	-25°22.1	-25°22.0	-25°21.7	-25°21.2	-25°20.6	-25°19.8	-25°18.9	-25°17.8	-25°16.6	-25°15.2	-25°13.7	+0.9	57.8
zo 22	102°35.4	117°02.0	131°28.8	145°55.6	160°22.5	174°49.5	189°16.6	203°43.8	218°11.1	232°38.4	247°05.9	+27.0	15.5
	-24°32.8	-24°28.9	-24°25.0	-24°20.8	-24°16.6	-24°12.2	-24°07.7	-24°03.0	-23°58.2	-23°53.3	-23°48.3	+4.5	56.8
ma 23	117°02.0	131°28.8	145°55.6	160°22.5	174°49.5	189°16.6	203°43.8	218°11.1	232°38.4	247°05.9	261°33.4	+27.1	15.5
	-24°28.9	-24°25.0	-24°20.8	-24°16.6	-24°12.2	-24°07.7	-24°03.0	-23°58.2	-23°53.3	-23°48.3	-23°43.2	+4.6	56.8
di 24	118°38.0	133°07.1	147°36.3	162°05.5	176°34.9	191°04.3	205°33.9	220°03.5	234°33.3	249°03.1	263°33.0	+29.5	15.3
	-22°11.7	-22°04.7	-21°57.6	-21°50.5	-21°43.2	-21°35.8	-21°28.3	-21°20.7	-21°13.0	-21°05.2	-20°57.3	+7.4	55.9
◐ wo 25	121°13.1	135°44.5	150°15.9	164°47.5	179°19.2	193°50.9	208°22.7	222°54.6	237°26.6	251°58.7	266°30.8	+31.8	15.1
	-18°48.5	-18°39.3	-18°30.0	-18°20.6	-18°11.1	-18°01.6	-17°52.0	-17°42.3	-17°32.6	-17°22.7	-17°12.8	+9.6	55.2
do 26	124°42.3	139°15.6	153°49.0	168°22.5	182°56.1	197°29.7	212°03.4	226°37.1	241°10.9	255°44.8	270°18.7	+33.6	14.9
	-14°37.1	-14°26.3	-14°15.4	-14°04.4	-13°53.4	-13°42.4	-13°31.3	-13°20.2	-13°09.0	-12°57.8	-12°46.5	+11.1	54.6
vr 27	128°54.1	143°28.8	158°03.7	172°38.5	187°13.4	201°48.3	216°23.3	230°58.3	245°33.3	260°08.4	274°43.5	+34.9	14.8
	-9°52.5	-9°40.7	-9°28.7	-9°16.8	-9°04.8	-8°52.8	-8°40.8	-8°28.7	-8°16.6	-8°04.5	-7°52.3	+12.0	54.3
za 28	133°34.0	148°09.5	162°45.1	177°20.7	191°56.3	206°32.0	221°07.6	235°43.3	250°19.0	264°54.7	279°30.4	+35.6	14.7
	-4°47.4	-4°35.0	-4°22.5	-4°10.0	-3°57.5	-3°44.9	-3°32.4	-3°19.8	-3°07.3	-2°54.7	-2°42.1	+12.5	54.1
zo 29	138°26.6	153°02.4	167°38.1	182°13.9	196°49.6	211°25.3	226°01.0	240°36.8	255°12.5	269°48.2	284°23.8	+35.7	14.7
	0°27.3	0°40.0	0°52.6	1°05.3	1°17.9	1°30.5	1°43.2	1°55.8	2°08.4	2°21.0	2°33.6	+12.6	54.0
ma 30	143°16.9	157°52.2	172°27.5	187°02.8	201°38.1	216°13.3	230°48.5	245°23.7	259°58.9	274°34.0	289°09.0	+35.2	14.8
	5°41.5	5°53.9	6°06.3	6°18.6	6°31.0	6°43.3	6°55.6	7°07.9	7°20.2	7°32.4	7°44.6	+12.3	54.1
di 31	147°50.3	162°24.7	176°59.1	191°33.4	206°07.6	220°41.8	235°16.0	249°50.0	264°24.1	278°58.1	293°32.0	+34.2	14.8
	10°44.3	10°56.0	11°07.6	11°19.3	11°30.9	11°42.4	11°53.9	12°05.4	12°16.8	12°28.2	12°39.5	+11.5	54.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 3 16h24 — LK: 11 11h56 — NM: 18 02h56 — EK: 25 04h53

ZON

November 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	184°06.2	199°06.2	214°06.2	229°06.3	244°06.3	259°06.3	94°06.4	109°06.5	124°06.5	139°06.5	154°06.5	169°06.5	+0.0
	-14°31.6	-14°32.4	-14°33.1	-14°33.9	-14°34.7	-14°35.5	-14°45.8	-14°46.6	-14°47.4	-14°48.2	-14°49.0	-14°49.8	-0.8
do 2	184°06.5	199°06.5	214°06.5	229°06.5	244°06.5	259°06.5	94°06.6	109°06.6	124°06.6	139°06.6	154°06.6	169°06.6	+0.0
	-14°50.6	-14°51.4	-14°52.1	-14°52.9	-14°53.7	-14°54.5	-15°04.7	-15°05.5	-15°06.2	-15°07.0	-15°07.8	-15°08.6	-0.8
vr 3	184°06.6	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.5	109°06.5	124°06.5	139°06.5	154°06.5	169°06.5	-0.0
	-15°09.3	-15°10.1	-15°10.9	-15°11.7	-15°12.4	-15°13.2	-15°23.3	-15°24.0	-15°24.8	-15°25.6	-15°26.3	-15°27.1	-0.8
za 4	184°06.5	199°06.5	214°06.4	229°06.4	244°06.4	259°06.4	94°06.2	109°06.2	124°06.2	139°06.2	154°06.2	169°06.2	-0.0
	-15°27.9	-15°28.6	-15°29.4	-15°30.2	-15°30.9	-15°31.7	-15°41.6	-15°42.4	-15°43.1	-15°43.9	-15°44.6	-15°45.4	-0.8
zo 5	184°06.1	199°06.1	214°06.1	229°06.1	244°06.1	259°06.0	94°05.8	109°05.7	124°05.7	139°05.7	154°05.7	169°05.6	-0.0
	-15°46.1	-15°46.9	-15°47.7	-15°48.4	-15°49.2	-15°49.9	-15°59.7	-16°00.4	-16°01.2	-16°01.9	-16°02.7	-16°03.4	-0.8
ma 6	184°05.6	199°05.6	214°05.5	229°05.5	244°05.5	259°05.5	94°05.1	109°05.0	124°05.0	139°05.0	154°04.9	169°04.9	-0.0
	-16°04.2	-16°04.9	-16°05.7	-16°06.4	-16°07.1	-16°07.9	-16°17.5	-16°18.2	-16°19.0	-16°19.7	-16°20.4	-16°21.2	-0.7
di 7	184°04.9	199°04.8	214°04.8	229°04.7	244°04.7	259°04.7	94°04.2	109°04.1	124°04.1	139°04.0	154°04.0	169°03.9	-0.0
	-16°21.9	-16°22.6	-16°23.4	-16°24.1	-16°24.8	-16°25.6	-16°35.0	-16°35.8	-16°36.5	-16°37.2	-16°37.9	-16°38.7	-0.7
wo 8	184°03.9	199°03.8	214°03.8	229°03.8	244°03.7	259°03.7	94°03.0	109°03.0	124°02.9	139°02.9	154°02.8	169°02.8	-0.0
	-16°39.4	-16°40.1	-16°40.8	-16°41.6	-16°42.3	-16°43.0	-16°52.3	-16°53.0	-16°53.7	-16°54.5	-16°55.2	-16°55.9	-0.7
do 9	184°02.7	199°02.7	214°02.6	229°02.6	244°02.5	259°02.4	94°01.7	109°01.6	124°01.6	139°01.5	154°01.4	169°01.4	-0.1
	-16°56.6	-16°57.3	-16°58.0	-16°58.7	-16°59.4	-17°00.1	-17°09.3	-17°10.0	-17°10.7	-17°11.4	-17°12.1	-17°12.8	-0.7
vr 10	184°01.3	199°01.3	214°01.2	229°01.1	244°01.1	259°01.0	94°00.1	109°00.1	124°00.0	138°59.9	153°59.9	168°59.8	-0.1
	-17°13.5	-17°14.2	-17°14.9	-17°15.6	-17°16.3	-17°17.0	-17°26.0	-17°26.7	-17°27.4	-17°28.1	-17°28.7	-17°29.4	-0.7
za 11	183°59.7	198°59.6	213°59.6	228°59.5	243°59.4	258°59.3	93°58.4	108°58.3	123°58.2	138°58.1	153°58.0	168°58.0	-0.1
	-17°30.1	-17°30.8	-17°31.5	-17°32.2	-17°32.9	-17°33.5	-17°42.4	-17°43.1	-17°43.7	-17°44.4	-17°45.1	-17°45.8	-0.7
zo 12	183°57.9	198°57.8	213°57.7	228°57.6	243°57.6	258°57.5	93°56.4	108°56.3	123°56.2	138°56.1	153°56.0	168°55.9	-0.1
	-17°46.4	-17°47.1	-17°47.8	-17°48.4	-17°49.1	-17°49.8	-17°58.5	-17°59.1	-17°59.8	-18°00.5	-18°01.1	-18°01.8	-0.7
ma 13	183°55.8	198°55.7	213°55.7	228°55.6	243°55.5	258°55.4	93°54.2	108°54.1	123°54.0	138°53.9	153°53.8	168°53.7	-0.1
	-18°02.4	-18°03.1	-18°03.8	-18°04.4	-18°05.1	-18°05.7	-18°14.2	-18°14.9	-18°15.5	-18°16.2	-18°16.8	-18°17.5	-0.7
di 14	183°53.6	198°53.5	213°53.4	228°53.3	243°53.2	258°53.1	93°51.7	108°51.6	123°51.5	138°51.4	153°51.3	168°51.2	-0.1
	-18°18.1	-18°18.8	-18°19.4	-18°20.1	-18°20.7	-18°21.4	-18°29.7	-18°30.3	-18°31.0	-18°31.6	-18°32.2	-18°32.9	-0.6
wo 15	183°51.1	198°51.0	213°50.9	228°50.8	243°50.7	258°50.6	93°49.1	108°49.0	123°48.9	138°48.8	153°48.6	168°48.5	-0.1
	-18°33.5	-18°34.1	-18°34.8	-18°35.4	-18°36.0	-18°36.7	-18°44.8	-18°45.4	-18°46.1	-18°46.7	-18°47.3	-18°47.9	-0.6
do 16	183°48.4	198°48.3	213°48.2	228°48.1	243°47.9	258°47.8	93°46.2	108°46.1	123°46.0	138°45.9	153°45.8	168°45.6	-0.1
	-18°48.5	-18°49.2	-18°49.8	-18°50.4	-18°51.0	-18°51.6	-18°59.6	-19°00.2	-19°00.8	-19°01.4	-19°02.0	-19°02.7	-0.6
vr 17	183°45.5	198°45.4	213°45.3	228°45.1	243°45.0	258°44.9	93°43.2	108°43.1	123°42.9	138°42.8	153°42.7	168°42.5	-0.1
	-19°03.3	-19°03.9	-19°04.5	-19°05.1	-19°05.7	-19°06.3	-19°14.1	-19°14.7	-19°15.3	-19°15.8	-19°16.4	-19°17.0	-0.6
za 18	183°42.4	198°42.3	213°42.1	228°42.0	243°41.9	258°41.7	93°39.9	108°39.8	123°39.6	138°39.5	153°39.4	168°39.2	-0.1
	-19°17.6	-19°18.2	-19°18.8	-19°19.4	-19°20.0	-19°20.6	-19°28.2	-19°28.8	-19°29.3	-19°29.9	-19°30.5	-19°31.1	-0.6
zo 19	183°39.1	198°38.9	213°38.8	228°38.7	243°38.5	258°38.4	93°36.5	108°36.3	123°36.2	138°36.0	153°35.9	168°35.7	-0.1
	-19°31.7	-19°32.2	-19°32.8	-19°33.4	-19°34.0	-19°34.5	-19°41.9	-19°42.5	-19°43.1	-19°43.6	-19°44.2	-19°44.8	-0.6
ma 20	183°35.6	198°35.4	213°35.3	228°35.1	243°35.0	258°34.8	93°32.8	108°32.6	123°32.5	138°32.3	153°32.2	168°32.0	-0.2
	-19°45.3	-19°45.9	-19°46.4	-19°47.0	-19°47.6	-19°48.1	-19°55.3	-19°55.9	-19°56.4	-19°57.0	-19°57.5	-19°58.1	-0.6
di 21	183°31.8	198°31.7	213°31.5	228°31.4	243°31.2	258°31.0	93°28.9	108°28.8	123°28.6	138°28.4	153°28.3	168°28.1	-0.2
	-19°58.6	-19°59.2	-19°59.7	-20°00.3	-20°00.8	-20°01.4	-20°08.4	-20°08.9	-20°09.4	-20°10.0	-20°10.5	-20°11.0	-0.5
wo 22	183°27.9	198°27.8	213°27.6	228°27.4	243°27.3	258°27.1	93°24.9	108°24.7	123°24.5	138°24.4	153°24.2	168°24.0	-0.2
	-20°11.6	-20°12.1	-20°12.6	-20°13.2	-20°13.7	-20°14.2	-20°21.0	-20°21.6	-20°22.1	-20°22.6	-20°23.1	-20°23.6	-0.5
do 23	183°23.8	198°23.7	213°23.5	228°23.3	243°23.1	258°23.0	93°20.6	108°20.4	123°20.3	138°20.1	153°19.9	168°19.7	-0.2
	-20°24.2	-20°24.7	-20°25.2	-20°25.7	-20°26.2	-20°26.7	-20°33.3	-20°33.8	-20°34.3	-20°34.8	-20°35.3	-20°35.8	-0.5
vr 24	183°19.5	198°19.4	213°19.2	228°19.0	243°18.8	258°18.6	93°16.2	108°16.0	123°15.8	138°15.6	153°15.4	168°15.2	-0.2
	-20°36.3	-20°36.8	-20°37.3	-20°37.8	-20°38.3	-20°38.8	-20°45.2	-20°45.7	-20°46.2	-20°46.7	-20°47.2	-20°47.7	-0.5
za 25	183°15.1	198°14.9	213°14.7	228°14.5	243°14.3	258°14.1	93°11.6	108°11.4	123°11.2	138°11.0	153°10.8	168°10.6	-0.2
	-20°48.2	-20°48.6	-20°49.1	-20°49.6	-20°50.1	-20°50.6	-20°56.8	-20°57.2	-20°57.7	-20°58.2	-20°58.6	-20°59.1	-0.5
zo 26	183°10.4	198°10.2	213°10.0	228°09.8	243°09.6	258°09.4	93°06.8	108°06.6	123°06.4	138°06.2	153°06.0	168°05.8	-0.2
	-20°59.6	-21°00.1	-21°00.5	-21°01.0	-21°01.5	-21°01.9	-21°07.9	-21°08.4	-21°08.8	-21°09.3	-21°09.7	-21°10.2	-0.5
ma 27	183°05.6	198°05.3	213°05.1	228°04.9	243°04.7	258°04.5	93°01.8	108°01.6	123°01.4	138°01.2	153°01.0	168°00.7	-0.2
	-21°10.6	-21°11.1	-21°11.5	-21°12.0	-21°12.4	-21°12.9	-21°18.6	-21°19.1	-21°19.5	-21°19.9	-21°20.4	-21°20.8	-0.5
di 28	183°00.5	198°00.3	213°00.1	227°59.9	242°59.7	257°59.5	92°56.7	107°56.4	122°56.2	137°56.0	152°55.8	167°55.6	-0.2
	-21°21.3	-21°21.7	-21°22.1	-21°22.6	-21°23.0	-21°23.4	-21°29.0	-21°29.4	-21°29.8	-21°30.2	-21°30.6	-21°31.1	-0.4
wo 29	182°55.3	197°55.1	212°54.9	227°54.7	242°54.5	257°54.2	92°51.3	107°51.1	122°50.9	137°50.7	152°50.4	167°50.2	-0.2
	-21°31.5	-21°31.9	-21°32.3	-21°32.7	-21°33.1	-21°33.6	-21°38.9	-21°39.3	-21°39.7	-21°40.1	-21°40.5	-21°40.9	-0.4
do 30	182°50.0	197°49.8	212°49.5	227°49.3	242°49.1	257°48.9	92°45.9	107°45.6	122°45.4	137°45.2	152°44.9	167°44.7	-0.2
	-21°41.3	-21°41.7	-21°42.1	-21°42.5	-21°42.9	-21°43.3	-21°48.4	-21°48.8	-21°49.2	-21°49.6	-21°49.9	-21°50.3	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2028

	D	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
	wo 1	64°34.8	79°08.2	93°41.4	108°14.7	122°47.8	137°20.9	151°54.0	166°26.9	180°59.8	195°32.7	210°05.4	+33.1	14.9
		14°19.4	14°30.2	14°41.0	14°51.7	15°02.4	15°13.0	15°23.5	15°34.0	15°44.5	15°54.8	16°05.1	+10.6	54.5
○	do 2	68°08.7	82°40.3	97°11.9	111°43.4	126°14.9	140°46.2	155°17.5	169°48.7	184°19.8	198°50.9	213°21.9	+31.3	15.0
		18°31.5	18°40.7	18°49.8	18°58.8	19°07.8	19°16.6	19°25.4	19°34.1	19°42.6	19°51.2	19°59.6	+8.8	54.9
	vr 3	70°57.8	85°27.6	99°57.4	114°27.0	128°56.6	143°26.2	157°55.6	172°25.0	186°54.3	201°23.6	215°52.7	+29.5	15.1
		21°54.7	22°01.6	22°08.4	22°15.1	22°21.6	22°28.1	22°34.5	22°40.7	22°46.8	22°52.9	22°58.8	+6.4	55.3
	za 4	73°02.5	87°30.6	101°58.7	116°26.8	130°54.8	145°22.7	159°50.6	174°18.4	188°46.2	203°13.9	217°41.6	+27.9	15.2
		24°13.4	24°17.4	24°21.3	24°25.0	24°28.6	24°32.1	24°35.5	24°38.7	24°41.8	24°44.8	24°47.6	+3.4	55.8
	zo 5	74°31.7	88°58.8	103°25.8	117°52.8	132°19.8	146°46.7	161°13.6	175°40.5	190°07.4	204°34.3	219°01.1	+26.9	15.3
		25°13.9	25°14.5	25°15.0	25°15.4	25°15.6	25°15.7	25°15.6	25°15.4	25°15.1	25°14.6	25°14.0	+0.0	56.3
	ma 6	75°42.6	90°09.3	104°36.0	119°02.8	133°29.6	147°56.3	162°23.1	176°49.9	191°16.7	205°43.5	220°10.3	+26.8	15.5
		24°47.2	24°44.3	24°41.2	24°38.0	24°34.6	24°31.1	24°27.5	24°23.7	24°19.8	24°15.7	24°11.5	-3.6	56.8
	di 7	76°55.0	91°22.2	105°49.4	120°16.6	134°43.9	149°11.2	163°38.6	178°05.9	192°33.4	207°00.8	221°28.3	+27.3	15.6
		22°51.5	22°45.0	22°38.5	22°31.8	22°25.0	22°18.0	22°10.9	22°03.7	21°56.3	21°48.8	21°41.2	-7.0	57.4
	wo 8	78°25.0	92°53.1	107°21.3	121°49.5	136°17.7	150°46.0	165°14.3	179°42.6	194°11.0	208°39.4	223°07.9	+28.3	15.8
		19°32.1	19°22.5	19°12.9	19°03.1	18°53.2	18°43.1	18°33.0	18°22.8	18°12.4	18°02.0	17°51.4	-10.1	57.9
◑	do 9	80°19.8	94°48.9	109°18.0	123°47.2	138°16.4	152°45.6	167°14.9	181°44.2	196°13.5	210°42.9	225°12.3	+29.3	16.0
		15°00.7	14°48.5	14°36.3	14°24.0	14°11.6	13°59.1	13°46.5	13°33.8	13°21.0	13°08.2	12°55.3	-12.5	58.5
	vr 10	82°36.5	97°06.3	111°36.1	126°06.0	140°35.8	155°05.7	169°35.6	184°05.4	198°35.4	213°05.3	227°35.2	+29.9	16.1
		9°32.7	9°18.6	9°04.5	8°50.3	8°36.1	8°21.8	8°07.5	7°53.1	7°38.6	7°24.1	7°09.6	-14.3	59.1
	za 11	85°04.8	99°34.7	114°04.7	128°34.6	143°04.6	157°34.5	172°04.4	186°34.3	201°04.2	215°34.1	230°04.0	+29.9	16.3
		3°26.2	3°11.0	2°55.8	2°40.6	2°25.4	2°10.1	1°54.8	1°39.5	1°24.1	1°08.8	0°53.4	-15.3	59.6
	zo 12	87°29.4	101°58.8	116°28.3	130°57.7	145°27.0	159°56.4	174°25.6	188°54.9	203°24.1	217°53.3	232°22.4	+29.3	16.4
		-2°58.0	-3°13.5	-3°28.9	-3°44.3	-3°59.6	-4°15.0	-4°30.4	-4°45.7	-5°01.0	-5°16.3	-5°31.6	-15.4	60.0
	ma 13	89°33.6	104°01.9	118°30.2	132°58.4	147°26.5	161°54.6	176°22.7	190°50.6	205°18.5	219°46.4	234°14.2	+28.1	16.4
		-9°16.8	-9°31.5	-9°46.1	-10°00.6	-10°15.2	-10°29.6	-10°44.0	-10°58.3	-11°12.6	-11°26.8	-11°41.0	-14.4	60.2
	di 14	91°02.9	105°29.7	119°56.3	134°22.9	148°49.4	163°15.8	177°42.1	192°08.4	206°34.7	221°00.8	235°26.9	+26.4	16.4
		-15°04.0	-15°16.8	-15°29.6	-15°42.2	-15°54.8	-16°07.2	-16°19.5	-16°31.8	-16°43.9	-16°55.9	-17°07.9	-12.4	60.2
	wo 15	91°49.9	106°15.0	120°39.9	135°04.8	149°29.7	163°54.4	178°19.2	192°43.8	207°08.4	221°33.0	235°57.5	+24.7	16.3
		-19°52.3	-20°02.2	-20°12.0	-20°21.7	-20°31.2	-20°40.6	-20°49.8	-20°58.9	-21°07.9	-21°16.7	-21°25.3	-9.3	59.9
●	do 16	91°59.5	106°23.4	120°47.2	135°11.0	149°34.7	163°58.5	178°22.2	192°45.9	207°09.6	221°33.3	235°56.9	+23.7	16.2
		-23°16.9	-23°23.0	-23°29.0	-23°34.9	-23°40.5	-23°46.0	-23°51.4	-23°56.5	-24°01.5	-24°06.4	-24°11.1	-5.4	59.4
	vr 17	91°51.7	106°15.4	120°39.2	135°02.9	149°26.7	163°50.6	178°14.5	192°38.4	207°02.3	221°26.3	235°50.3	+23.9	16.0
		-25°00.8	-25°02.7	-25°04.5	-25°06.1	-25°07.6	-25°08.9	-25°10.0	-25°10.9	-25°11.7	-25°12.3	-25°12.7	-1.2	58.7
	za 18	91°56.5	106°21.4	120°46.4	135°11.4	149°36.5	164°01.7	178°27.0	192°52.3	207°17.8	221°43.3	236°08.8	+25.2	15.8
		-24°59.7	-24°57.6	-24°55.3	-24°52.8	-24°50.2	-24°47.5	-24°44.6	-24°41.5	-24°38.3	-24°35.0	-24°31.5	+2.8	57.8
	zo 19	92°43.1	107°10.1	121°37.2	136°04.4	150°31.8	164°59.2	179°26.7	193°54.3	208°22.0	222°49.8	237°17.8	+27.5	15.5
		-23°22.4	-23°16.7	-23°10.9	-23°05.0	-22°59.0	-22°52.8	-22°46.5	-22°40.1	-22°33.6	-22°27.0	-22°20.3	+6.2	56.9
	ma 20	94°28.7	108°58.2	123°27.8	137°57.6	152°27.4	166°57.3	181°27.4	195°57.5	210°27.8	224°58.1	239°28.5	+30.0	15.3
		-20°26.3	-20°17.9	-20°09.4	-20°00.8	-19°52.2	-19°43.4	-19°34.6	-19°25.7	-19°16.6	-19°07.6	-18°58.4	+8.8	56.1
	di 21	97°16.2	111°48.1	126°20.1	140°52.2	155°24.3	169°56.6	184°28.9	199°01.3	213°33.8	228°06.4	242°39.0	+32.3	15.1
		-16°31.7	-16°21.4	-16°11.0	-16°00.5	-15°50.0	-15°39.4	-15°28.8	-15°18.1	-15°07.4	-14°56.6	-14°45.7	+10.6	55.4
	wo 22	111°48.1	126°20.1	140°52.2	155°24.3	169°56.6	184°28.9	199°01.3	213°33.8	228°06.4	242°39.0	257°11.8	+32.4	15.1
		-16°21.4	-16°11.0	-16°00.5	-15°50.0	-15°39.4	-15°28.8	-15°18.1	-15°07.4	-14°56.6	-14°45.7	-14°34.8	+10.7	55.3
	do 23	115°31.5	130°05.3	144°39.3	159°13.2	173°47.3	188°21.4	202°55.5	217°29.8	232°04.0	246°38.4	261°12.7	+34.1	14.9
		-11°45.5	-11°33.9	-11°22.3	-11°10.6	-10°58.8	-10°47.0	-10°35.2	-10°23.4	-10°11.5	-9°59.6	-9°47.7	+11.8	54.8
◐	vr 24	119°54.2	134°29.3	149°04.5	163°39.7	178°14.9	192°50.1	207°25.4	222°00.7	236°36.0	251°11.4	265°46.8	+35.3	14.8
		-6°45.5	-6°33.2	-6°20.8	-6°08.5	-5°56.1	-5°43.7	-5°31.3	-5°18.8	-5°06.4	-4°53.9	-4°41.5	+12.4	54.4
	za 25	124°40.2	139°15.8	153°51.5	168°27.2	183°02.9	197°38.7	212°14.4	226°50.1	241°25.8	256°01.6	270°37.3	+35.7	14.8
		-1°33.3	-1°20.7	-1°08.1	-0°55.5	-0°42.9	-0°30.3	-0°17.6	-0°05.0	0°07.6	0°20.2	0°32.8	+12.6	54.1
	zo 26	129°32.6	144°08.2	158°43.8	173°19.4	187°55.0	202°30.5	217°06.0	231°41.5	246°17.0	260°52.4	275°27.8	+35.5	14.8
		3°41.0	3°53.5	4°05.9	4°18.4	4°30.8	4°43.3	4°55.7	5°08.1	5°20.4	5°32.8	5°45.1	+12.4	54.1
	ma 27	134°15.5	148°50.4	163°25.2	178°00.1	192°34.8	207°09.5	221°44.2	236°18.9	250°53.4	265°28.0	280°02.5	+34.7	14.8
		8°47.6	8°59.5	9°11.4	9°23.3	9°35.2	9°47.0	9°58.8	10°10.6	10°22.3	10°34.0	10°45.7	+11.8	54.3
	di 28	138°33.5	153°07.1	167°40.6	182°14.1	196°47.5	211°20.9	225°54.2	240°27.4	255°00.5	269°33.6	284°06.6	+33.3	14.9
		13°35.8	13°46.8	13°57.7	14°08.6	14°19.4	14°30.2	14°40.9	14°51.6	15°02.2	15°12.7	15°23.2	+10.7	54.6
	wo 29	142°13.3	156°45.2	171°16.9	185°48.6	200°20.3	214°51.8	229°23.3	243°54.6	258°25.9	272°57.2	287°28.3	+31.5	15.0
		17°53.2	18°02.6	18°12.0	18°21.3	18°30.5	18°39.7	18°48.8	18°57.8	19°06.7	19°15.5	19°24.3	+9.1	55.0
	do 30	145°05.7	159°35.6	174°05.3	188°35.0	203°04.6	217°34.2	232°03.6	246°33.0	261°02.3	275°31.5	290°00.6	+29.5	15.1
		21°24.9	21°32.2	21°39.4	21°46.5	21°53.5	22°00.4	22°07.1	22°13.8	22°20.4	22°26.8	22°33.2	+6.8	55.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 2 09h17 — LK: 9 21h25 — NM: 16 13h18 — EK: 24 00h14

ZON

December 2028

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	182°44.5 -21°50.7	197°44.2 -21°51.1	212°44.0 -21°51.5	227°43.8 -21°51.9	242°43.5 -21°52.2	257°43.3 -21°52.6	92°40.2 -21°57.5	107°40.0 -21°57.9	122°39.7 -21°58.2	137°39.5 -21°58.6	152°39.3 -21°59.0	167°39.0 -21°59.3	-0.2 -0.4
za 2	182°38.8 -21°59.7	197°38.6 -22°00.1	212°38.3 -22°00.4	227°38.1 -22°00.8	242°37.8 -22°01.2	257°37.6 -22°01.5	92°34.4 -22°06.2	107°34.2 -22°06.5	122°33.9 -22°06.9	137°33.7 -22°07.2	152°33.4 -22°07.6	167°33.2 -22°07.9	-0.2 -0.4
zo 3	182°33.0 -22°08.3	197°32.7 -22°08.6	212°32.5 -22°09.0	227°32.2 -22°09.3	242°32.0 -22°09.7	257°31.7 -22°10.0	92°28.5 -22°14.4	107°28.2 -22°14.7	122°28.0 -22°15.1	137°27.7 -22°15.4	152°27.5 -22°15.7	167°27.2 -22°16.1	-0.2 -0.3
ma 4	182°27.0 -22°16.4	197°26.7 -22°16.7	212°26.5 -22°17.1	227°26.2 -22°17.4	242°26.0 -22°17.7	257°25.7 -22°18.0	92°22.4 -22°22.2	107°22.1 -22°22.5	122°21.9 -22°22.9	137°21.6 -22°23.2	152°21.4 -22°23.5	167°21.1 -22°23.8	-0.3 -0.3
di 5	182°20.8 -22°24.1	197°20.6 -22°24.4	212°20.3 -22°24.7	227°20.1 -22°25.1	242°19.8 -22°25.4	257°19.6 -22°25.7	92°16.2 -22°29.6	107°15.9 -22°29.9	122°15.6 -22°30.2	137°15.4 -22°30.5	152°15.1 -22°30.8	167°14.8 -22°31.1	-0.3 -0.3
wo 6	182°14.6 -22°31.4	197°14.3 -22°31.7	212°14.1 -22°32.0	227°13.8 -22°32.3	242°13.5 -22°32.6	257°13.3 -22°32.9	92°09.8 -22°36.6	107°09.5 -22°36.8	122°09.3 -22°37.1	137°09.0 -22°37.4	152°08.7 -22°37.7	167°08.5 -22°38.0	-0.3 -0.3
do 7	182°08.2 -22°38.2	197°07.9 -22°38.5	212°07.6 -22°38.8	227°07.4 -22°39.1	242°07.1 -22°39.3	257°06.8 -22°39.6	92°03.3 -22°43.1	107°03.0 -22°43.3	122°02.8 -22°43.6	137°02.5 -22°43.8	152°02.2 -22°44.1	167°01.9 -22°44.4	-0.3 -0.3
vr 8	182°01.7 -22°44.6	197°01.4 -22°44.9	212°01.1 -22°45.1	227°00.8 -22°45.4	242°00.6 -22°45.6	257°00.3 -22°45.9	91°56.7 -22°49.1	106°56.4 -22°49.4	121°56.1 -22°49.6	136°55.8 -22°49.9	151°55.6 -22°50.1	166°55.3 -22°50.3	-0.3 -0.3
za 9	181°55.0 -22°50.6	196°54.7 -22°50.8	211°54.4 -22°51.0	226°54.2 -22°51.3	241°53.9 -22°51.5	256°53.6 -22°51.8	91°49.9 -22°54.7	106°49.7 -22°55.0	121°49.4 -22°55.2	136°49.1 -22°55.4	151°48.8 -22°55.6	166°48.5 -22°55.8	-0.3 -0.2
zo 10	181°48.2 -22°56.1	196°48.0 -22°56.3	211°47.7 -22°56.5	226°47.4 -22°56.7	241°47.1 -22°56.9	256°46.8 -22°57.2	91°43.1 -22°59.9	106°42.8 -23°00.1	121°42.5 -23°00.3	136°42.2 -23°00.5	151°41.9 -23°00.7	166°41.7 -23°00.9	-0.3 -0.2
ma 11	181°41.4 -23°01.1	196°41.1 -23°01.3	211°40.8 -23°01.5	226°40.5 -23°01.7	241°40.2 -23°01.9	256°39.9 -23°02.1	91°36.1 -23°04.6	106°35.9 -23°04.8	121°35.6 -23°05.0	136°35.3 -23°05.2	151°35.0 -23°05.3	166°34.7 -23°05.5	-0.3 -0.2
di 12	181°34.4 -23°05.7	196°34.1 -23°05.9	211°33.8 -23°06.1	226°33.5 -23°06.2	241°33.2 -23°06.4	256°32.9 -23°06.6	91°29.1 -23°08.8	106°28.8 -23°09.0	121°28.5 -23°09.2	136°28.2 -23°09.3	151°27.9 -23°09.5	166°27.6 -23°09.7	-0.3 -0.2
wo 13	181°27.3 -23°09.8	196°27.0 -23°10.0	211°26.7 -23°10.2	226°26.4 -23°10.3	241°26.1 -23°10.5	256°25.9 -23°10.6	91°22.0 -23°12.6	106°21.7 -23°12.8	121°21.4 -23°12.9	136°21.1 -23°13.1	151°20.8 -23°13.2	166°20.5 -23°13.4	-0.3 -0.2
do 14	181°20.2 -23°13.5	196°19.9 -23°13.6	211°19.6 -23°13.8	226°19.3 -23°13.9	241°19.0 -23°14.1	256°18.7 -23°14.2	91°14.8 -23°15.9	106°14.5 -23°16.1	121°14.2 -23°16.2	136°13.9 -23°16.3	151°13.6 -23°16.5	166°13.3 -23°16.6	-0.3 -0.1
vr 15	181°13.0 -23°16.7	196°12.7 -23°16.8	211°12.4 -23°16.9	226°12.1 -23°17.1	241°11.8 -23°17.2	256°11.5 -23°17.3	91°07.5 -23°18.8	106°07.2 -23°18.9	121°06.9 -23°19.0	136°06.6 -23°19.1	151°06.3 -23°19.2	166°06.0 -23°19.3	-0.3 -0.1
za 16	181°05.7 -23°19.4	196°05.4 -23°19.5	211°05.1 -23°19.6	226°04.8 -23°19.8	241°04.5 -23°19.9	256°04.2 -23°20.0	91°00.2 -23°21.2	105°59.9 -23°21.3	120°59.6 -23°21.4	135°59.3 -23°21.5	150°59.0 -23°21.5	165°58.7 -23°21.6	-0.3 -0.1
zo 17	180°58.3 -23°21.7	195°58.0 -23°21.8	210°57.7 -23°21.9	225°57.4 -23°22.0	240°57.1 -23°22.0	255°56.8 -23°22.1	90°52.8 -23°23.1	105°52.5 -23°23.2	120°52.2 -23°23.3	135°51.9 -23°23.3	150°51.6 -23°23.4	165°51.3 -23°23.5	-0.3 -0.1
ma 18	180°51.0 -23°23.5	195°50.7 -23°23.6	210°50.4 -23°23.7	225°50.0 -23°23.7	240°49.7 -23°23.8	255°49.4 -23°23.8	90°45.4 -23°24.6	105°45.1 -23°24.6	120°44.8 -23°24.7	135°44.5 -23°24.7	150°44.2 -23°24.8	165°43.9 -23°24.8	-0.3 -0.1
di 19	180°43.6 -23°24.9	195°43.2 -23°24.9	210°42.9 -23°25.0	225°42.6 -23°25.0	240°42.3 -23°25.0	255°42.0 -23°25.1	90°38.0 -23°25.6	105°37.7 -23°25.6	120°37.4 -23°25.6	135°37.0 -23°25.6	150°36.7 -23°25.7	165°36.4 -23°25.7	-0.3 -0.0
wo 20	180°36.1 -23°25.7	195°35.8 -23°25.8	210°35.5 -23°25.8	225°35.2 -23°25.8	240°34.9 -23°25.8	255°34.6 -23°25.8	90°30.5 -23°26.1	105°30.2 -23°26.1	120°29.9 -23°26.1	135°29.6 -23°26.1	150°29.3 -23°26.1	165°29.0 -23°26.1	-0.3 -0.0
do 21	180°28.6 -23°26.1	195°28.3 -23°26.1	210°28.0 -23°26.1	225°27.7 -23°26.1	240°27.4 -23°26.1	255°27.1 -23°26.1	90°23.0 -23°26.1	105°22.7 -23°26.1	120°22.4 -23°26.1	135°22.1 -23°26.1	150°21.8 -23°26.1	165°21.5 -23°26.1	-0.3 -0.0
vr 22	180°21.2 -23°26.1	195°20.9 -23°26.0	210°20.6 -23°26.0	225°20.2 -23°26.0	240°19.9 -23°26.0	255°19.6 -23°26.0	90°15.6 -23°25.7	105°15.3 -23°25.7	120°15.0 -23°25.6	135°14.7 -23°25.6	150°14.3 -23°25.6	165°14.0 -23°25.5	-0.3 +0.0
za 23	180°13.7 -23°25.5	195°13.4 -23°25.5	210°13.1 -23°25.4	225°12.8 -23°25.4	240°12.5 -23°25.4	255°12.2 -23°25.3	90°08.1 -23°24.8	105°07.8 -23°24.7	120°07.5 -23°24.7	135°07.2 -23°24.6	150°06.9 -23°24.6	165°06.6 -23°24.5	-0.3 +0.0
zo 24	180°06.3 -23°24.5	195°06.0 -23°24.4	210°05.6 -23°24.4	225°05.3 -23°24.3	240°05.0 -23°24.3	255°04.7 -23°24.2	90°00.7 -23°23.4	105°00.4 -23°23.4	120°00.1 -23°23.3	134°59.8 -23°23.2	149°59.4 -23°23.2	164°59.1 -23°23.1	-0.3 +0.1
ma 25	179°58.8 -23°23.0	194°58.5 -23°22.9	209°58.2 -23°22.9	224°57.9 -23°22.8	239°57.6 -23°22.7	254°57.3 -23°22.6	89°53.3 -23°21.6	104°53.0 -23°21.5	119°52.6 -23°21.4	134°52.3 -23°21.3	149°52.0 -23°21.2	164°51.7 -23°21.1	-0.3 +0.1
di 26	179°51.4 -23°21.1	194°51.1 -23°21.0	209°50.8 -23°20.9	224°50.5 -23°20.8	239°50.2 -23°20.7	254°49.9 -23°20.6	89°45.9 -23°19.3	104°45.6 -23°19.2	119°45.3 -23°19.1	134°45.0 -23°19.0	149°44.7 -23°18.9	164°44.3 -23°18.7	-0.3 +0.1
wo 27	179°44.0 -23°18.6	194°43.7 -23°18.5	209°43.4 -23°18.4	224°43.1 -23°18.3	239°42.8 -23°18.2	254°42.5 -23°18.1	89°38.5 -23°16.5	104°38.2 -23°16.4	119°37.9 -23°16.4	134°37.6 -23°16.1	149°37.3 -23°16.0	164°37.0 -23°15.9	-0.3 +0.1
do 28	179°36.7 -23°15.7	194°36.4 -23°15.6	209°36.1 -23°15.5	224°35.8 -23°15.4	239°35.5 -23°15.2	254°35.2 -23°15.1	89°31.2 -23°13.3	104°30.9 -23°13.1	119°30.6 -23°13.0	134°30.3 -23°12.8	149°30.0 -23°12.7	164°29.7 -23°12.5	-0.3 +0.1
vr 29	179°29.4 -23°12.4	194°29.1 -23°12.2	209°28.8 -23°12.1	224°28.5 -23°11.9	239°28.2 -23°11.8	254°27.9 -23°11.6	89°24.0 -23°09.6	104°23.7 -23°09.4	119°23.4 -23°09.2	134°23.1 -23°09.1	149°22.8 -23°08.9	164°22.5 -23°08.7	-0.3 +0.1
za 30	179°22.2 -23°08.6	194°21.9 -23°08.4	209°21.6 -23°08.2	224°21.3 -23°08.1	239°21.0 -23°07.9	254°20.7 -23°07.7	89°16.8 -23°05.4	104°16.5 -23°05.2	119°16.2 -23°05.0	134°15.9 -23°04.9	149°15.6 -23°04.7	164°15.3 -23°04.5	-0.3 +0.2
zo 31	179°15.1 -23°04.3	194°14.8 -23°04.1	209°14.5 -23°03.9	224°14.2 -23°03.7	239°13.9 -23°03.5	254°13.6 -23°03.3	89°09.7 -23°00.8	104°09.4 -23°00.6	119°09.1 -23°00.4	134°08.8 -23°00.2	149°08.6 -23°00.0	164°08.3 -22°59.8	-0.3 +0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2028

	D	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	SD/HP
	vr 1	74°47.7	89°16.0	103°44.2	118°12.4	132°40.4	147°08.5	161°36.4	176°04.3	190°32.1	204°59.9	219°27.5	+28.0	15.2
		23°30.4	23°35.5	23°40.5	23°45.3	23°50.0	23°54.6	23°59.1	24°03.5	24°07.7	24°11.8	24°15.7	+4.5	55.9
○	za 2	76°15.8	90°42.6	105°09.3	119°36.0	134°02.7	148°29.3	162°55.9	177°22.5	191°49.0	206°15.5	220°41.9	+26.6	15.4
		24°59.2	25°01.0	25°02.7	25°04.2	25°05.5	25°06.8	25°07.9	25°08.8	25°09.6	25°10.3	25°10.8	+1.2	56.5
	zo 3	77°15.7	91°41.9	106°08.0	120°34.1	135°00.2	149°26.3	163°52.5	178°18.6	192°44.7	207°10.8	221°36.9	+26.1	15.5
		25°00.9	24°59.0	24°57.1	24°54.9	24°52.6	24°50.2	24°47.6	24°44.9	24°42.0	24°38.9	24°35.8	-2.5	57.0
	ma 4	78°10.5	92°36.9	107°03.3	121°29.8	135°56.3	150°22.8	164°49.4	179°16.0	193°42.6	208°09.3	222°36.0	+26.5	15.7
		23°30.5	23°25.0	23°19.3	23°13.5	23°07.6	23°01.5	22°55.3	22°49.0	22°42.5	22°35.9	22°29.1	-6.1	57.5
	di 5	79°21.6	93°49.0	108°16.5	122°44.0	137°11.5	151°39.1	166°06.8	180°34.5	195°02.3	209°30.1	223°57.9	+27.6	15.8
		20°32.0	20°23.2	20°14.2	20°05.2	19°56.0	19°46.7	19°37.3	19°27.7	19°18.1	19°08.3	18°58.5	-9.4	58.0
	wo 6	81°02.2	95°30.9	109°59.6	124°28.4	138°57.3	153°26.2	167°55.1	182°24.1	196°53.2	211°22.3	225°51.4	+28.9	15.9
		16°17.5	16°06.0	15°54.4	15°42.6	15°30.8	15°18.9	15°06.9	14°54.9	14°42.7	14°30.5	14°18.1	-11.9	58.4
	do 7	83°13.9	97°43.7	112°13.6	126°43.5	141°13.4	155°43.4	170°13.4	184°43.4	199°13.5	213°43.6	228°13.7	+30.0	16.0
		11°04.0	10°50.5	10°37.0	10°23.3	10°09.7	9°55.9	9°42.1	9°28.3	9°14.4	9°00.4	8°46.4	-13.8	58.7
	vr 8	85°48.7	100°19.2	114°49.7	129°20.2	143°50.7	158°21.2	172°51.8	187°22.3	201°52.9	216°23.4	230°54.0	+30.5	16.1
		5°10.8	4°56.1	4°41.4	4°26.7	4°11.9	3°57.2	3°42.3	3°27.5	3°12.7	2°57.8	2°42.9	-14.8	59.0
◑	za 9	88°32.2	103°02.7	117°33.1	132°03.6	146°34.0	161°04.4	175°34.8	190°05.2	204°35.5	219°05.9	233°36.2	+30.4	16.1
		-1°02.1	-1°17.1	-1°32.2	-1°47.2	-2°02.2	-2°17.2	-2°32.2	-2°47.2	-3°02.2	-3°17.2	-3°32.2	-15.0	59.2
	zo 10	91°07.2	105°36.9	120°06.7	134°36.4	149°06.0	163°35.6	178°05.2	192°34.7	207°04.1	221°33.5	236°02.9	+29.6	16.2
		-7°14.1	-7°28.6	-7°43.1	-7°57.6	-8°12.0	-8°26.4	-8°40.8	-8°55.1	-9°09.4	-9°23.6	-9°37.7	-14.4	59.3
	ma 11	93°16.7	107°45.1	122°13.5	136°41.9	151°10.1	165°38.3	180°06.4	194°34.5	209°02.5	223°30.4	237°58.3	+28.2	16.2
		-13°03.3	-13°16.5	-13°29.6	-13°42.6	-13°55.5	-14°08.4	-14°21.2	-14°33.9	-14°46.5	-14°59.0	-15°11.5	-12.8	59.4
	di 12	94°47.8	109°14.6	123°41.3	138°07.9	152°34.4	167°00.9	181°27.3	195°53.6	210°19.9	224°46.1	239°12.2	+26.4	16.2
		-18°06.7	-18°17.6	-18°28.3	-18°38.9	-18°49.4	-18°59.8	-19°10.1	-19°20.3	-19°30.3	-19°40.2	-19°50.0	-10.3	59.2
	wo 13	95°36.4	110°01.6	124°26.7	138°51.7	153°16.7	167°41.6	182°06.5	196°31.3	210°56.1	225°20.8	239°45.5	+24.9	16.1
		-22°01.1	-22°08.8	-22°16.3	-22°23.6	-22°30.8	-22°37.9	-22°44.8	-22°51.5	-22°58.1	-23°04.6	-23°10.9	-7.0	59.0
	do 14	95°51.8	110°16.0	124°40.2	139°04.3	153°28.5	167°52.7	182°16.8	196°41.0	211°05.1	225°29.3	239°53.4	+24.2	16.0
		-24°26.6	-24°30.4	-24°34.0	-24°37.4	-24°40.7	-24°43.8	-24°46.8	-24°49.5	-24°52.2	-24°54.6	-24°56.9	-3.0	58.6
	vr 15	95°57.0	110°21.4	124°45.9	139°10.4	153°34.9	167°59.5	182°24.1	196°48.8	211°13.5	225°38.2	240°03.0	+24.6	15.8
		-25°11.5	-25°11.2	-25°10.7	-25°10.0	-25°09.2	-25°08.2	-25°07.1	-25°05.8	-25°04.3	-25°02.7	-25°00.9	+1.1	58.0
●	za 16	96°22.3	110°48.1	125°14.0	139°40.0	154°06.1	168°32.2	182°58.4	197°24.7	211°51.1	226°17.6	240°44.2	+26.2	15.6
		-24°16.0	-24°11.8	-24°07.5	-24°03.1	-23°58.5	-23°53.7	-23°48.9	-23°43.9	-23°38.7	-23°33.4	-23°28.0	+4.8	57.4
	zo 17	97°33.3	112°01.3	126°29.4	140°57.6	155°25.9	169°54.3	184°22.8	198°51.4	213°20.1	227°48.9	242°17.8	+28.5	15.5
		-21°51.9	-21°44.5	-21°37.0	-21°29.5	-21°21.8	-21°14.0	-21°06.1	-20°58.1	-20°50.0	-20°41.8	-20°33.5	+7.8	56.7
	ma 18	99°42.8	114°13.3	128°43.8	143°14.4	157°45.1	172°15.9	186°46.8	201°17.8	215°48.9	230°20.1	244°51.3	+30.9	15.3
		-18°17.9	-18°08.1	-17°58.3	-17°48.5	-17°38.5	-17°28.5	-17°18.4	-17°08.2	-16°58.0	-16°47.7	-16°37.3	+10.1	56.0
	di 19	102°50.5	117°23.1	131°55.8	146°28.5	161°01.4	175°34.3	190°07.3	204°40.3	219°13.4	233°46.6	248°19.9	+32.9	15.1
		-13°54.3	-13°43.0	-13°31.7	-13°20.3	-13°08.8	-12°57.3	-12°45.8	-12°34.2	-12°22.6	-12°10.9	-11°59.2	+11.5	55.3
	wo 20	106°46.6	121°20.8	135°55.1	150°29.5	165°03.9	179°38.4	194°12.9	208°47.4	223°22.0	237°56.7	252°31.4	+34.5	14.9
		-8°59.4	-8°47.2	-8°34.9	-8°22.7	-8°10.4	-7°58.0	-7°45.7	-7°33.3	-7°21.0	-7°08.5	-6°56.1	+12.3	54.8
	do 21	121°20.8	135°55.1	150°29.5	165°03.9	179°38.4	194°12.9	208°47.4	223°22.0	237°56.7	252°31.4	267°06.1	+34.5	14.9
		-8°47.2	-8°34.9	-8°22.7	-8°10.4	-7°58.0	-7°45.7	-7°33.3	-7°21.0	-7°08.5	-6°56.1	-6°43.7	+12.4	54.8
	vr 22	125°51.9	140°27.2	155°02.5	169°37.9	184°13.2	198°48.6	213°24.1	227°59.5	242°35.0	257°10.5	271°46.0	+35.4	14.8
		-3°35.4	-3°22.7	-3°10.1	-2°57.5	-2°44.8	-2°32.2	-2°19.5	-2°06.9	-1°54.2	-1°41.5	-1°28.9	+12.7	54.4
◐	za 23	130°39.9	145°15.6	159°51.2	174°26.9	189°02.5	203°38.2	218°13.8	232°49.4	247°25.0	262°00.6	276°36.2	+35.6	14.8
		1°40.7	1°53.3	2°05.9	2°18.4	2°31.0	2°43.5	2°56.1	3°08.6	3°21.1	3°33.6	3°46.1	+12.5	54.2
	zo 24	135°28.6	150°03.9	164°39.2	179°14.5	193°49.7	208°24.9	223°00.1	237°35.2	252°10.4	266°45.5	281°20.5	+35.2	14.8
		6°51.1	7°03.2	7°15.4	7°27.5	7°39.6	7°51.6	8°03.7	8°15.7	8°27.6	8°39.6	8°51.5	+12.0	54.2
	ma 25	140°01.5	154°35.9	169°10.2	183°44.5	198°18.7	212°52.9	227°27.0	242°01.0	256°35.0	271°09.0	285°42.9	+34.1	14.8
		11°46.1	11°57.4	12°08.7	12°20.0	12°31.2	12°42.4	12°53.5	13°04.6	13°15.6	13°26.6	13°37.5	+11.1	54.4
	di 26	144°03.7	158°36.5	173°09.3	187°42.0	202°14.6	216°47.2	231°19.7	245°52.1	260°24.4	274°56.7	289°28.9	+32.5	14.9
		16°15.1	16°25.2	16°35.1	16°45.1	16°54.9	17°04.7	17°14.4	17°24.1	17°33.7	17°43.2	17°52.7	+9.8	54.7
	wo 27	147°22.2	161°53.1	176°23.9	190°54.6	205°25.2	219°55.8	234°26.3	248°56.7	263°27.0	277°57.2	292°27.3	+30.5	15.1
		20°05.4	20°13.6	20°21.7	20°29.7	20°37.7	20°45.5	20°53.3	21°00.9	21°08.5	21°16.0	21°23.3	+7.8	55.2
	do 28	149°49.2	164°18.0	178°46.7	193°15.3	207°43.8	222°12.3	236°40.6	251°08.9	265°37.2	280°05.3	294°33.3	+28.4	15.2
		23°01.8	23°07.5	23°13.1	23°18.6	23°24.0	23°29.2	23°34.3	23°39.3	23°44.2	23°49.0	23°53.6	+5.2	55.9
	vr 29	151°25.4	165°52.3	180°19.1	194°45.9	209°12.7	223°39.3	238°06.0	252°32.5	266°59.0	281°25.5	295°51.9	+26.6	15.4
		24°48.0	24°50.6	24°53.0	24°55.3	24°57.5	24°59.5	25°01.3	25°03.1	25°04.6	25°06.1	25°07.4	+1.9	56.6
	za 30	152°22.6	166°48.3	181°14.1	195°39.8	210°05.5	224°31.1	238°56.8	253°22.4	267°48.0	282°13.6	296°39.2	+25.7	15.6
		25°09.2	25°08.1	25°06.9	25°05.5	25°03.9	25°02.3	25°00.4	24°58.4	24°56.3	24°54.0	24°51.5	-1.8	57.3
○	zo 31	153°02.4	167°28.0	181°53.6	196°19.3	210°44.9	225°10.6	239°36.2	254°01.9	268°27.6	282°53.4	297°19.2	+25.7	15.8
		23°56.3	23°51.4	23°46.4	23°41.2	23°35.8	23°30.3	23°24.7	23°18.9	23°12.9	23°06.8	23°00.6	-5.6	58.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 2 01h40 — LK: 9 05h38 — NM: 16 02h06 — EK: 23 21h44 — VM: 31 16h48

ZON

Januari 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	179°08.0	194°07.7	209°07.4	224°07.1	239°06.8	254°06.5	89°02.7	104°02.4	119°02.1	134°01.8	149°01.5	164°01.3	-0.3
	-22°59.5	-22°59.3	-22°59.1	-22°58.9	-22°58.7	-22°58.5	-22°55.7	-22°55.5	-22°55.2	-22°55.0	-22°54.8	-22°54.6	+0.2
di 2	179°01.0	194°00.7	209°00.4	224°00.1	238°59.8	253°59.5	88°55.8	103°55.5	118°55.2	133°54.9	148°54.6	163°54.3	-0.3
	-22°54.4	-22°54.1	-22°53.9	-22°53.7	-22°53.4	-22°53.2	-22°50.2	-22°49.9	-22°49.7	-22°49.4	-22°49.2	-22°48.9	+0.2
wo 3	178°54.0	193°53.8	208°53.5	223°53.2	238°52.9	253°52.6	88°48.9	103°48.6	118°48.3	133°48.1	148°47.8	163°47.5	-0.3
	-22°48.7	-22°48.5	-22°48.2	-22°48.0	-22°47.7	-22°47.5	-22°44.2	-22°43.9	-22°43.6	-22°43.4	-22°43.1	-22°42.9	+0.2
do 4	178°47.2	193°46.9	208°46.7	223°46.4	238°46.1	253°45.8	88°42.2	103°41.9	118°41.6	133°41.3	148°41.0	163°40.8	-0.3
	-22°42.6	-22°42.3	-22°42.1	-22°41.8	-22°41.5	-22°41.3	-22°37.7	-22°37.4	-22°37.2	-22°36.9	-22°36.6	-22°36.3	+0.3
vr 5	178°40.5	193°40.2	208°39.9	223°39.7	238°39.4	253°39.1	88°35.5	103°35.2	118°35.0	133°34.7	148°34.4	163°34.1	-0.3
	-22°36.0	-22°35.7	-22°35.5	-22°35.2	-22°34.9	-22°34.6	-22°30.8	-22°30.5	-22°30.2	-22°29.9	-22°29.6	-22°29.3	+0.3
za 6	178°33.9	193°33.6	208°33.3	223°33.0	238°32.8	253°32.5	88°29.0	103°28.7	118°28.4	133°28.2	148°27.9	163°27.6	-0.3
	-22°29.0	-22°28.7	-22°28.4	-22°28.1	-22°27.8	-22°27.5	-22°23.5	-22°23.2	-22°22.8	-22°22.5	-22°22.2	-22°21.9	+0.3
zo 7	178°27.4	193°27.1	208°26.8	223°26.5	238°26.3	253°26.0	88°22.5	103°22.3	118°22.0	133°21.7	148°21.5	163°21.2	-0.3
	-22°21.6	-22°21.3	-22°20.9	-22°20.6	-22°20.3	-22°20.0	-22°15.7	-22°15.4	-22°15.0	-22°14.7	-22°14.4	-22°14.0	+0.3
ma 8	178°21.0	193°20.7	208°20.4	223°20.2	238°19.9	253°19.6	88°16.2	103°16.0	118°15.7	133°15.5	148°15.2	163°14.9	-0.3
	-22°13.7	-22°13.3	-22°13.0	-22°12.7	-22°12.3	-22°12.0	-22°07.5	-22°07.1	-22°06.8	-22°06.4	-22°06.1	-22°05.7	+0.3
di 9	178°14.7	193°14.4	208°14.2	223°13.9	238°13.7	253°13.4	88°10.1	103°09.8	118°09.6	133°09.3	148°09.0	163°08.8	-0.3
	-22°05.3	-22°05.0	-22°04.6	-22°04.3	-22°03.9	-22°03.6	-21°58.8	-21°58.4	-21°58.1	-21°57.7	-21°57.3	-21°57.0	+0.4
wo 10	178°08.5	193°08.3	208°08.0	223°07.8	238°07.5	253°07.3	88°04.0	103°03.8	118°03.5	133°03.3	148°03.0	163°02.8	-0.3
	-21°56.6	-21°56.2	-21°55.8	-21°55.5	-21°55.1	-21°54.7	-21°49.7	-21°49.3	-21°48.9	-21°48.6	-21°48.2	-21°47.8	+0.4
do 11	178°02.5	193°02.3	208°02.0	223°01.8	238°01.6	253°01.3	87°58.1	102°57.9	117°57.6	132°57.4	147°57.2	162°56.9	-0.2
	-21°47.4	-21°47.0	-21°46.6	-21°46.2	-21°45.8	-21°45.4	-21°40.2	-21°39.8	-21°39.4	-21°39.0	-21°38.6	-21°38.2	+0.4
vr 12	177°56.7	192°56.4	207°56.2	222°56.0	237°55.7	252°55.5	87°52.4	102°52.1	117°51.9	132°51.7	147°51.4	162°51.2	-0.2
	-21°37.8	-21°37.4	-21°36.9	-21°36.5	-21°36.1	-21°35.7	-21°30.3	-21°29.9	-21°29.4	-21°29.0	-21°28.6	-21°28.2	+0.4
za 13	177°51.0	192°50.7	207°50.5	222°50.3	237°50.0	252°49.8	87°46.8	102°46.6	117°46.3	132°46.1	147°45.9	162°45.6	-0.2
	-21°27.7	-21°27.3	-21°26.9	-21°26.4	-21°26.0	-21°25.6	-21°19.9	-21°19.5	-21°19.0	-21°18.6	-21°18.2	-21°17.7	+0.4
zo 14	177°45.4	192°45.2	207°45.0	222°44.7	237°44.5	252°44.3	87°41.4	102°41.1	117°40.9	132°40.7	147°40.5	162°40.2	-0.2
	-21°17.3	-21°16.8	-21°16.4	-21°15.9	-21°15.5	-21°15.0	-21°09.2	-21°08.7	-21°08.3	-21°07.8	-21°07.3	-21°06.9	+0.4
ma 15	177°40.0	192°39.8	207°39.6	222°39.4	237°39.1	252°38.9	87°36.1	102°35.9	117°35.7	132°35.4	147°35.2	162°35.0	-0.2
	-21°06.4	-21°06.0	-21°05.5	-21°05.0	-21°04.6	-21°04.1	-20°58.0	-20°57.5	-20°57.1	-20°56.6	-20°56.1	-20°55.6	+0.5
di 16	177°34.8	192°34.6	207°34.4	222°34.2	237°33.9	252°33.7	87°31.0	102°30.8	117°30.6	132°30.4	147°30.2	162°30.0	-0.2
	-20°55.1	-20°54.7	-20°54.2	-20°53.7	-20°53.2	-20°52.7	-20°46.4	-20°45.9	-20°45.5	-20°45.0	-20°44.5	-20°44.0	+0.5
wo 17	177°29.7	192°29.5	207°29.3	222°29.1	237°28.9	252°28.7	87°26.1	102°25.9	117°25.7	132°25.5	147°25.3	162°25.1	-0.2
	-20°43.5	-20°43.0	-20°42.5	-20°42.0	-20°41.5	-20°41.0	-20°34.5	-20°34.0	-20°33.5	-20°33.0	-20°32.4	-20°31.9	+0.5
do 18	177°24.9	192°24.7	207°24.5	222°24.3	237°24.1	252°23.9	87°21.3	102°21.1	117°21.0	132°20.8	147°20.6	162°20.4	-0.2
	-20°31.4	-20°30.9	-20°30.4	-20°29.9	-20°29.4	-20°28.9	-20°22.1	-20°21.6	-20°21.1	-20°20.6	-20°20.0	-20°19.5	+0.5
vr 19	177°20.2	192°20.0	207°19.8	222°19.6	237°19.4	252°19.2	87°16.8	102°16.6	117°16.4	132°16.2	147°16.1	162°15.9	-0.2
	-20°19.0	-20°18.4	-20°17.9	-20°17.4	-20°16.9	-20°16.3	-20°09.4	-20°08.9	-20°08.3	-20°07.8	-20°07.2	-20°06.7	+0.5
za 20	177°15.7	192°15.5	207°15.3	222°15.1	237°15.0	252°14.8	87°12.4	102°12.3	117°12.1	132°11.9	147°11.7	162°11.5	-0.2
	-20°06.1	-20°05.6	-20°05.1	-20°04.5	-20°04.0	-20°03.4	-19°56.3	-19°55.7	-19°55.2	-19°54.6	-19°54.1	-19°53.5	+0.5
zo 21	177°11.4	192°11.2	207°11.0	222°10.8	237°10.7	252°10.5	87°08.3	102°08.1	117°07.9	132°07.8	147°07.6	162°07.4	-0.2
	-19°52.9	-19°52.4	-19°51.8	-19°51.3	-19°50.7	-19°50.1	-19°42.8	-19°42.2	-19°41.7	-19°41.1	-19°40.5	-19°39.9	+0.6
ma 22	177°07.3	192°07.1	207°06.9	222°06.8	237°06.6	252°06.4	87°04.3	102°04.1	117°04.0	132°03.8	147°03.7	162°03.5	-0.2
	-19°39.4	-19°38.8	-19°38.2	-19°37.6	-19°37.1	-19°36.5	-19°29.0	-19°28.4	-19°27.8	-19°27.2	-19°26.6	-19°26.0	+0.6
di 23	177°03.3	192°03.2	207°03.0	222°02.9	237°02.7	252°02.5	87°00.5	102°00.4	117°00.2	132°00.1	146°59.9	161°59.8	-0.2
	-19°25.4	-19°24.8	-19°24.3	-19°23.7	-19°23.1	-19°22.5	-19°14.7	-19°14.1	-19°13.5	-19°12.9	-19°12.3	-19°11.7	+0.6
wo 24	176°59.6	191°59.5	206°59.3	221°59.2	236°59.0	251°58.9	86°57.0	101°56.8	116°56.7	131°56.5	146°56.4	161°56.2	-0.2
	-19°11.1	-19°10.5	-19°09.9	-19°09.3	-19°08.7	-19°08.1	-19°00.2	-18°59.6	-18°59.0	-18°58.3	-18°57.7	-18°57.1	+0.6
do 25	176°56.1	191°56.0	206°55.8	221°55.7	236°55.5	251°55.4	86°53.6	101°53.5	116°53.3	131°53.2	146°53.0	161°52.9	-0.1
	-18°56.5	-18°55.9	-18°55.3	-18°54.6	-18°54.0	-18°53.4	-18°45.3	-18°44.7	-18°44.0	-18°43.4	-18°42.8	-18°42.1	+0.6
vr 26	176°52.8	191°52.6	206°52.5	221°52.4	236°52.2	251°52.1	86°50.4	101°50.3	116°50.2	131°50.0	146°49.9	161°49.8	-0.1
	-18°41.5	-18°40.9	-18°40.2	-18°39.6	-18°39.0	-18°38.3	-18°30.0	-18°29.4	-18°28.7	-18°28.1	-18°27.5	-18°26.8	+0.6
za 27	176°49.7	191°49.5	206°49.4	221°49.3	236°49.2	251°49.0	86°47.5	101°47.3	116°47.2	131°47.1	146°47.0	161°46.9	-0.1
	-18°26.2	-18°25.5	-18°24.9	-18°24.2	-18°23.6	-18°22.9	-18°14.5	-18°13.8	-18°13.1	-18°12.5	-18°11.8	-18°11.2	+0.6
zo 28	176°46.8	191°46.6	206°46.5	221°46.4	236°46.3	251°46.2	86°44.7	101°44.6	116°44.5	131°44.4	146°44.3	161°44.2	-0.1
	-18°10.5	-18°09.8	-18°09.2	-18°08.5	-18°07.9	-18°07.2	-17°58.5	-17°57.9	-17°57.2	-17°56.5	-17°55.9	-17°55.2	+0.7
ma 29	176°44.1	191°43.9	206°43.8	221°43.7	236°43.6	251°43.5	86°42.2	101°42.1	116°42.0	131°41.9	146°41.8	161°41.7	-0.1
	-17°54.5	-17°53.8	-17°53.2	-17°52.5	-17°51.8	-17°51.1	-17°42.3	-17°41.6	-17°41.0	-17°40.3	-17°39.6	-17°38.9	+0.7
di 30	176°41.6	191°41.5	206°41.4	221°41.3	236°41.2	251°41.1	86°39.8	101°39.7	116°39.6	131°39.5	146°39.4	161°39.4	-0.1
	-17°38.2	-17°37.5	-17°36.8	-17°36.2	-17°35.5	-17°34.8	-17°25.8	-17°25.1	-17°24.4	-17°23.7	-17°23.0	-17°22.3	+0.7
wo 31	176°39.3	191°39.2	206°39.1	221°39.0	236°38.9	251°38.8	86°37.7	101°37.6	116°37.5	131°37.4	146°37.3	161°37.3	-0.1
	-17°21.6	-17°20.9	-17°20.2	-17°19.5	-17°18.8	-17°18.1	-17°08.9	-17°08.2	-17°07.5	-17°06.8	-17°06.1	-17°05.4	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2029

D	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
ma 1	67°12.4	81°38.5	96°04.7	110°30.8	124°57.0	139°23.3	153°49.6	168°15.9	182°42.3	197°08.7	211°35.2	+26.3	15.9
	21°57.9	21°50.3	21°42.5	21°34.5	21°26.4	21°18.2	21°09.9	21°01.4	20°52.8	20°44.0	20°35.1	-8.3	58.4
di 2	68°18.1	82°45.4	97°12.7	111°40.1	126°07.6	140°35.1	155°02.6	169°30.2	183°57.9	198°25.6	212°53.3	+27.5	16.1
	18°06.9	17°56.1	17°45.2	17°34.1	17°23.0	17°11.7	17°00.3	16°48.9	16°37.3	16°25.6	16°13.8	-11.3	58.9
wo 3	69°56.3	84°24.9	98°53.6	113°22.3	127°51.0	142°19.9	156°48.7	171°17.6	185°46.6	200°15.6	214°44.6	+28.8	16.1
	13°06.1	12°52.9	12°39.7	12°26.3	12°12.9	11°59.4	11°45.9	11°32.3	11°18.6	11°04.8	10°51.0	-13.5	59.2
do 4	72°05.3	86°35.0	101°04.7	115°34.4	130°04.2	144°34.0	159°03.8	173°33.7	188°03.6	202°33.5	217°03.4	+29.8	16.2
	7°17.0	7°02.4	6°47.7	6°33.0	6°18.2	6°03.4	5°48.6	5°33.7	5°18.9	5°03.9	4°49.0	-14.8	59.4
vr 5	74°34.7	89°04.9	103°35.1	118°05.3	132°35.6	147°05.8	161°36.0	176°06.2	190°36.4	205°06.7	219°36.9	+30.2	16.2
	1°02.6	0°47.4	0°32.2	0°17.1	0°01.9	-0°13.3	-0°28.5	-0°43.7	-0°58.8	-1°14.0	-1°29.1	-15.2	59.4
za 6	77°09.3	91°39.3	106°09.4	120°39.4	135°09.4	149°39.3	164°09.3	178°39.2	193°09.1	207°38.9	222°08.8	+30.0	16.2
	-5°14.4	-5°29.2	-5°44.0	-5°58.8	-6°13.5	-6°28.2	-6°42.8	-6°57.4	-7°12.0	-7°26.5	-7°41.0	-14.7	59.3
◑ zo 7	79°32.4	94°01.6	108°30.8	123°00.0	137°29.2	151°58.2	166°27.3	180°56.3	195°25.2	209°54.1	224°23.0	+29.1	16.1
	-11°12.1	-11°25.7	-11°39.2	-11°52.7	-12°06.1	-12°19.4	-12°32.7	-12°45.9	-12°59.0	-13°12.0	-13°25.0	-13.3	59.1
ma 8	81°29.5	95°57.5	110°25.4	124°53.3	139°21.1	153°48.9	168°16.6	182°44.2	197°11.8	211°39.4	226°06.8	+27.7	16.0
	-16°29.2	-16°40.7	-16°52.2	-17°03.5	-17°14.7	-17°25.9	-17°36.9	-17°47.9	-17°58.7	-18°09.4	-18°20.0	-11.1	58.8
di 9	82°52.0	97°18.6	111°45.1	126°11.5	140°37.9	155°04.3	169°30.5	183°56.8	198°23.0	212°49.1	227°15.2	+26.3	15.9
	-20°45.2	-20°53.9	-21°02.5	-21°10.9	-21°19.2	-21°27.4	-21°35.4	-21°43.4	-21°51.1	-21°58.8	-22°06.3	-8.1	58.5
wo 10	83°41.2	98°06.7	112°32.1	126°57.4	141°22.8	155°48.1	170°13.4	184°38.6	199°03.8	213°29.1	227°54.3	+25.3	15.8
	-23°41.9	-23°47.1	-23°52.2	-23°57.1	-24°01.9	-24°06.5	-24°10.9	-24°15.2	-24°19.4	-24°23.4	-24°27.2	-4.5	58.1
do 11	84°10.8	98°35.9	113°00.9	127°26.0	141°51.2	156°16.3	170°41.4	185°06.6	199°31.7	213°56.9	228°22.1	+25.1	15.7
	-25°06.2	-25°07.5	-25°08.7	-25°09.7	-25°10.6	-25°11.3	-25°11.9	-25°12.3	-25°12.6	-25°12.7	-25°12.6	-0.6	57.7
vr 12	84°44.0	99°09.8	113°35.6	128°01.5	142°27.4	156°53.4	171°19.4	185°45.5	200°11.6	214°37.8	229°04.1	+26.0	15.6
	-24°53.3	-24°50.8	-24°48.1	-24°45.3	-24°42.4	-24°39.3	-24°36.1	-24°32.7	-24°29.2	-24°25.6	-24°21.8	+3.2	57.2
za 13	85°46.0	100°13.4	114°40.8	129°08.3	143°35.9	158°03.6	172°31.4	186°59.2	201°27.2	215°55.2	230°23.3	+27.7	15.5
	-23°08.5	-23°02.6	-22°56.5	-22°50.4	-22°44.1	-22°37.7	-22°31.1	-22°24.5	-22°17.7	-22°10.8	-22°03.8	+6.5	56.7
● zo 14	87°34.8	102°04.2	116°33.8	131°03.4	145°33.1	160°02.9	174°32.8	189°02.8	203°32.9	218°03.0	232°33.3	+29.8	15.3
	-20°05.8	-19°57.1	-19°48.3	-19°39.4	-19°30.5	-19°21.4	-19°12.3	-19°03.0	-18°53.7	-18°44.3	-18°34.8	+9.1	56.1
ma 15	90°17.0	104°48.5	119°20.2	133°51.9	148°23.7	162°55.6	177°27.6	191°59.6	206°31.7	221°03.9	235°36.2	+31.9	15.2
	-16°03.2	-15°52.6	-15°41.8	-15°31.0	-15°20.2	-15°09.3	-14°58.3	-14°47.2	-14°36.1	-14°25.0	-14°13.8	+11.0	55.6
di 16	93°48.7	108°22.1	122°55.6	137°29.1	152°02.6	166°36.2	181°09.9	195°43.6	210°17.4	224°51.3	239°25.2	+33.6	15.0
	-11°19.8	-11°07.9	-10°55.9	-10°43.9	-10°31.8	-10°19.8	-10°07.6	-9°55.5	-9°43.3	-9°31.1	-9°18.9	+12.1	55.1
wo 17	97°59.8	112°34.5	127°09.2	141°43.9	156°18.7	170°53.6	185°28.4	200°03.3	214°38.3	229°13.2	243°48.2	+34.8	14.9
	-6°12.3	-5°59.7	-5°47.1	-5°34.5	-5°21.9	-5°09.2	-4°56.6	-4°43.9	-4°31.3	-4°18.6	-4°05.9	+12.6	54.6
do 18	102°36.4	117°11.8	131°47.2	146°22.7	160°58.1	175°33.5	190°09.0	204°44.5	219°19.9	233°55.4	248°30.9	+35.5	14.8
	-0°55.0	-0°42.2	-0°29.5	-0°16.8	-0°04.1	0°08.6	0°21.3	0°34.0	0°46.7	0°59.4	1°12.1	+12.7	54.3
vr 19	107°23.7	121°59.2	136°34.7	151°10.2	165°45.6	180°21.1	194°56.5	209°32.0	224°07.4	238°42.8	253°18.2	+35.5	14.8
	4°20.6	4°33.0	4°45.4	4°57.8	5°10.2	5°22.5	5°34.8	5°47.1	5°59.4	6°11.7	6°23.9	+12.3	54.1
za 20	121°59.2	136°34.7	151°10.2	165°45.6	180°21.1	194°56.5	209°32.0	224°07.4	238°42.8	253°18.2	267°53.5	+35.4	14.8
	4°33.0	4°45.4	4°57.8	5°10.2	5°22.5	5°34.8	5°47.1	5°59.4	6°11.7	6°23.9	6°36.1	+12.3	54.1
zo 21	126°41.4	141°16.4	155°51.3	170°26.2	185°01.1	199°35.9	214°10.7	228°45.4	243°20.2	257°54.8	272°29.5	+34.8	14.8
	9°35.6	9°47.4	9°59.0	10°10.7	10°22.2	10°33.8	10°45.3	10°56.8	11°08.2	11°19.6	11°31.0	+11.5	54.1
◐ ma 22	131°03.6	145°37.5	160°11.3	174°45.0	189°18.7	203°52.4	218°26.0	232°59.5	247°33.0	262°06.4	276°39.7	+33.6	14.8
	14°15.8	14°26.3	14°36.9	14°47.4	14°57.8	15°08.1	15°18.5	15°28.7	15°38.9	15°49.0	15°59.1	+10.3	54.3
di 23	134°52.2	149°24.4	163°56.6	178°28.8	193°00.8	207°32.8	222°04.7	236°36.5	251°08.3	265°40.0	280°11.6	+31.9	14.9
	18°22.5	18°31.5	18°40.4	18°49.2	18°58.0	19°06.7	19°15.3	19°23.9	19°32.3	19°40.7	19°49.0	+8.7	54.7
wo 24	137°56.2	152°26.5	166°56.8	181°27.0	195°57.1	210°27.1	224°57.0	239°26.8	253°56.6	268°26.3	282°55.9	+30.0	15.1
	21°43.1	21°50.0	21°56.8	22°03.5	22°10.0	22°16.5	22°22.9	22°29.2	22°35.3	22°41.4	22°47.4	+6.4	55.2
do 25	140°10.3	154°38.6	169°06.9	183°35.1	198°03.2	212°31.2	226°59.2	241°27.1	255°54.9	270°22.6	284°50.3	+28.0	15.3
	24°03.4	24°07.6	24°11.6	24°15.5	24°19.3	24°22.9	24°26.4	24°29.8	24°33.1	24°36.2	24°39.2	+3.6	55.9
vr 26	141°37.5	156°04.2	170°30.8	184°57.3	199°23.8	213°50.3	228°16.7	242°43.1	257°09.4	271°35.6	286°01.9	+26.4	15.5
	25°08.3	25°09.1	25°09.8	25°10.4	25°10.8	25°11.0	25°11.1	25°11.1	25°10.9	25°10.6	25°10.1	+0.2	56.8
za 27	142°31.0	156°56.7	171°22.4	185°48.1	200°13.7	214°39.4	229°05.0	243°30.6	257°56.3	272°21.9	286°47.5	+25.6	15.7
	24°45.1	24°42.2	24°39.1	24°35.9	24°32.6	24°29.1	24°25.5	24°21.7	24°17.7	24°13.6	24°09.3	-3.6	57.6
zo 28	143°11.5	157°37.1	172°02.8	186°28.5	200°54.3	215°20.0	229°45.7	244°11.5	258°37.3	273°03.2	287°29.0	+25.7	16.0
	22°47.1	22°40.4	22°33.6	22°26.6	22°19.5	22°12.2	22°04.8	21°57.2	21°49.5	21°41.7	21°33.7	-7.3	58.5
ma 29	144°00.4	158°26.8	172°53.2	187°19.6	201°46.1	216°12.6	230°39.2	245°05.8	259°32.4	273°59.1	288°25.9	+26.5	16.2
	19°17.2	19°07.0	18°56.7	18°46.3	18°35.7	18°25.1	18°14.3	18°03.4	17°52.3	17°41.2	17°29.9	-10.7	59.3
○ di 30	145°12.1	159°39.5	174°07.0	188°34.5	203°02.1	217°29.7	231°57.4	246°25.0	260°52.8	275°20.6	289°48.4	+27.6	16.3
	14°27.7	14°14.8	14°01.7	13°48.6	13°35.4	13°22.0	13°08.6	12°55.1	12°41.5	12°27.9	12°14.1	-13.4	59.9
wo 31	146°50.4	161°18.8	175°47.3	190°15.8	204°44.3	219°12.9	233°41.5	248°10.1	262°38.7	277°07.4	291°36.1	+28.6	16.4
	8°39.3	8°24.5	8°09.6	7°54.7	7°39.7	7°24.7	7°09.6	6°54.5	6°39.4	6°24.2	6°08.9	-15.0	60.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 7 13h26 — NM: 14 17h24 — EK: 22 19h23 — VM: 30 06h03

ZON

Februari 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	176°37.2	191°37.1	206°37.0	221°36.9	236°36.8	251°36.8	86°35.7	101°35.7	116°35.6	131°35.5	146°35.4	161°35.4	-0.1
	-17°04.7	-17°04.0	-17°03.2	-17°02.5	-17°01.8	-17°01.1	-16°51.8	-16°51.0	-16°50.3	-16°49.6	-16°48.9	-16°48.2	+0.7
vr 2	176°35.3	191°35.2	206°35.1	221°35.1	236°35.0	251°34.9	86°34.0	101°33.9	116°33.9	131°33.8	146°33.7	161°33.7	-0.1
	-16°47.4	-16°46.7	-16°46.0	-16°45.3	-16°44.5	-16°43.8	-16°34.3	-16°33.6	-16°32.9	-16°32.1	-16°31.4	-16°30.6	+0.7
za 3	176°33.6	191°33.5	206°33.5	221°33.4	236°33.3	251°33.3	86°32.5	101°32.4	116°32.3	131°32.3	146°32.2	161°32.2	-0.1
	-16°29.9	-16°29.2	-16°28.4	-16°27.7	-16°27.0	-16°26.2	-16°16.6	-16°15.8	-16°15.1	-16°14.3	-16°13.6	-16°12.8	+0.7
zo 4	176°32.1	191°32.0	206°32.0	221°31.9	236°31.9	251°31.8	86°31.1	101°31.1	116°31.0	131°31.0	146°30.9	161°30.9	-0.1
	-16°12.1	-16°11.3	-16°10.6	-16°09.8	-16°09.1	-16°08.3	-15°58.5	-15°57.8	-15°57.0	-15°56.3	-15°55.5	-15°54.8	+0.7
ma 5	176°30.8	191°30.8	206°30.7	221°30.7	236°30.6	251°30.6	86°30.0	101°29.9	116°29.9	131°29.8	146°29.8	161°29.8	-0.0
	-15°54.0	-15°53.2	-15°52.5	-15°51.7	-15°51.0	-15°50.2	-15°40.2	-15°39.5	-15°38.7	-15°37.9	-15°37.2	-15°36.4	+0.8
di 6	176°29.7	191°29.7	206°29.6	221°29.6	236°29.6	251°29.5	86°29.0	101°29.0	116°29.0	131°28.9	146°28.9	161°28.9	-0.0
	-15°35.6	-15°34.9	-15°34.1	-15°33.3	-15°32.5	-15°31.8	-15°21.7	-15°20.9	-15°20.1	-15°19.3	-15°18.6	-15°17.8	+0.8
wo 7	176°28.8	191°28.8	206°28.8	221°28.7	236°28.7	251°28.7	86°28.3	101°28.2	116°28.2	131°28.2	146°28.2	161°28.1	-0.0
	-15°17.0	-15°16.2	-15°15.4	-15°14.6	-15°13.9	-15°13.1	-15°02.8	-15°02.0	-15°01.3	-15°00.5	-14°59.7	-14°58.9	+0.8
do 8	176°28.1	191°28.1	206°28.1	221°28.0	236°28.0	251°28.0	86°27.7	101°27.7	116°27.7	131°27.7	146°27.6	161°27.6	-0.0
	-14°58.1	-14°57.3	-14°56.5	-14°55.7	-14°54.9	-14°54.1	-14°43.7	-14°42.9	-14°42.1	-14°41.3	-14°40.5	-14°39.7	+0.8
vr 9	176°27.6	191°27.6	206°27.6	221°27.6	236°27.5	251°27.5	86°27.3	101°27.3	116°27.3	131°27.3	146°27.3	161°27.3	-0.0
	-14°38.9	-14°38.1	-14°37.3	-14°36.5	-14°35.7	-14°34.9	-14°24.4	-14°23.6	-14°22.8	-14°22.0	-14°21.2	-14°20.3	+0.8
za 10	176°27.3	191°27.3	206°27.3	221°27.3	236°27.2	251°27.2	86°27.2	101°27.2	116°27.2	131°27.2	146°27.2	161°27.2	-0.0
	-14°19.5	-14°18.7	-14°17.9	-14°17.1	-14°16.3	-14°15.5	-14°04.8	-14°04.0	-14°03.2	-14°02.4	-14°01.5	-14°00.7	+0.8
zo 11	176°27.2	191°27.2	206°27.2	221°27.1	236°27.1	251°27.1	86°27.2	101°27.2	116°27.2	131°27.2	146°27.2	161°27.2	-0.0
	-13°59.9	-13°59.1	-13°58.2	-13°57.4	-13°56.6	-13°55.8	-13°45.0	-13°44.2	-13°43.3	-13°42.5	-13°41.7	-13°40.8	+0.8
ma 12	176°27.2	191°27.2	206°27.2	221°27.2	236°27.2	251°27.2	86°27.4	101°27.4	116°27.4	131°27.4	146°27.4	161°27.4	+0.0
	-13°40.0	-13°39.2	-13°38.3	-13°37.5	-13°36.7	-13°35.8	-13°25.0	-13°24.1	-13°23.3	-13°22.4	-13°21.6	-13°20.8	+0.8
di 13	176°27.5	191°27.5	206°27.5	221°27.5	236°27.5	251°27.5	86°27.8	101°27.8	116°27.8	131°27.8	146°27.8	161°27.9	+0.0
	-13°19.9	-13°19.1	-13°18.2	-13°17.4	-13°16.5	-13°15.7	-13°04.7	-13°03.8	-13°03.0	-13°02.1	-13°01.3	-13°00.4	+0.8
wo 14	176°27.9	191°27.9	206°27.9	221°28.0	236°28.0	251°28.0	86°28.3	101°28.4	116°28.4	131°28.4	146°28.4	161°28.5	+0.0
	-12°59.6	-12°58.7	-12°57.9	-12°57.0	-12°56.2	-12°55.3	-12°44.2	-12°43.4	-12°42.5	-12°41.6	-12°40.8	-12°39.9	+0.9
do 15	176°28.5	191°28.5	206°28.6	221°28.6	236°28.6	251°28.7	86°29.1	101°29.1	116°29.2	131°29.2	146°29.2	161°29.3	+0.0
	-12°39.1	-12°38.2	-12°37.3	-12°36.5	-12°35.6	-12°34.8	-12°23.5	-12°22.7	-12°21.8	-12°20.9	-12°20.1	-12°19.2	+0.9
vr 16	176°29.3	191°29.3	206°29.4	221°29.4	236°29.5	251°29.5	86°30.0	101°30.1	116°30.1	131°30.2	146°30.2	161°30.2	+0.0
	-12°18.3	-12°17.5	-12°16.6	-12°15.7	-12°14.9	-12°14.0	-12°02.7	-12°01.8	-12°00.9	-12°00.0	-11°59.2	-11°58.3	+0.9
za 17	176°30.3	191°30.3	206°30.4	221°30.4	236°30.5	251°30.5	86°31.1	101°31.2	116°31.2	131°31.3	146°31.3	161°31.4	+0.0
	-11°57.4	-11°56.5	-11°55.7	-11°54.8	-11°53.9	-11°53.0	-11°41.6	-11°40.7	-11°39.8	-11°38.9	-11°38.1	-11°37.2	+0.9
zo 18	176°31.4	191°31.5	206°31.5	221°31.6	236°31.6	251°31.7	86°32.4	101°32.5	116°32.5	131°32.6	146°32.6	161°32.7	+0.1
	-11°36.3	-11°35.4	-11°34.5	-11°33.6	-11°32.8	-11°31.9	-11°20.3	-11°19.5	-11°18.6	-11°17.7	-11°16.8	-11°15.9	+0.9
ma 19	176°32.8	191°32.8	206°32.9	221°32.9	236°33.0	251°33.1	86°33.9	101°33.9	116°34.0	131°34.1	146°34.1	161°34.2	+0.1
	-11°15.0	-11°14.1	-11°13.2	-11°12.3	-11°11.4	-11°10.5	-10°58.9	-10°58.0	-10°57.1	-10°56.2	-10°55.3	-10°54.4	+0.9
di 20	176°34.3	191°34.3	206°34.4	221°34.5	236°34.5	251°34.6	86°35.5	101°35.6	116°35.6	131°35.7	146°35.8	161°35.9	+0.1
	-10°53.5	-10°52.6	-10°51.7	-10°50.8	-10°49.9	-10°49.0	-10°37.3	-10°36.4	-10°35.5	-10°34.6	-10°33.7	-10°32.8	+0.9
wo 21	176°35.9	191°36.0	206°36.1	221°36.2	236°36.2	251°36.3	86°37.3	101°37.4	116°37.4	131°37.5	146°37.6	161°37.7	+0.1
	-10°31.9	-10°31.0	-10°30.1	-10°29.2	-10°28.3	-10°27.4	-10°15.6	-10°14.6	-10°13.7	-10°12.8	-10°11.9	-10°11.0	+0.9
do 22	176°37.8	191°37.8	206°37.9	221°38.0	236°38.1	251°38.2	86°39.2	101°39.3	116°39.4	131°39.5	146°39.6	161°39.7	+0.1
	-10°10.1	-10°09.2	-10°08.3	-10°07.4	-10°06.4	-10°05.5	-9°53.6	-9°52.7	-9°51.8	-9°50.9	-9°50.0	-9°49.1	+0.9
vr 23	176°39.8	191°39.8	206°39.9	221°40.0	236°40.1	251°40.2	86°41.4	101°41.4	116°41.5	131°41.6	146°41.7	161°41.8	+0.1
	-9°48.1	-9°47.2	-9°46.3	-9°45.4	-9°44.5	-9°43.5	-9°31.6	-9°30.6	-9°29.7	-9°28.8	-9°27.9	-9°27.0	+0.9
za 24	176°41.9	191°42.0	206°42.1	221°42.2	236°42.3	251°42.4	86°43.6	101°43.7	116°43.8	131°43.9	146°44.0	161°44.1	+0.1
	-9°26.0	-9°25.1	-9°24.2	-9°23.3	-9°22.3	-9°21.4	-9°09.4	-9°08.4	-9°07.5	-9°06.6	-9°05.6	-9°04.7	+0.9
zo 25	176°44.2	191°44.3	206°44.4	221°44.5	236°44.6	251°44.7	86°46.0	101°46.1	116°46.2	131°46.3	146°46.4	161°46.5	+0.1
	-9°03.8	-9°02.9	-9°01.9	-9°01.0	-9°00.1	-8°59.1	-8°47.0	-8°46.1	-8°45.2	-8°44.2	-8°43.3	-8°42.4	+0.9
ma 26	176°46.7	191°46.8	206°46.9	221°47.0	236°47.1	251°47.2	86°48.6	101°48.7	116°48.8	131°48.9	146°49.0	161°49.1	+0.1
	-8°41.4	-8°40.5	-8°39.5	-8°38.6	-8°37.7	-8°36.7	-8°24.5	-8°23.6	-8°22.7	-8°21.7	-8°20.8	-8°19.9	+0.9
di 27	176°49.2	191°49.4	206°49.5	221°49.6	236°49.7	251°49.8	86°51.3	101°51.4	116°51.5	131°51.6	146°51.7	161°51.9	+0.1
	-8°18.9	-8°18.0	-8°17.0	-8°16.1	-8°15.2	-8°14.2	-8°02.0	-8°01.0	-8°00.1	-7°59.1	-7°58.2	-7°57.2	+0.9
wo 28	176°52.0	191°52.1	206°52.2	221°52.3	236°52.4	251°52.6	86°54.1	101°54.2	116°54.3	131°54.5	146°54.6	161°54.7	+0.1
	-7°56.3	-7°55.3	-7°54.4	-7°53.5	-7°52.5	-7°51.6	-7°39.2	-7°38.3	-7°37.3	-7°36.4	-7°35.4	-7°34.5	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2029

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
do 1	76°24.5	90°53.4	105°22.4	119°51.4	134°20.4	148°49.4	163°18.4	177°47.5	192°16.5	206°45.6	221°14.7	+29.0	16.4
	3°34.8	3°19.3	3°03.7	2°48.1	2°32.5	2°16.9	2°01.3	1°45.6	1°30.0	1°14.3	0°58.7	-15.6	60.3
vr 2	78°31.5	93°00.6	107°29.7	121°58.8	136°27.9	150°57.0	165°26.1	179°55.1	194°24.2	208°53.2	223°22.3	+29.1	16.4
	-2°55.7	-3°11.2	-3°26.7	-3°42.1	-3°57.6	-4°13.0	-4°28.4	-4°43.7	-4°59.0	-5°14.3	-5°29.5	-15.4	60.2
za 3	80°35.6	95°04.3	109°33.0	124°01.7	138°30.3	152°58.9	167°27.5	181°56.0	196°24.5	210°53.0	225°21.4	+28.6	16.3
	-9°12.7	-9°27.2	-9°41.6	-9°55.9	-10°10.2	-10°24.4	-10°38.5	-10°52.5	-11°06.5	-11°20.4	-11°34.3	-14.2	59.8
zo 4	82°23.6	96°51.4	111°19.2	125°46.9	140°14.7	154°42.3	169°09.9	183°37.5	198°05.0	212°32.5	227°00.0	+27.6	16.2
	-14°52.0	-15°04.5	-15°16.8	-15°29.1	-15°41.3	-15°53.3	-16°05.3	-16°17.2	-16°28.9	-16°40.6	-16°52.1	-12.0	59.4
◑ ma 5	83°46.4	98°13.2	112°39.9	127°06.6	141°33.2	155°59.8	170°26.3	184°52.8	199°19.3	213°45.7	228°12.1	+26.6	16.0
	-19°31.7	-19°41.4	-19°50.9	-20°00.3	-20°09.6	-20°18.8	-20°27.9	-20°36.8	-20°45.5	-20°54.2	-21°02.7	-9.1	58.8
di 6	84°43.5	99°09.3	113°35.2	128°01.0	142°26.7	156°52.5	171°18.2	185°43.9	200°09.6	214°35.3	229°00.9	+25.7	15.9
	-22°53.9	-23°00.2	-23°06.3	-23°12.3	-23°18.1	-23°23.8	-23°29.4	-23°34.8	-23°40.0	-23°45.1	-23°50.1	-5.6	58.2
wo 7	85°24.3	99°49.9	114°15.4	128°41.0	143°06.5	157°32.1	171°57.7	186°23.2	200°48.8	215°14.5	229°40.1	+25.6	15.7
	-24°46.2	-24°48.7	-24°51.1	-24°53.3	-24°55.4	-24°57.3	-24°59.0	-25°00.6	-25°02.1	-25°03.4	-25°04.6	-1.8	57.6
do 8	86°07.3	100°33.4	114°59.5	129°25.7	143°51.9	158°18.1	172°44.4	187°10.7	201°37.1	216°03.5	230°30.0	+26.3	15.5
	-25°03.7	-25°02.4	-25°01.1	-24°59.5	-24°57.8	-24°56.0	-24°54.0	-24°51.9	-24°49.6	-24°47.2	-24°44.7	+1.9	57.0
vr 9	87°13.8	101°41.2	116°08.7	130°36.2	145°03.8	159°31.5	173°59.2	188°27.1	202°55.0	217°22.9	231°51.0	+27.7	15.4
	-23°50.0	-23°45.3	-23°40.4	-23°35.5	-23°30.4	-23°25.2	-23°19.8	-23°14.4	-23°08.8	-23°03.1	-22°57.2	+5.3	56.4
za 10	89°00.4	103°29.7	117°59.0	132°28.4	146°57.9	161°27.5	175°57.1	190°26.8	204°56.6	219°26.5	233°56.5	+29.6	15.3
	-21°16.1	-21°08.4	-21°00.7	-20°52.9	-20°45.0	-20°37.0	-20°28.8	-20°20.6	-20°12.3	-20°03.9	-19°55.4	+8.1	55.9
zo 11	91°35.2	106°06.4	120°37.7	135°09.1	149°40.5	164°12.0	178°43.6	193°15.2	207°46.9	222°18.7	236°50.6	+31.5	15.1
	-17°37.5	-17°27.6	-17°17.7	-17°07.7	-16°57.6	-16°47.5	-16°37.3	-16°27.0	-16°16.7	-16°06.2	-15°55.8	+10.2	55.5
ma 12	94°56.9	109°29.8	124°02.8	138°35.9	153°09.0	167°42.2	182°15.5	196°48.8	211°22.2	225°55.6	240°29.1	+33.2	15.0
	-13°11.3	-13°00.0	-12°48.5	-12°37.0	-12°25.5	-12°13.9	-12°02.3	-11°50.6	-11°38.9	-11°27.1	-11°15.3	+11.6	55.0
● di 13	98°57.6	113°31.9	128°06.2	142°40.6	157°15.0	171°49.5	186°24.0	200°58.5	215°33.1	230°07.7	244°42.4	+34.5	14.9
	-8°14.2	-8°01.9	-7°49.5	-7°37.1	-7°24.8	-7°12.3	-6°59.9	-6°47.5	-6°35.0	-6°22.5	-6°10.0	+12.4	54.6
wo 14	103°26.0	118°01.2	132°36.3	147°11.5	161°46.7	176°21.9	190°57.2	205°32.4	220°07.7	234°43.0	249°18.3	+35.2	14.8
	-3°00.7	-2°48.0	-2°35.4	-2°22.7	-2°10.0	-1°57.3	-1°44.6	-1°31.9	-1°19.2	-1°06.5	-0°53.8	+12.7	54.3
do 15	108°09.1	122°44.6	137°20.0	151°55.4	166°30.9	181°06.3	195°41.7	210°17.2	224°52.6	239°28.0	254°03.4	+35.4	14.8
	2°16.0	2°28.6	2°41.1	2°53.7	3°06.2	3°18.7	3°31.2	3°43.7	3°56.1	4°08.6	4°21.0	+12.5	54.1
vr 16	112°53.4	127°28.6	142°03.8	156°38.9	171°14.1	185°49.2	200°24.3	214°59.4	229°34.4	244°09.5	258°44.4	+35.1	14.7
	7°24.5	7°36.5	7°48.5	8°00.5	8°12.4	8°24.3	8°36.1	8°48.0	8°59.8	9°11.5	9°23.2	+11.9	54.0
za 17	117°25.6	132°00.1	146°34.5	161°08.9	175°43.2	190°17.5	204°51.8	219°26.0	234°00.1	248°34.3	263°08.3	+34.3	14.7
	12°14.1	12°25.1	12°36.1	12°47.1	12°58.0	13°08.8	13°19.6	13°30.3	13°41.0	13°51.7	14°02.2	+10.8	54.0
zo 18	132°00.1	146°34.5	161°08.9	175°43.2	190°17.5	204°51.8	219°26.0	234°00.1	248°34.3	263°08.3	277°42.4	+34.2	14.7
	12°25.1	12°36.1	12°47.1	12°58.0	13°08.8	13°19.6	13°30.3	13°41.0	13°51.7	14°02.2	14°12.8	+10.8	54.0
ma 19	136°06.7	150°39.9	165°13.0	179°46.1	194°19.1	208°52.1	223°25.0	237°57.8	252°30.6	267°03.3	281°35.9	+32.9	14.8
	16°43.7	16°53.2	17°02.7	17°12.1	17°21.5	17°30.8	17°40.0	17°49.1	17°58.2	18°07.2	18°16.1	+9.3	54.2
di 20	139°38.0	154°09.6	168°41.1	183°12.6	197°44.0	212°15.3	226°46.6	241°17.8	255°48.9	270°19.9	284°50.9	+31.3	14.9
	20°20.7	20°28.4	20°35.9	20°43.4	20°50.8	20°58.1	21°05.3	21°12.4	21°19.5	21°26.4	21°33.2	+7.3	54.5
◐ wo 21	142°27.1	156°57.0	171°26.8	185°56.5	200°26.1	214°55.7	229°25.2	243°54.6	258°24.0	272°53.3	287°22.5	+29.5	15.0
	23°04.0	23°09.3	23°14.4	23°19.4	23°24.3	23°29.1	23°33.8	23°38.3	23°42.8	23°47.1	23°51.4	+4.7	55.1
do 22	144°33.1	159°01.3	173°29.5	187°57.6	202°25.6	216°53.6	231°21.5	245°49.4	260°17.2	274°44.9	289°12.6	+27.9	15.2
	24°40.6	24°42.9	24°45.0	24°47.1	24°49.0	24°50.8	24°52.4	24°53.9	24°55.3	24°56.6	24°57.7	+1.7	55.8
vr 23	146°02.5	160°29.5	174°56.4	189°23.4	203°50.2	218°17.1	232°43.9	247°10.7	261°37.5	276°04.2	290°30.9	+26.8	15.4
	24°58.2	24°57.2	24°56.0	24°54.6	24°53.1	24°51.4	24°49.7	24°47.7	24°45.7	24°43.4	24°41.1	-1.7	56.7
za 24	147°08.9	161°35.3	176°01.7	190°28.1	204°54.5	219°20.9	233°47.3	248°13.7	262°40.1	277°06.4	291°32.8	+26.4	15.7
	23°48.2	23°43.5	23°38.7	23°33.7	23°28.6	23°23.3	23°17.9	23°12.3	23°06.6	23°00.7	22°54.7	-5.3	57.6
zo 25	148°09.2	162°35.7	177°02.2	191°28.8	205°55.3	220°21.9	234°48.5	249°15.1	263°41.7	278°08.4	292°35.1	+26.6	16.0
	21°07.6	20°59.3	20°50.9	20°42.4	20°33.7	20°24.9	20°15.9	20°06.8	19°57.6	19°48.3	19°38.8	-8.9	58.6
ma 26	149°17.8	163°44.9	178°12.0	192°39.1	207°06.2	221°33.3	236°00.5	250°27.7	264°55.0	279°22.2	293°49.5	+27.2	16.2
	17°01.4	16°49.9	16°38.3	16°26.6	16°14.8	16°02.9	15°50.9	15°38.7	15°26.5	15°14.1	15°01.7	-12.0	59.6
di 27	150°42.0	165°09.7	179°37.4	194°05.2	208°32.9	223°00.7	237°28.5	251°56.4	266°24.2	280°52.1	295°20.0	+27.8	16.5
	11°42.9	11°28.9	11°14.9	11°00.7	10°46.5	10°32.2	10°17.9	10°03.4	9°48.9	9°34.3	9°19.7	-14.3	60.3
○ wo 28	152°20.3	166°48.4	181°16.6	195°44.7	210°12.9	224°41.0	239°09.2	253°37.4	268°05.5	282°33.7	297°01.9	+28.2	16.6
	5°32.7	5°17.2	5°01.6	4°46.0	4°30.3	4°14.7	3°58.9	3°43.2	3°27.4	3°11.6	2°55.8	-15.7	60.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

LK: 5 21h52 — NM: 13 10h31 — EK: 21 15h09 — VM: 28 17h10

ZON

Maart 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	176°54.8	191°55.0	206°55.1	221°55.2	236°55.3	251°55.4	86°57.1	101°57.2	116°57.3	131°57.4	146°57.6	161°57.7	+0.1
	-7°33.5	-7°32.6	-7°31.6	-7°30.7	-7°29.7	-7°28.8	-7°16.4	-7°15.5	-7°14.5	-7°13.6	-7°12.6	-7°11.7	+0.9
vr 2	176°57.8	191°57.9	206°58.1	221°58.2	236°58.3	251°58.5	87°00.1	102°00.3	117°00.4	132°00.5	147°00.7	162°00.8	+0.1
	-7°10.7	-7°09.7	-7°08.8	-7°07.8	-7°06.9	-7°05.9	-6°53.5	-6°52.5	-6°51.6	-6°50.6	-6°49.7	-6°48.7	+1.0
za 3	177°00.9	192°01.1	207°01.2	222°01.3	237°01.5	252°01.6	87°03.3	102°03.5	117°03.6	132°03.7	147°03.9	162°04.0	+0.1
	-6°47.7	-6°46.8	-6°45.8	-6°44.9	-6°43.9	-6°43.0	-6°30.5	-6°29.5	-6°28.5	-6°27.6	-6°26.6	-6°25.7	+1.0
zo 4	177°04.1	192°04.3	207°04.4	222°04.6	237°04.7	252°04.8	87°06.6	102°06.8	117°06.9	132°07.1	147°07.2	162°07.3	+0.1
	-6°24.7	-6°23.7	-6°22.8	-6°21.8	-6°20.8	-6°19.9	-6°07.4	-6°06.4	-6°05.4	-6°04.5	-6°03.5	-6°02.5	+1.0
ma 5	177°07.5	192°07.6	207°07.8	222°07.9	237°08.0	252°08.2	87°10.0	102°10.2	117°10.3	132°10.5	147°10.6	162°10.8	+0.1
	-6°01.6	-6°00.6	-5°59.6	-5°58.7	-5°57.7	-5°56.7	-5°44.1	-5°43.2	-5°42.2	-5°41.2	-5°40.3	-5°39.3	+1.0
di 6	177°10.9	192°11.1	207°11.2	222°11.4	237°11.5	252°11.6	87°13.6	102°13.7	117°13.9	132°14.0	147°14.1	162°14.3	+0.1
	-5°38.3	-5°37.4	-5°36.4	-5°35.4	-5°34.5	-5°33.5	-5°20.9	-5°19.9	-5°18.9	-5°17.9	-5°17.0	-5°16.0	+1.0
wo 7	177°14.4	192°14.6	207°14.7	222°14.9	237°15.0	252°15.2	87°17.2	102°17.3	117°17.5	132°17.6	147°17.8	162°17.9	+0.1
	-5°15.0	-5°14.1	-5°13.1	-5°12.1	-5°11.1	-5°10.2	-4°57.5	-4°56.5	-4°55.6	-4°54.6	-4°53.6	-4°52.6	+1.0
do 8	177°18.1	192°18.2	207°18.4	222°18.5	237°18.7	252°18.8	87°20.9	102°21.0	117°21.2	132°21.3	147°21.5	162°21.6	+0.2
	-4°51.6	-4°50.7	-4°49.7	-4°48.7	-4°47.7	-4°46.8	-4°34.1	-4°33.1	-4°32.1	-4°31.1	-4°30.2	-4°29.2	+1.0
vr 9	177°21.8	192°21.9	207°22.1	222°22.3	237°22.4	252°22.6	87°24.6	102°24.8	117°24.9	132°25.1	147°25.3	162°25.4	+0.2
	-4°28.2	-4°27.2	-4°26.3	-4°25.3	-4°24.3	-4°23.3	-4°10.6	-4°09.6	-4°08.6	-4°07.6	-4°06.7	-4°05.7	+1.0
za 10	177°25.6	192°25.7	207°25.9	222°26.1	237°26.2	252°26.4	87°28.5	102°28.6	117°28.8	132°29.0	147°29.1	162°29.3	+0.2
	-4°04.7	-4°03.7	-4°02.7	-4°01.8	-4°00.8	-3°59.8	-3°47.0	-3°46.1	-3°45.1	-3°44.1	-3°43.1	-3°42.1	+1.0
zo 11	177°29.5	192°29.6	207°29.8	222°30.0	237°30.1	252°30.3	87°32.4	102°32.6	117°32.8	132°32.9	147°33.1	162°33.2	+0.2
	-3°41.2	-3°40.2	-3°39.2	-3°38.2	-3°37.2	-3°36.2	-3°23.5	-3°22.5	-3°21.5	-3°20.5	-3°19.5	-3°18.5	+1.0
ma 12	177°33.4	192°33.6	207°33.7	222°33.9	237°34.1	252°34.2	87°36.4	102°36.6	117°36.8	132°36.9	147°37.1	162°37.3	+0.2
	-3°17.6	-3°16.6	-3°15.6	-3°14.6	-3°13.6	-3°12.6	-2°59.8	-2°58.8	-2°57.9	-2°56.9	-2°55.9	-2°54.9	+1.0
di 13	177°37.4	192°37.6	207°37.8	222°37.9	237°38.1	252°38.3	87°40.5	102°40.7	117°40.8	132°41.0	147°41.2	162°41.4	+0.2
	-2°53.9	-2°52.9	-2°51.9	-2°51.0	-2°50.0	-2°49.0	-2°36.2	-2°35.2	-2°34.2	-2°33.2	-2°32.2	-2°31.2	+1.0
wo 14	177°41.5	192°41.7	207°41.9	222°42.0	237°42.2	252°42.4	87°44.6	102°44.8	117°45.0	132°45.2	147°45.3	162°45.5	+0.2
	-2°30.2	-2°29.3	-2°28.3	-2°27.3	-2°26.3	-2°25.3	-2°12.5	-2°11.5	-2°10.5	-2°09.5	-2°08.5	-2°07.5	+1.0
do 15	177°45.7	192°45.9	207°46.0	222°46.2	237°46.4	252°46.6	87°48.8	102°49.0	117°49.2	132°49.4	147°49.5	162°49.7	+0.2
	-2°06.6	-2°05.6	-2°04.6	-2°03.6	-2°02.6	-2°01.6	-1°48.8	-1°47.8	-1°46.8	-1°45.8	-1°44.8	-1°43.8	+1.0
vr 16	177°49.9	192°50.1	207°50.2	222°50.4	237°50.6	252°50.8	87°53.1	102°53.3	117°53.4	132°53.6	147°53.8	162°54.0	+0.2
	-1°42.8	-1°41.9	-1°40.9	-1°39.9	-1°38.9	-1°37.9	-1°25.0	-1°24.1	-1°23.1	-1°22.1	-1°21.1	-1°20.1	+1.0
za 17	177°54.2	192°54.3	207°54.5	222°54.7	237°54.9	252°55.0	87°57.4	102°57.6	117°57.7	132°57.9	147°58.1	162°58.3	+0.2
	-1°19.1	-1°18.1	-1°17.1	-1°16.2	-1°15.2	-1°14.2	-1°01.3	-1°00.3	-0°59.3	-0°58.4	-0°57.4	-0°56.4	+1.0
zo 18	177°58.5	192°58.6	207°58.8	222°59.0	237°59.2	252°59.4	88°01.7	103°01.9	118°02.1	133°02.3	148°02.5	163°02.6	+0.2
	-0°55.4	-0°54.4	-0°53.4	-0°52.4	-0°51.4	-0°50.4	-0°37.6	-0°36.6	-0°35.6	-0°34.6	-0°33.6	-0°32.6	+1.0
ma 19	178°02.8	193°03.0	208°03.2	223°03.4	238°03.6	253°03.7	88°06.1	103°06.3	118°06.5	133°06.7	148°06.9	163°07.0	+0.2
	-0°31.7	-0°30.7	-0°29.7	-0°28.7	-0°27.7	-0°26.7	-0°13.9	-0°12.9	-0°11.9	-0°10.9	-0°09.9	-0°08.9	+1.0
di 20	178°07.2	193°07.4	208°07.6	223°07.8	238°08.0	253°08.1	88°10.5	103°10.7	118°10.9	133°11.1	148°11.3	163°11.5	+0.2
	-0°07.9	-0°06.9	-0°06.0	-0°05.0	-0°04.0	-0°03.0	0°09.9	0°10.8	0°11.8	0°12.8	0°13.8	0°14.8	+1.0
wo 21	178°11.7	193°11.8	208°12.0	223°12.2	238°12.4	253°12.6	88°15.0	103°15.2	118°15.4	133°15.6	148°15.7	163°15.9	+0.2
	0°15.8	0°16.8	0°17.8	0°18.7	0°19.7	0°20.7	0°33.6	0°34.5	0°35.5	0°36.5	0°37.5	0°38.5	+1.0
do 22	178°16.1	193°16.3	208°16.5	223°16.7	238°16.9	253°17.0	88°19.5	103°19.7	118°19.9	133°20.0	148°20.2	163°20.4	+0.2
	0°39.5	0°40.5	0°41.5	0°42.4	0°43.4	0°44.4	0°57.2	0°58.2	0°59.2	1°00.2	1°01.2	1°02.2	+1.0
vr 23	178°20.6	193°20.8	208°21.0	223°21.2	238°21.4	253°21.5	88°24.0	103°24.2	118°24.4	133°24.5	148°24.7	163°24.9	+0.2
	1°03.1	1°04.1	1°05.1	1°06.1	1°07.1	1°08.1	1°20.9	1°21.9	1°22.8	1°23.8	1°24.8	1°25.8	+1.0
za 24	178°25.1	193°25.3	208°25.5	223°25.7	238°25.9	253°26.1	88°28.5	103°28.7	118°28.9	133°29.1	148°29.3	163°29.5	+0.2
	1°26.8	1°27.8	1°28.8	1°29.7	1°30.7	1°31.7	1°44.5	1°45.5	1°46.5	1°47.4	1°48.4	1°49.4	+1.0
zo 25	178°29.6	193°29.8	208°30.0	223°30.2	238°30.4	253°30.6	88°33.0	103°33.2	118°33.4	133°33.6	148°33.8	163°34.0	+0.2
	1°50.4	1°51.4	1°52.3	1°53.3	1°54.3	1°55.3	2°08.1	2°09.0	2°10.0	2°11.0	2°12.0	2°13.0	+1.0
ma 26	178°34.2	193°34.4	208°34.6	223°34.7	238°34.9	253°35.1	88°37.6	103°37.8	118°38.0	133°38.2	148°38.3	163°38.5	+0.2
	2°13.9	2°14.9	2°15.9	2°16.9	2°17.9	2°18.8	2°31.6	2°32.6	2°33.5	2°34.5	2°35.5	2°36.5	+1.0
di 27	178°38.7	193°38.9	208°39.1	223°39.3	238°39.5	253°39.7	88°42.1	103°42.3	118°42.5	133°42.7	148°42.9	163°43.1	+0.2
	2°37.4	2°38.4	2°39.4	2°40.4	2°41.4	2°42.3	2°55.0	2°56.0	2°57.0	2°58.0	2°58.9	2°59.9	+1.0
wo 28	178°43.3	193°43.5	208°43.6	223°43.8	238°44.0	253°44.2	88°46.7	103°46.9	118°47.1	133°47.2	148°47.4	163°47.6	+0.2
	3°00.9	3°01.9	3°02.9	3°03.8	3°04.8	3°05.8	3°18.5	3°19.4	3°20.4	3°21.4	3°22.3	3°23.3	+1.0
do 29	178°47.8	193°48.0	208°48.2	223°48.4	238°48.6	253°48.8	88°51.2	103°51.4	118°51.6	133°51.8	148°52.0	163°52.1	+0.2
	3°24.3	3°25.3	3°26.2	3°27.2	3°28.2	3°29.2	3°41.8	3°42.8	3°43.7	3°44.7	3°45.7	3°46.7	+1.0
vr 30	178°52.3	193°52.5	208°52.7	223°52.9	238°53.1	253°53.3	88°55.7	103°55.9	118°56.1	133°56.3	148°56.5	163°56.7	+0.2
	3°47.6	3°48.6	3°49.6	3°50.5	3°51.5	3°52.5	4°05.1	4°06.0	4°07.0	4°08.0	4°08.9	4°09.9	+1.0
za 31	178°56.8	193°57.0	208°57.2	223°57.4	238°57.6	253°57.8	89°00.2	104°00.4	119°00.6	134°00.8	149°01.0	164°01.1	+0.2
	4°10.9	4°11.8	4°12.8	4°13.8	4°14.7	4°15.7	4°28.3	4°29.2	4°30.2	4°31.2	4°32.1	4°33.1	+1.0

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\text{h} = v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), $\Delta'/\text{h} = d$: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2029

D	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
do 1	67°15.5	81°43.7	96°11.9	110°40.0	125°08.2	139°36.3	154°04.5	168°32.6	183°00.7	197°28.8	211°56.9	+28.1	16.6
	0°32.6	0°16.6	0°00.6	-0°15.4	-0°31.4	-0°47.3	-1°03.3	-1°19.3	-1°35.3	-1°51.2	-2°07.2	-16.0	61.1
vr 2	68°56.2	83°24.0	97°51.8	112°19.5	126°47.2	141°14.9	155°42.5	170°10.1	184°37.7	199°05.3	213°32.8	+27.7	16.6
	-6°03.8	-6°19.3	-6°34.8	-6°50.2	-7°05.6	-7°20.9	-7°36.2	-7°51.5	-8°06.6	-8°21.8	-8°36.8	-15.3	61.0
za 3	70°21.7	84°48.7	99°15.6	113°42.5	128°09.3	142°36.1	157°02.9	171°29.6	185°56.3	200°23.0	214°49.6	+26.8	16.5
	-12°14.7	-12°28.6	-12°42.4	-12°56.1	-13°09.8	-13°23.3	-13°36.8	-13°50.1	-14°03.4	-14°16.5	-14°29.6	-13.5	60.6
zo 4	71°23.6	85°49.6	100°15.5	114°41.3	129°07.1	143°32.9	157°58.7	172°24.4	186°50.0	201°15.7	215°41.2	+25.8	16.4
	-17°32.5	-17°43.8	-17°54.9	-18°05.9	-18°16.8	-18°27.6	-18°38.2	-18°48.7	-18°59.1	-19°09.3	-19°19.4	-10.7	60.0
ma 5	72°01.1	86°26.2	100°51.3	115°16.3	129°41.3	144°06.3	158°31.3	172°56.3	187°21.2	201°46.2	216°11.1	+25.0	16.2
	-21°34.2	-21°42.1	-21°49.8	-21°57.3	-22°04.7	-22°11.9	-22°19.0	-22°25.9	-22°32.7	-22°39.3	-22°45.8	-7.2	59.2
di 6	72°23.8	86°48.6	101°13.4	115°38.3	130°03.2	144°28.0	158°52.9	173°17.8	187°42.7	202°07.7	216°32.6	+24.9	15.9
	-24°04.2	-24°08.2	-24°12.0	-24°15.6	-24°19.1	-24°22.5	-24°25.6	-24°28.7	-24°31.5	-24°34.2	-24°36.8	-3.3	58.4
◑ wo 7	72°50.1	87°15.6	101°41.0	116°06.6	130°32.1	144°57.8	159°23.4	173°49.2	188°14.9	202°40.7	217°06.6	+25.6	15.7
	-24°56.1	-24°56.1	-24°56.0	-24°55.8	-24°55.4	-24°54.8	-24°54.1	-24°53.3	-24°52.3	-24°51.1	-24°49.8	+0.6	57.6
do 8	73°41.8	88°08.7	102°35.6	117°02.6	131°29.7	145°56.8	160°24.1	174°51.4	189°18.7	203°46.2	218°13.7	+27.2	15.5
	-24°13.2	-24°09.6	-24°05.9	-24°02.1	-23°58.2	-23°54.1	-23°49.9	-23°45.6	-23°41.1	-23°36.5	-23°31.8	+4.1	56.8
vr 9	75°15.9	89°44.7	104°13.6	118°42.5	133°11.6	147°40.7	162°09.9	176°39.2	191°08.6	205°38.0	220°07.6	+29.2	15.3
	-22°06.6	-22°00.0	-21°53.3	-21°46.5	-21°39.6	-21°32.5	-21°25.4	-21°18.2	-21°10.9	-21°03.4	-20°55.9	+7.1	56.1
za 10	77°40.4	92°11.2	106°42.1	121°13.1	135°44.2	150°15.3	164°46.6	179°17.9	193°49.2	208°20.7	222°52.2	+31.2	15.1
	-18°51.7	-18°42.8	-18°33.7	-18°24.6	-18°15.3	-18°06.0	-17°56.7	-17°47.2	-17°37.7	-17°28.1	-17°18.4	+9.3	55.5
zo 11	80°53.9	95°26.5	109°59.3	124°32.1	139°04.9	153°37.8	168°10.8	182°43.9	197°17.0	211°50.1	226°23.4	+33.0	15.0
	-14°45.3	-14°34.6	-14°23.8	-14°13.0	-14°02.1	-13°51.2	-13°40.2	-13°29.2	-13°18.1	-13°07.0	-12°55.8	+10.9	55.0
ma 12	84°48.5	99°22.6	113°56.7	128°30.9	143°05.1	157°39.4	172°13.7	186°48.1	201°22.5	215°56.9	230°31.4	+34.3	14.9
	-10°03.0	-9°51.1	-9°39.3	-9°27.4	-9°15.4	-9°03.5	-8°51.5	-8°39.5	-8°27.4	-8°15.3	-8°03.2	+12.0	54.6
di 13	89°12.9	103°47.9	118°23.0	132°58.1	147°33.1	162°08.3	176°43.4	191°18.6	205°53.7	220°29.0	235°04.2	+35.1	14.8
	-4°59.0	-4°46.6	-4°34.2	-4°21.7	-4°09.3	-3°56.8	-3°44.3	-3°31.8	-3°19.3	-3°06.8	-2°54.3	+12.5	54.3
wo 14	93°54.3	108°29.8	123°05.2	137°40.6	152°16.1	166°51.5	181°27.0	196°02.4	210°37.8	225°13.3	239°48.7	+35.4	14.7
	0°13.8	0°26.3	0°38.8	0°51.3	1°03.8	1°16.3	1°28.8	1°41.3	1°53.8	2°06.2	2°18.7	+12.5	54.0
● do 15	98°39.8	113°15.1	127°50.4	142°25.7	157°01.0	171°36.3	186°11.5	200°46.7	215°21.9	229°57.1	244°32.3	+35.3	14.7
	5°23.7	5°35.8	5°48.0	6°00.1	6°12.2	6°24.3	6°36.4	6°48.4	7°00.4	7°12.3	7°24.3	+12.1	53.9
vr 16	103°16.8	117°51.6	132°26.3	147°01.0	161°35.6	176°10.2	190°44.8	205°19.3	219°53.8	234°28.3	249°02.7	+34.6	14.7
	10°19.4	10°30.8	10°42.1	10°53.4	11°04.7	11°15.9	11°27.1	11°38.2	11°49.3	12°00.3	12°11.3	+11.2	53.9
za 17	107°34.1	122°07.9	136°41.5	151°15.2	165°48.8	180°22.3	194°55.8	209°29.3	224°02.6	238°36.0	253°09.3	+33.5	14.7
	14°49.9	15°00.0	15°10.1	15°20.1	15°30.0	15°39.9	15°49.7	15°59.5	16°09.2	16°18.8	16°28.4	+9.9	53.9
zo 18	111°22.1	125°54.5	140°26.9	154°59.1	169°31.4	184°03.5	198°35.7	213°07.7	227°39.7	242°11.6	256°43.5	+32.1	14.8
	18°43.5	18°51.9	19°00.2	19°08.5	19°16.6	19°24.7	19°32.7	19°40.7	19°48.5	19°56.3	20°03.9	+8.0	54.1
ma 19	114°34.4	129°05.3	143°36.1	158°06.9	172°37.7	187°08.3	201°38.9	216°09.5	230°40.0	245°10.4	259°40.8	+30.6	14.9
	21°48.3	21°54.5	22°00.7	22°06.7	22°12.6	22°18.4	22°24.1	22°29.7	22°35.2	22°40.7	22°46.0	+5.8	54.5
di 20	129°05.3	143°36.1	158°06.9	172°37.7	187°08.3	201°38.9	216°09.5	230°40.0	245°10.4	259°40.8	274°11.1	+30.6	14.9
	21°54.5	22°00.7	22°06.7	22°12.6	22°18.4	22°24.1	22°29.7	22°35.2	22°40.7	22°46.0	22°51.2	+5.7	54.5
wo 21	131°38.8	146°08.2	160°37.6	175°06.9	189°36.1	204°05.3	218°34.5	233°03.6	247°32.7	262°01.7	276°30.6	+29.2	15.0
	23°56.1	23°59.6	24°02.9	24°06.1	24°09.2	24°12.1	24°15.0	24°17.7	24°20.3	24°22.8	24°25.2	+2.9	55.0
do 22	133°39.6	148°07.9	162°36.2	177°04.4	191°32.6	206°00.7	220°28.8	234°56.9	249°24.9	263°53.0	278°21.0	+28.1	15.2
	24°45.8	24°46.2	24°46.4	24°46.5	24°46.5	24°46.3	24°46.0	24°45.6	24°45.1	24°44.4	24°43.6	-0.2	55.6
◐ vr 23	135°18.0	149°45.6	164°13.3	178°40.9	193°08.5	207°36.1	222°03.7	236°31.3	250°58.9	265°26.4	279°54.0	+27.6	15.4
	24°15.3	24°12.4	24°09.3	24°06.0	24°02.7	23°59.2	23°55.5	23°51.7	23°47.8	23°43.8	23°39.6	-3.6	56.4
za 24	136°47.1	151°14.6	165°42.2	180°09.7	194°37.3	209°04.9	223°32.5	238°00.1	252°27.7	266°55.3	281°22.9	+27.6	15.6
	22°20.7	22°14.3	22°07.9	22°01.3	21°54.5	21°47.7	21°40.7	21°33.5	21°26.3	21°18.9	21°11.4	-6.9	57.3
zo 25	138°18.8	152°46.7	167°14.5	181°42.4	196°10.3	210°38.2	225°06.1	239°34.0	254°02.0	268°30.0	282°58.0	+27.9	15.9
	19°03.3	18°53.8	18°44.1	18°34.4	18°24.5	18°14.5	18°04.4	17°54.1	17°43.8	17°33.3	17°22.7	-10.1	58.3
ma 26	139°59.8	154°28.1	168°56.3	183°24.6	197°52.9	212°21.2	226°49.5	241°17.9	255°46.2	270°14.6	284°42.9	+28.3	16.2
	14°30.8	14°18.5	14°06.1	13°53.6	13°41.0	13°28.3	13°15.5	13°02.7	12°49.7	12°36.6	12°23.5	-12.7	59.3
di 27	141°49.5	156°18.0	170°46.5	185°15.0	199°43.5	214°12.0	228°40.5	243°09.0	257°37.5	272°05.9	286°34.4	+28.5	16.4
	8°56.4	8°42.0	8°27.5	8°13.0	7°58.4	7°43.7	7°29.0	7°14.2	6°59.4	6°44.5	6°29.5	-14.7	60.2
wo 28	143°40.8	158°09.1	172°37.4	187°05.7	201°34.0	216°02.2	230°30.5	244°58.7	259°26.9	273°55.0	288°23.2	+28.2	16.6
	2°39.6	2°23.9	2°08.3	1°52.6	1°36.9	1°21.2	1°05.4	0°49.6	0°33.9	0°18.1	0°02.3	-15.7	60.9
do 29	145°21.9	159°49.6	174°17.2	188°44.8	203°12.3	217°39.8	232°07.3	246°34.7	261°02.1	275°29.4	289°56.7	+27.5	16.7
	-3°55.1	-4°10.9	-4°26.6	-4°42.4	-4°58.0	-5°13.7	-5°29.4	-5°45.0	-6°00.5	-6°16.1	-6°31.6	-15.7	61.3
○ vr 30	146°40.4	161°06.9	175°33.3	189°59.7	204°26.1	218°52.4	233°18.6	247°44.8	262°10.9	276°37.0	291°03.0	+26.3	16.7
	-10°18.6	-10°33.2	-10°47.8	-11°02.3	-11°16.8	-11°31.2	-11°45.5	-11°59.7	-12°13.8	-12°27.9	-12°41.8	-14.3	61.4
za 31	147°26.6	161°51.7	176°16.8	190°41.8	205°06.8	219°31.7	233°56.5	248°21.3	262°46.1	277°10.8	291°35.4	+24.9	16.7
	-15°59.7	-16°12.0	-16°24.2	-16°36.3	-16°48.3	-17°00.2	-17°11.9	-17°23.5	-17°35.0	-17°46.4	-17°57.6	-11.8	61.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 7 07h51 — NM: 15 04h19 — EK: 23 07h33 — VM: 30 02h26

ZON

April 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	179°01.3	194°01.5	209°01.7	224°01.9	239°02.1	254°02.3	89°04.7	104°04.9	119°05.1	134°05.2	149°05.4	164°05.6	+0.2
	4°34.1	4°35.0	4°36.0	4°37.0	4°37.9	4°38.9	4°51.4	4°52.4	4°53.3	4°54.3	4°55.2	4°56.2	+1.0
ma 2	179°05.8	194°06.0	209°06.2	224°06.3	239°06.5	254°06.7	89°09.1	104°09.3	119°09.5	134°09.7	149°09.8	164°10.0	+0.2
	4°57.2	4°58.1	4°59.1	5°00.0	5°01.0	5°02.0	5°14.4	5°15.4	5°16.4	5°17.3	5°18.3	5°19.2	+1.0
di 3	179°10.2	194°10.4	209°10.6	224°10.8	239°10.9	254°11.1	89°13.5	104°13.7	119°13.9	134°14.1	149°14.2	164°14.4	+0.2
	5°20.2	5°21.1	5°22.1	5°23.1	5°24.0	5°25.0	5°37.4	5°38.3	5°39.3	5°40.2	5°41.2	5°42.2	+1.0
wo 4	179°14.6	194°14.8	209°15.0	224°15.1	239°15.3	254°15.5	89°17.9	104°18.0	119°18.2	134°18.4	149°18.6	164°18.8	+0.2
	5°43.1	5°44.1	5°45.0	5°46.0	5°46.9	5°47.9	6°00.2	6°01.2	6°02.1	6°03.1	6°04.0	6°05.0	+1.0
do 5	179°18.9	194°19.1	209°19.3	224°19.5	239°19.7	254°19.8	89°22.2	104°22.3	119°22.5	134°22.7	149°22.9	164°23.0	+0.2
	6°05.9	6°06.9	6°07.8	6°08.8	6°09.7	6°10.7	6°23.0	6°23.9	6°24.9	6°25.8	6°26.8	6°27.7	+0.9
vr 6	179°23.2	194°23.4	209°23.6	224°23.8	239°23.9	254°24.1	89°26.4	104°26.6	119°26.7	134°26.9	149°27.1	164°27.3	+0.2
	6°28.7	6°29.6	6°30.5	6°31.5	6°32.4	6°33.4	6°45.6	6°46.6	6°47.5	6°48.5	6°49.4	6°50.3	+0.9
za 7	179°27.4	194°27.6	209°27.8	224°28.0	239°28.1	254°28.3	89°30.6	104°30.8	119°30.9	134°31.1	149°31.3	164°31.4	+0.2
	6°51.3	6°52.2	6°53.2	6°54.1	6°55.0	6°56.0	7°08.2	7°09.1	7°10.0	7°11.0	7°11.9	7°12.8	+0.9
zo 8	179°31.6	194°31.8	209°32.0	224°32.1	239°32.3	254°32.5	89°34.7	104°34.9	119°35.0	134°35.2	149°35.4	164°35.6	+0.2
	7°13.8	7°14.7	7°15.6	7°16.6	7°17.5	7°18.4	7°30.6	7°31.5	7°32.4	7°33.4	7°34.3	7°35.2	+0.9
ma 9	179°35.7	194°35.9	209°36.1	224°36.2	239°36.4	254°36.6	89°38.8	104°38.9	119°39.1	134°39.3	149°39.4	164°39.6	+0.2
	7°36.1	7°37.1	7°38.0	7°38.9	7°39.9	7°40.8	7°52.8	7°53.8	7°54.7	7°55.6	7°56.5	7°57.5	+0.9
di 10	179°39.8	194°39.9	209°40.1	224°40.3	239°40.4	254°40.6	89°42.7	104°42.9	119°43.1	134°43.2	149°43.4	164°43.6	+0.2
	7°58.4	7°59.3	8°00.2	8°01.2	8°02.1	8°03.0	8°15.0	8°15.9	8°16.8	8°17.8	8°18.7	8°19.6	+0.9
wo 11	179°43.7	194°43.9	209°44.1	224°44.2	239°44.4	254°44.6	89°46.7	104°46.8	119°47.0	134°47.1	149°47.3	164°47.5	+0.2
	8°20.5	8°21.4	8°22.3	8°23.3	8°24.2	8°25.1	8°37.0	8°37.9	8°38.8	8°39.7	8°40.7	8°41.6	+0.9
do 12	179°47.6	194°47.8	209°47.9	224°48.1	239°48.3	254°48.4	89°50.5	104°50.7	119°50.8	134°51.0	149°51.1	164°51.3	+0.2
	8°42.5	8°43.4	8°44.3	8°45.2	8°46.1	8°47.0	8°58.9	8°59.8	9°00.7	9°01.6	9°02.5	9°03.4	+0.9
vr 13	179°51.4	194°51.6	209°51.8	224°51.9	239°52.1	254°52.2	89°54.3	104°54.4	119°54.6	134°54.7	149°54.9	164°55.0	+0.2
	9°04.3	9°05.2	9°06.1	9°07.0	9°07.9	9°08.8	9°20.6	9°21.5	9°22.4	9°23.3	9°24.2	9°25.1	+0.9
za 14	179°55.2	194°55.3	209°55.5	224°55.6	239°55.8	254°55.9	89°57.9	104°58.1	119°58.2	134°58.4	149°58.5	164°58.7	+0.2
	9°26.0	9°26.9	9°27.8	9°28.7	9°29.6	9°30.5	9°42.2	9°43.0	9°43.9	9°44.8	9°45.7	9°46.6	+0.9
zo 15	179°58.8	194°59.0	209°59.1	224°59.3	239°59.4	254°59.6	90°01.5	105°01.7	120°01.8	135°01.9	150°02.1	165°02.2	+0.2
	9°47.5	9°48.4	9°49.3	9°50.2	9°51.1	9°52.0	10°03.6	10°04.4	10°05.3	10°06.2	10°07.1	10°08.0	+0.9
ma 16	180°02.4	195°02.5	210°02.7	225°02.8	240°03.0	255°03.1	90°05.0	105°05.1	120°05.3	135°05.4	150°05.6	165°05.7	+0.1
	10°08.9	10°09.8	10°10.7	10°11.5	10°12.4	10°13.3	10°24.8	10°25.7	10°26.6	10°27.4	10°28.3	10°29.2	+0.9
di 17	180°05.9	195°06.0	210°06.1	225°06.3	240°06.4	255°06.6	90°08.4	105°08.5	120°08.7	135°08.8	150°09.0	165°09.1	+0.1
	10°30.1	10°30.9	10°31.8	10°32.7	10°33.6	10°34.5	10°45.8	10°46.7	10°47.6	10°48.5	10°49.3	10°50.2	+0.9
wo 18	180°09.2	195°09.4	210°09.5	225°09.6	240°09.8	255°09.9	90°11.7	105°11.8	120°12.0	135°12.1	150°12.2	165°12.4	+0.1
	10°51.1	10°52.0	10°52.8	10°53.7	10°54.6	10°55.4	11°06.7	11°07.6	11°08.5	11°09.3	11°10.2	11°11.1	+0.9
do 19	180°12.5	195°12.6	210°12.8	225°12.9	240°13.0	255°13.2	90°14.9	105°15.0	120°15.2	135°15.3	150°15.4	165°15.6	+0.1
	11°11.9	11°12.8	11°13.7	11°14.5	11°15.4	11°16.2	11°27.4	11°28.3	11°29.1	11°30.0	11°30.9	11°31.7	+0.9
vr 20	180°15.7	195°15.8	210°16.0	225°16.1	240°16.2	255°16.3	90°18.0	105°18.1	120°18.3	135°18.4	150°18.5	165°18.6	+0.1
	11°32.6	11°33.4	11°34.3	11°35.1	11°36.0	11°36.9	11°47.9	11°48.8	11°49.6	11°50.5	11°51.3	11°52.2	+0.9
za 21	180°18.8	195°18.9	210°19.0	225°19.2	240°19.3	255°19.4	90°21.0	105°21.1	120°21.3	135°21.4	150°21.5	165°21.6	+0.1
	11°53.0	11°53.9	11°54.7	11°55.6	11°56.4	11°57.3	12°08.2	12°09.1	12°09.9	12°10.8	12°11.6	12°12.5	+0.8
zo 22	180°21.7	195°21.9	210°22.0	225°22.1	240°22.2	255°22.4	90°23.9	105°24.0	120°24.1	135°24.3	150°24.4	165°24.5	+0.1
	12°13.3	12°14.1	12°15.0	12°15.8	12°16.7	12°17.5	12°28.4	12°29.2	12°30.0	12°30.9	12°31.7	12°32.5	+0.8
ma 23	180°24.6	195°24.7	210°24.8	225°25.0	240°25.1	255°25.2	90°26.7	105°26.8	120°26.9	135°27.0	150°27.1	165°27.3	+0.1
	12°33.4	12°34.2	12°35.0	12°35.8	12°36.7	12°37.5	12°48.3	12°49.1	12°49.9	12°50.7	12°51.6	12°52.4	+0.8
di 24	180°27.4	195°27.5	210°27.6	225°27.7	240°27.8	255°27.9	90°29.4	105°29.5	120°29.6	135°29.7	150°29.8	165°29.9	+0.1
	12°53.2	12°54.0	12°54.8	12°55.7	12°56.5	12°57.3	13°08.0	13°08.8	13°09.6	13°10.4	13°11.2	13°12.0	+0.8
wo 25	180°30.0	195°30.1	210°30.2	225°30.3	240°30.4	255°30.6	90°31.9	105°32.0	120°32.1	135°32.2	150°32.3	165°32.4	+0.1
	13°12.8	13°13.7	13°14.5	13°15.3	13°16.1	13°16.9	13°27.4	13°28.2	13°29.0	13°29.8	13°30.6	13°31.5	+0.8
do 26	180°32.5	195°32.6	210°32.7	225°32.8	240°33.0	255°33.1	90°34.4	105°34.5	120°34.6	135°34.7	150°34.8	165°34.9	+0.1
	13°32.3	13°33.1	13°33.9	13°34.7	13°35.5	13°36.3	13°46.7	13°47.5	13°48.3	13°49.1	13°49.9	13°50.7	+0.8
vr 27	180°34.9	195°35.0	210°35.1	225°35.2	240°35.3	255°35.4	90°36.7	105°36.8	120°36.9	135°37.0	150°37.0	165°37.1	+0.1
	13°51.5	13°52.2	13°53.0	13°53.8	13°54.6	13°55.4	14°05.7	14°06.5	14°07.3	14°08.1	14°08.8	14°09.6	+0.8
za 28	180°37.2	195°37.3	210°37.4	225°37.5	240°37.6	255°37.7	90°38.9	105°38.9	120°39.0	135°39.1	150°39.2	165°39.3	+0.1
	14°10.4	14°11.2	14°12.0	14°12.8	14°13.6	14°14.3	14°24.5	14°25.3	14°26.0	14°26.8	14°27.6	14°28.4	+0.8
zo 29	180°39.4	195°39.5	210°39.6	225°39.6	240°39.7	255°39.8	90°40.9	105°41.0	120°41.1	135°41.2	150°41.2	165°41.3	+0.1
	14°29.2	14°29.9	14°30.7	14°31.5	14°32.3	14°33.0	14°43.0	14°43.8	14°44.6	14°45.4	14°46.1	14°46.9	+0.8
ma 30	180°41.4	195°41.5	210°41.6	225°41.7	240°41.7	255°41.8	90°42.8	105°42.9	120°43.0	135°43.1	150°43.1	165°43.2	+0.1
	14°47.7	14°48.4	14°49.2	14°49.9	14°50.7	14°51.5	15°01.4	15°02.1	15°02.9	15°03.6	15°04.4	15°05.1	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2029

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
zo 1	75°39.3	90°03.4	104°27.5	118°51.6	133°15.6	147°39.6	162°03.5	176°27.4	190°51.3	205°15.1	219°38.9	+24.0	16.5
	-19°42.4	-19°52.1	-20°01.7	-20°11.1	-20°20.4	-20°29.5	-20°38.4	-20°47.2	-20°55.9	-21°04.4	-21°12.7	-9.0	60.6
ma 2	75°33.1	89°56.6	104°20.1	118°43.6	133°07.1	147°30.6	161°54.0	176°17.5	190°41.0	205°04.5	219°28.0	+23.5	16.3
	-22°58.8	-23°04.5	-23°10.1	-23°15.6	-23°20.8	-23°25.9	-23°30.8	-23°35.6	-23°40.2	-23°44.6	-23°48.8	-5.0	59.8
di 3	75°22.7	89°46.5	104°10.4	118°34.4	132°58.4	147°22.4	161°46.5	176°10.6	190°34.8	204°59.1	219°23.3	+24.1	16.0
	-24°32.3	-24°33.9	-24°35.3	-24°36.5	-24°37.5	-24°38.4	-24°39.2	-24°39.7	-24°40.2	-24°40.4	-24°40.5	-0.8	58.8
wo 4	75°34.9	90°00.2	104°25.6	118°51.1	133°16.6	147°42.3	162°08.0	176°33.8	190°59.7	205°25.6	219°51.7	+25.7	15.8
	-24°22.8	-24°20.5	-24°17.9	-24°15.2	-24°12.4	-24°09.4	-24°06.3	-24°03.0	-23°59.6	-23°56.1	-23°52.4	+3.0	57.8
◑ do 5	76°32.9	91°00.4	105°28.0	119°55.7	134°23.4	148°51.3	163°19.2	177°47.3	192°15.5	206°43.7	221°12.0	+27.9	15.5
	-22°41.4	-22°35.6	-22°29.8	-22°23.8	-22°17.7	-22°11.5	-22°05.2	-21°58.7	-21°52.2	-21°45.5	-21°38.8	+6.3	56.9
vr 6	78°28.6	92°58.4	107°28.4	121°58.4	136°28.6	150°58.8	165°29.1	179°59.5	194°30.0	209°00.6	223°31.3	+30.3	15.3
	-19°45.2	-19°36.8	-19°28.4	-19°19.9	-19°11.3	-19°02.6	-18°53.9	-18°45.0	-18°36.1	-18°27.1	-18°18.0	+8.7	56.0
za 7	81°21.7	95°53.7	110°25.8	124°58.0	139°30.3	154°02.6	168°35.0	183°07.5	197°40.0	212°12.6	226°45.3	+32.4	15.1
	-15°53.0	-15°42.8	-15°32.5	-15°22.2	-15°11.8	-15°01.4	-14°50.9	-14°40.4	-14°29.8	-14°19.1	-14°08.4	+10.5	55.3
zo 8	85°03.7	99°37.5	114°11.2	128°45.1	143°19.0	157°52.9	172°26.9	187°01.0	201°35.1	216°09.2	230°43.4	+34.0	14.9
	-11°22.0	-11°10.5	-10°59.1	-10°47.6	-10°36.0	-10°24.4	-10°12.8	-10°01.2	-9°49.5	-9°37.8	-9°26.0	+11.6	54.8
ma 9	89°21.8	103°56.6	118°31.5	133°06.5	147°41.4	162°16.4	176°51.5	191°26.5	206°01.6	220°36.7	235°11.9	+35.0	14.8
	-6°26.6	-6°14.5	-6°02.3	-5°50.2	-5°38.0	-5°25.8	-5°13.6	-5°01.3	-4°49.1	-4°36.8	-4°24.5	+12.2	54.4
di 10	94°01.5	108°36.9	123°12.4	137°47.8	152°23.3	166°58.8	181°34.2	196°09.7	210°45.2	225°20.7	239°56.2	+35.5	14.7
	-1°19.4	-1°07.0	-0°54.7	-0°42.3	-0°29.9	-0°17.5	-0°05.2	0°07.2	0°19.6	0°31.9	0°44.3	+12.4	54.1
wo 11	98°48.7	113°24.1	127°59.5	142°35.0	157°10.4	171°45.8	186°21.2	200°56.6	215°31.9	230°07.3	244°42.6	+35.4	14.7
	3°48.5	4°00.7	4°12.9	4°25.0	4°37.2	4°49.3	5°01.4	5°13.4	5°25.5	5°37.5	5°49.5	+12.1	53.9
do 12	103°29.9	118°04.9	132°39.8	147°14.7	161°49.5	176°24.4	190°59.2	205°33.9	220°08.7	234°43.4	249°18.0	+34.8	14.7
	8°46.5	8°58.1	9°09.6	9°21.1	9°32.5	9°44.0	9°55.3	10°06.7	10°18.0	10°29.3	10°40.5	+11.4	53.9
● vr 13	107°53.3	122°27.3	137°01.2	151°35.2	166°09.0	180°42.9	195°16.6	209°50.4	224°24.0	238°57.7	253°31.3	+33.8	14.7
	13°23.5	13°34.0	13°44.4	13°54.8	14°05.1	14°15.4	14°25.6	14°35.8	14°45.9	14°55.9	15°05.9	+10.2	53.9
za 14	111°48.8	126°21.5	140°54.2	155°26.8	169°59.4	184°31.9	199°04.4	213°36.8	228°09.1	242°41.4	257°13.6	+32.5	14.7
	17°27.9	17°36.8	17°45.7	17°54.4	18°03.1	18°11.8	18°20.3	18°28.8	18°37.2	18°45.5	18°53.8	+8.6	54.0
zo 15	115°10.1	129°41.4	144°12.6	158°43.8	173°14.9	187°46.0	202°17.0	216°48.0	231°18.8	245°49.7	260°20.5	+31.0	14.8
	20°47.3	20°54.2	21°01.0	21°07.7	21°14.2	21°20.7	21°27.1	21°33.4	21°39.6	21°45.7	21°51.8	+6.4	54.3
ma 16	117°55.6	132°25.5	146°55.4	161°25.2	175°55.0	190°24.7	204°54.4	219°24.0	233°53.6	248°23.1	262°52.6	+29.7	14.9
	23°09.6	23°13.9	23°18.1	23°22.3	23°26.3	23°30.2	23°33.9	23°37.6	23°41.2	23°44.6	23°47.9	+3.8	54.6
di 17	120°10.0	134°38.8	149°07.7	163°36.4	178°05.2	192°33.9	207°02.6	221°31.3	236°00.0	250°28.6	264°57.2	+28.7	15.0
	24°23.6	24°25.0	24°26.3	24°27.5	24°28.5	24°29.4	24°30.2	24°30.9	24°31.4	24°31.8	24°32.1	+0.9	55.1
wo 18	134°38.8	149°07.7	163°36.4	178°05.2	192°33.9	207°02.6	221°31.3	236°00.0	250°28.6	264°57.2	279°25.7	+28.7	15.0
	24°25.0	24°26.3	24°27.5	24°28.5	24°29.4	24°30.2	24°30.9	24°31.4	24°31.8	24°32.1	24°32.3	+0.7	55.1
do 19	136°31.9	151°00.2	165°28.5	179°56.7	194°25.0	208°53.3	223°21.5	237°49.8	252°18.0	266°46.2	281°14.5	+28.3	15.2
	24°19.5	24°17.6	24°15.6	24°13.4	24°11.1	24°08.7	24°06.2	24°03.5	24°00.8	23°57.8	23°54.8	-2.5	55.7
vr 20	138°18.2	152°46.5	167°14.8	181°43.2	196°11.5	210°39.8	225°08.2	239°36.6	254°05.0	268°33.3	283°01.8	+28.3	15.4
	22°53.6	22°48.5	22°43.3	22°38.0	22°32.5	22°26.9	22°21.1	22°15.3	22°09.3	22°03.2	21°57.0	-5.7	56.3
◐ za 21	140°10.0	154°38.7	169°07.4	183°36.1	198°04.9	212°33.7	227°02.5	241°31.3	256°00.2	270°29.0	284°57.9	+28.8	15.6
	20°09.0	20°00.9	19°52.6	19°44.2	19°35.7	19°27.1	19°18.4	19°09.6	19°00.6	18°51.6	18°42.4	-8.7	57.1
zo 22	142°13.9	156°43.1	171°12.3	185°41.6	200°10.9	214°40.2	229°09.5	243°38.8	258°08.2	272°37.6	287°06.9	+29.3	15.8
	16°12.0	16°01.1	15°50.2	15°39.1	15°28.0	15°16.7	15°05.4	14°54.0	14°42.5	14°30.8	14°19.1	-11.3	58.0
ma 23	144°29.4	158°58.9	173°28.5	187°58.1	202°27.7	216°57.3	231°26.9	245°56.5	260°26.1	274°55.8	289°25.4	+29.6	16.1
	11°13.1	11°00.0	10°46.9	10°33.7	10°20.4	10°07.1	9°53.6	9°40.2	9°26.6	9°13.0	8°59.3	-13.4	58.9
di 24	146°49.1	161°18.7	175°48.2	190°17.7	204°47.1	219°16.6	233°46.0	248°15.5	262°44.9	277°14.2	291°43.6	+29.4	16.3
	5°26.7	5°12.1	4°57.5	4°42.8	4°28.1	4°13.3	3°58.5	3°43.6	3°28.7	3°13.8	2°58.9	-14.8	59.8
wo 25	149°00.8	163°29.7	177°58.5	192°27.3	206°56.1	221°24.8	235°53.5	250°22.2	264°50.8	279°19.3	293°47.8	+28.7	16.5
	-0°48.6	-1°03.9	-1°19.2	-1°34.6	-1°49.9	-2°05.2	-2°20.6	-2°35.9	-2°51.2	-3°06.5	-3°21.9	-15.3	60.5
do 26	150°49.4	165°17.0	179°44.6	194°12.1	208°39.6	223°07.0	237°34.4	252°01.6	266°28.9	280°56.0	295°23.1	+27.4	16.6
	-7°09.8	-7°24.8	-7°39.8	-7°54.7	-8°09.6	-8°24.4	-8°39.2	-8°53.9	-9°08.6	-9°23.3	-9°37.9	-14.8	61.0
vr 27	152°00.9	166°26.9	180°52.8	195°18.6	209°44.3	224°09.9	238°35.5	253°01.0	267°26.5	281°51.8	296°17.1	+25.6	16.7
	-13°09.2	-13°22.7	-13°36.1	-13°49.4	-14°02.6	-14°15.8	-14°28.8	-14°41.7	-14°54.6	-15°07.3	-15°20.0	-13.1	61.2
○ za 28	152°27.6	166°51.8	181°15.8	195°39.8	210°03.8	224°27.7	238°51.5	253°15.2	267°38.9	282°02.6	296°26.1	+23.8	16.7
	-18°16.3	-18°27.0	-18°37.7	-18°48.2	-18°58.5	-19°08.8	-19°18.9	-19°28.8	-19°38.6	-19°48.3	-19°57.8	-10.2	61.1
zo 29	152°13.6	166°36.4	180°59.2	195°21.9	209°44.7	224°07.4	238°30.0	252°52.7	267°15.3	281°37.9	296°00.5	+22.7	16.5
	-22°02.2	-22°09.3	-22°16.1	-22°22.8	-22°29.3	-22°35.7	-22°41.8	-22°47.9	-22°53.7	-22°59.4	-23°04.9	-6.3	60.6
ma 30	151°38.7	166°01.2	180°23.9	194°46.5	209°09.2	223°31.8	237°54.6	252°17.3	266°40.1	281°02.9	295°25.7	+22.7	16.3
	-24°06.4	-24°09.1	-24°11.6	-24°14.0	-24°16.2	-24°18.2	-24°20.0	-24°21.6	-24°23.1	-24°24.4	-24°25.5	-1.9	59.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 5 19h51 — NM: 13 21h40 — EK: 21 19h50 — VM: 28 10h36

ZON

Mei 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	180°43.3	195°43.4	210°43.4	225°43.5	240°43.6	255°43.7	90°44.6	105°44.7	120°44.8	135°44.8	150°44.9	165°45.0	+0.1
	15°05.9	15°06.7	15°07.4	15°08.2	15°08.9	15°09.7	15°19.4	15°20.2	15°20.9	15°21.7	15°22.4	15°23.2	+0.8
wo 2	180°45.1	195°45.1	210°45.2	225°45.3	240°45.3	255°45.4	90°46.3	105°46.3	120°46.4	135°46.5	150°46.5	165°46.6	+0.1
	15°23.9	15°24.7	15°25.4	15°26.1	15°26.9	15°27.6	15°37.2	15°38.0	15°38.7	15°39.5	15°40.2	15°40.9	+0.7
do 3	180°46.7	195°46.7	210°46.8	225°46.9	240°46.9	255°47.0	90°47.8	105°47.8	120°47.9	135°48.0	150°48.0	165°48.1	+0.1
	15°41.7	15°42.4	15°43.1	15°43.9	15°44.6	15°45.3	15°54.8	15°55.5	15°56.3	15°57.0	15°57.7	15°58.4	+0.7
vr 4	180°48.1	195°48.2	210°48.3	225°48.3	240°48.4	255°48.4	90°49.1	105°49.2	120°49.3	135°49.3	150°49.4	165°49.4	+0.1
	15°59.2	15°59.9	16°00.6	16°01.3	16°02.0	16°02.8	16°12.1	16°12.8	16°13.5	16°14.2	16°15.0	16°15.7	+0.7
za 5	180°49.5	195°49.5	210°49.6	225°49.6	240°49.7	255°49.7	90°50.4	105°50.4	120°50.5	135°50.5	150°50.6	165°50.6	+0.1
	16°16.4	16°17.1	16°17.8	16°18.5	16°19.2	16°19.9	16°29.1	16°29.8	16°30.5	16°31.2	16°31.9	16°32.6	+0.7
zo 6	180°50.6	195°50.7	210°50.7	225°50.8	240°50.8	255°50.9	90°51.4	105°51.5	120°51.5	135°51.6	150°51.6	165°51.6	+0.0
	16°33.3	16°34.0	16°34.7	16°35.4	16°36.1	16°36.8	16°45.9	16°46.6	16°47.3	16°48.0	16°48.6	16°49.3	+0.7
ma 7	180°51.7	195°51.7	210°51.8	225°51.8	240°51.8	255°51.9	90°52.4	105°52.4	120°52.4	135°52.5	150°52.5	165°52.5	+0.0
	16°50.0	16°50.7	16°51.4	16°52.1	16°52.8	16°53.5	17°02.4	17°03.0	17°03.7	17°04.4	17°05.1	17°05.8	+0.7
di 8	180°52.6	195°52.6	210°52.6	225°52.7	240°52.7	255°52.7	90°53.2	105°53.2	120°53.2	135°53.2	150°53.3	165°53.3	+0.0
	17°06.4	17°07.1	17°07.8	17°08.5	17°09.1	17°09.8	17°18.5	17°19.2	17°19.9	17°20.5	17°21.2	17°21.9	+0.7
wo 9	180°53.3	195°53.4	210°53.4	225°53.4	240°53.4	255°53.5	90°53.8	105°53.8	120°53.8	135°53.9	150°53.9	165°53.9	+0.0
	17°22.5	17°23.2	17°23.9	17°24.5	17°25.2	17°25.9	17°34.4	17°35.1	17°35.8	17°36.4	17°37.1	17°37.7	+0.7
do 10	180°53.9	195°53.9	210°54.0	225°54.0	240°54.0	255°54.0	90°54.3	105°54.3	120°54.3	135°54.3	150°54.3	165°54.4	+0.0
	17°38.4	17°39.0	17°39.7	17°40.3	17°41.0	17°41.6	17°50.1	17°50.7	17°51.3	17°52.0	17°52.6	17°53.3	+0.7
vr 11	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.5	90°54.6	105°54.6	120°54.6	135°54.7	150°54.7	165°54.7	+0.0
	17°53.9	17°54.5	17°55.2	17°55.8	17°56.5	17°57.1	18°05.4	18°06.0	18°06.6	18°07.3	18°07.9	18°08.5	+0.6
za 12	180°54.7	195°54.7	210°54.7	225°54.7	240°54.7	255°54.7	90°54.8	105°54.8	120°54.8	135°54.8	150°54.8	165°54.8	+0.0
	18°09.1	18°09.8	18°10.4	18°11.0	18°11.7	18°12.3	18°20.4	18°21.0	18°21.6	18°22.2	18°22.8	18°23.5	+0.6
zo 13	180°54.8	195°54.9	210°54.9	225°54.9	240°54.9	255°54.9	90°54.9	105°54.9	120°54.9	135°54.9	150°54.9	165°54.9	+0.0
	18°24.1	18°24.7	18°25.3	18°25.9	18°26.5	18°27.1	18°35.1	18°35.7	18°36.3	18°36.9	18°37.5	18°38.1	+0.6
ma 14	180°54.9	195°54.9	210°54.9	225°54.9	240°54.9	255°54.9	90°54.8	105°54.8	120°54.8	135°54.8	150°54.8	165°54.8	-0.0
	18°38.7	18°39.3	18°39.9	18°40.5	18°41.1	18°41.7	18°49.4	18°50.0	18°50.6	18°51.2	18°51.8	18°52.4	+0.6
di 15	180°54.7	195°54.7	210°54.7	225°54.7	240°54.7	255°54.7	90°54.6	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	-0.0
	18°53.0	18°53.6	18°54.2	18°54.8	18°55.3	18°55.9	19°03.5	19°04.1	19°04.7	19°05.2	19°05.8	19°06.4	+0.6
wo 16	180°54.5	195°54.5	210°54.5	225°54.4	240°54.4	255°54.4	90°54.2	105°54.2	120°54.2	135°54.1	150°54.1	165°54.1	-0.0
	19°07.0	19°07.5	19°08.1	19°08.7	19°09.3	19°09.8	19°17.2	19°17.8	19°18.4	19°18.9	19°19.5	19°20.1	+0.6
do 17	180°54.1	195°54.1	210°54.0	225°54.0	240°54.0	255°54.0	90°53.7	105°53.7	120°53.6	135°53.6	150°53.6	165°53.6	-0.0
	19°20.6	19°21.2	19°21.7	19°22.3	19°22.9	19°23.4	19°30.7	19°31.2	19°31.8	19°32.3	19°32.9	19°33.4	+0.6
vr 18	180°53.5	195°53.5	210°53.5	225°53.5	240°53.4	255°53.4	90°53.1	105°53.0	120°53.0	135°53.0	150°52.9	165°52.9	-0.0
	19°34.0	19°34.5	19°35.0	19°35.6	19°36.1	19°36.7	19°43.7	19°44.3	19°44.8	19°45.3	19°45.9	19°46.4	+0.5
za 19	180°52.9	195°52.8	210°52.8	225°52.8	240°52.7	255°52.7	90°52.3	105°52.2	120°52.2	135°52.2	150°52.1	165°52.1	-0.0
	19°46.9	19°47.5	19°48.0	19°48.5	19°49.1	19°49.6	19°56.5	19°57.0	19°57.5	19°58.0	19°58.6	19°59.1	+0.5
zo 20	180°52.1	195°52.0	210°52.0	225°52.0	240°51.9	255°51.9	90°51.4	105°51.3	120°51.3	135°51.3	150°51.2	165°51.2	-0.0
	19°59.6	20°00.1	20°00.6	20°01.2	20°01.7	20°02.2	20°08.9	20°09.4	20°09.9	20°10.4	20°10.9	20°11.4	+0.5
ma 21	180°51.1	195°51.1	210°51.1	225°51.0	240°51.0	255°50.9	90°50.4	105°50.3	120°50.3	135°50.2	150°50.2	165°50.1	-0.0
	20°11.9	20°12.4	20°12.9	20°13.4	20°13.9	20°14.4	20°20.9	20°21.4	20°21.9	20°22.4	20°22.9	20°23.4	+0.5
di 22	180°50.1	195°50.0	210°50.0	225°49.9	240°49.9	255°49.8	90°49.2	105°49.1	120°49.1	135°49.0	150°49.0	165°48.9	-0.0
	20°23.9	20°24.4	20°24.9	20°25.4	20°25.8	20°26.3	20°32.6	20°33.1	20°33.6	20°34.1	20°34.5	20°35.0	+0.5
wo 23	180°48.9	195°48.8	210°48.8	225°48.7	240°48.7	255°48.6	90°47.9	105°47.9	120°47.8	135°47.7	150°47.7	165°47.6	-0.1
	20°35.5	20°36.0	20°36.5	20°36.9	20°37.4	20°37.9	20°44.0	20°44.4	20°44.9	20°45.4	20°45.8	20°46.3	+0.5
do 24	180°47.6	195°47.5	210°47.5	225°47.4	240°47.3	255°47.3	90°46.5	105°46.5	120°46.4	135°46.3	150°46.3	165°46.2	-0.1
	20°46.8	20°47.2	20°47.7	20°48.1	20°48.6	20°49.1	20°55.0	20°55.4	20°55.9	20°56.3	20°56.8	20°57.2	+0.5
vr 25	180°46.1	195°46.1	210°46.0	225°46.0	240°45.9	255°45.8	90°45.0	105°44.9	120°44.9	135°44.8	150°44.7	165°44.7	-0.1
	20°57.7	20°58.1	20°58.6	20°59.0	20°59.4	20°59.9	21°05.6	21°06.0	21°06.5	21°06.9	21°07.3	21°07.8	+0.4
za 26	180°44.6	195°44.5	210°44.5	225°44.4	240°44.3	255°44.3	90°43.4	105°43.3	120°43.2	135°43.1	150°43.1	165°43.0	-0.1
	21°08.2	21°08.6	21°09.1	21°09.5	21°09.9	21°10.4	21°15.9	21°16.3	21°16.7	21°17.1	21°17.6	21°18.0	+0.4
zo 27	180°42.9	195°42.9	210°42.8	225°42.7	240°42.6	255°42.6	90°41.6	105°41.5	120°41.5	135°41.4	150°41.3	165°41.2	-0.1
	21°18.4	21°18.8	21°19.2	21°19.6	21°20.0	21°20.5	21°25.8	21°26.2	21°26.6	21°27.0	21°27.4	21°27.8	+0.4
ma 28	180°41.1	195°41.1	210°41.0	225°40.9	240°40.8	255°40.8	90°39.7	105°39.7	120°39.6	135°39.5	150°39.4	165°39.3	-0.1
	21°28.2	21°28.6	21°29.0	21°29.4	21°29.8	21°30.2	21°35.3	21°35.7	21°36.1	21°36.5	21°36.9	21°37.3	+0.4
di 29	180°39.2	195°39.2	210°39.1	225°39.0	240°38.9	255°38.8	90°37.7	105°37.7	120°37.6	135°37.5	150°37.4	165°37.3	-0.1
	21°37.6	21°38.0	21°38.4	21°38.8	21°39.2	21°39.6	21°44.5	21°44.8	21°45.2	21°45.6	21°46.0	21°46.3	+0.4
wo 30	180°37.2	195°37.2	210°37.1	225°37.0	240°36.9	255°36.8	90°35.7	105°35.6	120°35.5	135°35.4	150°35.3	165°35.2	-0.1
	21°46.7	21°47.1	21°47.4	21°47.8	21°48.2	21°48.5	21°53.3	21°53.6	21°54.0	21°54.3	21°54.7	21°55.0	+0.4
do 31	180°35.1	195°35.0	210°34.9	225°34.8	240°34.8	255°34.7	90°33.5	105°33.4	120°33.3	135°33.2	150°33.1	165°33.0	-0.1
	21°55.4	21°55.7	21°56.1	21°56.5	21°56.8	21°57.2	22°01.7	22°02.0	22°02.3	22°02.7	22°03.0	22°03.4	+0.4

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\mathrm{h} = v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), $\Delta'/\mathrm{h} = d$: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2029

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
di 1	64°53.4	79°16.7	93°40.1	108°03.6	122°27.1	136°50.7	151°14.3	165°38.1	180°01.9	194°25.7	208°49.7	+23.6	16.1
	-24°27.9	-24°27.3	-24°26.6	-24°25.7	-24°24.6	-24°23.3	-24°21.9	-24°20.3	-24°18.6	-24°16.7	-24°14.7	+1.3	59.1
wo 2	64°58.6	79°23.9	93°49.3	108°14.8	122°40.4	137°06.1	151°31.9	165°57.8	180°23.9	194°50.0	209°16.2	+25.8	15.9
	-23°25.4	-23°21.0	-23°16.4	-23°11.7	-23°06.8	-23°01.8	-22°56.7	-22°51.4	-22°46.0	-22°40.5	-22°34.8	+5.1	58.1
do 3	66°01.9	80°29.8	94°57.8	109°25.9	123°54.1	138°22.4	152°50.9	167°19.4	181°48.1	196°16.8	210°45.7	+28.4	15.6
	-20°55.5	-20°47.9	-20°40.3	-20°32.6	-20°24.7	-20°16.8	-20°08.8	-20°00.7	-19°52.4	-19°44.1	-19°35.7	+8.0	57.2
vr 4	68°10.9	82°41.4	97°11.9	111°42.6	126°13.4	140°44.3	155°15.2	169°46.3	184°17.4	198°48.6	213°20.0	+30.9	15.3
	-17°19.3	-17°09.5	-16°59.7	-16°49.9	-16°39.9	-16°29.9	-16°19.9	-16°09.7	-15°59.5	-15°49.3	-15°39.0	+10.0	56.2
◑ za 5	71°20.2	85°52.8	100°25.6	114°58.4	129°31.3	144°04.2	158°37.3	173°10.4	187°43.5	202°16.8	216°50.1	+33.0	15.1
	-12°57.5	-12°46.3	-12°35.1	-12°23.9	-12°12.6	-12°01.2	-11°49.9	-11°38.5	-11°27.0	-11°15.5	-11°04.0	+11.4	55.5
zo 6	75°17.0	89°51.2	104°25.5	118°59.8	133°34.2	148°08.7	162°43.1	177°17.7	191°52.2	206°26.8	221°01.5	+34.5	15.0
	-8°07.4	-7°55.4	-7°43.4	-7°31.4	-7°19.4	-7°07.3	-6°55.2	-6°43.1	-6°31.0	-6°18.8	-6°06.7	+12.1	54.8
ma 7	79°45.5	94°20.6	108°55.8	123°31.1	138°06.3	152°41.6	167°16.8	181°52.1	196°27.5	211°02.8	225°38.1	+35.3	14.8
	-3°02.9	-2°50.6	-2°38.3	-2°26.0	-2°13.7	-2°01.3	-1°49.0	-1°36.7	-1°24.3	-1°12.0	-0°59.7	+12.3	54.4
di 8	84°29.6	99°05.1	113°40.5	128°16.0	142°51.5	157°26.9	172°02.4	186°37.8	201°13.3	215°48.7	230°24.1	+35.5	14.7
	2°04.7	2°16.9	2°29.1	2°41.3	2°53.5	3°05.7	3°17.8	3°30.0	3°42.1	3°54.2	4°06.3	+12.2	54.1
wo 9	89°14.0	103°49.2	118°24.3	132°59.5	147°34.6	162°09.7	176°44.7	191°19.8	205°54.8	220°29.7	235°04.7	+35.1	14.7
	7°05.3	7°17.0	7°28.8	7°40.4	7°52.1	8°03.7	8°15.3	8°26.9	8°38.4	8°49.9	9°01.4	+11.6	53.9
do 10	93°44.8	108°19.1	122°53.5	137°27.7	152°02.0	166°36.2	181°10.3	195°44.4	210°18.5	224°52.5	239°26.5	+34.2	14.7
	11°48.8	11°59.7	12°10.5	12°21.2	12°31.9	12°42.6	12°53.2	13°03.7	13°14.2	13°24.7	13°35.1	+10.6	54.0
vr 11	97°50.0	112°23.1	126°56.2	141°29.2	156°02.2	170°35.1	185°07.9	199°40.7	214°13.5	228°46.2	243°18.8	+32.9	14.7
	16°04.4	16°13.9	16°23.3	16°32.6	16°41.9	16°51.1	17°00.3	17°09.3	17°18.3	17°27.3	17°36.1	+9.2	54.1
za 12	101°21.0	115°52.6	130°24.2	144°55.7	159°27.2	173°58.6	188°30.0	203°01.3	217°32.5	232°03.6	246°34.8	+31.4	14.8
	19°39.9	19°47.5	19°55.1	20°02.5	20°09.9	20°17.1	20°24.3	20°31.4	20°38.4	20°45.3	20°52.1	+7.2	54.3
● zo 13	104°14.1	118°44.3	133°14.4	147°44.4	162°14.4	176°44.4	191°14.2	205°44.1	220°13.9	234°43.6	249°13.3	+29.9	14.9
	22°22.7	22°27.9	22°33.0	22°38.0	22°43.0	22°47.8	22°52.5	22°57.1	23°01.5	23°05.9	23°10.2	+4.8	54.6
ma 14	106°32.6	121°01.5	135°30.4	149°59.3	164°28.1	178°56.9	193°25.7	207°54.4	222°23.1	236°51.7	251°20.3	+28.8	15.0
	24°00.3	24°02.7	24°05.0	24°07.2	24°09.2	24°11.1	24°12.9	24°14.6	24°16.2	24°17.6	24°18.9	+1.9	55.0
di 15	108°26.6	122°54.9	137°23.1	151°51.3	166°19.5	180°47.8	195°16.0	209°44.1	224°12.3	238°40.5	253°08.7	+28.2	15.1
	24°23.2	24°22.5	24°21.6	24°20.6	24°19.5	24°18.3	24°16.9	24°15.4	24°13.8	24°12.0	24°10.1	-1.3	55.4
wo 16	110°11.3	124°39.5	139°07.8	153°36.0	168°04.3	182°32.5	197°00.8	211°29.1	225°57.4	240°25.8	254°54.1	+28.3	15.3
	23°26.2	23°22.3	23°18.2	23°14.0	23°09.7	23°05.2	23°00.6	22°55.9	22°51.1	22°46.1	22°41.0	-4.5	56.0
do 17	112°02.0	126°30.7	140°59.5	155°28.2	169°57.1	184°25.9	198°54.8	213°23.7	227°52.6	242°21.5	256°50.5	+28.9	15.4
	21°10.1	21°03.1	20°55.9	20°48.7	20°41.3	20°33.9	20°26.3	20°18.5	20°10.7	20°02.8	19°54.7	-7.5	56.5
vr 18	126°30.7	140°59.5	155°28.2	169°57.1	184°25.9	198°54.8	213°23.7	227°52.6	242°21.5	256°50.5	271°19.5	+28.9	15.4
	21°03.1	20°55.9	20°48.7	20°41.3	20°33.9	20°26.3	20°18.5	20°10.7	20°02.8	19°54.7	19°46.6	-7.7	56.6
za 19	128°38.6	143°08.1	157°37.6	172°07.2	186°36.8	201°06.5	215°36.2	230°05.9	244°35.6	259°05.4	273°35.2	+29.7	15.6
	17°31.4	17°21.6	17°11.7	17°01.6	16°51.5	16°41.3	16°31.0	16°20.6	16°10.1	15°59.5	15°48.8	-10.3	57.2
zo 20	131°05.4	145°35.6	160°05.8	174°36.1	189°06.3	203°36.6	218°06.9	232°37.3	247°07.6	261°38.0	276°08.4	+30.3	15.8
	12°58.0	12°46.0	12°33.9	12°21.7	12°09.5	11°57.1	11°44.7	11°32.2	11°19.7	11°07.1	10°54.4	-12.4	57.9
◐ ma 21	133°45.5	148°16.1	162°46.6	177°17.2	191°47.7	206°18.2	220°48.8	235°19.3	249°49.8	264°20.4	278°50.9	+30.5	16.0
	7°36.5	7°22.9	7°09.2	6°55.4	6°41.7	6°27.8	6°13.9	6°00.0	5°46.0	5°32.0	5°17.9	-13.9	58.6
di 22	136°27.4	150°57.7	165°28.0	179°58.3	194°28.5	208°58.7	223°28.9	237°59.0	252°29.1	266°59.2	281°29.3	+30.2	16.2
	1°42.8	1°28.2	1°13.6	0°59.0	0°44.4	0°29.7	0°15.0	0°00.4	-0°14.3	-0°29.0	-0°43.7	-14.7	59.2
wo 23	138°55.5	153°24.9	167°54.3	182°23.6	196°52.8	211°22.0	225°51.2	240°20.3	254°49.3	269°18.3	283°47.2	+29.2	16.3
	-4°24.8	-4°39.5	-4°54.2	-5°08.8	-5°23.5	-5°38.1	-5°52.7	-6°07.3	-6°21.9	-6°36.4	-6°50.9	-14.6	59.8
do 24	140°53.3	155°21.1	169°48.9	184°16.6	198°44.2	213°11.8	227°39.3	242°06.7	256°34.0	271°01.3	285°28.5	+27.5	16.4
	-10°24.3	-10°38.1	-10°51.9	-11°05.7	-11°19.4	-11°33.0	-11°46.6	-12°00.1	-12°13.5	-12°26.9	-12°40.2	-13.6	60.3
vr 25	142°06.5	156°32.4	170°58.2	185°23.9	199°49.5	214°15.1	228°40.5	243°05.9	257°31.2	271°56.4	286°21.6	+25.5	16.5
	-15°50.1	-16°02.0	-16°13.8	-16°25.6	-16°37.2	-16°48.7	-17°00.1	-17°11.4	-17°22.6	-17°33.7	-17°44.7	-11.5	60.5
za 26	142°29.2	156°53.1	171°17.0	185°40.7	200°04.4	214°28.1	228°51.7	243°15.2	257°38.6	272°02.0	286°25.4	+23.6	16.5
	-20°14.3	-20°23.2	-20°31.9	-20°40.6	-20°49.0	-20°57.3	-21°05.5	-21°13.5	-21°21.4	-21°29.1	-21°36.7	-8.2	60.5
○ zo 27	142°09.5	156°32.1	170°54.7	185°17.3	199°39.8	214°02.3	228°24.8	242°47.3	257°09.8	271°32.3	285°54.7	+22.5	16.4
	-23°11.0	-23°16.0	-23°20.7	-23°25.4	-23°29.8	-23°34.1	-23°38.2	-23°42.1	-23°45.9	-23°49.5	-23°52.9	-4.2	60.2
ma 28	141°32.0	155°54.6	170°17.3	184°40.0	199°02.7	213°25.4	227°48.2	242°11.1	256°33.9	270°56.9	285°19.8	+22.8	16.3
	-24°22.9	-24°23.5	-24°23.9	-24°24.2	-24°24.3	-24°24.2	-24°23.9	-24°23.5	-24°22.8	-24°22.1	-24°21.1	+0.2	59.6
di 29	141°11.6	155°35.6	169°59.7	184°23.9	198°48.2	213°12.5	227°37.0	242°01.5	256°26.1	270°50.8	285°15.6	+24.4	16.1
	-23°47.0	-23°43.4	-23°39.7	-23°35.9	-23°31.8	-23°27.7	-23°23.4	-23°18.9	-23°14.3	-23°09.5	-23°04.6	+4.2	58.9
wo 30	141°39.3	156°05.7	170°32.2	184°58.8	199°25.6	213°52.4	228°19.3	242°46.4	257°13.5	271°40.8	286°08.1	+26.9	15.8
	-21°34.9	-21°27.9	-21°20.8	-21°13.5	-21°06.2	-20°58.7	-20°51.1	-20°43.4	-20°35.6	-20°27.7	-20°19.7	+7.5	58.0
do 31	143°11.6	157°40.7	172°09.9	186°39.2	201°08.6	215°38.1	230°07.7	244°37.4	259°07.3	273°37.2	288°07.2	+29.6	15.6
	-18°07.5	-17°58.0	-17°48.3	-17°38.6	-17°28.9	-17°19.0	-17°09.1	-16°59.1	-16°49.0	-16°38.9	-16°28.6	+9.9	57.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 5 09h48 — NM: 13 13h42 — EK: 21 04h16 — VM: 27 18h37

ZON

Juni 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	180°32.9	195°32.8	210°32.7	225°32.6	240°32.5	255°32.4	90°31.2	105°31.1	120°31.0	135°30.9	150°30.8	165°30.7	-0.1
	22°03.7	22°04.0	22°04.4	22°04.7	22°05.0	22°05.4	22°09.7	22°10.0	22°10.3	22°10.7	22°11.0	22°11.3	+0.3
za 2	180°30.6	195°30.5	210°30.4	225°30.3	240°30.2	255°30.1	90°28.8	105°28.6	120°28.5	135°28.4	150°28.3	165°28.2	-0.1
	22°11.6	22°11.9	22°12.3	22°12.6	22°12.9	22°13.2	22°17.3	22°17.6	22°17.9	22°18.2	22°18.5	22°18.9	+0.3
zo 3	180°28.1	195°28.0	210°27.9	225°27.8	240°27.7	255°27.6	90°26.3	105°26.1	120°26.0	135°25.9	150°25.8	165°25.7	-0.1
	22°19.2	22°19.5	22°19.8	22°20.1	22°20.4	22°20.7	22°24.6	22°24.8	22°25.1	22°25.4	22°25.7	22°26.0	+0.3
ma 4	180°25.6	195°25.5	210°25.4	225°25.3	240°25.2	255°25.1	90°23.7	105°23.6	120°23.4	135°23.3	150°23.2	165°23.1	-0.1
	22°26.3	22°26.6	22°26.9	22°27.2	22°27.5	22°27.7	22°31.4	22°31.7	22°32.0	22°32.2	22°32.5	22°32.8	+0.3
di 5	180°23.0	195°22.9	210°22.8	225°22.7	240°22.6	255°22.4	90°21.0	105°20.9	120°20.8	135°20.6	150°20.5	165°20.4	-0.1
	22°33.1	22°33.3	22°33.6	22°33.9	22°34.1	22°34.4	22°37.9	22°38.1	22°38.4	22°38.6	22°38.9	22°39.2	+0.3
wo 6	180°20.3	195°20.2	210°20.1	225°20.0	240°19.8	255°19.7	90°18.2	105°18.1	120°18.0	135°17.9	150°17.8	165°17.6	-0.1
	22°39.4	22°39.7	22°39.9	22°40.2	22°40.4	22°40.7	22°43.9	22°44.2	22°44.4	22°44.6	22°44.9	22°45.1	+0.3
do 7	180°17.5	195°17.4	210°17.3	225°17.2	240°17.0	255°16.9	90°15.4	105°15.3	120°15.1	135°15.0	150°14.9	165°14.8	-0.1
	22°45.4	22°45.6	22°45.9	22°46.1	22°46.3	22°46.6	22°49.6	22°49.8	22°50.0	22°50.3	22°50.5	22°50.7	+0.2
vr 8	180°14.7	195°14.5	210°14.4	225°14.3	240°14.2	255°14.1	90°12.5	105°12.4	120°12.2	135°12.1	150°12.0	165°11.9	-0.1
	22°50.9	22°51.2	22°51.4	22°51.6	22°51.8	22°52.0	22°54.8	22°55.0	22°55.3	22°55.5	22°55.7	22°55.9	+0.2
za 9	180°11.7	195°11.6	210°11.5	225°11.4	240°11.2	255°11.1	90°09.5	105°09.4	120°09.3	135°09.1	150°09.0	165°08.9	-0.1
	22°56.1	22°56.3	22°56.5	22°56.7	22°56.9	22°57.1	22°59.7	22°59.9	23°00.1	23°00.3	23°00.5	23°00.7	+0.2
zo 10	180°08.8	195°08.6	210°08.5	225°08.4	240°08.2	255°08.1	90°06.5	105°06.3	120°06.2	135°06.1	150°06.0	165°05.8	-0.1
	23°00.8	23°01.0	23°01.2	23°01.4	23°01.6	23°01.8	23°04.1	23°04.3	23°04.5	23°04.7	23°04.8	23°05.0	+0.2
ma 11	180°05.7	195°05.6	210°05.4	225°05.3	240°05.2	255°05.1	90°03.4	105°03.3	120°03.1	135°03.0	150°02.9	165°02.7	-0.1
	23°05.2	23°05.4	23°05.5	23°05.7	23°05.9	23°06.0	23°08.2	23°08.3	23°08.5	23°08.7	23°08.8	23°09.0	+0.2
di 12	180°02.6	195°02.5	210°02.3	225°02.2	240°02.1	255°02.0	90°00.3	105°00.1	120°00.0	134°59.9	149°59.7	164°59.6	-0.1
	23°09.1	23°09.3	23°09.4	23°09.6	23°09.7	23°09.9	23°11.8	23°12.0	23°12.1	23°12.2	23°12.4	23°12.5	+0.2
wo 13	179°59.5	194°59.3	209°59.2	224°59.1	239°58.9	254°58.8	89°57.1	104°57.0	119°56.8	134°56.7	149°56.6	164°56.4	-0.1
	23°12.7	23°12.8	23°12.9	23°13.1	23°13.2	23°13.3	23°15.0	23°15.2	23°15.3	23°15.4	23°15.5	23°15.7	+0.1
do 14	179°56.3	194°56.2	209°56.0	224°55.9	239°55.8	254°55.6	89°53.9	104°53.7	119°53.6	134°53.5	149°53.3	164°53.2	-0.1
	23°15.8	23°15.9	23°16.0	23°16.1	23°16.3	23°16.4	23°17.9	23°18.0	23°18.1	23°18.2	23°18.3	23°18.4	+0.1
vr 15	179°53.1	194°52.9	209°52.8	224°52.7	239°52.5	254°52.4	89°50.6	104°50.5	119°50.4	134°50.2	149°50.1	164°50.0	-0.1
	23°18.5	23°18.6	23°18.7	23°18.8	23°18.9	23°19.0	23°20.3	23°20.4	23°20.4	23°20.5	23°20.6	23°20.7	+0.1
za 16	179°49.8	194°49.7	209°49.6	224°49.4	239°49.3	254°49.2	89°47.4	104°47.3	119°47.1	134°47.0	149°46.9	164°46.7	-0.1
	23°20.8	23°20.9	23°21.0	23°21.1	23°21.1	23°21.2	23°22.3	23°22.3	23°22.4	23°22.5	23°22.6	23°22.6	+0.1
zo 17	179°46.6	194°46.4	209°46.3	224°46.2	239°46.0	254°45.9	89°44.1	104°44.0	119°43.9	134°43.7	149°43.6	164°43.5	-0.1
	23°22.7	23°22.8	23°22.8	23°22.9	23°23.0	23°23.0	23°23.8	23°23.9	23°24.0	23°24.0	23°24.1	23°24.1	+0.1
ma 18	179°43.3	194°43.2	209°43.0	224°42.9	239°42.8	254°42.6	89°40.9	104°40.7	119°40.6	134°40.5	149°40.3	164°40.2	-0.1
	23°24.2	23°24.2	23°24.3	23°24.3	23°24.4	23°24.4	23°25.0	23°25.0	23°25.1	23°25.1	23°25.2	23°25.2	+0.1
di 19	179°40.0	194°39.9	209°39.8	224°39.6	239°39.5	254°39.4	89°37.6	104°37.5	119°37.3	134°37.2	149°37.0	164°36.9	-0.1
	23°25.2	23°25.3	23°25.3	23°25.3	23°25.4	23°25.4	23°25.8	23°25.8	23°25.8	23°25.8	23°25.8	23°25.9	+0.0
wo 20	179°36.8	194°36.6	209°36.5	224°36.4	239°36.2	254°36.1	89°34.3	104°34.2	119°34.1	134°33.9	149°33.8	164°33.7	-0.1
	23°25.9	23°25.9	23°25.9	23°25.9	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
do 21	179°33.5	194°33.4	209°33.2	224°33.1	239°33.0	254°32.8	89°31.1	104°30.9	119°30.8	134°30.7	149°30.5	164°30.4	-0.1
	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	23°26.0	+0.0
vr 22	179°30.3	194°30.1	209°30.0	224°29.9	239°29.7	254°29.6	89°27.8	104°27.7	119°27.6	134°27.4	149°27.3	164°27.2	-0.1
	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	23°25.5	23°25.5	23°25.5	23°25.5	23°25.4	23°25.4	-0.0
za 23	179°27.0	194°26.9	209°26.8	224°26.6	239°26.5	254°26.4	89°24.6	104°24.5	119°24.4	134°24.2	149°24.1	164°24.0	-0.1
	23°25.4	23°25.3	23°25.3	23°25.3	23°25.2	23°25.2	23°24.6	23°24.6	23°24.6	23°24.5	23°24.5	23°24.4	-0.0
zo 24	179°23.8	194°23.7	209°23.6	224°23.4	239°23.3	254°23.2	89°21.4	104°21.3	119°21.2	134°21.0	149°20.9	164°20.8	-0.1
	23°24.4	23°24.3	23°24.3	23°24.2	23°24.2	23°24.1	23°23.3	23°23.3	23°23.2	23°23.1	23°23.1	23°23.0	-0.1
ma 25	179°20.6	194°20.5	209°20.4	224°20.3	239°20.1	254°20.0	89°18.3	104°18.2	119°18.0	134°17.9	149°17.8	164°17.6	-0.1
	23°22.9	23°22.9	23°22.8	23°22.7	23°22.7	23°22.6	23°21.6	23°21.5	23°21.5	23°21.4	23°21.3	23°21.2	-0.1
di 26	179°17.5	194°17.4	209°17.2	224°17.1	239°17.0	254°16.9	89°15.2	104°15.0	119°14.9	134°14.8	149°14.7	164°14.5	-0.1
	23°21.1	23°21.0	23°21.0	23°20.9	23°20.8	23°20.7	23°19.5	23°19.4	23°19.3	23°19.2	23°19.1	23°19.0	-0.1
wo 27	179°14.4	194°14.3	209°14.1	224°14.0	239°13.9	254°13.8	89°12.1	104°12.0	119°11.8	134°11.7	149°11.6	164°11.5	-0.1
	23°18.9	23°18.8	23°18.7	23°18.6	23°18.5	23°18.4	23°17.0	23°16.8	23°16.7	23°16.6	23°16.5	23°16.4	-0.1
do 28	179°11.3	194°11.2	209°11.1	224°10.9	239°10.8	254°10.7	89°09.1	104°08.9	119°08.8	134°08.7	149°08.6	164°08.4	-0.1
	23°16.3	23°16.1	23°16.0	23°15.9	23°15.8	23°15.7	23°14.0	23°13.9	23°13.7	23°13.6	23°13.5	23°13.3	-0.1
vr 29	179°08.3	194°08.2	209°08.1	224°07.9	239°07.8	254°07.7	89°06.1	104°05.9	119°05.8	134°05.7	149°05.6	164°05.5	-0.1
	23°13.2	23°13.1	23°12.9	23°12.8	23°12.7	23°12.5	23°10.7	23°10.5	23°10.4	23°10.2	23°10.1	23°09.9	-0.1
za 30	179°05.3	194°05.2	209°05.1	224°05.0	239°04.8	254°04.7	89°03.1	104°03.0	119°02.9	134°02.8	149°02.7	164°02.5	-0.1
	23°09.7	23°09.6	23°09.4	23°09.3	23°09.1	23°09.0	23°06.9	23°06.7	23°06.6	23°06.4	23°06.2	23°06.1	-0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2029

D	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
vr 1	73°12.8	87°43.9	102°15.1	116°46.3	131°17.7	145°49.1	160°20.7	174°52.3	189°24.0	203°55.8	218°27.7	+31.5	15.4
	-14°42.8	-14°31.9	-14°20.9	-14°09.9	-13°58.9	-13°47.7	-13°36.5	-13°25.3	-13°14.0	-13°02.7	-12°51.4	+11.2	56.4
za 2	76°35.4	91°08.5	105°41.7	120°14.9	134°48.2	149°21.6	163°55.1	178°28.5	193°02.1	207°35.7	222°09.4	+33.4	15.2
	-9°56.1	-9°44.1	-9°32.1	-9°20.1	-9°08.1	-8°56.0	-8°43.9	-8°31.8	-8°19.6	-8°07.5	-7°55.3	+12.1	55.6
zo 3	80°40.9	95°14.5	109°49.9	124°24.5	138°59.0	153°33.7	168°08.3	182°43.1	197°17.8	211°52.6	226°27.4	+34.6	15.0
	-4°50.6	-4°38.2	-4°25.8	-4°13.4	-4°00.9	-3°48.5	-3°36.1	-3°23.6	-3°11.2	-2°58.7	-2°46.3	+12.4	54.9
◑ ma 4	85°12.5	99°47.7	114°22.9	128°58.1	143°33.3	158°08.5	172°43.7	187°19.0	201°54.2	216°29.5	231°04.7	+35.2	14.9
	0°20.2	0°32.6	0°45.0	0°57.4	1°09.7	1°22.1	1°34.4	1°46.7	1°59.1	2°11.4	2°23.6	+12.3	54.5
di 5	89°53.6	104°28.8	119°04.0	133°39.2	148°14.4	162°49.6	177°24.7	191°59.9	206°35.0	221°10.1	235°45.2	+35.2	14.8
	5°25.8	5°37.7	5°49.7	6°01.6	6°13.5	6°25.4	6°37.2	6°49.0	7°00.8	7°12.6	7°24.3	+11.9	54.2
wo 6	94°28.6	109°03.3	123°37.9	138°12.5	152°47.1	167°21.6	181°56.1	196°30.5	211°05.0	225°39.3	240°13.7	+34.5	14.7
	10°16.3	10°27.5	10°38.6	10°49.7	11°00.8	11°11.8	11°22.7	11°33.7	11°44.6	11°55.4	12°06.2	+11.0	54.1
do 7	98°43.5	113°17.1	127°50.6	142°24.1	156°57.6	171°31.0	186°04.3	200°37.6	215°10.8	229°44.0	244°17.1	+33.4	14.8
	14°42.0	14°52.0	15°01.9	15°11.8	15°21.5	15°31.3	15°40.9	15°50.5	16°00.1	16°09.6	16°19.0	+9.7	54.1
vr 8	102°26.8	116°59.0	131°31.1	146°03.1	160°35.1	175°07.0	189°38.8	204°10.6	218°42.3	233°14.0	247°45.6	+31.9	14.8
	18°32.0	18°40.3	18°48.5	18°56.6	19°04.7	19°12.6	19°20.5	19°28.3	19°36.1	19°43.7	19°51.3	+7.9	54.3
za 9	105°31.6	120°02.1	134°32.6	149°03.0	163°33.4	178°03.7	192°33.9	207°04.1	221°34.2	236°04.2	250°34.2	+30.3	14.9
	21°33.9	21°40.0	21°46.0	21°51.9	21°57.7	22°03.4	22°09.0	22°14.5	22°19.9	22°25.2	22°30.4	+5.6	54.7
zo 10	107°57.0	122°26.1	136°55.1	151°24.1	165°53.0	180°21.9	194°50.7	209°19.5	223°48.2	238°16.9	252°45.5	+28.9	15.0
	23°35.0	23°38.4	23°41.7	23°44.9	23°47.9	23°50.8	23°53.7	23°56.3	23°58.9	24°01.4	24°03.7	+2.9	55.1
ma 11	109°50.5	124°18.5	138°46.6	153°14.6	167°42.6	182°10.5	196°38.5	211°06.4	225°34.3	240°02.2	254°30.0	+27.9	15.1
	24°23.6	24°23.9	24°24.1	24°24.1	24°24.1	24°23.9	24°23.5	24°23.0	24°22.4	24°21.7	24°20.8	-0.3	55.6
● di 12	111°26.6	125°54.3	140°22.1	154°49.8	169°17.5	183°45.3	198°13.1	212°40.8	227°08.6	241°36.4	256°04.2	+27.8	15.3
	23°52.0	23°49.0	23°45.9	23°42.6	23°39.3	23°35.7	23°32.1	23°28.3	23°24.4	23°20.4	23°16.2	-3.6	56.1
wo 13	113°03.1	127°31.2	141°59.3	156°27.4	170°55.6	185°23.8	199°52.1	214°20.3	228°48.6	243°16.9	257°45.3	+28.2	15.4
	21°58.4	21°52.2	21°45.9	21°39.5	21°32.9	21°26.2	21°19.4	21°12.5	21°05.4	20°58.3	20°51.0	-6.7	56.6
do 14	114°54.8	129°23.7	143°52.7	158°21.7	172°50.7	187°19.8	201°48.9	216°18.1	230°47.3	245°16.5	259°45.8	+29.1	15.6
	18°48.1	18°39.0	18°29.8	18°20.5	18°11.1	18°01.6	17°52.1	17°42.4	17°32.6	17°22.7	17°12.7	-9.5	57.1
vr 15	117°09.4	131°39.3	146°09.2	160°39.1	175°09.1	189°39.1	204°09.1	218°39.2	233°09.3	247°39.4	262°09.6	+30.0	15.7
	14°31.8	14°20.3	14°08.8	13°57.2	13°45.6	13°33.8	13°22.0	13°10.1	12°58.1	12°46.1	12°34.0	-11.8	57.6
za 16	131°39.3	146°09.2	160°39.1	175°09.1	189°39.1	204°09.1	218°39.2	233°09.3	247°39.4	262°09.6	276°39.8	+30.1	15.7
	14°20.3	14°08.8	13°57.2	13°45.6	13°33.8	13°22.0	13°10.1	12°58.1	12°46.1	12°34.0	12°21.8	-11.9	57.6
zo 17	134°16.1	148°46.7	163°17.3	177°48.0	192°18.6	206°49.3	221°20.0	235°50.7	250°21.4	264°52.2	279°22.9	+30.7	15.9
	9°11.0	8°57.8	8°44.6	8°31.3	8°17.9	8°04.5	7°51.1	7°37.6	7°24.0	7°10.4	6°56.8	-13.4	58.1
ma 18	137°05.1	151°36.0	166°06.8	180°37.6	195°08.4	209°39.3	224°10.1	238°40.8	253°11.6	267°42.4	282°13.2	+30.8	16.0
	3°27.7	3°13.5	2°59.3	2°45.1	2°30.8	2°16.5	2°02.2	1°47.9	1°33.6	1°19.2	1°04.9	-14.3	58.6
◐ di 19	139°52.5	154°22.9	168°53.3	183°23.7	197°54.0	212°24.3	226°54.6	241°24.8	255°55.0	270°25.1	284°55.3	+30.3	16.1
	-2°31.6	-2°46.0	-3°00.4	-3°14.8	-3°29.3	-3°43.7	-3°58.0	-4°12.4	-4°26.8	-4°41.1	-4°55.4	-14.4	59.0
wo 20	142°21.6	156°51.0	171°20.3	185°49.5	200°18.7	214°47.8	229°16.9	243°45.9	258°14.9	272°43.7	287°12.6	+29.1	16.2
	-8°27.3	-8°41.2	-8°55.0	-9°08.8	-9°22.5	-9°36.2	-9°49.8	-10°03.4	-10°16.9	-10°30.4	-10°43.9	-13.7	59.4
do 21	144°16.7	158°44.4	173°12.1	187°39.6	202°07.1	216°34.5	231°01.8	245°29.1	259°56.3	274°23.4	288°50.4	+27.4	16.3
	-13°57.9	-14°10.3	-14°22.6	-14°34.8	-14°47.0	-14°59.0	-15°11.0	-15°22.8	-15°34.6	-15°46.3	-15°57.9	-12.0	59.6
vr 22	145°26.2	159°52.0	174°17.7	188°43.3	203°08.8	217°34.3	231°59.7	246°25.0	260°50.2	275°15.4	289°40.5	+25.4	16.3
	-18°39.8	-18°49.7	-18°59.5	-19°09.2	-19°18.8	-19°28.2	-19°37.5	-19°46.7	-19°55.8	-20°04.7	-20°13.5	-9.4	59.7
za 23	145°48.6	160°12.6	174°36.6	189°00.5	203°24.4	217°48.2	232°12.0	246°35.7	260°59.4	275°23.0	289°46.6	+23.8	16.3
	-22°08.9	-22°15.4	-22°21.8	-22°28.0	-22°34.1	-22°40.0	-22°45.8	-22°51.4	-22°56.9	-23°02.2	-23°07.3	-5.8	59.7
zo 24	145°36.7	159°59.8	174°23.0	188°46.1	203°09.3	217°32.4	231°55.5	246°18.7	260°41.8	275°05.0	289°28.1	+23.1	16.2
	-24°04.8	-24°07.3	-24°09.6	-24°11.8	-24°13.8	-24°15.6	-24°17.3	-24°18.8	-24°20.1	-24°21.2	-24°22.2	-1.7	59.4
ma 25	145°17.8	159°41.4	174°05.0	188°28.6	202°52.3	217°16.1	231°39.9	246°03.8	260°27.7	274°51.7	289°15.7	+23.8	16.1
	-24°16.7	-24°15.0	-24°13.1	-24°11.1	-24°08.9	-24°06.6	-24°04.1	-24°01.4	-23°58.6	-23°55.6	-23°52.5	+2.4	59.0
○ di 26	145°24.4	159°49.6	174°14.9	188°40.3	203°05.7	217°31.3	231°56.9	246°22.6	260°48.4	275°14.4	289°40.3	+25.6	15.9
	-22°47.1	-22°41.6	-22°36.0	-22°30.2	-22°24.2	-22°18.2	-22°12.0	-22°05.7	-21°59.2	-21°52.6	-21°45.9	+6.1	58.4
wo 27	146°21.8	160°49.4	175°17.0	189°44.8	204°12.6	218°40.6	233°08.7	247°36.8	262°05.1	276°33.4	291°01.9	+28.0	15.7
	-19°50.9	-19°42.3	-19°33.6	-19°24.9	-19°16.0	-19°07.1	-18°58.0	-18°48.8	-18°39.6	-18°30.3	-18°20.8	+9.0	57.7
do 28	148°20.7	162°50.7	177°20.8	191°51.0	206°21.4	220°51.8	235°22.2	249°52.8	264°23.5	278°54.3	293°25.1	+30.4	15.5
	-15°49.4	-15°38.7	-15°28.0	-15°17.1	-15°06.3	-14°55.3	-14°44.3	-14°33.2	-14°22.1	-14°10.9	-13°59.7	+11.0	56.9
vr 29	151°18.1	165°50.3	180°22.5	194°54.9	209°27.3	223°59.7	238°32.3	253°04.9	267°37.6	282°10.3	296°43.1	+32.5	15.3
	-11°05.1	-10°53.2	-10°41.2	-10°29.1	-10°17.0	-10°04.9	-9°52.8	-9°40.6	-9°28.4	-9°16.2	-9°03.9	+12.1	56.1
za 30	155°02.8	169°36.5	184°10.3	198°44.2	213°18.1	227°52.1	242°26.1	257°00.1	271°34.2	286°08.3	300°42.5	+34.0	15.1
	-5°57.5	-5°45.0	-5°32.4	-5°19.8	-5°07.2	-4°54.6	-4°42.0	-4°29.4	-4°16.8	-4°04.2	-3°51.5	+12.6	55.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 4 01h18 — NM: 12 03h50 — EK: 19 09h54 — VM: 26 03h22

ZON

Juli 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	179°02.4	194°02.3	209°02.2	224°02.1	239°01.9	254°01.8	89°00.3	104°00.2	119°00.0	133°59.9	148°59.8	163°59.7	-0.1
	23°05.9	23°05.7	23°05.5	23°05.4	23°05.2	23°05.0	23°02.7	23°02.5	23°02.4	23°02.2	23°02.0	23°01.8	-0.2
ma 2	178°59.6	193°59.4	208°59.3	223°59.2	238°59.1	253°59.0	88°57.5	103°57.4	118°57.2	133°57.1	148°57.0	163°56.9	-0.1
	23°01.6	23°01.4	23°01.2	23°01.1	23°00.9	23°00.7	22°58.2	22°58.0	22°57.8	22°57.6	22°57.4	22°57.2	-0.2
di 3	178°56.8	193°56.7	208°56.5	223°56.4	238°56.3	253°56.2	88°54.7	103°54.6	118°54.5	133°54.4	148°54.3	163°54.2	-0.1
	22°56.9	22°56.7	22°56.5	22°56.3	22°56.1	22°55.9	22°53.2	22°53.0	22°52.8	22°52.5	22°52.3	22°52.1	-0.2
wo 4	178°54.1	193°54.0	208°53.8	223°53.7	238°53.6	253°53.5	88°52.1	103°52.0	118°51.9	133°51.7	148°51.6	163°51.5	-0.1
	22°51.9	22°51.7	22°51.4	22°51.2	22°51.0	22°50.8	22°47.8	22°47.6	22°47.3	22°47.1	22°46.9	22°46.6	-0.2
do 5	178°51.4	193°51.3	208°51.2	223°51.1	238°51.0	253°50.9	88°49.5	103°49.4	118°49.3	133°49.2	148°49.1	163°49.0	-0.1
	22°46.4	22°46.2	22°45.9	22°45.7	22°45.5	22°45.2	22°42.0	22°41.8	22°41.5	22°41.3	22°41.0	22°40.8	-0.2
vr 6	178°48.9	193°48.8	208°48.7	223°48.5	238°48.4	253°48.3	88°47.0	103°46.9	118°46.8	133°46.7	148°46.6	163°46.5	-0.1
	22°40.5	22°40.3	22°40.0	22°39.8	22°39.5	22°39.3	22°35.9	22°35.6	22°35.4	22°35.1	22°34.8	22°34.6	-0.3
za 7	178°46.4	193°46.3	208°46.2	223°46.1	238°46.0	253°45.9	88°44.6	103°44.5	118°44.4	133°44.3	148°44.2	163°44.1	-0.1
	22°34.3	22°34.0	22°33.7	22°33.5	22°33.2	22°32.9	22°29.3	22°29.0	22°28.8	22°28.5	22°28.2	22°27.9	-0.3
zo 8	178°44.0	193°43.9	208°43.8	223°43.7	238°43.6	253°43.5	88°42.3	103°42.2	118°42.1	133°42.0	148°41.9	163°41.8	-0.1
	22°27.6	22°27.3	22°27.1	22°26.8	22°26.5	22°26.2	22°22.4	22°22.1	22°21.8	22°21.5	22°21.2	22°20.9	-0.3
ma 9	178°41.7	193°41.6	208°41.5	223°41.4	238°41.3	253°41.3	88°40.1	103°40.0	118°39.9	133°39.8	148°39.7	163°39.6	-0.1
	22°20.6	22°20.3	22°20.0	22°19.7	22°19.4	22°19.1	22°15.1	22°14.7	22°14.4	22°14.1	22°13.8	22°13.5	-0.3
di 10	178°39.5	193°39.4	208°39.4	223°39.3	238°39.2	253°39.1	88°38.0	103°37.9	118°37.8	133°37.7	148°37.6	163°37.5	-0.1
	22°13.2	22°12.8	22°12.5	22°12.2	22°11.9	22°11.6	22°07.3	22°07.0	22°06.7	22°06.3	22°06.0	22°05.7	-0.3
wo 11	178°37.5	193°37.4	208°37.3	223°37.2	238°37.1	253°37.0	88°36.0	103°35.9	118°35.8	133°35.7	148°35.6	163°35.6	-0.1
	22°05.4	22°05.0	22°04.7	22°04.3	22°04.0	22°03.7	21°59.2	21°58.9	21°58.6	21°58.2	21°57.9	21°57.5	-0.3
do 12	178°35.5	193°35.4	208°35.3	223°35.2	238°35.2	253°35.1	88°34.1	103°34.0	118°33.9	133°33.9	148°33.8	163°33.7	-0.1
	21°57.2	21°56.8	21°56.5	21°56.1	21°55.8	21°55.4	21°50.8	21°50.4	21°50.1	21°49.7	21°49.3	21°49.0	-0.3
vr 13	178°33.6	193°33.6	208°33.5	223°33.4	238°33.3	253°33.3	88°32.3	103°32.3	118°32.2	133°32.1	148°32.0	163°32.0	-0.1
	21°48.6	21°48.2	21°47.9	21°47.5	21°47.1	21°46.8	21°41.9	21°41.6	21°41.2	21°40.8	21°40.4	21°40.0	-0.4
za 14	178°31.9	193°31.8	208°31.8	223°31.7	238°31.6	253°31.6	88°30.7	103°30.6	118°30.6	133°30.5	148°30.4	163°30.4	-0.1
	21°39.7	21°39.3	21°38.9	21°38.5	21°38.1	21°37.8	21°32.7	21°32.3	21°31.9	21°31.5	21°31.1	21°30.7	-0.4
zo 15	178°30.3	193°30.2	208°30.2	223°30.1	238°30.0	253°30.0	88°29.2	103°29.1	118°29.1	133°29.0	148°28.9	163°28.9	-0.1
	21°30.4	21°30.0	21°29.6	21°29.2	21°28.8	21°28.4	21°23.1	21°22.7	21°22.3	21°21.9	21°21.5	21°21.1	-0.4
ma 16	178°28.8	193°28.8	208°28.7	223°28.6	238°28.6	253°28.5	88°27.8	103°27.7	118°27.7	133°27.6	148°27.6	163°27.5	-0.1
	21°20.7	21°20.3	21°19.9	21°19.4	21°19.0	21°18.6	21°13.2	21°12.8	21°12.3	21°11.9	21°11.5	21°11.1	-0.4
di 17	178°27.5	193°27.4	208°27.4	223°27.3	238°27.3	253°27.2	88°26.6	103°26.5	118°26.5	133°26.4	148°26.4	163°26.3	-0.1
	21°10.6	21°10.2	21°09.8	21°09.4	21°08.9	21°08.5	21°02.9	21°02.5	21°02.0	21°01.6	21°01.1	21°00.7	-0.4
wo 18	178°26.3	193°26.2	208°26.2	223°26.1	238°26.1	253°26.0	88°25.5	103°25.4	118°25.4	133°25.3	148°25.3	163°25.3	-0.0
	21°00.3	20°59.8	20°59.4	20°58.9	20°58.5	20°58.0	20°52.2	20°51.8	20°51.3	20°50.9	20°50.4	20°50.0	-0.4
do 19	178°25.2	193°25.2	208°25.1	223°25.1	238°25.1	253°25.0	88°24.5	103°24.5	118°24.4	133°24.4	148°24.4	163°24.3	-0.0
	20°49.5	20°49.1	20°48.6	20°48.1	20°47.7	20°47.2	20°41.2	20°40.8	20°40.3	20°39.8	20°39.4	20°38.9	-0.5
vr 20	178°24.3	193°24.3	208°24.2	223°24.2	238°24.2	253°24.1	88°23.7	103°23.7	118°23.6	133°23.6	148°23.6	163°23.5	-0.0
	20°38.4	20°37.9	20°37.5	20°37.0	20°36.5	20°36.1	20°29.9	20°29.4	20°28.9	20°28.4	20°27.9	20°27.5	-0.5
za 21	178°23.5	193°23.5	208°23.5	223°23.4	238°23.4	253°23.4	88°23.0	103°23.0	118°23.0	133°23.0	148°22.9	163°22.9	-0.0
	20°27.0	20°26.5	20°26.0	20°25.5	20°25.0	20°24.6	20°18.2	20°17.7	20°17.2	20°16.7	20°16.2	20°15.7	-0.5
zo 22	178°22.9	193°22.9	208°22.8	223°22.8	238°22.8	253°22.8	88°22.5	103°22.5	118°22.5	133°22.5	148°22.4	163°22.4	-0.0
	20°15.2	20°14.7	20°14.2	20°13.7	20°13.2	20°12.7	20°06.1	20°05.6	20°05.1	20°04.6	20°04.1	20°03.6	-0.5
ma 23	178°22.4	193°22.4	208°22.4	223°22.4	238°22.3	253°22.3	88°22.1	103°22.1	118°22.1	133°22.1	148°22.1	163°22.1	-0.0
	20°03.1	20°02.6	20°02.1	20°01.5	20°01.0	20°00.5	19°53.8	19°53.2	19°52.7	19°52.2	19°51.7	19°51.2	-0.5
di 24	178°22.1	193°22.1	208°22.1	223°22.0	238°22.0	253°22.0	88°21.9	103°21.9	118°21.9	133°21.9	148°21.9	163°21.9	-0.0
	19°50.6	19°50.1	19°49.6	19°49.0	19°48.5	19°48.0	19°41.1	19°40.5	19°40.0	19°39.5	19°38.9	19°38.4	-0.5
wo 25	178°21.9	193°21.9	208°21.9	223°21.9	238°21.9	253°21.9	88°21.8	103°21.8	118°21.8	133°21.8	148°21.8	163°21.8	-0.0
	19°37.8	19°37.3	19°36.8	19°36.2	19°35.7	19°35.1	19°28.0	19°27.5	19°26.9	19°26.4	19°25.8	19°25.3	-0.5
do 26	178°21.9	193°21.9	208°21.9	223°21.9	238°21.9	253°21.9	88°21.9	103°21.9	118°21.9	133°21.9	148°21.9	163°22.0	+0.0
	19°24.7	19°24.2	19°23.6	19°23.1	19°22.5	19°22.0	19°14.7	19°14.1	19°13.6	19°13.0	19°12.4	19°11.9	-0.6
vr 27	178°22.0	193°22.0	208°22.0	223°22.0	238°22.0	253°22.0	88°22.1	103°22.2	118°22.2	133°22.2	148°22.2	163°22.2	+0.0
	19°11.3	19°10.7	19°10.2	19°09.6	19°09.0	19°08.5	19°01.0	19°00.5	18°59.9	18°59.3	18°58.7	18°58.1	-0.6
za 28	178°22.2	193°22.2	208°22.3	223°22.3	238°22.3	253°22.3	88°22.5	103°22.5	118°22.6	133°22.6	148°22.6	163°22.6	+0.0
	18°57.6	18°57.0	18°56.4	18°55.8	18°55.2	18°54.7	18°47.1	18°46.5	18°45.9	18°45.3	18°44.7	18°44.1	-0.6
zo 29	178°22.6	193°22.7	208°22.7	223°22.7	238°22.7	253°22.7	88°23.0	103°23.1	118°23.1	133°23.1	148°23.1	163°23.2	+0.0
	18°43.5	18°42.9	18°42.3	18°41.7	18°41.1	18°40.5	18°32.8	18°32.2	18°31.6	18°31.0	18°30.4	18°29.7	-0.6
ma 30	178°23.2	193°23.2	208°23.2	223°23.3	238°23.3	253°23.3	88°23.7	103°23.7	118°23.8	133°23.8	148°23.8	163°23.9	+0.0
	18°29.1	18°28.5	18°27.9	18°27.3	18°26.7	18°26.1	18°18.2	18°17.6	18°16.9	18°16.3	18°15.7	18°15.1	-0.6
di 31	178°23.9	193°23.9	208°24.0	223°24.0	238°24.0	253°24.1	88°24.5	103°24.6	118°24.6	133°24.6	148°24.7	163°24.7	+0.0
	18°14.5	18°13.9	18°13.2	18°12.6	18°12.0	18°11.4	18°03.3	18°02.6	18°02.0	18°01.4	18°00.8	18°00.1	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2029

D	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	SD/HP
zo 1	57°17.3	71°51.8	86°26.3	101°00.9	115°35.5	130°10.1	144°44.7	159°19.4	173°54.1	188°28.8	203°03.6	+34.6	15.0
	-2°10.5	-1°57.8	-1°45.2	-1°32.6	-1°20.0	-1°07.4	-0°54.8	-0°42.2	-0°29.6	-0°17.0	-0°04.4	+12.6	55.0
ma 2	61°46.9	76°21.9	90°56.9	105°31.9	120°06.9	134°41.9	149°16.9	163°51.9	178°26.9	193°01.9	207°36.9	+35.0	14.9
	3°02.7	3°15.0	3°27.4	3°39.7	3°51.9	4°04.2	4°16.4	4°28.6	4°40.8	4°53.0	5°05.1	+12.2	54.6
◑ di 3	66°21.0	80°55.8	95°30.7	110°05.5	124°40.2	139°15.0	153°49.7	168°24.5	182°59.2	197°33.8	212°08.5	+34.8	14.8
	8°03.7	8°15.4	8°27.0	8°38.6	8°50.1	9°01.7	9°13.1	9°24.6	9°35.9	9°47.3	9°58.6	+11.5	54.3
wo 4	70°44.5	85°18.6	99°52.7	114°26.8	129°00.8	143°34.7	158°08.7	172°42.5	187°16.4	201°50.2	216°23.9	+33.9	14.8
	12°43.0	12°53.6	13°04.1	13°14.6	13°25.1	13°35.4	13°45.7	13°56.0	14°06.2	14°16.4	14°26.5	+10.3	54.2
do 5	74°44.2	89°17.1	103°50.0	118°22.8	132°55.6	147°28.3	162°01.0	176°33.5	191°06.1	205°38.6	220°11.0	+32.7	14.8
	16°50.7	16°58.8	17°08.8	17°17.8	17°26.7	17°35.5	17°44.3	17°52.9	18°01.5	18°10.1	18°18.5	+8.8	54.3
vr 6	78°09.7	92°41.1	107°12.5	121°43.8	136°15.0	150°46.1	165°17.2	179°48.3	194°19.2	208°50.1	223°20.9	+31.1	14.9
	20°15.9	20°23.1	20°30.1	20°37.1	20°44.0	20°50.8	20°57.5	21°04.1	21°10.7	21°17.1	21°23.4	+6.8	54.5
za 7	80°55.6	95°25.4	109°55.1	124°24.8	138°54.4	153°24.0	167°53.5	182°22.9	196°52.3	211°21.6	225°50.9	+29.5	15.0
	22°46.6	22°51.4	22°56.0	23°00.5	23°04.9	23°09.2	23°13.3	23°17.4	23°21.3	23°25.2	23°28.9	+4.2	54.9
zo 8	83°03.2	97°31.6	112°00.0	126°28.3	140°56.6	155°24.9	169°53.1	184°21.2	198°49.3	213°17.4	227°45.5	+28.2	15.1
	24°10.7	24°12.5	24°14.2	24°15.7	24°17.2	24°18.5	24°19.7	24°20.7	24°21.7	24°22.5	24°23.1	+1.2	55.5
ma 9	84°42.2	99°09.8	113°37.4	128°04.9	142°32.4	156°59.9	171°27.4	185°54.9	200°22.4	214°49.8	229°17.3	+27.5	15.3
	24°17.5	24°16.1	24°14.5	24°12.8	24°11.0	24°09.0	24°06.9	24°04.7	24°02.3	23°59.8	23°57.1	-2.0	56.1
di 10	86°08.6	100°36.0	115°03.5	129°31.0	143°58.4	158°25.9	172°53.4	187°20.9	201°48.5	216°16.0	230°43.6	+27.5	15.5
	23°01.3	22°56.5	22°51.6	22°46.5	22°41.3	22°36.0	22°30.6	22°25.0	22°19.3	22°13.4	22°07.5	-5.4	56.7
● wo 11	87°39.7	102°07.7	116°35.7	131°03.7	145°31.7	159°59.8	174°27.9	188°56.1	203°24.3	217°52.5	232°20.7	+28.1	15.6
	20°22.8	20°14.8	20°06.7	19°58.5	19°50.2	19°41.8	19°33.2	19°24.5	19°15.8	19°06.9	18°57.9	-8.5	57.3
do 12	89°28.7	103°57.5	118°26.4	132°55.3	147°24.3	161°53.2	176°22.3	190°51.3	205°20.4	219°49.5	234°18.7	+29.0	15.8
	16°29.9	16°19.2	16°08.4	15°57.5	15°46.6	15°35.5	15°24.4	15°13.1	15°01.8	14°50.4	14°38.9	-11.1	57.9
vr 13	91°40.4	106°10.1	120°39.9	135°09.7	149°39.5	164°09.3	178°39.2	193°09.1	207°39.0	222°08.9	236°38.9	+29.9	15.9
	11°36.5	11°23.8	11°11.0	10°58.1	10°45.2	10°32.2	10°19.1	10°05.9	9°52.8	9°39.5	9°26.2	-13.0	58.4
za 14	94°11.3	108°41.6	123°11.9	137°42.2	152°12.6	166°42.9	181°13.3	195°43.7	210°14.0	224°44.4	239°14.8	+30.4	16.0
	6°00.6	5°46.5	5°32.4	5°18.3	5°04.1	4°50.0	4°35.7	4°21.5	4°07.2	3°52.9	3°38.6	-14.2	58.7
zo 15	96°51.0	111°21.4	125°51.8	140°22.2	154°52.5	169°22.9	183°53.2	198°23.5	212°53.8	227°24.1	241°54.4	+30.3	16.1
	0°01.6	-0°12.9	-0°27.5	-0°42.0	-0°56.6	-1°11.1	-1°25.7	-1°40.2	-1°54.7	-2°09.3	-2°23.8	-14.5	59.0
ma 16	99°25.7	113°55.6	128°25.4	142°55.2	157°25.0	171°54.7	186°24.4	200°54.0	215°23.6	229°53.2	244°22.7	+29.7	16.1
	-5°59.6	-6°13.8	-6°28.0	-6°42.1	-6°56.2	-7°10.3	-7°24.3	-7°38.3	-7°52.2	-8°06.1	-8°20.0	-14.0	59.2
di 17	113°55.6	128°25.4	142°55.2	157°25.0	171°54.7	186°24.4	200°54.0	215°23.6	229°53.2	244°22.7	258°52.2	+29.7	16.1
	-6°13.8	-6°28.0	-6°42.1	-6°56.2	-7°10.3	-7°24.3	-7°38.3	-7°52.2	-8°06.1	-8°20.0	-8°33.8	-14.0	59.2
◐ wo 18	116°08.9	130°37.6	145°06.2	159°34.8	174°03.3	188°31.8	203°00.2	217°28.6	231°56.9	246°25.1	260°53.3	+28.4	16.2
	-11°54.9	-12°07.8	-12°20.7	-12°33.5	-12°46.2	-12°58.8	-13°11.4	-13°23.9	-13°36.3	-13°48.7	-14°00.9	-12.6	59.2
do 19	117°48.5	132°15.6	146°42.7	161°09.7	175°36.7	190°03.6	204°30.4	218°57.2	233°23.9	247°50.5	262°17.1	+26.9	16.1
	-16°54.4	-17°05.2	-17°15.9	-17°26.5	-17°37.0	-17°47.4	-17°57.7	-18°07.9	-18°17.9	-18°27.9	-18°37.7	-10.3	59.2
vr 20	118°47.9	133°13.4	147°38.9	162°04.4	176°29.7	190°55.1	205°20.3	219°45.6	234°10.7	248°35.8	263°00.9	+25.3	16.1
	-20°50.8	-20°58.7	-21°06.4	-21°14.0	-21°21.5	-21°28.8	-21°35.9	-21°43.0	-21°49.9	-21°56.6	-22°03.2	-7.2	59.1
za 21	119°11.4	133°35.8	148°00.2	162°24.5	176°48.8	191°13.1	205°37.4	220°01.6	234°25.8	248°50.0	263°14.2	+24.3	16.1
	-23°24.8	-23°29.0	-23°33.1	-23°37.0	-23°40.8	-23°44.4	-23°47.8	-23°51.1	-23°54.2	-23°57.2	-24°00.0	-3.5	58.9
zo 22	119°16.2	133°40.4	148°04.6	162°28.8	176°53.0	191°17.2	205°41.4	220°05.7	234°30.0	248°54.3	263°18.7	+24.2	16.0
	-24°23.0	-24°23.2	-24°23.3	-24°23.3	-24°23.0	-24°22.6	-24°22.1	-24°21.4	-24°20.5	-24°19.5	-24°18.3	+0.5	58.6
ma 23	119°28.5	133°53.6	148°18.7	162°43.8	177°09.0	191°34.3	205°59.6	220°25.0	234°50.5	249°16.0	263°41.6	+25.3	15.9
	-23°41.8	-23°38.2	-23°34.4	-23°30.5	-23°26.4	-23°22.2	-23°17.8	-23°13.3	-23°08.6	-23°03.9	-22°58.9	+4.3	58.2
di 24	120°14.2	134°41.0	149°07.9	163°34.9	178°01.9	192°29.1	206°56.3	221°23.6	235°51.0	250°18.4	264°46.0	+27.2	15.7
	-21°28.9	-21°21.9	-21°14.8	-21°07.5	-21°00.1	-20°52.7	-20°45.1	-20°37.3	-20°29.5	-20°21.6	-20°13.5	+7.5	57.7
○ wo 25	121°50.0	136°19.0	150°48.1	165°17.2	179°46.4	194°15.8	208°45.2	223°14.7	237°44.3	252°14.0	266°43.7	+29.4	15.6
	-18°00.5	-17°50.9	-17°41.2	-17°31.4	-17°21.5	-17°11.6	-17°01.5	-16°51.4	-16°41.2	-16°30.9	-16°20.6	+10.0	57.1
do 26	124°20.3	138°51.4	153°22.6	167°53.8	182°25.2	196°56.6	211°28.0	225°59.6	240°31.2	255°02.9	269°34.7	+31.4	15.4
	-13°37.1	-13°25.7	-13°14.3	-13°02.8	-12°51.3	-12°39.7	-12°28.0	-12°16.3	-12°04.6	-11°52.8	-11°41.0	+11.6	56.4
vr 27	127°39.5	142°12.3	156°45.2	171°18.2	185°51.2	200°24.2	214°57.4	229°30.5	244°03.8	258°37.0	273°10.4	+33.1	15.2
	-8°39.1	-8°26.7	-8°14.3	-8°01.9	-7°49.4	-7°36.9	-7°24.4	-7°11.9	-6°59.4	-6°46.8	-6°34.3	+12.5	55.8
za 28	131°36.0	146°10.1	160°44.1	175°18.3	189°52.4	204°26.6	219°00.8	233°35.0	248°09.3	262°43.6	277°18.0	+34.2	15.1
	-3°24.3	-3°11.6	-2°58.8	-2°46.1	-2°33.4	-2°20.7	-2°08.0	-1°55.2	-1°42.5	-1°29.8	-1°17.1	+12.7	55.3
zo 29	135°55.8	150°30.5	165°05.2	179°39.9	194°14.6	208°49.3	223°24.0	237°58.8	252°33.5	267°08.3	281°43.0	+34.7	14.9
	1°52.4	2°04.9	2°17.4	2°29.9	2°42.4	2°54.8	3°07.2	3°19.7	3°32.0	3°44.4	3°56.8	+12.4	54.8
ma 30	140°24.4	154°59.1	169°33.8	184°08.5	198°43.2	213°17.9	227°52.6	242°27.2	257°01.8	271°36.5	286°11.1	+34.7	14.8
	6°58.7	7°10.6	7°22.4	7°34.2	7°46.0	7°57.8	8°09.5	8°21.1	8°32.8	8°44.4	8°55.9	+11.7	54.4
di 31	144°47.6	159°21.8	173°56.0	188°30.2	203°04.3	217°38.5	232°12.5	246°46.6	261°20.6	275°54.5	290°28.5	+34.1	14.8
	11°44.1	11°54.9	12°05.7	12°16.5	12°27.2	12°37.8	12°48.4	12°58.9	13°09.4	13°19.8	13°30.2	+10.6	54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 3 17h57 — NM: 11 15h51 — EK: 18 14h14 — VM: 25 13h35

ZON

Augustus 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	178° 24.8	193° 24.8	208° 24.8	223° 24.9	238° 24.9	253° 25.0	88° 25.5	103° 25.5	118° 25.6	133° 25.6	148° 25.7	163° 25.7	+0.0
	17° 59.5	17° 58.9	17° 58.2	17° 57.6	17° 57.0	17° 56.3	17° 48.1	17° 47.4	17° 46.8	17° 46.2	17° 45.5	17° 44.9	-0.6
do 2	178° 25.8	193° 25.8	208° 25.8	223° 25.9	238° 25.9	253° 26.0	88° 26.6	103° 26.7	118° 26.7	133° 26.8	148° 26.8	163° 26.9	+0.0
	17° 44.2	17° 43.6	17° 42.9	17° 42.3	17° 41.7	17° 41.0	17° 32.6	17° 31.9	17° 31.3	17° 30.6	17° 30.0	17° 29.3	-0.6
vr 3	178° 26.9	193° 27.0	208° 27.0	223° 27.1	238° 27.1	253° 27.2	88° 27.9	103° 27.9	118° 28.0	133° 28.0	148° 28.1	163° 28.2	+0.1
	17° 28.7	17° 28.0	17° 27.4	17° 26.7	17° 26.1	17° 25.4	17° 16.8	17° 16.2	17° 15.5	17° 14.8	17° 14.2	17° 13.5	-0.7
za 4	178° 28.2	193° 28.3	208° 28.3	223° 28.4	238° 28.4	253° 28.5	88° 29.3	103° 29.3	118° 29.4	133° 29.5	148° 29.5	163° 29.6	+0.1
	17° 12.8	17° 12.2	17° 11.5	17° 10.8	17° 10.2	17° 09.5	17° 00.8	17° 00.1	16° 59.4	16° 58.7	16° 58.1	16° 57.4	-0.7
zo 5	178° 29.7	193° 29.7	208° 29.8	223° 29.8	238° 29.9	253° 30.0	88° 30.8	103° 30.9	118° 31.0	133° 31.0	148° 31.1	163° 31.2	+0.1
	16° 56.7	16° 56.0	16° 55.4	16° 54.7	16° 54.0	16° 53.3	16° 44.4	16° 43.8	16° 43.1	16° 42.4	16° 41.7	16° 41.0	-0.7
ma 6	178° 31.2	193° 31.3	208° 31.4	223° 31.5	238° 31.5	253° 31.6	88° 32.5	103° 32.6	118° 32.7	133° 32.8	148° 32.8	163° 32.9	+0.1
	16° 40.3	16° 39.6	16° 38.9	16° 38.3	16° 37.6	16° 36.9	16° 27.8	16° 27.1	16° 26.4	16° 25.8	16° 25.1	16° 24.4	-0.7
di 7	178° 33.0	193° 33.1	208° 33.1	223° 33.2	238° 33.3	253° 33.4	88° 34.4	103° 34.5	118° 34.5	133° 34.6	148° 34.7	163° 34.8	+0.1
	16° 23.7	16° 23.0	16° 22.3	16° 21.6	16° 20.8	16° 20.1	16° 11.0	16° 10.3	16° 09.6	16° 08.9	16° 08.1	16° 07.4	-0.7
wo 8	178° 34.9	193° 34.9	208° 35.0	223° 35.1	238° 35.2	253° 35.3	88° 36.4	103° 36.4	118° 36.5	133° 36.6	148° 36.7	163° 36.8	+0.1
	16° 06.7	16° 06.0	16° 05.3	16° 04.6	16° 03.9	16° 03.2	15° 53.9	15° 53.1	15° 52.4	15° 51.7	15° 51.0	15° 50.3	-0.7
do 9	178° 36.9	193° 37.0	208° 37.1	223° 37.1	238° 37.2	253° 37.3	88° 38.5	103° 38.6	118° 38.7	133° 38.8	148° 38.9	163° 39.0	+0.1
	15° 49.5	15° 48.8	15° 48.1	15° 47.4	15° 46.6	15° 45.9	15° 36.5	15° 35.7	15° 35.0	15° 34.3	15° 33.6	15° 32.8	-0.7
vr 10	178° 39.1	193° 39.1	208° 39.2	223° 39.3	238° 39.4	253° 39.5	88° 40.8	103° 40.9	118° 41.0	133° 41.1	148° 41.2	163° 41.3	+0.1
	15° 32.1	15° 31.4	15° 30.6	15° 29.9	15° 29.2	15° 28.4	15° 18.8	15° 18.1	15° 17.4	15° 16.6	15° 15.9	15° 15.1	-0.7
za 11	178° 41.4	193° 41.5	208° 41.6	223° 41.7	238° 41.8	253° 41.9	88° 43.2	103° 43.3	118° 43.4	133° 43.5	148° 43.6	163° 43.7	+0.1
	15° 14.4	15° 13.7	15° 12.9	15° 12.2	15° 11.4	15° 10.7	15° 01.0	15° 00.2	14° 59.5	14° 58.7	14° 58.0	14° 57.2	-0.7
zo 12	178° 43.8	193° 43.9	208° 44.0	223° 44.1	238° 44.2	253° 44.3	88° 45.8	103° 45.9	118° 46.0	133° 46.1	148° 46.2	163° 46.3	+0.1
	14° 56.5	14° 55.7	14° 55.0	14° 54.2	14° 53.5	14° 52.7	14° 42.9	14° 42.1	14° 41.3	14° 40.6	14° 39.8	14° 39.1	-0.8
ma 13	178° 46.4	193° 46.5	208° 46.6	223° 46.7	238° 46.9	253° 47.0	88° 48.5	103° 48.6	118° 48.7	133° 48.8	148° 48.9	163° 49.0	+0.1
	14° 38.3	14° 37.5	14° 36.8	14° 36.0	14° 35.2	14° 34.5	14° 24.5	14° 23.7	14° 23.0	14° 22.2	14° 21.4	14° 20.7	-0.8
di 14	178° 49.1	193° 49.3	208° 49.4	223° 49.5	238° 49.6	253° 49.7	88° 51.3	103° 51.4	118° 51.5	133° 51.7	148° 51.8	163° 51.9	+0.1
	14° 19.9	14° 19.1	14° 18.3	14° 17.6	14° 16.8	14° 16.0	14° 05.9	14° 05.2	14° 04.4	14° 03.6	14° 02.8	14° 02.0	-0.8
wo 15	178° 52.0	193° 52.1	208° 52.3	223° 52.4	238° 52.5	253° 52.6	88° 54.3	103° 54.4	118° 54.5	133° 54.7	148° 54.8	163° 54.9	+0.1
	14° 01.3	14° 00.5	13° 59.7	13° 58.9	13° 58.1	13° 57.3	13° 47.1	13° 46.4	13° 45.6	13° 44.8	13° 44.0	13° 43.2	-0.8
do 16	178° 55.0	193° 55.2	208° 55.3	223° 55.4	238° 55.6	253° 55.7	88° 57.4	103° 57.5	118° 57.7	133° 57.8	148° 57.9	163° 58.1	+0.1
	13° 42.4	13° 41.6	13° 40.8	13° 40.0	13° 39.2	13° 38.5	13° 28.1	13° 27.3	13° 26.5	13° 25.7	13° 24.9	13° 24.1	-0.8
vr 17	178° 58.2	193° 58.3	208° 58.5	223° 58.6	238° 58.7	253° 58.9	89° 00.6	104° 00.8	119° 00.9	134° 01.1	149° 01.2	164° 01.3	+0.1
	13° 23.3	13° 22.5	13° 21.7	13° 20.9	13° 20.1	13° 19.3	13° 08.9	13° 08.1	13° 07.3	13° 06.5	13° 05.7	13° 04.9	-0.8
za 18	179° 01.5	194° 01.6	209° 01.7	224° 01.9	239° 02.0	254° 02.2	89° 04.0	104° 04.2	119° 04.3	134° 04.4	149° 04.6	164° 04.7	+0.1
	13° 04.1	13° 03.3	13° 02.4	13° 01.6	13° 00.8	13° 00.0	12° 49.5	12° 48.7	12° 47.8	12° 47.0	12° 46.2	12° 45.4	-0.8
zo 19	179° 04.9	194° 05.0	209° 05.2	224° 05.3	239° 05.5	254° 05.6	89° 07.5	104° 07.7	119° 07.8	134° 08.0	149° 08.1	164° 08.3	+0.1
	12° 44.6	12° 43.8	12° 43.0	12° 42.1	12° 41.3	12° 40.5	12° 29.8	12° 29.0	12° 28.2	12° 27.4	12° 26.6	12° 25.7	-0.8
ma 20	179° 08.4	194° 08.6	209° 08.7	224° 08.9	239° 09.0	254° 09.2	89° 11.1	104° 11.3	119° 11.5	134° 11.6	149° 11.8	164° 11.9	+0.1
	12° 24.9	12° 24.1	12° 23.3	12° 22.4	12° 21.6	12° 20.8	12° 10.0	12° 09.2	12° 08.4	12° 07.5	12° 06.7	12° 05.9	-0.8
di 21	179° 12.1	194° 12.2	209° 12.4	224° 12.5	239° 12.7	254° 12.9	89° 14.9	104° 15.1	119° 15.2	134° 15.4	149° 15.5	164° 15.7	+0.2
	12° 05.0	12° 04.2	12° 03.4	12° 02.5	12° 01.7	12° 00.9	11° 50.0	11° 49.2	11° 48.3	11° 47.5	11° 46.6	11° 45.8	-0.8
wo 22	179° 15.9	194° 16.0	209° 16.2	224° 16.3	239° 16.5	254° 16.7	89° 18.8	104° 18.9	119° 19.1	134° 19.2	149° 19.4	164° 19.6	+0.2
	11° 45.0	11° 44.1	11° 43.3	11° 42.4	11° 41.6	11° 40.8	11° 29.8	11° 28.9	11° 28.1	11° 27.3	11° 26.4	11° 25.6	-0.8
do 23	179° 19.7	194° 19.9	209° 20.1	224° 20.2	239° 20.4	254° 20.6	89° 22.7	104° 22.9	119° 23.1	134° 23.2	149° 23.4	164° 23.6	+0.2
	11° 24.7	11° 23.9	11° 23.0	11° 22.2	11° 21.3	11° 20.5	11° 09.4	11° 08.6	11° 07.7	11° 06.8	11° 06.0	11° 05.1	-0.8
vr 24	179° 23.7	194° 23.9	209° 24.1	224° 24.3	239° 24.4	254° 24.6	89° 26.8	104° 27.0	119° 27.2	134° 27.3	149° 27.5	164° 27.7	+0.2
	11° 04.3	11° 03.4	11° 02.6	11° 01.7	11° 00.9	11° 00.0	10° 48.8	10° 48.0	10° 47.1	10° 46.3	10° 45.4	10° 44.5	-0.9
za 25	179° 27.8	194° 28.0	209° 28.2	224° 28.4	239° 28.5	254° 28.7	89° 31.0	104° 31.2	119° 31.4	134° 31.5	149° 31.7	164° 31.9	+0.2
	10° 43.7	10° 42.8	10° 42.0	10° 41.1	10° 40.2	10° 39.4	10° 28.1	10° 27.2	10° 26.4	10° 25.5	10° 24.6	10° 23.8	-0.9
zo 26	179° 32.1	194° 32.2	209° 32.4	224° 32.6	239° 32.8	254° 32.9	89° 35.3	104° 35.5	119° 35.6	134° 35.8	149° 36.0	164° 36.2	+0.2
	10° 22.9	10° 22.0	10° 21.2	10° 20.3	10° 19.4	10° 18.6	10° 07.2	10° 06.3	10° 05.5	10° 04.6	10° 03.7	10° 02.8	-0.9
ma 27	179° 36.4	194° 36.5	209° 36.7	224° 36.9	239° 37.1	254° 37.3	89° 39.7	104° 39.8	119° 40.0	134° 40.2	149° 40.4	164° 40.6	+0.2
	10° 02.0	10° 01.1	10° 00.2	9° 59.3	9° 58.5	9° 57.6	9° 46.1	9° 45.3	9° 44.4	9° 43.5	9° 42.6	9° 41.7	-0.9
di 28	179° 40.8	194° 40.9	209° 41.1	224° 41.3	239° 41.5	254° 41.7	89° 44.1	104° 44.3	119° 44.5	134° 44.7	149° 44.9	164° 45.1	+0.2
	9° 40.9	9° 40.0	9° 39.1	9° 38.2	9° 37.3	9° 36.4	9° 24.9	9° 24.0	9° 23.2	9° 22.3	9° 21.4	9° 20.5	-0.9
wo 29	179° 45.2	194° 45.4	209° 45.6	224° 45.8	239° 46.0	254° 46.2	89° 48.7	104° 48.9	119° 49.0	134° 49.2	149° 49.4	164° 49.6	+0.2
	9° 19.6	9° 18.7	9° 17.8	9° 16.9	9° 16.0	9° 15.2	9° 03.6	9° 02.7	9° 01.8	9° 00.9	9° 00.0	8° 59.1	-0.9
do 30	179° 49.8	194° 50.0	209° 50.2	224° 50.4	239° 50.6	254° 50.8	89° 53.3	104° 53.5	119° 53.7	134° 53.9	149° 54.1	164° 54.3	+0.2
	8° 58.2	8° 57.3	8° 56.4	8° 55.5	8° 54.6	8° 53.7	8° 42.0	8° 41.1	8° 40.2	8° 39.3	8° 38.4	8° 37.5	-0.9
vr 31	179° 54.5	194° 54.7	209° 54.9	224° 55.0	239° 55.2	254° 55.4	89° 58.0	104° 58.2	119° 58.4	134° 58.6	149° 58.8	164° 59.0	+0.2
	8° 36.6	8° 35.7	8° 34.8	8° 33.9	8° 33.0	8° 32.1	8° 20.4	8° 19.5	8° 18.6	8° 17.7	8° 16.8	8° 15.9	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2029

D	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
wo 1	61°32.1	76°05.7	90°39.2	105°12.6	119°46.0	134°19.4	148°52.7	163°26.0	177°59.2	192°32.3	207°05.5	+33.3	14.8
	15°01.0	15°10.8	15°20.5	15°30.1	15°39.7	15°49.3	15°58.8	16°08.2	16°17.5	16°26.8	16°36.0	+9.5	54.2
◑ do 2	65°16.2	79°48.5	94°20.7	108°52.9	123°25.0	137°57.0	152°29.0	167°01.0	181°32.9	196°04.7	210°36.5	+32.0	14.8
	18°45.5	18°53.5	19°01.5	19°09.3	19°17.1	19°24.8	19°32.5	19°40.0	19°47.5	19°54.9	20°02.1	+7.7	54.3
vr 3	68°25.8	82°56.6	97°27.3	111°58.0	126°28.7	140°59.2	155°29.7	170°00.2	184°30.5	199°00.9	213°31.1	+30.5	14.9
	21°40.9	21°46.7	21°52.4	21°58.1	22°03.6	22°09.1	22°14.4	22°19.7	22°24.8	22°29.8	22°34.8	+5.4	54.6
za 4	70°58.1	85°27.4	99°56.7	114°26.0	128°55.2	143°24.3	157°53.4	172°22.4	186°51.4	201°20.3	215°49.2	+29.1	15.0
	23°35.9	23°39.1	23°42.2	23°45.2	23°48.0	23°50.7	23°53.3	23°55.8	23°58.2	24°00.5	24°02.6	+2.7	55.1
zo 5	72°56.9	87°25.1	101°53.2	116°21.4	130°49.4	145°17.5	159°45.5	174°13.5	188°41.4	203°09.4	217°37.3	+28.0	15.2
	24°19.9	24°20.1	24°20.1	24°20.0	24°19.7	24°19.4	24°18.9	24°18.2	24°17.5	24°16.6	24°15.6	-0.4	55.7
ma 6	74°32.9	89°00.4	103°28.0	117°55.5	132°23.1	146°50.6	161°18.1	175°45.6	190°13.1	204°40.6	219°08.1	+27.5	15.4
	23°44.4	23°41.3	23°38.0	23°34.6	23°31.0	23°27.3	23°23.5	23°19.6	23°15.5	23°11.3	23°06.9	-3.7	56.4
di 7	76°00.8	90°28.3	104°55.9	119°23.5	133°51.1	148°18.7	162°46.3	177°14.0	191°41.6	206°09.3	220°37.0	+27.6	15.6
	21°45.8	21°39.3	21°32.8	21°26.1	21°19.2	21°12.2	21°05.1	20°57.9	20°50.6	20°43.1	20°35.5	-7.0	57.2
wo 8	77°34.9	92°02.9	106°31.0	120°59.1	135°27.2	149°55.3	164°23.5	178°51.7	193°20.0	207°48.2	222°16.5	+28.2	15.8
	18°27.0	18°17.5	18°07.9	17°58.1	17°48.3	17°38.3	17°28.3	17°18.1	17°07.8	16°57.4	16°46.9	-10.0	58.0
do 9	79°24.2	93°52.9	108°21.7	122°50.5	137°19.3	151°48.1	166°17.0	180°45.9	195°14.8	209°43.8	224°12.7	+28.9	16.0
	13°57.7	13°45.6	13°33.5	13°21.3	13°09.0	12°56.6	12°44.2	12°31.6	12°19.0	12°06.3	11°53.6	-12.4	58.7
● vr 10	81°30.1	95°59.4	110°28.8	124°58.1	139°27.5	153°56.9	168°26.3	182°55.7	197°25.2	211°54.6	226°24.1	+29.4	16.2
	8°33.6	8°19.8	8°05.9	7°51.9	7°37.9	7°23.9	7°09.8	6°55.7	6°41.5	6°27.3	6°13.0	-14.1	59.2
za 11	83°47.0	98°16.5	112°46.1	127°15.6	141°45.2	156°14.7	170°44.3	185°13.8	199°43.4	214°12.9	228°42.4	+29.6	16.3
	2°34.8	2°20.1	2°05.3	1°50.5	1°35.7	1°20.9	1°06.1	0°51.2	0°36.4	0°21.5	0°06.6	-14.8	59.6
zo 12	86°04.0	100°33.3	115°02.5	129°31.8	144°01.0	158°30.2	172°59.4	187°28.6	201°57.7	216°26.8	230°55.9	+29.2	16.3
	-3°35.9	-3°50.6	-4°05.4	-4°20.1	-4°34.7	-4°49.4	-5°04.0	-5°18.6	-5°33.2	-5°47.7	-6°02.2	-14.6	59.8
ma 13	88°08.2	102°36.7	117°05.2	131°33.6	146°02.0	160°30.4	174°58.7	189°27.0	203°55.2	218°23.4	232°51.5	+28.3	16.3
	-9°34.7	-9°48.4	-10°02.1	-10°15.8	-10°29.4	-10°42.9	-10°56.3	-11°09.7	-11°23.0	-11°36.3	-11°49.4	-13.5	59.7
di 14	89°47.7	104°15.1	118°42.4	133°09.6	147°36.8	162°03.9	176°31.0	190°58.0	205°25.0	219°51.9	234°18.8	+27.1	16.2
	-14°57.6	-15°09.4	-15°21.2	-15°32.9	-15°44.4	-15°55.9	-16°07.2	-16°18.5	-16°29.6	-16°40.7	-16°51.6	-11.4	59.6
wo 15	90°55.4	105°21.4	119°47.4	134°13.3	148°39.2	163°05.0	177°30.8	191°56.6	206°22.2	220°47.9	235°13.5	+25.8	16.2
	-19°22.2	-19°31.2	-19°40.2	-19°49.0	-19°57.7	-20°06.3	-20°14.7	-20°23.0	-20°31.2	-20°39.2	-20°47.1	-8.5	59.2
◐ do 16	105°21.4	119°47.4	134°13.3	148°39.2	163°05.0	177°30.8	191°56.6	206°22.2	220°47.9	235°13.5	249°39.0	+25.8	16.2
	-19°31.2	-19°40.2	-19°49.0	-19°57.7	-20°06.3	-20°14.7	-20°23.0	-20°31.2	-20°39.2	-20°47.1	-20°54.9	-8.4	59.2
vr 17	105°57.6	120°22.5	134°47.5	149°12.4	163°37.2	178°02.1	192°26.9	206°51.7	221°16.5	235°41.3	250°06.1	+24.8	16.0
	-22°34.6	-22°40.1	-22°45.4	-22°50.6	-22°55.6	-23°00.5	-23°05.3	-23°09.9	-23°14.3	-23°18.6	-23°22.7	-4.8	58.8
za 18	106°16.1	120°40.8	135°05.5	149°30.1	163°54.8	178°19.5	192°44.2	207°09.0	221°33.7	235°58.5	250°23.2	+24.7	15.9
	-24°06.1	-24°07.8	-24°09.3	-24°10.6	-24°11.8	-24°12.8	-24°13.7	-24°14.4	-24°15.0	-24°15.4	-24°15.6	-1.0	58.4
zo 19	106°38.3	121°03.6	135°28.9	149°54.3	164°19.8	178°45.2	193°10.8	207°36.4	222°02.0	236°27.7	250°53.4	+25.5	15.8
	-24°01.1	-23°58.9	-23°56.6	-23°54.1	-23°51.5	-23°48.7	-23°45.8	-23°42.8	-23°39.6	-23°36.2	-23°32.7	+2.8	57.9
ma 20	107°26.9	121°53.6	136°20.5	150°47.4	165°14.3	179°41.4	194°08.5	208°35.7	223°03.0	237°30.3	251°57.8	+27.1	15.6
	-22°24.1	-22°18.5	-22°12.7	-22°06.9	-22°00.9	-21°54.7	-21°48.5	-21°42.1	-21°35.6	-21°29.0	-21°22.3	+6.2	57.4
di 21	108°58.5	123°27.2	137°56.0	152°24.8	166°53.7	181°22.8	195°51.8	210°21.0	224°50.3	239°19.6	253°49.0	+29.1	15.5
	-19°28.1	-19°19.7	-19°11.1	-19°02.5	-18°53.8	-18°44.9	-18°36.0	-18°27.0	-18°17.9	-18°08.7	-17°59.4	+8.9	56.9
wo 22	111°19.7	125°50.4	140°21.1	154°52.0	169°22.8	183°53.8	198°24.8	212°56.0	227°27.1	241°58.4	256°29.7	+31.0	15.4
	-15°30.5	-15°20.0	-15°09.4	-14°58.8	-14°48.1	-14°37.3	-14°26.4	-14°15.5	-14°04.6	-13°53.5	-13°42.5	+10.8	56.3
do 23	114°27.7	129°00.1	143°32.6	158°05.1	172°37.6	187°10.2	201°42.9	216°15.6	230°48.4	245°21.3	259°54.2	+32.6	15.2
	-10°50.1	-10°38.2	-10°26.3	-10°14.4	-10°02.4	-9°50.4	-9°38.4	-9°26.3	-9°14.2	-9°02.1	-8°49.9	+12.0	55.8
○ vr 24	118°13.6	132°47.2	147°20.9	161°54.6	176°28.4	191°02.2	205°36.1	220°10.0	234°43.9	249°17.8	263°51.8	+33.8	15.1
	-5°44.5	-5°31.9	-5°19.4	-5°06.9	-4°54.3	-4°41.7	-4°29.2	-4°16.6	-4°04.0	-3°51.4	-3°38.8	+12.6	55.3
za 25	122°25.1	136°59.6	151°34.0	166°08.4	180°42.9	195°17.4	209°51.9	224°26.4	239°01.0	253°35.5	268°10.1	+34.5	15.0
	-0°29.4	-0°16.8	-0°04.2	0°08.4	0°21.0	0°33.6	0°46.1	0°58.7	1°11.2	1°23.7	1°36.2	+12.6	54.9
zo 26	126°49.5	141°24.1	155°58.8	170°33.4	185°08.1	199°42.7	214°17.4	228°52.0	243°26.6	258°01.2	272°35.9	+34.6	14.9
	4°41.6	4°53.8	5°05.9	5°18.1	5°30.2	5°42.2	5°54.3	6°06.3	6°18.3	6°30.2	6°42.1	+12.1	54.5
ma 27	131°13.7	145°48.1	160°22.5	174°56.9	189°31.2	204°05.5	218°39.8	233°14.1	247°48.3	262°22.6	276°56.8	+34.3	14.8
	9°36.6	9°47.9	9°59.2	10°10.4	10°21.6	10°32.7	10°43.8	10°54.8	11°05.8	11°16.8	11°27.6	+11.1	54.2
di 28	135°26.2	149°59.9	164°33.6	179°07.2	193°40.8	208°14.3	222°47.8	237°21.3	251°54.8	266°28.2	281°01.5	+33.5	14.8
	14°04.8	14°14.8	14°24.7	14°34.7	14°44.5	14°54.3	15°04.0	15°13.6	15°23.2	15°32.8	15°42.2	+9.7	54.1
wo 29	139°16.8	153°49.4	168°22.0	182°54.6	197°27.1	211°59.5	226°31.9	241°04.3	255°36.6	270°08.9	284°41.1	+32.4	14.8
	17°55.8	18°04.2	18°12.4	18°20.6	18°28.7	18°36.7	18°44.6	18°52.5	19°00.3	19°08.0	19°15.6	+8.0	54.1
do 30	142°38.2	157°09.5	171°40.9	186°12.2	200°43.4	215°14.6	229°45.7	244°16.8	258°47.8	273°18.8	287°49.7	+31.2	14.8
	20°59.6	21°05.8	21°11.9	21°18.0	21°23.9	21°29.8	21°35.5	21°41.2	21°46.7	21°52.2	21°57.5	+5.8	54.3
vr 31	145°27.2	159°57.3	174°27.4	188°57.4	203°27.3	217°57.2	232°27.1	246°56.9	261°26.7	275°56.4	290°26.1	+29.9	14.9
	23°05.8	23°09.5	23°13.1	23°16.6	23°20.0	23°23.3	23°26.5	23°29.5	23°32.5	23°35.3	23°38.0	+3.2	54.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 2 11h15 — NM: 10 01h55 — EK: 16 18h55 — VM: 24 01h51

ZON

September 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°59.2 8°14.9	194°59.4 8°14.0	209°59.6 8°13.1	224°59.8 8°12.2	240°00.0 8°11.3	255°00.2 8°10.4	90°02.8 7°58.6	105°03.0 7°57.7	120°03.2 7°56.8	135°03.4 7°55.9	150°03.6 7°54.9	165°03.8 7°54.0	+0.2 -0.9
zo 2	180°04.0 7°53.1	195°04.2 7°52.2	210°04.4 7°51.3	225°04.6 7°50.4	240°04.8 7°49.5	255°05.0 7°48.6	90°07.6 7°36.7	105°07.8 7°35.8	120°08.0 7°34.8	135°08.2 7°33.9	150°08.4 7°33.0	165°08.6 7°32.1	+0.2 -0.9
ma 3	180°08.8 7°31.2	195°09.0 7°30.2	210°09.2 7°29.3	225°09.4 7°28.4	240°09.7 7°27.5	255°09.9 7°26.6	90°12.5 7°14.6	105°12.7 7°13.7	120°12.9 7°12.8	135°13.1 7°11.9	150°13.3 7°10.9	165°13.5 7°10.0	+0.2 -0.9
di 4	180°13.8 7°09.1	195°14.0 7°08.2	210°14.2 7°07.2	225°14.4 7°06.3	240°14.6 7°05.4	255°14.8 7°04.5	90°17.5 6°52.5	105°17.7 6°51.5	120°17.9 6°50.6	135°18.1 6°49.7	150°18.3 6°48.7	165°18.5 6°47.8	+0.2 -0.9
wo 5	180°18.7 6°46.9	195°18.9 6°46.0	210°19.1 6°45.0	225°19.4 6°44.1	240°19.6 6°43.2	255°19.8 6°42.3	90°22.5 6°30.2	105°22.7 6°29.2	120°22.9 6°28.3	135°23.1 6°27.4	150°23.3 6°26.4	165°23.6 6°25.5	+0.2 -0.9
do 6	180°23.8 6°24.6	195°24.0 6°23.7	210°24.2 6°22.7	225°24.4 6°21.8	240°24.6 6°20.9	255°24.8 6°19.9	90°27.6 6°07.8	105°27.8 6°06.8	120°28.0 6°05.9	135°28.2 6°05.0	150°28.4 6°04.0	165°28.6 6°03.1	+0.2 -0.9
vr 7	180°28.8 6°02.2	195°29.1 6°01.2	210°29.3 6°00.3	225°29.5 5°59.4	240°29.7 5°58.4	255°29.9 5°57.5	90°32.7 5°45.3	105°32.9 5°44.4	120°33.1 5°43.4	135°33.3 5°42.5	150°33.5 5°41.5	165°33.8 5°40.6	+0.2 -0.9
za 8	180°34.0 5°39.7	195°34.2 5°38.7	210°34.4 5°37.8	225°34.6 5°36.8	240°34.8 5°35.9	255°35.0 5°35.0	90°37.8 5°22.7	105°38.1 5°21.8	120°38.3 5°20.8	135°38.5 5°19.9	150°38.7 5°18.9	165°38.9 5°18.0	+0.2 -0.9
zo 9	180°39.1 5°17.0	195°39.4 5°16.1	210°39.6 5°15.2	225°39.8 5°14.2	240°40.0 5°13.3	255°40.2 5°12.3	90°43.0 5°00.0	105°43.3 4°59.1	120°43.5 4°58.1	135°43.7 4°57.2	150°43.9 4°56.2	165°44.1 4°55.3	+0.2 -0.9
ma 10	180°44.3 4°54.3	195°44.6 4°53.4	210°44.8 4°52.5	225°45.0 4°51.5	240°45.2 4°50.6	255°45.4 4°49.6	90°48.3 4°37.3	105°48.5 4°36.3	120°48.7 4°35.4	135°48.9 4°34.4	150°49.1 4°33.5	165°49.4 4°32.5	+0.2 -0.9
di 11	180°49.6 4°31.6	195°49.8 4°30.6	210°50.0 4°29.7	225°50.2 4°28.7	240°50.5 4°27.8	255°50.7 4°26.8	90°53.5 4°14.4	105°53.8 4°13.5	120°54.0 4°12.5	135°54.2 4°11.6	150°54.4 4°10.6	165°54.6 4°09.7	+0.2 -1.0
wo 12	180°54.9 4°08.7	195°55.1 4°07.8	210°55.3 4°06.8	225°55.5 4°05.9	240°55.7 4°04.9	255°56.0 4°03.9	90°58.8 3°51.5	105°59.1 3°50.6	120°59.3 3°49.6	135°59.5 3°48.7	150°59.7 3°47.7	165°59.9 3°46.7	+0.2 -1.0
do 13	181°00.2 3°45.8	196°00.4 3°44.8	211°00.6 3°43.9	226°00.8 3°42.9	241°01.0 3°42.0	256°01.3 3°41.0	91°04.1 3°28.5	106°04.4 3°27.6	121°04.6 3°26.6	136°04.8 3°25.7	151°05.0 3°24.7	166°05.3 3°23.8	+0.2 -1.0
vr 14	181°05.5 3°22.8	196°05.7 3°21.8	211°05.9 3°20.9	226°06.1 3°19.9	241°06.4 3°19.0	256°06.6 3°18.0	91°09.5 3°05.5	106°09.7 3°04.5	121°09.9 3°03.6	136°10.2 3°02.6	151°10.4 3°01.7	166°10.6 3°00.7	+0.2 -1.0
za 15	181°10.8 2°59.7	196°11.0 2°58.8	211°11.3 2°57.8	226°11.5 2°56.9	241°11.7 2°55.9	256°11.9 2°54.9	91°14.8 2°42.4	106°15.1 2°41.5	121°15.3 2°40.5	136°15.5 2°39.5	151°15.7 2°38.6	166°16.0 2°37.6	+0.2 -1.0
zo 16	181°16.2 2°36.6	196°16.4 2°35.7	211°16.6 2°34.7	226°16.8 2°33.7	241°17.1 2°32.8	256°17.3 2°31.8	91°20.2 2°19.3	106°20.4 2°18.3	121°20.6 2°17.3	136°20.9 2°16.4	151°21.1 2°15.4	166°21.3 2°14.4	+0.2 -1.0
ma 17	181°21.5 2°13.5	196°21.8 2°12.5	211°22.0 2°11.5	226°22.2 2°10.6	241°22.4 2°09.6	256°22.7 2°08.6	91°25.6 1°56.1	106°25.8 1°55.1	121°26.0 1°54.1	136°26.2 1°53.2	151°26.5 1°52.2	166°26.7 1°51.2	+0.2 -1.0
di 18	181°26.9 1°50.3	196°27.1 1°49.3	211°27.4 1°48.3	226°27.6 1°47.4	241°27.8 1°46.4	256°28.0 1°45.4	91°30.9 1°32.9	106°31.2 1°31.9	121°31.4 1°30.9	136°31.6 1°30.0	151°31.8 1°29.0	166°32.1 1°28.0	+0.2 -1.0
wo 19	181°32.3 1°27.0	196°32.5 1°26.1	211°32.7 1°25.1	226°32.9 1°24.1	241°33.2 1°23.2	256°33.4 1°22.2	91°36.3 1°09.6	106°36.5 1°08.6	121°36.7 1°07.7	136°37.0 1°06.7	151°37.2 1°05.7	166°37.4 1°04.7	+0.2 -1.0
do 20	181°37.6 1°03.8	196°37.9 1°02.8	211°38.1 1°01.8	226°38.3 1°00.9	241°38.5 0°59.9	256°38.8 0°58.9	91°41.6 0°46.3	106°41.9 0°45.3	121°42.1 0°44.4	136°42.3 0°43.4	151°42.5 0°42.4	166°42.8 0°41.4	+0.2 -1.0
vr 21	181°43.0 0°40.5	196°43.2 0°39.5	211°43.4 0°38.5	226°43.6 0°37.6	241°43.9 0°36.6	256°44.1 0°35.6	91°47.0 0°23.0	106°47.2 0°22.0	121°47.4 0°21.0	136°47.6 0°20.1	151°47.9 0°19.1	166°48.1 0°18.1	+0.2 -1.0
za 22	181°48.3 0°17.2	196°48.5 0°16.2	211°48.7 0°15.2	226°49.0 0°14.2	241°49.2 0°13.3	256°49.4 0°12.3	91°52.3 -0°00.3	106°52.5 -0°01.3	121°52.7 -0°02.3	136°52.9 -0°03.3	151°53.2 -0°04.2	166°53.4 -0°05.2	+0.2 -1.0
zo 23	181°53.6 -0°06.2	196°53.8 -0°07.2	211°54.0 -0°08.1	226°54.3 -0°09.1	241°54.5 -0°10.1	256°54.7 -0°11.0	91°57.6 -0°23.7	106°57.8 -0°24.7	121°58.0 -0°25.6	136°58.2 -0°26.6	151°58.4 -0°27.6	166°58.7 -0°28.6	+0.2 -1.0
ma 24	181°58.9 -0°29.5	196°59.1 -0°30.5	211°59.3 -0°31.5	226°59.5 -0°32.4	241°59.7 -0°33.4	257°00.0 -0°34.4	92°02.8 -0°47.0	107°03.0 -0°48.0	122°03.2 -0°49.0	137°03.4 -0°50.0	152°03.7 -0°50.9	167°03.9 -0°51.9	+0.2 -1.0
di 25	182°04.1 -0°52.9	197°04.3 -0°53.9	212°04.5 -0°54.8	227°04.8 -0°55.8	242°05.0 -0°56.8	257°05.2 -0°57.7	92°08.0 -1°10.4	107°08.2 -1°11.4	122°08.4 -1°12.3	137°08.6 -1°13.3	152°08.9 -1°14.3	167°09.1 -1°15.3	+0.2 -1.0
wo 26	182°09.3 -1°16.2	197°09.5 -1°17.2	212°09.7 -1°18.2	227°09.9 -1°19.2	242°10.1 -1°20.1	257°10.4 -1°21.1	92°13.1 -1°33.8	107°13.4 -1°34.7	122°13.6 -1°35.7	137°13.8 -1°36.7	152°14.0 -1°37.6	167°14.2 -1°38.6	+0.2 -1.0
do 27	182°14.4 -1°39.6	197°14.6 -1°40.6	212°14.8 -1°41.5	227°15.1 -1°42.5	242°15.3 -1°43.5	257°15.5 -1°44.5	92°18.2 -1°57.1	107°18.5 -1°58.1	122°18.7 -1°59.0	137°18.9 -2°00.0	152°19.1 -2°01.0	167°19.3 -2°02.0	+0.2 -1.0
vr 28	182°19.5 -2°02.9	197°19.7 -2°03.9	212°19.9 -2°04.9	227°20.1 -2°05.9	242°20.3 -2°06.8	257°20.6 -2°07.8	92°23.3 -2°20.4	107°23.5 -2°21.4	122°23.7 -2°22.4	137°23.9 -2°23.4	152°24.1 -2°24.3	167°24.3 -2°25.3	+0.2 -1.0
za 29	182°24.5 -2°26.3	197°24.7 -2°27.2	212°24.9 -2°28.2	227°25.2 -2°29.2	242°25.4 -2°30.2	257°25.6 -2°31.1	92°28.3 -2°43.7	107°28.5 -2°44.7	122°28.7 -2°45.7	137°28.9 -2°46.7	152°29.1 -2°47.6	167°29.3 -2°48.6	+0.2 -1.0
zo 30	182°29.5 -2°49.6	197°29.7 -2°50.5	212°29.9 -2°51.5	227°30.1 -2°52.5	242°30.3 -2°53.5	257°30.5 -2°54.4	92°33.2 -3°07.0	107°33.4 -3°08.0	122°33.6 -3°09.0	137°33.8 -3°09.9	152°34.0 -3°10.9	167°34.2 -3°11.9	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2029

	D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
◑	za 1	75°20.4	89°49.6	104°18.8	118°47.9	133°17.0	147°46.0	162°15.0	176°44.0	191°12.9	205°41.9	220°10.7	+29.0	15.0
		23°58.9	24°00.3	24°01.7	24°02.9	24°04.0	24°04.9	24°05.8	24°06.5	24°07.1	24°07.6	24°08.0	+0.9	55.1
	zo 2	77°20.1	91°48.5	106°16.9	120°45.3	135°13.6	149°42.0	164°10.3	178°38.6	193°06.8	207°35.1	222°03.4	+28.3	15.2
		23°58.6	23°56.9	23°55.2	23°53.3	23°51.3	23°49.1	23°46.9	23°44.5	23°41.9	23°39.3	23°36.5	-2.2	55.7
	ma 3	79°05.7	93°33.7	108°01.8	122°29.9	136°58.0	151°26.1	165°54.2	180°22.3	194°50.4	209°18.5	223°46.6	+28.1	15.4
		22°39.4	22°34.6	22°29.6	22°24.5	22°19.3	22°14.0	22°08.5	22°02.9	21°57.2	21°51.3	21°45.4	-5.4	56.5
	di 4	80°48.6	95°16.8	109°45.0	124°13.2	138°41.5	153°09.7	167°38.0	182°06.3	196°34.5	211°02.8	225°31.2	+28.3	15.7
		20°00.8	19°52.8	19°44.7	19°36.5	19°28.2	19°19.8	19°11.3	19°02.6	18°53.8	18°44.9	18°35.9	-8.5	57.4
	wo 5	82°37.6	97°06.2	111°34.7	126°03.3	140°31.9	155°00.5	169°29.2	183°57.8	198°26.5	212°55.1	227°23.8	+28.6	15.9
		16°07.4	15°56.6	15°45.8	15°34.8	15°23.7	15°12.6	15°01.3	14°50.0	14°38.5	14°26.9	14°15.3	-11.2	58.4
	do 6	84°35.8	99°04.7	113°33.6	128°02.5	142°31.5	157°00.4	171°29.3	185°58.3	200°27.2	214°56.2	229°25.2	+28.9	16.1
		11°09.9	10°56.9	10°43.8	10°30.6	10°17.4	10°04.1	9°50.7	9°37.2	9°23.7	9°10.1	8°56.5	-13.4	59.2
	vr 7	86°40.0	101°09.0	115°38.0	130°07.0	144°36.0	159°04.9	173°33.9	188°02.8	202°31.8	217°00.7	231°29.6	+29.0	16.3
		5°24.6	5°10.1	4°55.5	4°40.9	4°26.3	4°11.6	3°56.9	3°42.1	3°27.3	3°12.5	2°57.7	-14.7	59.9
●	za 8	88°41.9	103°10.5	117°39.2	132°07.8	146°36.4	161°05.0	175°33.5	190°02.0	204°30.5	218°59.0	233°27.4	+28.6	16.5
		-0°47.4	-1°02.5	-1°17.5	-1°32.6	-1°47.7	-2°02.8	-2°17.9	-2°33.0	-2°48.0	-3°03.1	-3°18.1	-15.1	60.4
	zo 9	90°30.0	104°57.9	119°25.8	133°53.6	148°21.3	162°49.0	177°16.7	191°44.3	206°11.9	220°39.5	235°07.0	+27.7	16.5
		-7°01.0	-7°15.5	-7°30.1	-7°44.6	-7°59.1	-8°13.5	-8°27.8	-8°42.2	-8°56.4	-9°10.6	-9°24.8	-14.4	60.6
	ma 10	91°53.6	106°20.3	120°47.0	135°13.6	149°40.2	164°06.7	178°33.1	192°59.5	207°25.9	221°52.2	236°18.4	+26.5	16.5
		-12°48.9	-13°01.9	-13°14.8	-13°27.7	-13°40.4	-13°53.1	-14°05.6	-14°18.1	-14°30.4	-14°42.7	-14°54.9	-12.6	60.5
	di 11	92°45.8	107°11.3	121°36.6	136°02.0	150°27.3	164°52.5	179°17.7	193°42.8	208°07.9	222°33.0	236°58.0	+25.2	16.4
		-17°44.4	-17°54.8	-18°05.0	-18°15.2	-18°25.2	-18°35.0	-18°44.8	-18°54.4	-19°03.9	-19°13.2	-19°22.5	-9.8	60.2
	wo 12	93°08.3	107°32.7	121°57.1	136°21.5	150°45.8	165°10.2	179°34.5	193°58.7	208°23.0	222°47.2	237°11.4	+24.3	16.3
		-21°24.0	-21°30.9	-21°37.7	-21°44.3	-21°50.8	-21°57.2	-22°03.4	-22°09.4	-22°15.3	-22°21.0	-22°26.6	-6.3	59.6
	do 13	93°13.6	107°37.7	122°01.8	136°26.0	150°50.1	165°14.3	179°38.5	194°02.7	208°26.9	222°51.2	237°15.4	+24.2	16.1
		-23°31.2	-23°34.3	-23°37.2	-23°39.9	-23°42.5	-23°44.9	-23°47.1	-23°49.2	-23°51.1	-23°52.9	-23°54.5	-2.3	59.0
	vr 14	107°37.7	122°01.8	136°26.0	150°50.1	165°14.3	179°38.5	194°02.7	208°26.9	222°51.2	237°15.4	251°39.7	+24.2	16.1
		-23°34.3	-23°37.2	-23°39.9	-23°42.5	-23°44.9	-23°47.1	-23°49.2	-23°51.1	-23°52.9	-23°54.5	-23°55.9	-2.2	58.9
◐	za 15	107°47.7	122°12.6	136°37.5	151°02.4	165°27.4	179°52.5	194°17.6	208°42.7	223°07.9	237°33.2	251°58.5	+25.1	15.9
		-23°58.9	-23°57.8	-23°56.6	-23°55.3	-23°53.8	-23°52.1	-23°50.3	-23°48.4	-23°46.3	-23°44.1	-23°41.7	+1.7	58.2
	zo 16	108°26.1	122°52.5	137°18.9	151°45.5	166°12.1	180°38.8	195°05.6	209°32.4	223°59.3	238°26.4	252°53.4	+26.7	15.7
		-22°49.1	-22°44.5	-22°39.7	-22°34.9	-22°29.9	-22°24.8	-22°19.6	-22°14.2	-22°08.7	-22°03.1	-21°57.4	+5.2	57.5
	ma 17	109°49.6	124°18.0	138°46.4	153°15.0	167°43.7	182°12.4	196°41.2	211°10.1	225°39.1	240°08.2	254°37.4	+28.8	15.5
		-20°17.6	-20°10.1	-20°02.5	-19°54.7	-19°46.9	-19°39.0	-19°31.0	-19°22.9	-19°14.6	-19°06.3	-18°57.9	+8.0	56.9
	di 18	112°04.6	126°35.1	141°05.6	155°36.2	170°06.9	184°37.7	199°08.5	213°39.4	228°10.4	242°41.5	257°12.6	+30.8	15.3
		-16°41.5	-16°31.8	-16°22.0	-16°12.1	-16°02.2	-15°52.2	-15°42.1	-15°31.9	-15°21.7	-15°11.4	-15°01.1	+10.1	56.3
	wo 19	115°08.2	129°40.5	144°12.8	158°45.1	173°17.6	187°50.0	202°22.6	216°55.2	231°27.8	246°00.6	260°33.3	+32.5	15.2
		-12°18.8	-12°07.5	-11°56.3	-11°44.9	-11°33.6	-11°22.1	-11°10.7	-10°59.2	-10°47.6	-10°36.0	-10°24.4	+11.4	55.7
	do 20	118°51.2	133°24.8	147°58.4	162°32.0	177°05.7	191°39.5	206°13.3	220°47.1	235°20.9	249°54.8	264°28.8	+33.8	15.1
		-7°26.1	-7°14.0	-7°01.9	-6°49.7	-6°37.5	-6°25.3	-6°13.1	-6°00.9	-5°48.6	-5°36.4	-5°24.1	+12.2	55.2
	vr 21	123°01.4	137°35.8	152°10.3	166°44.7	181°19.2	195°53.6	210°28.1	225°02.6	239°37.2	254°11.7	268°46.3	+34.5	14.9
		-2°18.6	-2°06.1	-1°53.7	-1°41.3	-1°28.9	-1°16.5	-1°04.0	-0°51.6	-0°39.2	-0°26.8	-0°14.4	+12.4	54.8
○	za 22	127°26.1	142°00.8	156°35.5	171°10.2	185°44.9	200°19.6	214°54.3	229°29.0	244°03.7	258°38.4	273°13.1	+34.7	14.9
		2°50.5	3°02.7	3°14.9	3°27.1	3°39.3	3°51.4	4°03.5	4°15.6	4°27.7	4°39.8	4°51.8	+12.1	54.5
	zo 23	131°52.6	146°27.1	161°01.6	175°36.1	190°10.6	204°45.1	219°19.5	233°54.0	248°28.4	263°02.8	277°37.1	+34.5	14.8
		7°48.9	8°00.4	8°12.0	8°23.4	8°34.9	8°46.3	8°57.6	9°09.0	9°20.2	9°31.5	9°42.7	+11.4	54.2
	ma 24	136°09.7	150°43.7	165°17.6	179°51.5	194°25.4	208°59.2	223°33.0	238°06.7	252°40.4	267°14.1	281°47.8	+33.8	14.7
		12°25.2	12°35.6	12°46.0	12°56.3	13°06.6	13°16.8	13°27.0	13°37.1	13°47.1	13°57.1	14°07.0	+10.2	54.0
	di 25	140°08.1	154°41.2	169°14.2	183°47.1	198°20.0	212°52.9	227°25.8	241°58.5	256°31.3	271°04.0	285°36.6	+32.9	14.7
		16°28.4	16°37.3	16°46.1	16°54.8	17°03.5	17°12.1	17°20.6	17°29.1	17°37.5	17°45.8	17°54.0	+8.6	54.0
	wo 26	143°41.1	158°13.1	172°45.0	187°16.8	201°48.6	216°20.4	230°52.1	245°23.7	259°55.3	274°26.9	288°58.4	+31.7	14.7
		19°47.9	19°54.8	20°01.6	20°08.4	20°15.1	20°21.6	20°28.1	20°34.5	20°40.8	20°47.0	20°53.1	+6.5	54.0
	do 27	146°45.9	161°16.7	175°47.4	190°18.2	204°48.9	219°19.5	233°50.1	248°20.7	262°51.2	277°21.6	291°52.1	+30.6	14.8
		22°13.5	22°18.1	22°22.6	22°26.9	22°31.2	22°35.4	22°39.4	22°43.4	22°47.2	22°51.0	22°54.6	+4.1	54.2
	vr 28	149°24.1	163°53.9	178°23.7	192°53.5	207°23.3	221°53.0	236°22.7	250°52.4	265°22.0	279°51.6	294°21.2	+29.7	14.9
		23°36.2	23°38.1	23°39.9	23°41.5	23°43.1	23°44.5	23°45.8	23°47.0	23°48.1	23°49.1	23°50.0	+1.4	54.5
	za 29	151°42.0	166°11.2	180°40.4	195°09.6	209°38.8	224°07.9	238°37.1	253°06.2	267°35.3	282°04.4	296°33.5	+29.1	15.0
		23°48.8	23°47.7	23°46.6	23°45.3	23°43.9	23°42.4	23°40.8	23°39.0	23°37.2	23°35.2	23°33.1	-1.6	55.1
◑	zo 30	153°48.8	168°17.8	182°46.8	197°15.8	211°44.7	226°13.7	240°42.7	255°11.7	269°40.6	284°09.6	298°38.6	+29.0	15.2
		22°46.9	22°42.8	22°38.7	22°34.4	22°30.0	22°25.5	22°20.8	22°16.0	22°11.2	22°06.2	22°01.0	-4.6	55.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 1 04h33 — NM: 8 10h44 — EK: 15 01h29 — VM: 22 16h29 — LK: 30 20h56

ZON

Oktober 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	182°34.4	197°34.6	212°34.8	227°35.0	242°35.2	257°35.4	92°38.0	107°38.2	122°38.4	137°38.6	152°38.8	167°39.0	+0.2
	-3°12.9	-3°13.8	-3°14.8	-3°15.8	-3°16.7	-3°17.7	-3°30.3	-3°31.3	-3°32.2	-3°33.2	-3°34.2	-3°35.1	-1.0
di 2	182°39.2	197°39.4	212°39.6	227°39.8	242°40.0	257°40.2	92°42.7	107°42.9	122°43.1	137°43.3	152°43.5	167°43.7	+0.2
	-3°36.1	-3°37.1	-3°38.0	-3°39.0	-3°40.0	-3°40.9	-3°53.5	-3°54.5	-3°55.4	-3°56.4	-3°57.4	-3°58.3	-1.0
wo 3	182°43.9	197°44.1	212°44.3	227°44.5	242°44.7	257°44.9	92°47.4	107°47.6	122°47.8	137°48.0	152°48.2	167°48.4	+0.2
	-3°59.3	-4°00.3	-4°01.2	-4°02.2	-4°03.2	-4°04.1	-4°16.7	-4°17.6	-4°18.6	-4°19.6	-4°20.5	-4°21.5	-1.0
do 4	182°48.5	197°48.7	212°48.9	227°49.1	242°49.3	257°49.5	92°52.0	107°52.2	122°52.3	137°52.5	152°52.7	167°52.9	+0.2
	-4°22.5	-4°23.4	-4°24.4	-4°25.4	-4°26.3	-4°27.3	-4°39.8	-4°40.8	-4°41.7	-4°42.7	-4°43.7	-4°44.6	-1.0
vr 5	182°53.1	197°53.3	212°53.5	227°53.7	242°53.8	257°54.0	92°56.4	107°56.6	122°56.8	137°57.0	152°57.2	167°57.4	+0.2
	-4°45.6	-4°46.5	-4°47.5	-4°48.5	-4°49.4	-4°50.4	-5°02.9	-5°03.8	-5°04.8	-5°05.8	-5°06.7	-5°07.7	-1.0
za 6	182°57.6	197°57.7	212°57.9	227°58.1	242°58.3	257°58.5	93°00.8	108°01.0	123°01.2	138°01.4	153°01.5	168°01.7	+0.2
	-5°08.6	-5°09.6	-5°10.6	-5°11.5	-5°12.5	-5°13.4	-5°25.9	-5°26.8	-5°27.8	-5°28.8	-5°29.7	-5°30.7	-1.0
zo 7	183°01.9	198°02.1	213°02.3	228°02.4	243°02.6	258°02.8	93°05.1	108°05.3	123°05.5	138°05.6	153°05.8	168°06.0	+0.2
	-5°31.6	-5°32.6	-5°33.5	-5°34.5	-5°35.4	-5°36.4	-5°48.8	-5°49.8	-5°50.7	-5°51.7	-5°52.6	-5°53.6	-1.0
ma 8	183°06.2	198°06.3	213°06.5	228°06.7	243°06.9	258°07.0	93°09.3	108°09.4	123°09.6	138°09.8	153°10.0	168°10.1	+0.2
	-5°54.5	-5°55.5	-5°56.4	-5°57.4	-5°58.4	-5°59.3	-6°11.7	-6°12.6	-6°13.6	-6°14.5	-6°15.5	-6°16.4	-1.0
di 9	183°10.3	198°10.5	213°10.6	228°10.8	243°11.0	258°11.1	93°13.3	108°13.5	123°13.7	138°13.8	153°14.0	168°14.2	+0.2
	-6°17.4	-6°18.3	-6°19.3	-6°20.2	-6°21.2	-6°22.1	-6°34.5	-6°35.4	-6°36.4	-6°37.3	-6°38.2	-6°39.2	-1.0
wo 10	183°14.3	198°14.5	213°14.7	228°14.8	243°15.0	258°15.2	93°17.3	108°17.4	123°17.6	138°17.8	153°17.9	168°18.1	+0.2
	-6°40.1	-6°41.1	-6°42.0	-6°43.0	-6°43.9	-6°44.9	-6°57.1	-6°58.1	-6°59.0	-7°00.0	-7°00.9	-7°01.9	-0.9
do 11	183°18.2	198°18.4	213°18.6	228°18.7	243°18.9	258°19.0	93°21.1	108°21.3	123°21.4	138°21.6	153°21.7	168°21.9	+0.2
	-7°02.8	-7°03.7	-7°04.7	-7°05.6	-7°06.6	-7°07.5	-7°19.7	-7°20.7	-7°21.6	-7°22.6	-7°23.5	-7°24.4	-0.9
vr 12	183°22.0	198°22.2	213°22.4	228°22.5	243°22.7	258°22.8	93°24.8	108°25.0	123°25.1	138°25.3	153°25.4	168°25.6	+0.2
	-7°25.4	-7°26.3	-7°27.3	-7°28.2	-7°29.1	-7°30.1	-7°42.2	-7°43.2	-7°44.1	-7°45.0	-7°46.0	-7°46.9	-0.9
za 13	183°25.7	198°25.9	213°26.0	228°26.2	243°26.3	258°26.5	93°28.4	108°28.5	123°28.7	138°28.8	153°29.0	168°29.1	+0.2
	-7°47.8	-7°48.8	-7°49.7	-7°50.6	-7°51.6	-7°52.5	-8°04.6	-8°05.6	-8°06.5	-8°07.4	-8°08.3	-8°09.3	-0.9
zo 14	183°29.3	198°29.4	213°29.6	228°29.7	243°29.8	258°30.0	93°31.8	108°32.0	123°32.1	138°32.3	153°32.4	168°32.6	+0.1
	-8°10.2	-8°11.1	-8°12.1	-8°13.0	-8°13.9	-8°14.8	-8°26.9	-8°27.8	-8°28.7	-8°29.7	-8°30.6	-8°31.5	-0.9
ma 15	183°32.7	198°32.8	213°33.0	228°33.1	243°33.2	258°33.4	93°35.2	108°35.3	123°35.4	138°35.6	153°35.7	168°35.8	+0.1
	-8°32.4	-8°33.4	-8°34.3	-8°35.2	-8°36.1	-8°37.1	-8°49.0	-8°50.0	-8°50.9	-8°51.8	-8°52.7	-8°53.6	-0.9
di 16	183°36.0	198°36.1	213°36.2	228°36.4	243°36.5	258°36.6	93°38.3	108°38.5	123°38.6	138°38.7	153°38.9	168°39.0	+0.1
	-8°54.6	-8°55.5	-8°56.4	-8°57.3	-8°58.2	-8°59.2	-9°11.1	-9°12.0	-9°12.9	-9°13.8	-9°14.7	-9°15.6	-0.9
wo 17	183°39.1	198°39.2	213°39.4	228°39.5	243°39.6	258°39.8	93°41.4	108°41.5	123°41.6	138°41.8	153°41.9	168°42.0	+0.1
	-9°16.6	-9°17.5	-9°18.4	-9°19.3	-9°20.2	-9°21.1	-9°33.0	-9°33.9	-9°34.8	-9°35.7	-9°36.6	-9°37.5	-0.9
do 18	183°42.1	198°42.2	213°42.4	228°42.5	243°42.6	258°42.7	93°44.3	108°44.4	123°44.5	138°44.6	153°44.7	168°44.9	+0.1
	-9°38.4	-9°39.3	-9°40.2	-9°41.1	-9°42.0	-9°42.9	-9°54.7	-9°55.6	-9°56.5	-9°57.4	-9°58.3	-9°59.2	-0.9
vr 19	183°45.0	198°45.1	213°45.2	228°45.3	243°45.4	258°45.5	93°47.0	108°47.1	123°47.2	138°47.3	153°47.5	168°47.6	+0.1
	-10°00.1	-10°01.0	-10°01.9	-10°02.8	-10°03.7	-10°04.6	-10°16.3	-10°17.2	-10°18.1	-10°19.0	-10°19.9	-10°20.8	-0.9
za 20	183°47.7	198°47.8	213°47.9	228°48.0	243°48.1	258°48.2	93°49.6	108°49.7	123°49.8	138°49.9	153°50.0	168°50.1	+0.1
	-10°21.7	-10°22.6	-10°23.5	-10°24.4	-10°25.3	-10°26.2	-10°37.8	-10°38.7	-10°39.6	-10°40.4	-10°41.3	-10°42.2	-0.9
zo 21	183°50.2	198°50.3	213°50.4	228°50.5	243°50.6	258°50.7	93°52.0	108°52.1	123°52.2	138°52.3	153°52.4	168°52.5	+0.1
	-10°43.1	-10°44.0	-10°44.9	-10°45.8	-10°46.7	-10°47.6	-10°59.1	-11°00.0	-11°00.8	-11°01.7	-11°02.6	-11°03.5	-0.9
ma 22	183°52.6	198°52.7	213°52.8	228°52.9	243°53.0	258°53.1	93°54.3	108°54.3	123°54.4	138°54.5	153°54.6	168°54.7	+0.1
	-11°04.4	-11°05.3	-11°06.1	-11°07.0	-11°07.9	-11°08.8	-11°20.2	-11°21.1	-11°22.0	-11°22.8	-11°23.7	-11°24.6	-0.9
di 23	183°54.8	198°54.9	213°55.0	228°55.1	243°55.1	258°55.2	93°56.3	108°56.4	123°56.5	138°56.6	153°56.7	168°56.7	+0.1
	-11°25.5	-11°26.3	-11°27.2	-11°28.1	-11°29.0	-11°29.8	-11°41.2	-11°42.0	-11°42.9	-11°43.8	-11°44.7	-11°45.5	-0.9
wo 24	183°56.8	198°56.9	213°57.0	228°57.1	243°57.1	258°57.2	93°58.2	108°58.3	123°58.4	138°58.5	153°58.5	168°58.6	+0.1
	-11°46.4	-11°47.3	-11°48.1	-11°49.0	-11°49.9	-11°50.7	-12°02.0	-12°02.8	-12°03.7	-12°04.5	-12°05.4	-12°06.3	-0.9
do 25	183°58.7	198°58.8	213°58.8	228°58.9	243°59.0	258°59.0	94°00.0	109°00.0	124°00.1	139°00.2	154°00.2	169°00.3	+0.1
	-12°07.1	-12°08.0	-12°08.9	-12°09.7	-12°10.6	-12°11.4	-12°22.6	-12°23.4	-12°24.3	-12°25.1	-12°26.0	-12°26.8	-0.9
vr 26	184°00.4	199°00.4	214°00.5	229°00.5	244°00.6	259°00.7	94°01.5	109°01.5	124°01.6	139°01.7	154°01.7	169°01.8	+0.1
	-12°27.7	-12°28.5	-12°29.4	-12°30.2	-12°31.1	-12°32.0	-12°43.0	-12°43.8	-12°44.7	-12°45.5	-12°46.4	-12°47.2	-0.9
za 27	184°01.8	199°01.9	214°02.0	229°02.0	244°02.1	259°02.1	94°02.8	109°02.9	124°02.9	139°03.0	154°03.0	169°03.1	+0.1
	-12°48.1	-12°48.9	-12°49.7	-12°50.6	-12°51.4	-12°52.3	-13°03.2	-13°04.0	-13°04.9	-13°05.7	-13°06.6	-13°07.4	-0.8
zo 28	184°03.1	199°03.2	214°03.2	229°03.3	244°03.3	259°03.4	94°04.0	109°04.0	124°04.1	139°04.1	154°04.2	169°04.2	+0.1
	-13°08.2	-13°09.1	-13°09.9	-13°10.7	-13°11.6	-13°12.4	-13°23.2	-13°24.1	-13°24.9	-13°25.7	-13°26.5	-13°27.4	-0.8
ma 29	184°04.2	199°04.3	214°04.3	229°04.4	244°04.4	259°04.5	94°05.0	109°05.0	124°05.0	139°05.1	154°05.1	169°05.1	+0.0
	-13°28.2	-13°29.0	-13°29.9	-13°30.7	-13°31.5	-13°32.3	-13°43.0	-13°43.9	-13°44.7	-13°45.5	-13°46.3	-13°47.1	-0.8
di 30	184°05.2	199°05.2	214°05.2	229°05.3	244°05.3	259°05.3	94°05.7	109°05.7	124°05.8	139°05.8	154°05.8	169°05.8	+0.0
	-13°48.0	-13°48.8	-13°49.6	-13°50.4	-13°51.2	-13°52.0	-14°02.6	-14°03.4	-14°04.3	-14°05.1	-14°05.9	-14°06.7	-0.8
wo 31	184°05.9	199°05.9	214°05.9	229°05.9	244°06.0	259°06.0	94°06.3	109°06.3	124°06.3	139°06.3	154°06.3	169°06.4	+0.0
	-14°07.5	-14°08.3	-14°09.1	-14°09.9	-14°10.7	-14°11.5	-14°22.0	-14°22.8	-14°23.6	-14°24.4	-14°25.2	-14°26.0	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2029

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
ma 1	68°59.6	83°28.6	97°57.7	112°26.7	126°55.8	141°24.8	155°53.9	170°23.0	184°52.0	199°21.1	213°50.2	+29.1	15.4
	21°09.6	21°03.3	20°56.8	20°50.3	20°43.6	20°36.9	20°30.0	20°23.0	20°15.9	20°08.6	20°01.3	-6.8	56.4
di 2	71°07.9	85°37.1	100°06.4	114°35.7	129°05.0	143°34.3	158°03.6	172°32.9	187°02.2	201°31.6	216°00.9	+29.3	15.6
	17°57.7	17°48.6	17°39.4	17°30.1	17°20.6	17°11.1	17°01.5	16°51.7	16°41.9	16°31.9	16°21.9	-9.6	57.3
wo 3	73°22.2	87°51.7	102°21.2	116°50.7	131°20.2	145°49.7	160°19.2	174°48.7	189°18.2	203°47.7	218°17.2	+29.5	15.9
	13°39.6	13°28.0	13°16.4	13°04.6	12°52.8	12°40.9	12°28.9	12°16.8	12°04.7	11°52.4	11°40.1	-12.0	58.3
do 4	75°39.6	90°09.1	104°38.6	119°08.0	133°37.4	148°06.8	162°36.3	177°05.7	191°35.0	206°04.4	220°33.8	+29.4	16.2
	8°26.1	8°12.6	7°59.1	7°45.5	7°31.8	7°18.1	7°04.3	6°50.4	6°36.5	6°22.6	6°08.6	-13.8	59.3
vr 5	77°51.9	92°21.0	106°50.0	121°18.9	135°47.9	150°16.8	164°45.7	179°14.5	193°43.4	208°12.1	222°40.9	+28.9	16.4
	2°32.9	2°18.2	2°03.5	1°48.7	1°33.9	1°19.1	1°04.3	0°49.5	0°34.6	0°19.8	0°04.9	-14.8	60.1
za 6	79°47.5	94°15.6	108°43.6	123°11.6	137°39.6	152°07.5	166°35.3	181°03.1	195°30.8	209°58.5	224°26.2	+27.9	16.6
	-3°39.5	-3°54.5	-4°09.4	-4°24.3	-4°39.2	-4°54.1	-5°09.0	-5°23.8	-5°38.7	-5°53.5	-6°08.2	-14.9	60.8
● zo 7	81°13.8	95°40.5	110°07.1	124°33.6	139°00.1	153°26.6	167°52.9	182°19.2	196°45.5	211°11.6	225°37.7	+26.4	16.7
	-9°45.3	-9°59.4	-10°13.4	-10°27.4	-10°41.3	-10°55.1	-11°08.9	-11°22.5	-11°36.2	-11°49.7	-12°03.2	-13.8	61.2
ma 8	82°01.3	96°26.3	110°51.3	125°16.2	139°41.0	154°05.8	168°30.5	182°55.2	197°19.8	211°44.3	226°08.7	+24.7	16.7
	-15°15.0	-15°27.0	-15°39.0	-15°50.8	-16°02.4	-16°14.0	-16°25.5	-16°36.8	-16°48.0	-16°59.2	-17°10.1	-11.5	61.2
di 9	82°08.6	96°32.2	110°55.7	125°19.2	139°42.6	154°06.0	168°29.4	182°52.7	197°16.0	211°39.2	226°02.4	+23.4	16.6
	-19°39.3	-19°48.1	-19°56.8	-20°05.4	-20°13.7	-20°22.0	-20°30.1	-20°38.0	-20°45.8	-20°53.4	-21°00.9	-8.2	60.9
wo 10	81°47.1	96°09.9	110°32.7	124°55.6	139°18.4	153°41.2	168°04.0	182°26.9	196°49.7	211°12.5	225°35.4	+22.8	16.4
	-22°33.8	-22°38.7	-22°43.4	-22°47.9	-22°52.3	-22°56.5	-23°00.6	-23°04.4	-23°08.1	-23°11.7	-23°15.0	-4.1	60.2
do 11	81°20.4	95°43.7	110°07.0	124°30.3	138°53.7	153°17.1	167°40.6	182°04.1	196°27.7	210°51.4	225°15.0	+23.5	16.2
	-23°45.2	-23°45.8	-23°46.3	-23°46.7	-23°46.9	-23°46.9	-23°46.7	-23°46.4	-23°45.9	-23°45.3	-23°44.5	+0.1	59.4
vr 12	81°18.1	95°42.9	110°07.8	124°32.7	138°57.7	153°22.9	167°48.1	182°13.3	196°38.7	211°04.2	225°29.7	+25.2	16.0
	-23°13.7	-23°10.4	-23°07.0	-23°03.5	-22°59.8	-22°56.0	-22°52.0	-22°47.9	-22°43.6	-22°39.2	-22°34.7	+3.9	58.5
za 13	82°03.8	96°30.8	110°58.0	125°25.2	139°52.5	154°19.9	168°47.4	183°15.1	197°42.8	212°10.6	226°38.5	+27.5	15.7
	-21°11.5	-21°05.0	-20°58.3	-20°51.6	-20°44.7	-20°37.7	-20°30.7	-20°23.5	-20°16.2	-20°08.8	-20°01.3	+7.0	57.6
◐ zo 14	96°30.8	110°58.0	125°25.2	139°52.5	154°19.9	168°47.4	183°15.1	197°42.8	212°10.6	226°38.5	241°06.5	+27.6	15.7
	-21°05.0	-20°58.3	-20°51.6	-20°44.7	-20°37.7	-20°30.7	-20°23.5	-20°16.2	-20°08.8	-20°01.3	-19°53.7	+7.1	57.6
ma 15	98°18.1	112°47.6	127°17.2	141°46.9	156°16.7	170°46.6	185°16.6	199°46.7	214°16.9	228°47.1	243°17.5	+29.9	15.5
	-17°48.3	-17°39.2	-17°30.1	-17°20.8	-17°11.5	-17°02.2	-16°52.7	-16°43.2	-16°33.6	-16°23.9	-16°14.2	+9.4	56.8
di 16	101°02.7	115°34.4	130°06.1	144°37.9	159°09.8	173°41.7	188°13.8	202°45.9	217°18.0	231°50.3	246°22.6	+32.0	15.3
	-13°40.2	-13°29.5	-13°18.7	-13°07.9	-12°57.0	-12°46.1	-12°35.1	-12°24.1	-12°13.0	-12°01.9	-11°50.8	+11.0	56.0
wo 17	104°34.9	119°08.1	133°41.5	148°14.9	162°48.3	177°21.8	191°55.3	206°28.9	221°02.6	235°36.3	250°10.0	+33.5	15.1
	-8°58.8	-8°47.1	-8°35.3	-8°23.5	-8°11.7	-7°59.9	-7°48.0	-7°36.1	-7°24.2	-7°12.3	-7°00.3	+11.8	55.4
do 18	108°40.8	123°15.1	137°49.5	152°23.9	166°58.3	181°32.8	196°07.3	210°41.8	225°16.3	239°50.8	254°25.4	+34.5	15.0
	-3°59.1	-3°46.9	-3°34.7	-3°22.5	-3°10.3	-2°58.1	-2°45.9	-2°33.7	-2°21.5	-2°09.3	-1°57.1	+12.2	54.9
vr 19	113°06.1	127°40.9	142°15.7	156°50.5	171°25.4	186°00.2	200°35.0	215°09.9	229°44.7	244°19.6	258°54.4	+34.8	14.9
	1°05.9	1°18.1	1°30.2	1°42.3	1°54.4	2°06.5	2°18.6	2°30.7	2°42.8	2°54.8	3°06.8	+12.1	54.5
za 20	117°36.8	132°11.5	146°46.3	161°21.0	175°55.7	190°30.4	205°05.1	219°39.8	234°14.4	248°49.1	263°23.7	+34.7	14.8
	6°04.7	6°16.4	6°28.0	6°39.7	6°51.2	7°02.8	7°14.3	7°25.8	7°37.3	7°48.7	8°00.1	+11.5	54.2
zo 21	122°00.4	136°34.7	151°08.9	165°43.1	180°17.3	194°51.4	209°25.5	223°59.5	238°33.6	253°07.6	267°41.5	+34.1	14.7
	10°46.4	10°57.1	11°07.8	11°18.5	11°29.1	11°39.7	11°50.2	12°00.6	12°11.1	12°21.4	12°31.7	+10.5	54.0
○ ma 22	126°06.8	140°40.2	155°13.5	169°46.8	184°20.1	198°53.3	213°26.4	227°59.6	242°32.7	257°05.7	271°38.7	+33.2	14.7
	14°59.8	15°09.2	15°18.6	15°27.8	15°37.0	15°46.2	15°55.2	16°04.2	16°13.2	16°22.1	16°30.9	+9.1	53.9
di 23	129°48.5	144°20.8	158°53.0	173°25.2	187°57.4	202°29.5	217°01.5	231°33.6	246°05.5	260°37.5	275°09.3	+32.1	14.7
	18°34.1	18°41.7	18°49.2	18°56.7	19°04.0	19°11.3	19°18.5	19°25.6	19°32.6	19°39.5	19°46.4	+7.2	53.9
wo 24	133°02.2	147°33.4	162°04.5	176°35.6	191°06.7	205°37.7	220°08.6	234°39.6	249°10.5	263°41.3	278°12.1	+31.0	14.7
	21°18.4	21°23.8	21°29.1	21°34.2	21°39.3	21°44.3	21°49.2	21°54.0	21°58.7	22°03.3	22°07.8	+4.9	54.0
do 25	135°49.8	150°20.0	164°50.2	179°20.4	193°50.5	208°20.7	222°50.7	237°20.8	251°50.8	266°20.8	280°50.8	+30.1	14.8
	23°02.9	23°05.7	23°08.4	23°11.0	23°13.5	23°15.9	23°18.1	23°20.3	23°22.4	23°24.3	23°26.1	+2.3	54.2
vr 26	138°17.8	152°47.5	167°17.1	181°46.7	196°16.3	210°45.9	225°15.5	239°45.1	254°14.7	268°44.2	283°13.8	+29.6	14.9
	23°40.0	23°40.0	23°39.9	23°39.7	23°39.3	23°38.9	23°38.3	23°37.6	23°36.8	23°35.9	23°34.8	-0.5	54.5
za 27	140°36.4	155°05.9	169°35.4	184°04.9	198°34.4	213°03.9	227°33.5	242°03.0	256°32.5	271°02.1	285°31.6	+29.5	15.0
	23°05.3	23°02.4	22°59.4	22°56.3	22°53.0	22°49.7	22°46.2	22°42.6	22°38.9	22°35.1	22°31.1	-3.4	55.0
zo 28	142°55.9	157°25.7	171°55.4	186°25.1	200°54.9	215°24.7	229°54.5	244°24.3	258°54.1	273°24.0	287°53.8	+29.8	15.2
	21°18.5	21°12.7	21°06.9	21°00.9	20°54.8	20°48.6	20°42.4	20°36.0	20°29.4	20°22.8	20°16.1	-6.2	55.6
ma 29	145°23.7	159°53.8	174°24.0	188°54.1	203°24.3	217°54.5	232°24.7	246°55.0	261°25.2	275°55.5	290°25.8	+30.2	15.4
	18°22.7	18°14.3	18°05.8	17°57.2	17°48.5	17°39.8	17°30.9	17°21.9	17°12.9	17°03.7	16°54.4	-8.8	56.3
◑ di 30	148°01.7	162°32.2	177°02.7	191°33.2	206°03.7	220°34.3	235°04.8	249°35.3	264°05.9	278°36.5	293°07.0	+30.5	15.6
	14°24.5	14°13.8	14°03.1	13°52.2	13°41.2	13°30.2	13°19.1	13°07.9	12°56.6	12°45.3	12°33.9	-11.1	57.2
wo 31	150°45.8	165°16.4	179°47.0	194°17.5	208°48.1	223°18.7	237°49.2	252°19.7	266°50.2	281°20.8	295°51.3	+30.5	15.9
	9°33.5	9°20.9	9°08.2	8°55.5	8°42.7	8°29.9	8°17.0	8°04.1	7°51.0	7°38.0	7°24.8	-12.9	58.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 7 19h14 — EK: 14 11h08 — VM: 22 09h27 — LK: 30 11h32

ZON

November 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	184°06.4	199°06.4	214°06.4	229°06.4	244°06.4	259°06.5	94°06.6	109°06.6	124°06.6	139°06.7	154°06.7	169°06.7	+0.0
	-14°26.8	-14°27.6	-14°28.4	-14°29.2	-14°30.0	-14°30.8	-14°41.1	-14°41.9	-14°42.7	-14°43.5	-14°44.3	-14°45.1	-0.8
vr 2	184°06.7	199°06.7	214°06.7	229°06.7	244°06.7	259°06.7	94°06.8	109°06.8	124°06.8	139°06.8	154°06.8	169°06.8	+0.0
	-14°45.9	-14°46.7	-14°47.5	-14°48.3	-14°49.1	-14°49.8	-15°00.1	-15°00.8	-15°01.6	-15°02.4	-15°03.2	-15°04.0	-0.8
za 3	184°06.8	199°06.8	214°06.8	229°06.8	244°06.8	259°06.8	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	-0.0
	-15°04.7	-15°05.5	-15°06.3	-15°07.1	-15°07.9	-15°08.6	-15°18.7	-15°19.5	-15°20.3	-15°21.0	-15°21.8	-15°22.6	-0.8
zo 4	184°06.7	199°06.7	214°06.7	229°06.6	244°06.6	259°06.6	94°06.5	109°06.4	124°06.4	139°06.4	154°06.4	169°06.4	-0.0
	-15°23.3	-15°24.1	-15°24.9	-15°25.6	-15°26.4	-15°27.2	-15°37.1	-15°37.9	-15°38.6	-15°39.4	-15°40.2	-15°40.9	-0.8
ma 5	184°06.4	199°06.3	214°06.3	229°06.3	244°06.3	259°06.3	94°06.0	109°06.0	124°05.9	139°05.9	154°05.9	169°05.9	-0.0
	-15°41.7	-15°42.4	-15°43.2	-15°44.0	-15°44.7	-15°45.5	-15°55.3	-15°56.0	-15°56.8	-15°57.5	-15°58.3	-15°59.0	-0.8
di 6	184°05.8	199°05.8	214°05.8	229°05.7	244°05.7	259°05.7	94°05.3	109°05.3	124°05.2	139°05.2	154°05.2	169°05.1	-0.0
	-15°59.8	-16°00.5	-16°01.3	-16°02.0	-16°02.8	-16°03.5	-16°13.2	-16°13.9	-16°14.6	-16°15.4	-16°16.1	-16°16.9	-0.7
wo 7	184°05.1	199°05.1	214°05.0	229°05.0	244°04.9	259°04.9	94°04.4	109°04.4	124°04.3	139°04.3	154°04.2	169°04.2	-0.0
	-16°17.6	-16°18.3	-16°19.1	-16°19.8	-16°20.5	-16°21.3	-16°30.8	-16°31.5	-16°32.2	-16°33.0	-16°33.7	-16°34.4	-0.7
do 8	184°04.1	199°04.1	214°04.1	229°04.0	244°04.0	259°03.9	94°03.3	109°03.2	124°03.2	139°03.1	154°03.1	169°03.0	-0.0
	-16°35.1	-16°35.9	-16°36.6	-16°37.3	-16°38.0	-16°38.8	-16°48.1	-16°48.8	-16°49.6	-16°50.3	-16°51.0	-16°51.7	-0.7
vr 9	184°03.0	199°02.9	214°02.9	229°02.8	244°02.8	259°02.7	94°02.0	109°01.9	124°01.9	139°01.8	154°01.7	169°01.7	-0.1
	-16°52.4	-16°53.1	-16°53.8	-16°54.6	-16°55.3	-16°56.0	-17°05.2	-17°05.9	-17°06.6	-17°07.3	-17°08.0	-17°08.7	-0.7
za 10	184°01.6	199°01.6	214°01.5	229°01.4	244°01.4	259°01.3	94°00.5	109°00.4	124°00.3	139°00.3	154°00.2	169°00.1	-0.1
	-17°09.4	-17°10.1	-17°10.8	-17°11.5	-17°12.2	-17°12.9	-17°21.9	-17°22.6	-17°23.3	-17°24.0	-17°24.7	-17°25.4	-0.7
zo 11	184°00.1	199°00.0	213°59.9	228°59.8	243°59.8	258°59.7	93°58.7	108°58.7	123°58.6	138°58.5	153°58.4	168°58.4	-0.1
	-17°26.1	-17°26.8	-17°27.5	-17°28.1	-17°28.8	-17°29.5	-17°38.4	-17°39.1	-17°39.8	-17°40.4	-17°41.1	-17°41.8	-0.7
ma 12	183°58.3	198°58.2	213°58.1	228°58.0	243°58.0	258°57.9	93°56.8	108°56.7	123°56.6	138°56.6	153°56.5	168°56.4	-0.1
	-17°42.5	-17°43.1	-17°43.8	-17°44.5	-17°45.2	-17°45.8	-17°54.6	-17°55.2	-17°55.9	-17°56.6	-17°57.2	-17°57.9	-0.7
di 13	183°56.3	198°56.2	213°56.1	228°56.0	243°55.9	258°55.9	93°54.7	108°54.6	123°54.5	138°54.4	153°54.3	168°54.2	-0.1
	-17°58.5	-17°59.2	-17°59.9	-18°00.5	-18°01.2	-18°01.9	-18°10.4	-18°11.0	-18°11.7	-18°12.4	-18°13.0	-18°13.7	-0.7
wo 14	183°54.1	198°54.0	213°53.9	228°53.8	243°53.7	258°53.6	93°52.3	108°52.2	123°52.1	138°52.0	153°51.9	168°51.8	-0.1
	-18°14.3	-18°15.0	-18°15.6	-18°16.3	-18°16.9	-18°17.6	-18°25.9	-18°26.6	-18°27.2	-18°27.8	-18°28.5	-18°29.1	-0.7
do 15	183°51.7	198°51.6	213°51.5	228°51.4	243°51.3	258°51.2	93°49.8	108°49.7	123°49.5	138°49.4	153°49.3	168°49.2	-0.1
	-18°29.8	-18°30.4	-18°31.0	-18°31.7	-18°32.3	-18°32.9	-18°41.1	-18°41.7	-18°42.4	-18°43.0	-18°43.6	-18°44.2	-0.6
vr 16	183°49.1	198°49.0	213°48.9	228°48.8	243°48.6	258°48.5	93°47.0	108°46.9	123°46.8	138°46.6	153°46.5	168°46.4	-0.1
	-18°44.9	-18°45.5	-18°46.1	-18°46.7	-18°47.4	-18°48.0	-18°56.0	-18°56.6	-18°57.2	-18°57.8	-18°58.4	-18°59.0	-0.6
za 17	183°46.3	198°46.2	213°46.0	228°45.9	243°45.8	258°45.7	93°44.0	108°43.9	123°43.8	138°43.7	153°43.5	168°43.4	-0.1
	-18°59.7	-19°00.3	-19°00.9	-19°01.5	-19°02.1	-19°02.7	-19°10.5	-19°11.1	-19°11.7	-19°12.3	-19°12.9	-19°13.5	-0.6
zo 18	183°43.3	198°43.1	213°43.0	228°42.9	243°42.7	258°42.6	93°40.9	108°40.7	123°40.6	138°40.5	153°40.3	168°40.2	-0.1
	-19°14.1	-19°14.7	-19°15.3	-19°15.9	-19°16.5	-19°17.1	-19°24.7	-19°25.3	-19°25.9	-19°26.5	-19°27.0	-19°27.6	-0.6
ma 19	183°40.0	198°39.9	213°39.8	228°39.6	243°39.5	258°39.3	93°37.5	108°37.4	123°37.2	138°37.1	153°36.9	168°36.8	-0.1
	-19°28.2	-19°28.8	-19°29.4	-19°29.9	-19°30.5	-19°31.1	-19°38.5	-19°39.1	-19°39.7	-19°40.2	-19°40.8	-19°41.4	-0.6
di 20	183°36.6	198°36.5	213°36.3	228°36.2	243°36.0	258°35.9	93°33.9	108°33.8	123°33.6	138°33.5	153°33.3	168°33.1	-0.1
	-19°41.9	-19°42.5	-19°43.1	-19°43.6	-19°44.2	-19°44.8	-19°52.0	-19°52.6	-19°53.1	-19°53.7	-19°54.2	-19°54.8	-0.6
wo 21	183°33.0	198°32.8	213°32.7	228°32.5	243°32.4	258°32.2	93°30.1	108°30.0	123°29.8	138°29.7	153°29.5	168°29.3	-0.2
	-19°55.3	-19°55.9	-19°56.4	-19°57.0	-19°57.5	-19°58.1	-20°05.2	-20°05.7	-20°06.2	-20°06.8	-20°07.3	-20°07.8	-0.6
do 22	183°29.2	198°29.0	213°28.8	228°28.7	243°28.5	258°28.3	93°26.2	108°26.0	123°25.8	138°25.7	153°25.5	168°25.3	-0.2
	-20°08.4	-20°08.9	-20°09.4	-20°10.0	-20°10.5	-20°11.0	-20°17.9	-20°18.4	-20°19.0	-20°19.5	-20°20.0	-20°20.5	-0.5
vr 23	183°25.1	198°25.0	213°24.8	228°24.6	243°24.4	258°24.3	93°22.0	108°21.8	123°21.6	138°21.5	153°21.3	168°21.1	-0.2
	-20°21.0	-20°21.6	-20°22.1	-20°22.6	-20°23.1	-20°23.6	-20°30.3	-20°30.8	-20°31.3	-20°31.8	-20°32.3	-20°32.8	-0.5
za 24	183°20.9	198°20.7	213°20.6	228°20.4	243°20.2	258°20.0	93°17.6	108°17.4	123°17.3	138°17.1	153°16.9	168°16.7	-0.2
	-20°33.3	-20°33.8	-20°34.3	-20°34.8	-20°35.3	-20°35.8	-20°42.3	-20°42.8	-20°43.3	-20°43.8	-20°44.3	-20°44.7	-0.5
zo 25	183°16.5	198°16.3	213°16.1	228°15.9	243°15.7	258°15.6	93°13.1	108°12.9	123°12.7	138°12.5	153°12.3	168°12.1	-0.2
	-20°45.2	-20°45.7	-20°46.2	-20°46.7	-20°47.2	-20°47.7	-20°53.9	-20°54.4	-20°54.9	-20°55.3	-20°55.8	-20°56.3	-0.5
ma 26	183°11.9	198°11.7	213°11.5	228°11.3	243°11.1	258°10.9	93°08.3	108°08.1	123°07.9	138°07.7	153°07.5	168°07.3	-0.2
	-20°56.8	-20°57.2	-20°57.7	-20°58.2	-20°58.6	-20°59.1	-21°05.1	-21°05.6	-21°06.1	-21°06.5	-21°07.0	-21°07.4	-0.5
di 27	183°07.1	198°06.9	213°06.7	228°06.5	243°06.3	258°06.1	93°03.4	108°03.2	123°03.0	138°02.7	153°02.5	168°02.3	-0.2
	-21°07.9	-21°08.3	-21°08.8	-21°09.3	-21°09.7	-21°10.2	-21°16.0	-21°16.4	-21°16.9	-21°17.3	-21°17.7	-21°18.2	-0.5
wo 28	183°02.1	198°01.9	213°01.7	228°01.5	243°01.3	258°01.1	92°58.3	107°58.0	122°57.8	137°57.6	152°57.4	167°57.2	-0.2
	-21°18.6	-21°19.1	-21°19.5	-21°19.9	-21°20.4	-21°20.8	-21°26.4	-21°26.8	-21°27.3	-21°27.7	-21°28.1	-21°28.5	-0.4
do 29	182°57.0	197°56.7	212°56.5	227°56.3	242°56.1	257°55.9	92°53.0	107°52.7	122°52.5	137°52.3	152°52.1	167°51.8	-0.2
	-21°29.0	-21°29.4	-21°29.8	-21°30.2	-21°30.6	-21°31.1	-21°36.4	-21°36.8	-21°37.3	-21°37.7	-21°38.1	-21°38.5	-0.4
vr 30	182°51.6	197°51.4	212°51.2	227°50.9	242°50.7	257°50.5	92°47.5	107°47.3	122°47.0	137°46.8	152°46.6	167°46.3	-0.2
	-21°38.9	-21°39.3	-21°39.7	-21°40.1	-21°40.5	-21°40.9	-21°46.1	-21°46.4	-21°46.8	-21°47.2	-21°47.6	-21°48.0	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2029

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
do 1	66°25.1	80°55.4	95°25.7	109°56.0	124°26.3	138°56.5	153°26.7	167°56.9	182°27.1	196°57.2	211°27.3	+30.2	16.1
	5°24.2	5°10.6	4°56.9	4°43.2	4°29.4	4°15.6	4°01.7	3°47.8	3°33.8	3°19.9	3°05.8	-13.8	58.9
vr 2	68°54.7	83°24.3	97°53.7	112°23.1	126°52.5	141°21.8	155°51.1	170°20.3	184°49.5	199°18.6	213°47.6	+29.3	16.3
	-0°28.0	-0°42.5	-0°56.9	-1°11.4	-1°25.8	-1°40.3	-1°54.8	-2°09.3	-2°23.8	-2°38.3	-2°52.8	-14.5	59.8
za 3	70°56.4	85°24.4	99°52.4	114°20.4	128°48.2	143°16.0	157°43.7	172°11.4	186°38.9	201°06.4	215°33.8	+27.7	16.5
	-6°29.7	-6°44.1	-6°58.4	-7°12.7	-7°26.9	-7°41.1	-7°55.3	-8°09.5	-8°23.6	-8°37.7	-8°51.7	-14.2	60.6
zo 4	72°15.6	86°41.7	101°07.7	115°33.7	129°59.6	144°25.3	158°51.0	173°16.7	187°42.2	202°07.6	216°33.0	+25.7	16.7
	-12°16.1	-12°29.2	-12°42.3	-12°55.3	-13°08.2	-13°21.0	-13°33.8	-13°46.4	-13°59.0	-14°11.5	-14°23.9	-12.8	61.2
ma 5	72°43.1	87°07.1	101°31.1	115°54.9	130°18.7	144°42.4	159°06.0	173°29.5	187°53.0	202°16.4	216°39.7	+23.7	16.7
	-17°17.8	-17°28.5	-17°39.1	-17°49.5	-17°59.9	-18°10.1	-18°20.1	-18°30.1	-18°39.9	-18°49.6	-18°59.1	-10.1	61.4
● di 6	72°21.5	86°43.8	101°06.1	115°28.3	129°50.5	144°12.6	158°34.7	172°56.8	187°18.8	201°40.8	216°02.7	+22.1	16.7
	-21°04.7	-21°11.8	-21°18.8	-21°25.6	-21°32.3	-21°38.8	-21°45.1	-21°51.3	-21°57.3	-22°03.1	-22°08.7	-6.4	61.2
wo 7	71°29.6	85°51.4	100°13.1	114°34.9	128°56.6	143°18.4	157°40.2	172°02.0	186°23.9	200°45.7	215°07.6	+21.8	16.6
	-23°12.7	-23°15.6	-23°18.3	-23°20.8	-23°23.1	-23°25.2	-23°27.2	-23°29.0	-23°30.6	-23°32.0	-23°33.3	-2.1	60.7
do 8	70°40.6	85°03.2	99°25.8	113°48.6	128°11.4	142°34.3	156°57.2	171°20.3	185°43.4	200°06.5	214°29.8	+22.9	16.3
	-23°31.2	-23°29.7	-23°28.0	-23°26.2	-23°24.2	-23°22.0	-23°19.7	-23°17.2	-23°14.5	-23°11.7	-23°08.7	+2.3	59.9
vr 9	70°29.2	84°53.9	99°18.7	113°43.6	128°08.6	142°33.7	156°59.0	171°24.3	185°49.7	200°15.3	214°40.9	+25.2	16.1
	-22°05.9	-22°00.6	-21°55.1	-21°49.5	-21°43.7	-21°37.8	-21°31.8	-21°25.7	-21°19.4	-21°13.0	-21°06.5	+5.9	59.0
za 10	71°18.8	85°46.2	100°13.7	114°41.3	129°09.0	143°36.9	158°04.8	172°32.9	187°01.0	201°29.3	215°57.7	+27.9	15.8
	-19°14.9	-19°06.6	-18°58.2	-18°49.7	-18°41.2	-18°32.5	-18°23.7	-18°14.8	-18°05.9	-17°56.9	-17°47.7	+8.7	58.0
zo 11	73°15.9	87°46.0	102°16.1	116°46.3	131°16.6	145°47.0	160°17.5	174°48.1	189°18.8	203°49.6	218°20.5	+30.5	15.5
	-15°21.4	-15°11.1	-15°00.7	-14°50.3	-14°39.8	-14°29.2	-14°18.6	-14°07.9	-13°57.2	-13°46.4	-13°35.6	+10.6	57.0
ma 12	76°13.8	90°46.0	105°18.3	119°50.6	134°23.0	148°55.5	163°28.1	178°00.7	192°33.4	207°06.1	221°39.0	+32.5	15.3
	-10°47.4	-10°35.8	-10°24.3	-10°12.7	-10°01.0	-9°49.4	-9°37.7	-9°25.9	-9°14.2	-9°02.4	-8°50.6	+11.7	56.1
◐ di 13	90°46.0	105°18.3	119°50.6	134°23.0	148°55.5	163°28.1	178°00.7	192°33.4	207°06.1	221°39.0	236°11.8	+32.6	15.3
	-10°35.8	-10°24.3	-10°12.7	-10°01.0	-9°49.4	-9°37.7	-9°25.9	-9°14.2	-9°02.4	-8°50.6	-8°38.8	+11.7	56.1
wo 14	94°32.2	109°06.0	123°39.8	138°13.7	152°47.6	167°21.5	181°55.5	196°29.6	211°03.7	225°37.8	240°11.9	+34.0	15.1
	-5°38.8	-5°26.7	-5°14.6	-5°02.4	-4°50.3	-4°38.1	-4°25.9	-4°13.8	-4°01.6	-3°49.4	-3°37.2	+12.2	55.3
do 15	98°48.2	113°22.8	127°57.4	142°32.1	157°06.8	171°41.5	186°16.2	200°51.0	215°25.7	230°00.5	244°35.3	+34.7	14.9
	-0°34.2	-0°22.0	-0°09.9	0°02.3	0°14.4	0°26.6	0°38.7	0°50.8	1°02.9	1°15.0	1°27.1	+12.1	54.8
vr 16	103°17.8	117°52.7	132°27.5	147°02.4	161°37.2	176°12.1	190°46.9	205°21.7	219°56.6	234°31.4	249°06.2	+34.8	14.8
	4°26.4	4°38.2	4°50.0	5°01.8	5°13.5	5°25.2	5°36.9	5°48.5	6°00.1	6°11.7	6°23.3	+11.7	54.3
za 17	107°46.5	122°21.0	136°55.5	151°30.0	166°04.5	180°38.9	195°13.3	209°47.7	224°22.1	238°56.4	253°30.7	+34.4	14.7
	9°12.9	9°23.9	9°34.9	9°45.8	9°56.7	10°07.6	10°18.4	10°29.2	10°39.9	10°50.6	11°01.2	+10.8	54.1
zo 18	112°01.4	126°35.2	141°08.9	155°42.6	170°16.3	184°49.9	199°23.4	213°57.0	228°30.4	243°03.9	257°37.3	+33.6	14.7
	13°35.0	13°44.9	13°54.7	14°04.4	14°14.1	14°23.7	14°33.2	14°42.7	14°52.1	15°01.5	15°10.8	+9.6	53.9
ma 19	115°53.0	130°25.7	144°58.3	159°30.9	174°03.4	188°35.9	203°08.3	217°40.7	232°13.1	246°45.4	261°17.6	+32.5	14.7
	17°22.5	17°30.7	17°38.9	17°47.0	17°55.0	18°02.9	18°10.7	18°18.5	18°26.2	18°33.8	18°41.4	+7.9	53.9
di 20	119°15.5	133°47.0	148°18.4	162°49.8	177°21.1	191°52.4	206°23.6	220°54.8	235°25.9	249°57.0	264°28.1	+31.3	14.7
	20°24.4	20°30.6	20°36.7	20°42.6	20°48.5	20°54.4	21°00.1	21°05.7	21°11.2	21°16.6	21°22.0	+5.8	54.0
○ wo 21	122°08.6	136°39.0	151°09.3	165°39.7	180°09.9	194°40.1	209°10.3	223°40.5	238°10.6	252°40.7	267°10.8	+30.2	14.8
	22°30.0	22°33.8	22°37.4	22°40.9	22°44.3	22°47.6	22°50.8	22°53.8	22°56.8	22°59.7	23°02.4	+3.2	54.2
do 22	124°38.2	139°07.9	153°37.5	168°07.1	182°36.6	197°06.2	211°35.7	226°05.3	240°34.8	255°04.3	269°33.8	+29.6	14.8
	23°30.4	23°31.4	23°32.2	23°32.9	23°33.6	23°34.1	23°34.4	23°34.7	23°34.9	23°34.9	23°34.8	+0.4	54.4
vr 23	126°55.1	141°24.4	155°53.8	170°23.2	184°52.6	199°22.0	213°51.4	228°20.9	242°50.3	257°19.7	271°49.1	+29.4	14.9
	23°19.6	23°17.7	23°15.6	23°13.4	23°11.1	23°08.7	23°06.2	23°03.5	23°00.8	22°57.9	22°54.9	-2.5	54.8
za 24	129°12.0	143°41.6	158°11.3	172°41.0	187°10.7	201°40.4	216°10.1	230°39.9	245°09.7	259°39.5	274°09.3	+29.7	15.1
	21°56.3	21°51.5	21°46.5	21°41.5	21°36.4	21°31.1	21°25.7	21°20.3	21°14.7	21°09.0	21°03.2	-5.3	55.2
zo 25	131°39.7	146°09.9	160°40.2	175°10.4	189°40.8	204°11.1	218°41.5	233°11.8	247°42.3	262°12.7	276°43.2	+30.4	15.2
	19°23.6	19°16.1	19°08.5	19°00.9	18°53.1	18°45.3	18°37.3	18°29.3	18°21.1	18°12.9	18°04.5	-7.9	55.7
ma 26	134°23.5	148°54.4	163°25.3	177°56.2	192°27.2	206°58.2	221°29.2	236°00.2	250°31.3	265°02.3	279°33.4	+31.0	15.4
	15°48.6	15°38.8	15°29.0	15°19.1	15°09.0	14°58.9	14°48.8	14°38.5	14°28.2	14°17.8	14°07.3	-10.1	56.3
di 27	137°22.0	151°53.4	166°24.7	180°56.1	195°27.5	209°58.9	224°30.3	239°01.7	253°33.1	268°04.6	282°36.0	+31.4	15.5
	11°21.1	11°09.5	10°57.8	10°46.0	10°34.2	10°22.3	10°10.4	9°58.4	9°46.3	9°34.2	9°22.0	-11.9	57.0
◑ wo 28	140°27.6	154°59.0	169°30.4	184°01.8	198°33.2	213°04.6	227°35.9	242°07.3	256°38.6	271°09.9	285°41.2	+31.4	15.8
	6°12.8	5°59.8	5°46.7	5°33.6	5°20.5	5°07.3	4°54.1	4°40.9	4°27.6	4°14.3	4°00.9	-13.2	57.8
do 29	143°27.8	157°58.7	172°29.6	187°00.4	201°31.1	216°01.9	230°32.6	245°03.2	259°33.8	274°04.4	288°34.9	+30.7	16.0
	0°36.9	0°23.1	0°09.3	-0°04.5	-0°18.3	-0°32.2	-0°46.1	-0°59.9	-1°13.8	-1°27.7	-1°41.6	-13.9	58.6
vr 30	146°07.0	160°36.6	175°06.3	189°35.8	204°05.3	218°34.8	233°04.1	247°33.4	262°02.7	276°31.8	291°00.9	+29.4	16.2
	-5°10.4	-5°24.3	-5°38.2	-5°52.0	-6°05.8	-6°19.6	-6°33.4	-6°47.2	-7°00.9	-7°14.6	-7°28.3	-13.8	59.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 04h24 — EK: 13 00h35 — VM: 21 04h02 — LK: 28 23h47

ZON

December 2029

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	182°46.1	197°45.9	212°45.6	227°45.4	242°45.2	257°44.9	92°41.9	107°41.6	122°41.4	137°41.1	152°40.9	167°40.7	-0.2
	-21°48.4	-21°48.8	-21°49.2	-21°49.6	-21°49.9	-21°50.3	-21°55.3	-21°55.6	-21°56.0	-21°56.4	-21°56.7	-21°57.1	-0.4
zo 2	182°40.4	197°40.2	212°39.9	227°39.7	242°39.5	257°39.2	92°36.1	107°35.8	122°35.6	137°35.3	152°35.1	167°34.8	-0.2
	-21°57.5	-21°57.9	-21°58.2	-21°58.6	-21°59.0	-21°59.3	-22°04.0	-22°04.4	-22°04.7	-22°05.1	-22°05.5	-22°05.8	-0.4
ma 3	182°34.6	197°34.3	212°34.1	227°33.8	242°33.6	257°33.3	92°30.1	107°29.8	122°29.6	137°29.3	152°29.1	167°28.8	-0.2
	-22°06.2	-22°06.5	-22°06.9	-22°07.2	-22°07.6	-22°07.9	-22°12.4	-22°12.7	-22°13.1	-22°13.4	-22°13.7	-22°14.1	-0.4
di 4	182°28.6	197°28.3	212°28.1	227°27.8	242°27.6	257°27.3	92°24.0	107°23.7	122°23.5	137°23.2	152°23.0	167°22.7	-0.3
	-22°14.4	-22°14.7	-22°15.1	-22°15.4	-22°15.7	-22°16.1	-22°20.3	-22°20.6	-22°21.0	-22°21.3	-22°21.6	-22°21.9	-0.3
wo 5	182°22.4	197°22.2	212°21.9	227°21.7	242°21.4	257°21.1	92°17.7	107°17.5	122°17.2	137°17.0	152°16.7	167°16.4	-0.3
	-22°22.2	-22°22.5	-22°22.9	-22°23.2	-22°23.5	-22°23.8	-22°27.8	-22°28.1	-22°28.4	-22°28.7	-22°29.0	-22°29.3	-0.3
do 6	182°16.2	197°15.9	212°15.6	227°15.4	242°15.1	257°14.8	92°11.4	107°11.1	122°10.8	137°10.6	152°10.3	167°10.0	-0.3
	-22°29.6	-22°29.9	-22°30.2	-22°30.5	-22°30.8	-22°31.1	-22°34.9	-22°35.1	-22°35.4	-22°35.7	-22°36.0	-22°36.3	-0.3
vr 7	182°09.8	197°09.5	212°09.2	227°08.9	242°08.7	257°08.4	92°04.9	107°04.6	122°04.3	137°04.0	152°03.8	167°03.5	-0.3
	-22°36.6	-22°36.8	-22°37.1	-22°37.4	-22°37.7	-22°37.9	-22°41.5	-22°41.7	-22°42.0	-22°42.3	-22°42.5	-22°42.8	-0.3
za 8	182°03.2	197°02.9	212°02.7	227°02.4	242°02.1	257°01.8	91°58.2	106°58.0	121°57.7	136°57.4	151°57.1	166°56.9	-0.3
	-22°43.1	-22°43.3	-22°43.6	-22°43.8	-22°44.1	-22°44.3	-22°47.6	-22°47.9	-22°48.1	-22°48.4	-22°48.6	-22°48.9	-0.3
zo 9	181°56.6	196°56.3	211°56.0	226°55.7	241°55.5	256°55.2	91°51.5	106°51.2	121°51.0	136°50.7	151°50.4	166°50.1	-0.3
	-22°49.1	-22°49.3	-22°49.6	-22°49.8	-22°50.1	-22°50.3	-22°53.4	-22°53.6	-22°53.8	-22°54.0	-22°54.3	-22°54.5	-0.2
ma 10	181°49.8	196°49.5	211°49.3	226°49.0	241°48.7	256°48.4	91°44.7	106°44.4	121°44.1	136°43.8	151°43.5	166°43.3	-0.3
	-22°54.7	-22°54.9	-22°55.2	-22°55.4	-22°55.6	-22°55.8	-22°58.6	-22°58.8	-22°59.0	-22°59.2	-22°59.5	-22°59.7	-0.2
di 11	181°43.0	196°42.7	211°42.4	226°42.1	241°41.8	256°41.5	91°37.8	106°37.5	121°37.2	136°36.9	151°36.6	166°36.3	-0.3
	-22°59.9	-23°00.1	-23°00.3	-23°00.5	-23°00.7	-23°00.9	-23°03.4	-23°03.6	-23°03.8	-23°04.0	-23°04.2	-23°04.4	-0.2
wo 12	181°36.0	196°35.7	211°35.4	226°35.1	241°34.9	256°34.6	91°30.8	106°30.5	121°30.2	136°29.9	151°29.6	166°29.3	-0.3
	-23°04.6	-23°04.7	-23°04.9	-23°05.1	-23°05.3	-23°05.5	-23°07.8	-23°08.0	-23°08.1	-23°08.3	-23°08.5	-23°08.6	-0.2
do 13	181°29.0	196°28.7	211°28.4	226°28.1	241°27.8	256°27.5	91°23.7	106°23.4	121°23.1	136°22.8	151°22.5	166°22.2	-0.3
	-23°08.8	-23°09.0	-23°09.1	-23°09.3	-23°09.5	-23°09.6	-23°11.7	-23°11.8	-23°12.0	-23°12.1	-23°12.3	-23°12.4	-0.2
vr 14	181°21.9	196°21.6	211°21.3	226°21.0	241°20.7	256°20.4	91°16.5	106°16.2	121°15.9	136°15.6	151°15.3	166°15.0	-0.3
	-23°12.6	-23°12.7	-23°12.9	-23°13.0	-23°13.2	-23°13.3	-23°15.1	-23°15.2	-23°15.4	-23°15.5	-23°15.6	-23°15.8	-0.1
za 15	181°14.7	196°14.4	211°14.1	226°13.8	241°13.5	256°13.2	91°09.3	106°09.0	121°08.7	136°08.4	151°08.1	166°07.8	-0.3
	-23°15.9	-23°16.0	-23°16.2	-23°16.3	-23°16.4	-23°16.5	-23°18.1	-23°18.2	-23°18.3	-23°18.4	-23°18.5	-23°18.6	-0.1
zo 16	181°07.5	196°07.2	211°06.9	226°06.6	241°06.3	256°06.0	91°02.0	106°01.7	121°01.4	136°01.1	151°00.8	166°00.5	-0.3
	-23°18.8	-23°18.9	-23°19.0	-23°19.1	-23°19.2	-23°19.3	-23°20.6	-23°20.7	-23°20.8	-23°20.9	-23°21.0	-23°21.1	-0.1
ma 17	181°00.2	195°59.9	210°59.6	225°59.3	240°59.0	255°58.7	90°54.7	105°54.4	120°54.1	135°53.8	150°53.5	165°53.2	-0.3
	-23°21.1	-23°21.2	-23°21.3	-23°21.4	-23°21.5	-23°21.6	-23°22.6	-23°22.7	-23°22.8	-23°22.8	-23°22.9	-23°23.0	-0.1
di 18	180°52.9	195°52.6	210°52.3	225°52.0	240°51.7	255°51.3	90°47.4	105°47.1	120°46.7	135°46.4	150°46.1	165°45.8	-0.3
	-23°23.1	-23°23.1	-23°23.2	-23°23.3	-23°23.3	-23°23.4	-23°24.2	-23°24.3	-23°24.3	-23°24.4	-23°24.4	-23°24.5	-0.1
wo 19	180°45.5	195°45.2	210°44.9	225°44.6	240°44.3	255°44.0	90°40.0	105°39.7	120°39.4	135°39.0	150°38.7	165°38.4	-0.3
	-23°24.5	-23°24.6	-23°24.6	-23°24.7	-23°24.7	-23°24.8	-23°25.3	-23°25.3	-23°25.4	-23°25.4	-23°25.4	-23°25.5	-0.1
do 20	180°38.1	195°37.8	210°37.5	225°37.2	240°36.9	255°36.6	90°32.6	105°32.3	120°31.9	135°31.6	150°31.3	165°31.0	-0.3
	-23°25.5	-23°25.5	-23°25.6	-23°25.6	-23°25.6	-23°25.6	-23°25.9	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-0.0
vr 21	180°30.7	195°30.4	210°30.1	225°29.8	240°29.5	255°29.2	90°25.1	105°24.8	120°24.5	135°24.2	150°23.9	165°23.6	-0.3
	-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	-23°26.1	-23°26.1	-23°26.1	-0.0
za 22	180°23.3	195°23.0	210°22.7	225°22.3	240°22.0	255°21.7	90°17.7	105°17.4	120°17.1	135°16.8	150°16.5	165°16.1	-0.3
	-23°26.1	-23°26.1	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°25.8	-23°25.8	-23°25.7	-23°25.7	-23°25.7	-23°25.7	+0.0
zo 23	180°15.8	195°15.5	210°15.2	225°14.9	240°14.6	255°14.3	90°10.3	105°10.0	120°09.6	135°09.3	150°09.0	165°08.7	-0.3
	-23°25.6	-23°25.6	-23°25.6	-23°25.6	-23°25.5	-23°25.5	-23°25.0	-23°25.0	-23°24.9	-23°24.9	-23°24.8	-23°24.8	+0.0
ma 24	180°08.4	195°08.1	210°07.8	225°07.5	240°07.2	255°06.9	90°02.8	105°02.5	120°02.2	135°01.9	150°01.6	165°01.3	-0.3
	-23°24.7	-23°24.7	-23°24.7	-23°24.6	-23°24.6	-23°24.5	-23°23.8	-23°23.7	-23°23.6	-23°23.6	-23°23.5	-23°23.4	+0.0
di 25	180°01.0	195°00.7	210°00.4	225°00.0	239°59.7	254°59.4	89°55.4	104°55.1	119°54.8	134°54.5	149°54.2	164°53.9	-0.3
	-23°23.4	-23°23.3	-23°23.2	-23°23.2	-23°23.1	-23°23.0	-23°22.0	-23°22.0	-23°21.9	-23°21.8	-23°21.7	-23°21.6	+0.1
wo 26	179°53.6	194°53.3	209°53.0	224°52.6	239°52.3	254°52.0	89°48.0	104°47.7	119°47.4	134°47.1	149°46.8	164°46.5	-0.3
	-23°21.5	-23°21.5	-23°21.4	-23°21.3	-23°21.2	-23°21.1	-23°19.9	-23°19.8	-23°19.7	-23°19.6	-23°19.4	-23°19.3	+0.1
do 27	179°46.2	194°45.9	209°45.6	224°45.3	239°45.0	254°44.6	89°40.7	104°40.4	119°40.1	134°39.7	149°39.4	164°39.1	-0.3
	-23°19.2	-23°19.1	-23°19.0	-23°18.9	-23°18.8	-23°18.7	-23°17.2	-23°17.1	-23°17.0	-23°16.8	-23°16.7	-23°16.6	+0.1
vr 28	179°38.8	194°38.5	209°38.2	224°37.9	239°37.6	254°37.3	89°33.3	104°33.0	119°32.7	134°32.4	149°32.1	164°31.8	-0.3
	-23°16.5	-23°16.3	-23°16.2	-23°16.1	-23°16.0	-23°15.8	-23°14.1	-23°13.9	-23°13.8	-23°13.7	-23°13.5	-23°13.4	+0.1
za 29	179°31.5	194°31.2	209°30.9	224°30.6	239°30.3	254°30.0	89°26.1	104°25.8	119°25.5	134°25.2	149°24.8	164°24.5	-0.3
	-23°13.2	-23°13.1	-23°12.9	-23°12.8	-23°12.6	-23°12.5	-23°10.5	-23°10.3	-23°10.2	-23°10.0	-23°09.8	-23°09.7	+0.1
zo 30	179°24.2	194°23.9	209°23.6	224°23.3	239°23.0	254°22.7	89°18.8	104°18.5	119°18.2	134°17.9	149°17.6	164°17.3	-0.3
	-23°09.5	-23°09.3	-23°09.2	-23°09.0	-23°08.8	-23°08.7	-23°06.4	-23°06.2	-23°06.1	-23°05.9	-23°05.7	-23°05.5	+0.2
ma 31	179°17.0	194°16.7	209°16.4	224°16.1	239°15.8	254°15.5	89°11.7	104°11.4	119°11.1	134°10.8	149°10.5	164°10.2	-0.3
	-23°05.3	-23°05.2	-23°05.0	-23°04.8	-23°04.6	-23°04.4	-23°01.9	-23°01.7	-23°01.5	-23°01.3	-23°01.1	-23°00.9	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2029

D	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
za 1	75°47.8	90°16.1	104°44.3	119°12.4	133°40.4	148°08.3	162°36.2	177°04.0	191°31.6	205°59.2	220°26.8	+27.9	16.4
	-9°43.5	-9°56.8	-10°10.1	-10°23.3	-10°36.5	-10°49.6	-11°02.6	-11°15.6	-11°28.6	-11°41.5	-11°54.4	-13.1	60.0
zo 2	77°08.6	91°34.6	106°00.6	120°26.4	134°52.2	149°17.9	163°43.4	178°08.9	192°34.3	206°59.6	221°24.8	+25.6	16.5
	-14°58.8	-15°10.5	-15°22.0	-15°33.5	-15°44.9	-15°56.2	-16°07.4	-16°18.5	-16°29.5	-16°40.4	-16°51.2	-11.3	60.6
ma 3	77°31.6	91°55.4	106°19.0	120°42.6	135°06.1	149°29.5	163°52.8	178°16.1	192°39.3	207°02.4	221°25.4	+23.4	16.6
	-19°19.5	-19°28.4	-19°37.1	-19°45.8	-19°54.2	-20°02.6	-20°10.8	-20°18.8	-20°26.8	-20°34.5	-20°42.2	-8.3	60.9
di 4	77°02.7	91°24.7	105°46.7	120°08.6	134°30.5	148°52.4	163°14.2	177°36.0	191°57.8	206°19.5	220°41.2	+21.8	16.6
	-22°17.9	-22°23.0	-22°27.9	-22°32.7	-22°37.3	-22°41.7	-22°45.9	-22°50.0	-22°53.9	-22°57.6	-23°01.2	-4.3	60.9
● wo 5	76°05.3	90°26.9	104°48.5	119°10.1	133°31.8	147°53.5	162°15.2	176°37.0	190°58.8	205°20.6	219°42.4	+21.7	16.5
	-23°33.1	-23°33.9	-23°34.4	-23°34.7	-23°34.9	-23°34.9	-23°34.7	-23°34.4	-23°33.8	-23°33.1	-23°32.2	+0.1	60.6
do 6	75°16.1	89°38.9	104°01.7	118°24.6	132°47.6	147°10.6	161°33.7	175°57.0	190°20.3	204°43.7	219°07.1	+23.1	16.4
	-22°58.3	-22°54.7	-22°51.0	-22°47.1	-22°43.0	-22°38.8	-22°34.4	-22°29.9	-22°25.2	-22°20.3	-22°15.3	+4.3	60.0
vr 7	75°10.7	89°35.8	104°00.9	118°26.2	132°51.6	147°17.1	161°42.6	176°08.4	190°34.2	205°00.1	219°26.1	+25.5	16.1
	-20°43.3	-20°36.1	-20°28.8	-20°21.3	-20°13.8	-20°06.1	-19°58.3	-19°50.3	-19°42.3	-19°34.2	-19°25.9	+7.8	59.2
za 8	76°09.9	90°37.8	105°05.7	119°33.7	134°01.8	148°30.1	162°58.5	177°26.9	191°55.5	206°24.2	220°53.0	+28.3	15.9
	-17°09.7	-16°59.9	-16°50.0	-16°40.0	-16°29.9	-16°19.8	-16°09.5	-15°59.2	-15°48.9	-15°38.4	-15°27.9	+10.2	58.2
zo 9	78°17.0	92°47.4	107°17.9	121°48.5	136°19.1	150°49.9	165°20.7	179°51.7	194°22.7	208°53.8	223°25.0	+30.8	15.6
	-12°42.7	-12°31.3	-12°19.8	-12°08.2	-11°56.6	-11°45.0	-11°33.3	-11°21.6	-11°09.9	-10°58.1	-10°46.3	+11.6	57.3
ma 10	81°22.6	95°55.0	110°27.5	125°00.1	139°32.7	154°05.4	168°38.2	183°11.0	197°43.9	212°16.8	226°49.8	+32.7	15.4
	-7°45.3	-7°33.0	-7°20.7	-7°08.5	-6°56.2	-6°43.8	-6°31.5	-6°19.1	-6°06.8	-5°54.4	-5°42.0	+12.3	56.3
di 11	85°11.2	99°45.0	114°18.8	128°52.7	143°26.6	158°00.6	172°34.6	187°08.6	201°42.7	216°16.8	230°50.9	+34.0	15.1
	-2°35.6	-2°23.2	-2°10.8	-1°58.4	-1°46.0	-1°33.5	-1°21.1	-1°08.7	-0°56.4	-0°44.0	-0°31.6	+12.4	55.5
◐ wo 12	99°45.0	114°18.8	128°52.7	143°26.6	158°00.6	172°34.6	187°08.6	201°42.7	216°16.8	230°50.9	245°25.1	+34.0	15.1
	-2°23.2	-2°10.8	-1°58.4	-1°46.0	-1°33.5	-1°21.1	-1°08.7	-0°56.4	-0°44.0	-0°31.6	-0°19.3	+12.4	55.5
do 13	104°00.4	118°34.9	133°09.4	147°43.9	162°18.5	176°53.0	191°27.6	206°02.1	220°36.7	235°11.3	249°45.9	+34.6	15.0
	2°44.4	2°56.5	3°08.6	3°20.6	3°32.7	3°44.7	3°56.7	4°08.6	4°20.6	4°32.5	4°44.3	+12.0	54.9
vr 14	108°24.7	122°59.2	137°33.8	152°08.3	166°42.8	181°17.3	195°51.8	210°26.2	225°00.7	239°35.1	254°09.5	+34.5	14.8
	7°39.0	7°50.3	8°01.7	8°13.0	8°24.2	8°35.5	8°46.7	8°57.8	9°08.9	9°20.0	9°31.0	+11.2	54.4
za 15	112°43.2	127°17.3	141°51.3	156°25.3	170°59.2	185°33.1	200°07.0	214°40.9	229°14.7	243°48.5	258°22.2	+33.9	14.8
	12°10.9	12°21.2	12°31.4	12°41.6	12°51.7	13°01.8	13°11.8	13°21.8	13°31.7	13°41.5	13°51.3	+10.0	54.1
zo 16	116°43.8	131°16.9	145°49.9	160°22.9	174°55.9	189°28.8	204°01.7	218°34.5	233°07.3	247°40.1	262°12.8	+32.9	14.7
	16°10.9	16°19.7	16°28.4	16°37.1	16°45.7	16°54.2	17°02.6	17°11.0	17°19.3	17°27.6	17°35.7	+8.5	54.0
ma 17	120°17.3	134°49.2	149°21.1	163°52.9	178°24.7	192°56.4	207°28.0	221°59.6	236°31.2	251°02.7	265°34.1	+31.7	14.7
	19°28.9	19°35.8	19°42.6	19°49.4	19°56.0	20°02.6	20°09.1	20°15.4	20°21.7	20°27.9	20°34.1	+6.5	54.1
di 18	123°20.0	137°50.7	152°21.3	166°51.9	181°22.4	195°52.9	210°23.3	224°53.7	239°24.1	253°54.4	268°24.7	+30.5	14.8
	21°54.6	21°59.2	22°03.7	22°08.1	22°12.4	22°16.6	22°20.7	22°24.7	22°28.6	22°32.3	22°36.0	+4.1	54.2
wo 19	125°54.0	140°23.6	154°53.3	169°22.9	183°52.4	198°22.0	212°51.5	227°21.0	241°50.5	256°19.9	270°49.3	+29.5	14.9
	23°18.1	23°20.1	23°21.9	23°23.6	23°25.2	23°26.6	23°28.0	23°29.2	23°30.3	23°31.4	23°32.3	+1.4	54.5
○ do 20	128°07.9	142°37.0	157°06.2	171°35.3	186°04.3	200°33.4	215°02.5	229°31.6	244°00.6	258°29.7	272°58.8	+29.1	15.0
	23°31.6	23°30.6	23°29.5	23°28.3	23°27.0	23°25.5	23°23.9	23°22.2	23°20.4	23°18.4	23°16.4	-1.5	54.9
vr 21	130°15.0	144°44.1	159°13.2	173°42.4	188°11.6	202°40.8	217°10.0	231°39.2	246°08.4	260°37.7	275°06.9	+29.2	15.1
	22°31.3	22°27.3	22°23.3	22°19.1	22°14.8	22°10.4	22°05.8	22°01.2	21°56.4	21°51.6	21°46.6	-4.5	55.3
za 22	132°28.6	146°58.2	161°27.9	175°57.6	190°27.3	204°57.1	219°26.8	233°56.7	248°26.5	262°56.4	277°26.3	+29.8	15.2
	20°18.4	20°11.7	20°04.8	19°57.9	19°50.8	19°43.7	19°36.4	19°29.0	19°21.6	19°14.0	19°06.3	-7.2	55.7
zo 23	134°58.5	149°28.9	163°59.3	178°29.8	193°00.3	207°30.8	222°01.4	236°32.0	251°02.6	265°33.2	280°03.9	+30.5	15.3
	16°59.6	16°50.4	16°41.1	16°31.7	16°22.3	16°12.7	16°03.1	15°53.4	15°43.6	15°33.7	15°23.8	-9.6	56.2
ma 24	137°47.7	152°18.9	166°50.0	181°21.2	195°52.4	210°23.7	224°54.9	239°26.2	253°57.5	268°28.8	283°00.2	+31.2	15.5
	12°45.0	12°33.9	12°22.6	12°11.3	12°00.0	11°48.5	11°37.0	11°25.5	11°13.9	11°02.2	10°50.5	-11.5	56.7
di 25	140°52.4	155°24.0	169°55.6	184°27.2	198°58.8	213°30.4	228°02.1	242°33.7	257°05.3	271°37.0	286°08.6	+31.6	15.6
	7°47.7	7°35.1	7°22.5	7°09.8	6°57.1	6°44.3	6°31.5	6°18.7	6°05.8	5°52.9	5°39.9	-12.8	57.3
wo 26	144°02.9	158°34.5	173°06.0	187°37.5	202°09.1	216°40.5	231°12.0	245°43.5	260°14.9	274°46.4	289°17.8	+31.5	15.8
	2°21.8	2°08.4	1°54.9	1°41.5	1°28.0	1°14.5	1°01.0	0°47.5	0°34.0	0°20.4	0°06.9	-13.5	57.8
do 27	147°05.5	161°36.4	176°07.3	190°38.1	205°08.9	219°39.7	234°10.4	248°41.1	263°11.7	277°42.3	292°12.8	+30.7	15.9
	-3°17.2	-3°30.7	-3°44.3	-3°57.9	-4°11.5	-4°25.0	-4°38.6	-4°52.1	-5°05.6	-5°19.1	-5°32.6	-13.5	58.4
◑ vr 28	149°44.3	164°14.0	178°43.5	193°13.0	207°42.5	222°11.8	236°41.1	251°10.4	265°39.5	280°08.6	294°37.6	+29.3	16.1
	-8°51.9	-9°04.9	-9°17.9	-9°30.9	-9°43.8	-9°56.7	-10°09.5	-10°22.3	-10°35.0	-10°47.7	-11°00.3	-12.8	58.9
za 29	151°43.8	166°11.6	180°39.3	195°06.9	209°34.4	224°01.9	238°29.2	252°56.5	267°23.7	281°50.8	296°17.8	+27.4	16.2
	-14°02.7	-14°14.4	-14°25.9	-14°37.4	-14°48.8	-15°00.1	-15°11.3	-15°22.5	-15°33.5	-15°44.5	-15°55.4	-11.3	59.5
zo 30	152°52.4	167°18.0	181°43.5	196°09.0	210°34.3	224°59.6	239°24.7	253°49.8	268°14.9	282°39.8	297°04.6	+25.2	16.3
	-18°27.1	-18°36.3	-18°45.5	-18°54.5	-19°03.4	-19°12.2	-19°20.9	-19°29.5	-19°37.9	-19°46.2	-19°54.4	-8.7	59.9
ma 31	153°08.0	167°31.6	181°55.2	196°18.7	210°42.1	225°05.5	239°28.9	253°52.1	268°15.4	282°38.5	297°01.6	+23.4	16.4
	-21°40.9	-21°46.9	-21°52.7	-21°58.3	-22°03.8	-22°09.2	-22°14.4	-22°19.5	-22°24.3	-22°29.1	-22°33.7	-5.3	60.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 5 14h52 — EK: 12 17h49 — VM: 20 22h46 — LK: 28 09h49

ZON

Januari 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	179°09.9	194°09.6	209°09.3	224°09.0	239°08.7	254°08.4	89°04.6	104°04.3	119°04.0	134°03.7	149°03.4	164°03.1	-0.3
	-23°00.7	-23°00.5	-23°00.3	-23°00.1	-22°59.9	-22°59.7	-22°56.9	-22°56.7	-22°56.5	-22°56.3	-22°56.1	-22°55.8	+0.2
wo 2	179°02.8	194°02.5	209°02.2	224°01.9	239°01.6	254°01.4	88°57.6	103°57.3	118°57.0	133°56.7	148°56.4	163°56.1	-0.3
	-22°55.6	-22°55.4	-22°55.2	-22°54.9	-22°54.7	-22°54.5	-22°51.5	-22°51.2	-22°51.0	-22°50.8	-22°50.5	-22°50.3	+0.2
do 3	178°55.8	193°55.5	208°55.3	223°55.0	238°54.7	253°54.4	88°50.6	103°50.4	118°50.1	133°49.8	148°49.5	163°49.2	-0.3
	-22°50.1	-22°49.8	-22°49.6	-22°49.3	-22°49.1	-22°48.8	-22°45.6	-22°45.3	-22°45.1	-22°44.8	-22°44.6	-22°44.3	+0.2
vr 4	178°48.9	193°48.6	208°48.4	223°48.1	238°47.8	253°47.5	88°43.8	103°43.5	118°43.3	133°43.0	148°42.7	163°42.4	-0.3
	-22°44.0	-22°43.8	-22°43.5	-22°43.3	-22°43.0	-22°42.7	-22°39.2	-22°39.0	-22°38.7	-22°38.4	-22°38.1	-22°37.9	+0.3
za 5	178°42.1	193°41.9	208°41.6	223°41.3	238°41.0	253°40.7	88°37.1	103°36.8	118°36.6	133°36.3	148°36.0	163°35.7	-0.3
	-22°37.6	-22°37.3	-22°37.0	-22°36.8	-22°36.5	-22°36.2	-22°32.5	-22°32.2	-22°31.9	-22°31.6	-22°31.3	-22°31.0	+0.3
zo 6	178°35.4	193°35.2	208°34.9	223°34.6	238°34.3	253°34.1	88°30.5	103°30.2	118°30.0	133°29.7	148°29.4	163°29.1	-0.3
	-22°30.7	-22°30.4	-22°30.1	-22°29.8	-22°29.5	-22°29.2	-22°25.2	-22°24.9	-22°24.6	-22°24.3	-22°24.0	-22°23.7	+0.3
ma 7	178°28.9	193°28.6	208°28.3	223°28.1	238°27.8	253°27.5	88°24.0	103°23.8	118°23.5	133°23.2	148°23.0	163°22.7	-0.3
	-22°23.3	-22°23.0	-22°22.7	-22°22.4	-22°22.1	-22°21.7	-22°17.5	-22°17.2	-22°16.9	-22°16.5	-22°16.2	-22°15.9	+0.3
di 8	178°22.4	193°22.2	208°21.9	223°21.6	238°21.4	253°21.1	88°17.7	103°17.4	118°17.2	133°16.9	148°16.6	163°16.4	-0.3
	-22°15.5	-22°15.2	-22°14.9	-22°14.5	-22°14.2	-22°13.9	-22°09.4	-22°09.1	-22°08.7	-22°08.4	-22°08.0	-22°07.7	+0.3
wo 9	178°16.1	193°15.9	208°15.6	223°15.3	238°15.1	253°14.8	88°11.5	103°11.2	118°11.0	133°10.7	148°10.5	163°10.2	-0.3
	-22°07.3	-22°07.0	-22°06.6	-22°06.3	-22°05.9	-22°05.6	-22°00.9	-22°00.5	-22°00.1	-21°59.8	-21°59.4	-21°59.0	+0.4
do 10	178°09.9	193°09.7	208°09.4	223°09.2	238°08.9	253°08.7	88°05.4	103°05.2	118°04.9	133°04.7	148°04.4	163°04.2	-0.3
	-21°58.7	-21°58.3	-21°57.9	-21°57.5	-21°57.2	-21°56.8	-21°51.9	-21°51.5	-21°51.1	-21°50.7	-21°50.3	-21°50.0	+0.4
vr 11	178°03.9	193°03.7	208°03.4	223°03.2	238°02.9	253°02.7	87°59.5	102°59.2	117°59.0	132°58.8	147°58.5	162°58.3	-0.2
	-21°49.6	-21°49.2	-21°48.8	-21°48.4	-21°48.0	-21°47.6	-21°42.5	-21°42.1	-21°41.7	-21°41.3	-21°40.9	-21°40.5	+0.4
za 12	177°58.0	192°57.8	207°57.5	222°57.3	237°57.1	252°56.8	87°53.7	102°53.5	117°53.2	132°53.0	147°52.8	162°52.5	-0.2
	-21°40.1	-21°39.7	-21°39.2	-21°38.8	-21°38.4	-21°38.0	-21°32.7	-21°32.2	-21°31.8	-21°31.4	-21°31.0	-21°30.6	+0.4
zo 13	177°52.3	192°52.1	207°51.8	222°51.6	237°51.4	252°51.1	87°48.1	102°47.9	117°47.7	132°47.4	147°47.2	162°47.0	-0.2
	-21°30.1	-21°29.7	-21°29.3	-21°28.9	-21°28.4	-21°28.0	-21°22.4	-21°22.0	-21°21.5	-21°21.1	-21°20.7	-21°20.2	+0.4
ma 14	177°46.7	192°46.5	207°46.3	222°46.1	237°45.8	252°45.6	87°42.7	102°42.5	117°42.2	132°42.0	147°41.8	162°41.6	-0.2
	-21°19.8	-21°19.3	-21°18.9	-21°18.5	-21°18.0	-21°17.6	-21°11.8	-21°11.3	-21°10.9	-21°10.4	-21°09.9	-21°09.5	+0.4
di 15	177°41.3	192°41.1	207°40.9	222°40.7	237°40.5	252°40.2	87°37.4	102°37.2	117°37.0	132°36.8	147°36.5	162°36.3	-0.2
	-21°09.0	-21°08.6	-21°08.1	-21°07.7	-21°07.2	-21°06.7	-21°00.7	-21°00.2	-20°59.8	-20°59.3	-20°58.8	-20°58.3	+0.5
wo 16	177°36.1	192°35.9	207°35.7	222°35.5	237°35.3	252°35.1	87°32.3	102°32.1	117°31.9	132°31.7	147°31.5	162°31.3	-0.2
	-20°57.9	-20°57.4	-20°56.9	-20°56.4	-20°56.0	-20°55.5	-20°49.2	-20°48.8	-20°48.3	-20°47.8	-20°47.3	-20°46.8	+0.5
do 17	177°31.1	192°30.9	207°30.7	222°30.4	237°30.2	252°30.0	87°27.4	102°27.2	117°27.0	132°26.8	147°26.6	162°26.4	-0.2
	-20°46.3	-20°45.8	-20°45.3	-20°44.8	-20°44.3	-20°43.9	-20°37.4	-20°36.9	-20°36.4	-20°35.9	-20°35.4	-20°34.9	+0.5
vr 18	177°26.2	192°26.0	207°25.8	222°25.6	237°25.4	252°25.2	87°22.6	102°22.5	117°22.3	132°22.1	147°21.9	162°21.7	-0.2
	-20°34.4	-20°33.9	-20°33.3	-20°32.8	-20°32.3	-20°31.8	-20°25.1	-20°24.6	-20°24.1	-20°23.6	-20°23.1	-20°22.5	+0.5
za 19	177°21.5	192°21.3	207°21.1	222°20.9	237°20.7	252°20.5	87°18.1	102°17.9	117°17.7	132°17.5	147°17.4	162°17.2	-0.2
	-20°22.0	-20°21.5	-20°21.0	-20°20.5	-20°19.9	-20°19.4	-20°12.5	-20°12.0	-20°11.4	-20°10.9	-20°10.4	-20°09.8	+0.5
zo 20	177°17.0	192°16.8	207°16.6	222°16.4	237°16.2	252°16.1	87°13.7	102°13.5	117°13.4	132°13.2	147°13.0	162°12.8	-0.2
	-20°09.3	-20°08.8	-20°08.2	-20°07.7	-20°07.1	-20°06.6	-19°59.5	-19°59.0	-19°58.4	-19°57.9	-19°57.3	-19°56.7	+0.5
ma 21	177°12.7	192°12.5	207°12.3	222°12.1	237°12.0	252°11.8	87°09.5	102°09.4	117°09.2	132°09.0	147°08.9	162°08.7	-0.2
	-19°56.2	-19°55.6	-19°55.1	-19°54.5	-19°54.0	-19°53.4	-19°46.1	-19°45.6	-19°45.0	-19°44.4	-19°43.9	-19°43.3	+0.6
di 22	177°08.5	192°08.3	207°08.2	222°08.0	237°07.8	252°07.7	87°05.5	102°05.4	117°05.2	132°05.1	147°04.9	162°04.7	-0.2
	-19°42.7	-19°42.1	-19°41.6	-19°41.0	-19°40.4	-19°39.9	-19°32.4	-19°31.8	-19°31.2	-19°30.6	-19°30.0	-19°29.5	+0.6
wo 23	177°04.6	192°04.4	207°04.2	222°04.1	237°03.9	252°03.8	87°01.7	102°01.6	117°01.4	132°01.3	147°01.1	162°01.0	-0.2
	-19°28.9	-19°28.3	-19°27.7	-19°27.1	-19°26.5	-19°25.9	-19°18.3	-19°17.7	-19°17.1	-19°16.5	-19°15.9	-19°15.3	+0.6
do 24	177°00.8	192°00.7	207°00.5	222°00.4	237°00.2	252°00.0	86°58.1	101°58.0	116°57.8	131°57.7	146°57.5	161°57.4	-0.2
	-19°14.7	-19°14.1	-19°13.5	-19°12.9	-19°12.3	-19°11.7	-19°03.8	-19°03.2	-19°02.6	-19°02.0	-19°01.3	-19°00.7	+0.6
vr 25	176°57.2	191°57.1	206°57.0	221°56.8	236°56.7	251°56.5	86°54.7	101°54.6	116°54.4	131°54.3	146°54.1	161°54.0	-0.1
	-19°00.1	-18°59.5	-18°58.9	-18°58.3	-18°57.7	-18°57.0	-18°49.0	-18°48.3	-18°47.7	-18°47.1	-18°46.5	-18°45.8	+0.6
za 26	176°53.9	191°53.7	206°53.6	221°53.5	236°53.3	251°53.2	86°51.5	101°51.3	116°51.2	131°51.1	146°50.9	161°50.8	-0.1
	-18°45.2	-18°44.6	-18°43.9	-18°43.3	-18°42.7	-18°42.1	-18°33.8	-18°33.2	-18°32.5	-18°31.9	-18°31.2	-18°30.6	+0.6
zo 27	176°50.7	191°50.6	206°50.4	221°50.3	236°50.2	251°50.1	86°48.4	101°48.3	116°48.2	131°48.1	146°48.0	161°47.8	-0.1
	-18°29.9	-18°29.3	-18°28.7	-18°28.0	-18°27.4	-18°26.7	-18°18.3	-18°17.6	-18°17.0	-18°16.3	-18°15.7	-18°15.0	+0.6
ma 28	176°47.7	191°47.6	206°47.5	221°47.4	236°47.2	251°47.1	86°45.6	101°45.5	116°45.4	131°45.3	146°45.1	161°45.0	-0.1
	-18°14.4	-18°13.7	-18°13.0	-18°12.4	-18°11.7	-18°11.1	-18°02.4	-18°01.8	-18°01.1	-18°00.4	-17°59.8	-17°59.1	+0.7
di 29	176°44.9	191°44.8	206°44.7	221°44.6	236°44.5	251°44.4	86°43.0	101°42.9	116°42.8	131°42.7	146°42.5	161°42.4	-0.1
	-17°58.4	-17°57.8	-17°57.1	-17°56.4	-17°55.8	-17°55.1	-17°46.3	-17°45.6	-17°44.9	-17°44.2	-17°43.6	-17°42.9	+0.7
wo 30	176°42.3	191°42.2	206°42.1	221°42.0	236°41.9	251°41.8	86°40.5	101°40.4	116°40.3	131°40.2	146°40.1	161°40.0	-0.1
	-17°42.2	-17°41.5	-17°40.8	-17°40.1	-17°39.5	-17°38.8	-17°29.8	-17°29.1	-17°28.4	-17°27.7	-17°27.0	-17°26.3	+0.7
do 31	176°40.0	191°39.9	206°39.8	221°39.7	236°39.6	251°39.5	86°38.3	101°38.2	116°38.1	131°38.0	146°37.9	161°37.9	-0.1
	-17°25.6	-17°24.9	-17°24.2	-17°23.5	-17°22.8	-17°22.1	-17°13.0	-17°12.3	-17°11.6	-17°10.9	-17°10.2	-17°09.5	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2030

D	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
di 1	66°27.6	80°50.3	95°12.9	109°35.6	123°58.2	138°20.7	152°43.3	167°05.8	181°28.3	195°50.8	210°13.3	+22.6	16.4
	-23°07.6	-23°10.6	-23°13.4	-23°16.0	-23°18.4	-23°20.7	-23°22.8	-23°24.8	-23°26.6	-23°28.2	-23°29.6	-2.2	60.1
wo 2	65°50.4	80°13.0	94°35.5	108°58.2	123°20.8	137°43.5	152°06.2	166°28.9	180°51.7	195°14.6	209°37.4	+22.7	16.4
	-23°30.8	-23°29.5	-23°28.0	-23°26.4	-23°24.6	-23°22.7	-23°20.6	-23°18.3	-23°15.8	-23°13.2	-23°10.4	+2.0	60.0
do 3	65°26.8	79°50.6	94°14.5	108°38.5	123°02.5	137°26.6	151°50.8	166°15.0	180°39.4	195°03.8	209°28.3	+24.1	16.2
	-22°09.5	-22°04.2	-21°58.8	-21°53.2	-21°47.5	-21°41.6	-21°35.6	-21°29.4	-21°23.2	-21°16.7	-21°10.1	+5.9	59.6
● vr 4	65°46.8	80°12.8	94°38.9	109°05.1	123°31.4	137°57.7	152°24.2	166°50.8	181°17.5	195°44.2	210°11.1	+26.4	16.1
	-19°16.1	-19°07.6	-18°58.9	-18°50.1	-18°41.2	-18°32.2	-18°23.1	-18°13.9	-18°04.6	-17°55.2	-17°45.7	+9.0	59.0
za 5	67°06.3	81°34.8	96°03.3	110°32.0	125°00.8	139°29.6	153°58.6	168°27.6	182°56.8	197°26.0	211°55.4	+28.9	15.9
	-15°12.5	-15°01.6	-14°50.7	-14°39.7	-14°28.6	-14°17.5	-14°06.3	-13°55.0	-13°43.7	-13°32.3	-13°20.9	+11.2	58.2
zo 6	69°26.1	83°56.8	98°27.7	112°58.6	127°29.5	142°00.6	156°31.7	171°02.9	185°34.2	200°05.6	214°37.0	+31.1	15.6
	-10°23.2	-10°11.0	-9°58.8	-9°46.5	-9°34.3	-9°21.9	-9°09.6	-8°57.2	-8°44.8	-8°32.4	-8°19.9	+12.3	57.3
ma 7	72°36.7	87°09.2	101°41.7	116°14.3	130°47.0	145°19.7	159°52.5	174°25.3	188°58.1	203°31.0	218°04.0	+32.7	15.4
	-5°10.9	-4°58.2	-4°45.5	-4°32.8	-4°20.0	-4°07.3	-3°54.6	-3°41.9	-3°29.1	-3°16.4	-3°03.7	+12.7	56.5
di 8	76°23.6	90°57.2	105°30.9	120°04.6	134°38.3	149°12.0	163°45.7	178°19.5	192°53.3	207°27.2	222°01.0	+33.7	15.2
	0°06.4	0°18.9	0°31.5	0°44.1	0°56.6	1°09.1	1°21.6	1°34.1	1°46.5	1°59.0	2°11.4	+12.5	55.7
wo 9	80°31.1	95°05.2	109°39.3	124°13.5	138°47.6	153°21.7	167°55.8	182°30.0	197°04.1	211°38.3	226°12.4	+34.1	15.0
	5°14.5	5°26.4	5°38.4	5°50.3	6°02.1	6°14.0	6°25.8	6°37.5	6°49.2	7°00.9	7°12.6	+11.8	55.0
do 10	84°44.0	99°18.0	113°52.0	128°26.0	143°00.0	157°34.0	172°07.9	186°41.8	201°15.8	215°49.6	230°23.5	+34.0	14.9
	10°02.3	10°13.3	10°24.2	10°35.0	10°45.9	10°56.6	11°07.3	11°18.0	11°28.6	11°39.1	11°49.6	+10.7	54.5
◐ vr 11	99°18.0	113°52.0	128°26.0	143°00.0	157°34.0	172°07.9	186°41.8	201°15.8	215°49.6	230°23.5	244°57.4	+33.9	14.9
	10°13.3	10°24.2	10°35.0	10°45.9	10°56.6	11°07.3	11°18.0	11°28.6	11°39.1	11°49.6	12°00.1	+10.7	54.5
za 12	103°22.1	117°55.5	132°28.9	147°02.3	161°35.6	176°08.9	190°42.1	205°15.3	219°48.5	234°21.7	248°54.8	+33.3	14.8
	14°30.0	14°39.5	14°49.0	14°58.4	15°07.7	15°17.0	15°26.2	15°35.3	15°44.4	15°53.3	16°02.3	+9.2	54.2
zo 13	107°06.6	121°39.1	136°11.5	150°43.8	165°16.1	179°48.4	194°20.6	208°52.8	223°25.0	237°57.1	252°29.1	+32.3	14.8
	18°07.6	18°15.4	18°23.0	18°30.6	18°38.2	18°45.6	18°53.0	19°00.3	19°07.5	19°14.6	19°21.6	+7.4	54.1
ma 14	110°24.1	124°55.4	139°26.7	153°57.9	168°29.0	183°00.1	197°31.1	212°02.2	226°33.1	241°04.0	255°34.9	+31.1	14.8
	20°56.7	21°02.4	21°07.9	21°13.3	21°18.7	21°23.9	21°29.1	21°34.1	21°39.1	21°44.0	21°48.7	+5.2	54.2
di 15	113°12.4	127°42.6	142°12.7	156°42.8	171°12.8	185°42.8	200°12.8	214°42.7	229°12.6	243°42.4	258°12.2	+30.0	14.8
	22°48.1	22°51.2	22°54.2	22°57.1	22°59.9	23°02.6	23°05.2	23°07.6	23°10.0	23°12.3	23°14.4	+2.6	54.4
wo 16	115°35.3	130°04.6	144°33.8	159°03.1	173°32.3	188°01.5	202°30.7	216°59.9	231°29.0	245°58.1	260°27.2	+29.2	14.9
	23°33.0	23°33.3	23°33.5	23°33.6	23°33.5	23°33.4	23°33.1	23°32.7	23°32.2	23°31.6	23°30.8	-0.2	54.8
do 17	117°42.1	132°11.0	146°39.9	161°08.8	175°37.7	190°06.6	204°35.5	219°04.4	233°33.3	248°02.2	262°31.1	+28.9	15.1
	23°05.3	23°02.7	22°59.9	22°57.0	22°54.0	22°50.8	22°47.6	22°44.2	22°40.7	22°37.1	22°33.4	-3.2	55.3
vr 18	119°45.4	134°14.5	148°43.5	163°12.6	177°41.7	192°10.8	206°39.9	221°09.0	235°38.2	250°07.4	264°36.5	+29.1	15.2
	21°23.2	21°17.6	21°11.9	21°06.0	21°00.1	20°54.0	20°47.8	20°41.5	20°35.1	20°28.6	20°22.0	-6.1	55.8
○ za 19	121°57.1	136°26.7	150°56.2	165°25.9	179°55.5	194°25.2	208°54.9	223°24.6	237°54.4	252°24.1	266°53.9	+29.7	15.4
	18°29.7	18°21.4	18°13.0	18°04.4	17°55.8	17°47.1	17°38.3	17°29.4	17°20.4	17°11.3	17°02.1	-8.8	56.4
zo 20	124°24.4	138°54.7	153°24.9	167°55.2	182°25.6	196°55.9	211°26.3	225°56.7	240°27.2	254°57.6	269°28.1	+30.4	15.5
	14°33.3	14°22.7	14°12.0	14°01.2	13°50.4	13°39.5	13°28.5	13°17.4	13°06.3	12°55.0	12°43.8	-11.0	57.0
ma 21	127°08.2	141°39.1	156°09.9	170°40.8	185°11.7	199°42.6	214°13.5	228°44.5	243°15.4	257°46.4	272°17.4	+30.9	15.7
	9°46.4	9°31.7	9°21.7	9°09.3	8°56.8	8°44.3	8°31.7	8°19.0	8°06.4	7°53.6	7°40.9	-12.6	57.5
di 22	130°03.2	144°34.3	159°05.4	173°36.5	188°07.6	202°38.7	217°09.8	231°40.9	246°12.0	260°43.1	275°14.2	+31.1	15.8
	4°24.4	4°11.0	3°57.6	3°44.2	3°30.8	3°17.3	3°03.8	2°50.3	2°36.7	2°23.2	2°09.6	-13.5	57.9
wo 23	132°59.2	147°30.1	162°00.9	176°31.8	191°02.6	205°33.4	220°04.1	234°34.9	249°05.6	263°36.3	278°07.0	+30.8	15.9
	-1°15.5	-1°29.2	-1°42.9	-1°56.6	-2°10.3	-2°24.0	-2°37.7	-2°51.3	-3°05.0	-3°18.7	-3°32.3	-13.7	58.3
do 24	135°43.1	150°13.2	164°43.2	179°13.2	193°43.2	208°13.1	222°43.0	237°12.9	251°42.6	266°12.4	280°42.1	+29.9	16.0
	-6°54.8	-7°08.1	-7°21.4	-7°34.6	-7°47.8	-8°01.0	-8°14.1	-8°27.1	-8°40.2	-8°53.2	-9°06.1	-13.1	58.7
vr 25	138°01.0	152°29.8	166°58.5	181°27.2	195°55.8	210°24.3	224°52.8	239°21.2	253°49.6	268°17.9	282°46.1	+28.5	16.1
	-12°14.2	-12°26.3	-12°38.3	-12°50.3	-13°02.1	-13°13.9	-13°25.7	-13°37.3	-13°48.9	-14°00.4	-14°11.8	-11.8	58.9
◑ za 26	139°41.2	154°08.3	168°35.3	183°02.3	197°29.2	211°56.0	226°22.8	240°49.5	255°16.1	269°42.6	284°09.1	+26.8	16.1
	-16°53.1	-17°03.1	-17°13.0	-17°22.9	-17°32.6	-17°42.2	-17°51.7	-18°01.1	-18°10.4	-18°19.5	-18°28.6	-9.6	59.1
zo 27	140°37.9	155°03.3	169°28.7	183°53.9	198°19.1	212°44.3	227°09.4	241°34.4	255°59.3	270°24.2	284°49.1	+25.1	16.2
	-20°30.5	-20°37.7	-20°44.7	-20°51.5	-20°58.3	-21°04.9	-21°11.4	-21°17.7	-21°23.9	-21°29.9	-21°35.9	-6.5	59.2
ma 28	140°55.9	155°20.0	169°44.1	184°08.1	198°32.1	212°56.1	227°20.1	241°44.0	256°07.9	270°31.8	284°55.6	+24.0	16.2
	-22°47.3	-22°50.9	-22°54.3	-22°57.6	-23°00.7	-23°03.6	-23°06.4	-23°09.1	-23°11.6	-23°13.9	-23°16.1	-2.9	59.3
di 29	140°52.0	155°15.7	169°39.5	184°03.2	198°27.0	212°50.8	227°14.6	241°38.4	256°02.2	270°26.1	284°50.0	+23.8	16.1
	-23°29.7	-23°29.3	-23°28.8	-23°28.1	-23°27.3	-23°26.3	-23°25.1	-23°23.8	-23°22.3	-23°20.7	-23°18.9	+1.1	59.2
wo 30	140°52.0	155°16.5	169°41.0	184°05.6	198°30.2	212°54.9	227°19.7	241°44.5	256°09.3	270°34.2	284°59.2	+24.7	16.1
	-22°33.6	-22°29.3	-22°25.0	-22°20.4	-22°15.8	-22°10.9	-22°06.0	-22°00.9	-21°55.7	-21°50.3	-21°44.8	+4.9	59.0
do 31	141°21.9	155°48.0	170°14.1	184°40.4	199°06.7	213°33.1	227°59.6	242°26.2	256°52.8	271°19.5	285°46.3	+26.4	16.0
	-20°06.0	-19°58.5	-19°50.7	-19°42.9	-19°35.0	-19°26.9	-19°18.7	-19°10.5	-19°02.1	-18°53.6	-18°44.9	+8.1	58.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 4 02h49 — EK: 11 14h06 — VM: 19 15h54 — LK: 26 18h14

ZON

Februari 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	176° 37.8	191° 37.7	206° 37.6	221° 37.5	236° 37.4	251° 37.3	86° 36.3	101° 36.2	116° 36.1	131° 36.0	146° 35.9	161° 35.9	-0.1
	-17° 08.8	-17° 08.1	-17° 07.3	-17° 06.6	-17° 05.9	-17° 05.2	-16° 55.9	-16° 55.2	-16° 54.5	-16° 53.8	-16° 53.0	-16° 52.3	+0.7
za 2	176° 35.8	191° 35.7	206° 35.6	221° 35.5	236° 35.5	251° 35.4	86° 34.4	101° 34.4	116° 34.3	131° 34.2	146° 34.1	161° 34.1	-0.1
	-16° 51.6	-16° 50.9	-16° 50.1	-16° 49.4	-16° 48.7	-16° 48.0	-16° 38.5	-16° 37.8	-16° 37.1	-16° 36.3	-16° 35.6	-16° 34.9	+0.7
zo 3	176° 34.0	191° 33.9	206° 33.9	221° 33.8	236° 33.7	251° 33.7	86° 32.8	101° 32.7	116° 32.7	131° 32.6	146° 32.6	161° 32.5	-0.1
	-16° 34.1	-16° 33.4	-16° 32.7	-16° 31.9	-16° 31.2	-16° 30.4	-16° 20.8	-16° 20.1	-16° 19.3	-16° 18.6	-16° 17.9	-16° 17.1	+0.7
ma 4	176° 32.4	191° 32.4	206° 32.3	221° 32.2	236° 32.2	251° 32.1	86° 31.4	101° 31.3	116° 31.3	131° 31.2	146° 31.2	161° 31.1	-0.1
	-16° 16.4	-16° 15.6	-16° 14.9	-16° 14.1	-16° 13.4	-16° 12.6	-16° 02.9	-16° 02.1	-16° 01.4	-16° 00.6	-15° 59.8	-15° 59.1	+0.7
di 5	176° 31.1	191° 31.0	206° 30.9	221° 30.9	236° 30.8	251° 30.8	86° 30.2	101° 30.1	116° 30.1	131° 30.0	146° 30.0	161° 29.9	-0.1
	-15° 58.3	-15° 57.6	-15° 56.8	-15° 56.1	-15° 55.3	-15° 54.5	-15° 44.6	-15° 43.9	-15° 43.1	-15° 42.3	-15° 41.6	-15° 40.8	+0.8
wo 6	176° 29.9	191° 29.8	206° 29.8	221° 29.8	236° 29.7	251° 29.7	86° 29.1	101° 29.1	116° 29.1	131° 29.0	146° 29.0	161° 29.0	-0.0
	-15° 40.0	-15° 39.2	-15° 38.5	-15° 37.7	-15° 36.9	-15° 36.2	-15° 26.1	-15° 25.3	-15° 24.6	-15° 23.8	-15° 23.0	-15° 22.2	+0.8
do 7	176° 28.9	191° 28.9	206° 28.9	221° 28.8	236° 28.8	251° 28.7	86° 28.3	101° 28.3	116° 28.3	131° 28.2	146° 28.2	161° 28.2	-0.0
	-15° 21.4	-15° 20.7	-15° 19.9	-15° 19.1	-15° 18.3	-15° 17.5	-15° 07.3	-15° 06.5	-15° 05.8	-15° 05.0	-15° 04.2	-15° 03.4	+0.8
vr 8	176° 28.2	191° 28.1	206° 28.1	221° 28.1	236° 28.1	251° 28.0	86° 27.7	101° 27.7	116° 27.7	131° 27.7	146° 27.6	161° 27.6	-0.0
	-15° 02.6	-15° 01.8	-15° 01.0	-15° 00.2	-14° 59.4	-14° 58.6	-14° 48.3	-14° 47.5	-14° 46.7	-14° 45.9	-14° 45.1	-14° 44.3	+0.8
za 9	176° 27.6	191° 27.6	206° 27.6	221° 27.5	236° 27.5	251° 27.5	86° 27.3	101° 27.3	116° 27.3	131° 27.3	146° 27.3	161° 27.3	-0.0
	-14° 43.5	-14° 42.7	-14° 41.9	-14° 41.1	-14° 40.3	-14° 39.5	-14° 29.0	-14° 28.2	-14° 27.4	-14° 26.6	-14° 25.8	-14° 25.0	+0.8
zo 10	176° 27.2	191° 27.2	206° 27.2	221° 27.2	236° 27.2	251° 27.2	86° 27.1	101° 27.1	116° 27.1	131° 27.1	146° 27.1	161° 27.1	-0.0
	-14° 24.2	-14° 23.4	-14° 22.5	-14° 21.7	-14° 20.9	-14° 20.1	-14° 09.5	-14° 08.7	-14° 07.9	-14° 07.1	-14° 06.2	-14° 05.4	+0.8
ma 11	176° 27.1	191° 27.1	206° 27.1	221° 27.1	236° 27.1	251° 27.1	86° 27.1	101° 27.1	116° 27.1	131° 27.1	146° 27.1	161° 27.1	-0.0
	-14° 04.6	-14° 03.8	-14° 03.0	-14° 02.1	-14° 01.3	-14° 00.5	-13° 49.8	-13° 48.9	-13° 48.1	-13° 47.3	-13° 46.4	-13° 45.6	+0.8
di 12	176° 27.1	191° 27.1	206° 27.1	221° 27.1	236° 27.1	251° 27.1	86° 27.3	101° 27.3	116° 27.3	131° 27.3	146° 27.3	161° 27.3	+0.0
	-13° 44.8	-13° 44.0	-13° 43.1	-13° 42.3	-13° 41.5	-13° 40.6	-13° 29.8	-13° 28.9	-13° 28.1	-13° 27.3	-13° 26.4	-13° 25.6	+0.8
wo 13	176° 27.3	191° 27.4	206° 27.4	221° 27.4	236° 27.4	251° 27.4	86° 27.6	101° 27.7	116° 27.7	131° 27.7	146° 27.7	161° 27.7	+0.0
	-13° 24.8	-13° 23.9	-13° 23.1	-13° 22.2	-13° 21.4	-13° 20.6	-13° 09.6	-13° 08.7	-13° 07.9	-13° 07.0	-13° 06.2	-13° 05.4	+0.8
do 14	176° 27.8	191° 27.8	206° 27.8	221° 27.8	236° 27.8	251° 27.9	86° 28.2	101° 28.2	116° 28.2	131° 28.3	146° 28.3	161° 28.3	+0.0
	-13° 04.5	-13° 03.7	-13° 02.8	-13° 02.0	-13° 01.1	-13° 00.3	-12° 49.2	-12° 48.3	-12° 47.5	-12° 46.6	-12° 45.8	-12° 44.9	+0.8
vr 15	176° 28.4	191° 28.4	206° 28.4	221° 28.5	236° 28.5	251° 28.5	86° 28.9	101° 29.0	116° 29.0	131° 29.0	146° 29.0	161° 29.1	+0.0
	-12° 44.0	-12° 43.2	-12° 42.3	-12° 41.5	-12° 40.6	-12° 39.8	-12° 28.6	-12° 27.7	-12° 26.8	-12° 26.0	-12° 25.1	-12° 24.2	+0.9
za 16	176° 29.2	191° 29.2	206° 29.2	221° 29.3	236° 29.3	251° 29.3	86° 29.9	101° 29.9	116° 29.9	131° 30.0	146° 30.0	161° 30.1	+0.0
	-12° 23.4	-12° 22.5	-12° 21.6	-12° 20.8	-12° 19.9	-12° 19.0	-12° 07.7	-12° 06.9	-12° 06.0	-12° 05.1	-12° 04.3	-12° 03.4	+0.9
zo 17	176° 30.1	191° 30.2	206° 30.2	221° 30.3	236° 30.3	251° 30.3	86° 31.0	101° 31.0	116° 31.1	131° 31.1	146° 31.2	161° 31.2	+0.0
	-12° 02.5	-12° 01.6	-12° 00.8	-11° 59.9	-11° 59.0	-11° 58.1	-11° 46.7	-11° 45.9	-11° 45.0	-11° 44.1	-11° 43.2	-11° 42.3	+0.9
ma 18	176° 31.3	191° 31.3	206° 31.4	221° 31.4	236° 31.5	251° 31.5	86° 32.2	101° 32.3	116° 32.4	131° 32.4	146° 32.5	161° 32.5	+0.1
	-11° 41.5	-11° 40.6	-11° 39.7	-11° 38.8	-11° 37.9	-11° 37.0	-11° 25.5	-11° 24.7	-11° 23.8	-11° 22.9	-11° 22.0	-11° 21.1	+0.9
di 19	176° 32.6	191° 32.6	206° 32.7	221° 32.8	236° 32.8	251° 32.9	86° 33.7	101° 33.7	116° 33.8	131° 33.9	146° 33.9	161° 34.0	+0.1
	-11° 20.2	-11° 19.3	-11° 18.4	-11° 17.6	-11° 16.7	-11° 15.8	-11° 04.2	-11° 03.3	-11° 02.4	-11° 01.5	-11° 00.6	-10° 59.7	+0.9
wo 20	176° 34.1	191° 34.1	206° 34.2	221° 34.3	236° 34.3	251° 34.4	86° 35.3	101° 35.4	116° 35.4	131° 35.5	146° 35.6	161° 35.6	+0.1
	-10° 58.8	-10° 57.9	-10° 57.0	-10° 56.1	-10° 55.2	-10° 54.3	-10° 42.6	-10° 41.7	-10° 40.8	-10° 39.9	-10° 39.0	-10° 38.1	+0.9
do 21	176° 35.7	191° 35.8	206° 35.9	221° 35.9	236° 36.0	251° 36.1	86° 37.1	101° 37.1	116° 37.2	131° 37.3	146° 37.4	161° 37.4	+0.1
	-10° 37.2	-10° 36.3	-10° 35.4	-10° 34.5	-10° 33.6	-10° 32.7	-10° 20.9	-10° 20.0	-10° 19.1	-10° 18.2	-10° 17.3	-10° 16.4	+0.9
vr 22	176° 37.5	191° 37.6	206° 37.7	221° 37.8	236° 37.8	251° 37.9	86° 39.0	101° 39.1	116° 39.1	131° 39.2	146° 39.3	161° 39.4	+0.1
	-10° 15.5	-10° 14.5	-10° 13.6	-10° 12.7	-10° 11.8	-10° 10.9	-9° 59.0	-9° 58.1	-9° 57.2	-9° 56.3	-9° 55.4	-9° 54.5	+0.9
za 23	176° 39.5	191° 39.6	206° 39.7	221° 39.7	236° 39.8	251° 39.9	86° 41.1	101° 41.1	116° 41.2	131° 41.3	146° 41.4	161° 41.5	+0.1
	-9° 53.5	-9° 52.6	-9° 51.7	-9° 50.8	-9° 49.9	-9° 49.0	-9° 37.0	-9° 36.1	-9° 35.2	-9° 34.2	-9° 33.3	-9° 32.4	+0.9
zo 24	176° 41.6	191° 41.7	206° 41.8	221° 41.9	236° 42.0	251° 42.1	86° 43.3	101° 43.4	116° 43.5	131° 43.6	146° 43.7	161° 43.8	+0.1
	-9° 31.5	-9° 30.5	-9° 29.6	-9° 28.7	-9° 27.8	-9° 26.9	-9° 14.8	-9° 13.9	-9° 13.0	-9° 12.0	-9° 11.1	-9° 10.2	+0.9
ma 25	176° 43.8	191° 43.9	206° 44.0	221° 44.1	236° 44.2	251° 44.3	86° 45.6	101° 45.7	116° 45.8	131° 45.9	146° 46.0	161° 46.1	+0.1
	-9° 09.3	-9° 08.3	-9° 07.4	-9° 06.5	-9° 05.5	-9° 04.6	-8° 52.5	-8° 51.6	-8° 50.6	-8° 49.7	-8° 48.8	-8° 47.8	+0.9
di 26	176° 46.2	191° 46.3	206° 46.4	221° 46.5	236° 46.7	251° 46.8	86° 48.1	101° 48.2	116° 48.3	131° 48.4	146° 48.6	161° 48.7	+0.1
	-8° 46.9	-8° 46.0	-8° 45.0	-8° 44.1	-8° 43.2	-8° 42.2	-8° 30.0	-8° 29.1	-8° 28.2	-8° 27.2	-8° 26.3	-8° 25.3	+0.9
wo 27	176° 48.8	191° 48.9	206° 49.0	221° 49.1	236° 49.2	251° 49.3	86° 50.8	101° 50.9	116° 51.0	131° 51.1	146° 51.2	161° 51.3	+0.1
	-8° 24.4	-8° 23.5	-8° 22.5	-8° 21.6	-8° 20.6	-8° 19.7	-8° 07.5	-8° 06.5	-8° 05.6	-8° 04.6	-8° 03.7	-8° 02.7	+0.9
do 28	176° 51.4	191° 51.5	206° 51.7	221° 51.8	236° 51.9	251° 52.0	86° 53.5	101° 53.6	116° 53.7	131° 53.9	146° 54.0	161° 54.1	+0.1
	-8° 01.8	-8° 00.9	-7° 59.9	-7° 59.0	-7° 58.0	-7° 57.1	-7° 44.8	-7° 43.8	-7° 42.9	-7° 41.9	-7° 41.0	-7° 40.0	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2030

	D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
	vr 1	70°18.9	84°46.7	99°14.5	113°42.4	128°10.3	142°38.4	157°06.5	171°34.8	186°03.1	200°31.5	214°59.9	+28.1	15.9
		-17°13.2	-17°03.4	-16°53.6	-16°43.8	-16°33.8	-16°23.7	-16°13.6	-16°03.3	-15°53.0	-15°42.6	-15°32.1	+10.1	58.2
●	za 2	72°16.9	86°46.6	101°16.5	115°46.4	130°16.4	144°46.5	159°16.6	173°46.9	188°17.2	202°47.5	217°18.0	+30.1	15.7
		-12°46.3	-12°34.8	-12°23.1	-12°11.5	-11°59.7	-11°48.0	-11°36.1	-11°24.3	-11°12.3	-11°00.4	-10°48.4	+11.8	57.6
	zo 3	75°03.0	89°34.5	104°06.0	118°37.7	133°09.4	147°41.1	162°12.9	176°44.8	191°16.7	205°48.7	220°20.7	+31.8	15.5
		-7°43.7	-7°31.2	-7°18.6	-7°06.0	-6°53.4	-6°40.8	-6°28.1	-6°15.4	-6°02.7	-5°50.0	-5°37.3	+12.6	56.9
	ma 4	78°27.2	92°59.9	107°32.8	122°05.6	136°38.5	151°11.5	165°44.4	180°17.4	194°50.5	209°23.5	223°56.7	+33.0	15.3
		-2°25.6	-2°12.8	-2°00.0	-1°47.3	-1°34.5	-1°21.7	-1°08.9	-0°56.2	-0°43.4	-0°30.7	-0°18.0	+12.8	56.2
	di 5	82°16.6	96°50.1	111°23.6	125°57.1	140°30.7	155°04.3	169°37.9	184°11.5	198°45.1	213°18.7	227°52.3	+33.6	15.2
		2°51.0	3°03.4	3°15.8	3°28.2	3°40.5	3°52.8	4°05.1	4°17.4	4°29.6	4°41.8	4°54.0	+12.3	55.6
	wo 6	86°17.7	100°51.4	115°25.1	129°58.8	144°32.5	159°06.2	173°39.9	188°13.5	202°47.2	217°20.9	231°54.5	+33.7	15.0
		7°52.2	8°03.7	8°15.2	8°26.7	8°38.1	8°49.5	9°00.8	9°12.1	9°23.4	9°34.6	9°45.7	+11.4	55.0
	do 7	90°17.9	104°51.3	119°24.8	133°58.1	148°31.5	163°04.9	177°38.2	192°11.5	206°44.8	221°18.0	235°51.2	+33.3	14.9
		12°26.6	12°36.9	12°47.1	12°57.3	13°07.4	13°17.4	13°27.4	13°37.3	13°47.1	13°56.9	14°06.6	+10.0	54.6
	vr 8	94°06.4	108°39.2	123°11.9	137°44.6	152°17.3	166°49.9	181°22.5	195°55.1	210°27.6	225°00.1	239°32.6	+32.6	14.8
		16°24.5	16°33.1	16°41.6	16°50.1	16°58.5	17°06.9	17°15.1	17°23.3	17°31.4	17°39.4	17°47.4	+8.3	54.3
	za 9	108°39.2	123°11.9	137°44.6	152°17.3	166°49.9	181°22.5	195°55.1	210°27.6	225°00.1	239°32.6	254°05.0	+32.6	14.8
		16°33.1	16°41.6	16°50.1	16°58.5	17°06.9	17°15.1	17°23.3	17°31.4	17°39.4	17°47.4	17°55.2	+8.2	54.3
◐	zo 10	112°06.8	126°38.6	141°10.4	155°42.1	170°13.8	184°45.5	199°17.1	213°48.7	228°20.2	242°51.7	257°23.1	+31.6	14.8
		19°43.4	19°49.9	19°56.4	20°02.7	20°09.0	20°15.2	20°21.3	20°27.3	20°33.2	20°39.0	20°44.7	+6.1	54.2
	ma 11	115°10.0	129°40.8	144°11.6	158°42.3	173°13.0	187°43.7	202°14.3	216°44.8	231°15.4	245°45.9	260°16.3	+30.6	14.8
		21°59.2	22°03.4	22°07.5	22°11.5	22°15.4	22°19.1	22°22.8	22°26.4	22°29.9	22°33.2	22°36.5	+3.7	54.3
	di 12	117°49.1	132°19.0	146°48.9	161°18.8	175°48.6	190°18.4	204°48.2	219°17.9	233°47.6	248°17.3	262°47.0	+29.8	14.9
		23°12.7	23°14.2	23°15.6	23°17.0	23°18.2	23°19.3	23°20.3	23°21.1	23°21.9	23°22.5	23°23.1	+1.0	54.5
	wo 13	120°09.3	134°38.6	149°07.9	163°37.2	178°06.5	192°35.8	207°05.0	221°34.3	236°03.5	250°32.7	265°02.0	+29.3	15.0
		23°17.3	23°16.0	23°14.5	23°13.0	23°11.3	23°09.6	23°07.7	23°05.6	23°03.5	23°01.3	22°58.9	-1.8	55.0
	do 14	122°19.4	136°48.5	151°17.7	165°46.8	180°16.0	194°45.1	209°14.2	223°43.4	238°12.5	252°41.7	267°10.9	+29.1	15.2
		22°09.3	22°05.0	22°00.7	21°56.2	21°51.6	21°46.9	21°42.1	21°37.1	21°32.1	21°26.9	21°21.6	-4.8	55.6
	vr 15	124°29.3	138°58.6	153°27.9	167°57.3	182°26.6	196°56.0	211°25.4	225°54.8	240°24.2	254°53.6	269°23.0	+29.4	15.3
		19°48.7	19°41.6	19°34.5	19°27.2	19°19.8	19°12.2	19°04.6	18°56.9	18°49.1	18°41.1	18°33.1	-7.6	56.3
	za 16	126°46.6	141°16.3	155°46.0	170°15.8	184°45.5	199°15.3	213°45.1	228°14.9	242°44.7	257°14.6	271°44.4	+29.8	15.5
		16°20.2	16°10.6	16°00.9	15°51.0	15°41.1	15°31.1	15°21.0	15°10.8	15°00.6	14°50.2	14°39.7	-10.1	57.0
	zo 17	129°14.4	143°44.5	158°14.6	172°44.7	187°14.9	201°45.1	216°15.2	230°45.4	245°15.6	259°45.8	274°16.1	+30.2	15.7
		11°53.1	11°41.3	11°29.5	11°17.7	11°05.7	10°53.7	10°41.6	10°29.5	10°17.3	10°05.0	9°52.7	-12.0	57.7
○	ma 18	131°50.3	146°20.6	160°50.9	175°21.2	189°51.6	204°21.9	218°52.2	233°22.5	247°52.8	262°23.1	276°53.5	+30.3	15.9
		6°40.7	6°27.5	6°14.3	6°01.0	5°47.7	5°34.3	5°20.9	5°07.5	4°54.0	4°40.5	4°26.9	-13.4	58.4
	di 19	134°27.2	148°57.4	163°27.5	177°57.6	192°27.7	206°57.8	221°27.9	235°58.0	250°28.0	264°58.0	279°28.0	+30.1	16.1
		1°00.4	0°46.5	0°32.5	0°18.6	0°04.6	-0°09.3	-0°23.3	-0°37.3	-0°51.2	-1°05.2	-1°19.2	-14.0	58.9
	wo 20	136°54.8	151°24.3	165°53.8	180°23.3	194°52.7	209°22.1	223°51.5	238°20.8	252°50.1	267°19.3	281°48.5	+29.4	16.2
		-4°48.1	-5°01.9	-5°15.6	-5°29.4	-5°43.1	-5°56.8	-6°10.5	-6°24.1	-6°37.8	-6°51.3	-7°04.9	-13.7	59.2
	do 21	139°01.4	153°29.8	167°58.3	182°26.6	196°55.0	211°23.2	225°51.5	240°19.6	254°47.7	269°15.8	283°43.8	+28.2	16.2
		-10°22.8	-10°35.6	-10°48.3	-11°00.9	-11°13.5	-11°26.1	-11°38.5	-11°50.9	-12°03.3	-12°15.5	-12°27.7	-12.5	59.4
	vr 22	140°37.1	155°04.2	169°31.2	183°58.2	198°25.1	212°52.0	227°18.8	241°45.5	256°12.2	270°38.8	285°05.4	+26.8	16.2
		-15°21.0	-15°31.9	-15°42.7	-15°53.3	-16°03.9	-16°14.3	-16°24.7	-16°35.0	-16°45.1	-16°55.2	-17°05.1	-10.4	59.5
	za 23	141°37.1	156°02.7	170°28.4	184°53.9	199°19.5	213°44.9	228°10.3	242°35.7	257°01.0	271°26.3	285°51.6	+25.4	16.2
		-19°20.8	-19°28.9	-19°36.8	-19°44.7	-19°52.4	-20°00.0	-20°07.4	-20°14.7	-20°21.9	-20°29.0	-20°35.9	-7.5	59.3
	zo 24	142°05.1	156°29.7	170°54.3	185°18.9	199°43.4	214°07.9	228°32.4	242°56.9	257°21.3	271°45.8	286°10.2	+24.5	16.1
		-22°02.9	-22°07.6	-22°12.1	-22°16.5	-22°20.7	-22°24.8	-22°28.7	-22°32.4	-22°36.1	-22°39.5	-22°42.8	-4.0	59.1
◑	ma 25	142°15.2	156°39.6	171°03.9	185°28.2	199°52.6	214°16.9	228°41.3	243°05.7	257°30.1	271°54.6	286°19.0	+24.4	16.1
		-23°14.3	-23°15.2	-23°15.9	-23°16.5	-23°16.9	-23°17.1	-23°17.2	-23°17.2	-23°17.0	-23°16.6	-23°16.1	-0.2	58.9
	di 26	142°29.1	156°54.0	171°19.0	185°44.1	200°09.2	214°34.3	228°59.5	243°24.7	257°50.0	272°15.3	286°40.7	+25.2	16.0
		-22°50.4	-22°47.5	-22°44.5	-22°41.3	-22°38.0	-22°34.5	-22°30.9	-22°27.2	-22°23.3	-22°19.3	-22°15.1	+3.5	58.5
	wo 27	143°08.7	157°35.0	172°01.5	186°28.0	200°54.6	215°21.2	229°47.9	244°14.7	258°41.6	273°08.5	287°35.5	+26.7	15.9
		-20°56.5	-20°50.3	-20°43.9	-20°37.4	-20°30.7	-20°24.0	-20°17.1	-20°10.2	-20°03.1	-19°55.9	-19°48.5	+6.8	58.1
	do 28	144°29.4	158°57.6	173°25.9	187°54.2	202°22.6	216°51.1	231°19.7	245°48.3	260°17.1	274°45.9	289°14.7	+28.5	15.7
		-17°45.8	-17°36.9	-17°27.8	-17°18.6	-17°09.4	-17°00.0	-16°50.6	-16°41.1	-16°31.5	-16°21.8	-16°12.0	+9.4	57.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

NM: 2 16h07 — EK: 10 11h49 — VM: 18 06h19 — LK: 25 01h57

ZON

Maart 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	176°54.2	191°54.3	206°54.5	221°54.6	236°54.7	251°54.8	86°56.4	101°56.5	116°56.6	131°56.8	146°56.9	161°57.0	+0.1
	-7°39.1	-7°38.1	-7°37.2	-7°36.2	-7°35.3	-7°34.3	-7°21.9	-7°21.0	-7°20.0	-7°19.1	-7°18.1	-7°17.2	+0.9
za 2	176°57.1	191°57.3	206°57.4	221°57.5	236°57.6	251°57.8	86°59.4	101°59.5	116°59.7	131°59.8	146°59.9	162°00.0	+0.1
	-7°16.2	-7°15.3	-7°14.3	-7°13.4	-7°12.4	-7°11.5	-6°59.0	-6°58.1	-6°57.1	-6°56.2	-6°55.2	-6°54.2	+1.0
zo 3	177°00.2	192°00.3	207°00.4	222°00.6	237°00.7	252°00.8	87°02.5	102°02.7	117°02.8	132°02.9	147°03.1	162°03.2	+0.1
	-6°53.3	-6°52.3	-6°51.4	-6°50.4	-6°49.4	-6°48.5	-6°36.0	-6°35.0	-6°34.1	-6°33.1	-6°32.2	-6°31.2	+1.0
ma 4	177°03.3	192°03.5	207°03.6	222°03.7	237°03.9	252°04.0	87°05.8	102°05.9	117°06.0	132°06.2	147°06.3	162°06.4	+0.1
	-6°30.2	-6°29.3	-6°28.3	-6°27.3	-6°26.4	-6°25.4	-6°12.9	-6°11.9	-6°11.0	-6°10.0	-6°09.0	-6°08.1	+1.0
di 5	177°06.6	192°06.7	207°06.9	222°07.0	237°07.1	252°07.3	87°09.1	102°09.2	117°09.4	132°09.5	147°09.7	162°09.8	+0.1
	-6°07.1	-6°06.1	-6°05.2	-6°04.2	-6°03.2	-6°02.3	-5°49.7	-5°48.7	-5°47.8	-5°46.8	-5°45.8	-5°44.9	+1.0
wo 6	177°10.0	192°10.1	207°10.2	222°10.4	237°10.5	252°10.7	87°12.6	102°12.7	117°12.9	132°13.0	147°13.1	162°13.3	+0.1
	-5°43.9	-5°42.9	-5°41.9	-5°41.0	-5°40.0	-5°39.0	-5°26.4	-5°25.4	-5°24.5	-5°23.5	-5°22.5	-5°21.6	+1.0
do 7	177°13.4	192°13.6	207°13.7	222°13.9	237°14.0	252°14.2	87°16.1	102°16.3	117°16.4	132°16.6	147°16.7	162°16.9	+0.1
	-5°20.6	-5°19.6	-5°18.6	-5°17.7	-5°16.7	-5°15.7	-5°03.1	-5°02.1	-5°01.1	-5°00.1	-4°59.2	-4°58.2	+1.0
vr 8	177°17.0	192°17.2	207°17.3	222°17.5	237°17.6	252°17.8	87°19.8	102°19.9	117°20.1	132°20.2	147°20.4	162°20.5	+0.2
	-4°57.2	-4°56.2	-4°55.3	-4°54.3	-4°53.3	-4°52.3	-4°39.7	-4°38.7	-4°37.7	-4°36.7	-4°35.7	-4°34.8	+1.0
za 9	177°20.7	192°20.9	207°21.0	222°21.2	237°21.3	252°21.5	87°23.5	102°23.7	117°23.8	132°24.0	147°24.1	162°24.3	+0.2
	-4°33.8	-4°32.8	-4°31.8	-4°30.9	-4°29.9	-4°28.9	-4°16.2	-4°15.2	-4°14.2	-4°13.2	-4°12.3	-4°11.3	+1.0
zo 10	177°24.5	192°24.6	207°24.8	222°24.9	237°25.1	252°25.3	87°27.4	102°27.5	117°27.7	132°27.8	147°28.0	162°28.2	+0.2
	-4°10.3	-4°09.3	-4°08.3	-4°07.4	-4°06.4	-4°05.4	-3°52.7	-3°51.7	-3°50.7	-3°49.7	-3°48.7	-3°47.8	+1.0
ma 11	177°28.3	192°28.5	207°28.7	222°28.8	237°29.0	252°29.1	87°31.3	102°31.4	117°31.6	132°31.8	147°31.9	162°32.1	+0.2
	-3°46.8	-3°45.8	-3°44.8	-3°43.8	-3°42.8	-3°41.9	-3°29.1	-3°28.1	-3°27.1	-3°26.1	-3°25.2	-3°24.2	+1.0
di 12	177°32.3	192°32.4	207°32.6	222°32.8	237°32.9	252°33.1	87°35.3	102°35.4	117°35.6	132°35.8	147°35.9	162°36.1	+0.2
	-3°23.2	-3°22.2	-3°21.2	-3°20.2	-3°19.3	-3°18.3	-3°05.5	-3°04.5	-3°03.5	-3°02.5	-3°01.5	-3°00.6	+1.0
wo 13	177°36.3	192°36.5	207°36.6	222°36.8	237°37.0	252°37.1	87°39.3	102°39.5	117°39.7	132°39.9	147°40.0	162°40.2	+0.2
	-2°59.6	-2°58.6	-2°57.6	-2°56.6	-2°55.6	-2°54.6	-2°41.8	-2°40.9	-2°39.9	-2°38.9	-2°37.9	-2°36.9	+1.0
do 14	177°40.4	192°40.6	207°40.7	222°40.9	237°41.1	252°41.2	87°43.5	102°43.7	117°43.8	132°44.0	147°44.2	162°44.4	+0.2
	-2°35.9	-2°34.9	-2°34.0	-2°33.0	-2°32.0	-2°31.0	-2°18.2	-2°17.2	-2°16.2	-2°15.2	-2°14.2	-2°13.2	+1.0
vr 15	177°44.5	192°44.7	207°44.9	222°45.1	237°45.2	252°45.4	87°47.7	102°47.9	117°48.1	132°48.2	147°48.4	162°48.6	+0.2
	-2°12.2	-2°11.3	-2°10.3	-2°09.3	-2°08.3	-2°07.3	-1°54.5	-1°53.5	-1°52.5	-1°51.5	-1°50.5	-1°49.5	+1.0
za 16	177°48.8	192°48.9	207°49.1	222°49.3	237°49.5	252°49.7	87°52.0	102°52.2	117°52.3	132°52.5	147°52.7	162°52.9	+0.2
	-1°48.6	-1°47.6	-1°46.6	-1°45.6	-1°44.6	-1°43.6	-1°30.8	-1°29.8	-1°28.8	-1°27.8	-1°26.8	-1°25.8	+1.0
zo 17	177°53.0	192°53.2	207°53.4	222°53.6	237°53.8	252°53.9	87°56.3	102°56.5	117°56.7	132°56.8	147°57.0	162°57.2	+0.2
	-1°24.8	-1°23.9	-1°22.9	-1°21.9	-1°20.9	-1°19.9	-1°07.1	-1°06.1	-1°05.1	-1°04.1	-1°03.1	-1°02.1	+1.0
ma 18	177°57.4	192°57.6	207°57.7	222°57.9	237°58.1	252°58.3	88°00.7	103°00.8	118°01.0	133°01.2	148°01.4	163°01.6	+0.2
	-1°01.1	-1°00.1	-0°59.2	-0°58.2	-0°57.2	-0°56.2	-0°43.3	-0°42.4	-0°41.4	-0°40.4	-0°39.4	-0°38.4	+1.0
di 19	178°01.8	193°01.9	208°02.1	223°02.3	238°02.5	253°02.7	88°05.1	103°05.3	118°05.4	133°05.6	148°05.8	163°06.0	+0.2
	-0°37.4	-0°36.4	-0°35.4	-0°34.5	-0°33.5	-0°32.5	-0°19.6	-0°18.6	-0°17.7	-0°16.7	-0°15.7	-0°14.7	+1.0
wo 20	178°06.2	193°06.4	208°06.6	223°06.7	238°06.9	253°07.1	88°09.5	103°09.7	118°09.9	133°10.1	148°10.3	163°10.4	+0.2
	-0°13.7	-0°12.7	-0°11.7	-0°10.7	-0°09.8	-0°08.8	0°04.1	0°05.1	0°06.1	0°07.0	0°08.0	0°09.0	+1.0
do 21	178°10.6	193°10.8	208°11.0	223°11.2	238°11.4	253°11.6	88°14.0	103°14.2	118°14.4	133°14.6	148°14.7	163°14.9	+0.2
	0°10.0	0°11.0	0°12.0	0°13.0	0°14.0	0°14.9	0°27.8	0°28.8	0°29.7	0°30.7	0°31.7	0°32.7	+1.0
vr 22	178°15.1	193°15.3	208°15.5	223°15.7	238°15.9	253°16.1	88°18.5	103°18.7	118°18.9	133°19.1	148°19.2	163°19.4	+0.2
	0°33.7	0°34.7	0°35.7	0°36.7	0°37.6	0°38.6	0°51.4	0°52.4	0°53.4	0°54.4	0°55.4	0°56.4	+1.0
za 23	178°19.6	193°19.8	208°20.0	223°20.2	238°20.4	253°20.6	88°23.0	103°23.2	118°23.4	133°23.6	148°23.8	163°23.9	+0.2
	0°57.4	0°58.3	0°59.3	1°00.3	1°01.3	1°02.3	1°15.1	1°16.1	1°17.1	1°18.0	1°19.0	1°20.0	+1.0
zo 24	178°24.1	193°24.3	208°24.5	223°24.7	238°24.9	253°25.1	88°27.5	103°27.7	118°27.9	133°28.1	148°28.3	163°28.5	+0.2
	1°21.0	1°22.0	1°23.0	1°24.0	1°24.9	1°25.9	1°38.7	1°39.7	1°40.7	1°41.7	1°42.6	1°43.6	+1.0
ma 25	178°28.7	193°28.8	208°29.0	223°29.2	238°29.4	253°29.6	88°32.1	103°32.2	118°32.4	133°32.6	148°32.8	163°33.0	+0.2
	1°44.6	1°45.6	1°46.6	1°47.6	1°48.5	1°49.5	2°02.3	2°03.3	2°04.3	2°05.2	2°06.2	2°07.2	+1.0
di 26	178°33.2	193°33.4	208°33.6	223°33.8	238°33.9	253°34.1	88°36.6	103°36.8	118°37.0	133°37.1	148°37.3	163°37.5	+0.2
	2°08.2	2°09.2	2°10.2	2°11.1	2°12.1	2°13.1	2°25.8	2°26.8	2°27.8	2°28.8	2°29.8	2°30.7	+1.0
wo 27	178°37.7	193°37.9	208°38.1	223°38.3	238°38.5	253°38.7	88°41.1	103°41.3	118°41.5	133°41.7	148°41.9	163°42.0	+0.2
	2°31.7	2°32.7	2°33.7	2°34.7	2°35.6	2°36.6	2°49.3	2°50.3	2°51.3	2°52.3	2°53.2	2°54.2	+1.0
do 28	178°42.2	193°42.4	208°42.6	223°42.8	238°43.0	253°43.2	88°45.6	103°45.8	118°46.0	133°46.2	148°46.4	163°46.6	+0.2
	2°55.2	2°56.2	2°57.2	2°58.1	2°59.1	3°00.1	3°12.8	3°13.8	3°14.7	3°15.7	3°16.7	3°17.7	+1.0
vr 29	178°46.7	193°46.9	208°47.1	223°47.3	238°47.5	253°47.7	88°50.1	103°50.3	118°50.5	133°50.7	148°50.9	163°51.1	+0.2
	3°18.6	3°19.6	3°20.6	3°21.6	3°22.5	3°23.5	3°36.2	3°37.1	3°38.1	3°39.1	3°40.0	3°41.0	+1.0
za 30	178°51.2	193°51.4	208°51.6	223°51.8	238°52.0	253°52.2	88°54.6	103°54.8	118°55.0	133°55.2	148°55.3	163°55.5	+0.2
	3°42.0	3°43.0	3°43.9	3°44.9	3°45.9	3°46.8	3°59.5	4°00.4	4°01.4	4°02.4	4°03.3	4°04.3	+1.0
zo 31	178°55.7	193°55.9	208°56.1	223°56.3	238°56.5	253°56.6	88°59.1	103°59.2	118°59.4	133°59.6	148°59.8	164°00.0	+0.2
	4°05.3	4°06.3	4°07.2	4°08.2	4°09.2	4°10.1	4°22.7	4°23.7	4°24.6	4°25.6	4°26.6	4°27.5	+1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2030

D	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
vr 1	59°37.9	74°07.5	88°37.2	103°06.9	117°36.8	132°06.7	146°36.6	161°06.7	175°36.8	190°06.9	204°37.2	+29.9	15.6
	-14°40.5	-14°30.0	-14°19.4	-14°08.7	-13°58.0	-13°47.2	-13°36.3	-13°25.4	-13°14.4	-13°03.3	-12°52.2	+10.8	57.3
za 2	62°18.5	76°49.8	91°21.1	105°52.5	120°23.9	134°55.4	149°26.9	163°58.5	178°30.2	193°01.9	207°33.6	+31.5	15.5
	-9°59.2	-9°47.3	-9°35.4	-9°23.4	-9°11.4	-8°59.4	-8°47.3	-8°35.2	-8°23.0	-8°10.9	-7°58.6	+12.1	56.8
zo 3	65°35.7	80°08.2	94°40.7	109°13.3	123°45.9	138°18.6	152°51.3	167°24.0	181°56.7	196°29.5	211°02.4	+32.7	15.4
	-4°52.7	-4°40.2	-4°27.7	-4°15.1	-4°02.5	-3°50.0	-3°37.4	-3°24.8	-3°12.2	-2°59.6	-2°47.0	+12.6	56.3
ma 4	69°18.3	83°51.5	98°24.8	112°58.1	127°31.4	142°04.7	156°38.1	171°11.5	185°44.8	200°18.2	214°51.7	+33.3	15.2
	0°21.7	0°34.2	0°46.7	0°59.2	1°11.7	1°24.2	1°36.6	1°49.1	2°01.5	2°13.9	2°26.3	+12.5	55.8
di 5	73°14.1	87°47.7	102°21.2	116°54.8	131°28.3	146°01.9	160°35.4	175°09.0	189°42.5	204°16.0	218°49.6	+33.5	15.1
	5°29.0	5°40.9	5°52.8	6°04.7	6°16.6	6°28.4	6°40.2	6°51.9	7°03.6	7°15.2	7°26.9	+11.8	55.2
wo 6	77°11.9	91°45.3	106°18.7	120°52.0	135°25.4	149°58.7	164°32.1	179°05.4	193°38.7	208°11.9	222°45.2	+33.3	14.9
	10°15.9	10°26.8	10°37.6	10°48.4	10°59.1	11°09.8	11°20.4	11°31.0	11°41.5	11°52.0	12°02.4	+10.6	54.8
do 7	81°01.6	95°34.5	110°07.4	124°40.2	139°13.1	153°45.9	168°18.6	182°51.4	197°24.1	211°56.8	226°29.5	+32.8	14.8
	14°31.0	14°40.4	14°49.7	14°59.0	15°08.2	15°17.3	15°26.3	15°35.3	15°44.2	15°53.0	16°01.8	+9.1	54.4
vr 8	84°35.8	99°08.0	113°40.1	128°12.2	142°44.3	157°16.3	171°48.4	186°20.3	200°52.3	215°24.2	229°56.1	+32.0	14.8
	18°04.1	18°11.6	18°19.1	18°26.4	18°33.7	18°40.9	18°48.0	18°55.0	19°01.9	19°08.8	19°15.5	+7.1	54.2
za 9	87°50.2	102°21.5	116°52.8	131°24.1	145°55.3	160°26.5	174°57.7	189°28.8	204°00.0	218°31.0	233°02.1	+31.2	14.8
	20°46.2	20°51.5	20°56.8	21°01.9	21°06.9	21°11.8	21°16.7	21°21.4	21°26.0	21°30.6	21°35.0	+4.9	54.1
zo 10	90°44.1	105°14.7	119°45.2	134°15.7	148°46.2	163°16.7	177°47.1	192°17.5	206°47.9	221°18.3	235°48.6	+30.5	14.8
	22°29.6	22°32.5	22°35.2	22°37.8	22°40.3	22°42.7	22°45.0	22°47.2	22°49.3	22°51.2	22°53.1	+2.3	54.2
ma 11	105°14.7	119°45.2	134°15.7	148°46.2	163°16.7	177°47.1	192°17.5	206°47.9	221°18.3	235°48.6	250°18.9	+30.4	14.8
	22°32.5	22°35.2	22°37.8	22°40.3	22°42.7	22°45.0	22°47.2	22°49.3	22°51.2	22°53.1	22°54.9	+2.2	54.2
di 12	107°51.1	122°21.1	136°51.0	151°21.0	165°51.0	180°20.9	194°50.8	209°20.7	223°50.6	238°20.5	252°50.3	+29.9	14.9
	23°08.3	23°08.3	23°08.2	23°08.0	23°07.7	23°07.2	23°06.7	23°06.0	23°05.3	23°04.4	23°03.4	-0.5	54.5
wo 13	110°17.2	124°46.9	139°16.7	153°46.4	168°16.1	182°45.8	197°15.6	211°45.3	226°15.0	240°44.7	255°14.5	+29.7	15.0
	22°35.1	22°32.3	22°29.4	22°26.4	22°23.3	22°20.0	22°16.7	22°13.2	22°09.6	22°06.0	22°02.2	-3.3	55.0
do 14	112°40.5	127°10.3	141°40.1	156°09.8	170°39.6	185°09.4	199°39.2	214°09.0	228°38.9	243°08.7	257°38.5	+29.8	15.2
	20°51.8	20°46.3	20°40.6	20°34.8	20°28.9	20°22.9	20°16.8	20°10.6	20°04.3	19°57.8	19°51.3	-6.1	55.6
vr 15	115°07.1	129°37.1	144°07.1	158°37.1	173°07.1	187°37.1	202°07.1	216°37.2	231°07.2	245°37.3	260°07.3	+30.0	15.4
	18°00.7	17°52.5	17°44.2	17°35.8	17°27.3	17°18.7	17°10.1	17°01.3	16°52.4	16°43.4	16°34.4	-8.6	56.4
za 16	117°39.4	132°09.6	146°39.8	161°10.1	175°40.3	190°10.5	204°40.7	219°11.0	233°41.2	248°11.5	262°41.7	+30.2	15.6
	14°07.3	13°56.8	13°46.2	13°35.5	13°24.7	13°13.9	13°03.0	12°51.9	12°40.9	12°29.7	12°18.4	-10.9	57.3
zo 17	120°15.6	134°45.9	149°16.1	163°46.4	178°16.6	192°46.8	207°17.0	221°47.3	236°17.5	250°47.7	265°17.9	+30.2	15.9
	9°21.0	9°08.6	8°56.1	8°43.6	8°31.1	8°18.5	8°05.8	7°53.0	7°40.2	7°27.4	7°14.5	-12.7	58.2
ma 18	122°49.3	137°19.3	151°49.2	166°19.2	180°49.1	195°18.9	209°48.8	224°18.6	238°48.5	253°18.2	267°48.0	+29.9	16.1
	3°55.1	3°41.4	3°27.8	3°14.1	3°00.4	2°46.6	2°32.8	2°19.0	2°05.2	1°51.3	1°37.4	-13.8	59.0
di 19	125°10.9	139°40.1	154°09.3	168°38.5	183°07.6	197°36.7	212°05.8	226°34.8	241°03.8	255°32.7	270°01.6	+29.1	16.3
	-1°52.9	-2°07.0	-2°21.1	-2°35.2	-2°49.2	-3°03.3	-3°17.4	-3°31.4	-3°45.5	-3°59.5	-4°13.5	-14.1	59.7
wo 20	127°09.1	141°37.2	156°05.2	170°33.2	185°01.1	199°29.0	213°56.8	228°24.5	242°52.2	257°19.9	271°47.4	+27.8	16.4
	-7°41.3	-7°54.9	-8°08.4	-8°21.9	-8°35.4	-8°48.8	-9°02.2	-9°15.5	-9°28.8	-9°42.0	-9°55.2	-13.4	60.1
do 21	128°33.9	143°00.5	157°27.0	171°53.5	186°19.9	200°46.2	215°12.5	229°38.7	244°04.9	258°31.0	272°57.0	+26.3	16.5
	-13°05.1	-13°17.2	-13°29.1	-13°41.0	-13°52.9	-14°04.6	-14°16.2	-14°27.8	-14°39.2	-14°50.6	-15°01.9	-11.7	60.3
vr 22	129°20.0	143°45.1	158°10.1	172°35.0	186°59.9	201°24.8	215°49.6	230°14.3	244°39.0	259°03.6	273°28.2	+24.8	16.4
	-17°38.2	-17°47.8	-17°57.2	-18°06.4	-18°15.6	-18°24.6	-18°33.5	-18°42.3	-18°50.9	-18°59.4	-19°07.8	-9.0	60.3
za 23	129°31.4	143°55.3	158°19.2	172°43.0	187°06.9	201°30.6	215°54.4	230°18.1	244°41.9	259°05.6	273°29.2	+23.8	16.4
	-20°57.0	-21°03.1	-21°09.1	-21°14.9	-21°20.6	-21°26.1	-21°31.5	-21°36.7	-21°41.8	-21°46.7	-21°51.5	-5.5	60.0
zo 24	129°23.1	143°46.7	158°10.2	172°33.8	186°57.4	201°21.1	215°44.7	230°08.3	244°32.0	258°55.7	273°19.4	+23.6	16.2
	-22°44.2	-22°46.4	-22°48.5	-22°50.4	-22°52.2	-22°53.8	-22°55.3	-22°56.6	-22°57.7	-22°58.7	-22°59.5	-1.5	59.5
ma 25	129°18.7	143°43.0	158°07.3	172°31.7	186°56.1	201°20.6	215°45.1	230°09.7	244°34.3	258°59.0	273°23.7	+24.5	16.1
	-22°53.2	-22°51.5	-22°49.7	-22°47.8	-22°45.6	-22°43.4	-22°41.0	-22°38.5	-22°35.8	-22°32.9	-22°30.0	+2.3	59.0
di 26	129°42.8	144°08.6	158°34.5	173°00.5	187°26.5	201°52.7	216°18.9	230°45.2	245°11.5	259°38.0	274°04.5	+26.2	15.9
	-21°28.5	-21°23.4	-21°18.1	-21°12.7	-21°07.1	-21°01.5	-20°55.7	-20°49.8	-20°43.7	-20°37.6	-20°31.3	+5.7	58.3
wo 27	130°52.2	145°20.0	159°47.9	174°15.9	188°44.0	203°12.2	217°40.4	232°08.8	246°37.2	261°05.7	275°34.3	+28.2	15.7
	-18°43.7	-18°35.7	-18°27.6	-18°19.4	-18°11.1	-18°02.7	-17°54.2	-17°45.6	-17°36.9	-17°28.2	-17°19.3	+8.4	57.7
do 28	132°52.6	147°22.5	161°52.4	176°22.4	190°52.5	205°22.6	219°52.8	234°23.1	248°53.5	263°23.9	277°54.5	+30.2	15.6
	-14°56.7	-14°46.6	-14°36.4	-14°26.2	-14°15.9	-14°05.5	-13°55.1	-13°44.6	-13°34.0	-13°23.4	-13°12.7	+10.4	57.1
vr 29	135°40.2	150°11.7	164°43.4	179°15.0	193°46.8	208°18.6	222°50.4	237°22.3	251°54.2	266°26.2	280°58.3	+31.8	15.4
	-10°26.2	-10°14.8	-10°03.3	-9°51.7	-9°40.1	-9°28.5	-9°16.8	-9°05.2	-8°53.4	-8°41.7	-8°29.9	+11.6	56.5
za 30	139°05.0	153°37.8	168°10.6	182°43.5	197°16.4	211°49.3	226°22.3	240°55.3	255°28.4	270°01.4	284°34.5	+33.0	15.3
	-5°29.9	-5°17.7	-5°05.5	-4°53.3	-4°41.1	-4°28.9	-4°16.7	-4°04.4	-3°52.2	-3°39.9	-3°27.6	+12.2	56.0
zo 31	142°54.5	157°28.0	172°01.6	186°35.1	201°08.7	215°42.3	230°15.9	244°49.5	259°23.1	273°56.8	288°30.4	+33.6	15.1
	-0°23.3	-0°11.0	0°01.3	0°13.5	0°25.8	0°38.0	0°50.2	1°02.5	1°14.7	1°26.9	1°39.0	+12.2	55.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

NM: 4 06h34 — EK: 12 08h47 — VM: 19 17h56 — LK: 26 09h51

ZON

April 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	179°00.2	194°00.3	209°00.5	224°00.7	239°00.9	254°01.1	89°03.5	104°03.7	119°03.8	134°04.0	149°04.2	164°04.4	+0.2
	4°28.5	4°29.5	4°30.4	4°31.4	4°32.4	4°33.3	4°45.9	4°46.8	4°47.8	4°48.8	4°49.7	4°50.7	+1.0
di 2	179°04.6	194°04.8	209°05.0	224°05.1	239°05.3	254°05.5	89°07.9	104°08.1	119°08.2	134°08.4	149°08.6	164°08.8	+0.2
	4°51.6	4°52.6	4°53.6	4°54.5	4°55.5	4°56.4	5°08.9	5°09.9	5°10.9	5°11.8	5°12.8	5°13.7	+1.0
wo 3	179°09.0	194°09.2	209°09.3	224°09.5	239°09.7	254°09.9	89°12.2	104°12.4	119°12.6	134°12.8	149°13.0	164°13.1	+0.2
	5°14.7	5°15.6	5°16.6	5°17.6	5°18.5	5°19.5	5°31.9	5°32.9	5°33.8	5°34.8	5°35.7	5°36.7	+1.0
do 4	179°13.3	194°13.5	209°13.7	224°13.9	239°14.0	254°14.2	89°16.6	104°16.7	119°16.9	134°17.1	149°17.3	164°17.5	+0.2
	5°37.6	5°38.6	5°39.6	5°40.5	5°41.5	5°42.4	5°54.8	5°55.8	5°56.7	5°57.7	5°58.6	5°59.6	+1.0
vr 5	179°17.6	194°17.8	209°18.0	224°18.2	239°18.4	254°18.5	89°20.8	104°21.0	119°21.2	134°21.4	149°21.6	164°21.7	+0.2
	6°00.5	6°01.5	6°02.4	6°03.4	6°04.3	6°05.3	6°17.6	6°18.5	6°19.5	6°20.4	6°21.4	6°22.3	+1.0
za 6	179°21.9	194°22.1	209°22.3	224°22.4	239°22.6	254°22.8	89°25.1	104°25.3	119°25.4	134°25.6	149°25.8	164°26.0	+0.2
	6°23.3	6°24.2	6°25.2	6°26.1	6°27.0	6°28.0	6°40.3	6°41.2	6°42.1	6°43.1	6°44.0	6°45.0	+0.9
zo 7	179°26.1	194°26.3	209°26.5	224°26.7	239°26.8	254°27.0	89°29.3	104°29.4	119°29.6	134°29.8	149°30.0	164°30.1	+0.2
	6°45.9	6°46.8	6°47.8	6°48.7	6°49.7	6°50.6	7°02.8	7°03.7	7°04.7	7°05.6	7°06.6	7°07.5	+0.9
ma 8	179°30.3	194°30.5	209°30.6	224°30.8	239°31.0	254°31.2	89°33.4	104°33.6	119°33.7	134°33.9	149°34.1	164°34.2	+0.2
	7°08.4	7°09.4	7°10.3	7°11.2	7°12.2	7°13.1	7°25.2	7°26.2	7°27.1	7°28.0	7°29.0	7°29.9	+0.9
di 9	179°34.4	194°34.6	209°34.8	224°34.9	239°35.1	254°35.3	89°37.5	104°37.6	119°37.8	134°38.0	149°38.1	164°38.3	+0.2
	7°30.8	7°31.8	7°32.7	7°33.6	7°34.6	7°35.5	7°47.6	7°48.5	7°49.4	7°50.3	7°51.3	7°52.2	+0.9
wo 10	179°38.5	194°38.6	209°38.8	224°39.0	239°39.1	254°39.3	89°41.5	104°41.6	119°41.8	134°42.0	149°42.1	164°42.3	+0.2
	7°53.1	7°54.0	7°55.0	7°55.9	7°56.8	7°57.7	8°09.7	8°10.6	8°11.6	8°12.5	8°13.4	8°14.3	+0.9
do 11	179°42.5	194°42.6	209°42.8	224°43.0	239°43.1	254°43.3	89°45.4	104°45.6	119°45.7	134°45.9	149°46.1	164°46.2	+0.2
	8°15.3	8°16.2	8°17.1	8°18.0	8°18.9	8°19.8	8°31.8	8°32.7	8°33.6	8°34.5	8°35.4	8°36.3	+0.9
vr 12	179°46.4	194°46.6	209°46.7	224°46.9	239°47.0	254°47.2	89°49.3	104°49.5	119°49.6	134°49.8	149°49.9	164°50.1	+0.2
	8°37.3	8°38.2	8°39.1	8°40.0	8°40.9	8°41.8	8°53.7	8°54.6	8°55.5	8°56.4	8°57.3	8°58.2	+0.9
za 13	179°50.3	194°50.4	209°50.6	224°50.7	239°50.9	254°51.0	89°53.1	104°53.2	119°53.4	134°53.6	149°53.7	164°53.9	+0.2
	8°59.1	9°00.0	9°00.9	9°01.8	9°02.7	9°03.6	9°15.4	9°16.3	9°17.2	9°18.1	9°19.0	9°19.9	+0.9
zo 14	179°54.0	194°54.2	209°54.3	224°54.5	239°54.7	254°54.8	89°56.8	104°57.0	119°57.1	134°57.3	149°57.4	164°57.6	+0.2
	9°20.8	9°21.7	9°22.6	9°23.5	9°24.4	9°25.3	9°37.0	9°37.9	9°38.8	9°39.7	9°40.6	9°41.5	+0.9
ma 15	179°57.7	194°57.9	209°58.0	224°58.2	239°58.3	254°58.5	90°00.5	105°00.6	120°00.8	135°00.9	150°01.1	165°01.2	+0.2
	9°42.4	9°43.3	9°44.1	9°45.0	9°45.9	9°46.8	9°58.4	9°59.3	10°00.2	10°01.1	10°02.0	10°02.9	+0.9
di 16	180°01.3	195°01.5	210°01.6	225°01.8	240°01.9	255°02.1	90°04.0	105°04.1	120°04.3	135°04.4	150°04.6	165°04.7	+0.1
	10°03.7	10°04.6	10°05.5	10°06.4	10°07.3	10°08.2	10°19.7	10°20.6	10°21.4	10°22.3	10°23.2	10°24.1	+0.9
wo 17	180°04.9	195°05.0	210°05.2	225°05.3	240°05.5	255°05.6	90°07.5	105°07.6	120°07.7	135°07.9	150°08.0	165°08.2	+0.1
	10°25.0	10°25.8	10°26.7	10°27.6	10°28.5	10°29.4	10°40.8	10°41.6	10°42.5	10°43.4	10°44.3	10°45.1	+0.9
do 18	180°08.3	195°08.5	210°08.6	225°08.7	240°08.9	255°09.0	90°10.8	105°11.0	120°11.1	135°11.2	150°11.4	165°11.5	+0.1
	10°46.0	10°46.9	10°47.8	10°48.6	10°49.5	10°50.4	11°01.7	11°02.5	11°03.4	11°04.3	11°05.2	11°06.0	+0.9
vr 19	180°11.6	195°11.8	210°11.9	225°12.1	240°12.2	255°12.3	90°14.1	105°14.2	120°14.4	135°14.5	150°14.6	165°14.7	+0.1
	11°06.9	11°07.7	11°08.6	11°09.5	11°10.3	11°11.2	11°22.4	11°23.3	11°24.1	11°25.0	11°25.9	11°26.7	+0.9
za 20	180°14.9	195°15.0	210°15.1	225°15.3	240°15.4	255°15.5	90°17.2	105°17.4	120°17.5	135°17.6	150°17.8	165°17.9	+0.1
	11°27.6	11°28.4	11°29.3	11°30.1	11°31.0	11°31.9	11°43.0	11°43.8	11°44.7	11°45.5	11°46.4	11°47.2	+0.9
zo 21	180°18.0	195°18.1	210°18.3	225°18.4	240°18.5	255°18.6	90°20.3	105°20.4	120°20.5	135°20.7	150°20.8	165°20.9	+0.1
	11°48.1	11°48.9	11°49.8	11°50.6	11°51.5	11°52.3	12°03.3	12°04.2	12°05.0	12°05.9	12°06.7	12°07.5	+0.9
ma 22	180°21.0	195°21.1	210°21.3	225°21.4	240°21.5	255°21.6	90°23.2	105°23.3	120°23.4	135°23.6	150°23.7	165°23.8	+0.1
	12°08.4	12°09.2	12°10.1	12°10.9	12°11.7	12°12.6	12°23.5	12°24.3	12°25.2	12°26.0	12°26.8	12°27.7	+0.8
di 23	180°23.9	195°24.0	210°24.2	225°24.3	240°24.4	255°24.5	90°26.0	105°26.1	120°26.2	135°26.4	150°26.5	165°26.6	+0.1
	12°28.5	12°29.3	12°30.2	12°31.0	12°31.8	12°32.7	12°43.4	12°44.3	12°45.1	12°45.9	12°46.7	12°47.6	+0.8
wo 24	180°26.7	195°26.8	210°26.9	225°27.0	240°27.2	255°27.3	90°28.7	105°28.8	120°28.9	135°29.0	150°29.1	165°29.2	+0.1
	12°48.4	12°49.2	12°50.0	12°50.9	12°51.7	12°52.5	13°03.2	13°04.0	13°04.8	13°05.6	13°06.5	13°07.3	+0.8
do 25	180°29.4	195°29.5	210°29.6	225°29.7	240°29.8	255°29.9	90°31.3	105°31.4	120°31.5	135°31.6	150°31.7	165°31.8	+0.1
	13°08.1	13°08.9	13°09.7	13°10.5	13°11.4	13°12.2	13°22.7	13°23.5	13°24.3	13°25.2	13°26.0	13°26.8	+0.8
vr 26	180°31.9	195°32.0	210°32.1	225°32.2	240°32.3	255°32.4	90°33.7	105°33.8	120°33.9	135°34.0	150°34.1	165°34.2	+0.1
	13°27.6	13°28.4	13°29.2	13°30.0	13°30.8	13°31.6	13°42.0	13°42.8	13°43.6	13°44.4	13°45.2	13°46.0	+0.8
za 27	180°34.3	195°34.4	210°34.5	225°34.6	240°34.7	255°34.8	90°36.0	105°36.1	120°36.2	135°36.3	150°36.4	165°36.5	+0.1
	13°46.8	13°47.6	13°48.4	13°49.2	13°50.0	13°50.8	14°01.1	14°01.9	14°02.7	14°03.5	14°04.3	14°05.1	+0.8
zo 28	180°36.6	195°36.7	210°36.8	225°36.8	240°36.9	255°37.0	90°38.2	105°38.3	120°38.4	135°38.5	150°38.5	165°38.6	+0.1
	14°05.9	14°06.7	14°07.4	14°08.2	14°09.0	14°09.8	14°20.0	14°20.8	14°21.6	14°22.3	14°23.1	14°23.9	+0.8
ma 29	180°38.7	195°38.8	210°38.9	225°39.0	240°39.1	255°39.1	90°40.2	105°40.3	120°40.4	135°40.5	150°40.6	165°40.6	+0.1
	14°24.7	14°25.5	14°26.2	14°27.0	14°27.8	14°28.6	14°38.6	14°39.4	14°40.2	14°40.9	14°41.7	14°42.5	+0.8
di 30	180°40.7	195°40.8	210°40.9	225°41.0	240°41.0	255°41.1	90°42.1	105°42.2	120°42.3	135°42.4	150°42.4	165°42.5	+0.1
	14°43.2	14°44.0	14°44.8	14°45.5	14°46.3	14°47.1	14°57.0	14°57.8	14°58.5	14°59.3	15°00.0	15°00.8	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2030

D	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	SD/HP
ma 1	59°33.7	74°07.4	88°41.2	103°14.9	117°48.6	132°22.4	146°56.1	161°29.9	176°03.6	190°37.4	205°11.1	+33.7	15.0
	3°27.9	3°39.9	3°51.8	4°03.8	4°15.7	4°27.6	4°39.5	4°51.3	5°03.2	5°14.9	5°26.7	+11.9	55.2
● di 2	63°36.6	78°10.2	92°43.8	107°17.4	121°51.0	136°24.6	150°58.1	165°31.7	180°05.2	194°38.7	209°12.2	+33.6	14.9
	8°19.1	8°30.3	8°41.5	8°52.6	9°03.6	9°14.7	9°25.6	9°36.6	9°47.5	9°58.3	10°09.1	+11.0	54.8
wo 3	67°32.2	82°05.4	96°38.5	111°11.6	125°44.7	140°17.8	154°50.8	169°23.8	183°56.8	198°29.7	213°02.6	+33.0	14.8
	12°44.7	12°54.7	13°04.5	13°14.3	13°24.1	13°33.8	13°43.4	13°53.0	14°02.5	14°11.9	14°21.3	+9.7	54.4
do 4	71°13.0	85°45.4	100°17.8	114°50.2	129°22.6	143°54.9	158°27.2	172°59.4	187°31.7	202°03.9	216°36.0	+32.3	14.8
	16°33.6	16°41.8	16°50.0	16°58.1	17°06.1	17°14.0	17°21.9	17°29.6	17°37.3	17°45.0	17°52.5	+7.9	54.2
vr 5	74°34.6	89°06.2	103°37.8	118°09.4	132°40.9	147°12.5	161°44.0	176°15.4	190°46.8	205°18.2	219°49.6	+31.5	14.7
	19°35.5	19°41.7	19°47.8	19°53.8	19°59.7	20°05.5	20°11.2	20°16.9	20°22.4	20°27.8	20°33.2	+5.8	54.0
za 6	77°36.6	92°07.5	106°38.4	121°09.3	135°40.1	150°11.0	164°41.8	179°12.5	193°43.3	208°14.0	222°44.7	+30.8	14.7
	21°41.9	21°45.7	21°49.4	21°53.0	21°56.5	21°59.9	22°03.2	22°06.4	22°09.5	22°12.5	22°15.4	+3.3	54.0
zo 7	80°22.9	94°53.3	109°23.7	123°54.1	138°24.5	152°54.9	167°25.2	181°55.6	196°25.9	210°56.2	225°26.5	+30.4	14.8
	22°46.1	22°47.3	22°48.4	22°49.4	22°50.3	22°51.0	22°51.7	22°52.3	22°52.7	22°53.1	22°53.3	+0.7	54.1
ma 8	83°00.2	97°30.4	112°00.7	126°30.9	141°01.1	155°31.3	170°01.5	184°31.7	199°01.9	213°32.2	228°02.4	+30.2	14.8
	22°43.8	22°42.3	22°40.7	22°39.0	22°37.2	22°35.3	22°33.2	22°31.1	22°28.8	22°26.5	22°24.0	-2.0	54.4
di 9	85°36.3	100°06.6	114°36.9	129°07.2	143°37.6	158°07.9	172°38.3	187°08.6	201°39.0	216°09.4	230°39.8	+30.4	14.9
	21°34.0	21°29.8	21°25.5	21°21.1	21°16.6	21°12.0	21°07.3	21°02.5	20°57.6	20°52.5	20°47.4	-4.7	54.8
wo 10	100°06.6	114°36.9	129°07.2	143°37.6	158°07.9	172°38.3	187°08.6	201°39.0	216°09.4	230°39.8	245°10.2	+30.4	15.0
	21°29.8	21°25.5	21°21.1	21°16.6	21°12.0	21°07.3	21°02.5	20°57.6	20°52.5	20°47.4	20°42.2	-4.8	54.8
◐ do 11	102°47.8	117°18.4	131°49.0	146°19.7	160°50.3	175°21.0	189°51.6	204°22.3	218°53.0	233°23.7	247°54.5	+30.7	15.1
	19°11.5	19°04.7	18°57.7	18°50.7	18°43.6	18°36.3	18°29.0	18°21.6	18°14.0	18°06.4	17°58.7	-7.3	55.5
vr 12	105°36.7	120°07.6	134°38.5	149°09.4	163°40.3	178°11.2	192°42.2	207°13.1	221°44.1	236°15.0	250°46.0	+30.9	15.3
	15°52.0	15°42.8	15°33.6	15°24.2	15°14.8	15°05.3	14°55.7	14°46.0	14°36.3	14°26.4	14°16.5	-9.6	56.3
za 13	108°30.9	123°01.9	137°32.9	152°03.9	166°34.9	181°05.9	195°36.9	210°07.9	224°38.8	239°09.8	253°40.8	+31.0	15.6
	11°38.1	11°27.0	11°15.7	11°04.4	10°53.1	10°41.6	10°30.1	10°18.5	10°06.9	9°55.2	9°43.4	-11.5	57.2
zo 14	111°23.9	125°54.7	140°25.4	154°56.1	169°26.8	183°57.5	198°28.1	212°58.8	227°29.4	241°59.9	256°30.5	+30.7	15.9
	6°39.5	6°26.8	6°14.0	6°01.2	5°48.3	5°35.4	5°22.5	5°09.5	4°56.4	4°43.3	4°30.2	-12.9	58.1
ma 15	114°05.1	128°35.2	143°05.2	157°35.1	172°05.0	186°34.9	201°04.7	215°34.5	230°04.2	244°33.9	259°03.5	+29.8	16.1
	1°08.9	0°55.2	0°41.5	0°27.8	0°14.1	0°00.3	-0°13.5	-0°27.2	-0°41.0	-0°54.9	-1°08.7	-13.8	59.1
di 16	116°21.8	130°50.6	145°19.3	159°47.9	174°16.5	188°45.0	203°13.5	217°41.9	232°10.2	246°38.4	261°06.6	+28.5	16.4
	-4°36.7	-4°50.5	-5°04.3	-5°18.1	-5°31.9	-5°45.7	-5°59.4	-6°13.2	-6°26.9	-6°40.6	-6°54.3	-13.8	60.0
wo 17	118°00.9	132°27.9	146°54.8	161°21.7	175°48.5	190°15.2	204°41.8	219°08.4	233°34.8	248°01.2	262°27.5	+26.7	16.5
	-10°15.0	-10°28.0	-10°41.0	-10°53.9	-11°06.7	-11°19.5	-11°32.2	-11°44.9	-11°57.5	-12°10.0	-12°22.4	-12.8	60.6
○ do 18	118°52.6	133°17.6	147°42.6	162°07.5	176°32.3	190°57.0	205°21.6	219°46.2	234°10.7	248°35.1	262°59.4	+24.7	16.6
	-15°19.5	-15°30.6	-15°41.5	-15°52.4	-16°03.1	-16°13.8	-16°24.3	-16°34.8	-16°45.1	-16°55.3	-17°05.4	-10.6	61.0
vr 19	118°56.0	133°19.2	147°42.4	162°05.5	176°28.6	190°51.6	205°14.6	219°37.5	234°00.4	248°23.2	262°46.0	+23.0	16.6
	-19°21.7	-19°29.7	-19°37.5	-19°45.3	-19°52.8	-20°00.3	-20°07.6	-20°14.7	-20°21.7	-20°28.5	-20°35.2	-7.4	61.0
za 20	118°23.3	132°45.5	147°07.8	161°30.0	175°52.3	190°14.5	204°36.7	218°59.0	233°21.2	247°43.4	262°05.6	+22.2	16.6
	-21°56.5	-22°00.6	-22°04.6	-22°08.4	-22°12.0	-22°15.5	-22°18.8	-22°21.9	-22°24.8	-22°27.6	-22°30.2	-3.4	60.7
zo 21	117°40.6	132°03.1	146°25.7	160°48.3	175°11.0	189°33.7	203°56.5	218°19.3	232°42.1	247°05.0	261°28.0	+22.7	16.4
	-22°49.3	-22°49.2	-22°48.9	-22°48.5	-22°48.0	-22°47.2	-22°46.3	-22°45.3	-22°44.1	-22°42.7	-22°41.1	+0.8	60.2
ma 22	117°19.9	131°44.0	146°08.1	160°32.3	174°56.6	189°20.9	203°45.4	218°09.9	232°34.5	246°59.2	261°24.0	+24.4	16.2
	-21°59.3	-21°55.3	-21°51.2	-21°46.9	-21°42.5	-21°37.9	-21°33.2	-21°28.4	-21°23.4	-21°18.3	-21°13.1	+4.6	59.4
di 23	117°47.0	132°13.3	146°39.7	161°06.2	175°32.7	189°59.4	204°26.2	218°53.1	233°20.1	247°47.2	262°14.3	+26.7	16.0
	-19°39.2	-19°32.0	-19°24.7	-19°17.3	-19°09.7	-19°02.1	-18°54.3	-18°46.5	-18°38.5	-18°30.5	-18°22.3	+7.7	58.6
◑ wo 24	119°13.7	133°42.4	148°11.2	162°40.1	177°09.1	191°38.2	206°07.4	220°36.6	235°06.0	249°35.5	264°05.0	+29.1	15.7
	-16°09.0	-15°59.4	-15°49.8	-15°40.1	-15°30.3	-15°20.4	-15°10.5	-15°00.5	-14°50.4	-14°40.3	-14°30.1	+9.9	57.7
do 25	121°38.3	136°09.1	150°40.1	165°11.1	179°42.2	194°13.3	208°44.6	223°15.9	237°47.2	252°18.7	266°50.2	+31.2	15.5
	-11°50.0	-11°39.0	-11°27.8	-11°16.7	-11°05.4	-10°54.2	-10°42.9	-10°31.5	-10°20.2	-10°08.7	-9°57.3	+11.3	56.9
vr 26	124°50.5	139°22.9	153°55.5	168°28.1	183°00.7	197°33.4	212°06.1	226°38.9	241°11.7	255°44.6	270°17.5	+32.7	15.3
	-7°01.8	-6°49.9	-6°37.9	-6°26.0	-6°14.0	-6°02.1	-5°50.1	-5°38.1	-5°26.0	-5°14.0	-5°02.0	+12.0	56.2
za 27	128°36.0	143°09.5	157°43.0	172°16.6	186°50.2	201°23.8	215°57.5	230°31.1	245°04.8	259°38.5	274°12.2	+33.6	15.2
	-2°00.3	-1°48.2	-1°36.1	-1°24.0	-1°11.8	-0°59.7	-0°47.6	-0°35.5	-0°23.4	-0°11.3	0°00.8	+12.1	55.6
zo 28	132°40.1	147°14.1	161°48.0	176°22.0	190°56.0	205°29.9	220°03.9	234°37.9	249°11.9	263°45.8	278°19.8	+34.0	15.0
	3°00.6	3°12.4	3°24.3	3°36.1	3°47.9	3°59.6	4°11.4	4°23.1	4°34.8	4°46.5	4°58.1	+11.8	55.1
ma 29	136°49.0	151°22.9	165°56.8	180°30.7	195°04.5	209°38.3	224°12.1	238°45.9	253°19.7	267°53.5	282°27.3	+33.8	14.9
	7°49.0	8°00.2	8°11.3	8°22.3	8°33.3	8°44.3	8°55.2	9°06.1	9°16.9	9°27.7	9°38.4	+10.9	54.7
di 30	140°51.1	155°24.5	169°57.9	184°31.2	199°04.5	213°37.8	228°11.1	242°44.4	257°17.6	271°50.7	286°23.9	+33.3	14.8
	12°14.0	12°23.9	12°33.8	12°43.7	12°53.4	13°03.2	13°12.8	13°22.4	13°32.0	13°41.5	13°50.9	+9.7	54.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 2 22h02 — EK: 11 02h56 — VM: 18 03h20 — LK: 24 18h39

ZON

Mei 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	180°42.6	195°42.7	210°42.7	225°42.8	240°42.9	255°43.0	90°43.9	105°44.0	120°44.1	135°44.1	150°44.2	165°44.3	+0.1
	15°01.6	15°02.3	15°03.1	15°03.8	15°04.6	15°05.3	15°15.1	15°15.9	15°16.6	15°17.4	15°18.1	15°18.9	+0.8
do 2	180°44.3	195°44.4	210°44.5	225°44.5	240°44.6	255°44.7	90°45.6	105°45.6	120°45.7	135°45.7	150°45.8	165°45.9	+0.1
	15°19.6	15°20.4	15°21.1	15°21.9	15°22.6	15°23.4	15°33.0	15°33.8	15°34.5	15°35.2	15°36.0	15°36.7	+0.7
vr 3	180°45.9	195°46.0	210°46.1	225°46.1	240°46.2	255°46.3	90°47.1	105°47.1	120°47.2	135°47.2	150°47.3	165°47.3	+0.1
	15°37.5	15°38.2	15°38.9	15°39.7	15°40.4	15°41.1	15°50.6	15°51.4	15°52.1	15°52.8	15°53.6	15°54.3	+0.7
za 4	180°47.4	195°47.5	210°47.5	225°47.6	240°47.6	255°47.7	90°48.4	105°48.5	120°48.5	135°48.6	150°48.6	165°48.7	+0.1
	15°55.0	15°55.7	15°56.5	15°57.2	15°57.9	15°58.6	16°08.0	16°08.7	16°09.4	16°10.2	16°10.9	16°11.6	+0.7
zo 5	180°48.7	195°48.8	210°48.8	225°48.9	240°48.9	255°49.0	90°49.6	105°49.7	120°49.7	135°49.8	150°49.8	165°49.9	+0.1
	16°12.3	16°13.0	16°13.7	16°14.5	16°15.2	16°15.9	16°25.1	16°25.8	16°26.5	16°27.2	16°27.9	16°28.6	+0.7
ma 6	180°49.9	195°50.0	210°50.0	225°50.1	240°50.1	255°50.2	90°50.7	105°50.8	120°50.8	135°50.9	150°50.9	165°50.9	+0.0
	16°29.3	16°30.0	16°30.7	16°31.4	16°32.1	16°32.8	16°41.9	16°42.6	16°43.3	16°44.0	16°44.7	16°45.4	+0.7
di 7	180°51.0	195°51.0	210°51.1	225°51.1	240°51.1	255°51.2	90°51.7	105°51.7	120°51.8	135°51.8	150°51.8	165°51.9	+0.0
	16°46.1	16°46.8	16°47.5	16°48.2	16°48.8	16°49.5	16°58.5	16°59.1	16°59.8	17°00.5	17°01.2	17°01.9	+0.7
wo 8	180°51.9	195°51.9	210°52.0	225°52.0	240°52.0	255°52.1	90°52.5	105°52.5	120°52.6	135°52.6	150°52.6	165°52.6	+0.0
	17°02.6	17°03.2	17°03.9	17°04.6	17°05.3	17°05.9	17°14.7	17°15.4	17°16.1	17°16.7	17°17.4	17°18.1	+0.7
do 9	180°52.7	195°52.7	210°52.7	225°52.8	240°52.8	255°52.8	90°53.2	105°53.2	120°53.2	135°53.2	150°53.3	165°53.3	+0.0
	17°18.7	17°19.4	17°20.1	17°20.7	17°21.4	17°22.1	17°30.7	17°31.3	17°32.0	17°32.7	17°33.3	17°34.0	+0.7
vr 10	180°53.3	195°53.3	210°53.4	225°53.4	240°53.4	255°53.4	90°53.7	105°53.7	120°53.7	135°53.8	150°53.8	165°53.8	+0.0
	17°34.6	17°35.3	17°35.9	17°36.6	17°37.3	17°37.9	17°46.4	17°47.0	17°47.7	17°48.3	17°48.9	17°49.6	+0.7
za 11	180°53.8	195°53.8	210°53.8	225°53.9	240°53.9	255°53.9	90°54.1	105°54.1	120°54.1	135°54.1	150°54.1	165°54.2	+0.0
	17°50.2	17°50.9	17°51.5	17°52.2	17°52.8	17°53.4	18°01.7	18°02.4	18°03.0	18°03.6	18°04.3	18°04.9	+0.6
zo 12	180°54.2	195°54.2	210°54.2	225°54.2	240°54.2	255°54.2	90°54.4	105°54.4	120°54.4	135°54.4	150°54.4	165°54.4	+0.0
	18°05.5	18°06.2	18°06.8	18°07.4	18°08.0	18°08.7	18°16.8	18°17.4	18°18.0	18°18.7	18°19.3	18°19.9	+0.6
ma 13	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.4	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	+0.0
	18°20.5	18°21.1	18°21.8	18°22.4	18°23.0	18°23.6	18°31.6	18°32.2	18°32.8	18°33.4	18°34.0	18°34.6	+0.6
di 14	180°54.5	195°54.5	210°54.5	225°54.5	240°54.5	255°54.5	90°54.5	105°54.5	120°54.5	135°54.4	150°54.4	165°54.4	+0.0
	18°35.2	18°35.8	18°36.4	18°37.0	18°37.6	18°38.2	18°46.0	18°46.6	18°47.2	18°47.8	18°48.4	18°49.0	+0.6
wo 15	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.4	90°54.3	105°54.3	120°54.3	135°54.3	150°54.3	165°54.3	-0.0
	18°49.6	18°50.2	18°50.8	18°51.3	18°51.9	18°52.5	19°00.1	19°00.7	19°01.3	19°01.9	19°02.5	19°03.0	+0.6
do 16	180°54.2	195°54.2	210°54.2	225°54.2	240°54.2	255°54.2	90°54.0	105°54.0	120°54.0	135°54.0	150°53.9	165°53.9	-0.0
	19°03.6	19°04.2	19°04.8	19°05.4	19°05.9	19°06.5	19°13.9	19°14.5	19°15.1	19°15.7	19°16.2	19°16.8	+0.6
vr 17	180°53.9	195°53.9	210°53.9	225°53.9	240°53.8	255°53.8	90°53.6	105°53.6	120°53.5	135°53.5	150°53.5	165°53.5	-0.0
	19°17.4	19°17.9	19°18.5	19°19.0	19°19.6	19°20.2	19°27.4	19°28.0	19°28.5	19°29.1	19°29.6	19°30.2	+0.6
za 18	180°53.4	195°53.4	210°53.4	225°53.4	240°53.4	255°53.3	90°53.0	105°53.0	120°53.0	135°52.9	150°52.9	165°52.9	-0.0
	19°30.8	19°31.3	19°31.9	19°32.4	19°33.0	19°33.5	19°40.6	19°41.1	19°41.7	19°42.2	19°42.7	19°43.3	+0.6
zo 19	180°52.8	195°52.8	210°52.8	225°52.8	240°52.7	255°52.7	90°52.3	105°52.3	120°52.2	135°52.2	150°52.2	165°52.1	-0.0
	19°43.8	19°44.4	19°44.9	19°45.4	19°46.0	19°46.5	19°53.4	19°53.9	19°54.5	19°55.0	19°55.5	19°56.0	+0.5
ma 20	180°52.1	195°52.1	210°52.0	225°52.0	240°52.0	255°51.9	90°51.4	105°51.4	120°51.4	135°51.3	150°51.3	165°51.3	-0.0
	19°56.6	19°57.1	19°57.6	19°58.1	19°58.6	19°59.2	20°05.9	20°06.4	20°06.9	20°07.4	20°07.9	20°08.4	+0.5
di 21	180°51.2	195°51.2	210°51.1	225°51.1	240°51.1	255°51.0	90°50.5	105°50.4	120°50.4	135°50.3	150°50.3	165°50.2	-0.0
	20°09.0	20°09.5	20°10.0	20°10.5	20°11.0	20°11.5	20°18.0	20°18.5	20°19.0	20°19.5	20°20.0	20°20.5	+0.5
wo 22	180°50.2	195°50.1	210°50.1	225°50.1	240°50.0	255°50.0	90°49.3	105°49.3	120°49.2	135°49.2	150°49.1	165°49.1	-0.0
	20°21.0	20°21.5	20°22.0	20°22.5	20°23.0	20°23.5	20°29.8	20°30.3	20°30.8	20°31.3	20°31.7	20°32.2	+0.5
do 23	180°49.0	195°49.0	210°48.9	225°48.9	240°48.8	255°48.8	90°48.1	105°48.0	120°48.0	135°47.9	150°47.9	165°47.8	-0.1
	20°32.7	20°33.2	20°33.7	20°34.1	20°34.6	20°35.1	20°41.3	20°41.7	20°42.2	20°42.7	20°43.1	20°43.6	+0.5
vr 24	180°47.7	195°47.7	210°47.6	225°47.6	240°47.5	255°47.5	90°46.7	105°46.6	120°46.6	135°46.5	150°46.4	165°46.4	-0.1
	20°44.1	20°44.5	20°45.0	20°45.5	20°45.9	20°46.4	20°52.3	20°52.8	20°53.2	20°53.7	20°54.2	20°54.6	+0.5
za 25	180°46.3	195°46.3	210°46.2	225°46.1	240°46.1	255°46.0	90°45.2	105°45.1	120°45.0	135°45.0	150°44.9	165°44.8	-0.1
	20°55.1	20°55.5	20°56.0	20°56.4	20°56.9	20°57.3	21°03.1	21°03.5	21°03.9	21°04.4	21°04.8	21°05.3	+0.5
zo 26	180°44.8	195°44.7	210°44.6	225°44.6	240°44.5	255°44.4	90°43.5	105°43.5	120°43.4	135°43.3	150°43.2	165°43.2	-0.1
	21°05.7	21°06.1	21°06.6	21°07.0	21°07.4	21°07.9	21°13.4	21°13.8	21°14.3	21°14.7	21°15.1	21°15.5	+0.4
ma 27	180°43.1	195°43.0	210°42.9	225°42.9	240°42.8	255°42.7	90°41.8	105°41.7	120°41.6	135°41.5	150°41.4	165°41.4	-0.1
	21°16.0	21°16.4	21°16.8	21°17.2	21°17.6	21°18.1	21°23.4	21°23.8	21°24.2	21°24.6	21°25.1	21°25.5	+0.4
di 28	180°41.3	195°41.2	210°41.1	225°41.1	240°41.0	255°40.9	90°39.9	105°39.8	120°39.7	135°39.6	150°39.5	165°39.5	-0.1
	21°25.9	21°26.3	21°26.7	21°27.1	21°27.5	21°27.9	21°33.0	21°33.4	21°33.8	21°34.2	21°34.6	21°35.0	+0.4
wo 29	180°39.4	195°39.3	210°39.2	225°39.1	240°39.0	255°39.0	90°37.9	105°37.8	120°37.7	135°37.6	150°37.5	165°37.4	-0.1
	21°35.4	21°35.8	21°36.2	21°36.6	21°36.9	21°37.3	21°42.3	21°42.7	21°43.0	21°43.4	21°43.8	21°44.2	+0.4
do 30	180°37.3	195°37.3	210°37.2	225°37.1	240°37.0	255°36.9	90°35.7	105°35.7	120°35.6	135°35.5	150°35.4	165°35.3	-0.1
	21°44.5	21°44.9	21°45.3	21°45.7	21°46.0	21°46.4	21°51.2	21°51.5	21°51.9	21°52.3	21°52.6	21°53.0	+0.4
vr 31	180°35.2	195°35.1	210°35.0	225°34.9	240°34.8	255°34.7	90°33.5	105°33.4	120°33.3	135°33.2	150°33.2	165°33.1	-0.1
	21°53.3	21°53.7	21°54.0	21°54.4	21°54.8	21°55.1	21°59.7	22°00.0	22°00.4	22°00.7	22°01.0	22°01.4	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2030

	D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
	wo 1	71°53.8	86°26.6	100°59.3	115°32.1	130°04.8	144°37.5	159°10.1	173°42.7	188°15.3	202°47.9	217°20.4	+32.7	14.8
		15°21.7	15°30.4	15°39.1	15°47.6	15°56.2	16°04.6	16°13.0	16°21.3	16°29.5	16°37.6	16°45.7	+8.4	54.1
●	do 2	75°23.8	89°55.8	104°27.7	118°59.6	133°31.4	148°03.2	162°35.0	177°06.7	191°38.4	206°10.1	220°41.8	+31.8	14.7
		18°37.5	18°44.3	18°51.0	18°57.7	19°04.2	19°10.7	19°17.1	19°23.4	19°29.6	19°35.7	19°41.7	+6.4	54.0
	vr 3	78°32.5	93°03.6	107°34.7	122°05.8	136°36.9	151°07.9	165°38.9	180°09.8	194°40.8	209°11.7	223°42.6	+31.0	14.7
		21°01.2	21°05.8	21°10.2	21°14.6	21°18.9	21°23.0	21°27.1	21°31.0	21°34.9	21°38.7	21°42.3	+4.1	53.9
	za 4	81°23.2	95°53.8	110°24.3	124°54.8	139°25.3	153°55.8	168°26.3	182°56.8	197°27.2	211°57.7	226°28.1	+30.5	14.7
		22°25.1	22°27.1	22°29.0	22°30.8	22°32.6	22°34.2	22°35.7	22°37.1	22°38.3	22°39.5	22°40.6	+1.6	53.9
	zo 5	84°03.5	98°33.9	113°04.2	127°34.5	142°04.8	156°35.2	171°05.5	185°35.8	200°06.1	214°36.5	229°06.8	+30.3	14.7
		22°43.9	22°43.2	22°42.5	22°41.7	22°40.7	22°39.6	22°38.4	22°37.2	22°35.8	22°34.3	22°32.7	-1.1	54.1
	ma 6	86°42.8	101°13.2	115°43.7	130°14.2	144°44.7	159°15.3	173°45.8	188°16.4	202°46.9	217°17.5	231°48.1	+30.5	14.8
		21°55.9	21°52.6	21°49.2	21°45.7	21°42.1	21°38.3	21°34.5	21°30.6	21°26.6	21°22.5	21°18.2	-3.8	54.4
	di 7	89°29.3	104°00.1	118°31.1	133°02.0	147°32.9	162°03.9	176°34.9	191°05.9	205°37.0	220°08.0	234°39.1	+31.0	14.9
		20°02.7	19°56.9	19°51.0	19°45.0	19°38.9	19°32.7	19°26.4	19°20.0	19°13.5	19°06.9	19°00.2	-6.3	54.8
	wo 8	92°27.7	106°59.1	121°30.5	136°01.9	150°33.4	165°04.8	179°36.3	194°07.8	208°39.4	223°10.9	237°42.4	+31.5	15.1
		17°09.2	17°01.1	16°52.9	16°44.6	16°36.2	16°27.8	16°19.2	16°10.6	16°01.9	15°53.1	15°44.3	-8.5	55.3
	do 9	106°59.1	121°30.5	136°01.9	150°33.4	165°04.8	179°36.3	194°07.8	208°39.4	223°10.9	237°42.4	252°14.0	+31.5	15.1
		17°01.1	16°52.9	16°44.6	16°36.2	16°27.8	16°19.2	16°10.6	16°01.9	15°53.1	15°44.3	15°35.3	-8.6	55.4
◐	vr 10	110°09.3	124°41.1	139°12.9	153°44.7	168°16.5	182°48.3	197°20.1	211°51.9	226°23.8	240°55.6	255°27.4	+31.8	15.3
		13°11.9	13°01.7	12°51.5	12°41.2	12°30.8	12°20.4	12°09.9	11°59.3	11°48.7	11°37.9	11°27.2	-10.5	56.1
	za 11	113°25.1	127°56.9	142°28.7	157°00.5	171°32.2	186°04.0	200°35.8	215°07.5	229°39.3	244°11.0	258°42.7	+31.8	15.5
		8°38.0	8°26.2	8°14.4	8°02.6	7°50.7	7°38.7	7°26.7	7°14.6	7°02.5	6°50.3	6°38.1	-12.0	57.0
	zo 12	116°36.0	131°07.3	145°38.7	160°10.0	174°41.2	189°12.4	203°43.6	218°14.8	232°45.9	247°17.0	261°48.0	+31.2	15.8
		3°29.6	3°16.7	3°03.8	2°50.9	2°37.9	2°24.9	2°11.8	1°58.8	1°45.7	1°32.6	1°19.4	-13.0	57.9
	ma 13	119°28.5	133°58.8	148°29.1	162°59.2	177°29.4	191°59.4	206°29.5	220°59.4	235°29.3	249°59.1	264°28.9	+30.0	16.1
		-2°00.3	-2°13.7	-2°27.1	-2°40.6	-2°54.0	-3°07.5	-3°20.9	-3°34.4	-3°47.8	-4°01.3	-4°14.7	-13.4	58.9
	di 14	121°47.2	136°15.8	150°44.4	165°12.8	179°41.2	194°09.5	208°37.7	223°05.9	237°33.9	252°01.9	266°29.8	+28.3	16.3
		-7°35.0	-7°48.2	-8°01.4	-8°14.5	-8°27.6	-8°40.7	-8°53.7	-9°06.7	-9°19.7	-9°32.6	-9°45.5	-13.1	59.8
	wo 15	123°17.4	137°43.8	152°10.2	166°36.4	181°02.6	195°28.6	209°54.6	224°20.4	238°46.2	253°11.9	267°37.5	+26.0	16.5
		-12°52.7	-13°04.6	-13°16.6	-13°28.4	-13°40.2	-13°51.9	-14°03.5	-14°15.0	-14°26.4	-14°37.8	-14°49.1	-11.7	60.6
	do 16	123°49.7	138°13.7	152°37.7	167°01.6	181°25.4	195°49.1	210°12.7	224°36.2	238°59.7	253°23.1	267°46.3	+23.7	16.7
		-17°26.5	-17°36.2	-17°45.7	-17°55.1	-18°04.4	-18°13.5	-18°22.5	-18°31.4	-18°40.2	-18°48.8	-18°57.3	-9.1	61.2
○	vr 17	123°26.3	137°48.4	152°10.5	166°32.5	180°54.5	195°16.4	209°38.2	224°00.0	238°21.7	252°43.5	267°05.1	+21.9	16.7
		-20°47.9	-20°54.1	-21°00.1	-21°06.0	-21°11.6	-21°17.2	-21°22.6	-21°27.8	-21°32.8	-21°37.7	-21°42.4	-5.5	61.3
	za 18	122°26.6	136°47.9	151°09.2	165°30.5	179°51.8	194°13.1	208°34.4	222°55.8	237°17.1	251°38.5	265°59.9	+21.3	16.7
		-22°32.7	-22°34.6	-22°36.4	-22°38.0	-22°39.4	-22°40.7	-22°41.8	-22°42.7	-22°43.4	-22°44.0	-22°44.3	-1.2	61.2
	zo 19	121°24.5	135°46.5	150°08.5	164°30.7	178°52.8	193°15.1	207°37.4	221°59.8	236°22.3	250°44.8	265°07.4	+22.3	16.5
		-22°29.2	-22°26.9	-22°24.3	-22°21.6	-22°18.8	-22°15.7	-22°12.6	-22°09.2	-22°05.7	-22°02.0	-21°58.2	+3.1	60.7
	ma 20	120°56.5	135°20.5	149°44.6	164°08.8	178°33.1	192°57.5	207°22.0	221°46.6	236°11.3	250°36.1	265°01.0	+24.4	16.3
		-20°42.8	-20°36.6	-20°30.3	-20°23.9	-20°17.3	-20°10.7	-20°03.8	-19°56.9	-19°49.8	-19°42.6	-19°35.3	+6.8	59.9
	di 21	121°27.5	135°54.1	150°20.8	164°47.7	179°14.6	193°41.7	208°08.8	222°36.1	237°03.5	251°31.0	265°58.6	+27.1	16.1
		-17°32.1	-17°23.0	-17°13.9	-17°04.7	-16°55.3	-16°45.9	-16°36.4	-16°26.9	-16°17.2	-16°07.4	-15°57.6	+9.5	59.0
	wo 22	123°04.8	137°34.0	152°03.3	166°32.7	181°02.2	195°31.8	210°01.5	224°31.3	239°01.1	253°31.1	268°01.1	+29.6	15.8
		-13°21.5	-13°10.6	-12°59.6	-12°48.5	-12°37.5	-12°26.3	-12°15.1	-12°03.9	-11°52.6	-11°41.3	-11°29.9	+11.2	58.0
	do 23	125°41.9	140°13.2	154°44.6	169°16.1	183°47.7	198°19.3	212°51.0	227°22.8	241°54.6	256°26.5	270°58.5	+31.7	15.6
		-8°34.7	-8°22.8	-8°10.8	-7°58.8	-7°46.8	-7°34.8	-7°22.7	-7°10.7	-6°58.6	-6°46.5	-6°34.4	+12.0	57.1
◑	vr 24	129°04.8	143°37.6	158°10.5	172°43.5	187°16.4	201°49.5	216°22.5	230°55.6	245°28.8	260°02.0	274°35.2	+33.0	15.3
		-3°31.3	-3°19.1	-3°06.8	-2°54.5	-2°42.3	-2°30.0	-2°17.8	-2°05.6	-1°53.3	-1°41.1	-1°28.9	+12.2	56.2
	za 25	132°57.3	147°31.0	162°04.7	176°38.4	191°12.1	205°45.9	220°19.7	234°53.5	249°27.3	264°01.1	278°34.9	+33.8	15.1
		1°33.3	1°45.3	1°57.3	2°09.3	2°21.3	2°33.3	2°45.2	2°57.1	3°09.0	3°20.8	3°32.7	+11.9	55.5
	zo 26	137°03.5	151°37.4	166°11.3	180°45.2	195°19.2	209°53.1	224°27.0	239°00.9	253°34.8	268°08.7	282°42.6	+33.9	15.0
		6°26.9	6°38.2	6°49.5	7°00.8	7°12.1	7°23.3	7°34.5	7°45.6	7°56.7	8°07.8	8°18.8	+11.2	54.9
	ma 27	141°09.3	155°43.0	170°16.6	184°50.3	199°23.9	213°57.4	228°31.0	243°04.5	257°38.0	272°11.5	286°45.0	+33.6	14.8
		10°58.8	11°09.1	11°19.3	11°29.5	11°39.6	11°49.7	11°59.7	12°09.7	12°19.6	12°29.5	12°39.3	+10.1	54.4
	di 28	145°03.6	159°36.6	174°09.6	188°42.5	203°15.4	217°48.3	232°21.2	246°54.0	261°26.8	275°59.5	290°32.2	+32.9	14.8
		14°59.3	15°08.1	15°16.9	15°25.6	15°34.2	15°42.8	15°51.2	15°59.7	16°08.0	16°16.3	16°24.5	+8.5	54.1
	wo 29	148°38.6	163°10.7	177°42.8	192°14.9	206°46.9	221°18.9	235°50.9	250°22.8	264°54.6	279°26.5	293°58.3	+32.0	14.7
		18°18.7	18°25.7	18°32.6	18°39.4	18°46.1	18°52.8	18°59.3	19°05.8	19°12.2	19°18.6	19°24.8	+6.6	54.0
	do 30	151°51.2	166°22.4	180°53.6	195°24.8	209°56.0	224°27.1	238°58.2	253°29.2	268°00.3	282°31.3	297°02.2	+31.1	14.7
		20°47.6	20°52.4	20°57.1	21°01.7	21°06.2	21°10.6	21°14.9	21°19.2	21°23.3	21°27.3	21°31.2	+4.4	53.9
	vr 31	154°43.6	169°14.1	183°44.7	198°15.2	212°45.7	227°16.2	241°46.7	256°17.1	270°47.5	285°18.0	299°48.4	+30.5	14.7
		22°18.0	22°20.3	22°22.5	22°24.6	22°26.6	22°28.5	22°30.3	22°31.9	22°33.5	22°35.0	22°36.3	+1.8	53.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 2 14h12 — EK: 10 17h11 — VM: 17 11h19 — LK: 24 04h57

ZON

Juni 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	180°33.0	195°32.9	210°32.8	225°32.7	240°32.6	255°32.5	90°31.2	105°31.1	120°31.0	135°30.9	150°30.8	165°30.7	-0.1
	22°01.7	22°02.1	22°02.4	22°02.7	22°03.1	22°03.4	22°07.8	22°08.1	22°08.4	22°08.8	22°09.1	22°09.4	+0.3
zo 2	180°30.6	195°30.5	210°30.4	225°30.3	240°30.2	255°30.1	90°28.8	105°28.7	120°28.6	135°28.5	150°28.4	165°28.3	-0.1
	22°09.7	22°10.1	22°10.4	22°10.7	22°11.0	22°11.4	22°15.5	22°15.8	22°16.1	22°16.4	22°16.7	22°17.1	+0.3
ma 3	180°28.2	195°28.1	210°28.0	225°27.9	240°27.8	255°27.7	90°26.3	105°26.2	120°26.1	135°26.0	150°25.9	165°25.7	-0.1
	22°17.4	22°17.7	22°18.0	22°18.3	22°18.6	22°18.9	22°22.8	22°23.1	22°23.4	22°23.7	22°24.0	22°24.3	+0.3
di 4	180°25.6	195°25.5	210°25.4	225°25.3	240°25.2	255°25.1	90°23.7	105°23.6	120°23.5	135°23.4	150°23.2	165°23.1	-0.1
	22°24.6	22°24.9	22°25.2	22°25.5	22°25.8	22°26.1	22°29.8	22°30.1	22°30.3	22°30.6	22°30.9	22°31.2	+0.3
wo 5	180°23.0	195°22.9	210°22.8	225°22.7	240°22.6	255°22.5	90°21.0	105°20.9	120°20.8	135°20.7	150°20.6	165°20.4	-0.1
	22°31.4	22°31.7	22°32.0	22°32.3	22°32.5	22°32.8	22°36.3	22°36.6	22°36.8	22°37.1	22°37.4	22°37.6	+0.3
do 6	180°20.3	195°20.2	210°20.1	225°20.0	240°19.9	255°19.8	90°18.3	105°18.1	120°18.0	135°17.9	150°17.8	165°17.7	-0.1
	22°37.9	22°38.2	22°38.4	22°38.7	22°38.9	22°39.2	22°42.5	22°42.7	22°43.0	22°43.2	22°43.5	22°43.7	+0.3
vr 7	180°17.6	195°17.5	210°17.3	225°17.2	240°17.1	255°17.0	90°15.4	105°15.3	120°15.2	135°15.1	150°15.0	165°14.9	-0.1
	22°43.9	22°44.2	22°44.4	22°44.7	22°44.9	22°45.2	22°48.2	22°48.5	22°48.7	22°48.9	22°49.1	22°49.4	+0.2
za 8	180°14.7	195°14.6	210°14.5	225°14.4	240°14.3	255°14.1	90°12.6	105°12.4	120°12.3	135°12.2	150°12.1	165°12.0	-0.1
	22°49.6	22°49.8	22°50.1	22°50.3	22°50.5	22°50.7	22°53.6	22°53.8	22°54.0	22°54.2	22°54.4	22°54.6	+0.2
zo 9	180°11.8	195°11.7	210°11.6	225°11.5	240°11.3	255°11.2	90°09.6	105°09.5	120°09.4	135°09.3	150°09.1	165°09.0	-0.1
	22°54.9	22°55.1	22°55.3	22°55.5	22°55.7	22°55.9	22°58.5	22°58.7	22°58.9	22°59.1	22°59.3	22°59.5	+0.2
ma 10	180°08.9	195°08.8	210°08.6	225°08.5	240°08.4	255°08.3	90°06.6	105°06.5	120°06.4	135°06.3	150°06.1	165°06.0	-0.1
	22°59.7	22°59.9	23°00.1	23°00.3	23°00.5	23°00.7	23°03.1	23°03.3	23°03.4	23°03.6	23°03.8	23°04.0	+0.2
di 11	180°05.9	195°05.8	210°05.6	225°05.5	240°05.4	255°05.2	90°03.6	105°03.5	120°03.3	135°03.2	150°03.1	165°03.0	-0.1
	23°04.1	23°04.3	23°04.5	23°04.7	23°04.8	23°05.0	23°07.2	23°07.4	23°07.5	23°07.7	23°07.9	23°08.0	+0.2
wo 12	180°02.8	195°02.7	210°02.6	225°02.4	240°02.3	255°02.2	90°00.5	105°00.4	120°00.3	135°00.1	150°00.0	164°59.9	-0.1
	23°08.2	23°08.3	23°08.5	23°08.7	23°08.8	23°09.0	23°10.9	23°11.1	23°11.2	23°11.4	23°11.5	23°11.7	+0.2
do 13	179°59.7	194°59.6	209°59.5	224°59.3	239°59.2	254°59.1	89°57.4	104°57.3	119°57.1	134°57.0	149°56.9	164°56.7	-0.1
	23°11.8	23°12.0	23°12.1	23°12.2	23°12.4	23°12.5	23°14.3	23°14.4	23°14.5	23°14.7	23°14.8	23°14.9	+0.1
vr 14	179°56.6	194°56.5	209°56.3	224°56.2	239°56.1	254°56.0	89°54.2	104°54.1	119°54.0	134°53.8	149°53.7	164°53.6	-0.1
	23°15.0	23°15.2	23°15.3	23°15.4	23°15.5	23°15.7	23°17.2	23°17.3	23°17.4	23°17.5	23°17.6	23°17.7	+0.1
za 15	179°53.4	194°53.3	209°53.2	224°53.0	239°52.9	254°52.8	89°51.1	104°50.9	119°50.8	134°50.7	149°50.5	164°50.4	-0.1
	23°17.8	23°18.0	23°18.1	23°18.2	23°18.3	23°18.4	23°19.7	23°19.8	23°19.9	23°20.0	23°20.1	23°20.2	+0.1
zo 16	179°50.3	194°50.1	209°50.0	224°49.9	239°49.7	254°49.6	89°47.9	104°47.7	119°47.6	134°47.4	149°47.3	164°47.2	-0.1
	23°20.2	23°20.3	23°20.4	23°20.5	23°20.6	23°20.7	23°21.8	23°21.9	23°21.9	23°22.0	23°22.1	23°22.2	+0.1
ma 17	179°47.0	194°46.9	209°46.8	224°46.6	239°46.5	254°46.4	89°44.6	104°44.5	119°44.4	134°44.2	149°44.1	164°43.9	-0.1
	23°22.2	23°22.3	23°22.4	23°22.5	23°22.5	23°22.6	23°23.5	23°23.5	23°23.6	23°23.6	23°23.7	23°23.8	+0.1
di 18	179°43.8	194°43.7	209°43.5	224°43.4	239°43.3	254°43.1	89°41.4	104°41.2	119°41.1	134°41.0	149°40.8	164°40.7	-0.1
	23°23.8	23°23.9	23°23.9	23°24.0	23°24.0	23°24.1	23°24.7	23°24.8	23°24.8	23°24.9	23°24.9	23°24.9	+0.1
wo 19	179°40.6	194°40.4	209°40.3	224°40.2	239°40.0	254°39.9	89°38.1	104°38.0	119°37.9	134°37.7	149°37.6	164°37.5	-0.1
	23°25.0	23°25.0	23°25.1	23°25.1	23°25.1	23°25.2	23°25.6	23°25.6	23°25.6	23°25.7	23°25.7	23°25.7	+0.0
do 20	179°37.3	194°37.2	209°37.0	224°36.9	239°36.8	254°36.6	89°34.9	104°34.7	119°34.6	134°34.5	149°34.3	164°34.2	-0.1
	23°25.7	23°25.7	23°25.8	23°25.8	23°25.8	23°25.8	23°26.0	23°26.0	23°26.0	23°26.0	23°26.1	23°26.1	+0.0
vr 21	179°34.1	194°33.9	209°33.8	224°33.6	239°33.5	254°33.4	89°31.6	104°31.5	119°31.3	134°31.2	149°31.1	164°30.9	-0.1
	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	23°26.0	+0.0
za 22	179°30.8	194°30.7	209°30.5	224°30.4	239°30.3	254°30.1	89°28.4	104°28.2	119°28.1	134°28.0	149°27.8	164°27.7	-0.1
	23°26.0	23°26.0	23°26.0	23°25.9	23°25.9	23°25.9	23°25.7	23°25.6	23°25.6	23°25.6	23°25.6	23°25.5	-0.0
zo 23	179°27.6	194°27.4	209°27.3	224°27.1	239°27.0	254°26.9	89°25.1	104°25.0	119°24.9	134°24.7	149°24.6	164°24.4	-0.1
	23°25.5	23°25.5	23°25.4	23°25.4	23°25.4	23°25.3	23°24.9	23°24.8	23°24.8	23°24.7	23°24.7	23°24.6	-0.0
ma 24	179°24.3	194°24.2	209°24.0	224°23.9	239°23.8	254°23.6	89°21.9	104°21.8	119°21.6	134°21.5	149°21.4	164°21.2	-0.1
	23°24.6	23°24.5	23°24.5	23°24.4	23°24.4	23°24.4	23°23.6	23°23.6	23°23.5	23°23.5	23°23.4	23°23.3	-0.0
di 25	179°21.1	194°21.0	209°20.8	224°20.7	239°20.6	254°20.4	89°18.7	104°18.6	119°18.4	134°18.3	149°18.2	164°18.0	-0.1
	23°23.3	23°23.2	23°23.1	23°23.1	23°23.0	23°22.9	23°22.0	23°21.9	23°21.9	23°21.8	23°21.7	23°21.6	-0.1
wo 26	179°17.9	194°17.8	209°17.6	224°17.5	239°17.4	254°17.2	89°15.5	104°15.4	119°15.3	134°15.1	149°15.0	164°14.9	-0.1
	23°21.5	23°21.5	23°21.4	23°21.3	23°21.2	23°21.1	23°20.0	23°19.9	23°19.8	23°19.7	23°19.6	23°19.5	-0.1
do 27	179°14.7	194°14.6	209°14.5	224°14.4	239°14.2	254°14.1	89°12.4	104°12.3	119°12.1	134°12.0	149°11.9	164°11.8	-0.1
	23°19.4	23°19.3	23°19.2	23°19.1	23°19.0	23°18.9	23°17.5	23°17.4	23°17.3	23°17.2	23°17.1	23°17.0	-0.1
vr 28	179°11.6	194°11.5	209°11.4	224°11.2	239°11.1	254°11.0	89°09.3	104°09.2	119°09.1	134°08.9	149°08.8	164°08.7	-0.1
	23°16.9	23°16.7	23°16.6	23°16.5	23°16.4	23°16.3	23°14.7	23°14.5	23°14.4	23°14.3	23°14.2	23°14.0	-0.1
za 29	179°08.5	194°08.4	209°08.3	224°08.2	239°08.0	254°07.9	89°06.3	104°06.1	119°06.0	134°05.9	149°05.8	164°05.6	-0.1
	23°13.9	23°13.8	23°13.6	23°13.5	23°13.4	23°13.2	23°11.4	23°11.3	23°11.1	23°11.0	23°10.8	23°10.7	-0.1
zo 30	179°05.5	194°05.4	209°05.3	224°05.2	239°05.0	254°04.9	89°03.3	104°03.2	119°03.0	134°02.9	149°02.8	164°02.7	-0.1
	23°10.5	23°10.4	23°10.2	23°10.1	23°09.9	23°09.8	23°07.7	23°07.6	23°07.4	23°07.2	23°07.1	23°06.9	-0.1

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2030

	D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
●	za 1	70°21.4	84°51.7	99°22.0	113°52.2	128°22.5	142°52.8	157°23.0	171°53.3	186°23.5	200°53.7	215°24.0	+30.3	14.7
		22°43.7	22°44.0	22°44.2	22°44.3	22°44.3	22°44.1	22°43.9	22°43.5	22°43.1	22°42.5	22°41.8	-0.2	54.0
	zo 2	72°57.8	87°28.1	101°58.4	116°28.7	130°59.0	145°29.3	159°59.7	174°30.0	189°00.4	203°30.8	218°01.2	+30.3	14.8
		22°18.7	22°16.3	22°13.8	22°11.2	22°08.5	22°05.7	22°02.8	21°59.8	21°56.6	21°53.4	21°50.0	-2.9	54.2
	ma 3	75°39.3	90°10.0	104°40.7	119°11.4	133°42.2	148°13.0	162°43.8	177°14.6	191°45.4	206°16.3	220°47.2	+30.8	14.9
		20°47.5	20°42.5	20°37.5	20°32.3	20°27.0	20°21.6	20°16.2	20°10.6	20°04.9	19°59.2	19°53.3	-5.4	54.5
	di 4	78°33.8	93°05.1	107°36.5	122°07.8	136°39.2	151°10.6	165°42.1	180°13.6	194°45.1	209°16.6	223°48.1	+31.4	15.0
		18°14.3	18°07.0	17°59.6	17°52.1	17°44.5	17°36.8	17°29.1	17°21.2	17°13.3	17°05.3	16°57.2	-7.7	54.9
	wo 5	81°44.4	96°16.3	110°48.2	125°20.2	139°52.2	154°24.2	168°56.3	183°28.3	198°00.4	212°32.5	227°04.6	+32.0	15.1
		14°46.3	14°38.9	14°27.5	14°18.0	14°08.5	13°58.9	13°49.2	13°39.4	13°29.6	13°19.7	13°09.7	-9.7	55.4
	do 6	85°08.2	99°40.6	114°12.9	128°45.2	143°17.6	157°50.0	172°22.3	186°54.7	201°27.1	215°59.5	230°31.9	+32.4	15.3
		10°32.4	10°21.5	10°10.4	9°59.4	9°48.2	9°37.0	9°25.8	9°14.5	9°03.1	8°51.8	8°40.3	-11.2	56.0
	vr 7	88°37.5	103°09.8	117°42.2	132°14.5	146°46.8	161°19.0	175°51.3	190°23.5	204°55.8	219°28.0	234°00.2	+32.3	15.5
		5°43.0	5°30.8	5°18.6	5°06.4	4°54.1	4°41.8	4°29.5	4°17.1	4°04.7	3°52.2	3°39.7	-12.3	56.8
	za 8	103°09.8	117°42.2	132°14.5	146°46.8	161°19.0	175°51.3	190°23.5	204°55.8	219°28.0	234°00.2	248°32.4	+32.3	15.5
		5°30.8	5°18.6	5°06.4	4°54.1	4°41.8	4°29.5	4°17.1	4°04.7	3°52.2	3°39.7	3°27.2	-12.4	56.8
◐	zo 9	106°32.0	121°03.8	135°35.5	150°07.1	164°38.8	179°10.3	193°41.9	208°13.4	222°44.8	237°16.3	251°47.6	+31.6	15.7
		0°16.6	0°03.7	-0°09.2	-0°22.1	-0°35.0	-0°48.0	-1°00.9	-1°13.9	-1°26.9	-1°39.8	-1°52.8	-12.9	57.6
	ma 10	109°32.1	124°02.6	138°33.1	153°03.5	167°33.8	182°04.1	196°34.2	211°04.4	225°34.4	240°04.4	254°34.3	+30.2	16.0
		-5°07.8	-5°20.7	-5°33.7	-5°46.6	-5°59.5	-6°12.4	-6°25.3	-6°38.2	-6°51.0	-7°03.9	-7°16.7	-12.9	58.5
	di 11	111°53.9	126°22.5	140°51.1	155°19.6	169°48.0	184°16.3	198°44.5	213°12.6	227°40.7	242°08.6	256°36.4	+28.3	16.2
		-10°25.3	-10°37.6	-10°49.8	-11°02.0	-11°14.2	-11°26.2	-11°38.3	-11°50.3	-12°02.2	-12°14.1	-12°25.9	-12.1	59.4
	wo 12	113°22.7	127°49.0	142°15.2	156°41.3	171°07.3	185°33.2	199°59.0	214°24.7	228°50.3	243°15.8	257°41.2	+25.8	16.4
		-15°15.0	-15°25.7	-15°36.2	-15°46.7	-15°57.1	-16°07.4	-16°17.6	-16°27.7	-16°37.7	-16°47.7	-16°57.5	-10.3	60.2
	do 13	113°50.4	128°14.2	142°38.0	157°01.7	171°25.2	185°48.7	200°12.1	214°35.4	228°58.7	243°21.8	257°44.9	+23.4	16.6
		-19°11.5	-19°19.4	-19°27.3	-19°35.0	-19°42.6	-19°50.0	-19°57.3	-20°04.5	-20°11.5	-20°18.4	-20°25.1	-7.4	60.8
	vr 14	113°22.0	127°43.9	142°05.8	156°27.7	170°49.5	185°11.2	199°32.9	213°54.6	228°16.2	242°37.8	256°59.4	+21.7	16.7
		-21°48.3	-21°52.6	-21°56.7	-22°00.6	-22°04.4	-22°08.1	-22°11.5	-22°14.8	-22°17.9	-22°20.9	-22°23.6	-3.5	61.1
○	za 15	112°20.0	126°41.4	141°02.7	155°24.0	169°45.4	184°06.7	198°28.1	212°49.5	227°10.9	241°32.3	255°53.8	+21.4	16.7
		-22°44.5	-22°44.5	-22°44.3	-22°44.0	-22°43.4	-22°42.7	-22°41.8	-22°40.8	-22°39.6	-22°38.1	-22°36.6	+0.8	61.1
	zo 16	111°20.7	125°42.9	140°05.2	154°27.5	168°50.0	183°12.4	197°35.0	211°57.6	226°20.4	240°43.1	255°06.0	+22.5	16.6
		-21°52.5	-21°48.3	-21°43.8	-21°39.3	-21°34.5	-21°29.6	-21°24.6	-21°19.4	-21°14.1	-21°08.6	-21°02.9	+5.0	60.8
	ma 17	110°59.6	125°23.9	139°48.4	154°12.9	168°37.5	183°02.2	197°27.1	211°52.0	226°17.0	240°42.2	255°07.4	+24.8	16.4
		-19°21.2	-19°13.4	-19°05.4	-18°57.4	-18°49.2	-18°40.8	-18°32.4	-18°23.8	-18°15.2	-18°06.4	-17°57.5	+8.4	60.1
	di 18	111°38.8	126°05.7	140°32.8	154°59.9	169°27.2	183°54.5	198°22.0	212°49.6	227°17.2	241°45.0	256°12.9	+27.4	16.2
		-15°32.3	-15°21.9	-15°11.5	-15°00.9	-14°50.3	-14°39.6	-14°28.8	-14°17.9	-14°07.0	-13°56.0	-13°45.0	+10.7	59.3
	wo 19	113°22.8	127°52.2	142°21.7	156°51.3	171°21.0	185°50.7	200°20.6	214°50.5	229°20.6	243°50.7	258°20.9	+29.8	15.9
		-10°52.2	-10°40.3	-10°28.4	-10°16.4	-10°04.3	-9°52.3	-9°40.2	-9°28.0	-9°15.9	-9°03.7	-8°51.5	+12.1	58.3
	do 20	116°03.1	130°34.5	145°06.0	159°37.5	174°09.1	188°40.7	203°12.4	217°44.2	232°16.0	246°47.9	261°19.9	+31.7	15.6
		-5°45.4	-5°32.9	-5°20.3	-5°07.8	-4°55.2	-4°42.7	-4°30.1	-4°17.5	-4°05.0	-3°52.4	-3°39.8	+12.6	57.3
	vr 21	119°25.3	133°58.0	148°30.7	163°03.5	177°36.4	192°09.3	206°42.2	221°15.1	235°48.1	250°21.1	264°54.2	+32.9	15.4
		-0°31.8	-0°19.3	-0°06.9	0°05.5	0°18.0	0°30.4	0°42.7	0°55.1	1°07.4	1°19.7	1°32.0	+12.4	56.4
◑	za 22	123°12.9	137°46.3	152°19.7	166°53.2	181°26.6	196°00.1	210°33.6	225°07.1	239°40.5	254°14.1	268°47.6	+33.5	15.2
		4°33.5	4°45.3	4°57.2	5°09.0	5°20.7	5°32.4	5°44.1	5°55.8	6°07.4	6°19.0	6°30.5	+11.7	55.6
	zo 23	127°10.6	141°44.1	156°17.6	170°51.1	185°24.6	199°58.1	214°31.6	229°05.1	243°38.5	258°12.0	272°45.4	+33.5	15.0
		9°18.6	9°29.4	9°40.2	9°51.0	10°01.7	10°12.3	10°22.9	10°33.5	10°44.0	10°54.4	11°04.8	+10.6	54.9
	ma 24	131°05.0	145°38.2	160°11.3	174°44.4	189°17.5	203°50.5	218°23.6	232°56.6	247°29.6	262°02.5	276°35.5	+33.0	14.9
		13°33.8	13°43.2	13°52.6	14°01.9	14°11.2	14°20.4	14°29.5	14°38.6	14°47.6	14°56.6	15°05.4	+9.2	54.5
	di 25	134°45.9	149°18.3	163°50.8	178°23.1	192°55.5	207°27.8	222°00.1	236°32.3	251°04.6	265°36.7	280°08.9	+32.3	14.8
		17°10.0	17°17.7	17°25.4	17°32.9	17°40.4	17°47.8	17°55.1	18°02.4	18°09.6	18°16.6	18°23.7	+7.4	54.1
	wo 26	138°06.9	152°38.5	167°10.1	181°41.6	196°13.1	210°44.5	225°16.0	239°47.4	254°18.7	268°50.0	283°21.3	+31.4	14.7
		19°58.7	20°04.3	20°09.9	20°15.3	20°20.7	20°26.0	20°31.2	20°36.2	20°41.2	20°46.2	20°51.0	+5.2	54.0
	do 27	141°06.8	155°37.6	170°08.3	184°39.1	199°09.8	213°40.5	228°11.1	242°41.8	257°12.4	271°43.0	286°13.5	+30.7	14.7
		21°51.7	21°54.9	21°58.1	22°01.1	22°04.1	22°06.9	22°09.7	22°12.3	22°14.9	22°17.3	22°19.7	+2.8	54.0
	vr 28	143°49.5	158°19.7	172°50.0	187°20.2	201°50.4	216°20.6	230°50.8	245°21.0	259°51.2	274°21.4	288°51.5	+30.2	14.7
		22°42.2	22°42.9	22°43.4	22°43.9	22°44.2	22°44.4	22°44.5	22°44.5	22°44.4	22°44.2	22°43.9	+0.2	54.1
	za 29	146°23.5	160°53.6	175°23.7	189°53.9	204°24.0	218°54.2	233°24.3	247°54.5	262°24.7	276°54.8	291°25.0	+30.2	14.8
		22°26.2	22°24.1	22°22.0	22°19.7	22°17.4	22°14.9	22°12.3	22°09.6	22°06.8	22°03.9	22°00.9	-2.5	54.3
●	zo 30	148°59.3	163°29.7	178°00.2	192°30.6	207°01.1	221°31.6	236°02.1	250°32.6	265°03.2	279°33.7	294°04.3	+30.5	14.9
		21°03.1	20°58.4	20°53.6	20°48.7	20°43.7	20°38.6	20°33.4	20°28.2	20°22.8	20°17.3	20°11.7	-5.1	54.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 1 06h21 — EK: 9 03h35 — VM: 15 18h41 — LK: 22 17h19 — NM: 30 21h34

ZON

Juli 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	179°02.6	194°02.4	209°02.3	224°02.2	239°02.1	254°01.9	89°00.4	104°00.3	119°00.1	134°00.0	148°59.9	163°59.8	-0.1
	23°06.7	23°06.6	23°06.4	23°06.2	23°06.1	23°05.9	23°03.7	23°03.5	23°03.3	23°03.1	23°02.9	23°02.8	-0.2
di 2	178°59.7	193°59.5	208°59.4	223°59.3	238°59.2	253°59.1	88°57.5	103°57.4	118°57.3	133°57.2	148°57.1	163°56.9	-0.1
	23°02.6	23°02.4	23°02.2	23°02.0	23°01.8	23°01.7	22°59.2	22°59.0	22°58.8	22°58.6	22°58.4	22°58.2	-0.2
wo 3	178°56.8	193°56.7	208°56.6	223°56.5	238°56.4	253°56.2	88°54.7	103°54.6	118°54.5	133°54.4	148°54.3	163°54.2	-0.1
	22°58.0	22°57.8	22°57.6	22°57.4	22°57.2	22°57.0	22°54.3	22°54.1	22°53.9	22°53.7	22°53.4	22°53.2	-0.2
do 4	178°54.1	193°54.0	208°53.8	223°53.7	238°53.6	253°53.5	88°52.1	103°51.9	118°51.8	133°51.7	148°51.6	163°51.5	-0.1
	22°53.0	22°52.8	22°52.6	22°52.4	22°52.1	22°51.9	22°49.0	22°48.8	22°48.6	22°48.3	22°48.1	22°47.9	-0.2
vr 5	178°51.4	193°51.3	208°51.2	223°51.1	238°51.0	253°50.8	88°49.4	103°49.3	118°49.2	133°49.1	148°49.0	163°48.9	-0.1
	22°47.6	22°47.4	22°47.2	22°46.9	22°46.7	22°46.5	22°43.3	22°43.1	22°42.9	22°42.6	22°42.4	22°42.1	-0.2
za 6	178°48.8	193°48.7	208°48.6	223°48.5	238°48.4	253°48.3	88°46.9	103°46.8	118°46.7	133°46.6	148°46.5	163°46.4	-0.1
	22°41.9	22°41.6	22°41.4	22°41.1	22°40.9	22°40.6	22°37.3	22°37.0	22°36.7	22°36.5	22°36.2	22°36.0	-0.2
zo 7	178°46.3	193°46.2	208°46.1	223°46.0	238°45.9	253°45.8	88°44.5	103°44.4	118°44.3	133°44.2	148°44.1	163°44.0	-0.1
	22°35.7	22°35.4	22°35.2	22°34.9	22°34.6	22°34.4	22°30.8	22°30.5	22°30.3	22°30.0	22°29.7	22°29.4	-0.3
ma 8	178°43.9	193°43.8	208°43.7	223°43.6	238°43.5	253°43.4	88°42.2	103°42.1	118°42.0	133°41.9	148°41.8	163°41.7	-0.1
	22°29.1	22°28.9	22°28.6	22°28.3	22°28.0	22°27.7	22°24.0	22°23.7	22°23.4	22°23.1	22°22.8	22°22.5	-0.3
di 9	178°41.6	193°41.5	208°41.4	223°41.4	238°41.3	253°41.2	88°40.0	103°39.9	118°39.8	133°39.7	148°39.6	163°39.5	-0.1
	22°22.2	22°21.9	22°21.6	22°21.3	22°21.0	22°20.7	22°16.7	22°16.4	22°16.1	22°15.8	22°15.5	22°15.2	-0.3
wo 10	178°39.4	193°39.4	208°39.3	223°39.2	238°39.1	253°39.0	88°37.9	103°37.8	118°37.7	133°37.6	148°37.5	163°37.5	-0.1
	22°14.9	22°14.5	22°14.2	22°13.9	22°13.6	22°13.3	22°09.1	22°08.8	22°08.5	22°08.1	22°07.8	22°07.5	-0.3
do 11	178°37.4	193°37.3	208°37.2	223°37.1	238°37.0	253°37.0	88°35.9	103°35.8	118°35.7	133°35.7	148°35.6	163°35.5	-0.1
	22°07.1	22°06.8	22°06.5	22°06.2	22°05.8	22°05.5	22°01.1	22°00.8	22°00.4	22°00.1	21°59.7	21°59.4	-0.3
vr 12	178°35.4	193°35.3	208°35.3	223°35.2	238°35.1	253°35.0	88°34.0	103°34.0	118°33.9	133°33.8	148°33.7	163°33.7	-0.1
	21°59.1	21°58.7	21°58.4	21°58.0	21°57.7	21°57.3	21°52.7	21°52.4	21°52.0	21°51.7	21°51.3	21°50.9	-0.3
za 13	178°33.6	193°33.5	208°33.4	223°33.4	238°33.3	253°33.2	88°32.3	103°32.2	118°32.2	133°32.1	148°32.0	163°31.9	-0.1
	21°50.6	21°50.2	21°49.9	21°49.5	21°49.1	21°48.8	21°44.0	21°43.6	21°43.2	21°42.9	21°42.5	21°42.1	-0.4
zo 14	178°31.9	193°31.8	208°31.7	223°31.7	238°31.6	253°31.5	88°30.7	103°30.6	118°30.5	133°30.5	148°30.4	163°30.4	-0.1
	21°41.7	21°41.4	21°41.0	21°40.6	21°40.2	21°39.9	21°34.9	21°34.5	21°34.1	21°33.7	21°33.3	21°32.9	-0.4
ma 15	178°30.3	193°30.2	208°30.2	223°30.1	238°30.0	253°30.0	88°29.2	103°29.1	118°29.1	133°29.0	148°28.9	163°28.9	-0.1
	21°32.5	21°32.1	21°31.8	21°31.4	21°31.0	21°30.6	21°25.4	21°25.0	21°24.6	21°24.2	21°23.8	21°23.4	-0.4
di 16	178°28.8	193°28.8	208°28.7	223°28.7	238°28.6	253°28.5	88°27.8	103°27.8	118°27.7	133°27.7	148°27.6	163°27.5	-0.1
	21°23.0	21°22.6	21°22.1	21°21.7	21°21.3	21°20.9	21°15.5	21°15.1	21°14.7	21°14.3	21°13.9	21°13.4	-0.4
wo 17	178°27.5	193°27.4	208°27.4	223°27.3	238°27.3	253°27.2	88°26.6	103°26.5	118°26.5	133°26.4	148°26.4	163°26.3	-0.1
	21°13.0	21°12.6	21°12.2	21°11.8	21°11.3	21°10.9	21°05.3	21°04.9	21°04.5	21°04.0	21°03.6	21°03.2	-0.4
do 18	178°26.3	193°26.2	208°26.2	223°26.1	238°26.1	253°26.0	88°25.5	103°25.4	118°25.4	133°25.3	148°25.3	163°25.3	-0.0
	21°02.7	21°02.3	21°01.9	21°01.4	21°01.0	21°00.5	20°54.8	20°54.3	20°53.9	20°53.4	20°53.0	20°52.5	-0.4
vr 19	178°25.2	193°25.2	208°25.1	223°25.1	238°25.0	253°25.0	88°24.5	103°24.5	118°24.4	133°24.4	148°24.3	163°24.3	-0.0
	20°52.1	20°51.6	20°51.2	20°50.7	20°50.3	20°49.8	20°43.8	20°43.4	20°42.9	20°42.5	20°42.0	20°41.5	-0.5
za 20	178°24.3	193°24.2	208°24.2	223°24.2	238°24.1	253°24.1	88°23.6	103°23.6	118°23.6	133°23.6	148°23.5	163°23.5	-0.0
	20°41.1	20°40.6	20°40.1	20°39.7	20°39.2	20°38.7	20°32.6	20°32.1	20°31.6	20°31.1	20°30.7	20°30.2	-0.5
zo 21	178°23.5	193°23.4	208°23.4	223°23.4	238°23.3	253°23.3	88°22.9	103°22.9	118°22.9	133°22.9	148°22.8	163°22.8	-0.0
	20°29.7	20°29.2	20°28.7	20°28.3	20°27.8	20°27.3	20°21.0	20°20.5	20°20.0	20°19.5	20°19.0	20°18.5	-0.5
ma 22	178°22.8	193°22.8	208°22.7	223°22.7	238°22.7	253°22.7	88°22.4	103°22.4	118°22.3	133°22.3	148°22.3	163°22.3	-0.0
	20°18.0	20°17.5	20°17.0	20°16.5	20°16.0	20°15.5	20°09.0	20°08.5	20°08.0	20°07.5	20°07.0	20°06.5	-0.5
di 23	178°22.3	193°22.2	208°22.2	223°22.2	238°22.2	253°22.2	88°22.0	103°21.9	118°21.9	133°21.9	148°21.9	163°21.9	-0.0
	20°06.0	20°05.4	20°04.9	20°04.4	20°03.9	20°03.4	19°56.7	19°56.2	19°55.7	19°55.1	19°54.6	19°54.1	-0.5
wo 24	178°21.9	193°21.9	208°21.8	223°21.8	238°21.8	253°21.8	88°21.7	103°21.7	118°21.7	133°21.6	148°21.6	163°21.6	-0.0
	19°53.6	19°53.0	19°52.5	19°52.0	19°51.5	19°51.0	19°44.1	19°43.5	19°43.0	19°42.5	19°41.9	19°41.4	-0.5
do 25	178°21.6	193°21.6	208°21.6	223°21.6	238°21.6	253°21.6	88°21.5	103°21.5	118°21.5	133°21.5	148°21.5	163°21.5	-0.0
	19°40.9	19°40.3	19°39.8	19°39.2	19°38.7	19°38.2	19°31.1	19°30.6	19°30.0	19°29.5	19°28.9	19°28.4	-0.5
vr 26	178°21.5	193°21.5	208°21.5	223°21.5	238°21.5	253°21.5	88°21.5	103°21.5	118°21.5	133°21.5	148°21.5	163°21.6	-0.0
	19°27.8	19°27.3	19°26.7	19°26.2	19°25.6	19°25.1	19°17.8	19°17.3	19°16.7	19°16.1	19°15.6	19°15.0	-0.6
za 27	178°21.6	193°21.6	208°21.6	223°21.6	238°21.6	253°21.6	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	+0.0
	19°14.5	19°13.9	19°13.3	19°12.8	19°12.2	19°11.6	19°04.2	19°03.6	19°03.1	19°02.5	19°01.9	19°01.3	-0.6
zo 28	178°21.7	193°21.8	208°21.8	223°21.8	238°21.8	253°21.8	88°22.0	103°22.0	118°22.0	133°22.0	148°22.1	163°22.1	+0.0
	19°00.8	19°00.2	18°59.6	18°59.0	18°58.5	18°57.9	18°50.3	18°49.7	18°49.1	18°48.5	18°48.0	18°47.4	-0.6
ma 29	178°22.1	193°22.1	208°22.1	223°22.1	238°22.2	253°22.2	88°22.4	103°22.5	118°22.5	133°22.5	148°22.5	163°22.6	+0.0
	18°46.8	18°46.2	18°45.6	18°45.0	18°44.4	18°43.8	18°36.1	18°35.5	18°34.9	18°34.3	18°33.7	18°33.1	-0.6
di 30	178°22.6	193°22.6	208°22.6	223°22.6	238°22.7	253°22.7	88°23.0	103°23.1	118°23.1	133°23.1	148°23.2	163°23.2	+0.0
	18°32.5	18°31.9	18°31.3	18°30.7	18°30.1	18°29.4	18°21.5	18°20.9	18°20.3	18°19.7	18°19.1	18°18.5	-0.6
wo 31	178°23.2	193°23.2	208°23.3	223°23.3	238°23.3	253°23.4	88°23.8	103°23.8	118°23.9	133°23.9	148°23.9	163°24.0	+0.0
	18°17.9	18°17.2	18°16.6	18°16.0	18°15.4	18°14.8	18°06.7	18°06.1	18°05.5	18°04.8	18°04.2	18°03.6	-0.6

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\mathrm{h} = v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), $\Delta'/\mathrm{h} = d$: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2030

D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
ma 1	50°09.9	64°40.7	79°11.6	93°42.4	108°13.3	122°44.2	137°15.2	151°46.2	166°17.2	180°48.2	195°19.2	+30.9	15.0
	19°23.5	19°17.0	19°10.5	19°03.8	18°57.1	18°50.3	18°43.4	18°36.4	18°29.3	18°22.1	18°14.8	-6.9	54.8
di 2	53°08.2	67°39.7	82°11.2	96°42.7	111°14.3	125°45.9	140°17.5	154°49.2	169°20.8	183°52.5	198°24.2	+31.6	15.1
	16°15.2	16°06.6	15°57.8	15°49.1	15°40.2	15°31.2	15°22.2	15°13.1	15°03.9	14°54.7	14°45.4	-9.0	55.3
wo 3	56°23.0	70°55.1	85°27.2	99°59.3	114°31.5	129°03.6	143°35.8	158°08.0	172°40.2	187°12.5	201°44.7	+32.2	15.2
	12°17.1	12°06.7	11°56.2	11°45.7	11°35.1	11°24.5	11°13.8	11°03.0	10°52.2	10°41.3	10°30.3	-10.7	55.7
do 4	59°50.0	74°22.4	88°54.9	103°27.3	117°59.7	132°32.2	147°04.6	161°37.1	176°09.5	190°42.0	205°14.4	+32.4	15.3
	7°40.2	7°28.4	7°16.7	7°04.9	6°53.0	6°41.1	6°29.2	6°17.3	6°05.3	5°53.2	5°41.2	-11.9	56.3
vr 5	63°20.4	77°52.8	92°25.1	106°57.4	121°29.6	136°01.9	150°34.1	165°06.3	179°38.5	194°10.7	208°42.9	+32.2	15.5
	2°36.4	2°23.9	2°11.3	1°58.8	1°46.2	1°33.6	1°21.0	1°08.3	0°55.7	0°43.0	0°30.3	-12.6	56.9
za 6	66°41.8	81°13.5	95°45.1	110°16.7	124°48.2	139°19.7	153°51.2	168°22.6	182°54.0	197°25.3	211°56.6	+31.5	15.7
	-2°40.9	-2°53.7	-3°06.4	-3°19.2	-3°32.0	-3°44.7	-3°57.5	-4°10.2	-4°22.9	-4°35.7	-4°48.4	-12.8	57.5
zo 7	69°39.5	84°09.9	98°40.3	113°10.5	127°40.7	142°10.9	156°40.9	171°10.9	185°40.9	200°10.8	214°40.6	+30.1	15.9
	-7°56.9	-8°09.3	-8°21.7	-8°34.0	-8°46.3	-8°58.5	-9°10.7	-9°22.9	-9°35.1	-9°47.2	-9°59.2	-12.2	58.2
◐ ma 8	71°58.5	86°27.1	100°55.5	115°23.9	129°52.2	144°20.5	158°48.6	173°16.6	187°44.6	202°12.5	216°40.3	+28.2	16.1
	-12°54.4	-13°05.6	-13°16.8	-13°27.9	-13°38.9	-13°49.9	-14°00.8	-14°11.6	-14°22.4	-14°33.1	-14°43.7	-10.9	58.9
di 9	86°27.1	100°55.5	115°23.9	129°52.2	144°20.5	158°48.6	173°16.6	187°44.6	202°12.5	216°40.3	231°08.0	+28.1	16.1
	-13°05.6	-13°16.8	-13°27.9	-13°38.9	-13°49.9	-14°00.8	-14°11.6	-14°22.4	-14°33.1	-14°43.7	-14°54.2	-10.9	58.9
wo 10	87°52.6	102°18.9	116°45.0	131°11.1	145°37.1	160°03.0	174°28.8	188°54.5	203°20.1	217°45.6	232°11.0	+25.8	16.2
	-17°22.1	-17°31.2	-17°40.2	-17°49.1	-17°57.9	-18°06.6	-18°15.2	-18°23.7	-18°32.0	-18°40.3	-18°48.4	-8.6	59.6
do 11	88°22.0	102°46.0	117°10.0	131°34.0	145°57.8	160°21.6	174°45.2	189°08.9	203°32.4	217°55.9	232°19.3	+23.7	16.4
	-20°35.9	-20°42.0	-20°48.0	-20°53.8	-20°59.5	-21°05.1	-21°10.5	-21°15.8	-21°20.9	-21°25.9	-21°30.8	-5.5	60.1
vr 12	88°03.4	102°26.0	116°48.5	131°10.9	145°33.4	159°55.8	174°18.2	188°40.5	203°02.8	217°25.1	231°47.4	+22.4	16.5
	-22°24.9	-22°27.3	-22°29.5	-22°31.5	-22°33.3	-22°35.0	-22°36.5	-22°37.9	-22°39.1	-22°40.1	-22°41.0	-1.6	60.4
za 13	87°20.5	101°42.7	116°05.0	130°27.2	144°49.5	159°11.8	173°34.2	187°56.5	202°18.9	216°41.4	231°03.8	+22.3	16.5
	-22°33.8	-22°32.0	-22°30.0	-22°27.9	-22°25.6	-22°23.1	-22°20.4	-22°17.6	-22°14.7	-22°11.5	-22°08.2	+2.6	60.5
zo 14	86°46.0	101°09.3	115°32.6	129°56.0	144°19.4	158°42.9	173°06.5	187°30.2	201°53.9	216°17.7	230°41.6	+23.6	16.5
	-20°59.8	-20°54.0	-20°48.1	-20°42.0	-20°35.8	-20°29.4	-20°22.9	-20°16.3	-20°09.5	-20°02.6	-19°55.5	+6.4	60.4
○ ma 15	86°49.6	101°14.9	115°40.2	130°05.6	144°31.1	158°56.7	173°22.4	187°48.1	202°14.0	216°40.0	231°06.0	+25.6	16.3
	-17°54.3	-17°45.3	-17°36.1	-17°26.9	-17°17.5	-17°08.1	-16°58.5	-16°48.8	-16°39.1	-16°29.2	-16°19.2	+9.5	59.9
di 16	87°48.0	102°15.6	116°43.2	131°10.9	145°38.7	160°06.6	174°34.6	189°02.7	203°30.9	217°59.2	232°27.5	+28.0	16.1
	-13°39.4	-13°28.1	-13°16.8	-13°05.4	-12°53.9	-12°42.3	-12°30.7	-12°19.1	-12°07.4	-11°55.6	-11°43.8	+11.6	59.2
wo 17	89°43.0	104°12.7	118°42.4	133°12.3	147°42.2	162°12.1	176°42.2	191°12.3	205°42.5	220°12.8	234°43.1	+30.0	15.9
	-8°40.8	-8°28.3	-8°15.8	-8°03.2	-7°50.6	-7°38.0	-7°25.4	-7°12.7	-7°00.0	-6°47.3	-6°34.6	+12.6	58.4
do 18	92°26.1	106°57.4	121°28.8	136°00.3	150°31.8	165°03.3	179°34.9	194°06.6	208°38.3	223°10.0	237°41.8	+31.6	15.7
	-3°22.5	-3°09.7	-2°56.9	-2°44.0	-2°31.2	-2°18.4	-2°05.5	-1°52.7	-1°39.9	-1°27.1	-1°14.3	+12.8	57.5
vr 19	95°43.8	110°16.2	124°48.7	139°21.1	153°53.7	168°26.2	182°58.8	197°31.4	212°04.0	226°36.6	241°09.3	+32.6	15.4
	1°55.5	2°08.0	2°20.5	2°32.9	2°45.3	2°57.7	3°10.1	3°22.4	3°34.7	3°46.9	3°59.1	+12.4	56.6
za 20	99°21.5	113°54.4	128°27.4	143°00.3	157°33.3	172°06.2	186°39.2	201°12.1	215°45.1	230°18.1	244°51.1	+33.0	15.2
	6°58.1	7°09.7	7°21.2	7°32.8	7°44.2	7°55.6	8°07.0	8°18.3	8°29.6	8°40.8	8°52.0	+11.4	55.8
zo 21	103°05.5	117°38.5	132°11.4	146°44.3	161°17.2	175°50.0	190°22.9	204°55.8	219°28.6	234°01.4	248°34.2	+32.9	15.0
	11°33.2	11°43.5	11°53.7	12°03.9	12°14.0	12°24.1	12°34.1	12°44.0	12°53.9	13°03.7	13°13.4	+10.0	55.1
◑ ma 22	106°44.4	121°16.9	135°49.4	150°21.8	164°54.3	179°26.7	193°59.1	208°31.5	223°03.8	237°36.1	252°08.4	+32.4	14.9
	15°31.3	15°39.9	15°48.5	15°56.9	16°05.3	16°13.7	16°21.9	16°30.1	16°38.2	16°46.2	16°54.2	+8.3	54.6
di 23	110°09.6	124°41.5	139°13.3	153°45.1	168°16.9	182°48.6	197°20.3	211°52.0	226°23.6	240°55.2	255°26.8	+31.7	14.8
	18°43.8	18°50.5	18°57.0	19°03.5	19°09.9	19°16.2	19°22.4	19°28.5	19°34.6	19°40.5	19°46.4	+6.3	54.3
wo 24	113°17.0	127°48.1	142°19.2	156°50.2	171°21.3	185°52.2	200°23.2	214°54.2	229°25.1	243°56.0	258°26.8	+31.0	14.8
	21°03.2	21°07.6	21°11.9	21°16.0	21°20.1	21°24.1	21°28.0	21°31.8	21°35.5	21°39.1	21°42.5	+3.9	54.1
do 25	116°06.8	130°37.3	145°07.7	159°38.2	174°08.6	188°39.0	203°09.4	217°39.8	232°10.1	246°40.5	261°10.8	+30.4	14.8
	22°22.8	22°24.6	22°26.4	22°28.0	22°29.6	22°31.0	22°32.3	22°33.6	22°34.7	22°35.7	22°36.6	+1.4	54.1
vr 26	118°44.1	133°14.2	147°44.3	162°14.4	176°44.6	191°14.7	205°44.8	220°14.9	234°45.0	249°15.1	263°45.2	+30.1	14.8
	22°37.5	22°36.7	22°35.7	22°34.7	22°33.6	22°32.4	22°31.0	22°29.6	22°28.0	22°26.3	22°24.6	-1.3	54.3
za 27	121°17.0	135°47.1	150°17.3	164°47.5	179°17.6	193°47.8	208°18.0	222°48.2	237°18.5	251°48.7	266°19.0	+30.2	14.9
	21°45.0	21°41.5	21°37.9	21°34.2	21°30.4	21°26.5	21°22.4	21°18.3	21°14.1	21°09.8	21°05.3	-4.0	54.6
zo 28	123°54.5	138°25.0	152°55.5	167°26.1	181°56.6	196°27.2	210°57.8	225°28.4	239°59.1	254°29.8	269°00.5	+30.6	15.0
	19°46.5	19°40.4	19°34.3	19°28.0	19°21.7	19°15.2	19°08.7	19°02.0	18°55.3	18°48.5	18°41.6	-6.5	55.0
ma 29	126°43.5	141°14.5	155°45.6	170°16.7	184°47.8	199°19.0	213°50.2	228°21.4	242°52.6	257°23.8	271°55.1	+31.2	15.1
	16°46.8	16°38.5	16°30.0	16°21.5	16°12.9	16°04.2	15°55.5	15°46.6	15°37.7	15°28.7	15°19.6	-8.7	55.5
● di 30	129°46.7	144°18.3	158°49.9	173°21.6	187°53.2	202°24.9	216°56.6	231°28.3	246°00.1	260°31.8	275°03.6	+31.7	15.3
	12°54.3	12°44.1	12°33.7	12°23.3	12°12.9	12°02.4	11°51.8	11°41.2	11°30.5	11°19.7	11°08.9	-10.5	56.0
wo 31	133°01.8	147°33.8	162°05.8	176°37.8	191°09.8	205°41.8	220°13.8	234°45.8	249°17.8	263°49.9	278°21.9	+32.0	15.4
	8°19.9	8°08.2	7°56.5	7°44.7	7°32.9	7°21.1	7°09.2	6°57.2	6°45.3	6°33.2	6°21.2	-11.9	56.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 8 11h01 — VM: 15 02h12 — LK: 22 08h07 — NM: 30 11h11

ZON

Augustus 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	178°24.0	193°24.0	208°24.1	223°24.1	238°24.2	253°24.2	88°24.7	103°24.7	118°24.8	133°24.8	148°24.9	163°24.9	+0.0
	18°03.0	18°02.3	18°01.7	18°01.1	18°00.4	17°59.8	17°51.6	17°50.9	17°50.3	17°49.7	17°49.0	17°48.4	-0.6
vr 2	178°25.0	193°25.0	208°25.0	223°25.1	238°25.1	253°25.2	88°25.8	103°25.8	118°25.9	133°25.9	148°26.0	163°26.0	+0.0
	17°47.8	17°47.1	17°46.5	17°45.8	17°45.2	17°44.5	17°36.2	17°35.5	17°34.9	17°34.2	17°33.6	17°32.9	-0.6
za 3	178°26.1	193°26.1	208°26.2	223°26.2	238°26.3	253°26.3	88°27.0	103°27.0	118°27.1	133°27.1	148°27.2	163°27.3	+0.0
	17°32.3	17°31.6	17°31.0	17°30.3	17°29.7	17°29.0	17°20.5	17°19.8	17°19.1	17°18.5	17°17.8	17°17.1	-0.7
zo 4	178°27.3	193°27.4	208°27.4	223°27.5	238°27.5	253°27.6	88°28.4	103°28.4	118°28.5	133°28.5	148°28.6	163°28.7	+0.1
	17°16.5	17°15.8	17°15.2	17°14.5	17°13.8	17°13.2	17°04.5	17°03.8	17°03.1	17°02.5	17°01.8	17°01.1	-0.7
ma 5	178°28.7	193°28.8	208°28.8	223°28.9	238°29.0	253°29.0	88°29.9	103°30.0	118°30.0	133°30.1	148°30.2	163°30.2	+0.1
	17°00.4	16°59.8	16°59.1	16°58.4	16°57.7	16°57.1	16°48.2	16°47.5	16°46.8	16°46.2	16°45.5	16°44.8	-0.7
di 6	178°30.3	193°30.4	208°30.4	223°30.5	238°30.6	253°30.6	88°31.6	103°31.6	118°31.7	133°31.8	148°31.9	163°31.9	+0.1
	16°44.1	16°43.4	16°42.7	16°42.0	16°41.4	16°40.7	16°31.7	16°31.0	16°30.3	16°29.6	16°28.9	16°28.2	-0.7
wo 7	178°32.0	193°32.1	208°32.2	223°32.2	238°32.3	253°32.4	88°33.4	103°33.5	118°33.6	133°33.6	148°33.7	163°33.8	+0.1
	16°27.5	16°26.8	16°26.1	16°25.4	16°24.7	16°24.0	16°14.9	16°14.2	16°13.5	16°12.8	16°12.1	16°11.4	-0.7
do 8	178°33.9	193°34.0	208°34.0	223°34.1	238°34.2	253°34.3	88°35.4	103°35.5	118°35.6	133°35.6	148°35.7	163°35.8	+0.1
	16°10.7	16°09.9	16°09.2	16°08.5	16°07.8	16°07.1	15°57.8	15°57.1	15°56.4	15°55.7	15°55.0	15°54.3	-0.7
vr 9	178°35.9	193°36.0	208°36.1	223°36.2	238°36.3	253°36.3	88°37.5	103°37.6	118°37.7	133°37.8	148°37.9	163°38.0	+0.1
	15°53.5	15°52.8	15°52.1	15°51.4	15°50.7	15°49.9	15°40.5	15°39.8	15°39.1	15°38.4	15°37.6	15°36.9	-0.7
za 10	178°38.1	193°38.2	208°38.3	223°38.4	238°38.5	253°38.6	88°39.8	103°39.9	118°40.0	133°40.1	148°40.2	163°40.3	+0.1
	15°36.2	15°35.4	15°34.7	15°34.0	15°33.3	15°32.5	15°23.0	15°22.2	15°21.5	15°20.8	15°20.0	15°19.3	-0.7
zo 11	178°40.4	193°40.5	208°40.6	223°40.7	238°40.8	253°40.9	88°42.2	103°42.3	118°42.4	133°42.6	148°42.7	163°42.8	+0.1
	15°18.6	15°17.8	15°17.1	15°16.3	15°15.6	15°14.9	15°05.2	15°04.4	15°03.7	15°02.9	15°02.2	15°01.4	-0.7
ma 12	178°42.9	193°43.0	208°43.1	223°43.2	238°43.3	253°43.4	88°44.8	103°44.9	118°45.0	133°45.1	148°45.3	163°45.4	+0.1
	15°00.7	14°59.9	14°59.2	14°58.4	14°57.7	14°56.9	14°47.1	14°46.4	14°45.6	14°44.9	14°44.1	14°43.4	-0.7
di 13	178°45.5	193°45.6	208°45.7	223°45.8	238°45.9	253°46.0	88°47.5	103°47.6	118°47.8	133°47.9	148°48.0	163°48.1	+0.1
	14°42.6	14°41.8	14°41.1	14°40.3	14°39.6	14°38.8	14°28.9	14°28.1	14°27.3	14°26.6	14°25.8	14°25.0	-0.8
wo 14	178°48.2	193°48.3	208°48.5	223°48.6	238°48.7	253°48.8	88°50.4	103°50.5	118°50.6	133°50.7	148°50.9	163°51.0	+0.1
	14°24.3	14°23.5	14°22.7	14°22.0	14°21.2	14°20.4	14°10.4	14°09.6	14°08.8	14°08.0	14°07.3	14°06.5	-0.8
do 15	178°51.1	193°51.2	208°51.4	223°51.5	238°51.6	253°51.7	88°53.4	103°53.5	118°53.6	133°53.7	148°53.9	163°54.0	+0.1
	14°05.7	14°04.9	14°04.1	14°03.4	14°02.6	14°01.8	13°51.6	13°50.8	13°50.1	13°49.3	13°48.5	13°47.7	-0.8
vr 16	178°54.1	193°54.2	208°54.4	223°54.5	238°54.6	253°54.8	88°56.5	103°56.6	118°56.7	133°56.9	148°57.0	163°57.1	+0.1
	13°46.9	13°46.1	13°45.3	13°44.6	13°43.8	13°43.0	13°32.7	13°31.9	13°31.1	13°30.3	13°29.5	13°28.7	-0.8
za 17	178°57.3	193°57.4	208°57.5	223°57.7	238°57.8	253°57.9	88°59.7	103°59.8	119°00.0	134°00.1	149°00.3	164°00.4	+0.1
	13°27.9	13°27.1	13°26.3	13°25.5	13°24.7	13°23.9	13°13.5	13°12.7	13°11.9	13°11.1	13°10.3	13°09.5	-0.8
zo 18	179°00.5	194°00.7	209°00.8	224°00.9	239°01.1	254°01.2	89°03.1	104°03.2	119°03.3	134°03.5	149°03.6	164°03.8	+0.1
	13°08.7	13°07.9	13°07.1	13°06.3	13°05.5	13°04.7	12°54.1	12°53.3	12°52.5	12°51.7	12°50.9	12°50.1	-0.8
ma 19	179°03.9	194°04.1	209°04.2	224°04.4	239°04.5	254°04.6	89°06.5	104°06.7	119°06.8	134°07.0	149°07.1	164°07.3	+0.1
	12°49.3	12°48.4	12°47.6	12°46.8	12°46.0	12°45.2	12°34.6	12°33.7	12°32.9	12°32.1	12°31.3	12°30.4	-0.8
di 20	179°07.4	194°07.6	209°07.7	224°07.9	239°08.0	254°08.2	89°10.1	104°10.3	119°10.4	134°10.6	149°10.7	164°10.9	+0.1
	12°29.6	12°28.8	12°28.0	12°27.2	12°26.3	12°25.5	12°14.8	12°13.9	12°13.1	12°12.3	12°11.4	12°10.6	-0.8
wo 21	179°11.1	194°11.2	209°11.4	224°11.5	239°11.7	254°11.8	89°13.8	104°14.0	119°14.2	134°14.3	149°14.5	164°14.6	+0.2
	12°09.8	12°09.0	12°08.1	12°07.3	12°06.5	12°05.6	11°54.8	11°53.9	11°53.1	11°52.3	11°51.4	11°50.6	-0.8
do 22	179°14.8	194°14.9	209°15.1	224°15.3	239°15.4	254°15.6	89°17.7	104°17.8	119°18.0	134°18.1	149°18.3	164°18.5	+0.2
	11°49.8	11°48.9	11°48.1	11°47.2	11°46.4	11°45.6	11°34.6	11°33.8	11°32.9	11°32.1	11°31.2	11°30.4	-0.8
vr 23	179°18.6	194°18.8	209°19.0	224°19.1	239°19.3	254°19.5	89°21.6	104°21.8	119°21.9	134°22.1	149°22.3	164°22.4	+0.2
	11°29.5	11°28.7	11°27.8	11°27.0	11°26.2	11°25.3	11°14.3	11°13.4	11°12.6	11°11.7	11°10.8	11°10.0	-0.8
za 24	179°22.6	194°22.8	209°22.9	224°23.1	239°23.3	254°23.4	89°25.6	104°25.8	119°26.0	134°26.1	149°26.3	164°26.5	+0.2
	11°09.1	11°08.3	11°07.4	11°06.6	11°05.7	11°04.9	10°53.7	10°52.9	10°52.0	10°51.1	10°50.3	10°49.4	-0.9
zo 25	179°26.6	194°26.8	209°27.0	224°27.2	239°27.3	254°27.5	89°29.7	104°29.9	119°30.1	134°30.3	149°30.4	164°30.6	+0.2
	10°48.6	10°47.7	10°46.8	10°46.0	10°45.1	10°44.3	10°33.0	10°32.2	10°31.3	10°30.4	10°29.6	10°28.7	-0.9
ma 26	179°30.8	194°31.0	209°31.1	224°31.3	239°31.5	254°31.7	89°34.0	104°34.2	119°34.3	134°34.5	149°34.7	164°34.9	+0.2
	10°27.8	10°26.9	10°26.1	10°25.2	10°24.3	10°23.5	10°12.1	10°11.3	10°10.4	10°09.5	10°08.6	10°07.8	-0.9
di 27	179°35.0	194°35.2	209°35.4	224°35.6	239°35.8	254°35.9	89°38.3	104°38.5	119°38.7	134°38.8	149°39.0	164°39.2	+0.2
	10°06.9	10°06.0	10°05.1	10°04.3	10°03.4	10°02.5	9°51.1	9°50.2	9°49.3	9°48.5	9°47.6	9°46.7	-0.9
wo 28	179°39.4	194°39.6	209°39.8	224°39.9	239°40.1	254°40.3	89°42.7	104°42.9	119°43.1	134°43.3	149°43.5	164°43.6	+0.2
	9°45.8	9°44.9	9°44.1	9°43.2	9°42.3	9°41.4	9°29.9	9°29.0	9°28.1	9°27.3	9°26.4	9°25.5	-0.9
do 29	179°43.8	194°44.0	209°44.2	224°44.4	239°44.6	254°44.8	89°47.2	104°47.4	119°47.6	134°47.8	149°48.0	164°48.2	+0.2
	9°24.6	9°23.7	9°22.8	9°21.9	9°21.0	9°20.2	9°08.6	9°07.7	9°06.8	9°05.9	9°05.0	9°04.1	-0.9
vr 30	179°48.3	194°48.5	209°48.7	224°48.9	239°49.1	254°49.3	89°51.8	104°52.0	119°52.2	134°52.4	149°52.6	164°52.8	+0.2
	9°03.2	9°02.3	9°01.4	9°00.5	8°59.6	8°58.7	8°47.1	8°46.2	8°45.3	8°44.4	8°43.5	8°42.6	-0.9
za 31	179°53.0	194°53.1	209°53.3	224°53.5	239°53.7	254°53.9	89°56.5	104°56.7	119°56.9	134°57.1	149°57.2	164°57.4	+0.2
	8°41.7	8°40.8	8°39.9	8°39.0	8°38.1	8°37.2	8°25.5	8°24.6	8°23.6	8°22.7	8°21.8	8°20.9	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2030

D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
do 1	49°10.2	63°42.2	78°14.2	92°46.3	107°18.3	121°50.3	136°22.3	150°54.3	165°26.3	179°58.2	194°30.2	+32.0	15.5
	4°31.2	4°18.8	4°06.4	3°53.9	3°41.5	3°29.0	3°16.4	3°03.9	2°51.3	2°38.8	2°26.2	-12.5	56.9
vr 2	52°27.9	66°59.6	81°31.3	96°03.0	110°34.6	125°06.2	139°37.8	154°09.3	168°40.8	183°12.3	197°43.8	+31.6	15.6
	-0°44.7	-0°57.5	-1°10.3	-1°23.1	-1°35.9	-1°48.7	-2°01.5	-2°14.3	-2°27.1	-2°39.9	-2°52.7	-12.8	57.4
za 3	55°31.4	70°02.3	84°33.1	99°03.9	113°34.6	128°05.3	142°35.9	157°06.5	171°37.0	186°07.5	200°37.9	+30.7	15.8
	-6°03.1	-6°15.7	-6°28.2	-6°40.7	-6°53.2	-7°05.6	-7°18.0	-7°30.4	-7°42.8	-7°55.1	-8°07.4	-12.4	57.9
zo 4	58°07.7	72°37.2	87°06.6	101°36.0	116°05.3	130°34.6	145°03.7	159°32.9	174°01.9	188°30.9	202°59.8	+29.2	15.9
	-11°07.0	-11°18.6	-11°30.1	-11°41.6	-11°53.0	-12°04.4	-12°15.7	-12°27.0	-12°38.2	-12°49.3	-13°00.3	-11.3	58.4
ma 5	60°04.9	74°32.6	89°00.3	103°27.9	117°55.5	132°22.9	146°50.3	161°17.6	175°44.8	190°11.9	204°39.0	+27.4	16.0
	-15°37.6	-15°47.5	-15°57.2	-16°06.9	-16°16.5	-16°26.0	-16°35.4	-16°44.7	-16°53.9	-17°03.1	-17°12.1	-9.5	58.8
◐ di 6	61°15.9	75°41.8	90°07.6	104°33.3	118°58.9	133°24.5	147°50.0	162°15.5	176°40.8	191°06.1	205°31.4	+25.5	16.1
	-19°14.9	-19°22.2	-19°29.4	-19°36.5	-19°43.4	-19°50.2	-19°56.9	-20°03.5	-20°09.9	-20°16.3	-20°22.5	-6.8	59.2
wo 7	61°42.3	76°06.6	90°30.8	104°55.0	119°19.1	133°43.2	148°07.2	162°31.2	176°55.2	191°19.1	205°42.9	+24.1	16.2
	-21°39.2	-21°43.3	-21°47.1	-21°50.8	-21°54.4	-21°57.8	-22°01.1	-22°04.2	-22°07.2	-22°10.0	-22°12.7	-3.3	59.5
do 8	76°06.6	90°30.8	104°55.0	119°19.1	133°43.2	148°07.2	162°31.2	176°55.2	191°19.1	205°42.9	220°06.8	+24.0	16.2
	-21°43.3	-21°47.1	-21°50.8	-21°54.4	-21°57.8	-22°01.1	-22°04.2	-22°07.2	-22°10.0	-22°12.7	-22°15.2	-3.2	59.5
vr 9	76°00.8	90°24.3	104°47.7	119°11.1	133°34.6	147°58.0	162°21.4	176°44.8	191°08.2	205°31.7	219°55.1	+23.4	16.3
	-22°34.7	-22°34.8	-22°34.7	-22°34.4	-22°34.0	-22°33.5	-22°32.7	-22°31.8	-22°30.8	-22°29.6	-22°28.2	+0.6	59.7
za 10	75°48.3	90°12.1	104°35.8	118°59.6	133°23.5	147°47.4	162°11.3	176°35.3	190°59.3	205°23.3	219°47.5	+23.9	16.3
	-21°49.3	-21°45.5	-21°41.5	-21°37.4	-21°33.1	-21°28.7	-21°24.1	-21°19.4	-21°14.6	-21°09.6	-21°04.4	+4.5	59.7
zo 11	75°55.4	90°20.4	104°45.4	119°10.6	133°35.8	148°01.0	162°26.4	176°51.8	191°17.3	205°42.8	220°08.4	+25.3	16.2
	-19°30.7	-19°23.4	-19°16.0	-19°08.4	-19°00.7	-18°52.9	-18°45.0	-18°37.0	-18°28.8	-18°20.6	-18°12.2	+7.9	59.6
ma 12	76°41.6	91°08.4	105°35.3	120°02.3	134°29.4	148°56.5	163°23.7	177°51.0	192°18.4	206°45.8	221°13.3	+27.2	16.1
	-15°53.5	-15°43.4	-15°33.3	-15°23.1	-15°12.8	-15°02.4	-14°51.9	-14°41.4	-14°30.7	-14°20.0	-14°09.2	+10.4	59.2
○ di 13	78°15.2	92°43.9	107°12.7	121°41.6	136°10.5	150°39.5	165°08.6	179°37.8	194°07.0	208°36.3	223°05.6	+29.0	16.0
	-11°18.9	-11°07.0	-10°55.1	-10°43.2	-10°31.2	-10°19.1	-10°07.0	-9°54.9	-9°42.7	-9°30.5	-9°18.2	+12.1	58.7
wo 14	80°33.7	95°04.1	109°34.5	124°05.0	138°35.5	153°06.1	167°36.7	182°07.4	196°38.2	211°09.0	225°39.8	+30.6	15.8
	-6°10.2	-5°57.5	-5°44.8	-5°32.0	-5°19.2	-5°06.4	-4°53.6	-4°40.8	-4°28.0	-4°15.1	-4°02.3	+12.8	58.0
do 15	83°28.0	97°59.6	112°31.2	127°02.8	141°34.5	156°06.2	170°37.9	185°09.7	199°41.5	214°13.3	228°45.1	+31.7	15.6
	-0°49.4	-0°36.6	-0°23.8	-0°11.1	0°01.7	0°14.5	0°27.2	0°39.9	0°52.6	1°05.3	1°18.0	+12.7	57.3
vr 16	86°46.2	101°18.4	115°50.7	130°23.0	144°55.3	159°27.6	173°59.9	188°32.2	203°04.6	217°36.9	232°09.3	+32.3	15.4
	4°24.9	4°37.1	4°49.3	5°01.4	5°13.5	5°25.6	5°37.6	5°49.6	6°01.6	6°13.5	6°25.3	+12.0	56.5
za 17	90°15.9	104°48.3	119°20.8	133°53.3	148°25.7	162°58.2	177°30.7	192°03.1	206°35.6	221°08.0	235°40.5	+32.5	15.2
	9°17.7	9°28.8	9°39.8	9°50.8	10°01.7	10°12.6	10°23.4	10°34.1	10°44.8	10°55.4	11°06.0	+10.8	55.8
zo 18	93°46.3	108°18.6	122°50.9	137°23.1	151°55.4	166°27.6	180°59.9	195°32.1	210°04.3	224°36.5	239°08.6	+32.2	15.0
	13°36.9	13°46.4	13°55.9	14°05.2	14°14.6	14°23.8	14°33.0	14°42.1	14°51.1	15°00.0	15°08.9	+9.2	55.1
ma 19	97°08.9	111°40.7	126°12.6	140°44.4	155°16.2	169°48.0	184°19.7	198°51.4	213°23.1	227°54.8	242°26.5	+31.8	14.9
	17°12.7	17°20.4	17°27.9	17°35.3	17°42.7	17°50.0	17°57.2	18°04.3	18°11.3	18°18.3	18°25.1	+7.2	54.6
di 20	100°18.5	114°49.8	129°21.1	143°52.3	158°23.5	172°54.7	187°25.9	201°57.0	216°28.2	230°59.2	245°30.3	+31.2	14.8
	19°57.3	20°02.7	20°08.0	20°13.2	20°18.4	20°23.4	20°28.3	20°33.2	20°37.9	20°42.6	20°47.2	+5.0	54.3
◑ wo 21	103°13.8	117°44.6	132°15.3	146°46.0	161°16.7	175°47.3	190°18.0	204°48.6	219°19.2	233°49.8	248°20.4	+30.7	14.8
	21°43.9	21°46.8	21°49.7	21°52.5	21°55.2	21°57.8	22°00.2	22°02.6	22°04.9	22°07.0	22°09.1	+2.5	54.2
do 22	105°57.3	120°27.7	134°58.0	149°28.4	163°58.7	178°29.0	192°59.3	207°29.6	222°00.0	236°30.3	251°00.5	+30.3	14.8
	22°27.6	22°28.0	22°28.2	22°28.4	22°28.5	22°28.5	22°28.3	22°28.1	22°27.7	22°27.3	22°26.7	-0.1	54.3
vr 23	108°34.5	123°04.8	137°35.0	152°05.3	166°35.5	181°05.8	195°36.1	210°06.3	224°36.6	239°06.9	253°37.2	+30.3	14.9
	22°05.5	22°03.3	22°00.9	21°58.4	21°55.8	21°53.1	21°50.3	21°47.5	21°44.4	21°41.3	21°38.1	-2.7	54.5
za 24	111°12.4	125°42.8	140°13.2	154°43.7	169°14.1	183°44.6	198°15.1	212°45.6	227°16.1	241°46.6	256°17.1	+30.5	15.0
	20°37.5	20°32.6	20°27.6	20°22.6	20°17.4	20°12.1	20°06.7	20°01.3	19°55.7	19°50.0	19°44.3	-5.3	54.9
zo 25	113°56.9	128°27.7	142°58.5	157°29.3	172°00.2	186°31.0	201°01.9	215°32.7	230°03.6	244°34.5	259°05.5	+30.9	15.1
	18°06.1	17°58.8	17°51.5	17°44.0	17°36.4	17°28.8	17°21.0	17°13.2	17°05.2	16°57.2	16°49.1	-7.7	55.4
ma 26	116°51.4	131°22.5	145°53.7	160°25.0	174°56.2	189°27.4	203°58.7	218°29.9	233°01.2	247°32.5	262°03.8	+31.2	15.3
	14°37.5	14°28.0	14°18.5	14°08.9	13°59.3	13°49.6	13°39.8	13°29.9	13°19.9	13°09.9	12°59.8	-9.8	56.0
di 27	119°54.8	134°26.3	148°57.8	163°29.3	178°00.8	192°32.3	207°03.8	221°35.3	236°06.8	250°38.3	265°09.8	+31.5	15.4
	10°20.2	10°09.1	9°57.9	9°46.6	9°35.3	9°24.0	9°12.5	9°01.1	8°49.5	8°37.9	8°26.3	-11.4	56.6
● wo 28	123°02.7	137°34.2	152°05.6	166°37.1	181°08.6	195°40.1	210°11.5	224°43.0	239°14.4	253°45.8	268°17.3	+31.5	15.6
	5°26.2	5°13.8	5°01.5	4°49.1	4°36.6	4°24.1	4°11.6	3°59.1	3°46.5	3°33.9	3°21.3	-12.5	57.2
do 29	126°06.7	140°37.8	155°08.9	169°40.0	184°11.1	198°42.1	213°13.1	227°44.1	242°15.1	256°46.0	271°16.9	+31.0	15.8
	0°09.5	-0°03.4	-0°16.4	-0°29.3	-0°42.2	-0°55.2	-1°08.1	-1°21.1	-1°34.0	-1°47.0	-1°59.9	-12.9	57.8
vr 30	128°56.5	143°26.8	157°57.1	172°27.4	186°57.6	201°27.8	215°57.9	230°28.0	244°58.0	259°28.0	273°58.0	+30.2	15.9
	-5°13.2	-5°26.0	-5°38.8	-5°51.5	-6°04.2	-6°16.9	-6°29.5	-6°42.2	-6°54.8	-7°07.3	-7°19.9	-12.7	58.3
za 31	131°21.1	145°50.3	160°19.3	174°48.3	189°17.3	203°46.1	218°15.0	232°43.7	247°12.5	261°41.1	276°09.7	+28.9	16.0
	-10°23.2	-10°35.1	-10°46.8	-10°58.6	-11°10.3	-11°21.9	-11°33.5	-11°45.0	-11°56.4	-12°07.8	-12°19.1	-11.6	58.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 16h42 — VM: 13 10h44 — LK: 21 01h15 — NM: 28 23h07

ZON

September 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	179°57.6 8°20.0	194°57.8 8°19.1	209°58.0 8°18.2	224°58.2 8°17.3	239°58.4 8°16.4	254°58.6 8°15.5	90°01.2 8°03.7	105°01.4 8°02.8	120°01.6 8°01.9	135°01.8 8°01.0	150°02.0 8°00.1	165°02.2 7°59.1	+0.2 -0.9
ma 2	180°02.4 7°58.2	195°02.6 7°57.3	210°02.8 7°56.4	225°03.0 7°55.5	240°03.2 7°54.6	255°03.4 7°53.7	90°06.0 7°41.8	105°06.2 7°40.9	120°06.4 7°40.0	135°06.6 7°39.1	150°06.8 7°38.1	165°07.0 7°37.2	+0.2 -0.9
di 3	180°07.3 7°36.3	195°07.5 7°35.4	210°07.7 7°34.5	225°07.9 7°33.6	240°08.1 7°32.6	255°08.3 7°31.7	90°10.9 7°19.8	105°11.1 7°18.9	120°11.3 7°18.0	135°11.5 7°17.0	150°11.8 7°16.1	165°12.0 7°15.2	+0.2 -0.9
wo 4	180°12.2 7°14.3	195°12.4 7°13.3	210°12.6 7°12.4	225°12.8 7°11.5	240°13.0 7°10.6	255°13.2 7°09.7	90°15.9 6°57.7	105°16.1 6°56.7	120°16.3 6°55.8	135°16.5 6°54.9	150°16.7 6°54.0	165°16.9 6°53.0	+0.2 -0.9
do 5	180°17.1 6°52.1	195°17.4 6°51.2	210°17.6 6°50.3	225°17.8 6°49.3	240°18.0 6°48.4	255°18.2 6°47.5	90°20.9 6°35.4	105°21.1 6°34.5	120°21.3 6°33.6	135°21.6 6°32.6	150°21.8 6°31.7	165°22.0 6°30.8	+0.2 -0.9
vr 6	180°22.2 6°29.8	195°22.4 6°28.9	210°22.6 6°28.0	225°22.8 6°27.1	240°23.0 6°26.1	255°23.2 6°25.2	90°26.0 6°13.1	105°26.2 6°12.1	120°26.4 6°11.2	135°26.6 6°10.3	150°26.9 6°09.3	165°27.1 6°08.4	+0.2 -0.9
za 7	180°27.3 6°07.5	195°27.5 6°06.5	210°27.7 6°05.6	225°27.9 6°04.7	240°28.1 6°03.7	255°28.4 6°02.8	90°31.1 5°50.6	105°31.4 5°49.7	120°31.6 5°48.8	135°31.8 5°47.8	150°32.0 5°46.9	165°32.2 5°45.9	+0.2 -0.9
zo 8	180°32.4 5°45.0	195°32.7 5°44.1	210°32.9 5°43.1	225°33.1 5°42.2	240°33.3 5°41.2	255°33.5 5°40.3	90°36.3 5°28.1	105°36.6 5°27.1	120°36.8 5°26.2	135°37.0 5°25.3	150°37.2 5°24.3	165°37.4 5°23.4	+0.2 -0.9
ma 9	180°37.6 5°22.4	195°37.9 5°21.5	210°38.1 5°20.5	225°38.3 5°19.6	240°38.5 5°18.7	255°38.7 5°17.7	90°41.6 5°05.5	105°41.8 5°04.5	120°42.0 5°03.6	135°42.2 5°02.6	150°42.4 5°01.7	165°42.7 5°00.7	+0.2 -0.9
di 10	180°42.9 4°59.8	195°43.1 4°58.8	210°43.3 4°57.9	225°43.5 4°56.9	240°43.8 4°56.0	255°44.0 4°55.0	90°46.8 4°42.7	105°47.1 4°41.8	120°47.3 4°40.8	135°47.5 4°39.9	150°47.7 4°38.9	165°47.9 4°38.0	+0.2 -0.9
wo 11	180°48.2 4°37.0	195°48.4 4°36.1	210°48.6 4°35.1	225°48.8 4°34.2	240°49.0 4°33.2	255°49.3 4°32.3	90°52.1 4°19.9	105°52.4 4°19.0	120°52.6 4°18.0	135°52.8 4°17.1	150°53.0 4°16.1	165°53.2 4°15.2	+0.2 -0.9
do 12	180°53.5 4°14.2	195°53.7 4°13.3	210°53.9 4°12.3	225°54.1 4°11.4	240°54.4 4°10.4	255°54.6 4°09.5	90°57.5 3°57.1	105°57.7 3°56.1	120°57.9 3°55.1	135°58.1 3°54.2	150°58.4 3°53.2	165°58.6 3°52.3	+0.2 -1.0
vr 13	180°58.8 3°51.3	195°59.0 3°50.4	210°59.3 3°49.4	225°59.5 3°48.5	240°59.7 3°47.5	255°59.9 3°46.5	91°02.8 3°34.1	106°03.0 3°33.2	121°03.3 3°32.2	136°03.5 3°31.2	151°03.7 3°30.3	166°03.9 3°29.3	+0.2 -1.0
za 14	181°04.2 3°28.4	196°04.4 3°27.4	211°04.6 3°26.4	226°04.8 3°25.5	241°05.1 3°24.5	256°05.3 3°23.6	91°08.2 3°11.1	106°08.4 3°10.1	121°08.6 3°09.2	136°08.9 3°08.2	151°09.1 3°07.3	166°09.3 3°06.3	+0.2 -1.0
zo 15	181°09.5 3°05.3	196°09.8 3°04.4	211°10.0 3°03.4	226°10.2 3°02.5	241°10.4 3°01.5	256°10.6 3°00.5	91°13.6 2°48.0	106°13.8 2°47.1	121°14.0 2°46.1	136°14.2 2°45.1	151°14.5 2°44.2	166°14.7 2°43.2	+0.2 -1.0
ma 16	181°14.9 2°42.2	196°15.1 2°41.3	211°15.4 2°40.3	226°15.6 2°39.4	241°15.8 2°38.4	256°16.0 2°37.4	91°18.9 2°24.9	106°19.2 2°23.9	121°19.4 2°23.0	136°19.6 2°22.0	151°19.8 2°21.0	166°20.1 2°20.1	+0.2 -1.0
di 17	181°20.3 2°19.1	196°20.5 2°18.1	211°20.7 2°17.2	226°21.0 2°16.2	241°21.2 2°15.2	256°21.4 2°14.3	91°24.3 2°01.7	106°24.5 2°00.8	121°24.8 1°59.8	136°25.0 1°58.8	151°25.2 1°57.9	166°25.4 1°56.9	+0.2 -1.0
wo 18	181°25.7 1°55.9	196°25.9 1°55.0	211°26.1 1°54.0	226°26.3 1°53.0	241°26.6 1°52.1	256°26.8 1°51.1	91°29.7 1°38.5	106°29.9 1°37.5	121°30.1 1°36.6	136°30.4 1°35.6	151°30.6 1°34.6	166°30.8 1°33.7	+0.2 -1.0
do 19	181°31.0 1°32.7	196°31.2 1°31.7	211°31.5 1°30.8	226°31.7 1°29.8	241°31.9 1°28.8	256°32.1 1°27.8	91°35.0 1°15.2	106°35.3 1°14.3	121°35.5 1°13.3	136°35.7 1°12.3	151°35.9 1°11.4	166°36.2 1°10.4	+0.2 -1.0
vr 20	181°36.4 1°09.4	196°36.6 1°08.5	211°36.8 1°07.5	226°37.0 1°06.5	241°37.3 1°05.5	256°37.5 1°04.6	91°40.4 0°51.9	106°40.6 0°51.0	121°40.8 0°50.0	136°41.0 0°49.0	151°41.3 0°48.1	166°41.5 0°47.1	+0.2 -1.0
za 21	181°41.7 0°46.1	196°41.9 0°45.2	211°42.2 0°44.2	226°42.4 0°43.2	241°42.6 0°42.2	256°42.8 0°41.3	91°45.7 0°28.6	106°45.9 0°27.7	121°46.1 0°26.7	136°46.4 0°25.7	151°46.6 0°24.7	166°46.8 0°23.8	+0.2 -1.0
zo 22	181°47.0 0°22.8	196°47.2 0°21.8	211°47.5 0°20.9	226°47.7 0°19.9	241°47.9 0°18.9	256°48.1 0°17.9	91°51.0 0°05.3	106°51.2 0°04.3	121°51.4 0°03.3	136°51.6 0°02.4	151°51.9 0°01.4	166°52.1 0°00.4	+0.2 -1.0
ma 23	181°52.3 -0°00.5	196°52.5 -0°01.5	211°52.7 -0°02.5	226°53.0 -0°03.5	241°53.2 -0°04.4	256°53.4 -0°05.4	91°56.2 -0°18.1	106°56.5 -0°19.0	121°56.7 -0°20.0	136°56.9 -0°21.0	151°57.1 -0°22.0	166°57.3 -0°22.9	+0.2 -1.0
di 24	181°57.6 -0°23.9	196°57.8 -0°24.9	211°58.0 -0°25.9	226°58.2 -0°26.8	241°58.4 -0°27.8	256°58.6 -0°28.8	92°01.5 -0°41.4	107°01.7 -0°42.4	122°01.9 -0°43.4	137°02.1 -0°44.4	152°02.3 -0°45.3	167°02.5 -0°46.3	+0.2 -1.0
wo 25	182°02.8 -0°47.3	197°03.0 -0°48.2	212°03.2 -0°49.2	227°03.4 -0°50.2	242°03.6 -0°51.2	257°03.8 -0°52.1	92°06.6 -1°04.8	107°06.9 -1°05.8	122°07.1 -1°06.7	137°07.3 -1°07.7	152°07.5 -1°08.7	167°07.7 -1°09.7	+0.2 -1.0
do 26	182°07.9 -1°10.6	197°08.1 -1°11.6	212°08.4 -1°12.6	227°08.6 -1°13.6	242°08.8 -1°14.5	257°09.0 -1°15.5	92°11.8 -1°28.2	107°12.0 -1°29.1	122°12.2 -1°30.1	137°12.4 -1°31.1	152°12.6 -1°32.1	167°12.8 -1°33.0	+0.2 -1.0
vr 27	182°13.0 -1°34.0	197°13.3 -1°35.0	212°13.5 -1°36.0	227°13.7 -1°36.9	242°13.9 -1°37.9	257°14.1 -1°38.9	92°16.8 -1°51.5	107°17.1 -1°52.5	122°17.3 -1°53.5	137°17.5 -1°54.4	152°17.7 -1°55.4	167°17.9 -1°56.4	+0.2 -1.0
za 28	182°18.1 -1°57.4	197°18.3 -1°58.3	212°18.5 -1°59.3	227°18.7 -2°00.3	242°19.0 -2°01.3	257°19.2 -2°02.2	92°21.9 -2°14.9	107°22.1 -2°15.8	122°22.3 -2°16.8	137°22.5 -2°17.8	152°22.7 -2°18.8	167°22.9 -2°19.7	+0.2 -1.0
zo 29	182°23.1 -2°20.7	197°23.3 -2°21.7	212°23.5 -2°22.6	227°23.7 -2°23.6	242°24.0 -2°24.6	257°24.2 -2°25.6	92°26.8 -2°38.2	107°27.0 -2°39.2	122°27.3 -2°40.1	137°27.5 -2°41.1	152°27.7 -2°42.1	167°27.9 -2°43.0	+0.2 -1.0
ma 30	182°28.1 -2°44.0	197°28.3 -2°45.0	212°28.5 -2°46.0	227°28.7 -2°46.9	242°28.9 -2°47.9	257°29.1 -2°48.9	92°31.7 -3°01.5	107°32.0 -3°02.5	122°32.2 -3°03.4	137°32.4 -3°04.4	152°32.6 -3°05.4	167°32.8 -3°06.3	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2030

D	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
zo 1	60°52.2	75°20.1	89°47.9	104°15.7	118°43.4	133°11.1	147°38.7	162°06.2	176°33.6	191°01.0	205°28.3	+27.6	16.1
	-14°08.4	-14°19.0	-14°29.4	-14°39.7	-14°50.0	-15°00.2	-15°10.3	-15°20.3	-15°30.2	-15°40.1	-15°49.8	-10.1	58.9
ma 2	62°10.5	76°36.8	91°03.0	105°29.2	119°55.3	134°21.4	148°47.4	163°13.3	177°39.2	192°05.0	206°30.8	+26.0	16.1
	-18°04.2	-18°12.3	-18°20.3	-18°28.2	-18°36.0	-18°43.6	-18°51.2	-18°58.6	-19°05.9	-19°13.1	-19°20.2	-7.6	59.1
di 3	62°50.9	77°15.8	91°40.7	106°05.6	120°30.4	134°55.2	149°19.9	163°44.6	178°09.3	192°33.9	206°58.5	+24.8	16.1
	-20°51.0	-20°56.0	-21°00.9	-21°05.6	-21°10.2	-21°14.7	-21°19.0	-21°23.1	-21°27.2	-21°31.1	-21°34.8	-4.4	59.2
◐ wo 4	63°04.2	77°28.4	91°52.6	106°16.8	120°41.0	135°05.2	149°29.4	163°53.6	178°17.8	192°41.9	207°06.1	+24.2	16.1
	-22°13.6	-22°15.0	-22°16.2	-22°17.4	-22°18.3	-22°19.1	-22°19.8	-22°20.3	-22°20.6	-22°20.9	-22°20.9	-0.7	59.2
do 5	63°09.9	77°34.3	91°58.7	106°23.2	120°47.7	135°12.2	149°36.7	164°01.3	178°25.9	192°50.5	207°15.2	+24.5	16.1
	-22°03.9	-22°01.6	-21°59.1	-21°56.5	-21°53.7	-21°50.8	-21°47.8	-21°44.6	-21°41.3	-21°37.8	-21°34.2	+3.0	59.1
vr 6	77°34.3	91°58.7	106°23.2	120°47.7	135°12.2	149°36.7	164°01.3	178°25.9	192°50.5	207°15.2	221°39.9	+24.6	16.1
	-22°01.6	-21°59.1	-21°56.5	-21°53.7	-21°50.8	-21°47.8	-21°44.6	-21°41.3	-21°37.8	-21°34.2	-21°30.4	+3.1	59.1
za 7	77°55.8	92°21.3	106°46.8	121°12.4	135°38.0	150°03.7	164°29.4	178°55.2	193°21.1	207°47.0	222°13.0	+25.7	16.1
	-20°17.6	-20°11.7	-20°05.7	-19°59.5	-19°53.2	-19°46.8	-19°40.3	-19°33.6	-19°26.8	-19°19.9	-19°12.9	+6.5	58.9
zo 8	78°50.4	93°17.5	107°44.6	122°11.7	136°38.9	151°06.2	165°33.6	180°01.0	194°28.5	208°56.1	223°23.8	+27.3	16.0
	-17°14.0	-17°05.2	-16°56.4	-16°47.4	-16°38.3	-16°29.2	-16°19.9	-16°10.6	-16°01.1	-15°51.6	-15°42.0	+9.2	58.7
ma 9	80°26.5	94°55.2	109°24.0	123°52.8	138°21.7	152°50.7	167°19.7	181°48.8	196°18.0	210°47.2	225°16.5	+29.0	15.9
	-13°07.9	-12°57.0	-12°46.1	-12°35.1	-12°24.0	-12°12.9	-12°01.7	-11°50.5	-11°39.2	-11°27.8	-11°16.4	+11.2	58.3
di 10	82°43.0	97°13.2	111°43.5	126°13.8	140°44.1	155°14.6	169°45.0	184°15.6	198°46.1	213°16.7	227°47.4	+30.4	15.8
	-8°19.3	-8°07.1	-7°55.0	-7°42.8	-7°30.5	-7°18.3	-7°06.0	-6°53.6	-6°41.3	-6°28.9	-6°16.5	+12.3	57.9
○ wo 11	85°32.6	100°04.0	114°35.3	129°06.7	143°38.2	158°09.6	172°41.1	187°12.7	201°44.2	216°15.8	230°47.5	+31.5	15.6
	-3°08.4	-2°55.8	-2°43.2	-2°30.5	-2°17.9	-2°05.3	-1°52.6	-1°40.0	-1°27.4	-1°14.8	-1°02.1	+12.6	57.3
do 12	88°45.0	103°17.0	117°49.0	132°21.1	146°53.1	161°25.2	175°57.3	190°29.4	205°01.5	219°33.6	234°05.8	+32.1	15.5
	2°05.9	2°18.3	2°30.7	2°43.1	2°55.4	3°07.7	3°20.0	3°32.3	3°44.5	3°56.7	4°08.9	+12.3	56.7
vr 13	92°09.0	106°41.2	121°13.5	135°45.8	150°18.0	164°50.3	179°22.5	193°54.8	208°27.0	222°59.3	237°31.5	+32.3	15.3
	7°07.2	7°18.8	7°30.3	7°41.8	7°53.3	8°04.6	8°16.0	8°27.3	8°38.5	8°49.7	9°00.9	+11.4	56.1
za 14	95°34.7	110°06.8	124°38.9	139°11.1	153°43.2	168°15.3	182°47.4	197°19.4	211°51.5	226°23.5	240°55.6	+32.1	15.1
	11°41.4	11°51.6	12°01.8	12°11.9	12°21.9	12°31.9	12°41.8	12°51.6	13°01.4	13°11.1	13°20.7	+9.9	55.5
zo 15	98°54.3	113°26.1	127°57.8	142°29.6	157°01.3	171°33.0	186°04.7	200°36.4	215°08.0	229°39.6	244°11.3	+31.7	15.0
	15°36.5	15°45.0	15°53.3	16°01.6	16°09.8	16°18.0	16°26.0	16°34.0	16°41.9	16°49.7	16°57.4	+8.1	55.0
ma 16	102°03.1	116°34.4	131°05.7	145°37.0	160°08.2	174°39.4	189°10.6	203°41.8	218°13.0	232°44.1	247°15.3	+31.2	14.9
	18°43.0	18°49.3	18°55.6	19°01.7	19°07.8	19°13.8	19°19.7	19°25.4	19°31.1	19°36.7	19°42.2	+5.9	54.6
di 17	105°00.0	119°30.9	134°01.7	148°32.5	163°03.3	177°34.1	192°04.9	206°35.7	221°06.4	235°37.1	250°07.9	+30.8	14.8
	20°53.4	20°57.4	21°01.2	21°05.0	21°08.7	21°12.2	21°15.7	21°19.1	21°22.3	21°25.5	21°28.6	+3.5	54.3
wo 18	107°47.3	122°17.9	136°48.4	151°18.9	165°49.5	180°20.0	194°50.5	209°21.0	223°51.6	238°22.1	252°52.6	+30.5	14.8
	22°02.4	22°03.8	22°05.1	22°06.3	22°07.5	22°08.5	22°09.4	22°10.2	22°10.9	22°11.5	22°12.0	+1.0	54.2
◑ do 19	110°29.9	125°00.4	139°30.9	154°01.4	168°31.8	183°02.4	197°32.9	212°03.4	226°33.9	241°04.4	255°34.9	+30.5	14.8
	22°07.0	22°05.8	22°04.6	22°03.2	22°01.7	22°00.1	21°58.4	21°56.6	21°54.7	21°52.8	21°50.7	-1.6	54.3
vr 20	113°13.7	127°44.3	142°15.0	156°45.7	171°16.4	185°47.1	200°17.8	214°48.5	229°19.2	243°50.0	258°20.7	+30.7	14.9
	21°06.8	21°03.1	20°59.3	20°55.3	20°51.3	20°47.2	20°42.9	20°38.6	20°34.2	20°29.6	20°25.0	-4.2	54.5
za 21	116°03.6	130°34.6	145°05.6	159°36.6	174°07.6	188°38.6	203°09.7	217°40.7	232°11.8	246°42.9	261°14.0	+31.0	15.0
	19°03.9	18°57.8	18°51.5	18°45.1	18°38.7	18°32.2	18°25.5	18°18.8	18°12.0	18°05.1	17°58.1	-6.6	55.0
zo 22	119°02.1	133°33.4	148°04.7	162°36.1	177°07.4	191°38.8	206°10.1	220°41.5	235°12.9	249°44.3	264°15.7	+31.4	15.2
	16°02.6	15°54.2	15°45.8	15°37.2	15°28.6	15°19.9	15°11.1	15°02.2	14°53.3	14°44.2	14°35.1	-8.8	55.6
ma 23	122°07.8	136°39.3	151°10.8	165°42.4	180°13.9	194°45.4	209°17.0	223°48.5	238°20.0	252°51.6	267°23.1	+31.5	15.4
	12°09.5	11°59.2	11°48.8	11°38.4	11°27.9	11°17.4	11°06.8	10°56.1	10°45.3	10°34.5	10°23.7	-10.6	56.3
di 24	125°15.8	139°47.3	154°18.7	168°50.2	183°21.6	197°53.0	212°24.4	226°55.8	241°27.2	255°58.6	270°29.9	+31.4	15.6
	7°33.6	7°21.8	7°10.0	6°58.1	6°46.2	6°34.2	6°22.2	6°10.2	5°58.1	5°45.9	5°33.7	-12.0	57.1
wo 25	128°18.1	142°49.1	157°20.1	171°51.1	186°22.0	200°53.0	215°23.8	229°54.7	244°25.5	258°56.3	273°27.1	+30.9	15.8
	2°26.6	2°13.9	2°01.1	1°48.4	1°35.6	1°22.8	1°09.9	0°57.1	0°44.2	0°31.3	0°18.4	-12.8	57.9
do 26	131°04.3	145°34.5	160°04.6	174°34.6	189°04.7	203°34.6	218°04.6	232°34.5	247°04.3	261°34.1	276°03.8	+30.0	16.0
	-2°56.4	-3°09.4	-3°22.4	-3°35.4	-3°48.4	-4°01.3	-4°14.3	-4°27.3	-4°40.2	-4°53.1	-5°06.0	-13.0	58.6
● vr 27	133°23.4	147°52.3	162°21.1	176°49.8	191°18.5	205°47.1	220°15.7	234°44.2	249°12.6	263°40.9	278°09.2	+28.6	16.1
	-8°16.9	-8°29.4	-8°41.8	-8°54.2	-9°06.6	-9°18.9	-9°31.1	-9°43.3	-9°55.5	-10°07.6	-10°19.7	-12.3	59.2
za 28	135°05.9	149°33.1	164°00.3	178°27.4	192°54.5	207°21.4	221°48.3	236°15.2	250°41.9	265°08.6	279°35.3	+26.9	16.2
	-13°13.3	-13°24.3	-13°35.3	-13°46.2	-13°56.9	-14°07.6	-14°18.3	-14°28.8	-14°39.3	-14°49.6	-14°59.9	-10.7	59.6
zo 29	136°06.8	150°32.3	164°57.9	179°23.3	193°48.7	208°14.1	222°39.3	237°04.6	251°29.7	265°54.8	280°19.9	+25.3	16.3
	-17°22.3	-17°30.9	-17°39.4	-17°47.9	-17°56.2	-18°04.4	-18°12.4	-18°20.4	-18°28.2	-18°35.9	-18°43.5	-8.1	59.8
ma 30	150°32.3	164°57.9	179°23.3	193°48.7	208°14.1	222°39.3	237°04.6	251°29.7	265°54.8	280°19.9	294°44.9	+25.3	16.3
	-17°30.9	-17°39.4	-17°47.9	-17°56.2	-18°04.4	-18°12.4	-18°20.4	-18°28.2	-18°35.9	-18°43.5	-18°50.9	-8.0	59.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 4 21h55 — VM: 11 21h17 — LK: 19 19h56 — NM: 27 09h54

ZON

Oktober 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	182°33.0	197°33.2	212°33.4	227°33.6	242°33.8	257°34.0	92°36.6	107°36.8	122°37.0	137°37.2	152°37.4	167°37.6	+0.2
	-3°07.3	-3°08.3	-3°09.2	-3°10.2	-3°11.2	-3°12.1	-3°24.7	-3°25.7	-3°26.7	-3°27.6	-3°28.6	-3°29.6	-1.0
wo 2	182°37.8	197°38.0	212°38.2	227°38.4	242°38.6	257°38.8	92°41.4	107°41.6	122°41.8	137°41.9	152°42.1	167°42.3	+0.2
	-3°30.6	-3°31.5	-3°32.5	-3°33.5	-3°34.4	-3°35.4	-3°48.0	-3°48.9	-3°49.9	-3°50.9	-3°51.8	-3°52.8	-1.0
do 3	182°42.5	197°42.7	212°42.9	227°43.1	242°43.3	257°43.5	92°46.0	107°46.2	122°46.4	137°46.6	152°46.8	167°47.0	+0.2
	-3°53.8	-3°54.7	-3°55.7	-3°56.7	-3°57.6	-3°58.6	-4°11.1	-4°12.1	-4°13.1	-4°14.0	-4°15.0	-4°16.0	-1.0
vr 4	182°47.2	197°47.4	212°47.6	227°47.8	242°48.0	257°48.2	92°50.7	107°50.9	122°51.0	137°51.2	152°51.4	167°51.6	+0.2
	-4°16.9	-4°17.9	-4°18.9	-4°19.8	-4°20.8	-4°21.7	-4°34.3	-4°35.2	-4°36.2	-4°37.2	-4°38.1	-4°39.1	-1.0
za 5	182°51.8	197°52.0	212°52.2	227°52.4	242°52.6	257°52.7	92°55.2	107°55.4	122°55.6	137°55.7	152°55.9	167°56.1	+0.2
	-4°40.0	-4°41.0	-4°42.0	-4°42.9	-4°43.9	-4°44.8	-4°57.3	-4°58.3	-4°59.3	-5°00.2	-5°01.2	-5°02.1	-1.0
zo 6	182°56.3	197°56.5	212°56.7	227°56.9	242°57.1	257°57.2	92°59.6	107°59.8	123°00.0	138°00.2	153°00.4	168°00.5	+0.2
	-5°03.1	-5°04.1	-5°05.0	-5°06.0	-5°06.9	-5°07.9	-5°20.3	-5°21.3	-5°22.3	-5°23.2	-5°24.2	-5°25.1	-1.0
ma 7	183°00.7	198°00.9	213°01.1	228°01.3	243°01.4	258°01.6	93°04.0	108°04.1	123°04.3	138°04.5	153°04.7	168°04.9	+0.2
	-5°26.1	-5°27.0	-5°28.0	-5°28.9	-5°29.9	-5°30.9	-5°43.3	-5°44.2	-5°45.2	-5°46.1	-5°47.1	-5°48.0	-1.0
di 8	183°05.0	198°05.2	213°05.4	228°05.6	243°05.7	258°05.9	93°08.2	108°08.4	123°08.6	138°08.7	153°08.9	168°09.1	+0.2
	-5°49.0	-5°50.0	-5°50.9	-5°51.9	-5°52.8	-5°53.8	-6°06.1	-6°07.1	-6°08.0	-6°09.0	-6°09.9	-6°10.9	-1.0
wo 9	183°09.3	198°09.4	213°09.6	228°09.8	243°09.9	258°10.1	93°12.3	108°12.5	123°12.7	138°12.9	153°13.0	168°13.2	+0.2
	-6°11.8	-6°12.8	-6°13.7	-6°14.7	-6°15.6	-6°16.6	-6°28.9	-6°29.9	-6°30.8	-6°31.8	-6°32.7	-6°33.7	-1.0
do 10	183°13.4	198°13.5	213°13.7	228°13.9	243°14.0	258°14.2	93°16.4	108°16.5	123°16.7	138°16.9	153°17.0	168°17.2	+0.2
	-6°34.6	-6°35.5	-6°36.5	-6°37.4	-6°38.4	-6°39.3	-6°51.6	-6°52.6	-6°53.5	-6°54.4	-6°55.4	-6°56.3	-0.9
vr 11	183°17.4	198°17.5	213°17.7	228°17.8	243°18.0	258°18.2	93°20.3	108°20.4	123°20.6	138°20.7	153°20.9	168°21.1	+0.2
	-6°57.3	-6°58.2	-6°59.2	-7°00.1	-7°01.0	-7°02.0	-7°14.2	-7°15.2	-7°16.1	-7°17.0	-7°18.0	-7°18.9	-0.9
za 12	183°21.2	198°21.4	213°21.5	228°21.7	243°21.9	258°22.0	93°24.0	108°24.2	123°24.4	138°24.5	153°24.7	168°24.8	+0.2
	-7°19.8	-7°20.8	-7°21.7	-7°22.7	-7°23.6	-7°24.5	-7°36.7	-7°37.7	-7°38.6	-7°39.5	-7°40.5	-7°41.4	-0.9
zo 13	183°25.0	198°25.1	213°25.3	228°25.4	243°25.6	258°25.7	93°27.7	108°27.8	123°28.0	138°28.1	153°28.3	168°28.4	+0.2
	-7°42.3	-7°43.3	-7°44.2	-7°45.1	-7°46.1	-7°47.0	-7°59.1	-8°00.0	-8°01.0	-8°01.9	-8°02.8	-8°03.8	-0.9
ma 14	183°28.6	198°28.7	213°28.9	228°29.0	243°29.2	258°29.3	93°31.2	108°31.3	123°31.5	138°31.6	153°31.8	168°31.9	+0.1
	-8°04.7	-8°05.6	-8°06.6	-8°07.5	-8°08.4	-8°09.3	-8°21.4	-8°22.3	-8°23.3	-8°24.2	-8°25.1	-8°26.0	-0.9
di 15	183°32.1	198°32.2	213°32.3	228°32.5	243°32.6	258°32.8	93°34.6	108°34.7	123°34.9	138°35.0	153°35.1	168°35.3	+0.1
	-8°27.0	-8°27.9	-8°28.8	-8°29.7	-8°30.7	-8°31.6	-8°43.6	-8°44.5	-8°45.4	-8°46.3	-8°47.3	-8°48.2	-0.9
wo 16	183°35.4	198°35.5	213°35.7	228°35.8	243°35.9	258°36.1	93°37.8	108°37.9	123°38.1	138°38.2	153°38.3	168°38.5	+0.1
	-8°49.1	-8°50.0	-8°51.0	-8°51.9	-8°52.8	-8°53.7	-9°05.6	-9°06.6	-9°07.5	-9°08.4	-9°09.3	-9°10.2	-0.9
do 17	183°38.6	198°38.7	213°38.9	228°39.0	243°39.1	258°39.2	93°40.9	108°41.0	123°41.1	138°41.3	153°41.4	168°41.5	+0.1
	-9°11.1	-9°12.0	-9°13.0	-9°13.9	-9°14.8	-9°15.7	-9°27.6	-9°28.5	-9°29.4	-9°30.3	-9°31.2	-9°32.1	-0.9
vr 18	183°41.6	198°41.8	213°41.9	228°42.0	243°42.1	258°42.2	93°43.8	108°43.9	123°44.0	138°44.2	153°44.3	168°44.4	+0.1
	-9°33.0	-9°33.9	-9°34.8	-9°35.8	-9°36.7	-9°37.6	-9°49.4	-9°50.3	-9°51.2	-9°52.1	-9°53.0	-9°53.9	-0.9
za 19	183°44.5	198°44.6	213°44.7	228°44.9	243°45.0	258°45.1	93°46.6	108°46.7	123°46.8	138°46.9	153°47.0	168°47.1	+0.1
	-9°54.8	-9°55.7	-9°56.6	-9°57.5	-9°58.4	-9°59.3	-10°11.0	-10°11.9	-10°12.8	-10°13.7	-10°14.6	-10°15.5	-0.9
zo 20	183°47.2	198°47.4	213°47.5	228°47.6	243°47.7	258°47.8	93°49.2	108°49.3	123°49.4	138°49.5	153°49.6	168°49.7	+0.1
	-10°16.4	-10°17.3	-10°18.2	-10°19.1	-10°20.0	-10°20.9	-10°32.5	-10°33.4	-10°34.3	-10°35.2	-10°36.1	-10°37.0	-0.9
ma 21	183°49.8	198°49.9	213°50.0	228°50.1	243°50.2	258°50.3	93°51.6	108°51.7	123°51.8	138°51.9	153°52.0	168°52.1	+0.1
	-10°37.9	-10°38.7	-10°39.6	-10°40.5	-10°41.4	-10°42.3	-10°53.9	-10°54.7	-10°55.6	-10°56.5	-10°57.4	-10°58.3	-0.9
di 22	183°52.2	198°52.3	213°52.4	228°52.5	243°52.6	258°52.7	93°53.9	108°54.0	123°54.1	138°54.1	153°54.2	168°54.3	+0.1
	-10°59.2	-11°00.0	-11°00.9	-11°01.8	-11°02.7	-11°03.6	-11°15.0	-11°15.9	-11°16.8	-11°17.7	-11°18.5	-11°19.4	-0.9
wo 23	183°54.4	198°54.5	213°54.6	228°54.7	243°54.8	258°54.8	93°56.0	108°56.0	123°56.1	138°56.2	153°56.3	168°56.4	+0.1
	-11°20.3	-11°21.2	-11°22.1	-11°22.9	-11°23.8	-11°24.7	-11°36.1	-11°36.9	-11°37.8	-11°38.7	-11°39.5	-11°40.4	-0.9
do 24	183°56.5	198°56.5	213°56.6	228°56.7	243°56.8	258°56.9	93°57.9	108°57.9	123°58.0	138°58.1	153°58.2	168°58.2	+0.1
	-11°41.3	-11°42.1	-11°43.0	-11°43.9	-11°44.8	-11°45.6	-11°56.9	-11°57.8	-11°58.6	-11°59.5	-12°00.3	-12°01.2	-0.9
vr 25	183°58.3	198°58.4	213°58.5	228°58.5	243°58.6	258°58.7	93°59.6	108°59.7	123°59.7	138°59.8	153°59.9	168°59.9	+0.1
	-12°02.1	-12°02.9	-12°03.8	-12°04.7	-12°05.5	-12°06.4	-12°17.6	-12°18.4	-12°19.3	-12°20.1	-12°21.0	-12°21.8	-0.9
za 26	184°00.0	199°00.1	214°00.1	229°00.2	244°00.3	259°00.3	94°01.1	109°01.2	124°01.3	139°01.3	154°01.4	169°01.4	+0.1
	-12°22.7	-12°23.5	-12°24.4	-12°25.3	-12°26.1	-12°27.0	-12°38.0	-12°38.9	-12°39.7	-12°40.6	-12°41.4	-12°42.3	-0.9
zo 27	184°01.5	199°01.6	214°01.6	229°01.7	244°01.7	259°01.8	94°02.5	109°02.6	124°02.6	139°02.7	154°02.7	169°02.8	+0.1
	-12°43.1	-12°44.0	-12°44.8	-12°45.7	-12°46.5	-12°47.3	-12°58.3	-12°59.1	-13°00.0	-13°00.8	-13°01.7	-13°02.5	-0.8
ma 28	184°02.8	199°02.9	214°02.9	229°03.0	244°03.0	259°03.1	94°03.7	109°03.7	124°03.8	139°03.8	154°03.9	169°03.9	+0.1
	-13°03.3	-13°04.2	-13°05.0	-13°05.9	-13°06.7	-13°07.5	-13°18.4	-13°19.2	-13°20.0	-13°20.9	-13°21.7	-13°22.5	-0.8
di 29	184°03.9	199°04.0	214°04.0	229°04.1	244°04.1	259°04.2	94°04.7	109°04.7	124°04.7	139°04.8	154°04.8	169°04.8	+0.0
	-13°23.4	-13°24.2	-13°25.0	-13°25.8	-13°26.7	-13°27.5	-13°38.2	-13°39.1	-13°39.9	-13°40.7	-13°41.5	-13°42.3	-0.8
wo 30	184°04.9	199°04.9	214°05.0	229°05.0	244°05.0	259°05.1	94°05.5	109°05.5	124°05.5	139°05.5	154°05.6	169°05.6	+0.0
	-13°43.2	-13°44.0	-13°44.8	-13°45.6	-13°46.4	-13°47.3	-13°57.9	-13°58.7	-13°59.5	-14°00.3	-14°01.1	-14°01.9	-0.8
do 31	184°05.6	199°05.7	214°05.7	229°05.7	244°05.7	259°05.8	94°06.1	109°06.1	124°06.1	139°06.1	154°06.1	169°06.2	+0.0
	-14°02.8	-14°03.6	-14°04.4	-14°05.2	-14°06.0	-14°06.8	-14°17.3	-14°18.1	-14°18.9	-14°19.7	-14°20.5	-14°21.3	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2030

D	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
di 1	50°05.6	64°29.4	78°53.1	93°16.9	107°40.7	122°04.4	136°28.2	150°51.9	165°15.7	179°39.4	194°03.1	+23.8	16.3
	-21°40.9	-21°43.6	-21°46.2	-21°48.6	-21°50.8	-21°52.9	-21°54.8	-21°56.6	-21°58.3	-21°59.7	-22°01.1	-2.0	59.6
wo 2	50°00.6	64°24.6	78°48.7	93°12.7	107°36.8	122°00.9	136°25.1	150°49.2	165°13.5	179°37.7	194°02.0	+24.1	16.2
	-22°02.8	-22°01.7	-22°00.5	-21°59.1	-21°57.5	-21°55.8	-21°54.0	-21°52.0	-21°49.9	-21°47.6	-21°45.2	+1.8	59.4
do 3	50°12.2	64°37.3	79°02.5	93°27.7	107°53.0	122°18.4	136°43.8	151°09.2	165°34.8	180°00.4	194°26.1	+25.4	16.1
	-20°52.0	-20°47.4	-20°42.6	-20°37.7	-20°32.7	-20°27.5	-20°22.2	-20°16.8	-20°11.2	-20°05.6	-19°59.8	+5.2	59.0
◐ vr 4	50°59.5	65°26.3	79°53.1	94°20.1	108°47.1	123°14.2	137°41.4	152°08.6	166°35.9	181°03.3	195°30.8	+27.1	16.0
	-18°18.7	-18°11.1	-18°03.4	-17°55.5	-17°47.6	-17°39.6	-17°31.4	-17°23.2	-17°14.8	-17°06.4	-16°57.9	+8.1	58.5
za 5	52°31.6	67°00.2	81°28.9	95°57.7	110°26.5	124°55.4	139°24.4	153°53.5	168°22.6	182°51.8	197°21.0	+28.9	15.8
	-14°39.4	-14°39.4	-14°19.5	-14°09.5	-13°59.4	-13°49.2	-13°39.0	-13°28.7	-13°18.3	-13°07.8	-12°57.3	+10.2	58.1
zo 6	67°00.2	81°28.9	95°57.7	110°26.5	124°55.4	139°24.4	153°53.5	168°22.6	182°51.8	197°21.0	211°50.4	+29.0	15.8
	-14°29.5	-14°19.5	-14°09.5	-13°59.4	-13°49.2	-13°39.0	-13°28.7	-13°18.3	-13°07.8	-12°57.3	-12°46.7	+10.3	58.0
ma 7	69°17.9	83°48.2	98°18.6	112°49.0	127°19.5	141°50.0	156°20.6	170°51.3	185°22.0	199°52.7	214°23.5	+30.6	15.7
	-10°01.4	-9°49.9	-9°38.5	-9°27.0	-9°15.4	-9°03.8	-8°52.2	-8°40.5	-8°28.8	-8°17.1	-8°05.3	+11.6	57.6
di 8	72°11.2	86°42.7	101°14.3	115°45.9	130°17.5	144°49.2	159°20.9	173°52.6	188°24.4	202°56.2	217°28.0	+31.7	15.6
	-5°05.4	-4°53.2	-4°41.0	-4°28.9	-4°16.6	-4°04.4	-3°52.2	-3°39.9	-3°27.7	-3°15.4	-3°03.1	+12.2	57.1
wo 9	75°28.9	90°01.1	104°33.4	119°05.6	133°37.9	148°10.2	162°42.6	177°14.9	191°47.3	206°19.6	220°52.0	+32.3	15.4
	0°01.1	0°13.4	0°25.6	0°37.9	0°50.1	1°02.3	1°14.5	1°26.7	1°38.8	1°51.0	2°03.1	+12.2	56.5
do 10	78°58.9	93°31.4	108°03.9	122°36.4	137°08.9	151°41.4	166°13.9	180°46.4	195°18.9	209°51.4	224°23.9	+32.5	15.3
	5°02.5	5°14.2	5°26.0	5°37.6	5°49.3	6°00.9	6°12.5	6°24.0	6°35.5	6°47.0	6°58.4	+11.6	56.0
○ vr 11	82°30.5	97°02.9	111°35.2	126°07.6	140°39.9	155°12.2	169°44.5	184°16.8	198°49.1	213°21.4	227°53.6	+32.3	15.1
	9°44.5	9°55.2	10°05.8	10°16.4	10°26.9	10°37.4	10°47.8	10°58.2	11°08.5	11°18.7	11°28.9	+10.4	55.5
za 12	85°55.3	100°27.2	114°59.2	129°31.1	144°03.0	158°34.9	173°06.7	187°38.6	202°10.4	216°42.2	231°13.9	+31.9	15.0
	13°54.3	14°03.4	14°12.5	14°21.6	14°30.5	14°39.4	14°48.2	14°56.9	15°05.6	15°14.1	15°22.6	+8.8	55.1
zo 13	89°08.0	103°39.4	118°10.8	132°42.2	147°13.6	161°44.9	176°16.2	190°47.5	205°18.8	219°50.0	234°21.3	+31.3	14.9
	17°20.7	17°27.9	17°35.1	17°42.1	17°49.1	17°55.9	18°02.7	18°09.4	18°16.0	18°22.6	18°29.0	+6.8	54.7
ma 14	92°07.4	106°38.4	121°09.3	135°40.2	150°11.1	164°41.9	179°12.8	193°43.6	208°14.4	222°45.2	237°16.0	+30.9	14.8
	19°54.5	19°59.5	20°04.3	20°09.1	20°13.8	20°18.3	20°22.8	20°27.2	20°31.4	20°35.6	20°39.7	+4.5	54.3
di 15	94°56.4	109°27.0	123°57.6	138°28.2	152°58.8	167°29.4	182°00.0	196°30.6	211°01.2	225°31.7	240°02.3	+30.6	14.8
	21°28.9	21°31.4	21°33.8	21°36.1	21°38.2	21°40.3	21°42.3	21°44.1	21°45.9	21°47.6	21°49.1	+2.0	54.1
wo 16	97°40.7	112°11.3	126°41.9	141°12.4	155°43.0	170°13.6	184°44.2	199°14.8	213°45.5	228°16.1	242°46.7	+30.6	14.7
	22°00.1	22°00.0	21°59.8	21°59.5	21°59.1	21°58.6	21°58.0	21°57.3	21°56.5	21°55.6	21°54.6	-0.6	54.1
do 17	100°27.4	114°58.2	129°29.1	143°59.9	158°30.8	173°01.6	187°32.5	202°03.4	216°34.3	231°05.3	245°36.2	+30.9	14.8
	21°27.2	21°24.5	21°21.8	21°19.0	21°16.0	21°13.0	21°09.9	21°06.7	21°03.3	20°59.9	20°56.4	-3.1	54.2
vr 18	103°22.6	117°53.8	132°25.1	146°56.3	161°27.6	175°59.0	190°30.3	205°01.6	219°33.0	234°04.4	248°35.8	+31.3	14.8
	19°52.1	19°47.0	19°41.9	19°36.6	19°31.3	19°25.9	19°20.4	19°14.8	19°09.1	19°03.3	18°57.5	-5.5	54.4
◑ za 19	106°29.2	121°00.9	135°32.6	150°04.4	164°36.1	179°07.9	193°39.7	208°11.5	222°43.3	237°15.2	251°47.0	+31.8	15.0
	17°19.0	17°11.7	17°04.4	16°56.9	16°49.4	16°41.9	16°34.2	16°26.5	16°18.6	16°10.7	16°02.7	-7.6	54.9
zo 20	109°46.4	124°18.4	138°50.5	153°22.5	167°54.6	182°26.7	196°58.8	211°30.9	226°03.0	240°35.1	255°07.2	+32.1	15.1
	13°53.7	13°44.5	13°35.2	13°25.9	13°16.5	13°07.0	12°57.5	12°47.8	12°38.2	12°28.4	12°18.6	-9.5	55.5
ma 21	113°08.9	127°41.0	142°13.1	156°45.2	171°17.3	185°49.4	200°21.5	214°53.5	229°25.6	243°57.6	258°29.6	+32.1	15.4
	9°43.6	9°32.8	9°21.9	9°10.9	9°00.0	8°48.9	8°37.8	8°26.7	8°15.4	8°04.2	7°52.9	-11.1	56.3
di 22	116°28.2	131°00.0	145°31.7	160°03.4	174°35.1	189°06.7	203°38.3	218°09.9	232°41.5	247°13.0	261°44.5	+31.6	15.6
	4°57.5	4°45.4	4°33.4	4°21.2	4°09.1	3°56.9	3°44.7	3°32.4	3°20.1	3°07.8	2°55.4	-12.2	57.2
wo 23	119°32.8	134°03.7	148°34.5	163°05.3	177°36.1	192°06.8	206°37.5	221°08.1	235°38.6	250°09.1	264°39.6	+30.7	15.9
	-0°13.2	-0°26.0	-0°38.7	-0°51.5	-1°04.3	-1°17.1	-1°29.9	-1°42.7	-1°55.5	-2°08.4	-2°21.2	-12.8	58.1
do 24	122°09.7	136°39.2	151°08.6	165°38.0	180°07.3	194°36.6	209°05.7	223°34.8	238°03.9	252°32.8	267°01.7	+29.2	16.1
	-5°33.7	-5°46.4	-5°59.2	-6°11.9	-6°24.6	-6°37.3	-6°50.0	-7°02.6	-7°15.2	-7°27.8	-7°40.4	-12.7	59.0
vr 25	124°06.1	138°33.8	153°01.4	167°28.9	181°56.3	196°23.7	210°50.9	225°18.1	239°45.2	254°12.2	268°39.1	+27.3	16.3
	-10°44.6	-10°56.5	-11°08.3	-11°20.1	-11°31.9	-11°43.6	-11°55.2	-12°06.8	-12°18.3	-12°29.7	-12°41.1	-11.7	59.8
● za 26	125°13.0	139°38.6	154°04.1	168°29.6	182°54.9	197°20.2	211°45.4	226°10.5	240°35.5	255°00.4	269°25.3	+25.2	16.5
	-15°22.2	-15°32.3	-15°42.3	-15°52.1	-16°01.9	-16°11.5	-16°21.1	-16°30.5	-16°39.9	-16°49.1	-16°58.2	-9.6	60.4
zo 27	125°29.4	139°53.1	154°16.7	168°40.3	183°03.9	197°27.3	211°50.8	226°14.1	240°37.4	255°00.7	269°23.9	+23.4	16.5
	-19°00.9	-19°08.1	-19°15.1	-19°22.0	-19°28.7	-19°35.4	-19°41.8	-19°48.2	-19°54.4	-20°00.4	-20°06.4	-6.6	60.6
ma 28	125°06.8	139°29.4	153°52.0	168°14.6	182°37.1	196°59.6	211°22.1	225°44.6	240°07.1	254°29.6	268°52.1	+22.5	16.5
	-21°17.1	-21°20.6	-21°23.9	-21°27.1	-21°30.1	-21°33.0	-21°35.6	-21°38.2	-21°40.6	-21°42.8	-21°44.8	-2.8	60.6
di 29	124°30.0	138°52.6	153°15.3	167°38.1	182°00.8	196°23.6	210°46.4	225°09.3	239°32.2	253°55.2	268°18.2	+22.8	16.4
	-21°56.2	-21°55.7	-21°55.0	-21°54.2	-21°53.2	-21°52.0	-21°50.7	-21°49.2	-21°47.6	-21°45.8	-21°43.8	+1.2	60.3
wo 30	138°52.6	153°15.3	167°38.1	182°00.8	196°23.6	210°46.4	225°09.3	239°32.2	253°55.2	268°18.2	282°41.2	+22.8	16.4
	-21°55.7	-21°55.0	-21°54.2	-21°53.2	-21°52.0	-21°50.7	-21°49.2	-21°47.6	-21°45.8	-21°43.8	-21°41.7	+1.4	60.3
do 31	138°33.3	152°57.3	167°21.4	181°45.5	196°09.7	210°34.0	224°58.3	239°22.7	253°47.2	268°11.8	282°36.5	+24.3	16.3
	-20°52.3	-20°47.8	-20°43.2	-20°38.5	-20°33.6	-20°28.6	-20°23.5	-20°18.2	-20°12.8	-20°07.3	-20°01.6	+5.1	59.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 4 03h56 — VM: 11 10h46 — LK: 19 14h50 — NM: 26 20h17

ZON

November 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	184°06.2	199°06.2	214°06.2	229°06.2	244°06.3	259°06.3	94°06.5	109°06.5	124°06.5	139°06.5	154°06.5	169°06.5	+0.0
	-14°22.1	-14°22.9	-14°23.7	-14°24.5	-14°25.3	-14°26.1	-14°36.5	-14°37.3	-14°38.1	-14°38.9	-14°39.7	-14°40.5	-0.8
za 2	184°06.5	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	+0.0
	-14°41.3	-14°42.1	-14°42.8	-14°43.6	-14°44.4	-14°45.2	-14°55.5	-14°56.2	-14°57.0	-14°57.8	-14°58.6	-14°59.4	-0.8
zo 3	184°06.7	199°06.7	214°06.7	229°06.7	244°06.7	259°06.7	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	+0.0
	-15°00.2	-15°00.9	-15°01.7	-15°02.5	-15°03.3	-15°04.1	-15°14.2	-15°14.9	-15°15.7	-15°16.5	-15°17.3	-15°18.0	-0.8
ma 4	184°06.7	199°06.7	214°06.7	229°06.7	244°06.7	259°06.6	94°06.5	109°06.5	124°06.5	139°06.5	154°06.5	169°06.5	-0.0
	-15°18.8	-15°19.6	-15°20.4	-15°21.1	-15°21.9	-15°22.7	-15°32.6	-15°33.4	-15°34.2	-15°34.9	-15°35.7	-15°36.4	-0.8
di 5	184°06.4	199°06.4	214°06.4	229°06.4	244°06.4	259°06.4	94°06.1	109°06.1	124°06.1	139°06.1	154°06.1	169°06.0	-0.0
	-15°37.2	-15°38.0	-15°38.7	-15°39.5	-15°40.2	-15°41.0	-15°50.8	-15°51.6	-15°52.3	-15°53.1	-15°53.8	-15°54.6	-0.8
wo 6	184°06.0	199°06.0	214°06.0	229°05.9	244°05.9	259°05.9	94°05.6	109°05.5	124°05.5	139°05.5	154°05.4	169°05.4	-0.0
	-15°55.3	-15°56.1	-15°56.8	-15°57.6	-15°58.3	-15°59.1	-16°08.8	-16°09.5	-16°10.3	-16°11.0	-16°11.7	-16°12.5	-0.8
do 7	184°05.4	199°05.3	214°05.3	229°05.3	244°05.2	259°05.2	94°04.8	109°04.7	124°04.7	139°04.6	154°04.6	169°04.6	-0.0
	-16°13.2	-16°14.0	-16°14.7	-16°15.4	-16°16.2	-16°16.9	-16°26.5	-16°27.2	-16°27.9	-16°28.6	-16°29.4	-16°30.1	-0.7
vr 8	184°04.5	199°04.5	214°04.4	229°04.4	244°04.4	259°04.3	94°03.8	109°03.7	124°03.7	139°03.6	154°03.6	169°03.5	-0.0
	-16°30.8	-16°31.6	-16°32.3	-16°33.0	-16°33.7	-16°34.5	-16°43.8	-16°44.6	-16°45.3	-16°46.0	-16°46.7	-16°47.4	-0.7
za 9	184°03.5	199°03.4	214°03.4	229°03.3	244°03.3	259°03.2	94°02.5	109°02.5	124°02.4	139°02.4	154°02.3	169°02.3	-0.0
	-16°48.2	-16°48.9	-16°49.6	-16°50.3	-16°51.0	-16°51.7	-17°01.0	-17°01.7	-17°02.4	-17°03.1	-17°03.8	-17°04.5	-0.7
zo 10	184°02.2	199°02.1	214°02.1	229°02.0	244°02.0	259°01.9	94°01.1	109°01.1	124°01.0	139°00.9	154°00.9	169°00.8	-0.1
	-17°05.2	-17°05.9	-17°06.6	-17°07.3	-17°08.0	-17°08.7	-17°17.8	-17°18.5	-17°19.2	-17°19.9	-17°20.6	-17°21.3	-0.7
ma 11	184°00.7	199°00.7	214°00.6	229°00.5	244°00.5	259°00.4	93°59.5	108°59.4	123°59.3	138°59.3	153°59.2	168°59.1	-0.1
	-17°21.9	-17°22.6	-17°23.3	-17°24.0	-17°24.7	-17°25.4	-17°34.3	-17°35.0	-17°35.7	-17°36.4	-17°37.0	-17°37.7	-0.7
di 12	183°59.0	198°59.0	213°58.9	228°58.8	243°58.7	258°58.7	93°57.6	108°57.5	123°57.5	138°57.4	153°57.3	168°57.2	-0.1
	-17°38.4	-17°39.1	-17°39.8	-17°40.4	-17°41.1	-17°41.8	-17°50.5	-17°51.2	-17°51.9	-17°52.5	-17°53.2	-17°53.9	-0.7
wo 13	183°57.1	198°57.0	213°57.0	228°56.9	243°56.8	258°56.7	93°55.6	108°55.5	123°55.4	138°55.3	153°55.2	168°55.1	-0.1
	-17°54.5	-17°55.2	-17°55.9	-17°56.5	-17°57.2	-17°57.9	-18°06.5	-18°07.1	-18°07.8	-18°08.4	-18°09.1	-18°09.7	-0.7
do 14	183°55.0	198°54.9	213°54.8	228°54.7	243°54.6	258°54.5	93°53.3	108°53.2	123°53.1	138°53.0	153°52.9	168°52.8	-0.1
	-18°10.4	-18°11.0	-18°11.7	-18°12.3	-18°13.0	-18°13.6	-18°22.1	-18°22.7	-18°23.3	-18°24.0	-18°24.6	-18°25.3	-0.7
vr 15	183°52.7	198°52.6	213°52.5	228°52.4	243°52.3	258°52.2	93°50.8	108°50.7	123°50.6	138°50.5	153°50.3	168°50.2	-0.1
	-18°25.9	-18°26.5	-18°27.2	-18°27.8	-18°28.5	-18°29.1	-18°37.3	-18°38.0	-18°38.6	-18°39.2	-18°39.9	-18°40.5	-0.6
za 16	183°50.1	198°50.0	213°49.9	228°49.8	243°49.7	258°49.6	93°48.1	108°48.0	123°47.8	138°47.7	153°47.6	168°47.5	-0.1
	-18°41.1	-18°41.7	-18°42.4	-18°43.0	-18°43.6	-18°44.2	-18°52.3	-18°52.9	-18°53.5	-18°54.1	-18°54.8	-18°55.4	-0.6
zo 17	183°47.4	198°47.2	213°47.1	228°47.0	243°46.9	258°46.8	93°45.2	108°45.0	123°44.9	138°44.8	153°44.6	168°44.5	-0.1
	-18°56.0	-18°56.6	-18°57.2	-18°57.8	-18°58.4	-18°59.0	-19°06.9	-19°07.5	-19°08.1	-19°08.7	-19°09.3	-19°09.9	-0.6
ma 18	183°44.4	198°44.3	213°44.1	228°44.0	243°43.9	258°43.7	93°42.0	108°41.9	123°41.7	138°41.6	153°41.5	168°41.3	-0.1
	-19°10.5	-19°11.1	-19°11.7	-19°12.3	-19°12.9	-19°13.5	-19°21.2	-19°21.8	-19°22.4	-19°22.9	-19°23.5	-19°24.1	-0.6
di 19	183°41.2	198°41.1	213°40.9	228°40.8	243°40.6	258°40.5	93°38.7	108°38.5	123°38.4	138°38.2	153°38.1	168°37.9	-0.1
	-19°24.7	-19°25.3	-19°25.9	-19°26.5	-19°27.0	-19°27.6	-19°35.1	-19°35.7	-19°36.3	-19°36.8	-19°37.4	-19°38.0	-0.6
wo 20	183°37.8	198°37.7	213°37.5	228°37.4	243°37.2	258°37.1	93°35.1	108°35.0	123°34.8	138°34.7	153°34.5	168°34.3	-0.1
	-19°38.5	-19°39.1	-19°39.7	-19°40.3	-19°40.8	-19°41.4	-19°48.7	-19°49.3	-19°49.8	-19°50.4	-19°50.9	-19°51.5	-0.6
do 21	183°34.2	198°34.0	213°33.9	228°33.7	243°33.6	258°33.4	93°31.3	108°31.2	123°31.0	138°30.9	153°30.7	168°30.5	-0.2
	-19°52.0	-19°52.6	-19°53.1	-19°53.7	-19°54.2	-19°54.8	-20°01.9	-20°02.5	-20°03.0	-20°03.5	-20°04.1	-20°04.6	-0.6
vr 22	183°30.4	198°30.2	213°30.0	228°29.9	243°29.7	258°29.6	93°27.4	108°27.2	123°27.0	138°26.9	153°26.7	168°26.5	-0.2
	-20°05.2	-20°05.7	-20°06.2	-20°06.8	-20°07.3	-20°07.8	-20°14.8	-20°15.3	-20°15.8	-20°16.3	-20°16.9	-20°17.4	-0.5
za 23	183°26.4	198°26.2	213°26.0	228°25.8	243°25.7	258°25.5	93°23.2	108°23.0	123°22.9	138°22.7	153°22.5	168°22.3	-0.2
	-20°17.9	-20°18.4	-20°19.0	-20°19.5	-20°20.0	-20°20.5	-20°27.2	-20°27.7	-20°28.3	-20°28.8	-20°29.3	-20°29.8	-0.5
zo 24	183°22.1	198°22.0	213°21.8	228°21.6	243°21.4	258°21.2	93°18.8	108°18.7	123°18.5	138°18.3	153°18.1	168°17.9	-0.2
	-20°30.3	-20°30.8	-20°31.3	-20°31.8	-20°32.3	-20°32.8	-20°39.3	-20°39.8	-20°40.3	-20°40.8	-20°41.3	-20°41.8	-0.5
ma 25	183°17.7	198°17.5	213°17.4	228°17.2	243°17.0	258°16.8	93°14.3	108°14.1	123°13.9	138°13.7	153°13.5	168°13.3	-0.2
	-20°42.3	-20°42.8	-20°43.3	-20°43.8	-20°44.3	-20°44.8	-20°51.1	-20°51.5	-20°52.0	-20°52.5	-20°53.0	-20°53.4	-0.5
di 26	183°13.1	198°12.9	213°12.7	228°12.5	243°12.3	258°12.1	93°09.6	108°09.4	123°09.1	138°08.9	153°08.7	168°08.5	-0.2
	-20°53.9	-20°54.4	-20°54.9	-20°55.3	-20°55.8	-20°56.3	-21°02.4	-21°02.8	-21°03.3	-21°03.8	-21°04.2	-21°04.7	-0.5
wo 27	183°08.3	198°08.1	213°07.9	228°07.7	243°07.5	258°07.3	93°04.6	108°04.4	123°04.2	138°04.0	153°03.8	168°03.6	-0.2
	-21°05.2	-21°05.6	-21°06.1	-21°06.5	-21°07.0	-21°07.4	-21°13.3	-21°13.8	-21°14.2	-21°14.7	-21°15.1	-21°15.5	-0.5
do 28	183°03.4	198°03.2	213°03.0	228°02.7	243°02.5	258°02.3	92°59.5	107°59.3	122°59.1	137°58.9	152°58.7	167°58.4	-0.2
	-21°16.0	-21°16.4	-21°16.9	-21°17.3	-21°17.7	-21°18.2	-21°23.8	-21°24.3	-21°24.7	-21°25.1	-21°25.6	-21°26.0	-0.4
vr 29	182°58.2	197°58.0	212°57.8	227°57.6	242°57.4	257°57.1	92°54.3	107°54.0	122°53.8	137°53.6	152°53.4	167°53.1	-0.2
	-21°26.4	-21°26.8	-21°27.3	-21°27.7	-21°28.1	-21°28.5	-21°34.0	-21°34.4	-21°34.8	-21°35.2	-21°35.6	-21°36.0	-0.4
za 30	182°52.9	197°52.7	212°52.5	227°52.2	242°52.0	257°51.8	92°48.8	107°48.6	122°48.4	137°48.1	152°47.9	167°47.7	-0.2
	-21°36.4	-21°36.8	-21°37.3	-21°37.7	-21°38.1	-21°38.5	-21°43.7	-21°44.1	-21°44.5	-21°44.9	-21°45.3	-21°45.7	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2030

	D	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
	vr 1	53°25.8	67°53.5	82°21.3	96°49.2	111°17.1	125°45.2	140°13.3	154°41.5	169°09.8	183°38.2	198°06.7	+28.1	16.0
		-15°41.2	-15°31.8	-15°22.4	-15°12.9	-15°03.3	-14°53.6	-14°43.8	-14°34.0	-14°24.1	-14°14.1	-14°04.1	+9.7	58.6
◐	za 2	55°23.6	69°53.4	84°23.2	98°53.1	113°23.1	127°53.1	142°23.2	156°53.4	171°23.6	185°53.9	200°24.3	+30.1	15.8
		-11°25.8	-11°14.8	-11°03.8	-10°52.7	-10°41.5	-10°30.4	-10°19.1	-10°07.9	-9°56.5	-9°45.2	-9°33.8	+11.2	57.8
	zo 3	58°07.5	72°38.8	87°10.2	101°41.7	116°13.2	130°44.7	145°16.3	159°47.9	174°19.6	188°51.3	203°23.1	+31.6	15.6
		-6°39.0	-6°27.1	-6°15.2	-6°03.3	-5°51.4	-5°39.5	-5°27.5	-5°15.5	-5°03.5	-4°51.5	-4°39.5	+12.0	57.1
	ma 4	72°38.8	87°10.2	101°41.7	116°13.2	130°44.7	145°16.3	159°47.9	174°19.6	188°51.3	203°23.1	217°54.9	+31.6	15.6
		-6°27.1	-6°15.2	-6°03.3	-5°51.4	-5°39.5	-5°27.5	-5°15.5	-5°03.5	-4°51.5	-4°39.5	-4°27.5	+12.0	57.1
	di 5	75°56.8	90°29.2	105°01.7	119°34.1	134°06.6	148°39.1	163°11.6	177°44.2	192°16.7	206°49.3	221°22.0	+32.5	15.4
		-1°26.3	-1°14.2	-1°02.1	-0°50.0	-0°38.0	-0°25.9	-0°13.8	-0°01.8	0°10.3	0°22.3	0°34.3	+12.1	56.5
	wo 6	79°33.2	94°06.1	108°38.9	123°11.8	137°44.6	152°17.5	166°50.4	181°23.3	195°56.1	210°29.0	225°01.9	+32.9	15.2
		3°32.7	3°44.5	3°56.2	4°07.9	4°19.5	4°31.1	4°42.7	4°54.3	5°05.9	5°17.4	5°28.9	+11.6	55.9
	do 7	83°14.9	97°47.7	112°20.5	126°53.3	141°26.0	155°58.8	170°31.6	185°04.3	199°37.0	214°09.8	228°42.5	+32.8	15.1
		8°16.8	8°27.7	8°38.5	8°49.3	9°00.1	9°10.7	9°21.4	9°32.0	9°42.6	9°53.1	10°03.5	+10.7	55.4
	vr 8	86°51.0	101°23.4	115°55.8	130°28.1	145°00.5	159°32.8	174°05.1	188°37.4	203°09.7	217°41.9	232°14.1	+32.3	15.0
		12°33.9	12°43.5	12°53.0	13°02.4	13°11.8	13°21.1	13°30.3	13°39.5	13°48.6	13°57.7	14°06.7	+9.3	55.0
	za 9	90°14.2	104°46.0	119°17.8	133°49.5	148°21.3	162°53.0	177°24.6	191°56.3	206°27.9	220°59.5	235°31.0	+31.7	14.9
		16°12.9	16°20.7	16°28.5	16°36.1	16°43.7	16°51.2	16°58.7	17°06.0	17°13.3	17°20.5	17°27.6	+7.5	54.6
○	zo 10	93°21.5	107°52.6	122°23.8	136°54.9	151°26.0	165°57.1	180°28.1	194°59.1	209°30.2	224°01.1	238°32.1	+31.1	14.8
		19°03.8	19°09.5	19°15.2	19°20.7	19°26.1	19°31.5	19°36.7	19°41.9	19°47.0	19°51.9	19°56.8	+5.3	54.3
	ma 11	96°14.4	110°45.1	125°15.8	139°46.5	154°17.1	168°47.8	183°18.4	197°49.0	212°19.6	226°50.2	241°20.8	+30.6	14.8
		20°58.5	21°01.8	21°05.0	21°08.2	21°11.2	21°14.1	21°16.9	21°19.7	21°22.3	21°24.8	21°27.2	+2.9	54.1
	di 12	98°59.1	113°29.6	128°00.2	142°30.7	157°01.2	171°31.8	186°02.3	200°32.9	215°03.4	229°34.0	244°04.5	+30.5	14.7
		21°51.3	21°52.1	21°52.8	21°53.4	21°53.8	21°54.2	21°54.5	21°54.7	21°54.7	21°54.7	21°54.5	+0.3	54.0
	wo 13	101°44.0	116°14.8	130°45.5	145°16.3	159°47.1	174°17.9	188°48.7	203°19.5	217°50.3	232°21.2	246°52.1	+30.8	14.7
		21°40.2	21°38.4	21°36.6	21°34.6	21°32.5	21°30.4	21°28.1	21°25.7	21°23.3	21°20.7	21°18.0	-2.2	54.0
	do 14	104°37.8	119°09.0	133°40.2	148°11.5	162°42.8	177°14.1	191°45.5	206°16.9	220°48.3	235°19.7	249°51.1	+31.3	14.7
		20°26.5	20°22.3	20°18.0	20°13.6	20°09.1	20°04.5	19°59.9	19°55.1	19°50.3	19°45.4	19°40.3	-4.6	54.1
	vr 15	107°46.0	122°17.9	136°49.7	151°21.7	165°53.6	180°25.6	194°57.6	209°29.6	224°01.6	238°33.7	253°05.8	+32.0	14.8
		18°14.4	18°08.0	18°01.5	17°54.9	17°48.2	17°41.5	17°34.7	17°27.8	17°20.8	17°13.7	17°06.6	-6.8	54.3
	za 16	111°10.0	125°42.5	140°15.0	154°47.4	169°20.0	183°52.5	198°25.0	212°57.6	227°30.2	242°02.8	256°35.4	+32.5	14.9
		15°10.2	15°01.9	14°53.5	14°45.0	14°36.4	14°27.8	14°19.1	14°10.3	14°01.5	13°52.6	13°43.6	-8.7	54.8
	zo 17	114°46.3	129°19.1	143°52.0	158°24.8	172°57.6	187°30.4	202°03.3	216°36.1	231°09.0	245°41.8	260°14.7	+32.8	15.1
		11°21.4	11°11.4	11°01.4	10°51.3	10°41.2	10°31.0	10°20.7	10°10.4	10°00.1	9°49.7	9°39.2	-10.2	55.4
◑	ma 18	118°27.1	132°59.8	147°32.6	162°05.3	176°38.1	191°10.8	205°43.5	220°16.2	234°48.8	249°21.5	263°54.1	+32.7	15.3
		6°56.1	6°44.9	6°33.6	6°22.3	6°10.9	5°59.5	5°48.1	5°36.6	5°25.0	5°13.5	5°01.9	-11.4	56.1
	di 19	122°00.8	136°33.0	151°05.2	165°37.3	180°09.4	194°41.5	209°13.5	223°45.5	238°17.5	252°49.4	267°21.3	+32.1	15.5
		2°03.7	1°51.6	1°39.5	1°27.3	1°15.1	1°02.9	0°50.7	0°38.4	0°26.1	0°13.9	0°01.5	-12.2	57.0
	wo 20	125°13.6	139°44.6	154°15.6	168°46.6	183°17.4	197°48.3	212°19.0	226°49.7	241°20.3	255°50.9	270°21.4	+30.8	15.8
		-3°04.7	-3°17.1	-3°29.6	-3°42.1	-3°54.6	-4°07.1	-4°19.5	-4°32.0	-4°44.5	-4°56.9	-5°09.4	-12.5	58.0
	do 21	127°50.1	142°19.4	156°48.6	171°17.7	185°46.7	200°15.7	214°44.6	229°13.3	243°42.0	258°10.7	272°39.2	+28.9	16.1
		-8°14.4	-8°26.6	-8°38.7	-8°50.8	-9°02.9	-9°15.0	-9°27.0	-9°38.9	-9°50.9	-10°02.7	-10°14.6	-12.0	59.0
	vr 22	129°35.9	144°02.9	158°29.8	172°56.7	187°23.4	201°50.0	216°16.5	230°43.0	245°09.3	259°35.5	274°01.7	+26.6	16.3
		-13°06.4	-13°17.4	-13°28.3	-13°39.1	-13°49.9	-14°00.6	-14°11.2	-14°21.7	-14°32.2	-14°42.6	-14°52.9	-10.7	59.9
	za 23	130°21.7	144°46.2	159°10.7	173°35.1	187°59.3	202°23.5	216°47.6	231°11.6	245°35.5	259°59.3	274°23.0	+24.1	16.5
		-17°16.4	-17°25.2	-17°33.8	-17°42.3	-17°50.8	-17°59.1	-18°07.2	-18°15.3	-18°23.2	-18°31.0	-18°38.7	-8.2	60.7
	zo 24	130°09.0	144°31.4	158°53.8	173°16.2	187°38.5	202°00.7	216°22.8	230°44.9	245°07.0	259°29.0	273°50.9	+22.2	16.7
		-20°18.0	-20°23.4	-20°28.8	-20°33.9	-20°39.0	-20°43.8	-20°48.6	-20°53.1	-20°57.5	-21°01.8	-21°05.9	-4.8	61.1
●	ma 25	129°15.5	143°37.0	157°58.4	172°19.8	186°41.2	201°02.6	215°24.0	229°45.5	244°06.9	258°28.3	272°49.7	+21.4	16.7
		-21°47.6	-21°49.1	-21°50.4	-21°51.5	-21°52.4	-21°53.2	-21°53.8	-21°54.3	-21°54.5	-21°54.6	-21°54.5	-0.7	61.3
	di 26	128°13.7	142°35.6	156°57.5	171°19.5	185°41.5	200°03.6	214°25.7	228°47.9	243°10.2	257°32.5	271°54.9	+22.1	16.6
		-21°33.3	-21°30.5	-21°27.6	-21°24.6	-21°21.3	-21°17.9	-21°14.4	-21°10.7	-21°06.8	-21°02.8	-20°58.7	+3.5	61.0
	wo 27	127°39.4	142°03.0	156°26.7	170°50.5	185°14.4	199°38.3	214°02.4	228°26.6	242°50.8	257°15.2	271°39.6	+24.0	16.5
		-19°38.5	-19°32.0	-19°25.4	-19°18.7	-19°11.9	-19°04.9	-18°57.8	-18°50.5	-18°43.2	-18°35.7	-18°28.1	+7.0	60.5
	do 28	142°03.0	156°26.7	170°50.5	185°14.4	199°38.3	214°02.4	228°26.6	242°50.8	257°15.2	271°39.6	286°04.1	+24.1	16.5
		-19°32.0	-19°25.4	-19°18.7	-19°11.9	-19°04.9	-18°57.8	-18°50.5	-18°43.2	-18°35.7	-18°28.1	-18°20.4	+7.2	60.4
	vr 29	142°24.0	156°50.2	171°16.4	185°42.7	200°09.1	214°35.7	229°02.3	243°29.0	257°55.9	272°22.8	286°49.8	+26.6	16.3
		-16°11.6	-16°02.2	-15°52.7	-15°43.2	-15°33.5	-15°23.8	-15°13.9	-15°04.0	-14°54.1	-14°44.0	-14°33.9	+9.8	59.6
	za 30	143°46.8	158°15.4	172°44.0	187°12.8	201°41.6	216°10.5	230°39.5	245°08.6	259°37.7	274°07.0	288°36.3	+28.9	16.0
		-11°53.5	-11°42.4	-11°31.1	-11°19.9	-11°08.5	-10°57.2	-10°45.8	-10°34.3	-10°22.8	-10°11.3	-9°59.7	+11.4	58.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 2 11h56 — VM: 10 03h30 — LK: 18 08h32 — NM: 25 06h46

ZON

December 2030

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	182° 47.5 -21° 46.1	197° 47.2 -21° 46.4	212° 47.0 -21° 46.8	227° 46.8 -21° 47.2	242° 46.5 -21° 47.6	257° 46.3 -21° 48.0	92° 43.2 -21° 53.0	107° 43.0 -21° 53.4	122° 42.8 -21° 53.7	137° 42.5 -21° 54.1	152° 42.3 -21° 54.5	167° 42.1 -21° 54.9	-0.2 -0.4
ma 2	182° 41.8 -21° 55.2	197° 41.6 -21° 55.6	212° 41.3 -21° 56.0	227° 41.1 -21° 56.4	242° 40.9 -21° 56.7	257° 40.6 -21° 57.1	92° 37.5 -22° 01.9	107° 37.3 -22° 02.2	122° 37.0 -22° 02.6	137° 36.8 -22° 03.0	152° 36.5 -22° 03.3	167° 36.3 -22° 03.7	-0.2 -0.4
di 3	182° 36.0 -22° 04.0	197° 35.8 -22° 04.4	212° 35.6 -22° 04.7	227° 35.3 -22° 05.1	242° 35.1 -22° 05.4	257° 34.8 -22° 05.8	92° 31.6 -22° 10.3	107° 31.4 -22° 10.7	122° 31.1 -22° 11.0	137° 30.9 -22° 11.4	152° 30.6 -22° 11.7	167° 30.4 -22° 12.0	-0.2 -0.4
wo 4	182° 30.1 -22° 12.4	197° 29.9 -22° 12.7	212° 29.6 -22° 13.1	227° 29.4 -22° 13.4	242° 29.1 -22° 13.7	257° 28.9 -22° 14.1	92° 25.6 -22° 18.4	107° 25.3 -22° 18.7	122° 25.1 -22° 19.0	137° 24.8 -22° 19.3	152° 24.6 -22° 19.7	167° 24.3 -22° 20.0	-0.2 -0.3
do 5	182° 24.1 -22° 20.3	197° 23.8 -22° 20.6	212° 23.5 -22° 20.9	227° 23.3 -22° 21.3	242° 23.0 -22° 21.6	257° 22.8 -22° 21.9	92° 19.4 -22° 26.0	107° 19.2 -22° 26.3	122° 18.9 -22° 26.6	137° 18.6 -22° 26.9	152° 18.4 -22° 27.2	167° 18.1 -22° 27.5	-0.3 -0.3
vr 6	182° 17.8 -22° 27.8	197° 17.6 -22° 28.1	212° 17.3 -22° 28.4	227° 17.1 -22° 28.7	242° 16.8 -22° 29.0	257° 16.5 -22° 29.3	92° 13.1 -22° 33.1	107° 12.8 -22° 33.4	122° 12.6 -22° 33.7	137° 12.3 -22° 34.0	152° 12.0 -22° 34.3	167° 11.8 -22° 34.5	-0.3 -0.3
za 7	182° 11.5 -22° 34.8	197° 11.2 -22° 35.1	212° 11.0 -22° 35.4	227° 10.7 -22° 35.7	242° 10.4 -22° 36.0	257° 10.2 -22° 36.2	92° 06.7 -22° 39.8	107° 06.4 -22° 40.1	122° 06.1 -22° 40.4	137° 05.9 -22° 40.6	152° 05.6 -22° 40.9	167° 05.3 -22° 41.2	-0.3 -0.3
zo 8	182° 05.1 -22° 41.4	197° 04.8 -22° 41.7	212° 04.5 -22° 42.0	227° 04.2 -22° 42.2	242° 04.0 -22° 42.5	257° 03.7 -22° 42.8	92° 00.1 -22° 46.1	106° 59.9 -22° 46.4	121° 59.6 -22° 46.6	136° 59.3 -22° 46.9	151° 59.0 -22° 47.1	166° 58.8 -22° 47.4	-0.3 -0.3
ma 9	181° 58.5 -22° 47.6	196° 58.2 -22° 47.8	211° 57.9 -22° 48.1	226° 57.7 -22° 48.3	241° 57.4 -22° 48.6	256° 57.1 -22° 48.8	91° 53.5 -22° 51.9	106° 53.2 -22° 52.2	121° 52.9 -22° 52.4	136° 52.6 -22° 52.6	151° 52.4 -22° 52.9	166° 52.1 -22° 53.1	-0.3 -0.2
di 10	181° 51.8 -22° 53.3	196° 51.5 -22° 53.5	211° 51.2 -22° 53.8	226° 51.0 -22° 54.0	241° 50.7 -22° 54.2	256° 50.4 -22° 54.5	91° 46.7 -22° 57.3	106° 46.4 -22° 57.5	121° 46.1 -22° 57.7	136° 45.9 -22° 57.9	151° 45.6 -22° 58.2	166° 45.3 -22° 58.4	-0.3 -0.2
wo 11	181° 45.0 -22° 58.6	196° 44.7 -22° 58.8	211° 44.4 -22° 59.0	226° 44.1 -22° 59.2	241° 43.9 -22° 59.4	256° 43.6 -22° 59.6	91° 39.8 -23° 02.2	106° 39.6 -23° 02.4	121° 39.3 -23° 02.6	136° 39.0 -23° 02.8	151° 38.7 -23° 03.0	166° 38.4 -23° 03.2	-0.3 -0.2
do 12	181° 38.1 -23° 03.4	196° 37.8 -23° 03.6	211° 37.5 -23° 03.8	226° 37.2 -23° 04.0	241° 37.0 -23° 04.2	256° 36.7 -23° 04.3	91° 32.9 -23° 06.7	106° 32.6 -23° 06.9	121° 32.3 -23° 07.1	136° 32.0 -23° 07.2	151° 31.7 -23° 07.4	166° 31.4 -23° 07.6	-0.3 -0.2
vr 13	181° 31.1 -23° 07.7	196° 30.8 -23° 07.9	211° 30.5 -23° 08.1	226° 30.3 -23° 08.3	241° 30.0 -23° 08.4	256° 29.7 -23° 08.6	91° 25.8 -23° 10.7	106° 25.5 -23° 10.9	121° 25.2 -23° 11.0	136° 24.9 -23° 11.2	151° 24.7 -23° 11.3	166° 24.4 -23° 11.5	-0.3 -0.2
za 14	181° 24.1 -23° 11.6	196° 23.8 -23° 11.8	211° 23.5 -23° 11.9	226° 23.2 -23° 12.1	241° 22.9 -23° 12.2	256° 22.6 -23° 12.4	91° 18.7 -23° 14.3	106° 18.4 -23° 14.4	121° 18.1 -23° 14.5	136° 17.8 -23° 14.7	151° 17.5 -23° 14.8	166° 17.2 -23° 14.9	-0.3 -0.2
zo 15	181° 16.9 -23° 15.1	196° 16.6 -23° 15.2	211° 16.3 -23° 15.3	226° 16.0 -23° 15.5	241° 15.7 -23° 15.6	256° 15.4 -23° 15.7	91° 11.5 -23° 17.3	106° 11.2 -23° 17.5	121° 10.9 -23° 17.6	136° 10.6 -23° 17.7	151° 10.3 -23° 17.8	166° 10.0 -23° 17.9	-0.3 -0.1
ma 16	181° 09.7 -23° 18.0	196° 09.4 -23° 18.2	211° 09.1 -23° 18.3	226° 08.8 -23° 18.4	241° 08.5 -23° 18.5	256° 08.2 -23° 18.6	91° 04.2 -23° 20.0	106° 03.9 -23° 20.1	121° 03.6 -23° 20.2	136° 03.3 -23° 20.3	151° 03.0 -23° 20.4	166° 02.7 -23° 20.5	-0.3 -0.1
di 17	181° 02.4 -23° 20.6	196° 02.1 -23° 20.6	211° 01.8 -23° 20.7	226° 01.5 -23° 20.8	241° 01.2 -23° 20.9	256° 00.9 -23° 21.0	90° 56.9 -23° 22.1	105° 56.6 -23° 22.2	120° 56.3 -23° 22.3	135° 56.0 -23° 22.4	150° 55.7 -23° 22.4	165° 55.4 -23° 22.5	-0.3 -0.1
wo 18	180° 55.1 -23° 22.6	195° 54.8 -23° 22.7	210° 54.5 -23° 22.7	225° 54.2 -23° 22.8	240° 53.9 -23° 22.9	255° 53.5 -23° 23.0	90° 49.5 -23° 23.8	105° 49.2 -23° 23.9	120° 48.9 -23° 23.9	135° 48.6 -23° 24.0	150° 48.3 -23° 24.0	165° 48.0 -23° 24.1	-0.3 -0.1
do 19	180° 47.7 -23° 24.2	195° 47.4 -23° 24.2	210° 47.1 -23° 24.3	225° 46.8 -23° 24.3	240° 46.5 -23° 24.4	255° 46.2 -23° 24.4	90° 42.1 -23° 25.0	105° 41.8 -23° 25.1	120° 41.5 -23° 25.1	135° 41.2 -23° 25.1	150° 40.9 -23° 25.2	165° 40.6 -23° 25.2	-0.3 -0.1
vr 20	180° 40.3 -23° 25.3	195° 40.0 -23° 25.3	210° 39.7 -23° 25.3	225° 39.3 -23° 25.4	240° 39.0 -23° 25.4	255° 38.7 -23° 25.4	90° 34.7 -23° 25.8	105° 34.4 -23° 25.8	120° 34.1 -23° 25.8	135° 33.8 -23° 25.8	150° 33.4 -23° 25.9	165° 33.1 -23° 25.9	-0.3 -0.0
za 21	180° 32.8 -23° 25.9	195° 32.5 -23° 25.9	210° 32.2 -23° 25.9	225° 31.9 -23° 25.9	240° 31.6 -23° 25.9	255° 31.3 -23° 26.0	90° 27.2 -23° 26.0	105° 26.9 -23° 26.0	120° 26.6 -23° 26.0	135° 26.3 -23° 26.0	150° 26.0 -23° 26.0	165° 25.7 -23° 26.0	-0.3 -0.0
zo 22	180° 25.4 -23° 26.0	195° 25.0 -23° 26.0	210° 24.7 -23° 26.0	225° 24.4 -23° 26.0	240° 24.1 -23° 26.0	255° 23.8 -23° 26.0	90° 19.7 -23° 25.8	105° 19.4 -23° 25.8	120° 19.1 -23° 25.8	135° 18.8 -23° 25.8	150° 18.5 -23° 25.8	165° 18.2 -23° 25.7	-0.3 +0.0
ma 23	180° 17.9 -23° 25.7	195° 17.6 -23° 25.7	210° 17.2 -23° 25.7	225° 16.9 -23° 25.7	240° 16.6 -23° 25.6	255° 16.3 -23° 25.6	90° 12.3 -23° 25.2	105° 11.9 -23° 25.1	120° 11.6 -23° 25.1	135° 11.3 -23° 25.1	150° 11.0 -23° 25.0	165° 10.7 -23° 25.0	-0.3 +0.0
di 24	180° 10.4 -23° 24.9	195° 10.1 -23° 24.9	210° 09.8 -23° 24.9	225° 09.4 -23° 24.8	240° 09.1 -23° 24.8	255° 08.8 -23° 24.7	90° 04.8 -23° 24.0	105° 04.5 -23° 24.0	120° 04.2 -23° 23.9	135° 03.8 -23° 23.9	150° 03.5 -23° 23.8	165° 03.2 -23° 23.7	-0.3 +0.0
wo 25	180° 02.9 -23° 23.7	195° 02.6 -23° 23.6	210° 02.3 -23° 23.6	225° 02.0 -23° 23.5	240° 01.7 -23° 23.4	255° 01.4 -23° 23.4	89° 57.3 -23° 22.4	104° 57.0 -23° 22.4	119° 56.7 -23° 22.3	134° 56.4 -23° 22.2	149° 56.1 -23° 22.1	164° 55.8 -23° 22.0	-0.3 +0.1
do 26	179° 55.4 -23° 22.0	194° 55.1 -23° 21.9	209° 54.8 -23° 21.8	224° 54.5 -23° 21.7	239° 54.2 -23° 21.6	254° 53.9 -23° 21.5	89° 49.9 -23° 20.4	104° 49.6 -23° 20.3	119° 49.3 -23° 20.2	134° 48.9 -23° 20.1	149° 48.6 -23° 20.0	164° 48.3 -23° 19.9	-0.3 +0.1
vr 27	179° 48.0 -23° 19.8	194° 47.7 -23° 19.7	209° 47.4 -23° 19.6	224° 47.1 -23° 19.5	239° 46.8 -23° 19.4	254° 46.5 -23° 19.3	89° 42.5 -23° 17.8	104° 42.2 -23° 17.7	119° 41.9 -23° 17.6	134° 41.5 -23° 17.5	149° 41.2 -23° 17.3	164° 40.9 -23° 17.2	-0.3 +0.1
za 28	179° 40.6 -23° 17.1	194° 40.3 -23° 17.0	209° 40.0 -23° 16.9	224° 39.7 -23° 16.7	239° 39.4 -23° 16.6	254° 39.1 -23° 16.5	89° 35.1 -23° 14.8	104° 34.8 -23° 14.7	119° 34.5 -23° 14.5	134° 34.2 -23° 14.4	149° 33.9 -23° 14.3	164° 33.6 -23° 14.1	-0.3 +0.1
zo 29	179° 33.3 -23° 14.0	194° 33.0 -23° 13.8	209° 32.7 -23° 13.7	224° 32.4 -23° 13.6	239° 32.1 -23° 13.4	254° 31.8 -23° 13.3	89° 27.8 -23° 11.3	104° 27.5 -23° 11.2	119° 27.2 -23° 11.0	134° 26.9 -23° 10.9	149° 26.6 -23° 10.7	164° 26.3 -23° 10.5	-0.3 +0.1
ma 30	179° 26.0 -23° 10.4	194° 25.7 -23° 10.2	209° 25.4 -23° 10.1	224° 25.1 -23° 09.9	239° 24.8 -23° 09.7	254° 24.5 -23° 09.6	89° 20.6 -23° 07.4	104° 20.3 -23° 07.2	119° 20.0 -23° 07.0	134° 19.7 -23° 06.9	149° 19.4 -23° 06.7	164° 19.1 -23° 06.5	-0.3 +0.2
di 31	179° 18.8 -23° 06.3	194° 18.5 -23° 06.1	209° 18.2 -23° 06.0	224° 17.9 -23° 05.8	239° 17.6 -23° 05.6	254° 17.3 -23° 05.4	89° 13.4 -23° 03.0	104° 13.1 -23° 02.8	119° 12.8 -23° 02.6	134° 12.5 -23° 02.4	149° 12.2 -23° 02.2	164° 11.9 -23° 02.0	-0.3 +0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2030

	D	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
◐	zo 1	47°25.3	61°56.9	76°28.6	91°00.3	105°32.0	120°03.9	134°35.7	149°07.6	163°39.6	178°11.6	192°43.6	+31.8	15.6
		-3°22.9	-3°10.6	-2°58.4	-2°46.2	-2°33.9	-2°21.7	-2°09.5	-1°57.2	-1°45.0	-1°32.8	-1°20.6	+12.2	57.2
	ma 2	50°48.4	65°21.0	79°53.5	94°26.2	108°58.8	123°31.5	138°04.1	152°36.8	167°09.5	181°42.3	196°15.0	+32.7	15.4
		1°41.1	1°53.1	2°05.0	2°17.0	2°28.9	2°40.8	2°52.6	3°04.5	3°16.3	3°28.1	3°39.8	+11.9	56.4
	di 3	54°27.9	69°00.8	83°33.7	98°06.6	112°39.5	127°12.5	141°45.4	156°18.3	170°51.2	185°24.2	199°57.1	+32.9	15.2
		6°32.5	6°43.7	6°54.9	7°06.0	7°17.1	7°28.2	7°39.2	7°50.2	8°01.1	8°12.0	8°22.9	+11.0	55.7
	wo 4	69°00.8	83°33.7	98°06.6	112°39.5	127°12.5	141°45.4	156°18.3	170°51.2	185°24.2	199°57.1	214°30.0	+32.9	15.2
		6°43.7	6°54.9	7°06.0	7°17.1	7°28.2	7°39.2	7°50.2	8°01.1	8°12.0	8°22.9	8°33.7	+11.0	55.6
	do 5	72°42.8	87°15.6	101°48.3	116°21.1	130°53.8	145°26.5	159°59.2	174°31.8	189°04.5	203°37.1	218°09.7	+32.7	15.0
		11°09.8	11°19.8	11°29.7	11°39.6	11°49.4	11°59.2	12°08.9	12°18.5	12°28.1	12°37.6	12°47.1	+9.7	55.1
	vr 6	76°16.5	90°48.8	105°21.0	119°53.2	134°25.4	148°57.6	163°29.7	178°01.9	192°33.9	207°06.0	221°38.0	+32.2	14.9
		15°01.3	15°09.7	15°18.0	15°26.3	15°34.5	15°42.6	15°50.6	15°58.6	16°06.5	16°14.3	16°22.0	+8.1	54.6
	za 7	79°35.4	94°07.0	108°38.6	123°10.1	137°41.6	152°13.1	166°44.6	181°16.0	195°47.5	210°18.9	224°50.2	+31.5	14.8
		18°08.7	18°15.2	18°21.5	18°27.8	18°34.0	18°40.1	18°46.2	18°52.1	18°58.0	19°03.7	19°09.4	+6.1	54.3
	zo 8	82°37.7	97°08.7	111°39.7	126°10.6	140°41.5	155°12.4	169°43.3	184°14.2	198°45.0	213°15.8	227°46.6	+30.9	14.7
		20°23.7	20°27.9	20°32.0	20°36.0	20°39.9	20°43.7	20°47.4	20°51.1	20°54.6	20°58.0	21°01.4	+3.8	54.1
○	ma 9	85°27.0	99°57.6	114°28.2	128°58.7	143°29.3	157°59.9	172°30.4	187°01.0	201°31.6	216°02.1	230°32.6	+30.6	14.7
		21°39.4	21°41.2	21°42.8	21°44.3	21°45.8	21°47.1	21°48.3	21°49.4	21°50.5	21°51.4	21°52.2	+1.3	53.9
	di 10	88°10.8	102°41.4	117°12.0	131°42.6	146°13.2	160°43.8	175°14.4	189°45.0	204°15.7	218°46.3	233°17.0	+30.6	14.7
		21°52.1	21°51.3	21°50.4	21°49.4	21°48.2	21°47.0	21°45.7	21°44.2	21°42.7	21°41.1	21°39.3	-1.3	53.9
	wo 11	90°58.8	105°29.7	120°00.7	134°31.7	149°02.7	163°33.7	178°04.7	192°35.8	207°06.9	221°38.0	236°09.2	+31.0	14.7
		21°01.3	20°58.0	20°54.5	20°51.0	20°47.4	20°43.7	20°39.9	20°36.0	20°32.0	20°27.9	20°23.7	-3.8	54.0
	do 12	93°59.5	108°31.1	123°02.7	137°34.3	152°06.0	166°37.7	181°09.4	195°41.2	210°12.9	224°44.8	239°16.6	+31.7	14.8
		19°10.0	19°04.4	18°58.7	18°52.9	18°47.0	18°41.0	18°35.0	18°28.8	18°22.6	18°16.3	18°09.9	-6.0	54.1
	vr 13	97°17.8	111°50.2	126°22.5	140°54.9	155°27.3	169°59.7	184°32.2	199°04.7	213°37.2	228°09.7	242°42.3	+32.4	14.8
		16°24.5	16°16.9	16°09.2	16°01.4	15°53.5	15°45.6	15°37.6	15°29.5	15°21.3	15°13.1	15°04.8	-8.0	54.4
	za 14	100°53.8	115°26.8	129°59.7	144°32.7	159°05.7	173°38.8	188°11.8	202°44.9	217°18.0	231°51.1	246°24.2	+33.0	14.9
		12°52.7	12°43.4	12°34.0	12°24.6	12°15.1	12°05.5	11°55.9	11°46.3	11°36.5	11°26.8	11°16.9	-9.6	54.7
	zo 15	104°42.5	119°15.8	133°49.1	148°22.4	162°55.7	177°29.0	192°02.4	206°35.7	221°09.0	235°42.3	250°15.6	+33.3	15.1
		8°43.4	8°32.8	8°22.2	8°11.5	8°00.7	7°49.9	7°39.1	7°28.2	7°17.3	7°06.4	6°55.4	-10.8	55.3
	ma 16	108°34.8	123°08.0	137°41.2	152°14.4	166°47.5	181°20.7	195°53.8	210°26.9	225°00.0	239°33.0	254°06.1	+33.1	15.2
		4°06.3	3°54.7	3°43.2	3°31.6	3°20.0	3°08.3	2°56.7	2°45.0	2°33.3	2°21.6	2°09.8	-11.6	55.9
	di 17	112°18.4	126°50.9	141°23.4	155°55.9	170°28.4	185°00.7	199°33.1	214°05.4	228°37.7	243°09.9	257°42.1	+32.4	15.5
		-0°48.7	-1°00.7	-1°12.7	-1°24.8	-1°36.8	-1°48.9	-2°00.9	-2°13.0	-2°25.0	-2°37.1	-2°49.1	-12.0	56.7
◑	wo 18	115°38.4	130°09.7	144°40.9	159°12.0	173°43.1	188°14.2	202°45.1	217°16.0	231°46.8	246°17.6	260°48.3	+31.0	15.7
		-5°49.8	-6°01.8	-6°13.8	-6°25.7	-6°37.6	-6°49.6	-7°01.5	-7°13.3	-7°25.2	-7°37.0	-7°48.8	-11.9	57.6
	do 19	118°19.1	132°48.5	147°17.8	161°47.0	176°16.1	190°45.1	205°14.1	219°43.0	234°11.7	248°40.4	263°09.0	+29.0	16.0
		-10°42.6	-10°53.9	-11°05.1	-11°16.3	-11°27.5	-11°38.6	-11°49.7	-12°00.7	-12°11.6	-12°22.5	-12°33.4	-11.1	58.6
	vr 20	120°05.9	134°32.9	148°59.8	163°26.6	177°53.3	192°19.9	206°46.3	221°12.7	235°39.0	250°05.2	264°31.2	+26.5	16.2
		-15°08.6	-15°18.4	-15°28.1	-15°37.7	-15°47.2	-15°56.7	-16°06.0	-16°15.3	-16°24.5	-16°33.5	-16°42.5	-9.4	59.5
	za 21	120°49.9	135°14.4	149°38.7	164°03.0	178°27.1	192°51.2	207°15.2	221°39.0	236°02.8	250°26.5	264°50.1	+24.0	16.5
		-18°45.2	-18°52.4	-18°59.6	-19°06.6	-19°13.5	-19°20.3	-19°27.0	-19°33.5	-19°39.9	-19°46.2	-19°52.3	-6.7	60.4
	zo 22	120°34.0	134°56.3	149°18.6	163°40.8	178°02.9	192°25.0	206°47.1	221°09.0	235°30.9	249°52.8	264°14.6	+22.1	16.6
		-21°07.5	-21°11.3	-21°15.0	-21°18.5	-21°21.9	-21°25.1	-21°28.1	-21°31.0	-21°33.7	-21°36.3	-21°38.7	-3.1	61.0
	ma 23	119°37.5	133°58.9	148°20.2	162°41.5	177°02.9	191°24.2	205°45.5	220°06.8	234°28.2	248°49.5	263°10.9	+21.3	16.7
		-21°54.6	-21°54.3	-21°53.9	-21°53.2	-21°52.4	-21°51.5	-21°50.3	-21°49.0	-21°47.6	-21°45.9	-21°44.1	+1.1	61.3
●	di 24	118°34.1	132°55.9	147°17.8	161°39.8	176°01.8	190°23.8	204°45.9	219°08.1	233°30.3	247°52.6	262°15.0	+22.1	16.7
		-20°56.9	-20°52.4	-20°47.8	-20°43.0	-20°38.1	-20°33.0	-20°27.8	-20°22.4	-20°16.8	-20°11.1	-20°05.3	+5.2	61.3
	wo 25	117°59.3	132°22.9	146°46.6	161°10.4	175°34.2	189°58.2	204°22.3	218°46.4	233°10.6	247°35.0	261°59.4	+24.0	16.6
		-18°20.7	-18°12.7	-18°04.5	-17°56.2	-17°47.8	-17°39.3	-17°30.7	-17°21.9	-17°13.0	-17°04.0	-16°55.0	+8.6	60.9
	do 26	118°17.3	132°43.3	147°09.4	161°35.6	176°01.8	190°28.2	204°54.7	219°21.2	233°47.9	248°14.7	262°41.5	+26.4	16.4
		-14°26.5	-14°15.9	-14°05.2	-13°54.4	-13°43.6	-13°32.6	-13°21.6	-13°10.6	-12°59.4	-12°48.2	-12°36.9	+11.0	60.2
	vr 27	119°35.6	134°03.9	148°32.3	163°00.8	177°29.4	191°58.0	206°26.8	220°55.6	235°24.6	249°53.5	264°22.6	+28.7	16.2
		-9°41.0	-9°28.9	-9°16.8	-9°04.6	-8°52.4	-8°40.1	-8°27.8	-8°15.5	-8°03.2	-7°50.8	-7°38.4	+12.3	59.3
	za 28	134°03.9	148°32.3	163°00.8	177°29.4	191°58.0	206°26.8	220°55.6	235°24.6	249°53.5	264°22.6	278°51.8	+28.8	16.2
		-9°28.9	-9°16.8	-9°04.6	-8°52.4	-8°40.1	-8°27.8	-8°15.5	-8°03.2	-7°50.8	-7°38.4	-7°26.0	+12.3	59.2
	zo 29	136°18.1	150°48.4	165°18.8	179°49.2	194°19.7	208°50.3	223°20.9	237°51.6	252°22.3	266°53.1	281°23.9	+30.6	15.9
		-4°17.6	-4°05.0	-3°52.3	-3°39.7	-3°27.1	-3°14.4	-3°01.8	-2°49.2	-2°36.5	-2°23.9	-2°11.3	+12.6	58.2
	ma 30	139°12.7	153°44.3	168°16.0	182°47.6	197°19.4	211°51.1	226°22.9	240°54.7	255°26.6	269°58.5	284°30.4	+31.8	15.6
		0°56.5	1°08.9	1°21.3	1°33.6	1°45.9	1°58.2	2°10.4	2°22.7	2°34.9	2°47.0	2°59.2	+12.3	57.2
◐	di 31	142°32.4	157°04.7	171°37.0	186°09.4	200°41.7	215°14.1	229°46.5	244°18.9	258°51.3	273°23.7	287°56.1	+32.4	15.4
		5°57.1	6°08.7	6°20.2	6°31.7	6°43.1	6°54.5	7°05.8	7°17.1	7°28.3	7°39.5	7°50.7	+11.4	56.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 1 22h56 — VM: 9 22h40 — LK: 18 00h01 — NM: 24 17h32 — EK: 31 13h36

ZON

Januari 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	179°11.6	194°11.3	209°11.0	224°10.7	239°10.4	254°10.1	89°06.3	104°06.0	119°05.7	134°05.4	149°05.1	164°04.8	-0.3
	-23°01.8	-23°01.6	-23°01.4	-23°01.2	-23°01.0	-23°00.8	-22°58.1	-22°57.9	-22°57.7	-22°57.5	-22°57.3	-22°57.0	+0.2
do 2	179°04.6	194°04.3	209°04.0	224°03.7	239°03.4	254°03.1	88°59.3	103°59.0	118°58.7	133°58.4	148°58.2	163°57.9	-0.3
	-22°56.8	-22°56.6	-22°56.4	-22°56.2	-22°56.0	-22°55.7	-22°52.8	-22°52.6	-22°52.3	-22°52.1	-22°51.9	-22°51.6	+0.2
vr 3	178°57.6	193°57.3	208°57.0	223°56.7	238°56.4	253°56.1	88°52.4	103°52.1	118°51.8	133°51.5	148°51.3	163°51.0	-0.3
	-22°51.4	-22°51.2	-22°50.9	-22°50.7	-22°50.4	-22°50.2	-22°47.0	-22°46.8	-22°46.5	-22°46.3	-22°46.0	-22°45.8	+0.2
za 4	178°50.7	193°50.4	208°50.1	223°49.8	238°49.5	253°49.3	88°45.6	103°45.3	118°45.0	133°44.7	148°44.5	163°44.2	-0.3
	-22°45.5	-22°45.2	-22°45.0	-22°44.7	-22°44.5	-22°44.2	-22°40.8	-22°40.5	-22°40.2	-22°40.0	-22°39.7	-22°39.4	+0.3
zo 5	178°43.9	193°43.6	208°43.3	223°43.1	238°42.8	253°42.5	88°38.9	103°38.6	118°38.3	133°38.1	148°37.8	163°37.5	-0.3
	-22°39.2	-22°38.9	-22°38.6	-22°38.3	-22°38.1	-22°37.8	-22°34.1	-22°33.8	-22°33.5	-22°33.2	-22°33.0	-22°32.7	+0.3
ma 6	178°37.2	193°37.0	208°36.7	223°36.4	238°36.1	253°35.9	88°32.3	103°32.0	118°31.8	133°31.5	148°31.2	163°30.9	-0.3
	-22°32.4	-22°32.1	-22°31.8	-22°31.5	-22°31.2	-22°30.9	-22°27.0	-22°26.7	-22°26.4	-22°26.1	-22°25.8	-22°25.4	+0.3
di 7	178°30.7	193°30.4	208°30.1	223°29.9	238°29.6	253°29.3	88°25.8	103°25.6	118°25.3	133°25.0	148°24.8	163°24.5	-0.3
	-22°25.1	-22°24.8	-22°24.5	-22°24.2	-22°23.9	-22°23.6	-22°19.4	-22°19.1	-22°18.8	-22°18.4	-22°18.1	-22°17.8	+0.3
wo 8	178°24.2	193°24.0	208°23.7	223°23.4	238°23.2	253°22.9	88°19.5	103°19.2	118°19.0	133°18.7	148°18.4	163°18.2	-0.3
	-22°17.5	-22°17.1	-22°16.8	-22°16.5	-22°16.1	-22°15.8	-22°11.4	-22°11.1	-22°10.7	-22°10.4	-22°10.0	-22°09.7	+0.3
do 9	178°17.9	193°17.7	208°17.4	223°17.1	238°16.9	253°16.6	88°13.3	103°13.0	118°12.8	133°12.5	148°12.2	163°12.0	-0.3
	-22°09.4	-22°09.0	-22°08.7	-22°08.3	-22°08.0	-22°07.6	-22°03.0	-22°02.6	-22°02.3	-22°01.9	-22°01.5	-22°01.2	+0.3
vr 10	178°11.7	193°11.5	208°11.2	223°11.0	238°10.7	253°10.5	88°07.2	103°06.9	118°06.7	133°06.4	148°06.2	163°05.9	-0.3
	-22°00.8	-22°00.4	-22°00.1	-21°59.7	-21°59.3	-21°59.0	-21°54.1	-21°53.7	-21°53.4	-21°53.0	-21°52.6	-21°52.2	+0.4
za 11	178°05.7	193°05.4	208°05.2	223°05.0	238°04.7	253°04.5	88°01.3	103°01.0	118°00.8	133°00.5	148°00.3	163°00.0	-0.2
	-21°51.8	-21°51.4	-21°51.1	-21°50.7	-21°50.3	-21°49.9	-21°44.8	-21°44.4	-21°44.0	-21°43.6	-21°43.2	-21°42.8	+0.4
zo 12	177°59.8	192°59.6	207°59.3	222°59.1	237°58.8	252°58.6	87°55.5	102°55.2	117°55.0	132°54.8	147°54.5	162°54.3	-0.2
	-21°42.4	-21°42.0	-21°41.6	-21°41.2	-21°40.8	-21°40.4	-21°35.1	-21°34.7	-21°34.3	-21°33.9	-21°33.4	-21°33.0	+0.4
ma 13	177°54.0	192°53.8	207°53.6	222°53.3	237°53.1	252°52.9	87°49.8	102°49.6	117°49.4	132°49.1	147°48.9	162°48.7	-0.2
	-21°32.6	-21°32.2	-21°31.8	-21°31.3	-21°30.9	-21°30.5	-21°25.0	-21°24.5	-21°24.1	-21°23.7	-21°23.2	-21°22.8	+0.4
di 14	177°48.4	192°48.2	207°48.0	222°47.8	237°47.5	252°47.3	87°44.3	102°44.1	117°43.9	132°43.7	147°43.4	162°43.2	-0.2
	-21°22.4	-21°21.9	-21°21.5	-21°21.0	-21°20.6	-21°20.2	-21°14.4	-21°14.0	-21°13.5	-21°13.1	-21°12.6	-21°12.2	+0.4
wo 15	177°43.0	192°42.8	207°42.6	222°42.3	237°42.1	252°41.9	87°39.0	102°38.8	117°38.6	132°38.4	147°38.2	162°37.9	-0.2
	-21°11.7	-21°11.2	-21°10.8	-21°10.3	-21°09.9	-21°09.4	-21°03.4	-21°03.0	-21°02.5	-21°02.0	-21°01.6	-21°01.1	+0.5
do 16	177°37.7	192°37.5	207°37.3	222°37.1	237°36.9	252°36.6	87°33.9	102°33.7	117°33.4	132°33.2	147°33.0	162°32.8	-0.2
	-21°00.6	-21°00.2	-20°59.7	-20°59.2	-20°58.8	-20°58.3	-20°52.1	-20°51.6	-20°51.1	-20°50.6	-20°50.1	-20°49.7	+0.5
vr 17	177°32.6	192°32.4	207°32.2	222°32.0	237°31.8	252°31.6	87°28.9	102°28.7	117°28.5	132°28.3	147°28.1	162°27.9	-0.2
	-20°49.2	-20°48.7	-20°48.2	-20°47.7	-20°47.2	-20°46.7	-20°40.3	-20°39.8	-20°39.3	-20°38.8	-20°38.3	-20°37.8	+0.5
za 18	177°27.6	192°27.4	207°27.2	222°27.0	237°26.8	252°26.6	87°24.0	102°23.9	117°23.7	132°23.5	147°23.3	162°23.1	-0.2
	-20°37.3	-20°36.8	-20°36.3	-20°35.8	-20°35.3	-20°34.8	-20°28.1	-20°27.6	-20°27.1	-20°26.6	-20°26.1	-20°25.6	+0.5
zo 19	177°22.9	192°22.7	207°22.5	222°22.3	237°22.1	252°21.9	87°19.4	102°19.2	117°19.0	132°18.8	147°18.6	162°18.5	-0.2
	-20°25.0	-20°24.5	-20°24.0	-20°23.5	-20°23.0	-20°22.4	-20°15.6	-20°15.1	-20°14.5	-20°14.0	-20°13.5	-20°12.9	+0.5
ma 20	177°18.3	192°18.1	207°17.9	222°17.7	237°17.5	252°17.3	87°14.9	102°14.8	117°14.6	132°14.4	147°14.2	162°14.0	-0.2
	-20°12.4	-20°11.9	-20°11.3	-20°10.8	-20°10.3	-20°09.7	-20°02.7	-20°02.1	-20°01.6	-20°01.0	-20°00.5	-19°59.9	+0.5
di 21	177°13.9	192°13.7	207°13.5	222°13.3	237°13.1	252°13.0	87°10.7	102°10.5	117°10.3	132°10.1	147°10.0	162°09.8	-0.2
	-19°59.4	-19°58.8	-19°58.3	-19°57.7	-19°57.2	-19°56.6	-19°49.4	-19°48.8	-19°48.2	-19°47.7	-19°47.1	-19°46.5	+0.6
wo 22	177°09.6	192°09.4	207°09.3	222°09.1	237°08.9	252°08.8	87°06.6	102°06.4	117°06.2	132°06.1	147°05.9	162°05.7	-0.2
	-19°46.0	-19°45.4	-19°44.8	-19°44.3	-19°43.7	-19°43.1	-19°35.7	-19°35.1	-19°34.5	-19°34.0	-19°33.4	-19°32.8	+0.6
do 23	177°05.6	192°05.4	207°05.2	222°05.1	237°04.9	252°04.8	87°02.7	102°02.5	117°02.4	132°02.2	147°02.0	162°01.9	-0.2
	-19°32.2	-19°31.6	-19°31.1	-19°30.5	-19°29.9	-19°29.3	-19°21.7	-19°21.1	-19°20.5	-19°19.9	-19°19.3	-19°18.7	+0.6
vr 24	177°01.7	192°01.6	207°01.4	222°01.3	237°01.1	252°00.9	86°59.0	101°58.8	116°58.7	131°58.5	146°58.4	161°58.2	-0.2
	-19°18.1	-19°17.5	-19°16.9	-19°16.3	-19°15.7	-19°15.1	-19°07.3	-19°06.6	-19°06.0	-19°05.4	-19°04.8	-19°04.2	+0.6
za 25	176°58.1	191°57.9	206°57.8	221°57.6	236°57.5	251°57.3	86°55.5	101°55.3	116°55.2	131°55.0	146°54.9	161°54.8	-0.1
	-19°03.6	-19°03.0	-19°02.4	-19°01.8	-19°01.2	-19°00.5	-18°52.5	-18°51.9	-18°51.3	-18°50.6	-18°50.0	-18°49.4	+0.6
zo 26	176°54.6	191°54.5	206°54.3	221°54.2	236°54.1	251°53.9	86°52.2	101°52.0	116°51.9	131°51.8	146°51.6	161°51.5	-0.1
	-18°48.8	-18°48.1	-18°47.5	-18°46.9	-18°46.3	-18°45.6	-18°37.4	-18°36.8	-18°36.2	-18°35.5	-18°34.9	-18°34.2	+0.6
ma 27	176°51.4	191°51.2	206°51.1	221°51.0	236°50.8	251°50.7	86°49.1	101°48.9	116°48.8	131°48.7	146°48.6	161°48.4	-0.1
	-18°33.6	-18°33.0	-18°32.3	-18°31.7	-18°31.0	-18°30.4	-18°22.0	-18°21.3	-18°20.7	-18°20.0	-18°19.4	-18°18.7	+0.6
di 28	176°48.3	191°48.2	206°48.1	221°48.0	236°47.8	251°47.7	86°46.2	101°46.1	116°45.9	131°45.8	146°45.7	161°45.6	-0.1
	-18°18.1	-18°17.4	-18°16.8	-18°16.1	-18°15.5	-18°14.8	-18°06.2	-18°05.6	-18°04.9	-18°04.2	-18°03.6	-18°02.9	+0.7
wo 29	176°45.5	191°45.4	206°45.3	221°45.1	236°45.0	251°44.9	86°43.5	101°43.4	116°43.3	131°43.2	146°43.1	161°43.0	-0.1
	-18°02.2	-18°01.6	-18°00.9	-18°00.2	-17°59.6	-17°58.9	-17°50.2	-17°49.5	-17°48.8	-17°48.1	-17°47.4	-17°46.8	+0.7
do 30	176°42.9	191°42.7	206°42.6	221°42.5	236°42.4	251°42.3	86°41.0	101°40.9	116°40.8	131°40.7	146°40.6	161°40.5	-0.1
	-17°46.1	-17°45.4	-17°44.7	-17°44.0	-17°43.4	-17°42.7	-17°33.8	-17°33.1	-17°32.4	-17°31.7	-17°31.0	-17°30.3	+0.7
vr 31	176°40.4	191°40.3	206°40.2	221°40.1	236°40.0	251°39.9	86°38.7	101°38.7	116°38.6	131°38.5	146°38.4	161°38.3	-0.1
	-17°29.6	-17°28.9	-17°28.2	-17°27.5	-17°26.8	-17°26.1	-17°17.0	-17°16.3	-17°15.6	-17°14.9	-17°14.2	-17°13.5	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2031

D	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
wo 1	47°46.4	62°18.7	76°51.0	91°23.3	105°55.6	120°27.9	135°00.1	149°32.4	164°04.6	178°36.8	193°09.0	+32.3	15.0
	13°27.6	13°36.8	13°45.9	13°54.9	14°03.9	14°12.8	14°21.6	14°30.3	14°39.0	14°47.6	14°56.1	+8.8	55.1
do 2	51°09.6	65°41.5	80°13.4	94°45.2	109°17.0	123°48.8	138°20.6	152°52.3	167°24.0	181°55.8	196°27.4	+31.8	14.9
	16°55.0	17°02.3	17°09.6	17°16.7	17°23.8	17°30.8	17°37.7	17°44.5	17°51.2	17°57.9	18°04.4	+6.9	54.6
vr 3	65°41.5	80°13.4	94°45.2	109°17.0	123°48.8	138°20.6	152°52.3	167°24.0	181°55.8	196°27.4	210°59.1	+31.8	14.9
	17°02.3	17°09.6	17°16.7	17°23.8	17°30.8	17°37.7	17°44.5	17°51.2	17°57.9	18°04.4	18°10.9	+6.9	54.5
za 4	68°51.3	83°22.6	97°53.8	112°25.1	126°56.3	141°27.5	155°58.7	170°29.9	185°01.0	199°32.2	214°03.3	+31.2	14.8
	19°37.7	19°42.8	19°47.7	19°52.6	19°57.4	20°02.1	20°06.7	20°11.3	20°15.7	20°20.0	20°24.3	+4.7	54.2
zo 5	71°47.6	86°18.5	100°49.3	115°20.1	129°50.8	144°21.6	158°52.4	173°23.1	187°53.8	202°24.6	216°55.3	+30.8	14.7
	21°16.3	21°19.0	21°21.6	21°24.1	21°26.5	21°28.8	21°31.0	21°33.1	21°35.1	21°37.0	21°38.8	+2.2	54.0
ma 6	74°34.9	89°05.5	103°36.1	118°06.7	132°37.3	147°07.9	161°38.5	176°09.1	190°39.7	205°10.3	219°40.9	+30.6	14.7
	21°53.6	21°53.8	21°53.8	21°53.8	21°53.7	21°53.5	21°53.1	21°52.7	21°52.1	21°51.5	21°50.8	-0.3	53.9
di 7	77°20.7	91°51.4	106°22.2	120°52.9	135°23.7	149°54.5	164°25.3	178°56.1	193°26.9	207°57.7	222°28.6	+30.8	14.7
	21°27.5	21°25.1	21°22.7	21°20.1	21°17.4	21°14.7	21°11.8	21°08.9	21°05.8	21°02.7	20°59.4	-2.8	54.0
○ wo 8	80°13.7	94°44.9	109°16.1	123°47.3	138°18.5	152°49.8	167°21.1	181°52.4	196°23.8	210°55.1	225°26.5	+31.3	14.8
	19°59.2	19°54.4	19°49.6	19°44.6	19°39.6	19°34.5	19°29.2	19°23.9	19°18.5	19°13.0	19°07.4	-5.2	54.1
do 9	83°20.8	97°52.6	112°24.5	126°56.4	141°28.3	156°00.2	170°32.2	185°04.2	199°36.3	214°08.3	228°40.4	+32.0	14.8
	17°33.4	17°26.5	17°19.5	17°12.4	17°05.2	16°57.9	16°50.6	16°43.2	16°35.7	16°28.2	16°20.5	-7.3	54.3
vr 10	86°45.1	101°17.7	115°50.2	130°22.8	144°55.4	159°28.0	174°00.7	188°33.4	203°06.1	217°38.8	232°11.6	+32.6	14.9
	14°17.4	14°08.6	13°59.8	13°50.9	13°42.0	13°33.0	13°23.9	13°14.7	13°05.5	12°56.3	12°46.9	-9.0	54.6
za 11	90°25.4	104°58.5	119°31.6	134°04.7	148°37.8	163°10.9	177°44.1	192°17.2	206°50.4	221°23.6	235°56.8	+33.1	15.0
	10°20.4	10°10.2	9°59.9	9°49.6	9°39.3	9°28.9	9°18.5	9°08.0	8°57.5	8°46.9	8°36.3	-10.4	55.0
zo 12	94°15.7	108°49.0	123°22.3	137°55.7	152°29.0	167°02.3	181°35.6	196°08.8	210°42.1	225°15.4	239°48.7	+33.3	15.1
	5°52.6	5°41.4	5°30.1	5°18.9	5°07.6	4°56.3	4°44.9	4°33.6	4°22.2	4°10.7	3°59.3	-11.3	55.5
ma 13	98°06.8	112°39.9	127°13.0	141°46.0	156°19.1	170°52.1	185°25.1	199°58.1	214°31.0	229°03.9	243°36.8	+33.0	15.3
	1°05.0	0°53.2	0°41.4	0°29.7	0°17.9	0°06.1	-0°05.7	-0°17.6	-0°29.4	-0°41.2	-0°53.1	-11.8	56.0
di 14	101°46.5	116°18.9	130°51.2	145°23.5	159°55.7	174°27.9	189°00.1	203°32.2	218°04.2	232°36.2	247°08.2	+32.2	15.4
	-3°50.8	-4°02.6	-4°14.4	-4°26.2	-4°38.0	-4°49.8	-5°01.6	-5°13.3	-5°25.1	-5°36.8	-5°48.5	-11.8	56.6
wo 15	105°01.1	119°32.1	134°03.1	148°34.0	163°04.9	177°35.7	192°06.4	206°37.1	221°07.7	235°38.2	250°08.7	+30.8	15.6
	-8°41.7	-8°53.0	-9°04.3	-9°15.6	-9°26.8	-9°38.0	-9°49.2	-10°00.3	-10°11.4	-10°22.4	-10°33.4	-11.2	57.4
◑ do 16	107°36.4	122°05.6	136°34.7	151°03.7	165°32.7	180°01.6	194°30.4	208°59.1	223°27.7	237°56.2	252°24.7	+28.8	15.9
	-13°12.7	-13°22.9	-13°33.0	-13°43.0	-13°53.0	-14°03.0	-14°12.8	-14°22.6	-14°32.3	-14°42.0	-14°51.6	-9.9	58.1
vr 17	109°20.5	123°47.5	138°14.4	152°41.2	167°07.9	181°34.5	196°01.0	210°27.5	224°53.8	239°20.1	253°46.2	+26.6	16.1
	-17°05.8	-17°14.0	-17°22.2	-17°30.3	-17°38.2	-17°46.1	-17°53.9	-18°01.5	-18°09.1	-18°16.5	-18°23.9	-7.8	58.9
za 18	110°07.9	124°32.6	138°57.3	153°21.9	167°46.4	182°10.8	196°35.2	210°59.4	225°23.6	239°47.7	254°11.8	+24.4	16.3
	-20°00.6	-20°06.1	-20°11.4	-20°16.7	-20°21.8	-20°26.7	-20°31.5	-20°36.2	-20°40.8	-20°45.2	-20°49.5	-4.9	59.7
zo 19	110°04.2	124°27.2	138°50.2	153°13.1	167°36.0	181°58.8	196°21.6	210°44.4	225°07.1	239°29.7	253°52.4	+22.8	16.5
	-21°36.6	-21°38.5	-21°40.3	-21°42.0	-21°43.4	-21°44.8	-21°46.0	-21°47.0	-21°47.8	-21°48.5	-21°49.1	-1.3	60.3
ma 20	109°29.0	123°51.3	138°13.7	152°36.0	166°58.3	181°20.7	195°43.0	210°05.4	224°27.8	238°50.1	253°12.5	+22.3	16.6
	-21°38.0	-21°36.0	-21°33.8	-21°31.5	-21°28.9	-21°26.3	-21°23.4	-21°20.5	-21°17.3	-21°14.0	-21°10.5	+2.7	60.8
di 21	108°51.7	123°14.6	137°37.5	152°00.5	166°23.5	180°46.6	195°09.8	209°33.0	223°56.2	238°19.5	252°42.9	+23.1	16.6
	-19°59.9	-19°54.0	-19°47.9	-19°41.7	-19°35.4	-19°28.9	-19°22.2	-19°15.5	-19°08.6	-19°01.5	-18°54.3	+6.6	60.9
wo 22	108°41.2	123°05.6	137°30.2	151°54.8	166°19.4	180°44.2	195°09.0	209°33.9	223°58.9	238°24.0	252°49.1	+24.8	16.6
	-16°51.1	-16°41.9	-16°32.6	-16°23.2	-16°13.7	-16°04.1	-15°54.4	-15°44.5	-15°34.6	-15°24.6	-15°14.5	+9.7	60.7
● do 23	109°16.1	123°42.5	138°09.0	152°35.6	167°02.3	181°29.1	195°56.0	210°22.9	224°49.9	239°17.0	253°44.2	+26.8	16.4
	-12°31.9	-12°20.5	-12°08.9	-11°57.3	-11°45.7	-11°34.0	-11°22.2	-11°10.3	-10°58.4	-10°46.4	-10°34.4	+11.8	60.2
vr 24	110°41.1	125°09.5	139°38.0	154°06.5	168°35.1	183°03.8	197°32.5	212°01.3	226°30.2	240°59.1	255°28.1	+28.7	16.2
	-7°28.6	-7°15.9	-7°03.2	-6°50.5	-6°37.7	-6°25.0	-6°12.2	-5°59.3	-5°46.5	-5°33.6	-5°20.8	+12.8	59.5
za 25	112°50.6	127°20.6	141°50.6	156°20.6	170°50.7	185°20.9	199°51.1	214°21.4	228°51.7	243°22.0	257°52.4	+30.2	16.0
	-2°06.9	-1°54.0	-1°41.1	-1°28.1	-1°15.3	-1°02.4	-0°49.5	-0°36.6	-0°23.8	-0°11.0	0°01.8	+12.9	58.6
zo 26	115°33.3	130°04.3	144°35.3	159°06.4	173°37.5	188°08.7	202°39.8	217°11.0	231°42.2	246°13.5	260°44.7	+31.2	15.7
	3°11.1	3°23.5	3°35.9	3°48.2	4°00.5	4°12.7	4°24.9	4°37.1	4°49.2	5°01.3	5°13.3	+12.2	57.6
ma 27	130°04.3	144°35.3	159°06.4	173°37.5	188°08.7	202°39.8	217°11.0	231°42.2	246°13.5	260°44.7	275°16.0	+31.2	15.7
	3°23.5	3°35.9	3°48.2	4°00.5	4°12.7	4°24.9	4°37.1	4°49.2	5°01.3	5°13.3	5°25.3	+12.2	57.6
di 28	133°07.9	147°39.5	162°11.1	176°42.7	191°14.3	205°45.9	220°17.6	234°49.2	249°20.8	263°52.5	278°24.2	+31.6	15.4
	8°19.5	8°30.7	8°41.8	8°52.9	9°04.0	9°14.9	9°25.8	9°36.7	9°47.5	9°58.2	10°08.9	+10.9	56.6
wo 29	136°19.6	150°51.3	165°23.0	179°54.7	194°26.4	208°58.1	223°29.7	238°01.4	252°33.1	267°04.7	281°36.4	+31.7	15.2
	12°41.2	12°50.8	13°00.3	13°09.8	13°19.2	13°28.5	13°37.8	13°46.9	13°56.0	14°05.1	14°14.0	+9.3	55.8
◐ do 30	139°30.2	154°01.8	168°33.3	183°04.7	197°36.2	212°07.7	226°39.1	241°10.6	255°42.0	270°13.4	284°44.8	+31.5	15.0
	16°18.9	16°26.6	16°34.2	16°41.7	16°49.1	16°56.5	17°03.8	17°10.9	17°18.0	17°25.1	17°32.0	+7.3	55.1
vr 31	142°34.0	157°05.2	171°36.4	186°07.5	200°38.6	215°09.7	229°40.8	244°11.9	258°43.0	273°14.0	287°45.1	+31.1	14.9
	19°05.3	19°10.8	19°16.2	19°21.5	19°26.7	19°31.8	19°36.9	19°41.8	19°46.7	19°51.4	19°56.1	+5.1	54.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 8 18h25 — LK: 16 12h47 — NM: 23 04h31 — EK: 30 07h43

ZON

Februari 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	176°38.2	191°38.1	206°38.0	221°38.0	236°37.9	251°37.8	86°36.7	101°36.6	116°36.5	131°36.4	146°36.4	161°36.3	-0.1
	-17°12.8	-17°12.1	-17°11.4	-17°10.7	-17°10.0	-17°09.3	-17°00.0	-16°59.3	-16°58.6	-16°57.9	-16°57.2	-16°56.5	+0.7
zo 2	176°36.2	191°36.1	206°36.0	221°36.0	236°35.9	251°35.8	86°34.8	101°34.8	116°34.7	131°34.6	146°34.6	161°34.5	-0.1
	-16°55.7	-16°55.0	-16°54.3	-16°53.6	-16°52.9	-16°52.1	-16°42.7	-16°42.0	-16°41.3	-16°40.5	-16°39.8	-16°39.1	+0.7
ma 3	176°34.4	191°34.3	206°34.3	221°34.2	236°34.1	251°34.1	86°33.2	101°33.1	116°33.1	131°33.0	146°32.9	161°32.9	-0.1
	-16°38.4	-16°37.6	-16°36.9	-16°36.2	-16°35.4	-16°34.7	-16°25.1	-16°24.4	-16°23.6	-16°22.9	-16°22.2	-16°21.4	+0.7
di 4	176°32.8	191°32.8	206°32.7	221°32.6	236°32.6	251°32.5	86°31.8	101°31.7	116°31.6	131°31.6	146°31.5	161°31.5	-0.1
	-16°20.7	-16°19.9	-16°19.2	-16°18.4	-16°17.7	-16°17.0	-16°07.2	-16°06.5	-16°05.7	-16°05.0	-16°04.2	-16°03.5	+0.7
wo 5	176°31.4	191°31.4	206°31.3	221°31.3	236°31.2	251°31.2	86°30.5	101°30.5	116°30.4	131°30.4	146°30.3	161°30.3	-0.1
	-16°02.7	-16°02.0	-16°01.2	-16°00.5	-15°59.7	-15°58.9	-15°49.1	-15°48.3	-15°47.5	-15°46.8	-15°46.0	-15°45.3	+0.8
do 6	176°30.2	191°30.2	206°30.2	221°30.1	236°30.1	251°30.0	86°29.5	101°29.5	116°29.4	131°29.4	146°29.3	161°29.3	-0.0
	-15°44.5	-15°43.7	-15°43.0	-15°42.2	-15°41.4	-15°40.7	-15°30.6	-15°29.9	-15°29.1	-15°28.3	-15°27.5	-15°26.8	+0.8
vr 7	176°29.3	191°29.2	206°29.2	221°29.2	236°29.1	251°29.1	86°28.7	101°28.6	116°28.6	131°28.6	146°28.5	161°28.5	-0.0
	-15°26.0	-15°25.2	-15°24.4	-15°23.7	-15°22.9	-15°22.1	-15°11.9	-15°11.2	-15°10.4	-15°09.6	-15°08.8	-15°08.0	+0.8
za 8	176°28.5	191°28.5	206°28.4	221°28.4	236°28.4	251°28.4	86°28.0	101°28.0	116°28.0	131°28.0	146°27.9	161°27.9	-0.0
	-15°07.2	-15°06.4	-15°05.6	-15°04.9	-15°04.1	-15°03.3	-14°53.0	-14°52.2	-14°51.4	-14°50.6	-14°49.8	-14°49.0	+0.8
zo 9	176°27.9	191°27.9	206°27.9	221°27.8	236°27.8	251°27.8	86°27.6	101°27.6	116°27.6	131°27.6	146°27.5	161°27.5	-0.0
	-14°48.2	-14°47.4	-14°46.6	-14°45.8	-14°45.0	-14°44.2	-14°33.8	-14°33.0	-14°32.2	-14°31.4	-14°30.5	-14°29.7	+0.8
ma 10	176°27.5	191°27.5	206°27.5	221°27.5	236°27.5	251°27.5	86°27.4	101°27.4	116°27.3	131°27.3	146°27.3	161°27.3	-0.0
	-14°28.9	-14°28.1	-14°27.3	-14°26.5	-14°25.7	-14°24.9	-14°14.3	-14°13.5	-14°12.7	-14°11.9	-14°11.1	-14°10.2	+0.8
di 11	176°27.3	191°27.3	206°27.3	221°27.3	236°27.3	251°27.3	86°27.3	101°27.3	116°27.3	131°27.3	146°27.3	161°27.3	-0.0
	-14°09.4	-14°08.6	-14°07.8	-14°07.0	-14°06.1	-14°05.3	-13°54.6	-13°53.8	-13°53.0	-13°52.1	-13°51.3	-13°50.5	+0.8
wo 12	176°27.3	191°27.3	206°27.3	221°27.3	236°27.3	251°27.3	86°27.4	101°27.4	116°27.5	131°27.5	146°27.5	161°27.5	+0.0
	-13°49.7	-13°48.8	-13°48.0	-13°47.2	-13°46.4	-13°45.5	-13°34.7	-13°33.9	-13°33.0	-13°32.2	-13°31.4	-13°30.5	+0.8
do 13	176°27.5	191°27.5	206°27.5	221°27.5	236°27.6	251°27.6	86°27.8	101°27.8	116°27.8	131°27.8	146°27.8	161°27.8	+0.0
	-13°29.7	-13°28.9	-13°28.0	-13°27.2	-13°26.3	-13°25.5	-13°14.6	-13°13.7	-13°12.9	-13°12.0	-13°11.2	-13°10.3	+0.8
vr 14	176°27.9	191°27.9	206°27.9	221°27.9	236°27.9	251°28.0	86°28.3	101°28.3	116°28.3	131°28.3	146°28.4	161°28.4	+0.0
	-13°09.5	-13°08.6	-13°07.8	-13°06.9	-13°06.1	-13°05.2	-12°54.2	-12°53.3	-12°52.5	-12°51.6	-12°50.8	-12°49.9	+0.8
za 15	176°28.4	191°28.4	206°28.5	221°28.5	236°28.5	251°28.5	86°28.9	101°29.0	116°29.0	131°29.0	146°29.1	161°29.1	+0.0
	-12°49.1	-12°48.2	-12°47.4	-12°46.5	-12°45.6	-12°44.8	-12°33.6	-12°32.8	-12°31.9	-12°31.0	-12°30.2	-12°29.3	+0.9
zo 16	176°29.1	191°29.2	206°29.2	221°29.2	236°29.3	251°29.3	86°29.8	101°29.8	116°29.9	131°29.9	146°29.9	161°30.0	+0.0
	-12°28.4	-12°27.6	-12°26.7	-12°25.8	-12°25.0	-12°24.1	-12°12.8	-12°12.0	-12°11.1	-12°10.2	-12°09.3	-12°08.5	+0.9
ma 17	176°30.0	191°30.1	206°30.1	221°30.1	236°30.2	251°30.2	86°30.8	101°30.9	116°30.9	131°30.9	146°31.0	161°31.0	+0.0
	-12°07.6	-12°06.7	-12°05.9	-12°05.0	-12°04.1	-12°03.2	-11°51.9	-11°51.0	-11°50.1	-11°49.2	-11°48.3	-11°47.5	+0.9
di 18	176°31.1	191°31.1	206°31.2	221°31.2	236°31.3	251°31.3	86°32.0	101°32.1	116°32.1	131°32.2	146°32.2	161°32.3	+0.0
	-11°46.6	-11°45.7	-11°44.8	-11°43.9	-11°43.1	-11°42.2	-11°30.7	-11°29.8	-11°28.9	-11°28.0	-11°27.1	-11°26.3	+0.9
wo 19	176°32.3	191°32.4	206°32.4	221°32.5	236°32.5	251°32.6	86°33.4	101°33.4	116°33.5	131°33.5	146°33.6	161°33.7	+0.1
	-11°25.4	-11°24.5	-11°23.6	-11°22.7	-11°21.8	-11°20.9	-11°09.3	-11°08.4	-11°07.6	-11°06.7	-11°05.8	-11°04.9	+0.9
do 20	176°33.7	191°33.8	206°33.9	221°33.9	236°34.0	251°34.0	86°34.9	101°35.0	116°35.0	131°35.1	146°35.2	161°35.2	+0.1
	-11°04.0	-11°03.1	-11°02.2	-11°01.3	-11°00.4	-10°59.5	-10°47.8	-10°46.9	-10°46.0	-10°45.1	-10°44.2	-10°43.3	+0.9
vr 21	176°35.3	191°35.4	206°35.4	221°35.5	236°35.6	251°35.6	86°36.6	101°36.6	116°36.7	131°36.8	146°36.9	161°36.9	+0.1
	-10°42.4	-10°41.5	-10°40.6	-10°39.7	-10°38.8	-10°37.9	-10°26.1	-10°25.2	-10°24.3	-10°23.4	-10°22.5	-10°21.6	+0.9
za 22	176°37.0	191°37.1	206°37.2	221°37.2	236°37.3	251°37.4	86°38.4	101°38.5	116°38.6	131°38.7	146°38.7	161°38.8	+0.1
	-10°20.7	-10°19.8	-10°18.9	-10°17.9	-10°17.0	-10°16.1	-10°04.3	-10°03.4	-10°02.4	-10°01.5	-10°00.6	-9°59.7	+0.9
zo 23	176°38.9	191°39.0	206°39.1	221°39.1	236°39.2	251°39.3	86°40.4	101°40.5	116°40.6	131°40.7	146°40.8	161°40.9	+0.1
	-9°58.8	-9°57.9	-9°57.0	-9°56.0	-9°55.1	-9°54.2	-9°42.3	-9°41.3	-9°40.4	-9°39.5	-9°38.6	-9°37.7	+0.9
ma 24	176°40.9	191°41.0	206°41.1	221°41.2	236°41.3	251°41.4	86°42.6	101°42.7	116°42.8	131°42.8	146°42.9	161°43.0	+0.1
	-9°36.7	-9°35.8	-9°34.9	-9°34.0	-9°33.1	-9°32.1	-9°20.1	-9°19.2	-9°18.3	-9°17.3	-9°16.4	-9°15.5	+0.9
di 25	176°43.1	191°43.2	206°43.3	221°43.4	236°43.5	251°43.6	86°44.9	101°45.0	116°45.1	131°45.2	146°45.3	161°45.4	+0.1
	-9°14.6	-9°13.6	-9°12.7	-9°11.8	-9°10.8	-9°09.9	-8°57.8	-8°56.9	-8°56.0	-8°55.0	-8°54.1	-8°53.2	+0.9
wo 26	176°45.5	191°45.6	206°45.7	221°45.8	236°45.9	251°46.0	86°47.3	101°47.4	116°47.5	131°47.6	146°47.7	161°47.9	+0.1
	-8°52.2	-8°51.3	-8°50.4	-8°49.4	-8°48.5	-8°47.6	-8°35.4	-8°34.5	-8°33.5	-8°32.6	-8°31.7	-8°30.7	+0.9
do 27	176°48.0	191°48.1	206°48.2	221°48.3	236°48.4	251°48.5	86°49.9	101°50.0	116°50.1	131°50.3	146°50.4	161°50.5	+0.1
	-8°29.8	-8°28.8	-8°27.9	-8°27.0	-8°26.0	-8°25.1	-8°12.9	-8°11.9	-8°11.0	-8°10.0	-8°09.1	-8°08.1	+0.9
vr 28	176°50.6	191°50.7	206°50.8	221°50.9	236°51.0	251°51.2	86°52.6	101°52.8	116°52.9	131°53.0	146°53.1	161°53.2	+0.1
	-8°07.2	-8°06.3	-8°05.3	-8°04.4	-8°03.4	-8°02.5	-7°50.2	-7°49.2	-7°48.3	-7°47.3	-7°46.4	-7°45.5	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2031

D	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
za 1	72°54.8	87°25.7	101°56.6	116°27.4	130°58.3	145°29.2	160°00.0	174°30.8	189°01.7	203°32.5	218°03.3	+30.8	14.8
	20°37.5	20°41.1	20°44.6	20°48.0	20°51.3	20°54.5	20°57.7	21°00.7	21°03.6	21°06.4	21°09.2	+3.2	54.3
zo 2	75°44.3	90°15.0	104°45.7	119°16.4	133°47.1	148°17.8	162°48.4	177°19.1	191°49.8	206°20.4	220°51.1	+30.7	14.7
	21°38.1	21°39.3	21°40.3	21°41.2	21°42.1	21°42.8	21°43.4	21°43.9	21°44.4	21°44.7	21°44.9	+0.7	54.1
ma 3	78°31.4	93°02.1	107°32.8	122°03.5	136°34.3	151°05.0	165°35.8	180°06.5	194°37.3	209°08.1	223°38.9	+30.7	14.7
	21°36.2	21°34.8	21°33.3	21°31.7	21°30.0	21°28.2	21°26.3	21°24.3	21°22.3	21°20.1	21°17.8	-1.8	54.0
di 4	81°22.2	95°53.2	110°24.3	124°55.3	139°26.4	153°57.4	168°28.5	182°59.6	197°30.8	212°01.9	226°33.1	+31.1	14.8
	20°31.8	20°27.9	20°24.0	20°20.0	20°15.8	20°11.6	20°07.3	20°02.9	19°58.4	19°53.8	19°49.1	-4.3	54.1
wo 5	84°23.0	98°54.4	113°26.0	127°57.5	142°29.1	157°00.7	171°32.3	186°03.9	200°35.6	215°07.2	229°38.9	+31.6	14.8
	18°28.0	18°21.9	18°15.7	18°09.4	18°03.0	17°56.5	17°50.0	17°43.4	17°36.7	17°29.9	17°23.0	-6.5	54.4
do 6	87°37.2	102°09.3	116°41.4	131°13.5	145°45.6	160°17.8	174°50.0	189°22.2	203°54.4	218°26.6	232°58.9	+32.2	14.9
	15°30.4	15°22.3	15°14.2	15°05.9	14°57.6	14°49.2	14°40.7	14°32.2	14°23.5	14°14.9	14°06.1	-8.4	54.7
○ vr 7	91°05.3	105°37.8	120°10.4	134°43.0	149°15.6	163°48.3	178°20.9	192°53.6	207°26.3	221°59.0	236°31.7	+32.6	15.0
	11°47.2	11°37.5	11°27.7	11°17.8	11°07.9	10°57.9	10°47.9	10°37.8	10°27.7	10°17.5	10°07.3	-10.0	55.1
za 8	94°43.6	109°16.4	123°49.3	138°22.1	152°55.0	167°27.9	182°00.8	196°33.7	211°06.5	225°39.4	240°12.3	+32.9	15.1
	7°28.2	7°17.2	7°06.2	6°55.2	6°44.1	6°33.0	6°21.9	6°10.7	5°59.5	5°48.3	5°37.0	-11.1	55.5
zo 9	98°25.3	112°58.1	127°30.9	142°03.7	156°36.4	171°09.2	185°42.0	200°14.7	214°47.4	229°20.2	243°52.8	+32.8	15.3
	2°44.6	2°32.9	2°21.3	2°09.5	1°57.8	1°46.1	1°34.3	1°22.5	1°10.7	0°58.9	0°47.1	-11.8	56.0
ma 10	102°00.9	116°33.3	131°05.6	145°37.9	160°10.1	174°42.4	189°14.6	203°46.7	218°18.9	232°51.0	247°23.0	+32.2	15.4
	-2°10.9	-2°22.7	-2°34.6	-2°46.5	-2°58.4	-3°10.2	-3°22.1	-3°33.9	-3°45.7	-3°57.6	-4°09.4	-11.9	56.5
di 11	105°19.4	119°50.8	134°22.2	148°53.5	163°24.8	177°56.0	192°27.2	206°58.3	221°29.3	236°00.4	250°31.3	+31.2	15.6
	-7°04.5	-7°16.0	-7°27.5	-7°38.9	-7°50.4	-8°01.7	-8°13.1	-8°24.4	-8°35.7	-8°46.9	-8°58.1	-11.4	57.0
wo 12	108°09.0	122°39.1	137°09.0	151°38.9	166°08.8	180°38.5	195°08.2	209°37.9	224°07.5	238°37.0	253°06.4	+29.7	15.7
	-11°41.2	-11°51.7	-12°02.1	-12°12.5	-12°22.8	-12°33.1	-12°43.3	-12°53.4	-13°03.5	-13°13.5	-13°23.4	-10.2	57.6
do 13	110°19.6	124°47.9	139°16.1	153°44.2	168°12.3	182°40.3	197°08.2	211°36.1	226°03.9	240°31.6	254°59.2	+28.0	15.9
	-15°44.2	-15°53.0	-16°01.7	-16°10.3	-16°18.8	-16°27.2	-16°35.6	-16°43.8	-16°52.0	-17°00.1	-17°08.0	-8.4	58.1
◑ vr 14	111°44.8	126°11.3	140°37.7	155°04.0	169°30.2	183°56.4	198°22.5	212°48.5	227°14.5	241°40.4	256°06.2	+26.1	16.0
	-18°55.8	-19°02.1	-19°08.3	-19°14.4	-19°20.4	-19°26.3	-19°32.1	-19°37.7	-19°43.3	-19°48.7	-19°54.0	-5.8	58.7
za 15	112°26.1	126°51.0	141°15.8	155°40.6	170°05.3	184°29.9	198°54.6	213°19.1	227°43.6	242°08.1	256°32.6	+24.6	16.1
	-20°58.2	-21°01.4	-21°04.5	-21°07.5	-21°10.3	-21°13.0	-21°15.5	-21°18.0	-21°20.2	-21°22.4	-21°24.3	-2.6	59.2
zo 16	112°34.8	126°58.7	141°22.6	155°46.5	170°10.4	184°34.3	198°58.1	213°22.0	227°45.8	242°09.6	256°33.4	+23.9	16.3
	-21°36.9	-21°36.5	-21°36.1	-21°35.4	-21°34.7	-21°33.7	-21°32.6	-21°31.4	-21°30.0	-21°28.5	-21°26.9	+1.0	59.6
ma 17	112°30.8	126°54.7	141°18.7	155°42.6	170°06.6	184°30.6	198°54.6	213°18.6	227°42.7	242°06.8	256°30.9	+24.0	16.3
	-20°44.0	-20°40.0	-20°35.8	-20°31.5	-20°27.1	-20°22.5	-20°17.7	-20°12.9	-20°07.8	-20°02.7	-19°57.4	+4.7	59.9
di 18	112°37.2	127°02.0	141°26.8	155°51.7	170°16.6	184°41.5	199°06.5	213°31.6	227°56.7	242°21.9	256°47.1	+25.0	16.4
	-18°21.7	-18°14.3	-18°06.8	-17°59.1	-17°51.3	-17°43.4	-17°35.4	-17°27.3	-17°19.0	-17°10.6	-17°02.2	+8.0	60.1
wo 19	113°12.4	127°38.5	142°04.7	156°31.0	170°57.4	185°23.8	199°50.3	214°16.8	228°43.4	243°10.1	257°36.8	+26.4	16.4
	-14°42.1	-14°32.0	-14°21.8	-14°11.5	-14°01.1	-13°50.6	-13°40.0	-13°29.4	-13°18.7	-13°07.8	-12°57.0	+10.5	60.0
do 20	114°25.1	128°52.8	143°20.6	157°48.4	172°16.3	186°44.2	201°12.3	215°40.3	230°08.4	244°36.6	259°04.9	+28.0	16.3
	-10°05.2	-9°53.2	-9°41.2	-9°29.2	-9°17.1	-9°04.9	-8°52.8	-8°40.5	-8°28.2	-8°15.9	-8°03.6	+12.2	59.6
● vr 21	116°15.0	130°44.0	145°13.2	159°42.4	174°11.6	188°40.9	203°10.2	217°39.5	232°09.0	246°38.4	261°07.9	+29.3	16.1
	-4°54.3	-4°41.5	-4°28.7	-4°15.8	-4°03.0	-3°50.1	-3°37.3	-3°24.4	-3°11.5	-2°58.6	-2°45.7	+12.9	59.1
za 22	118°35.1	133°05.2	147°35.4	162°05.5	176°35.7	191°05.9	205°36.2	220°06.5	234°36.8	249°07.1	263°37.5	+30.2	15.9
	0°27.2	0°40.0	0°52.7	1°05.5	1°18.2	1°30.9	1°43.6	1°56.2	2°08.8	2°21.4	2°34.0	+12.7	58.4
zo 23	121°15.9	135°46.6	150°17.3	164°48.1	179°18.8	193°49.6	208°20.4	222°51.2	237°22.0	251°52.8	266°23.7	+30.8	15.7
	5°38.6	5°50.6	6°02.5	6°14.4	6°26.3	6°38.1	6°49.8	7°01.6	7°13.2	7°24.8	7°36.4	+11.8	57.5
ma 24	124°07.4	138°38.4	153°09.3	167°40.3	182°11.3	196°42.3	211°13.2	225°44.2	240°15.2	254°46.2	269°17.1	+31.0	15.5
	10°22.9	10°33.5	10°44.0	10°54.5	11°04.9	11°15.2	11°25.5	11°35.7	11°45.9	11°55.9	12°05.9	+10.3	56.7
di 25	138°38.4	153°09.3	167°40.3	182°11.3	196°42.3	211°13.2	225°44.2	240°15.2	254°46.2	269°17.1	283°48.1	+31.0	15.5
	10°33.5	10°44.0	10°54.5	11°04.9	11°15.2	11°25.5	11°35.7	11°45.9	11°55.9	12°05.9	12°15.8	+10.2	56.7
wo 26	141°32.6	156°03.5	170°34.5	185°05.4	199°36.3	214°07.2	228°38.1	243°09.0	257°39.9	272°10.8	286°41.7	+30.9	15.2
	14°35.6	14°44.3	14°52.9	15°01.5	15°09.9	15°18.3	15°26.5	15°34.7	15°42.8	15°50.9	15°58.8	+8.3	55.9
do 27	144°24.1	158°54.9	173°25.7	187°56.4	202°27.2	216°57.9	231°28.6	245°59.3	260°30.1	275°00.8	289°31.5	+30.7	15.0
	17°47.4	17°53.9	18°00.3	18°06.7	18°12.9	18°19.1	18°25.1	18°31.1	18°36.9	18°42.7	18°48.4	+6.1	55.2
vr 28	147°11.2	161°41.8	176°12.4	190°43.0	205°13.6	219°44.2	234°14.8	248°45.3	263°15.9	277°46.5	292°17.0	+30.6	14.9
	20°02.1	20°06.2	20°10.2	20°14.2	20°18.0	20°21.8	20°25.4	20°28.9	20°32.4	20°35.7	20°39.0	+3.7	54.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 7 12h46 — LK: 14 22h49 — NM: 21 15h48

ZON

Maart 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	176°53.4 -7°44.5	191°53.5 -7°43.6	206°53.6 -7°42.6	221°53.7 -7°41.7	236°53.8 -7°40.7	251°53.9 -7°39.8	86°55.5 -7°27.4	101°55.6 -7°26.5	116°55.8 -7°25.5	131°55.9 -7°24.6	146°56.0 -7°23.6	161°56.1 -7°22.7	+0.1 +0.9
zo 2	176°56.3 -7°21.7	191°56.4 -7°20.7	206°56.5 -7°19.8	221°56.6 -7°18.8	236°56.7 -7°17.9	251°56.9 -7°16.9	86°58.5 -7°04.5	101°58.6 -7°03.6	116°58.8 -7°02.6	131°58.9 -7°01.7	146°59.0 -7°00.7	161°59.1 -6°59.7	+0.1 +1.0
ma 3	176°59.3 -6°58.8	191°59.4 -6°57.8	206°59.5 -6°56.9	221°59.7 -6°55.9	236°59.8 -6°55.0	251°59.9 -6°54.0	87°01.6 -6°41.5	102°01.8 -6°40.6	117°01.9 -6°39.6	132°02.0 -6°38.7	147°02.2 -6°37.7	162°02.3 -6°36.7	+0.1 +1.0
di 4	177°02.4 -6°35.8	192°02.6 -6°34.8	207°02.7 -6°33.9	222°02.8 -6°32.9	237°03.0 -6°31.9	252°03.1 -6°31.0	87°04.9 -6°18.5	102°05.0 -6°17.5	117°05.1 -6°16.5	132°05.3 -6°15.6	147°05.4 -6°14.6	162°05.6 -6°13.6	+0.1 +1.0
wo 5	177°05.7 -6°12.7	192°05.8 -6°11.7	207°06.0 -6°10.8	222°06.1 -6°09.8	237°06.2 -6°08.8	252°06.4 -6°07.9	87°08.2 -5°55.3	102°08.4 -5°54.3	117°08.5 -5°53.4	132°08.6 -5°52.4	147°08.8 -5°51.4	162°08.9 -5°50.5	+0.1 +1.0
do 6	177°09.1 -5°49.5	192°09.2 -5°48.5	207°09.4 -5°47.6	222°09.5 -5°46.6	237°09.6 -5°45.6	252°09.8 -5°44.7	87°11.7 -5°32.1	102°11.8 -5°31.1	117°12.0 -5°30.1	132°12.1 -5°29.2	147°12.3 -5°28.2	162°12.4 -5°27.2	+0.1 +1.0
vr 7	177°12.6 -5°26.2	192°12.7 -5°25.3	207°12.9 -5°24.3	222°13.0 -5°23.3	237°13.2 -5°22.4	252°13.3 -5°21.4	87°15.2 -5°08.7	102°15.4 -5°07.8	117°15.6 -5°06.8	132°15.7 -5°05.8	147°15.9 -5°04.9	162°16.0 -5°03.9	+0.1 +1.0
za 8	177°16.2 -5°02.9	192°16.3 -5°01.9	207°16.5 -5°01.0	222°16.6 -5°00.0	237°16.8 -4°59.0	252°16.9 -4°58.0	87°18.9 -4°45.4	102°19.1 -4°44.4	117°19.2 -4°43.4	132°19.4 -4°42.4	147°19.5 -4°41.5	162°19.7 -4°40.5	+0.2 +1.0
zo 9	177°19.8 -4°39.5	192°20.0 -4°38.5	207°20.2 -4°37.6	222°20.3 -4°36.6	237°20.5 -4°35.6	252°20.6 -4°34.6	87°22.7 -4°21.9	102°22.8 -4°20.9	117°23.0 -4°20.0	132°23.1 -4°19.0	147°23.3 -4°18.0	162°23.5 -4°17.0	+0.2 +1.0
ma 10	177°23.6 -4°16.0	192°23.8 -4°15.1	207°23.9 -4°14.1	222°24.1 -4°13.1	237°24.3 -4°12.1	252°24.4 -4°11.2	87°26.5 -3°58.4	102°26.7 -3°57.4	117°26.8 -3°56.5	132°27.0 -3°55.5	147°27.2 -3°54.5	162°27.3 -3°53.5	+0.2 +1.0
di 11	177°27.5 -3°52.5	192°27.7 -3°51.6	207°27.8 -3°50.6	222°28.0 -3°49.6	237°28.1 -3°48.6	252°28.3 -3°47.6	87°30.4 -3°34.9	102°30.6 -3°33.9	117°30.8 -3°32.9	132°30.9 -3°31.9	147°31.1 -3°30.9	162°31.3 -3°30.0	+0.2 +1.0
wo 12	177°31.4 -3°29.0	192°31.6 -3°28.0	207°31.8 -3°27.0	222°31.9 -3°26.0	237°32.1 -3°25.0	252°32.3 -3°24.1	87°34.4 -3°11.3	102°34.6 -3°10.3	117°34.8 -3°09.3	132°34.9 -3°08.3	147°35.1 -3°07.3	162°35.3 -3°06.3	+0.2 +1.0
do 13	177°35.4 -3°05.4	192°35.6 -3°04.4	207°35.8 -3°03.4	222°36.0 -3°02.4	237°36.1 -3°01.4	252°36.3 -3°00.4	87°38.5 -2°47.6	102°38.7 -2°46.6	117°38.8 -2°45.7	132°39.0 -2°44.7	147°39.2 -2°43.7	162°39.4 -2°42.7	+0.2 +1.0
vr 14	177°39.5 -2°41.7	192°39.7 -2°40.7	207°39.9 -2°39.7	222°40.0 -2°38.8	237°40.2 -2°37.8	252°40.4 -2°36.8	87°42.6 -2°24.0	102°42.8 -2°23.0	117°43.0 -2°22.0	132°43.2 -2°21.0	147°43.3 -2°20.0	162°43.5 -2°19.0	+0.2 +1.0
za 15	177°43.7 -2°18.0	192°43.9 -2°17.1	207°44.0 -2°16.1	222°44.2 -2°15.1	237°44.4 -2°14.1	252°44.5 -2°13.1	87°46.8 -2°00.3	102°47.0 -1°59.3	117°47.2 -1°58.3	132°47.3 -1°57.3	147°47.5 -1°56.3	162°47.7 -1°55.3	+0.2 +1.0
zo 16	177°47.9 -1°54.3	192°48.1 -1°53.4	207°48.2 -1°52.4	222°48.4 -1°51.4	237°48.6 -1°50.4	252°48.8 -1°49.4	87°51.1 -1°36.6	102°51.2 -1°35.6	117°51.4 -1°34.6	132°51.6 -1°33.6	147°51.8 -1°32.6	162°51.9 -1°31.6	+0.2 +1.0
ma 17	177°52.1 -1°30.6	192°52.3 -1°29.6	207°52.5 -1°28.7	222°52.7 -1°27.7	237°52.8 -1°26.7	252°53.0 -1°25.7	87°55.3 -1°12.8	102°55.5 -1°11.8	117°55.7 -1°10.9	132°55.9 -1°09.9	147°56.1 -1°08.9	162°56.2 -1°07.9	+0.2 +1.0
di 18	177°56.4 -1°06.9	192°56.6 -1°05.9	207°56.8 -1°04.9	222°57.0 -1°03.9	237°57.1 -1°03.0	252°57.3 -1°02.0	87°59.7 -0°49.1	102°59.9 -0°48.1	118°00.0 -0°47.1	133°00.2 -0°46.1	148°00.4 -0°45.2	163°00.6 -0°44.2	+0.2 +1.0
wo 19	178°00.8 -0°43.2	193°00.9 -0°42.2	208°01.1 -0°41.2	223°01.3 -0°40.2	238°01.5 -0°39.2	253°01.7 -0°38.2	88°04.0 -0°25.4	103°04.2 -0°24.4	118°04.4 -0°23.4	133°04.6 -0°22.4	148°04.8 -0°21.4	163°05.0 -0°20.4	+0.2 +1.0
do 20	178°05.1 -0°19.4	193°05.3 -0°18.5	208°05.5 -0°17.5	223°05.7 -0°16.5	238°05.9 -0°15.5	253°06.0 -0°14.5	88°08.4 -0°01.6	103°08.6 -0°00.7	118°08.8 0°00.3	133°09.0 0°01.3	148°09.2 0°02.3	163°09.4 0°03.3	+0.2 +1.0
vr 21	178°09.5 0°04.3	193°09.7 0°05.3	208°09.9 0°06.3	223°10.1 0°07.2	238°10.3 0°08.2	253°10.5 0°09.2	88°12.9 0°22.1	103°13.0 0°23.1	118°13.2 0°24.0	133°13.4 0°25.0	148°13.6 0°26.0	163°13.8 0°27.0	+0.2 +1.0
za 22	178°14.0 0°28.0	193°14.2 0°29.0	208°14.3 0°30.0	223°14.5 0°31.0	238°14.7 0°31.9	253°14.9 0°32.9	88°17.3 0°45.8	103°17.5 0°46.7	118°17.7 0°47.7	133°17.9 0°48.7	148°18.1 0°49.7	163°18.2 0°50.7	+0.2 +1.0
zo 23	178°18.4 0°51.7	193°18.6 0°52.7	208°18.8 0°53.7	223°19.0 0°54.6	238°19.2 0°55.6	253°19.4 0°56.6	88°21.8 1°09.4	103°22.0 1°10.4	118°22.2 1°11.4	133°22.3 1°12.4	148°22.5 1°13.4	163°22.7 1°14.4	+0.2 +1.0
ma 24	178°22.9 1°15.3	193°23.1 1°16.3	208°23.3 1°17.3	223°23.5 1°18.3	238°23.6 1°19.3	253°23.8 1°20.3	88°26.3 1°33.1	103°26.5 1°34.1	118°26.6 1°35.0	133°26.8 1°36.0	148°27.0 1°37.0	163°27.2 1°38.0	+0.2 +1.0
di 25	178°27.4 1°39.0	193°27.6 1°40.0	208°27.8 1°40.9	223°27.9 1°41.9	238°28.1 1°42.9	253°28.3 1°43.9	88°30.8 1°56.7	103°31.0 1°57.6	118°31.1 1°58.6	133°31.3 1°59.6	148°31.5 2°00.6	163°31.7 2°01.6	+0.2 +1.0
wo 26	178°31.9 2°02.6	193°32.1 2°03.5	208°32.3 2°04.5	223°32.5 2°05.5	238°32.6 2°06.5	253°32.8 2°07.5	88°35.3 2°20.2	103°35.5 2°21.2	118°35.6 2°22.2	133°35.8 2°23.2	148°36.0 2°24.1	163°36.2 2°25.1	+0.2 +1.0
do 27	178°36.4 2°26.1	193°36.6 2°27.1	208°36.8 2°28.1	223°37.0 2°29.0	238°37.1 2°30.0	253°37.3 2°31.0	88°39.8 2°43.7	103°40.0 2°44.7	118°40.2 2°45.7	133°40.3 2°46.7	148°40.5 2°47.6	163°40.7 2°48.6	+0.2 +1.0
vr 28	178°40.9 2°49.6	193°41.1 2°50.6	208°41.3 2°51.6	223°41.5 2°52.5	238°41.7 2°53.5	253°41.8 2°54.5	88°44.3 3°07.2	103°44.5 3°08.2	118°44.7 3°09.1	133°44.8 3°10.1	148°45.0 3°11.1	163°45.2 3°12.1	+0.2 +1.0
za 29	178°45.4 3°13.0	193°45.6 3°14.0	208°45.8 3°15.0	223°46.0 3°16.0	238°46.2 3°16.9	253°46.4 3°17.9	88°48.8 3°30.6	103°49.0 3°31.5	118°49.2 3°32.5	133°49.4 3°33.5	148°49.5 3°34.5	163°49.7 3°35.4	+0.2 +1.0
zo 30	178°49.9 3°36.4	193°50.1 3°37.4	208°50.3 3°38.4	223°50.5 3°39.3	238°50.7 3°40.3	253°50.9 3°41.3	88°53.3 3°53.9	103°53.5 3°54.9	118°53.7 3°55.8	133°53.8 3°56.8	148°54.0 3°57.8	163°54.2 3°58.7	+0.2 +1.0
ma 31	178°54.4 3°59.7	193°54.6 4°00.7	208°54.8 4°01.6	223°55.0 4°02.6	238°55.2 4°03.6	253°55.3 4°04.6	88°57.8 4°17.1	103°57.9 4°18.1	118°58.1 4°19.1	133°58.3 4°20.0	148°58.5 4°21.0	163°58.7 4°22.0	+0.2 +1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2031

	D	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
◐	za 1	51°06.0	65°36.6	80°07.3	94°37.9	109°08.6	123°39.3	138°09.9	152°40.6	167°11.3	181°42.0	196°12.8	+30.7	14.8
		21°29.6	21°29.5	21°29.2	21°28.8	21°28.3	21°27.8	21°27.1	21°26.3	21°25.4	21°24.5	21°23.4	-0.6	54.2
	zo 2	53°55.1	68°26.0	82°56.9	97°27.9	111°58.9	126°29.9	141°00.9	155°31.9	170°02.9	184°34.0	199°05.1	+31.0	14.8
		20°55.4	20°52.8	20°50.1	20°47.2	20°44.3	20°41.3	20°38.1	20°34.9	20°31.6	20°28.2	20°24.7	-3.1	54.2
	ma 3	68°26.0	82°56.9	97°27.9	111°58.9	126°29.9	141°00.9	155°31.9	170°02.9	184°34.0	199°05.1	213°36.2	+31.0	14.8
		20°52.8	20°50.1	20°47.2	20°44.3	20°41.3	20°38.1	20°34.9	20°31.6	20°28.2	20°24.7	20°21.1	-3.2	54.2
	di 4	71°24.7	85°56.1	100°27.5	114°59.0	129°30.4	144°01.9	158°33.4	173°04.9	187°36.4	202°08.0	216°39.6	+31.5	14.8
		19°16.0	19°11.0	19°05.8	19°00.6	18°55.2	18°49.8	18°44.3	18°38.7	18°33.1	18°27.3	18°21.4	-5.5	54.3
	wo 5	74°35.5	89°07.4	103°39.3	118°11.3	132°43.2	147°15.2	161°47.2	176°19.2	190°51.2	205°23.2	219°55.3	+32.0	14.9
		16°43.7	16°36.5	16°29.2	16°21.9	16°14.5	16°07.0	15°59.5	15°51.8	15°44.1	15°36.4	15°28.5	-7.5	54.6
	do 6	77°58.2	92°30.5	107°02.9	121°35.2	136°07.6	150°39.9	165°12.3	179°44.7	194°17.1	208°49.6	223°22.0	+32.4	15.0
		13°22.0	13°13.0	13°04.0	12°54.9	12°45.7	12°36.5	12°27.2	12°17.8	12°08.4	11°58.9	11°49.4	-9.3	55.1
	vr 7	81°29.5	96°02.0	110°34.6	125°07.1	139°39.7	154°12.3	168°44.8	183°17.4	197°50.0	212°22.5	226°55.1	+32.6	15.2
		9°19.3	9°08.9	8°58.4	8°47.9	8°37.3	8°26.7	8°16.0	8°05.3	7°54.5	7°43.7	7°32.9	-10.6	55.6
	za 8	85°03.2	99°35.6	114°08.1	128°40.6	143°13.0	157°45.5	172°17.9	186°50.3	201°22.7	215°55.1	230°27.5	+32.4	15.3
		4°45.5	4°34.0	4°22.6	4°11.1	3°59.5	3°48.0	3°36.4	3°24.8	3°13.2	3°01.5	2°49.8	-11.6	56.2
○	zo 9	88°30.8	103°02.9	117°34.9	132°06.9	146°38.8	161°10.8	175°42.7	190°14.5	204°46.4	219°18.2	233°50.0	+31.9	15.5
		-0°07.6	-0°19.5	-0°31.5	-0°43.4	-0°55.4	-1°07.3	-1°19.3	-1°31.3	-1°43.2	-1°55.2	-2°07.2	-12.0	56.7
	ma 10	91°42.6	106°13.8	120°44.9	135°16.0	149°47.1	164°18.1	178°49.1	193°20.0	207°50.9	222°21.7	236°52.5	+31.0	15.6
		-5°05.9	-5°17.8	-5°29.6	-5°41.3	-5°53.1	-6°04.8	-6°16.6	-6°28.3	-6°39.9	-6°51.6	-7°03.2	-11.7	57.3
	di 11	94°28.3	108°58.2	123°28.1	137°58.0	152°27.8	166°57.5	181°27.2	195°56.8	210°26.3	224°55.8	239°25.2	+29.7	15.8
		-9°53.5	-10°04.5	-10°15.5	-10°26.4	-10°37.3	-10°48.1	-10°58.9	-11°09.6	-11°20.3	-11°30.9	-11°41.5	-10.8	57.8
	wo 12	96°39.2	111°07.6	125°36.0	140°04.3	154°32.5	169°00.7	183°28.8	197°56.8	212°24.8	226°52.7	241°20.5	+28.1	15.9
		-14°12.4	-14°21.9	-14°31.3	-14°40.7	-14°49.9	-14°59.1	-15°08.2	-15°17.2	-15°26.2	-15°35.0	-15°43.8	-9.1	58.2
	do 13	98°10.4	112°37.3	127°04.0	141°30.7	155°57.4	170°23.9	184°50.5	199°16.9	213°43.3	228°09.6	242°35.9	+26.5	16.0
		-17°44.1	-17°51.3	-17°58.4	-18°05.4	-18°12.3	-18°19.1	-18°25.8	-18°32.4	-18°38.8	-18°45.2	-18°51.4	-6.7	58.6
	vr 14	99°03.7	113°29.2	127°54.6	142°20.0	156°45.3	171°10.6	185°35.8	200°01.0	214°26.2	228°51.3	243°16.4	+25.3	16.1
		-20°10.7	-20°15.0	-20°19.2	-20°23.2	-20°27.1	-20°30.9	-20°34.5	-20°38.0	-20°41.4	-20°44.6	-20°47.8	-3.7	58.9
	za 15	99°29.3	113°53.9	128°18.6	142°43.2	157°07.9	171°32.5	185°57.1	200°21.7	214°46.3	229°10.9	243°35.4	+24.6	16.1
		-21°18.1	-21°19.0	-21°19.7	-21°20.4	-21°20.9	-21°21.2	-21°21.4	-21°21.5	-21°21.4	-21°21.2	-21°20.8	-0.3	59.1
◑	zo 16	99°44.4	114°09.1	128°33.8	142°58.5	157°23.2	171°48.0	186°12.7	200°37.5	215°02.3	229°27.2	243°52.1	+24.8	16.1
		-20°58.4	-20°55.8	-20°53.0	-20°50.2	-20°47.1	-20°44.0	-20°40.6	-20°37.2	-20°33.6	-20°29.9	-20°26.1	+3.2	59.2
	ma 17	100°08.9	114°34.3	128°59.8	143°25.3	157°50.9	172°16.5	186°42.1	201°07.8	215°33.5	229°59.3	244°25.1	+25.6	16.2
		-19°12.5	-19°06.5	-19°00.5	-18°54.3	-18°48.0	-18°41.6	-18°35.0	-18°28.4	-18°21.6	-18°14.7	-18°07.7	+6.5	59.3
	di 18	100°58.7	115°25.3	129°52.0	144°18.8	158°45.6	173°12.5	187°39.4	202°06.4	216°33.4	231°00.5	245°27.7	+26.9	16.1
		-16°09.3	-16°00.5	-15°51.7	-15°42.8	-15°33.8	-15°24.7	-15°15.5	-15°06.2	-14°56.8	-14°47.3	-14°37.7	+9.2	59.2
	wo 19	102°21.6	116°49.6	131°17.7	145°45.8	160°14.0	174°42.2	189°10.5	203°38.9	218°07.2	232°35.7	247°04.2	+28.3	16.1
		-12°04.4	-11°53.6	-11°42.7	-11°31.8	-11°20.8	-11°09.7	-10°58.6	-10°47.4	-10°36.1	-10°24.8	-10°13.4	+11.1	59.0
	do 20	104°17.4	118°46.6	133°15.9	147°45.2	162°14.6	176°44.0	191°13.4	205°42.9	220°12.5	234°42.0	249°11.6	+29.4	16.0
		-7°17.1	-7°05.0	-6°52.9	-6°40.7	-6°28.5	-6°16.3	-6°04.1	-5°51.8	-5°39.5	-5°27.2	-5°14.8	+12.2	58.7
	vr 21	106°39.9	121°10.0	135°40.1	150°10.3	164°40.5	179°10.8	193°41.0	208°11.3	222°41.6	237°12.0	251°42.3	+30.3	15.9
		-2°07.7	-1°55.1	-1°42.6	-1°30.0	-1°17.4	-1°04.9	-0°52.3	-0°39.8	-0°27.3	-0°14.7	-0°02.2	+12.6	58.3
	za 22	109°20.0	123°50.7	138°21.3	152°52.0	167°22.6	181°53.3	196°24.0	210°54.7	225°25.4	239°56.2	254°26.9	+30.7	15.7
		3°04.0	3°16.2	3°28.4	3°40.6	3°52.8	4°04.9	4°17.0	4°29.1	4°41.1	4°53.1	5°05.1	+12.1	57.7
●	zo 23	112°08.5	126°39.3	141°10.1	155°40.9	170°11.7	184°42.5	199°13.2	213°44.0	228°14.8	242°45.6	257°16.4	+30.8	15.6
		7°59.6	8°10.9	8°22.1	8°33.3	8°44.4	8°55.4	9°06.4	9°17.3	9°28.2	9°39.0	9°49.8	+11.0	57.1
	ma 24	114°57.5	129°28.2	143°58.9	158°29.6	173°00.2	187°30.9	202°01.5	216°32.2	231°02.8	245°33.4	260°04.1	+30.7	15.4
		12°23.5	12°33.2	12°42.9	12°52.4	13°01.9	13°11.3	13°20.7	13°29.9	13°39.1	13°48.2	13°57.2	+9.4	56.4
	di 25	117°42.2	132°12.7	146°43.1	161°13.6	175°44.0	190°14.5	204°44.9	219°15.3	233°45.7	248°16.1	262°46.5	+30.4	15.2
		16°02.9	16°10.6	16°18.2	16°25.7	16°33.1	16°40.5	16°47.7	16°54.9	17°02.0	17°08.9	17°15.8	+7.3	55.8
	wo 26	120°21.3	134°51.6	149°21.9	163°52.1	178°22.4	192°52.6	207°22.9	221°53.1	236°23.4	250°53.6	265°23.9	+30.3	15.0
		18°48.0	18°53.4	18°58.6	19°03.8	19°08.9	19°13.9	19°18.8	19°23.6	19°28.3	19°32.9	19°37.3	+4.9	55.2
	do 27	134°51.6	149°21.9	163°52.1	178°22.4	192°52.6	207°22.9	221°53.1	236°23.4	250°53.6	265°23.9	279°54.1	+30.2	15.0
		18°53.4	18°58.6	19°03.8	19°08.9	19°13.9	19°18.8	19°23.6	19°28.3	19°32.9	19°37.3	19°41.7	+4.8	55.1
	vr 28	137°27.5	151°57.7	166°27.9	180°58.2	195°28.4	209°58.7	224°28.9	238°59.2	253°29.5	267°59.8	282°30.0	+30.3	14.9
		20°35.6	20°38.3	20°41.0	20°43.6	20°46.1	20°48.4	20°50.7	20°52.9	20°54.9	20°56.9	20°58.8	+2.3	54.7
	za 29	140°05.3	154°35.7	169°06.2	183°36.7	198°07.1	212°37.6	227°08.1	241°38.7	256°09.2	270°39.7	285°10.3	+30.5	14.8
		21°14.5	21°14.7	21°14.8	21°14.9	21°14.8	21°14.6	21°14.4	21°14.0	21°13.5	21°13.0	21°12.3	-0.2	54.3
	zo 30	142°51.0	157°21.9	171°52.7	186°23.7	200°54.6	215°25.5	229°56.5	244°27.5	258°58.5	273°29.6	288°00.6	+31.0	14.8
		20°50.4	20°48.2	20°45.8	20°43.4	20°40.9	20°38.3	20°35.6	20°32.8	20°29.8	20°26.8	20°23.8	-2.7	54.2
◐	ma 31	145°49.4	160°20.8	174°52.3	189°23.7	203°55.3	218°26.8	232°58.4	247°29.9	262°01.5	276°33.2	291°04.8	+31.5	14.8
		19°26.3	19°21.8	19°17.1	19°12.4	19°07.6	19°02.7	18°57.7	18°52.6	18°47.5	18°42.2	18°36.9	-4.9	54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 1 04h02 — VM: 9 04h29 — LK: 16 06h35 — NM: 23 03h49 — EK: 31 00h32

ZON

April 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	178°58.9	193°59.1	208°59.2	223°59.4	238°59.6	253°59.8	89°02.2	104°02.4	119°02.6	134°02.8	149°03.0	164°03.1	+0.2
	4°22.9	4°23.9	4°24.9	4°25.8	4°26.8	4°27.8	4°40.3	4°41.3	4°42.2	4°43.2	4°44.2	4°45.1	+1.0
wo 2	179°03.3	194°03.5	209°03.7	224°03.9	239°04.1	254°04.3	89°06.7	104°06.8	119°07.0	134°07.2	149°07.4	164°07.6	+0.2
	4°46.1	4°47.0	4°48.0	4°49.0	4°49.9	4°50.9	5°03.4	5°04.3	5°05.3	5°06.3	5°07.2	5°08.2	+1.0
do 3	179°07.8	194°07.9	209°08.1	224°08.3	239°08.5	254°08.7	89°11.1	104°11.2	119°11.4	134°11.6	149°11.8	164°12.0	+0.2
	5°09.1	5°10.1	5°11.1	5°12.0	5°13.0	5°13.9	5°26.4	5°27.3	5°28.3	5°29.2	5°30.2	5°31.2	+1.0
vr 4	179°12.2	194°12.3	209°12.5	224°12.7	239°12.9	254°13.1	89°15.4	104°15.6	119°15.8	134°16.0	149°16.2	164°16.3	+0.2
	5°32.1	5°33.1	5°34.0	5°35.0	5°35.9	5°36.9	5°49.3	5°50.2	5°51.2	5°52.1	5°53.1	5°54.0	+1.0
za 5	179°16.5	194°16.7	209°16.9	224°17.1	239°17.2	254°17.4	89°19.8	104°19.9	119°20.1	134°20.3	149°20.5	164°20.7	+0.2
	5°55.0	5°55.9	5°56.9	5°57.8	5°58.8	5°59.7	6°12.1	6°13.0	6°14.0	6°14.9	6°15.8	6°16.8	+1.0
zo 6	179°20.8	194°21.0	209°21.2	224°21.4	239°21.5	254°21.7	89°24.0	104°24.2	119°24.4	134°24.6	149°24.7	164°24.9	+0.2
	6°17.7	6°18.7	6°19.6	6°20.6	6°21.5	6°22.5	6°34.7	6°35.7	6°36.6	6°37.6	6°38.5	6°39.5	+0.9
ma 7	179°25.1	194°25.3	209°25.5	224°25.6	239°25.8	254°26.0	89°28.3	104°28.4	119°28.6	134°28.8	149°29.0	164°29.1	+0.2
	6°40.4	6°41.3	6°42.3	6°43.2	6°44.2	6°45.1	6°57.3	6°58.3	6°59.2	7°00.1	7°01.1	7°02.0	+0.9
di 8	179°29.3	194°29.5	209°29.7	224°29.8	239°30.0	254°30.2	89°32.4	104°32.6	119°32.8	134°33.0	149°33.1	164°33.3	+0.2
	7°02.9	7°03.9	7°04.8	7°05.8	7°06.7	7°07.6	7°19.8	7°20.7	7°21.6	7°22.6	7°23.5	7°24.4	+0.9
wo 9	179°33.5	194°33.7	209°33.8	224°34.0	239°34.2	254°34.3	89°36.6	104°36.7	119°36.9	134°37.1	149°37.2	164°37.4	+0.2
	7°25.4	7°26.3	7°27.2	7°28.2	7°29.1	7°30.0	7°42.1	7°43.0	7°44.0	7°44.9	7°45.8	7°46.7	+0.9
do 10	179°37.6	194°37.8	209°37.9	224°38.1	239°38.3	254°38.4	89°40.6	104°40.8	119°40.9	134°41.1	149°41.3	164°41.4	+0.2
	7°47.7	7°48.6	7°49.5	7°50.4	7°51.4	7°52.3	8°04.3	8°05.2	8°06.1	8°07.1	8°08.0	8°08.9	+0.9
vr 11	179°41.6	194°41.8	209°41.9	224°42.1	239°42.3	254°42.4	89°44.6	104°44.8	119°44.9	134°45.1	149°45.2	164°45.4	+0.2
	8°09.8	8°10.8	8°11.7	8°12.6	8°13.5	8°14.4	8°26.4	8°27.3	8°28.2	8°29.1	8°30.0	8°31.0	+0.9
za 12	179°45.6	194°45.7	209°45.9	224°46.1	239°46.2	254°46.4	89°48.5	104°48.6	119°48.8	134°49.0	149°49.1	164°49.3	+0.2
	8°31.9	8°32.8	8°33.7	8°34.6	8°35.5	8°36.4	8°48.3	8°49.2	8°50.1	8°51.0	8°51.9	8°52.9	+0.9
zo 13	179°49.4	194°49.6	209°49.8	224°49.9	239°50.1	254°50.2	89°52.3	104°52.5	119°52.6	134°52.8	149°52.9	164°53.1	+0.2
	8°53.8	8°54.7	8°55.6	8°56.5	8°57.4	8°58.3	9°10.1	9°11.0	9°11.9	9°12.8	9°13.7	9°14.6	+0.9
ma 14	179°53.2	194°53.4	209°53.6	224°53.7	239°53.9	254°54.0	89°56.0	104°56.2	119°56.3	134°56.5	149°56.6	164°56.8	+0.2
	9°15.5	9°16.4	9°17.3	9°18.2	9°19.1	9°20.0	9°31.7	9°32.6	9°33.5	9°34.4	9°35.3	9°36.2	+0.9
di 15	179°57.0	194°57.1	209°57.3	224°57.4	239°57.6	254°57.7	89°59.7	104°59.8	120°00.0	135°00.1	150°00.3	165°00.4	+0.2
	9°37.1	9°38.0	9°38.9	9°39.8	9°40.7	9°41.6	9°53.2	9°54.1	9°55.0	9°55.9	9°56.8	9°57.6	+0.9
wo 16	180°00.6	195°00.7	210°00.9	225°01.0	240°01.2	255°01.3	90°03.2	105°03.4	120°03.5	135°03.7	150°03.8	165°03.9	+0.1
	9°58.5	9°59.4	10°00.3	10°01.2	10°02.1	10°03.0	10°14.5	10°15.4	10°16.3	10°17.2	10°18.0	10°18.9	+0.9
do 17	180°04.1	195°04.2	210°04.4	225°04.5	240°04.7	255°04.8	90°06.7	105°06.8	120°06.9	135°07.1	150°07.2	165°07.4	+0.1
	10°19.8	10°20.7	10°21.6	10°22.5	10°23.3	10°24.2	10°35.7	10°36.5	10°37.4	10°38.3	10°39.2	10°40.0	+0.9
vr 18	180°07.5	195°07.6	210°07.8	225°07.9	240°08.1	255°08.2	90°10.0	105°10.1	120°10.3	135°10.4	150°10.6	165°10.7	+0.1
	10°40.9	10°41.8	10°42.7	10°43.5	10°44.4	10°45.3	10°56.6	10°57.5	10°58.4	10°59.2	11°00.1	11°01.0	+0.9
za 19	180°10.8	195°11.0	210°11.1	225°11.2	240°11.4	255°11.5	90°13.3	105°13.4	120°13.5	135°13.6	150°13.8	165°13.9	+0.1
	11°01.8	11°02.7	11°03.6	11°04.4	11°05.3	11°06.2	11°17.4	11°18.3	11°19.1	11°20.0	11°20.9	11°21.7	+0.9
zo 20	180°14.0	195°14.2	210°14.3	225°14.4	240°14.6	255°14.7	90°16.4	105°16.5	120°16.6	135°16.8	150°16.9	165°17.0	+0.1
	11°22.6	11°23.4	11°24.3	11°25.2	11°26.0	11°26.9	11°38.0	11°38.9	11°39.7	11°40.6	11°41.4	11°42.3	+0.9
ma 21	180°17.2	195°17.3	210°17.4	225°17.5	240°17.7	255°17.8	90°19.4	105°19.5	120°19.7	135°19.8	150°19.9	165°20.0	+0.1
	11°43.1	11°44.0	11°44.8	11°45.7	11°46.5	11°47.4	11°58.4	11°59.3	12°00.1	12°01.0	12°01.8	12°02.7	+0.9
di 22	180°20.2	195°20.3	210°20.4	225°20.5	240°20.6	255°20.8	90°22.3	105°22.5	120°22.6	135°22.7	150°22.8	165°22.9	+0.1
	12°03.5	12°04.3	12°05.2	12°06.0	12°06.9	12°07.7	12°18.6	12°19.5	12°20.3	12°21.2	12°22.0	12°22.8	+0.8
wo 23	180°23.0	195°23.2	210°23.3	225°23.4	240°23.5	255°23.6	90°25.1	105°25.3	120°25.4	135°25.5	150°25.6	165°25.7	+0.1
	12°23.7	12°24.5	12°25.3	12°26.2	12°27.0	12°27.8	12°38.7	12°39.5	12°40.3	12°41.1	12°42.0	12°42.8	+0.8
do 24	180°25.8	195°25.9	210°26.1	225°26.2	240°26.3	255°26.4	90°27.8	105°27.9	120°28.1	135°28.2	150°28.3	165°28.4	+0.1
	12°43.6	12°44.5	12°45.3	12°46.1	12°46.9	12°47.8	12°58.5	12°59.3	13°00.1	13°00.9	13°01.7	13°02.6	+0.8
vr 25	180°28.5	195°28.6	210°28.7	225°28.8	240°28.9	255°29.0	90°30.4	105°30.5	120°30.6	135°30.7	150°30.8	165°30.9	+0.1
	13°03.4	13°04.2	13°05.0	13°05.8	13°06.6	13°07.5	13°18.0	13°18.9	13°19.7	13°20.5	13°21.3	13°22.1	+0.8
za 26	180°31.0	195°31.1	210°31.2	225°31.3	240°31.4	255°31.6	90°32.9	105°33.0	120°33.1	135°33.2	150°33.3	165°33.4	+0.1
	13°22.9	13°23.7	13°24.5	13°25.3	13°26.1	13°27.0	13°37.4	13°38.2	13°39.0	13°39.8	13°40.6	13°41.4	+0.8
zo 27	180°33.5	195°33.6	210°33.7	225°33.8	240°33.9	255°34.0	90°35.2	105°35.3	120°35.4	135°35.5	150°35.6	165°35.7	+0.1
	13°42.2	13°43.0	13°43.8	13°44.6	13°45.4	13°46.2	13°56.6	13°57.4	13°58.1	13°58.9	13°59.7	14°00.5	+0.8
ma 28	180°35.8	195°35.9	210°36.0	225°36.0	240°36.1	255°36.2	90°37.4	105°37.5	120°37.6	135°37.7	150°37.8	165°37.9	+0.1
	14°01.3	14°02.1	14°02.9	14°03.7	14°04.5	14°05.3	14°15.5	14°16.3	14°17.0	14°17.8	14°18.6	14°19.4	+0.8
di 29	180°38.0	195°38.0	210°38.1	225°38.2	240°38.3	255°38.4	90°39.5	105°39.6	120°39.7	135°39.8	150°39.8	165°39.9	+0.1
	14°20.2	14°20.9	14°21.7	14°22.5	14°23.3	14°24.1	14°34.1	14°34.9	14°35.7	14°36.5	14°37.2	14°38.0	+0.8
wo 30	180°40.0	195°40.1	210°40.2	225°40.3	240°40.3	255°40.4	90°41.5	105°41.5	120°41.6	135°41.7	150°41.8	165°41.9	+0.1
	14°38.8	14°39.6	14°40.3	14°41.1	14°41.9	14°42.6	14°52.6	14°53.3	14°54.1	14°54.9	14°55.6	14°56.4	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2031

D	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
di 1	50°42.2	65°14.6	79°47.0	94°19.4	108°51.9	123°24.3	137°56.8	152°29.3	167°01.8	181°34.3	196°06.8	+32.5	14.9
	14°55.8	14°47.8	14°39.8	14°31.7	14°23.5	14°15.2	14°06.9	13°58.5	13°50.0	13°41.5	13°32.9	-8.3	54.7
wo 2	65°14.6	79°47.0	94°19.4	108°51.9	123°24.3	137°56.8	152°29.3	167°01.8	181°34.3	196°06.8	210°39.4	+32.5	14.9
	14°47.8	14°39.8	14°31.7	14°23.5	14°15.2	14°06.9	13°58.5	13°50.0	13°41.5	13°32.9	13°24.2	-8.4	54.7
do 3	68°48.8	83°21.5	97°54.2	112°26.9	126°59.6	141°32.3	156°05.0	170°37.7	185°10.4	199°43.2	214°15.9	+32.7	15.1
	11°06.8	10°57.1	10°47.4	10°37.7	10°27.9	10°18.0	10°08.1	9°58.1	9°48.1	9°38.0	9°27.9	-9.9	55.3
vr 4	72°26.5	86°59.1	101°31.8	116°04.4	130°37.0	145°09.6	159°42.2	174°14.8	188°47.4	203°20.0	217°52.5	+32.6	15.2
	6°50.1	6°39.2	6°28.3	6°17.3	6°06.3	5°55.3	5°44.2	5°33.1	5°22.0	5°10.8	4°59.6	-11.1	55.9
za 5	75°58.5	90°30.7	105°02.9	119°35.0	134°07.2	148°39.3	163°11.4	177°43.4	192°15.4	206°47.4	221°19.3	+32.1	15.4
	2°07.5	1°55.8	1°44.1	1°32.4	1°20.7	1°08.9	0°57.1	0°45.3	0°33.5	0°21.7	0°09.8	-11.8	56.6
zo 6	79°14.1	93°45.4	108°16.7	122°47.9	137°19.1	151°50.3	166°21.4	180°52.4	195°23.4	209°54.3	224°25.2	+31.1	15.6
	-2°48.9	-3°00.9	-3°12.8	-3°24.8	-3°36.7	-3°48.6	-4°00.6	-4°12.5	-4°24.4	-4°36.3	-4°48.2	-11.9	57.4
○ ma 7	82°02.1	96°32.1	111°02.0	125°31.9	140°01.7	154°31.5	169°01.2	183°30.8	198°00.3	212°29.8	226°59.3	+29.7	15.8
	-7°44.4	-7°55.9	-8°07.4	-8°18.9	-8°30.4	-8°41.8	-8°53.2	-9°04.5	-9°15.8	-9°27.1	-9°38.3	-11.4	58.1
di 8	84°12.6	98°40.9	113°09.2	127°37.4	142°05.5	156°33.5	171°01.5	185°29.4	199°57.2	214°25.0	228°52.7	+28.0	16.0
	-12°20.7	-12°31.1	-12°41.4	-12°51.7	-13°01.8	-13°11.9	-13°22.0	-13°31.9	-13°41.8	-13°51.7	-14°01.4	-10.1	58.7
wo 9	85°39.5	100°06.0	114°32.5	128°58.9	143°25.3	157°51.5	172°17.8	186°43.9	201°10.0	215°36.0	230°02.0	+26.2	16.1
	-16°17.6	-16°25.9	-16°34.2	-16°42.3	-16°50.4	-16°58.3	-17°06.2	-17°13.9	-17°21.6	-17°29.1	-17°36.5	-7.9	59.1
do 10	86°23.9	100°49.0	115°13.9	129°38.8	144°03.7	158°28.5	172°53.3	187°18.0	201°42.7	216°07.4	230°32.0	+24.8	16.2
	-19°14.1	-19°19.7	-19°25.1	-19°30.4	-19°35.5	-19°40.5	-19°45.4	-19°50.2	-19°54.8	-19°59.3	-20°03.7	-5.0	59.4
vr 11	86°36.9	101°01.0	115°25.1	129°49.2	144°13.3	158°37.4	173°01.4	187°25.4	201°49.5	216°13.5	230°37.5	+24.1	16.2
	-20°52.8	-20°54.9	-20°56.9	-20°58.8	-21°00.5	-21°02.1	-21°03.5	-21°04.8	-21°06.0	-21°07.0	-21°07.8	-1.5	59.5
za 12	86°38.1	101°02.2	115°26.4	129°50.6	144°14.8	158°39.0	173°03.2	187°27.5	201°51.8	216°16.1	230°40.5	+24.2	16.2
	-21°03.2	-21°01.8	-21°00.2	-20°58.4	-20°56.6	-20°54.5	-20°52.4	-20°50.0	-20°47.6	-20°45.0	-20°42.3	+2.1	59.5
zo 13	86°50.5	101°15.5	115°40.6	130°05.7	144°30.9	158°56.1	173°21.4	187°46.7	202°12.1	216°37.5	231°03.0	+25.3	16.2
	-19°45.0	-19°40.1	-19°35.1	-19°30.0	-19°24.7	-19°19.3	-19°13.8	-19°08.2	-19°02.5	-18°56.6	-18°50.6	+5.4	59.3
◑ ma 14	87°32.7	101°59.1	116°25.7	130°52.3	145°18.9	159°45.7	174°12.5	188°39.3	203°06.2	217°33.2	232°00.3	+26.8	16.1
	-17°07.0	-16°59.2	-16°51.3	-16°43.3	-16°35.3	-16°27.1	-16°18.8	-16°10.4	-16°02.0	-15°53.4	-15°44.8	+8.2	59.1
di 15	88°53.9	103°22.0	117°50.1	132°18.3	146°46.6	161°14.9	175°43.3	190°11.7	204°40.2	219°08.8	233°37.4	+28.4	16.0
	-13°24.7	-13°14.7	-13°04.7	-12°54.6	-12°44.4	-12°34.1	-12°23.8	-12°13.4	-12°03.0	-11°52.5	-11°41.9	+10.3	58.7
wo 16	90°53.6	105°23.1	119°52.7	134°22.3	148°52.0	163°21.7	177°51.4	192°21.2	206°51.0	221°20.9	235°50.9	+29.7	15.9
	-8°56.7	-8°45.2	-8°33.8	-8°22.3	-8°10.8	-7°59.2	-7°47.6	-7°36.0	-7°24.3	-7°12.6	-7°00.9	+11.6	58.3
do 17	93°24.6	107°55.2	122°25.8	136°56.4	151°27.0	165°57.7	180°28.4	194°59.1	209°29.8	224°00.6	238°31.4	+30.7	15.8
	-4°01.7	-3°49.6	-3°37.5	-3°25.3	-3°13.2	-3°01.0	-2°48.9	-2°36.7	-2°24.6	-2°12.4	-2°00.2	+12.2	57.9
vr 18	96°16.1	110°47.3	125°18.4	139°49.6	154°20.7	168°51.9	183°23.1	197°54.3	212°25.5	226°56.7	241°27.9	+31.2	15.7
	1°02.3	1°14.4	1°26.5	1°38.6	1°50.6	2°02.7	2°14.7	2°26.7	2°38.7	2°50.6	3°02.6	+12.0	57.4
za 19	99°16.9	113°48.2	128°19.4	142°50.7	157°22.0	171°53.3	186°24.5	200°55.8	215°27.0	229°58.3	244°29.5	+31.3	15.5
	5°58.5	6°10.0	6°21.4	6°32.8	6°44.1	6°55.4	7°06.7	7°17.9	7°29.1	7°40.2	7°51.3	+11.3	56.9
zo 20	102°17.1	116°48.2	131°19.3	145°50.4	160°21.4	174°52.5	189°23.5	203°54.5	218°25.5	232°56.5	247°27.4	+31.0	15.4
	10°31.7	10°41.9	10°52.1	11°02.2	11°12.3	11°22.3	11°32.2	11°42.1	11°51.9	12°01.7	12°11.3	+10.0	56.4
● ma 21	105°10.1	119°40.8	134°11.5	148°42.2	163°12.8	177°43.5	192°14.1	206°44.7	221°15.3	235°45.9	250°16.5	+30.6	15.2
	14°28.1	14°36.6	14°45.0	14°53.4	15°01.7	15°09.9	15°18.0	15°26.0	15°34.0	15°41.9	15°49.7	+8.2	55.9
di 22	107°53.1	122°23.4	136°53.7	151°24.0	165°54.3	180°24.6	194°54.8	209°25.1	223°55.3	238°25.5	252°55.7	+30.3	15.1
	17°36.2	17°42.6	17°48.9	17°55.1	18°01.2	18°07.2	18°13.1	18°18.9	18°24.7	18°30.3	18°35.9	+6.0	55.3
wo 23	110°27.9	124°58.0	139°28.1	153°58.2	168°28.2	182°58.3	197°28.4	211°58.5	226°28.6	240°58.6	255°28.7	+30.1	15.0
	19°47.3	19°51.3	19°55.1	19°58.9	20°02.6	20°06.1	20°09.6	20°13.0	20°16.2	20°19.4	20°22.5	+3.5	54.9
do 24	113°00.3	127°30.4	142°00.6	156°30.7	171°00.9	185°31.1	200°01.3	214°31.5	229°01.8	243°32.0	258°02.2	+30.2	14.9
	20°56.1	20°57.6	20°58.9	21°00.1	21°01.2	21°02.2	21°03.2	21°04.0	21°04.7	21°05.3	21°05.8	+1.0	54.5
vr 25	115°38.0	130°08.5	144°39.1	159°09.6	173°40.2	188°10.8	202°41.5	217°12.1	231°42.8	246°13.6	260°44.3	+30.6	14.8
	21°01.3	21°00.2	20°59.0	20°57.7	20°56.3	20°54.8	20°53.2	20°51.5	20°49.7	20°47.8	20°45.8	-1.5	54.2
za 26	130°08.5	144°39.1	159°09.6	173°40.2	188°10.8	202°41.5	217°12.1	231°42.8	246°13.6	260°44.3	275°15.0	+30.7	14.8
	21°00.2	20°59.0	20°57.7	20°56.3	20°54.8	20°53.2	20°51.5	20°49.7	20°47.8	20°45.8	20°43.7	-1.6	54.2
zo 27	132°59.6	147°30.8	162°02.0	176°33.3	191°04.6	205°35.9	220°07.2	234°38.6	249°10.0	263°41.4	278°12.9	+31.3	14.8
	20°01.2	19°57.6	19°54.0	19°50.2	19°46.4	19°42.4	19°38.4	19°34.3	19°30.1	19°25.8	19°21.4	-4.0	54.1
ma 28	136°08.4	150°40.3	165°12.3	179°44.3	194°16.3	208°48.4	223°20.5	237°52.6	252°24.7	266°56.9	281°29.1	+32.1	14.8
	18°05.5	17°59.7	17°53.9	17°48.1	17°42.1	17°36.1	17°29.9	17°23.7	17°17.5	17°11.1	17°04.7	-6.1	54.2
◐ di 29	139°35.4	154°08.0	168°40.6	183°13.3	197°46.0	212°18.7	226°51.4	241°24.2	255°56.9	270°29.7	285°02.6	+32.7	14.8
	15°19.3	15°11.7	15°04.1	14°56.3	14°48.5	14°40.7	14°32.7	14°24.8	14°16.7	14°08.6	14°00.4	-7.9	54.4
wo 30	143°16.9	157°49.9	172°23.0	186°56.1	201°29.2	216°02.3	230°35.4	245°08.6	259°41.7	274°14.8	288°48.0	+33.1	15.0
	11°50.0	11°40.8	11°31.6	11°22.3	11°13.0	11°03.6	10°54.1	10°44.6	10°35.1	10°25.5	10°15.8	-9.4	54.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 7 17h21 — LK: 14 12h57 — NM: 21 16h57 — EK: 29 19h19

ZON

Mei 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	180°41.9	195°42.0	210°42.1	225°42.2	240°42.2	255°42.3	90°43.3	105°43.4	120°43.5	135°43.5	150°43.6	165°43.7	+0.1
	14°57.2	14°57.9	14°58.7	14°59.4	15°00.2	15°00.9	15°10.8	15°11.5	15°12.3	15°13.0	15°13.8	15°14.5	+0.8
vr 2	180°43.7	195°43.8	210°43.9	225°44.0	240°44.0	255°44.1	90°45.0	105°45.1	120°45.1	135°45.2	150°45.3	165°45.3	+0.1
	15°15.3	15°16.0	15°16.8	15°17.5	15°18.3	15°19.0	15°28.7	15°29.4	15°30.2	15°30.9	15°31.7	15°32.4	+0.7
za 3	180°45.4	195°45.5	210°45.5	225°45.6	240°45.7	255°45.7	90°46.6	105°46.6	120°46.7	135°46.8	150°46.8	165°46.9	+0.1
	15°33.2	15°33.9	15°34.6	15°35.4	15°36.1	15°36.8	15°46.4	15°47.1	15°47.8	15°48.6	15°49.3	15°50.0	+0.7
zo 4	180°47.0	195°47.0	210°47.1	225°47.1	240°47.2	255°47.3	90°48.0	105°48.1	120°48.1	135°48.2	150°48.2	165°48.3	+0.1
	15°50.8	15°51.5	15°52.2	15°52.9	15°53.7	15°54.4	16°03.8	16°04.5	16°05.2	16°06.0	16°06.7	16°07.4	+0.7
ma 5	180°48.4	195°48.4	210°48.5	225°48.5	240°48.6	255°48.6	90°49.3	105°49.4	120°49.4	135°49.5	150°49.5	165°49.6	+0.1
	16°08.1	16°08.8	16°09.5	16°10.3	16°11.0	16°11.7	16°20.9	16°21.7	16°22.4	16°23.1	16°23.8	16°24.5	+0.7
di 6	180°49.6	195°49.7	210°49.7	225°49.8	240°49.8	255°49.9	90°50.5	105°50.5	120°50.6	135°50.6	150°50.7	165°50.7	+0.0
	16°25.2	16°25.9	16°26.6	16°27.3	16°28.0	16°28.7	16°37.8	16°38.5	16°39.2	16°39.9	16°40.6	16°41.3	+0.7
wo 7	180°50.8	195°50.8	210°50.8	225°50.9	240°50.9	255°51.0	90°51.5	105°51.5	120°51.6	135°51.6	150°51.7	165°51.7	+0.0
	16°42.0	16°42.7	16°43.4	16°44.1	16°44.8	16°45.5	16°54.4	16°55.1	16°55.8	16°56.5	16°57.2	16°57.9	+0.7
do 8	180°51.7	195°51.8	210°51.8	225°51.9	240°51.9	255°51.9	90°52.4	105°52.4	120°52.5	135°52.5	150°52.5	165°52.6	+0.0
	16°58.5	16°59.2	16°59.9	17°00.6	17°01.3	17°01.9	17°10.7	17°11.4	17°12.1	17°12.8	17°13.4	17°14.1	+0.7
vr 9	180°52.6	195°52.6	210°52.6	225°52.7	240°52.7	255°52.7	90°53.1	105°53.2	120°53.2	135°53.2	150°53.2	165°53.3	+0.0
	17°14.8	17°15.5	17°16.1	17°16.8	17°17.5	17°18.1	17°26.8	17°27.4	17°28.1	17°28.8	17°29.4	17°30.1	+0.7
za 10	180°53.3	195°53.3	210°53.3	225°53.4	240°53.4	255°53.4	90°53.7	105°53.7	120°53.8	135°53.8	150°53.8	165°53.8	+0.0
	17°30.7	17°31.4	17°32.1	17°32.7	17°33.4	17°34.0	17°42.5	17°43.2	17°43.8	17°44.5	17°45.1	17°45.8	+0.7
zo 11	180°53.8	195°53.9	210°53.9	225°53.9	240°53.9	255°53.9	90°54.2	105°54.2	120°54.2	135°54.2	150°54.2	165°54.2	+0.0
	17°46.4	17°47.1	17°47.7	17°48.4	17°49.0	17°49.6	17°58.0	17°58.6	17°59.2	17°59.9	18°00.5	18°01.2	+0.6
ma 12	180°54.2	195°54.3	210°54.3	225°54.3	240°54.3	255°54.3	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	+0.0
	18°01.8	18°02.4	18°03.1	18°03.7	18°04.3	18°04.9	18°13.1	18°13.7	18°14.4	18°15.0	18°15.6	18°16.2	+0.6
di 13	180°54.5	195°54.5	210°54.5	225°54.5	240°54.5	255°54.5	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.6	+0.0
	18°16.9	18°17.5	18°18.1	18°18.7	18°19.3	18°20.0	18°28.0	18°28.6	18°29.2	18°29.8	18°30.4	18°31.0	+0.6
wo 14	180°54.6	195°54.6	210°54.6	225°54.6	240°54.6	255°54.6	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.6	+0.0
	18°31.6	18°32.2	18°32.8	18°33.4	18°34.0	18°34.7	18°42.5	18°43.1	18°43.7	18°44.3	18°44.9	18°45.5	+0.6
do 15	180°54.6	195°54.6	210°54.6	225°54.6	240°54.6	255°54.5	90°54.5	105°54.4	120°54.4	135°54.4	150°54.4	165°54.4	-0.0
	18°46.1	18°46.7	18°47.3	18°47.9	18°48.4	18°49.0	18°56.7	18°57.3	18°57.9	18°58.5	18°59.0	18°59.6	+0.6
vr 16	180°54.4	195°54.4	210°54.4	225°54.4	240°54.3	255°54.3	90°54.2	105°54.1	120°54.1	135°54.1	150°54.1	165°54.1	-0.0
	19°00.2	19°00.8	19°01.4	19°01.9	19°02.5	19°03.1	19°10.6	19°11.2	19°11.7	19°12.3	19°12.9	19°13.4	+0.6
za 17	180°54.1	195°54.0	210°54.0	225°54.0	240°54.0	255°54.0	90°53.7	105°53.7	120°53.7	135°53.7	150°53.6	165°53.6	-0.0
	19°14.0	19°14.6	19°15.1	19°15.7	19°16.3	19°16.8	19°24.2	19°24.7	19°25.3	19°25.8	19°26.4	19°26.9	+0.6
zo 18	180°53.6	195°53.6	210°53.5	225°53.5	240°53.5	255°53.5	90°53.1	105°53.1	120°53.1	135°53.1	150°53.0	165°53.0	-0.0
	19°27.5	19°28.1	19°28.6	19°29.2	19°29.7	19°30.3	19°37.4	19°37.9	19°38.5	19°39.0	19°39.6	19°40.1	+0.6
ma 19	180°53.0	195°52.9	210°52.9	225°52.9	240°52.9	255°52.8	90°52.4	105°52.4	120°52.3	135°52.3	150°52.3	165°52.2	-0.0
	19°40.7	19°41.2	19°41.7	19°42.3	19°42.8	19°43.4	19°50.3	19°50.8	19°51.4	19°51.9	19°52.4	19°52.9	+0.5
di 20	180°52.2	195°52.2	210°52.1	225°52.1	240°52.1	255°52.0	90°51.6	105°51.5	120°51.5	135°51.4	150°51.4	165°51.4	-0.0
	19°53.5	19°54.0	19°54.5	19°55.1	19°55.6	19°56.1	20°02.9	20°03.4	20°03.9	20°04.4	20°04.9	20°05.4	+0.5
wo 21	180°51.3	195°51.3	210°51.2	225°51.2	240°51.2	255°51.1	90°50.6	105°50.5	120°50.5	135°50.4	150°50.4	165°50.3	-0.0
	20°06.0	20°06.5	20°07.0	20°07.5	20°08.0	20°08.5	20°15.1	20°15.6	20°16.1	20°16.6	20°17.1	20°17.6	+0.5
do 22	180°50.3	195°50.2	210°50.2	225°50.2	240°50.1	255°50.1	90°49.4	105°49.4	120°49.3	135°49.3	150°49.2	165°49.2	-0.0
	20°18.1	20°18.6	20°19.1	20°19.6	20°20.1	20°20.6	20°27.0	20°27.5	20°27.9	20°28.4	20°28.9	20°29.4	+0.5
vr 23	180°49.1	195°49.1	210°49.0	225°49.0	240°48.9	255°48.9	90°48.2	105°48.1	120°48.1	135°48.0	150°48.0	165°47.9	-0.1
	20°29.9	20°30.4	20°30.8	20°31.3	20°31.8	20°32.3	20°38.5	20°39.0	20°39.4	20°39.9	20°40.4	20°40.8	+0.5
za 24	180°47.9	195°47.8	210°47.7	225°47.7	240°47.6	255°47.6	90°46.8	105°46.7	120°46.7	135°46.6	150°46.6	165°46.5	-0.1
	20°41.3	20°41.8	20°42.3	20°42.7	20°43.2	20°43.7	20°49.7	20°50.1	20°50.6	20°51.0	20°51.5	20°51.9	+0.5
zo 25	180°46.4	195°46.4	210°46.3	225°46.3	240°46.2	255°46.1	90°45.3	105°45.2	120°45.2	135°45.1	150°45.0	165°45.0	-0.1
	20°52.4	20°52.9	20°53.3	20°53.8	20°54.2	20°54.7	21°00.5	21°00.9	21°01.4	21°01.8	21°02.2	21°02.7	+0.5
ma 26	180°44.9	195°44.8	210°44.8	225°44.7	240°44.6	255°44.6	90°43.7	105°43.6	120°43.5	135°43.5	150°43.4	165°43.3	-0.1
	21°03.1	21°03.6	21°04.0	21°04.4	21°04.9	21°05.3	21°10.9	21°11.3	21°11.8	21°12.2	21°12.6	21°13.1	+0.4
di 27	180°43.3	195°43.2	210°43.1	225°43.0	240°43.0	255°42.9	90°41.9	105°41.9	120°41.8	135°41.7	150°41.6	165°41.6	-0.1
	21°13.5	21°13.9	21°14.3	21°14.7	21°15.2	21°15.6	21°21.0	21°21.4	21°21.8	21°22.2	21°22.6	21°23.1	+0.4
wo 28	180°41.5	195°41.4	210°41.3	225°41.3	240°41.2	255°41.1	90°40.1	105°40.0	120°39.9	135°39.9	150°39.8	165°39.7	-0.1
	21°23.5	21°23.9	21°24.3	21°24.7	21°25.1	21°25.5	21°30.7	21°31.1	21°31.5	21°31.9	21°32.3	21°32.7	+0.4
do 29	180°39.6	195°39.5	210°39.5	225°39.4	240°39.3	255°39.2	90°38.1	105°38.1	120°38.0	135°37.9	150°37.8	165°37.7	-0.1
	21°33.1	21°33.5	21°33.9	21°34.3	21°34.7	21°35.0	21°40.1	21°40.4	21°40.8	21°41.2	21°41.6	21°42.0	+0.4
vr 30	180°37.6	195°37.5	210°37.5	225°37.4	240°37.3	255°37.2	90°36.1	105°36.0	120°35.9	135°35.8	150°35.7	165°35.6	-0.1
	21°42.3	21°42.7	21°43.1	21°43.5	21°43.8	21°44.2	21°49.0	21°49.4	21°49.7	21°50.1	21°50.5	21°50.8	+0.4
za 31	180°35.5	195°35.5	210°35.4	225°35.3	240°35.2	255°35.1	90°33.9	105°33.8	120°33.7	135°33.6	150°33.5	165°33.5	-0.1
	21°51.2	21°51.6	21°51.9	21°52.3	21°52.6	21°53.0	21°57.6	21°58.0	21°58.3	21°58.6	21°59.0	21°59.3	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2031

D	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
do 1	49°01.0	63°34.0	78°06.9	92°39.8	107°12.7	121°45.6	136°18.4	150°51.2	165°24.0	179°56.8	194°29.6	+32.9	15.3
	4°31.5	4°20.4	4°09.3	3°58.1	3°46.9	3°35.7	3°24.4	3°13.1	3°01.8	2°50.5	2°39.1	-11.2	55.9
vr 2	63°34.0	78°06.9	92°39.8	107°12.7	121°45.6	136°18.4	150°51.2	165°24.0	179°56.8	194°29.6	209°02.3	+32.8	15.3
	4°20.4	4°09.3	3°58.1	3°46.9	3°35.7	3°24.4	3°13.1	3°01.8	2°50.5	2°39.1	2°27.8	-11.3	56.0
za 3	67°09.3	81°41.5	96°13.6	110°45.7	125°17.7	139°49.8	154°21.7	168°53.6	183°25.5	197°57.3	212°29.1	+32.0	15.5
	-0°25.6	-0°37.3	-0°49.0	-1°00.7	-1°12.4	-1°24.1	-1°35.9	-1°47.6	-1°59.4	-2°11.1	-2°22.9	-11.7	56.8
zo 4	70°19.3	84°50.2	99°21.1	113°51.8	128°22.5	142°53.1	157°23.7	171°54.2	186°24.6	200°55.0	215°25.3	+30.6	15.7
	-5°19.3	-5°31.0	-5°42.7	-5°54.4	-6°06.1	-6°17.7	-6°29.4	-6°41.0	-6°52.6	-7°04.2	-7°15.7	-11.6	57.7
ma 5	72°51.1	87°20.2	101°49.2	116°18.2	130°47.0	145°15.8	159°44.5	174°13.1	188°41.7	203°10.1	217°38.5	+28.7	16.0
	-10°05.6	-10°16.7	-10°27.6	-10°38.6	-10°49.5	-11°00.4	-11°11.2	-11°21.9	-11°32.6	-11°43.3	-11°53.9	-10.8	58.6
di 6	74°33.9	89°00.9	103°27.8	117°54.7	132°21.4	146°48.1	161°14.6	175°41.1	190°07.5	204°33.8	219°00.1	+26.6	16.2
	-14°25.2	-14°34.7	-14°44.2	-14°53.5	-15°02.8	-15°12.0	-15°21.1	-15°30.1	-15°39.0	-15°47.9	-15°56.6	-9.1	59.3
○ wo 7	75°23.6	89°48.5	104°13.3	118°38.1	133°02.8	147°27.5	161°52.0	176°16.5	190°40.9	205°05.3	219°29.5	+24.6	16.3
	-17°55.8	-18°02.9	-18°09.8	-18°16.7	-18°23.4	-18°30.0	-18°36.5	-18°42.8	-18°49.1	-18°55.2	-19°01.2	-6.5	59.9
do 8	75°26.5	89°49.9	104°13.2	118°36.5	132°59.7	147°22.9	161°46.1	176°09.3	190°32.4	204°55.4	219°18.5	+23.2	16.4
	-20°15.0	-20°18.8	-20°22.5	-20°26.0	-20°29.4	-20°32.6	-20°35.7	-20°38.6	-20°41.4	-20°44.0	-20°46.5	-3.2	60.3
vr 9	75°01.9	89°24.7	103°47.5	118°10.4	132°33.2	146°56.0	161°18.9	175°41.8	190°04.7	204°27.6	218°50.5	+22.9	16.5
	-21°05.7	-21°05.8	-21°05.7	-21°05.4	-21°05.0	-21°04.5	-21°03.8	-21°02.9	-21°01.9	-21°00.7	-20°59.4	+0.6	60.4
za 10	74°37.7	89°01.1	103°24.6	117°48.2	132°11.8	146°35.4	160°59.1	175°22.9	189°46.7	204°10.6	218°34.5	+23.7	16.4
	-20°21.6	-20°17.9	-20°14.1	-20°10.1	-20°06.0	-20°01.8	-19°57.4	-19°52.8	-19°48.2	-19°43.4	-19°38.4	+4.3	60.2
zo 11	74°41.0	89°06.0	103°31.1	117°56.2	132°21.5	146°46.7	161°12.1	175°37.6	190°03.1	204°28.7	218°54.3	+25.3	16.3
	-18°08.9	-18°01.9	-17°54.8	-17°47.7	-17°40.4	-17°33.0	-17°25.4	-17°17.8	-17°10.1	-17°02.2	-16°54.3	+7.5	59.8
ma 12	75°29.0	89°55.9	104°22.9	118°50.0	133°17.2	147°44.4	162°11.8	176°39.2	191°06.7	205°34.3	220°01.9	+27.3	16.2
	-14°43.5	-14°34.0	-14°24.5	-14°14.9	-14°05.2	-13°55.5	-13°45.6	-13°35.7	-13°25.8	-13°15.7	-13°05.6	+9.8	59.3
◑ di 13	77°05.5	91°34.3	106°03.2	120°32.1	135°01.2	149°30.2	163°59.4	178°28.6	192°57.9	207°27.2	221°56.6	+29.1	16.0
	-10°26.2	-10°15.1	-10°04.0	-9°52.8	-9°41.6	-9°30.4	-9°19.1	-9°07.7	-8°56.3	-8°44.9	-8°33.5	+11.3	58.7
wo 14	79°24.6	93°54.9	108°25.2	122°55.6	137°26.1	151°56.5	166°27.1	180°57.6	195°28.3	209°58.9	224°29.6	+30.5	15.8
	-5°37.9	-5°26.0	-5°14.0	-5°02.1	-4°50.1	-4°38.2	-4°26.2	-4°14.2	-4°02.2	-3°50.2	-3°38.1	+12.0	58.1
do 15	82°14.5	96°45.8	111°17.1	125°48.4	140°19.7	154°51.1	169°22.4	183°53.8	198°25.3	212°56.7	227°28.2	+31.4	15.7
	-0°37.3	-0°25.3	-0°13.2	-0°01.2	0°10.8	0°22.8	0°34.8	0°46.8	0°58.7	1°10.7	1°22.6	+12.0	57.4
vr 16	85°22.0	99°53.7	114°25.3	128°57.0	143°28.7	158°00.4	172°32.1	187°03.8	201°35.5	216°07.3	230°39.0	+31.7	15.5
	4°19.2	4°30.8	4°42.3	4°53.8	5°05.3	5°16.7	5°28.1	5°39.5	5°50.9	6°02.2	6°13.4	+11.4	56.8
za 17	88°34.4	103°06.1	117°37.7	132°09.3	146°41.0	161°12.6	175°44.2	190°15.8	204°47.3	219°18.9	233°50.5	+31.6	15.3
	8°57.4	9°07.9	9°18.5	9°28.9	9°39.3	9°49.7	10°00.0	10°10.2	10°20.4	10°30.6	10°40.6	+10.3	56.3
zo 18	91°42.0	106°13.3	120°44.6	135°15.8	149°47.1	164°18.3	178°49.5	193°20.7	207°51.9	222°23.0	236°54.1	+31.2	15.2
	13°04.5	13°13.6	13°22.6	13°31.5	13°40.4	13°49.2	13°57.9	14°06.5	14°15.1	14°23.6	14°32.0	+8.8	55.7
ma 19	94°38.7	109°09.5	123°40.3	138°11.0	152°41.8	167°12.5	181°43.2	196°13.9	210°44.6	225°15.2	239°45.8	+30.7	15.1
	16°29.2	16°36.3	16°43.4	16°50.4	16°57.3	17°04.1	17°10.8	17°17.5	17°24.1	17°30.5	17°36.9	+6.8	55.3
di 20	97°23.3	111°53.6	126°24.0	140°54.3	155°24.7	169°55.0	184°25.3	198°55.6	213°25.9	227°56.2	242°26.4	+30.3	15.0
	19°01.7	19°06.7	19°11.5	19°16.2	19°20.8	19°25.3	19°29.8	19°34.1	19°38.3	19°42.5	19°46.5	+4.5	54.9
● wo 21	99°59.6	114°29.7	128°59.9	143°30.1	158°00.3	172°30.4	187°00.6	201°30.8	216°01.0	230°31.2	245°01.4	+30.2	14.9
	20°35.2	20°37.6	20°40.0	20°42.2	20°44.4	20°46.4	20°48.3	20°50.2	20°51.9	20°53.5	20°55.1	+2.0	54.5
do 22	102°35.1	117°05.5	131°35.8	146°06.2	160°36.6	175°07.0	189°37.4	204°07.8	218°38.3	233°08.7	247°39.2	+30.4	14.8
	21°05.8	21°05.7	21°05.5	21°05.2	21°04.8	21°04.3	21°03.7	21°03.1	21°02.3	21°01.4	21°00.4	-0.5	54.2
vr 23	105°19.1	119°50.0	134°20.9	148°51.8	163°22.7	177°53.7	192°24.7	206°55.7	221°26.8	235°57.8	250°28.9	+31.0	14.7
	20°33.7	20°31.2	20°28.5	20°25.8	20°23.0	20°20.0	20°17.0	20°13.9	20°10.7	20°07.4	20°04.0	-3.0	54.0
za 24	108°19.3	122°50.9	137°22.6	151°54.3	166°26.0	180°57.7	195°29.5	210°01.4	224°33.2	239°05.1	253°37.0	+31.8	14.7
	19°02.5	18°57.7	18°52.9	18°47.9	18°42.8	18°37.7	18°32.5	18°27.2	18°21.8	18°16.4	18°10.8	-5.2	54.0
zo 25	111°39.8	126°12.3	140°44.7	155°17.3	169°49.8	184°22.4	198°55.0	213°27.6	228°00.3	242°33.0	257°05.7	+32.6	14.7
	16°38.4	16°31.7	16°24.8	16°17.9	16°11.0	16°03.9	15°56.8	15°49.6	15°42.4	15°35.0	15°27.6	-7.1	54.1
ma 26	126°12.3	140°44.7	155°17.3	169°49.8	184°22.4	198°55.0	213°27.6	228°00.3	242°33.0	257°05.7	271°38.5	+32.6	14.7
	16°31.7	16°24.8	16°17.9	16°11.0	16°03.9	15°56.8	15°49.6	15°42.4	15°35.0	15°27.6	15°20.2	-7.2	54.1
di 27	129°53.2	144°26.4	158°59.6	173°32.8	188°06.1	202°39.4	217°12.7	231°46.0	246°19.3	260°52.7	275°26.0	+33.3	14.8
	13°20.6	13°12.1	13°03.6	12°55.0	12°46.4	12°37.7	12°28.9	12°20.1	12°11.2	12°02.3	11°53.3	-8.7	54.3
wo 28	133°48.6	148°22.1	162°55.8	177°29.4	192°03.0	206°36.6	221°10.3	235°43.9	250°17.5	264°51.2	279°24.8	+33.6	14.9
	9°32.6	9°22.8	9°13.0	9°03.1	8°53.2	8°43.3	8°33.3	8°23.3	8°13.2	8°03.1	7°52.9	-10.0	54.7
◐ do 29	137°49.4	152°23.0	166°56.6	181°30.1	196°03.7	210°37.2	225°10.8	239°44.3	254°17.8	268°51.3	283°24.7	+33.5	15.1
	5°16.0	5°05.3	4°54.5	4°43.7	4°32.9	4°22.0	4°11.1	4°00.2	3°49.3	3°38.3	3°27.3	-10.9	55.3
vr 30	141°44.0	156°17.1	170°50.1	185°23.1	199°56.1	214°29.0	229°01.9	243°34.8	258°07.6	272°40.3	287°13.1	+32.9	15.3
	0°39.6	0°28.2	0°16.9	0°05.5	-0°05.9	-0°17.3	-0°28.7	-0°40.1	-0°51.5	-1°02.9	-1°14.4	-11.4	56.0
za 31	145°18.7	159°50.6	174°22.5	188°54.4	203°26.2	217°57.9	232°29.6	247°01.2	261°32.7	276°04.2	290°35.6	+31.7	15.5
	-4°06.7	-4°18.2	-4°29.6	-4°41.1	-4°52.6	-5°04.1	-5°15.5	-5°27.0	-5°38.4	-5°49.8	-6°01.2	-11.5	56.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

VM: 7 03h39 — LK: 13 19h06 — NM: 21 07h17 — EK: 29 11h19

ZON

Juni 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	180°33.4	195°33.3	210°33.2	225°33.1	240°33.0	255°32.9	90°31.7	105°31.6	120°31.5	135°31.4	150°31.3	165°31.2	-0.1
	21°59.7	22°00.0	22°00.4	22°00.7	22°01.1	22°01.4	22°05.8	22°06.1	22°06.5	22°06.8	22°07.1	22°07.5	+0.3
ma 2	180°31.1	195°31.0	210°30.9	225°30.8	240°30.7	255°30.6	90°29.3	105°29.2	120°29.1	135°29.0	150°28.9	165°28.8	-0.1
	22°07.8	22°08.1	22°08.4	22°08.8	22°09.1	22°09.4	22°13.6	22°13.9	22°14.3	22°14.6	22°14.9	22°15.2	+0.3
di 3	180°28.7	195°28.6	210°28.5	225°28.4	240°28.3	255°28.2	90°26.9	105°26.8	120°26.7	135°26.6	150°26.5	165°26.3	-0.1
	22°15.5	22°15.8	22°16.1	22°16.4	22°16.8	22°17.1	22°21.0	22°21.3	22°21.6	22°21.9	22°22.2	22°22.5	+0.3
wo 4	180°26.2	195°26.1	210°26.0	225°25.9	240°25.8	255°25.7	90°24.3	105°24.2	120°24.1	135°24.0	150°23.9	165°23.8	-0.1
	22°22.8	22°23.1	22°23.4	22°23.7	22°24.0	22°24.3	22°28.1	22°28.4	22°28.6	22°28.9	22°29.2	22°29.5	+0.3
do 5	180°23.7	195°23.6	210°23.5	225°23.4	240°23.3	255°23.2	90°21.7	105°21.6	120°21.5	135°21.4	150°21.3	165°21.2	-0.1
	22°29.8	22°30.1	22°30.3	22°30.6	22°30.9	22°31.2	22°34.7	22°35.0	22°35.3	22°35.5	22°35.8	22°36.1	+0.3
vr 6	180°21.1	195°21.0	210°20.8	225°20.7	240°20.6	255°20.5	90°19.0	105°18.9	120°18.8	135°18.7	150°18.6	165°18.5	-0.1
	22°36.3	22°36.6	22°36.8	22°37.1	22°37.4	22°37.6	22°41.0	22°41.2	22°41.5	22°41.7	22°42.0	22°42.2	+0.3
za 7	180°18.4	195°18.2	210°18.1	225°18.0	240°17.9	255°17.8	90°16.3	105°16.2	120°16.0	135°15.9	150°15.8	165°15.7	-0.1
	22°42.5	22°42.7	22°43.0	22°43.2	22°43.5	22°43.7	22°46.8	22°47.1	22°47.3	22°47.5	22°47.8	22°48.0	+0.2
zo 8	180°15.6	195°15.4	210°15.3	225°15.2	240°15.1	255°15.0	90°13.4	105°13.3	120°13.2	135°13.1	150°12.9	165°12.8	-0.1
	22°48.2	22°48.5	22°48.7	22°48.9	22°49.1	22°49.4	22°52.3	22°52.5	22°52.7	22°52.9	22°53.1	22°53.4	+0.2
ma 9	180°12.7	195°12.6	210°12.5	225°12.3	240°12.2	255°12.1	90°10.5	105°10.4	120°10.3	135°10.2	150°10.0	165°09.9	-0.1
	22°53.6	22°53.8	22°54.0	22°54.2	22°54.4	22°54.6	22°57.3	22°57.5	22°57.7	22°57.9	22°58.1	22°58.3	+0.2
di 10	180°09.8	195°09.7	210°09.5	225°09.4	240°09.3	255°09.2	90°07.5	105°07.4	120°07.3	135°07.2	150°07.0	165°06.9	-0.1
	22°58.5	22°58.7	22°58.9	22°59.1	22°59.3	22°59.5	23°02.0	23°02.1	23°02.3	23°02.5	23°02.7	23°02.9	+0.2
wo 11	180°06.8	195°06.7	210°06.5	225°06.4	240°06.3	255°06.2	90°04.5	105°04.4	120°04.3	135°04.1	150°04.0	165°03.9	-0.1
	23°03.1	23°03.2	23°03.4	23°03.6	23°03.8	23°04.0	23°06.2	23°06.4	23°06.5	23°06.7	23°06.9	23°07.0	+0.2
do 12	180°03.7	195°03.6	210°03.5	225°03.4	240°03.2	255°03.1	90°01.4	105°01.3	120°01.2	135°01.0	150°00.9	165°00.8	-0.1
	23°07.2	23°07.4	23°07.5	23°07.7	23°07.8	23°08.0	23°10.0	23°10.2	23°10.3	23°10.5	23°10.6	23°10.8	+0.2
vr 13	180°00.6	195°00.5	210°00.4	225°00.3	240°00.1	255°00.0	89°58.3	104°58.2	119°58.0	134°57.9	149°57.8	164°57.6	-0.1
	23°10.9	23°11.1	23°11.2	23°11.4	23°11.5	23°11.6	23°13.5	23°13.6	23°13.7	23°13.9	23°14.0	23°14.1	+0.1
za 14	179°57.5	194°57.4	209°57.2	224°57.1	239°57.0	254°56.8	89°55.1	104°55.0	119°54.8	134°54.7	149°54.6	164°54.4	-0.1
	23°14.2	23°14.4	23°14.5	23°14.6	23°14.8	23°14.9	23°16.5	23°16.6	23°16.7	23°16.8	23°16.9	23°17.0	+0.1
zo 15	179°54.3	194°54.2	209°54.0	224°53.9	239°53.8	254°53.6	89°51.9	104°51.8	119°51.6	134°51.5	149°51.4	164°51.2	-0.1
	23°17.2	23°17.3	23°17.4	23°17.5	23°17.6	23°17.7	23°19.1	23°19.2	23°19.3	23°19.4	23°19.5	23°19.6	+0.1
ma 16	179°51.1	194°51.0	209°50.8	224°50.7	239°50.6	254°50.4	89°48.7	104°48.5	119°48.4	134°48.3	149°48.1	164°48.0	-0.1
	23°19.6	23°19.7	23°19.8	23°19.9	23°20.0	23°20.1	23°21.3	23°21.3	23°21.4	23°21.5	23°21.6	23°21.7	+0.1
di 17	179°47.8	194°47.7	209°47.6	224°47.4	239°47.3	254°47.2	89°45.4	104°45.3	119°45.1	134°45.0	149°44.8	164°44.7	-0.1
	23°21.7	23°21.8	23°21.9	23°22.0	23°22.0	23°22.1	23°23.0	23°23.1	23°23.2	23°23.2	23°23.3	23°23.3	+0.1
wo 18	179°44.6	194°44.4	209°44.3	224°44.2	239°44.0	254°43.9	89°42.1	104°42.0	119°41.8	134°41.7	149°41.6	164°41.4	-0.1
	23°23.4	23°23.5	23°23.5	23°23.6	23°23.6	23°23.7	23°24.4	23°24.4	23°24.5	23°24.5	23°24.6	23°24.6	+0.1
do 19	179°41.3	194°41.1	209°41.0	224°40.9	239°40.7	254°40.6	89°38.8	104°38.7	119°38.5	134°38.4	149°38.3	164°38.1	-0.1
	23°24.7	23°24.7	23°24.8	23°24.8	23°24.8	23°24.9	23°25.3	23°25.4	23°25.4	23°25.4	23°25.5	23°25.5	+0.0
vr 20	179°38.0	194°37.9	209°37.7	224°37.6	239°37.4	254°37.3	89°35.5	104°35.4	119°35.2	134°35.1	149°35.0	164°34.8	-0.1
	23°25.5	23°25.5	23°25.6	23°25.6	23°25.6	23°25.6	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	+0.0
za 21	179°34.7	194°34.6	209°34.4	224°34.3	239°34.2	254°34.0	89°32.2	104°32.1	119°32.0	134°31.8	149°31.7	164°31.5	-0.1
	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	23°26.0	+0.0
zo 22	179°31.4	194°31.3	209°31.1	224°31.0	239°30.9	254°30.7	89°29.0	104°28.8	119°28.7	134°28.5	149°28.4	164°28.3	-0.1
	23°26.0	23°26.0	23°26.0	23°25.9	23°25.9	23°25.9	23°25.7	23°25.7	23°25.7	23°25.7	23°25.6	23°25.6	-0.0
ma 23	179°28.1	194°28.0	209°27.9	224°27.7	239°27.6	254°27.5	89°25.7	104°25.6	119°25.4	134°25.3	149°25.2	164°25.0	-0.1
	23°25.6	23°25.6	23°25.5	23°25.5	23°25.5	23°25.4	23°25.0	23°25.0	23°24.9	23°24.9	23°24.9	23°24.8	-0.0
di 24	179°24.9	194°24.7	209°24.6	224°24.5	239°24.3	254°24.2	89°22.5	104°22.3	119°22.2	134°22.1	149°21.9	164°21.8	-0.1
	23°24.8	23°24.7	23°24.7	23°24.6	23°24.6	23°24.6	23°23.9	23°23.8	23°23.8	23°23.7	23°23.7	23°23.6	-0.0
wo 25	179°21.7	194°21.5	209°21.4	224°21.3	239°21.1	254°21.0	89°19.3	104°19.1	119°19.0	134°18.9	149°18.7	164°18.6	-0.1
	23°23.6	23°23.5	23°23.4	23°23.4	23°23.3	23°23.3	23°22.4	23°22.3	23°22.2	23°22.2	23°22.1	23°22.0	-0.1
do 26	179°18.5	194°18.3	209°18.2	224°18.1	239°17.9	254°17.8	89°16.1	104°16.0	119°15.8	134°15.7	149°15.6	164°15.4	-0.1
	23°21.9	23°21.9	23°21.8	23°21.7	23°21.6	23°21.5	23°20.4	23°20.3	23°20.3	23°20.2	23°20.1	23°20.0	-0.1
vr 27	179°15.3	194°15.2	209°15.0	224°14.9	239°14.8	254°14.6	89°13.0	104°12.8	119°12.7	134°12.6	149°12.4	164°12.3	-0.1
	23°19.9	23°19.8	23°19.7	23°19.6	23°19.5	23°19.4	23°18.1	23°18.0	23°17.9	23°17.8	23°17.7	23°17.6	-0.1
za 28	179°12.2	194°12.1	209°11.9	224°11.8	239°11.7	254°11.5	89°09.9	104°09.8	119°09.6	134°09.5	149°09.4	164°09.2	-0.1
	23°17.4	23°17.3	23°17.2	23°17.1	23°17.0	23°16.9	23°15.3	23°15.2	23°15.1	23°15.0	23°14.8	23°14.7	-0.1
zo 29	179°09.1	194°09.0	209°08.9	224°08.7	239°08.6	254°08.5	89°06.9	104°06.7	119°06.6	134°06.5	149°06.4	164°06.2	-0.1
	23°14.6	23°14.5	23°14.3	23°14.2	23°14.1	23°13.9	23°12.2	23°12.0	23°11.9	23°11.8	23°11.6	23°11.5	-0.1
ma 30	179°06.1	194°06.0	209°05.9	224°05.7	239°05.6	254°05.5	89°03.9	104°03.8	119°03.7	134°03.5	149°03.4	164°03.3	-0.1
	23°11.3	23°11.2	23°11.0	23°10.9	23°10.7	23°10.6	23°08.6	23°08.4	23°08.3	23°08.1	23°08.0	23°07.8	-0.1

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2031

D	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
zo 1	61°15.4	75°46.1	90°16.8	104°47.4	119°17.9	133°48.3	148°18.7	162°48.9	177°19.1	191°49.2	206°19.3	+30.4	15.7
	-7°43.2	-7°54.4	-8°05.6	-8°16.8	-8°28.0	-8°39.1	-8°50.2	-9°01.3	-9°12.3	-9°23.3	-9°34.3	-11.1	57.7
ma 2	63°39.6	78°08.2	92°36.8	107°05.3	121°33.6	136°01.9	150°30.1	164°58.2	179°26.2	193°54.1	208°21.9	+28.2	16.0
	-12°14.0	-12°24.3	-12°34.5	-12°44.6	-12°54.7	-13°04.8	-13°14.8	-13°24.7	-13°34.5	-13°44.3	-13°54.0	-10.0	58.6
di 3	65°07.2	79°33.4	93°59.6	108°25.6	122°51.6	137°17.4	151°43.2	166°08.9	180°34.4	194°59.9	209°25.3	+25.8	16.2
	-16°10.7	-16°19.2	-16°27.5	-16°35.8	-16°43.9	-16°52.0	-17°00.0	-17°07.8	-17°15.6	-17°23.2	-17°30.8	-8.0	59.6
wo 4	65°34.9	79°58.9	94°22.7	108°46.5	123°10.2	137°33.9	151°57.4	166°20.9	180°44.3	195°07.7	209°30.9	+23.6	16.5
	-19°10.5	-19°16.2	-19°21.8	-19°27.2	-19°32.5	-19°37.6	-19°42.6	-19°47.5	-19°52.3	-19°56.9	-20°01.4	-5.1	60.3
○ do 5	65°12.6	79°34.9	93°57.3	108°19.5	122°41.8	137°04.0	151°26.2	165°48.4	180°10.5	194°32.6	208°54.7	+22.2	16.6
	-20°51.0	-20°55.1	-20°55.1	-20°56.8	-20°58.5	-21°00.0	-21°01.3	-21°02.5	-21°03.5	-21°04.3	-21°05.0	-1.4	60.9
vr 6	64°24.5	78°46.5	93°08.6	107°30.6	121°52.6	136°14.7	150°36.8	164°58.9	179°21.1	193°43.3	208°05.5	+22.1	16.6
	-20°56.3	-20°54.4	-20°52.4	-20°50.3	-20°47.9	-20°45.4	-20°42.8	-20°40.0	-20°37.0	-20°33.9	-20°30.6	+2.6	61.1
za 7	63°43.5	78°06.5	92°29.5	106°52.6	121°15.7	135°38.9	150°02.2	164°25.5	178°48.9	193°12.4	207°35.9	+23.2	16.6
	-19°23.5	-19°17.9	-19°12.1	-19°06.2	-19°00.1	-18°53.9	-18°47.6	-18°41.2	-18°34.6	-18°27.9	-18°21.0	+6.3	60.9
zo 8	63°38.3	78°03.1	92°28.0	106°53.0	121°18.0	135°43.2	150°08.4	164°33.7	178°59.1	193°24.6	207°50.2	+25.2	16.5
	-16°23.8	-16°15.1	-16°06.3	-15°57.4	-15°48.3	-15°39.2	-15°30.0	-15°20.7	-15°11.3	-15°01.8	-14°52.2	+9.2	60.5
ma 9	64°24.3	78°51.3	93°18.3	107°45.4	122°12.6	136°39.9	151°07.3	165°34.8	180°02.3	194°30.0	208°57.7	+27.3	16.3
	-12°18.5	-12°07.7	-11°56.8	-11°45.9	-11°34.8	-11°23.8	-11°12.6	-11°01.4	-10°50.2	-10°38.9	-10°27.6	+11.1	59.8
di 10	66°02.6	80°31.5	95°00.5	109°29.5	123°58.7	138°27.9	152°57.1	167°26.4	181°55.8	196°25.3	210°54.8	+29.2	16.1
	-7°32.2	-7°20.2	-7°08.2	-6°56.2	-6°44.1	-6°32.0	-6°19.9	-6°07.8	-5°55.7	-5°43.5	-5°31.4	+12.1	59.0
wo 11	68°24.3	82°54.7	97°25.2	111°55.6	126°26.2	140°56.7	155°27.4	169°58.0	184°28.7	198°59.5	213°30.2	+30.6	15.9
	-2°27.6	-2°15.3	-2°03.0	-1°50.7	-1°38.5	-1°26.2	-1°14.0	-1°01.7	-0°49.5	-0°37.3	-0°25.0	+12.3	58.2
◑ do 12	71°16.1	85°47.4	100°18.7	114°50.1	129°21.4	143°52.8	158°24.2	172°55.7	187°27.1	201°58.6	216°30.1	+31.4	15.6
	2°36.2	2°48.1	3°00.0	3°11.8	3°23.6	3°35.4	3°47.2	3°58.9	4°10.6	4°22.3	4°33.9	+11.8	57.3
vr 13	74°23.9	88°55.6	103°27.2	117°58.9	132°30.6	147°02.3	161°33.9	176°05.6	190°37.3	205°09.0	219°40.7	+31.7	15.4
	7°23.8	7°34.8	7°45.7	7°56.6	8°07.4	8°18.2	8°28.9	8°39.6	8°50.3	9°00.8	9°11.4	+10.8	56.6
za 14	77°35.4	92°07.0	106°38.6	121°10.1	135°41.7	150°13.2	164°44.8	179°16.3	193°47.8	208°19.3	222°50.8	+31.5	15.2
	11°42.6	11°52.2	12°01.7	12°11.2	12°20.6	12°29.9	12°39.2	12°48.4	12°57.6	13°06.6	13°15.6	+9.3	55.9
zo 15	80°41.4	95°12.6	109°43.8	124°15.0	138°46.2	153°17.4	167°48.5	182°19.7	196°50.8	211°21.9	225°53.0	+31.2	15.1
	15°22.0	15°29.8	15°37.6	15°45.2	15°52.8	16°00.3	16°07.8	16°15.1	16°22.4	16°29.5	16°36.6	+7.5	55.3
ma 16	83°37.0	98°07.8	112°38.6	127°09.4	141°40.1	156°10.8	170°41.6	185°12.3	199°42.9	214°13.6	228°44.3	+30.7	15.0
	18°12.9	18°18.6	18°24.3	18°29.8	18°35.2	18°40.6	18°45.8	18°51.0	18°56.1	19°01.1	19°06.0	+5.3	54.8
di 17	86°22.5	100°53.0	115°23.4	129°53.9	144°24.3	158°54.7	173°25.2	187°55.6	202°26.0	216°56.4	231°26.8	+30.4	14.9
	20°08.0	20°11.3	20°14.6	20°17.8	20°20.8	20°23.8	20°26.7	20°29.5	20°32.1	20°34.7	20°37.2	+2.9	54.5
wo 18	89°02.6	103°33.0	118°03.4	132°33.8	147°04.3	161°34.7	176°05.1	190°35.5	205°06.0	219°36.4	234°06.9	+30.4	14.8
	21°02.3	21°03.2	21°04.0	21°04.7	21°05.2	21°05.7	21°06.1	21°06.4	21°06.5	21°06.6	21°06.6	+0.4	54.2
● do 19	91°45.4	106°16.1	120°46.8	135°17.5	149°48.3	164°19.1	178°49.9	193°20.7	207°51.5	222°22.4	236°53.2	+30.8	14.7
	20°54.3	20°52.7	20°51.0	20°49.2	20°47.3	20°45.3	20°43.2	20°41.0	20°38.8	20°36.4	20°33.9	-2.0	54.0
vr 20	94°39.5	109°10.8	123°42.2	138°13.5	152°44.9	167°16.4	181°47.8	196°19.3	210°50.8	225°22.4	239°54.0	+31.4	14.7
	19°45.7	19°41.8	19°37.7	19°33.6	19°29.4	19°25.1	19°20.7	19°16.3	19°11.7	19°07.1	19°02.3	-4.3	53.9
za 21	97°51.6	112°23.8	126°55.9	141°28.1	156°00.3	170°32.5	185°04.8	199°37.1	214°09.5	228°41.9	243°14.3	+32.3	14.7
	17°41.5	17°35.5	17°29.4	17°23.2	17°17.0	17°10.7	17°04.3	16°57.8	16°51.2	16°44.6	16°37.9	-6.4	53.9
zo 22	101°24.5	115°57.4	130°30.4	145°03.4	159°36.4	174°09.4	188°42.5	203°15.6	217°48.8	232°21.9	246°55.1	+33.1	14.7
	14°49.1	14°41.3	14°33.5	14°25.5	14°17.6	14°09.5	14°01.4	13°53.3	13°45.1	13°36.8	13°28.5	-8.1	54.0
ma 23	105°16.2	119°49.7	134°23.4	148°57.0	163°30.6	178°04.3	192°38.0	207°11.7	221°45.4	236°19.1	250°52.9	+33.7	14.8
	11°16.8	11°07.6	10°58.4	10°49.1	10°39.8	10°30.4	10°20.9	10°11.5	10°01.9	9°52.4	9°42.8	-9.4	54.3
di 24	109°20.7	123°54.6	138°28.6	153°02.5	167°36.4	182°10.4	196°44.3	211°18.3	225°52.2	240°26.2	255°00.1	+33.9	14.9
	7°13.6	7°03.4	6°53.1	6°42.8	6°32.5	6°22.1	6°11.7	6°01.2	5°50.8	5°40.3	5°29.7	-10.4	54.6
wo 25	123°54.6	138°28.6	153°02.5	167°36.4	182°10.4	196°44.3	211°18.3	225°52.2	240°26.2	255°00.1	269°34.0	+33.9	14.9
	7°03.4	6°53.1	6°42.8	6°32.5	6°22.1	6°11.7	6°01.2	5°50.8	5°40.3	5°29.7	5°19.2	-10.4	54.7
do 26	128°02.5	142°36.3	157°10.1	171°43.9	186°17.7	200°51.4	215°25.1	229°58.9	244°32.5	259°06.2	273°39.9	+33.7	15.1
	2°37.7	2°26.7	2°15.8	2°04.8	1°53.8	1°42.8	1°31.7	1°20.7	1°09.6	0°58.5	0°47.4	-11.0	55.2
vr 27	132°01.3	146°34.5	161°07.6	175°40.7	190°13.7	204°46.7	219°19.7	233°52.6	248°25.5	262°58.4	277°31.2	+33.0	15.2
	-2°00.1	-2°11.4	-2°22.6	-2°33.8	-2°45.0	-2°56.3	-3°07.5	-3°18.7	-3°29.9	-3°41.1	-3°52.4	-11.2	55.9
◐ za 28	135°37.1	150°09.0	164°40.9	179°12.7	193°44.5	208°16.2	222°47.8	237°19.4	251°50.9	266°22.3	280°53.6	+31.7	15.5
	-6°39.5	-6°50.5	-7°01.5	-7°12.5	-7°23.5	-7°34.5	-7°45.4	-7°56.3	-8°07.2	-8°18.1	-8°28.9	-10.9	56.7
zo 29	138°35.2	153°05.3	167°35.4	182°05.4	196°35.3	211°05.1	225°34.8	240°04.4	254°34.0	269°03.4	283°32.8	+29.8	15.7
	-11°07.6	-11°17.9	-11°28.1	-11°38.3	-11°48.4	-11°58.5	-12°08.5	-12°18.5	-12°28.5	-12°38.4	-12°48.2	-10.1	57.7
ma 30	140°42.2	155°10.1	169°37.9	184°05.5	198°33.1	213°00.6	227°28.0	241°55.3	256°22.4	270°49.5	285°16.5	+27.4	16.0
	-15°08.4	-15°17.1	-15°25.9	-15°34.5	-15°43.1	-15°51.6	-16°00.0	-16°08.3	-16°16.5	-16°24.7	-16°32.7	-8.4	58.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 5 11h58 — LK: 12 02h20 — NM: 19 22h24 — EK: 28 00h19

ZON

Juli 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	179°03.2	194°03.1	209°02.9	224°02.8	239°02.7	254°02.6	89°01.0	104°00.9	119°00.8	134°00.7	149°00.5	164°00.4	-0.1
	23°07.7	23°07.5	23°07.3	23°07.2	23°07.0	23°06.8	23°04.6	23°04.5	23°04.3	23°04.1	23°03.9	23°03.8	-0.2
wo 2	179°00.3	194°00.2	209°00.1	223°59.9	238°59.8	253°59.7	88°58.2	103°58.1	118°58.0	133°57.8	148°57.7	163°57.6	-0.1
	23°03.6	23°03.4	23°03.2	23°03.0	23°02.9	23°02.7	23°00.3	23°00.1	22°59.9	22°59.7	22°59.5	22°59.3	-0.2
do 3	178°57.5	193°57.4	208°57.3	223°57.1	238°57.0	253°56.9	88°55.4	103°55.3	118°55.2	133°55.1	148°55.0	163°54.9	-0.1
	22°59.1	22°58.9	22°58.7	22°58.5	22°58.3	22°58.1	22°55.5	22°55.3	22°55.1	22°54.9	22°54.6	22°54.4	-0.2
vr 4	178°54.8	193°54.7	208°54.5	223°54.4	238°54.3	253°54.2	88°52.8	103°52.7	118°52.6	133°52.4	148°52.3	163°52.2	-0.1
	22°54.2	22°54.0	22°53.8	22°53.6	22°53.4	22°53.2	22°50.3	22°50.1	22°49.9	22°49.6	22°49.4	22°49.2	-0.2
za 5	178°52.1	193°52.0	208°51.9	223°51.8	238°51.7	253°51.6	88°50.2	103°50.1	118°50.0	133°49.9	148°49.8	163°49.7	-0.1
	22°48.9	22°48.7	22°48.5	22°48.3	22°48.0	22°47.8	22°44.7	22°44.5	22°44.3	22°44.0	22°43.8	22°43.5	-0.2
zo 6	178°49.5	193°49.4	208°49.3	223°49.2	238°49.1	253°49.0	88°47.7	103°47.6	118°47.5	133°47.4	148°47.3	163°47.2	-0.1
	22°43.3	22°43.0	22°42.8	22°42.5	22°42.3	22°42.0	22°38.8	22°38.5	22°38.2	22°38.0	22°37.7	22°37.5	-0.2
ma 7	178°47.1	193°47.0	208°46.9	223°46.8	238°46.7	253°46.6	88°45.3	103°45.2	118°45.1	133°45.0	148°44.9	163°44.8	-0.1
	22°37.2	22°37.0	22°36.7	22°36.4	22°36.2	22°35.9	22°32.4	22°32.1	22°31.9	22°31.6	22°31.3	22°31.0	-0.3
di 8	178°44.7	193°44.6	208°44.5	223°44.4	238°44.3	253°44.2	88°42.9	103°42.9	118°42.8	133°42.7	148°42.6	163°42.5	-0.1
	22°30.8	22°30.5	22°30.2	22°29.9	22°29.6	22°29.4	22°25.7	22°25.4	22°25.1	22°24.8	22°24.5	22°24.2	-0.3
wo 9	178°42.4	193°42.3	208°42.2	223°42.1	238°42.0	253°41.9	88°40.7	103°40.6	118°40.5	133°40.5	148°40.4	163°40.3	-0.1
	22°23.9	22°23.6	22°23.3	22°23.0	22°22.7	22°22.4	22°18.5	22°18.2	22°17.9	22°17.6	22°17.3	22°17.0	-0.3
do 10	178°40.2	193°40.1	208°40.0	223°39.9	238°39.8	253°39.7	88°38.6	103°38.5	118°38.4	133°38.3	148°38.3	163°38.2	-0.1
	22°16.7	22°16.4	22°16.0	22°15.7	22°15.4	22°15.1	22°11.0	22°10.7	22°10.3	22°10.0	22°09.7	22°09.4	-0.3
vr 11	178°38.1	193°38.0	208°37.9	223°37.8	238°37.7	253°37.7	88°36.6	103°36.5	118°36.4	133°36.3	148°36.3	163°36.2	-0.1
	22°09.0	22°08.7	22°08.4	22°08.1	22°07.7	22°07.4	22°03.1	22°02.7	22°02.4	22°02.1	22°01.7	22°01.4	-0.3
za 12	178°36.1	193°36.0	208°35.9	223°35.8	238°35.8	253°35.7	88°34.7	103°34.6	118°34.5	133°34.4	148°34.4	163°34.3	-0.1
	22°01.0	22°00.7	22°00.4	22°00.0	21°59.7	21°59.3	21°54.8	21°54.4	21°54.1	21°53.7	21°53.4	21°53.0	-0.3
zo 13	178°34.2	193°34.1	208°34.1	223°34.0	238°33.9	253°33.8	88°32.9	103°32.8	118°32.7	133°32.6	148°32.6	163°32.5	-0.1
	21°52.7	21°52.3	21°51.9	21°51.6	21°51.2	21°50.9	21°46.1	21°45.8	21°45.4	21°45.0	21°44.6	21°44.3	-0.4
ma 14	178°32.4	193°32.4	208°32.3	223°32.2	238°32.1	253°32.1	88°31.2	103°31.1	118°31.0	133°31.0	148°30.9	163°30.8	-0.1
	21°43.9	21°43.5	21°43.2	21°42.8	21°42.4	21°42.0	21°37.1	21°36.7	21°36.3	21°35.9	21°35.6	21°35.2	-0.4
di 15	178°30.8	193°30.7	208°30.6	223°30.6	238°30.5	253°30.4	88°29.6	103°29.6	118°29.5	133°29.4	148°29.4	163°29.3	-0.1
	21°34.8	21°34.4	21°34.0	21°33.6	21°33.2	21°32.8	21°27.7	21°27.3	21°26.9	21°26.5	21°26.1	21°25.7	-0.4
wo 16	178°29.2	193°29.2	208°29.1	223°29.1	238°29.0	253°28.9	88°28.2	103°28.1	118°28.1	133°28.0	148°28.0	163°27.9	-0.1
	21°25.3	21°24.9	21°24.5	21°24.1	21°23.7	21°23.3	21°17.9	21°17.5	21°17.1	21°16.7	21°16.3	21°15.8	-0.4
do 17	178°27.8	193°27.8	208°27.7	223°27.7	238°27.6	253°27.6	88°26.9	103°26.8	118°26.8	133°26.7	148°26.7	163°26.6	-0.1
	21°15.4	21°15.0	21°14.6	21°14.2	21°13.7	21°13.3	21°07.8	21°07.4	21°06.9	21°06.5	21°06.1	21°05.6	-0.4
vr 18	178°26.6	193°26.5	208°26.5	223°26.4	238°26.4	253°26.3	88°25.7	103°25.6	118°25.6	133°25.5	148°25.5	163°25.5	-0.1
	21°05.2	21°04.8	21°04.3	21°03.9	21°03.5	21°03.0	20°57.3	20°56.8	20°56.4	20°56.0	20°55.5	20°55.1	-0.4
za 19	178°25.4	193°25.4	208°25.3	223°25.3	238°25.2	253°25.2	88°24.6	103°24.6	118°24.6	133°24.5	148°24.5	163°24.4	-0.0
	20°54.6	20°54.2	20°53.7	20°53.3	20°52.8	20°52.4	20°46.5	20°46.0	20°45.5	20°45.1	20°44.6	20°44.1	-0.4
zo 20	178°24.4	193°24.4	208°24.3	223°24.3	238°24.2	253°24.2	88°23.7	103°23.7	118°23.7	133°23.6	148°23.6	163°23.6	-0.0
	20°43.7	20°43.2	20°42.8	20°42.3	20°41.8	20°41.4	20°35.3	20°34.8	20°34.3	20°33.8	20°33.4	20°32.9	-0.5
ma 21	178°23.5	193°23.5	208°23.5	223°23.4	238°23.4	253°23.4	88°23.0	103°22.9	118°22.9	133°22.9	148°22.9	163°22.8	-0.0
	20°32.4	20°31.9	20°31.4	20°31.0	20°30.5	20°30.0	20°23.7	20°23.2	20°22.7	20°22.3	20°21.8	20°21.3	-0.5
di 22	178°22.8	193°22.8	208°22.8	223°22.7	238°22.7	253°22.7	88°22.4	103°22.3	118°22.3	133°22.3	148°22.3	163°22.2	-0.0
	20°20.8	20°20.3	20°19.8	20°19.3	20°18.8	20°18.3	20°11.8	20°11.3	20°10.8	20°10.3	20°09.8	20°09.3	-0.5
wo 23	178°22.2	193°22.2	208°22.2	223°22.2	238°22.1	253°22.1	88°21.9	103°21.9	118°21.8	133°21.8	148°21.8	163°21.8	-0.0
	20°08.8	20°08.3	20°07.8	20°07.3	20°06.8	20°06.3	19°59.6	19°59.1	19°58.6	19°58.1	19°57.6	19°57.0	-0.5
do 24	178°21.8	193°21.8	208°21.8	223°21.7	238°21.7	253°21.7	88°21.6	103°21.5	118°21.5	133°21.5	148°21.5	163°21.5	-0.0
	19°56.5	19°56.0	19°55.5	19°55.0	19°54.4	19°53.9	19°47.1	19°46.5	19°46.0	19°45.5	19°45.0	19°44.4	-0.5
vr 25	178°21.5	193°21.5	208°21.5	223°21.5	238°21.5	253°21.5	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.4	-0.0
	19°43.9	19°43.4	19°42.8	19°42.3	19°41.8	19°41.2	19°34.2	19°33.7	19°33.1	19°32.6	19°32.0	19°31.5	-0.5
za 26	178°21.4	193°21.4	208°21.4	223°21.4	238°21.4	253°21.4	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.4	-0.0
	19°30.9	19°30.4	19°29.8	19°29.3	19°28.7	19°28.2	19°21.0	19°20.4	19°19.9	19°19.3	19°18.8	19°18.2	-0.5
zo 27	178°21.4	193°21.4	208°21.4	223°21.4	238°21.4	253°21.4	88°21.5	103°21.5	118°21.5	133°21.5	148°21.5	163°21.6	+0.0
	19°17.6	19°17.1	19°16.5	19°16.0	19°15.4	19°14.8	19°07.5	19°06.9	19°06.3	19°05.8	19°05.2	19°04.6	-0.6
ma 28	178°21.6	193°21.6	208°21.6	223°21.6	238°21.6	253°21.6	88°21.8	103°21.8	118°21.8	133°21.8	148°21.9	163°21.9	+0.0
	19°04.1	19°03.5	19°02.9	19°02.3	19°01.8	19°01.2	18°53.6	18°53.1	18°52.5	18°51.9	18°51.3	18°50.7	-0.6
di 29	178°21.9	193°21.9	208°21.9	223°21.9	238°22.0	253°22.0	88°22.2	103°22.3	118°22.3	133°22.3	148°22.3	163°22.4	+0.0
	18°50.1	18°49.6	18°49.0	18°48.4	18°47.8	18°47.2	18°39.5	18°38.9	18°38.3	18°37.7	18°37.1	18°36.5	-0.6
wo 30	178°22.4	193°22.4	208°22.4	223°22.5	238°22.5	253°22.5	88°22.8	103°22.9	118°22.9	133°22.9	148°23.0	163°23.0	+0.0
	18°35.9	18°35.3	18°34.7	18°34.1	18°33.5	18°32.9	18°25.1	18°24.4	18°23.8	18°23.2	18°22.6	18°22.0	-0.6
do 31	178°23.0	193°23.1	208°23.1	223°23.1	238°23.1	253°23.2	88°23.6	103°23.6	118°23.7	133°23.7	148°23.7	163°23.8	+0.0
	18°21.4	18°20.8	18°20.2	18°19.6	18°18.9	18°18.3	18°10.3	18°09.7	18°09.1	18°08.4	18°07.8	18°07.2	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2031

D	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	SD/HP
di 1	69°40.9	84°06.8	98°32.6	112°58.3	127°23.9	141°49.4	156°14.8	170°40.2	185°05.4	199°30.5	213°55.6	+25.5	16.2
	-17°48.2	-17°55.2	-18°02.1	-18°08.9	-18°15.6	-18°22.1	-18°28.6	-18°35.0	-18°41.2	-18°47.3	-18°53.3	-6.5	59.4
wo 2	70°00.4	84°24.1	98°47.6	113°11.1	127°34.6	141°57.9	156°21.2	170°44.4	185°07.6	199°30.6	213°53.7	+23.3	16.4
	-20°08.7	-20°12.7	-20°16.5	-20°20.2	-20°23.8	-20°27.2	-20°30.5	-20°33.6	-20°36.6	-20°39.5	-20°42.2	-3.4	60.3
do 3	69°32.2	83°54.4	98°16.6	112°38.7	127°00.8	141°22.9	155°45.0	170°07.0	184°29.1	198°51.1	213°13.0	+22.1	16.6
	-21°04.6	-21°04.9	-21°05.0	-21°04.9	-21°04.7	-21°04.3	-21°03.8	-21°03.1	-21°02.2	-21°01.2	-21°00.0	+0.5	61.0
○ vr 4	68°42.3	83°04.3	97°26.3	111°48.4	126°10.5	140°32.6	154°54.7	169°16.9	183°39.1	198°01.3	212°23.6	+22.1	16.7
	-20°23.2	-20°19.5	-20°15.7	-20°11.6	-20°07.4	-20°03.1	-19°58.6	-19°54.0	-19°49.2	-19°44.2	-19°39.1	+4.4	61.3
za 5	68°02.9	82°26.0	96°49.1	111°12.3	125°35.5	139°58.9	154°22.2	168°45.7	183°09.2	197°32.8	211°56.5	+23.3	16.7
	-18°05.4	-17°58.0	-17°50.5	-17°42.9	-17°35.2	-17°27.3	-17°19.3	-17°11.2	-17°02.9	-16°54.6	-16°46.1	+7.9	61.3
zo 6	68°00.4	82°25.3	96°50.3	111°15.4	125°40.5	140°05.7	154°31.0	168°56.4	183°21.9	197°47.4	212°13.1	+25.3	16.6
	-14°25.7	-14°15.6	-14°05.3	-13°55.0	-13°44.6	-13°34.0	-13°23.5	-13°12.8	-13°02.0	-12°51.2	-12°40.3	+10.6	60.9
ma 7	68°47.4	83°14.4	97°41.4	112°08.5	126°35.7	141°02.9	155°30.2	169°57.6	184°25.1	198°52.7	213°20.3	+27.3	16.4
	-9°48.5	-9°36.6	-9°24.7	-9°12.7	-9°00.6	-8°48.5	-8°36.4	-8°24.2	-8°12.0	-7°59.8	-7°47.5	+12.1	60.3
di 8	70°23.3	84°52.0	99°20.8	113°49.6	128°18.6	142°47.5	157°16.6	171°45.7	186°14.8	200°44.0	215°13.3	+29.0	16.2
	-4°40.3	-4°27.7	-4°15.0	-4°02.4	-3°49.7	-3°37.1	-3°24.4	-3°11.8	-2°59.1	-2°46.5	-2°33.8	+12.6	59.4
wo 9	72°38.5	87°08.6	101°38.7	116°08.8	130°39.0	145°09.2	159°39.5	174°09.7	188°40.1	203°10.4	217°40.8	+30.2	15.9
	0°34.9	0°47.4	0°59.8	1°12.3	1°24.6	1°37.0	1°49.4	2°01.7	2°14.0	2°26.2	2°38.5	+12.4	58.5
do 10	75°20.5	89°51.3	104°22.2	118°53.1	133°24.0	147°54.9	162°25.8	176°56.8	191°27.8	205°58.8	220°29.8	+30.9	15.7
	5°37.7	5°49.3	6°00.9	6°12.4	6°23.9	6°35.3	6°46.7	6°58.1	7°09.4	7°20.6	7°31.8	+11.4	57.5
◑ vr 11	78°16.3	92°47.4	107°18.6	121°49.8	136°20.9	150°52.1	165°23.3	179°54.5	194°25.7	208°56.8	223°28.0	+31.2	15.4
	10°13.0	10°23.2	10°33.4	10°43.6	10°53.7	11°03.7	11°13.6	11°23.5	11°33.3	11°43.1	11°52.8	+10.0	56.6
za 12	81°15.4	95°46.5	110°17.7	124°48.8	139°19.9	153°51.0	168°22.0	182°53.1	197°24.2	211°55.2	226°26.3	+31.1	15.2
	14°09.4	14°17.9	14°26.4	14°34.8	14°43.0	14°51.2	14°59.4	15°07.4	15°15.4	15°23.3	15°31.1	+8.2	55.8
zo 13	84°10.8	98°41.7	113°12.6	127°43.5	142°14.3	156°45.1	171°16.0	185°46.8	200°17.6	214°48.4	229°19.2	+30.8	15.0
	17°18.2	17°24.6	17°31.0	17°37.3	17°43.5	17°49.5	17°55.6	18°01.5	18°07.3	18°13.0	18°18.7	+6.1	55.2
ma 14	86°59.7	101°30.3	116°01.0	130°31.6	145°02.2	159°32.8	174°03.4	188°34.0	203°04.5	217°35.1	232°05.7	+30.6	14.9
	19°32.3	19°36.5	19°40.6	19°44.5	19°48.4	19°52.2	19°55.8	19°59.4	20°02.9	20°06.3	20°09.6	+3.7	54.6
di 15	89°43.7	104°14.2	118°44.8	133°15.3	147°45.8	162°16.3	176°46.9	191°17.4	205°48.0	220°18.5	234°49.0	+30.5	14.8
	20°47.2	20°48.9	20°50.5	20°52.1	20°53.5	20°54.8	20°56.0	20°57.1	20°58.2	20°59.1	20°59.9	+1.3	54.3
wo 16	92°28.1	106°58.8	121°29.5	136°00.2	150°30.9	165°01.7	179°32.4	194°03.2	208°34.0	223°04.8	237°35.6	+30.7	14.7
	21°00.5	20°59.7	20°58.9	20°57.9	20°56.9	20°55.8	20°54.5	20°53.2	20°51.8	20°50.2	20°48.6	-1.2	54.0
do 17	95°20.1	109°51.2	124°22.4	138°53.6	153°24.8	167°56.0	182°27.3	196°58.6	211°29.9	226°01.2	240°32.6	+31.2	14.7
	20°12.9	20°09.7	20°06.5	20°03.2	19°59.8	19°56.3	19°52.7	19°49.0	19°45.3	19°41.4	19°37.5	-3.5	53.9
vr 18	98°26.3	112°58.1	127°30.0	142°01.8	156°33.7	171°05.7	185°37.6	200°09.6	214°41.7	229°13.7	243°45.8	+32.0	14.7
	18°27.9	18°22.6	18°17.2	18°11.7	18°06.2	18°00.6	17°54.9	17°49.1	17°43.2	17°37.2	17°31.2	-5.7	53.9
● za 19	101°50.9	116°23.5	130°56.1	145°28.7	160°01.4	174°34.1	189°06.8	203°39.6	218°12.4	232°45.2	247°18.1	+32.7	14.7
	15°51.9	15°44.7	15°37.4	15°30.1	15°22.7	15°15.2	15°07.7	15°00.1	14°52.4	14°44.7	14°36.9	-7.5	54.0
zo 20	105°34.2	120°07.5	134°40.8	149°14.2	163°47.5	178°20.9	192°54.3	207°27.7	222°01.2	236°34.7	251°08.2	+33.4	14.8
	12°32.7	12°24.0	12°15.2	12°06.3	11°57.4	11°48.5	11°39.5	11°30.4	11°21.3	11°12.2	11°03.0	-9.0	54.1
ma 21	109°32.9	124°06.7	138°40.5	153°14.3	167°48.1	182°21.9	196°55.8	211°29.6	226°03.5	240°37.4	255°11.2	+33.8	14.8
	8°39.5	8°29.6	8°19.7	8°09.7	7°59.7	7°49.6	7°39.5	7°29.4	7°19.2	7°09.1	6°58.8	-10.1	54.4
di 22	113°40.1	128°14.0	142°47.9	157°21.9	171°55.8	186°29.7	201°03.6	215°37.6	230°11.5	244°45.4	259°19.3	+33.9	14.9
	4°21.9	4°11.2	4°00.5	3°49.8	3°39.1	3°28.3	3°17.5	3°06.7	2°55.9	2°45.1	2°34.2	-10.8	54.8
wo 23	117°46.1	132°19.8	146°53.4	161°27.1	176°00.7	190°34.2	205°07.8	219°41.3	234°14.8	248°48.3	263°21.7	+33.6	15.1
	-0°10.2	-0°21.3	-0°32.3	-0°43.3	-0°54.4	-1°05.5	-1°16.5	-1°27.6	-1°38.6	-1°49.7	-2°00.8	-11.1	55.3
do 24	132°19.8	146°53.4	161°27.1	176°00.7	190°34.2	205°07.8	219°41.3	234°14.8	248°48.3	263°21.7	277°55.1	+33.5	15.1
	-0°21.3	-0°32.3	-0°43.3	-0°54.4	-1°05.5	-1°16.5	-1°27.6	-1°38.6	-1°49.7	-2°00.8	-2°11.8	-11.1	55.3
vr 25	136°12.4	150°45.2	165°18.0	179°50.8	194°23.5	208°56.2	223°28.8	238°01.4	252°33.9	267°06.4	281°38.9	+32.7	15.2
	-4°57.3	-5°08.2	-5°19.1	-5°30.1	-5°41.0	-5°51.9	-6°02.8	-6°13.6	-6°24.5	-6°35.3	-6°46.1	-10.9	55.9
za 26	139°38.9	154°10.4	168°41.9	183°13.3	197°44.6	212°15.9	226°47.1	241°18.3	255°49.3	270°20.3	284°51.3	+31.2	15.4
	-9°25.1	-9°35.5	-9°45.8	-9°56.1	-10°06.4	-10°16.6	-10°26.8	-10°36.9	-10°47.0	-10°57.1	-11°07.1	-10.2	56.6
◐ zo 27	142°26.4	156°56.1	171°25.8	185°55.3	200°24.8	214°54.2	229°23.5	243°52.8	258°21.9	272°51.0	287°20.0	+29.4	15.7
	-13°31.4	-13°40.5	-13°49.6	-13°58.7	-14°07.7	-14°16.6	-14°25.5	-14°34.3	-14°43.0	-14°51.7	-15°00.3	-8.9	57.5
ma 28	144°24.2	158°51.8	173°19.3	187°46.7	202°14.0	216°41.2	231°08.4	245°35.4	260°02.4	274°29.2	288°56.0	+27.2	15.9
	-16°59.9	-17°07.2	-17°14.4	-17°21.5	-17°28.5	-17°35.5	-17°42.3	-17°49.0	-17°55.7	-18°02.2	-18°08.7	-6.9	58.3
di 29	145°27.2	159°52.6	174°18.0	188°43.2	203°08.4	217°33.5	231°58.5	246°23.4	260°48.2	275°13.0	289°37.7	+25.0	16.1
	-19°32.4	-19°37.1	-19°41.6	-19°46.0	-19°50.3	-19°54.5	-19°58.6	-20°02.5	-20°06.3	-20°10.0	-20°13.5	-4.1	59.2
wo 30	145°40.0	160°03.7	174°27.3	188°50.9	203°14.4	217°37.8	232°01.2	246°24.6	260°47.9	275°11.2	289°34.4	+23.4	16.4
	-20°50.5	-20°51.8	-20°53.0	-20°54.1	-20°55.0	-20°55.8	-20°56.4	-20°56.9	-20°57.2	-20°57.4	-20°57.4	-0.7	60.0
do 31	145°19.2	159°42.0	174°04.8	188°27.6	202°50.4	217°13.2	231°35.9	245°58.7	260°21.5	274°44.3	289°07.0	+22.8	16.5
	-20°39.6	-20°37.2	-20°34.7	-20°32.0	-20°29.1	-20°26.1	-20°22.9	-20°19.6	-20°16.2	-20°12.5	-20°08.8	+3.1	60.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

VM: 4 19h01 — LK: 11 11h49 — NM: 19 13h40 — EK: 27 10h34

ZON

Augustus 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	178°23.8	193°23.9	208°23.9	223°23.9	238°24.0	253°24.0	88°24.5	103°24.6	118°24.6	133°24.6	148°24.7	163°24.7	+0.0
	18°06.6	18°06.0	18°05.3	18°04.7	18°04.1	18°03.5	17°55.3	17°54.6	17°54.0	17°53.4	17°52.7	17°52.1	-0.6
za 2	178°24.8	193°24.8	208°24.9	223°24.9	238°25.0	253°25.0	88°25.6	103°25.6	118°25.7	133°25.7	148°25.8	163°25.8	+0.0
	17°51.5	17°50.8	17°50.2	17°49.6	17°48.9	17°48.3	17°39.9	17°39.3	17°38.6	17°38.0	17°37.3	17°36.7	-0.6
zo 3	178°25.9	193°25.9	208°26.0	223°26.0	238°26.1	253°26.1	88°26.8	103°26.9	118°26.9	133°27.0	148°27.0	163°27.1	+0.0
	17°36.1	17°35.4	17°34.8	17°34.1	17°33.5	17°32.8	17°24.3	17°23.7	17°23.0	17°22.3	17°21.7	17°21.0	-0.6
ma 4	178°27.1	193°27.2	208°27.3	223°27.3	238°27.4	253°27.4	88°28.2	103°28.2	118°28.3	133°28.4	148°28.4	163°28.5	+0.1
	17°20.4	17°19.7	17°19.0	17°18.4	17°17.7	17°17.1	17°08.4	17°07.7	17°07.1	17°06.4	17°05.7	17°05.1	-0.7
di 5	178°28.6	193°28.6	208°28.7	223°28.7	238°28.8	253°28.9	88°29.7	103°29.8	118°29.8	133°29.9	148°30.0	163°30.0	+0.1
	17°04.4	17°03.7	17°03.0	17°02.4	17°01.7	17°01.0	16°52.2	16°51.5	16°50.9	16°50.2	16°49.5	16°48.8	-0.7
wo 6	178°30.1	193°30.2	208°30.2	223°30.3	238°30.4	253°30.5	88°31.4	103°31.4	118°31.5	133°31.6	148°31.7	163°31.7	+0.1
	16°48.1	16°47.5	16°46.8	16°46.1	16°45.4	16°44.7	16°35.8	16°35.1	16°34.4	16°33.7	16°33.0	16°32.3	-0.7
do 7	178°31.8	193°31.9	208°32.0	223°32.0	238°32.1	253°32.2	88°33.2	103°33.3	118°33.3	133°33.4	148°33.5	163°33.6	+0.1
	16°31.6	16°30.9	16°30.2	16°29.5	16°28.8	16°28.1	16°19.0	16°18.3	16°17.6	16°16.9	16°16.2	16°15.5	-0.7
vr 8	178°33.7	193°33.7	208°33.8	223°33.9	238°34.0	253°34.1	88°35.1	103°35.2	118°35.3	133°35.4	148°35.5	163°35.6	+0.1
	16°14.8	16°14.1	16°13.4	16°12.7	16°12.0	16°11.3	16°02.1	16°01.3	16°00.6	15°59.9	15°59.2	15°58.5	-0.7
za 9	178°35.7	193°35.7	208°35.8	223°35.9	238°36.0	253°36.1	88°37.2	103°37.3	118°37.4	133°37.5	148°37.6	163°37.7	+0.1
	15°57.8	15°57.0	15°56.3	15°55.6	15°54.9	15°54.2	15°44.8	15°44.1	15°43.4	15°42.6	15°41.9	15°41.2	-0.7
zo 10	178°37.8	193°37.9	208°38.0	223°38.1	238°38.2	253°38.2	88°39.5	103°39.6	118°39.7	133°39.8	148°39.9	163°40.0	+0.1
	15°40.5	15°39.7	15°39.0	15°38.3	15°37.5	15°36.8	15°27.3	15°26.6	15°25.8	15°25.1	15°24.4	15°23.6	-0.7
ma 11	178°40.1	193°40.2	208°40.3	223°40.3	238°40.4	253°40.5	88°41.8	103°42.0	118°42.1	133°42.2	148°42.3	163°42.4	+0.1
	15°22.9	15°22.2	15°21.4	15°20.7	15°19.9	15°19.2	15°09.6	15°08.8	15°08.1	15°07.3	15°06.6	15°05.8	-0.7
di 12	178°42.5	193°42.6	208°42.7	223°42.8	238°42.9	253°43.0	88°44.4	103°44.5	118°44.6	133°44.7	148°44.8	163°44.9	+0.1
	15°05.1	15°04.3	15°03.6	15°02.8	15°02.1	15°01.3	14°51.6	14°50.8	14°50.1	14°49.3	14°48.5	14°47.8	-0.7
wo 13	178°45.0	193°45.1	208°45.2	223°45.3	238°45.4	253°45.6	88°47.0	103°47.1	118°47.2	133°47.3	148°47.5	163°47.6	+0.1
	14°47.0	14°46.3	14°45.5	14°44.8	14°44.0	14°43.2	14°33.3	14°32.6	14°31.8	14°31.0	14°30.3	14°29.5	-0.8
do 14	178°47.7	193°47.8	208°47.9	223°48.0	238°48.1	253°48.3	88°49.8	103°49.9	118°50.0	133°50.1	148°50.3	163°50.4	+0.1
	14°28.7	14°28.0	14°27.2	14°26.4	14°25.7	14°24.9	14°14.9	14°14.1	14°13.3	14°12.5	14°11.8	14°11.0	-0.8
vr 15	178°50.5	193°50.6	208°50.7	223°50.9	238°51.0	253°51.1	88°52.7	103°52.8	118°52.9	133°53.1	148°53.2	163°53.3	+0.1
	14°10.2	14°09.4	14°08.7	14°07.9	14°07.1	14°06.3	13°56.2	13°55.4	13°54.6	13°53.8	13°53.0	13°52.3	-0.8
za 16	178°53.4	193°53.6	208°53.7	223°53.8	238°54.0	253°54.1	88°55.7	103°55.9	118°56.0	133°56.1	148°56.3	163°56.4	+0.1
	13°51.5	13°50.7	13°49.9	13°49.1	13°48.3	13°47.5	13°37.3	13°36.5	13°35.7	13°34.9	13°34.1	13°33.3	-0.8
zo 17	178°56.5	193°56.7	208°56.8	223°56.9	238°57.0	253°57.2	88°58.9	103°59.0	118°59.2	133°59.3	148°59.5	163°59.6	+0.1
	13°32.5	13°31.7	13°30.9	13°30.1	13°29.3	13°28.5	13°18.1	13°17.3	13°16.5	13°15.7	13°14.9	13°14.1	-0.8
ma 18	178°59.7	193°59.9	209°00.0	224°00.1	239°00.3	254°00.4	89°02.2	104°02.4	119°02.5	134°02.6	149°02.8	164°02.9	+0.1
	13°13.3	13°12.5	13°11.7	13°10.9	13°10.1	13°09.3	12°58.8	12°58.0	12°57.2	12°56.4	12°55.6	12°54.8	-0.8
di 19	179°03.1	194°03.2	209°03.3	224°03.5	239°03.6	254°03.8	89°05.6	104°05.8	119°05.9	134°06.1	149°06.2	164°06.4	+0.1
	12°53.9	12°53.1	12°52.3	12°51.5	12°50.7	12°49.9	12°39.3	12°38.4	12°37.6	12°36.8	12°36.0	12°35.2	-0.8
wo 20	179°06.5	194°06.7	209°06.8	224°07.0	239°07.1	254°07.2	89°09.2	104°09.3	119°09.5	134°09.6	149°09.8	164°09.9	+0.1
	12°34.3	12°33.5	12°32.7	12°31.9	12°31.1	12°30.2	12°19.5	12°18.7	12°17.9	12°17.0	12°16.2	12°15.4	-0.8
do 21	179°10.1	194°10.2	209°10.4	224°10.5	239°10.7	254°10.8	89°12.8	104°13.0	119°13.2	134°13.3	149°13.5	164°13.6	+0.2
	12°14.6	12°13.7	12°12.9	12°12.1	12°11.2	12°10.4	11°59.6	11°58.8	11°57.9	11°57.1	11°56.2	11°55.4	-0.8
vr 22	179°13.8	194°13.9	209°14.1	224°14.3	239°14.4	254°14.6	89°16.6	104°16.8	119°16.9	134°17.1	149°17.3	164°17.4	+0.2
	11°54.6	11°53.7	11°52.9	11°52.1	11°51.2	11°50.4	11°39.5	11°38.6	11°37.8	11°36.9	11°36.1	11°35.2	-0.8
za 23	179°17.6	194°17.8	209°17.9	224°18.1	239°18.2	254°18.4	89°20.5	104°20.7	119°20.9	134°21.0	149°21.2	164°21.4	+0.2
	11°34.4	11°33.6	11°32.7	11°31.9	11°31.0	11°30.2	11°19.2	11°18.3	11°17.5	11°16.6	11°15.8	11°14.9	-0.8
zo 24	179°21.5	194°21.7	209°21.9	224°22.0	239°22.2	254°22.4	89°24.5	104°24.7	119°24.9	134°25.0	149°25.2	164°25.4	+0.2
	11°14.1	11°13.2	11°12.4	11°11.5	11°10.6	11°09.8	10°58.7	10°57.8	10°57.0	10°56.1	10°55.2	10°54.4	-0.9
ma 25	179°25.6	194°25.7	209°25.9	224°26.1	239°26.2	254°26.4	89°28.7	104°28.8	119°29.0	134°29.2	149°29.4	164°29.5	+0.2
	10°53.5	10°52.7	10°51.8	10°50.9	10°50.1	10°49.2	10°38.0	10°37.2	10°36.3	10°35.4	10°34.6	10°33.7	-0.9
di 26	179°29.7	194°29.9	209°30.1	224°30.2	239°30.4	254°30.6	89°32.9	104°33.1	119°33.2	134°33.4	149°33.6	164°33.8	+0.2
	10°32.8	10°32.0	10°31.1	10°30.2	10°29.4	10°28.5	10°17.2	10°16.3	10°15.5	10°14.6	10°13.7	10°12.8	-0.9
wo 27	179°34.0	194°34.1	209°34.3	224°34.5	239°34.7	254°34.9	89°37.2	104°37.4	119°37.6	134°37.8	149°37.9	164°38.1	+0.2
	10°12.0	10°11.1	10°10.2	10°09.3	10°08.5	10°07.6	9°56.2	9°55.3	9°54.5	9°53.6	9°52.7	9°51.8	-0.9
do 28	179°38.3	194°38.5	209°38.7	224°38.9	239°39.0	254°39.2	89°41.6	104°41.8	119°42.0	134°42.2	149°42.4	164°42.6	+0.2
	9°50.9	9°50.1	9°49.2	9°48.3	9°47.4	9°46.5	9°35.1	9°34.2	9°33.3	9°32.4	9°31.5	9°30.6	-0.9
vr 29	179°42.8	194°42.9	209°43.1	224°43.3	239°43.5	254°43.7	89°46.2	104°46.3	119°46.5	134°46.7	149°46.9	164°47.1	+0.2
	9°29.8	9°28.9	9°28.0	9°27.1	9°26.2	9°25.3	9°13.8	9°12.9	9°12.0	9°11.1	9°10.2	9°09.3	-0.9
za 30	179°47.3	194°47.5	209°47.7	224°47.9	239°48.1	254°48.3	89°50.8	104°51.0	119°51.1	134°51.3	149°51.5	164°51.7	+0.2
	9°08.4	9°07.5	9°06.7	9°05.8	9°04.9	9°04.0	8°52.3	8°51.4	8°50.6	8°49.7	8°48.8	8°47.9	-0.9
zo 31	179°51.9	194°52.1	209°52.3	224°52.5	239°52.7	254°52.9	89°55.5	104°55.6	119°55.8	134°56.0	149°56.2	164°56.4	+0.2
	8°47.0	8°46.1	8°45.2	8°44.3	8°43.4	8°42.5	8°30.8	8°29.9	8°29.0	8°28.1	8°27.2	8°26.3	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2031

D	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
vr 1	72°55.3	87°18.2	101°41.2	116°04.2	130°27.2	144°50.2	159°13.2	173°36.3	187°59.4	202°22.6	216°45.8	+23.0	16.6
	-19°22.9	-19°17.5	-19°12.0	-19°06.3	-19°00.5	-18°54.5	-18°48.4	-18°42.1	-18°35.8	-18°29.2	-18°22.6	+6.0	61.0
za 2	72°38.7	87°02.7	101°26.6	115°50.7	130°14.8	144°38.9	159°03.1	173°27.4	187°51.7	202°16.1	216°40.5	+24.2	16.7
	-16°26.9	-16°18.2	-16°09.4	-16°00.5	-15°51.4	-15°42.3	-15°33.0	-15°23.6	-15°14.2	-15°04.6	-14°54.9	+9.2	61.2
○ zo 3	72°54.9	87°20.4	101°46.0	116°11.6	130°37.3	145°03.0	159°28.9	173°54.8	188°20.7	202°46.7	217°12.8	+25.8	16.6
	-12°18.0	-12°06.9	-11°55.6	-11°44.4	-11°33.0	-11°21.5	-11°10.0	-10°58.5	-10°46.8	-10°35.1	-10°23.3	+11.5	61.0
ma 4	73°52.2	88°19.4	102°46.6	117°13.8	131°41.2	146°08.6	160°36.0	175°03.5	189°31.1	203°58.7	218°26.4	+27.4	16.5
	-7°20.5	-7°08.0	-6°55.4	-6°42.8	-6°30.2	-6°17.5	-6°04.8	-5°52.1	-5°39.4	-5°26.6	-5°13.9	+12.7	60.4
di 5	75°28.5	89°57.0	104°25.6	118°54.3	133°23.0	147°51.7	162°20.5	176°49.3	191°18.2	205°47.1	220°16.1	+28.8	16.3
	-2°00.9	-1°48.0	-1°35.1	-1°22.2	-1°09.4	-0°56.5	-0°43.7	-0°30.8	-0°18.0	-0°05.2	0°07.6	+12.9	59.7
wo 6	77°35.3	92°04.9	106°34.5	121°04.1	135°33.8	150°03.4	164°33.2	179°02.9	193°32.7	208°02.5	222°32.3	+29.7	16.0
	3°16.7	3°29.0	3°41.3	3°53.6	4°05.9	4°18.1	4°30.3	4°42.4	4°54.5	5°06.5	5°18.5	+12.2	58.7
do 7	80°02.3	94°32.4	109°02.6	123°32.8	138°03.0	152°33.2	167°03.4	181°33.7	196°03.9	210°34.2	225°04.5	+30.2	15.7
	8°12.4	8°23.6	8°34.7	8°45.7	8°56.7	9°07.6	9°18.4	9°29.2	9°39.9	9°50.6	10°01.1	+10.9	57.7
vr 8	82°39.6	97°10.0	111°40.4	126°10.8	140°41.2	155°11.6	169°42.0	184°12.5	198°42.9	213°13.3	227°43.7	+30.4	15.5
	12°31.5	12°40.9	12°50.3	12°59.6	13°08.8	13°17.9	13°26.9	13°35.9	13°44.8	13°53.6	14°02.3	+9.1	56.8
za 9	85°20.0	99°50.5	114°20.9	128°51.3	143°21.7	157°52.1	172°22.5	186°52.9	201°23.3	215°53.7	230°24.1	+30.4	15.2
	16°03.1	16°10.5	16°17.7	16°24.9	16°32.0	16°39.0	16°45.9	16°52.7	16°59.5	17°06.1	17°12.7	+7.0	55.9
◑ zo 10	87°59.8	102°30.2	117°00.5	131°30.9	146°01.2	160°31.6	175°02.0	189°32.3	204°02.7	218°33.0	233°03.4	+30.4	15.0
	18°39.8	18°44.8	18°49.8	18°54.6	18°59.4	19°04.0	19°08.6	19°13.1	19°17.5	19°21.7	19°25.9	+4.6	55.2
ma 11	90°38.8	105°09.2	119°39.6	134°10.0	148°40.4	163°10.8	177°41.2	192°11.6	206°42.0	221°12.5	235°42.9	+30.4	14.9
	20°16.8	20°19.4	20°21.9	20°24.3	20°26.7	20°28.9	20°31.0	20°33.0	20°34.9	20°36.7	20°38.4	+2.2	54.6
di 12	93°20.4	107°51.0	122°21.5	136°52.2	151°22.8	165°53.4	180°24.1	194°54.7	209°25.4	223°56.1	238°26.8	+30.6	14.8
	20°52.2	20°52.3	20°52.4	20°52.3	20°52.1	20°51.9	20°51.5	20°51.1	20°50.5	20°49.9	20°49.1	-0.3	54.3
wo 13	96°09.4	110°40.4	125°11.5	139°42.5	154°13.6	168°44.6	183°15.8	197°46.9	212°18.0	226°49.2	241°20.4	+31.1	14.7
	20°26.4	20°24.1	20°21.7	20°19.2	20°16.7	20°14.0	20°11.3	20°08.5	20°05.6	20°02.5	19°59.4	-2.7	54.0
do 14	99°11.3	113°42.9	128°14.5	142°46.1	157°17.8	171°49.5	186°21.2	200°53.0	215°24.8	229°56.6	244°28.4	+31.7	14.7
	19°02.2	18°57.6	18°53.0	18°48.4	18°43.6	18°38.7	18°33.8	18°28.8	18°23.7	18°18.5	18°13.2	-4.9	54.0
vr 15	102°29.4	117°01.6	131°34.0	146°06.3	160°38.7	175°11.1	189°43.5	204°15.9	218°48.4	233°20.9	247°53.4	+32.4	14.7
	16°44.8	16°38.2	16°31.7	16°25.0	16°18.3	16°11.5	16°04.6	15°57.7	15°50.6	15°43.6	15°36.4	-6.8	54.0
za 16	106°04.5	120°37.5	135°10.4	149°43.4	164°16.4	178°49.5	193°22.5	207°55.6	222°28.7	237°01.8	251°35.0	+33.0	14.8
	13°41.1	13°32.9	13°24.7	13°16.4	13°08.0	12°59.6	12°51.1	12°42.5	12°33.9	12°25.3	12°16.6	-8.5	54.2
zo 17	109°54.5	124°27.9	139°01.4	153°34.8	168°08.3	182°41.8	197°15.3	211°48.8	226°22.4	240°55.9	255°29.5	+33.5	14.8
	9°59.7	9°50.1	9°40.6	9°31.0	9°21.3	9°11.6	9°01.9	8°52.1	8°42.3	8°32.4	8°22.5	-9.7	54.4
● ma 18	113°53.8	128°27.5	143°01.2	157°34.9	172°08.5	186°42.2	201°15.9	215°49.6	230°23.2	244°56.9	259°30.6	+33.7	14.9
	5°49.7	5°39.3	5°28.8	5°18.3	5°07.8	4°57.2	4°46.6	4°36.0	4°25.4	4°14.7	4°04.0	-10.6	54.8
di 19	117°54.9	132°28.5	147°02.0	161°35.6	176°09.1	190°42.6	205°16.0	219°49.5	234°22.9	248°56.4	263°29.8	+33.5	15.1
	1°21.6	1°10.6	0°59.6	0°48.7	0°37.7	0°26.7	0°15.7	0°04.7	-0°06.3	-0°17.3	-0°28.4	-11.0	55.2
wo 20	121°48.3	136°21.3	150°54.3	165°27.2	180°00.2	194°33.1	209°05.9	223°38.7	238°11.5	252°44.3	267°17.0	+32.9	15.2
	-3°13.8	-3°24.8	-3°35.8	-3°46.8	-3°57.7	-4°08.7	-4°19.6	-4°30.6	-4°41.5	-4°52.4	-5°03.3	-11.0	55.7
do 21	125°23.1	139°55.2	154°27.2	168°59.1	183°31.0	198°02.9	212°34.7	227°06.5	241°38.2	256°09.8	270°41.4	+31.8	15.3
	-7°44.3	-7°54.9	-8°05.4	-8°15.9	-8°26.3	-8°36.7	-8°47.1	-8°57.5	-9°07.8	-9°18.1	-9°28.3	-10.4	56.2
vr 22	139°55.2	154°27.2	168°59.1	183°31.0	198°02.9	212°34.7	227°06.5	241°38.2	256°09.8	270°41.4	285°13.0	+31.8	15.3
	-7°54.9	-8°05.4	-8°15.9	-8°26.3	-8°36.7	-8°47.1	-8°57.5	-9°07.8	-9°18.1	-9°28.3	-9°38.5	-10.4	56.2
za 23	142°59.4	157°30.0	172°00.5	186°31.0	201°01.4	215°31.7	230°02.0	244°32.3	259°02.4	273°32.5	288°02.5	+30.3	15.5
	-12°06.4	-12°15.8	-12°25.3	-12°34.6	-12°43.9	-12°53.2	-13°02.4	-13°11.5	-13°20.6	-13°29.6	-13°38.5	-9.2	56.8
zo 24	145°24.4	159°53.3	174°22.1	188°50.9	203°19.6	217°48.2	232°16.7	246°45.1	261°13.5	275°41.8	290°10.1	+28.6	15.7
	-15°44.6	-15°52.4	-16°00.1	-16°07.8	-16°15.3	-16°22.8	-16°30.2	-16°37.5	-16°44.8	-16°51.9	-16°59.0	-7.4	57.5
◐ ma 25	147°04.7	161°31.8	175°58.8	190°25.7	204°52.6	219°19.4	233°46.1	248°12.7	262°39.3	277°05.8	291°32.2	+26.7	15.9
	-18°33.5	-18°39.0	-18°44.4	-18°49.7	-18°54.9	-19°00.0	-19°05.0	-19°09.8	-19°14.6	-19°19.2	-19°23.7	-5.0	58.2
di 26	148°01.1	162°26.6	176°51.9	191°17.3	205°42.6	220°07.8	234°33.0	248°58.1	263°23.2	277°48.2	292°13.2	+25.2	16.0
	-20°17.3	-20°19.9	-20°22.3	-20°24.7	-20°26.9	-20°28.9	-20°30.9	-20°32.7	-20°34.4	-20°35.9	-20°37.3	-2.0	58.8
wo 27	148°23.0	162°47.4	177°11.8	191°36.1	206°00.4	220°24.7	234°48.9	249°13.2	263°37.4	278°01.6	292°25.8	+24.3	16.2
	-20°42.2	-20°41.4	-20°40.5	-20°39.5	-20°38.3	-20°36.9	-20°35.4	-20°33.8	-20°32.0	-20°30.1	-20°28.1	+1.4	59.5
do 28	148°27.7	162°51.8	177°15.9	191°40.1	206°04.2	220°28.3	234°52.5	249°16.7	263°40.9	278°05.1	292°29.3	+24.2	16.4
	-19°40.5	-19°36.2	-19°31.8	-19°27.2	-19°22.5	-19°17.6	-19°12.7	-19°07.5	-19°02.3	-18°56.9	-18°51.4	+4.9	60.0
vr 29	148°35.4	163°00.0	177°24.7	191°49.4	206°14.1	220°38.9	235°03.7	249°28.6	263°53.4	278°18.4	292°43.3	+24.8	16.5
	-17°13.0	-17°05.5	-16°57.8	-16°50.0	-16°42.1	-16°34.0	-16°25.9	-16°17.6	-16°09.2	-16°00.7	-15°52.1	+8.1	60.4
za 30	149°03.0	163°28.7	177°54.4	192°20.2	206°46.0	221°11.9	235°37.8	250°03.7	264°29.8	278°55.8	293°21.9	+25.9	16.5
	-13°30.6	-13°20.4	-13°10.1	-12°59.7	-12°49.2	-12°38.6	-12°28.0	-12°17.3	-12°06.5	-11°55.6	-11°44.6	+10.6	60.6
zo 31	149°59.5	164°26.4	178°53.4	193°20.4	207°47.4	222°14.5	236°41.6	251°08.8	265°36.1	280°03.3	294°30.6	+27.1	16.5
	-8°52.0	-8°40.0	-8°28.0	-8°15.9	-8°03.7	-7°51.5	-7°39.3	-7°27.0	-7°14.7	-7°02.4	-6°50.0	+12.2	60.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 3 01h45 — LK: 10 00h23 — NM: 18 04h32 — EK: 25 18h39

ZON

September 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	179° 56.6	194° 56.8	209° 57.0	224° 57.2	239° 57.4	254° 57.6	90° 00.2	105° 00.4	120° 00.6	135° 00.8	150° 01.0	165° 01.2	+0.2
	8° 25.4	8° 24.4	8° 23.5	8° 22.6	8° 21.7	8° 20.8	8° 09.1	8° 08.1	8° 07.2	8° 06.3	8° 05.4	8° 04.5	-0.9
di 2	180° 01.4	195° 01.6	210° 01.8	225° 02.0	240° 02.2	255° 02.4	90° 05.1	105° 05.3	120° 05.5	135° 05.7	150° 05.9	165° 06.1	+0.2
	8° 03.6	8° 02.7	8° 01.8	8° 00.9	8° 00.0	7° 59.1	7° 47.2	7° 46.3	7° 45.4	7° 44.5	7° 43.6	7° 42.6	-0.9
wo 3	180° 06.3	195° 06.5	210° 06.7	225° 06.9	240° 07.1	255° 07.3	90° 10.0	105° 10.2	120° 10.4	135° 10.6	150° 10.8	165° 11.0	+0.2
	7° 41.7	7° 40.8	7° 39.9	7° 39.0	7° 38.1	7° 37.2	7° 25.2	7° 24.3	7° 23.4	7° 22.5	7° 21.6	7° 20.6	-0.9
do 4	180° 11.2	195° 11.4	210° 11.6	225° 11.8	240° 12.0	255° 12.2	90° 14.9	105° 15.2	120° 15.4	135° 15.6	150° 15.8	165° 16.0	+0.2
	7° 19.7	7° 18.8	7° 17.9	7° 17.0	7° 16.0	7° 15.1	7° 03.1	7° 02.2	7° 01.3	7° 00.4	6° 59.5	6° 58.5	-0.9
vr 5	180° 16.2	195° 16.4	210° 16.6	225° 16.8	240° 17.0	255° 17.2	90° 20.0	105° 20.2	120° 20.4	135° 20.6	150° 20.8	165° 21.0	+0.2
	6° 57.6	6° 56.7	6° 55.8	6° 54.8	6° 53.9	6° 53.0	6° 40.9	6° 40.0	6° 39.1	6° 38.2	6° 37.2	6° 36.3	-0.9
za 6	180° 21.2	195° 21.4	210° 21.7	225° 21.9	240° 22.1	255° 22.3	90° 25.1	105° 25.3	120° 25.5	135° 25.7	150° 25.9	165° 26.1	+0.2
	6° 35.4	6° 34.4	6° 33.5	6° 32.6	6° 31.6	6° 30.7	6° 18.6	6° 17.7	6° 16.8	6° 15.8	6° 14.9	6° 14.0	-0.9
zo 7	180° 26.3	195° 26.5	210° 26.8	225° 27.0	240° 27.2	255° 27.4	90° 30.2	105° 30.4	120° 30.6	135° 30.8	150° 31.0	165° 31.3	+0.2
	6° 13.0	6° 12.1	6° 11.2	6° 10.2	6° 09.3	6° 08.4	5° 56.2	5° 55.3	5° 54.3	5° 53.4	5° 52.4	5° 51.5	-0.9
ma 8	180° 31.5	195° 31.7	210° 31.9	225° 32.1	240° 32.3	255° 32.5	90° 35.3	105° 35.6	120° 35.8	135° 36.0	150° 36.2	165° 36.4	+0.2
	5° 50.6	5° 49.6	5° 48.7	5° 47.8	5° 46.8	5° 45.9	5° 33.7	5° 32.7	5° 31.8	5° 30.8	5° 29.9	5° 29.0	-0.9
di 9	180° 36.6	195° 36.9	210° 37.1	225° 37.3	240° 37.5	255° 37.7	90° 40.6	105° 40.8	120° 41.0	135° 41.2	150° 41.4	165° 41.6	+0.2
	5° 28.0	5° 27.1	5° 26.1	5° 25.2	5° 24.2	5° 23.3	5° 11.0	5° 10.1	5° 09.2	5° 08.2	5° 07.3	5° 06.3	-0.9
wo 10	180° 41.9	195° 42.1	210° 42.3	225° 42.5	240° 42.7	255° 43.0	90° 45.8	105° 46.0	120° 46.2	135° 46.5	150° 46.7	165° 46.9	+0.2
	5° 05.4	5° 04.4	5° 03.5	5° 02.5	5° 01.6	5° 00.6	4° 48.3	4° 47.4	4° 46.4	4° 45.5	4° 44.5	4° 43.6	-0.9
do 11	180° 47.1	195° 47.3	210° 47.5	225° 47.8	240° 48.0	255° 48.2	90° 51.1	105° 51.3	120° 51.5	135° 51.7	150° 51.9	165° 52.2	+0.2
	4° 42.6	4° 41.7	4° 40.7	4° 39.8	4° 38.8	4° 37.9	4° 25.5	4° 24.6	4° 23.6	4° 22.7	4° 21.7	4° 20.8	-0.9
vr 12	180° 52.4	195° 52.6	210° 52.8	225° 53.0	240° 53.3	255° 53.5	90° 56.4	105° 56.6	120° 56.8	135° 57.0	150° 57.2	165° 57.5	+0.2
	4° 19.8	4° 18.9	4° 17.9	4° 17.0	4° 16.0	4° 15.1	4° 02.7	4° 01.7	4° 00.8	3° 59.8	3° 58.8	3° 57.9	-1.0
za 13	180° 57.7	195° 57.9	210° 58.1	225° 58.3	240° 58.6	255° 58.8	91° 01.7	106° 01.9	121° 02.1	136° 02.3	151° 02.6	166° 02.8	+0.2
	3° 56.9	3° 56.0	3° 55.0	3° 54.1	3° 53.1	3° 52.2	3° 39.7	3° 38.8	3° 37.8	3° 36.9	3° 35.9	3° 34.9	-1.0
zo 14	181° 03.0	196° 03.2	211° 03.4	226° 03.7	241° 03.9	256° 04.1	91° 07.0	106° 07.2	121° 07.4	136° 07.7	151° 07.9	166° 08.1	+0.2
	3° 34.0	3° 33.0	3° 32.1	3° 31.1	3° 30.1	3° 29.2	3° 16.7	3° 15.8	3° 14.8	3° 13.8	3° 12.9	3° 11.9	-1.0
ma 15	181° 08.3	196° 08.5	211° 08.8	226° 09.0	241° 09.2	256° 09.4	91° 12.3	106° 12.6	121° 12.8	136° 13.0	151° 13.2	166° 13.4	+0.2
	3° 11.0	3° 10.0	3° 09.0	3° 08.1	3° 07.1	3° 06.1	2° 53.6	2° 52.7	2° 51.7	2° 50.8	2° 49.8	2° 48.8	-1.0
di 16	181° 13.7	196° 13.9	211° 14.1	226° 14.3	241° 14.6	256° 14.8	91° 17.7	106° 17.9	121° 18.1	136° 18.3	151° 18.6	166° 18.8	+0.2
	2° 47.9	2° 46.9	2° 45.9	2° 45.0	2° 44.0	2° 43.1	2° 30.5	2° 29.6	2° 28.6	2° 27.6	2° 26.7	2° 25.7	-1.0
wo 17	181° 19.0	196° 19.2	211° 19.5	226° 19.7	241° 19.9	256° 20.1	91° 23.0	106° 23.2	121° 23.5	136° 23.7	151° 23.9	166° 24.1	+0.2
	2° 24.7	2° 23.8	2° 22.8	2° 21.8	2° 20.9	2° 19.9	2° 07.3	2° 06.4	2° 05.4	2° 04.4	2° 03.5	2° 02.5	-1.0
do 18	181° 24.4	196° 24.6	211° 24.8	226° 25.0	241° 25.2	256° 25.5	91° 28.4	106° 28.6	121° 28.8	136° 29.0	151° 29.3	166° 29.5	+0.2
	2° 01.5	2° 00.6	1° 59.6	1° 58.6	1° 57.7	1° 56.7	1° 44.1	1° 43.2	1° 42.2	1° 41.2	1° 40.3	1° 39.3	-1.0
vr 19	181° 29.7	196° 29.9	211° 30.1	226° 30.4	241° 30.6	256° 30.8	91° 33.7	106° 33.9	121° 34.1	136° 34.4	151° 34.6	166° 34.8	+0.2
	1° 38.3	1° 37.4	1° 36.4	1° 35.4	1° 34.4	1° 33.5	1° 20.9	1° 19.9	1° 18.9	1° 18.0	1° 17.0	1° 16.0	-1.0
za 20	181° 35.0	196° 35.3	211° 35.5	226° 35.7	241° 35.9	256° 36.1	91° 39.0	106° 39.3	121° 39.5	136° 39.7	151° 39.9	166° 40.1	+0.2
	1° 15.1	1° 14.1	1° 13.1	1° 12.1	1° 11.2	1° 10.2	0° 57.6	0° 56.6	0° 55.7	0° 54.7	0° 53.7	0° 52.7	-1.0
zo 21	181° 40.4	196° 40.6	211° 40.8	226° 41.0	241° 41.2	256° 41.5	91° 44.3	106° 44.6	121° 44.8	136° 45.0	151° 45.2	166° 45.5	+0.2
	0° 51.8	0° 50.8	0° 49.8	0° 48.9	0° 47.9	0° 46.9	0° 34.3	0° 33.3	0° 32.3	0° 31.4	0° 30.4	0° 29.4	-1.0
ma 22	181° 45.7	196° 45.9	211° 46.1	226° 46.3	241° 46.6	256° 46.8	91° 49.6	106° 49.9	121° 50.1	136° 50.3	151° 50.5	166° 50.7	+0.2
	0° 28.4	0° 27.5	0° 26.5	0° 25.5	0° 24.6	0° 23.6	0° 10.9	0° 10.0	0° 09.0	0° 08.0	0° 07.1	0° 06.1	-1.0
di 23	181° 51.0	196° 51.2	211° 51.4	226° 51.6	241° 51.8	256° 52.1	91° 54.9	106° 55.1	121° 55.4	136° 55.6	151° 55.8	166° 56.0	+0.2
	0° 05.1	0° 04.1	0° 03.2	0° 02.2	0° 01.2	0° 00.3	-0° 12.4	-0° 13.4	-0° 14.3	-0° 15.3	-0° 16.3	-0° 17.3	-1.0
wo 24	181° 56.2	196° 56.4	211° 56.7	226° 56.9	241° 57.1	256° 57.3	92° 00.2	107° 00.4	122° 00.6	137° 00.8	152° 01.0	167° 01.3	+0.2
	-0° 18.2	-0° 19.2	-0° 20.2	-0° 21.2	-0° 22.1	-0° 23.1	-0° 35.7	-0° 36.7	-0° 37.7	-0° 38.7	-0° 39.6	-0° 40.6	-1.0
do 25	182° 01.5	197° 01.7	212° 01.9	227° 02.1	242° 02.3	257° 02.6	92° 05.4	107° 05.6	122° 05.8	137° 06.0	152° 06.2	167° 06.5	+0.2
	-0° 41.6	-0° 42.6	-0° 43.5	-0° 44.5	-0° 45.5	-0° 46.5	-0° 59.1	-1° 00.1	-1° 01.1	-1° 02.0	-1° 03.0	-1° 04.0	-1.0
vr 26	182° 06.7	197° 06.9	212° 07.1	227° 07.3	242° 07.5	257° 07.8	92° 10.5	107° 10.8	122° 11.0	137° 11.2	152° 11.4	167° 11.6	+0.2
	-1° 04.9	-1° 05.9	-1° 06.9	-1° 07.9	-1° 08.8	-1° 09.8	-1° 22.5	-1° 23.4	-1° 24.4	-1° 25.4	-1° 26.3	-1° 27.3	-1.0
za 27	182° 11.8	197° 12.1	212° 12.3	227° 12.5	242° 12.7	257° 12.9	92° 15.7	107° 15.9	122° 16.1	137° 16.3	152° 16.5	167° 16.7	+0.2
	-1° 28.3	-1° 29.3	-1° 30.2	-1° 31.2	-1° 32.2	-1° 33.2	-1° 45.8	-1° 46.8	-1° 47.7	-1° 48.7	-1° 49.7	-1° 50.7	-1.0
zo 28	182° 17.0	197° 17.2	212° 17.4	227° 17.6	242° 17.8	257° 18.0	92° 20.8	107° 21.0	122° 21.2	137° 21.4	152° 21.6	167° 21.8	+0.2
	-1° 51.6	-1° 52.6	-1° 53.6	-1° 54.6	-1° 55.5	-1° 56.5	-2° 09.1	-2° 10.1	-2° 11.1	-2° 12.0	-2° 13.0	-2° 14.0	-1.0
ma 29	182° 22.0	197° 22.2	212° 22.4	227° 22.7	242° 22.9	257° 23.1	92° 25.8	107° 26.0	122° 26.2	137° 26.4	152° 26.6	167° 26.8	+0.2
	-2° 15.0	-2° 15.9	-2° 16.9	-2° 17.9	-2° 18.8	-2° 19.8	-2° 32.4	-2° 33.4	-2° 34.4	-2° 35.4	-2° 36.3	-2° 37.3	-1.0
di 30	182° 27.0	197° 27.2	212° 27.4	227° 27.7	242° 27.9	257° 28.1	92° 30.7	107° 31.0	122° 31.2	137° 31.4	152° 31.6	167° 31.8	+0.2
	-2° 38.3	-2° 39.2	-2° 40.2	-2° 41.2	-2° 42.1	-2° 43.1	-2° 55.7	-2° 56.7	-2° 57.7	-2° 58.6	-2° 59.6	-3° 00.6	-1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2031

D	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	SD/HP
ma 1	64°38.5	79°06.3	93°34.1	108°01.9	122°29.8	136°57.7	151°25.7	165°53.7	180°21.8	194°49.8	209°18.0	+27.9	16.4
	-4°57.0	-4°44.4	-4°31.6	-4°18.9	-4°06.2	-3°53.4	-3°40.7	-3°27.9	-3°15.1	-3°02.3	-2°49.4	+12.8	60.1
di 2	66°24.0	80°52.6	95°21.3	109°50.0	124°18.8	138°47.5	153°16.3	167°45.2	182°14.0	196°42.9	211°11.8	+28.8	16.2
	0°22.8	0°35.6	0°48.3	1°01.0	1°13.7	1°26.4	1°39.1	1°51.7	2°04.3	2°16.9	2°29.5	+12.7	59.5
wo 3	68°28.0	82°57.3	97°26.5	111°55.8	126°25.1	140°54.4	155°23.7	169°53.0	184°22.4	198°51.7	213°21.1	+29.3	16.0
	5°33.9	5°45.9	5°57.8	6°09.7	6°21.5	6°33.3	6°45.0	6°56.7	7°08.3	7°19.9	7°31.4	+11.8	58.7
do 4	70°43.0	85°12.5	99°42.0	114°11.6	128°41.1	143°10.7	157°40.3	172°09.8	186°39.4	201°09.0	215°38.6	+29.6	15.8
	10°16.7	10°27.2	10°37.7	10°48.0	10°58.3	11°08.5	11°18.7	11°28.7	11°38.7	11°48.6	11°58.5	+10.2	57.8
vr 5	73°02.8	87°32.4	102°02.1	116°31.7	131°01.4	145°31.0	160°00.7	174°30.3	189°00.0	203°29.6	217°59.3	+29.6	15.5
	14°16.3	14°24.9	14°33.3	14°41.6	14°49.9	14°58.1	15°06.1	15°14.1	15°22.0	15°29.8	15°37.5	+8.1	56.9
za 6	75°24.4	89°54.1	104°23.8	118°53.5	133°23.3	147°53.0	162°22.7	176°52.4	191°22.1	205°51.9	220°21.6	+29.7	15.3
	17°22.1	17°28.3	17°34.4	17°40.4	17°46.3	17°52.2	17°57.9	18°03.5	18°09.0	18°14.4	18°19.8	+5.8	56.0
zo 7	77°48.3	92°18.2	106°48.0	121°17.9	135°47.7	150°17.6	164°47.5	179°17.4	193°47.3	208°17.2	222°47.1	+29.9	15.1
	19°27.6	19°31.3	19°34.9	19°38.5	19°41.9	19°45.2	19°48.4	19°51.5	19°54.5	19°57.4	20°00.2	+3.3	55.3
ma 8	80°17.6	94°47.8	109°17.9	123°48.1	138°18.3	152°48.5	167°18.8	181°49.0	196°19.3	210°49.6	225°19.9	+30.2	14.9
	20°30.1	20°31.3	20°32.3	20°33.3	20°34.2	20°35.0	20°35.7	20°36.3	20°36.7	20°37.1	20°37.4	+0.7	54.7
di 9	82°57.0	97°27.7	111°58.4	126°29.1	140°59.8	155°30.5	170°01.3	184°32.1	199°02.9	213°33.8	228°04.7	+30.8	14.8
	20°29.8	20°28.6	20°27.2	20°25.7	20°24.2	20°22.5	20°20.7	20°18.9	20°16.9	20°14.9	20°12.8	-1.7	54.3
wo 10	85°51.1	100°22.4	114°53.7	129°25.1	143°56.5	158°27.9	172°59.4	187°30.8	202°02.4	216°33.9	231°05.5	+31.4	14.8
	19°29.8	19°26.2	19°22.5	19°18.8	19°14.9	19°11.0	19°07.0	19°02.9	18°58.7	18°54.4	18°50.1	-4.0	54.1
do 11	89°02.5	103°34.5	118°06.6	132°38.7	147°10.8	161°42.9	176°15.1	190°47.3	205°19.5	219°51.8	234°24.1	+32.2	14.8
	17°34.8	17°29.1	17°23.4	17°17.6	17°11.7	17°05.7	16°59.7	16°53.6	16°47.4	16°41.1	16°34.8	-6.0	54.1
vr 12	92°31.5	107°04.2	121°36.9	136°09.7	150°42.4	165°15.2	179°48.0	194°20.9	208°53.7	223°26.6	237°59.5	+32.8	14.8
	14°51.1	14°43.7	14°36.2	14°28.6	14°20.9	14°13.2	14°05.4	13°57.6	13°49.7	13°41.7	13°33.7	-7.7	54.2
za 13	96°15.3	110°48.5	125°21.7	139°55.0	154°28.2	169°01.5	183°34.7	198°08.0	212°41.3	227°14.6	241°47.9	+33.3	14.9
	11°26.2	11°17.3	11°08.3	10°59.3	10°50.2	10°41.0	10°31.8	10°22.6	10°13.3	10°04.0	9°54.6	-9.2	54.5
zo 14	100°08.7	114°42.1	129°15.6	143°49.0	158°22.4	172°55.9	187°29.3	202°02.8	216°36.2	231°09.6	245°43.1	+33.4	15.0
	7°28.5	7°18.4	7°08.3	6°58.1	6°48.0	6°37.8	6°27.5	6°17.2	6°06.9	5°56.6	5°46.2	-10.2	54.8
ma 15	104°04.1	118°37.5	133°10.8	147°44.1	162°17.4	176°50.7	191°24.0	205°57.3	220°30.5	235°03.7	249°36.9	+33.3	15.1
	3°07.2	2°56.4	2°45.6	2°34.8	2°23.9	2°13.0	2°02.2	1°51.3	1°40.3	1°29.4	1°18.5	-10.9	55.3
di 16	107°52.8	122°25.7	136°58.5	151°31.3	166°04.1	180°36.9	195°09.6	209°42.3	224°15.0	238°47.6	253°20.2	+32.7	15.2
	-1°26.9	-1°37.9	-1°49.0	-2°00.0	-2°11.1	-2°22.2	-2°33.2	-2°44.3	-2°55.3	-3°06.3	-3°17.4	-11.1	55.8
wo 17	111°25.0	125°57.0	140°28.9	155°00.9	169°32.7	184°04.6	198°36.4	213°08.1	227°39.8	242°11.4	256°43.0	+31.8	15.3
	-6°01.5	-6°12.3	-6°23.1	-6°33.9	-6°44.6	-6°55.4	-7°06.1	-7°16.7	-7°27.4	-7°38.0	-7°48.5	-10.7	56.3
do 18	114°31.1	129°01.9	143°32.6	158°03.2	172°33.9	187°04.4	201°34.9	216°05.3	230°35.7	245°06.1	259°36.3	+30.5	15.5
	-10°23.1	-10°33.0	-10°43.0	-10°52.9	-11°02.7	-11°12.5	-11°22.2	-11°31.9	-11°41.5	-11°51.1	-12°00.6	-9.8	56.8
vr 19	117°03.0	131°32.3	146°01.5	160°30.7	174°59.8	189°28.8	203°57.8	218°26.7	232°55.5	247°24.3	261°53.0	+29.0	15.6
	-14°16.2	-14°24.7	-14°33.1	-14°41.5	-14°49.8	-14°58.0	-15°06.1	-15°14.2	-15°22.2	-15°30.1	-15°37.9	-8.2	57.3
za 20	118°56.1	133°23.8	147°51.4	162°19.0	176°46.5	191°14.0	205°41.4	220°08.7	234°36.0	249°03.2	263°30.4	+27.4	15.8
	-17°24.8	-17°31.2	-17°37.5	-17°43.7	-17°49.8	-17°55.8	-18°01.7	-18°07.5	-18°13.2	-18°18.8	-18°24.3	-5.9	57.8
zo 21	133°23.8	147°51.4	162°19.0	176°46.5	191°14.0	205°41.4	220°08.7	234°36.0	249°03.2	263°30.4	277°57.5	+27.4	15.8
	-17°31.2	-17°37.5	-17°43.7	-17°49.8	-17°55.8	-18°01.7	-18°07.5	-18°13.2	-18°18.8	-18°24.3	-18°29.7	-5.8	57.8
ma 22	134°37.5	149°03.8	163°30.0	177°56.1	192°22.3	206°48.3	221°14.4	235°40.4	250°06.3	264°32.2	278°58.1	+26.1	15.9
	-19°37.0	-19°40.6	-19°44.1	-19°47.4	-19°50.6	-19°53.7	-19°56.7	-19°59.5	-20°02.2	-20°04.8	-20°07.3	-3.0	58.3
di 23	135°21.8	149°47.1	164°12.5	178°37.8	193°03.1	207°28.3	221°53.6	236°18.8	250°44.0	265°09.2	279°34.4	+25.3	16.0
	-20°29.2	-20°29.6	-20°29.9	-20°30.1	-20°30.1	-20°30.0	-20°29.8	-20°29.4	-20°28.9	-20°28.3	-20°27.5	+0.2	58.7
wo 24	135°51.1	150°16.2	164°41.3	179°06.4	193°31.6	207°56.7	222°21.8	236°47.0	251°12.1	265°37.3	280°02.5	+25.1	16.1
	-20°00.1	-19°57.2	-19°54.2	-19°51.0	-19°47.7	-19°44.3	-19°40.7	-19°37.1	-19°33.3	-19°29.3	-19°25.3	+3.5	59.1
do 25	136°22.4	150°47.9	165°13.5	179°39.0	194°04.6	208°30.2	222°55.9	237°21.6	251°47.3	266°13.1	280°38.8	+25.6	16.2
	-18°09.1	-18°03.1	-17°56.9	-17°50.6	-17°44.2	-17°37.6	-17°31.0	-17°24.2	-17°17.3	-17°10.3	-17°03.2	+6.6	59.4
vr 26	137°09.8	151°36.2	166°02.6	180°29.0	194°55.5	209°22.0	223°48.6	238°15.2	252°41.8	267°08.5	281°35.3	+26.5	16.3
	-15°03.7	-14°54.9	-14°46.0	-14°37.0	-14°27.9	-14°18.8	-14°09.5	-14°00.2	-13°50.7	-13°41.2	-13°31.6	+9.2	59.6
za 27	138°21.1	152°48.4	167°15.8	181°43.3	196°10.8	210°38.3	225°05.9	239°33.5	254°01.2	268°28.8	282°56.6	+27.6	16.3
	-10°57.7	-10°46.8	-10°35.9	-10°24.9	-10°13.9	-10°02.8	-9°51.6	-9°40.4	-9°29.1	-9°17.7	-9°06.3	+11.1	59.7
zo 28	139°56.7	154°25.0	168°53.3	183°21.7	197°50.0	212°18.4	226°46.9	241°15.3	255°43.8	270°12.3	284°40.9	+28.4	16.2
	-6°09.6	-5°57.5	-5°45.3	-5°33.2	-5°21.0	-5°08.7	-4°56.5	-4°44.2	-4°31.9	-4°19.6	-4°07.2	+12.2	59.6
ma 29	141°52.1	156°21.0	170°49.9	185°18.9	199°47.9	214°16.9	228°45.9	243°14.9	257°43.9	272°13.0	286°42.1	+29.0	16.2
	-1°00.3	-0°47.8	-0°35.3	-0°22.8	-0°10.3	0°02.2	0°14.7	0°27.2	0°39.6	0°52.1	1°04.5	+12.5	59.3
di 30	143°59.7	158°28.9	172°58.2	187°27.4	201°56.7	216°26.0	230°55.2	245°24.5	259°53.8	274°23.1	288°52.4	+29.3	16.0
	4°08.9	4°21.0	4°33.0	4°45.0	4°57.0	5°08.9	5°20.8	5°32.7	5°44.5	5°56.3	6°08.0	+11.9	58.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 1 09h20 — LK: 8 16h14 — NM: 16 18h46 — EK: 24 01h19 — VM: 30 18h57

ZON

Oktober 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	182°32.0 -3°01.5	197°32.2 -3°02.5	212°32.4 -3°03.5	227°32.6 -3°04.5	242°32.8 -3°05.4	257°33.0 -3°06.4	92°35.6 -3°19.0	107°35.8 -3°20.0	122°36.0 -3°20.9	137°36.2 -3°21.9	152°36.4 -3°22.9	167°36.7 -3°23.8	+0.2 -1.0
do 2	182°36.9 -3°24.8	197°37.1 -3°25.8	212°37.3 -3°26.7	227°37.5 -3°27.7	242°37.7 -3°28.7	257°37.9 -3°29.6	92°40.5 -3°42.2	107°40.7 -3°43.2	122°40.9 -3°44.1	137°41.1 -3°45.1	152°41.3 -3°46.1	167°41.5 -3°47.0	+0.2 -1.0
vr 3	182°41.7 -3°48.0	197°41.9 -3°49.0	212°42.0 -3°49.9	227°42.2 -3°50.9	242°42.4 -3°51.9	257°42.6 -3°52.8	92°45.2 -4°05.4	107°45.4 -4°06.4	122°45.6 -4°07.3	137°45.8 -4°08.3	152°46.0 -4°09.2	167°46.2 -4°10.2	+0.2 -1.0
za 4	182°46.4 -4°11.2	197°46.6 -4°12.1	212°46.8 -4°13.1	227°47.0 -4°14.1	242°47.1 -4°15.0	257°47.3 -4°16.0	92°49.9 -4°28.5	107°50.0 -4°29.5	122°50.2 -4°30.4	137°50.4 -4°31.4	152°50.6 -4°32.4	167°50.8 -4°33.3	+0.2 -1.0
zo 5	182°51.0 -4°34.3	197°51.2 -4°35.3	212°51.4 -4°36.2	227°51.6 -4°37.2	242°51.8 -4°38.1	257°52.0 -4°39.1	92°54.4 -4°51.6	107°54.6 -4°52.6	122°54.8 -4°53.5	137°55.0 -4°54.5	152°55.2 -4°55.4	167°55.4 -4°56.4	+0.2 -1.0
ma 6	182°55.5 -4°57.4	197°55.7 -4°58.3	212°55.9 -4°59.3	227°56.1 -5°00.2	242°56.3 -5°01.2	257°56.5 -5°02.2	92°58.9 -5°14.6	107°59.1 -5°15.6	122°59.2 -5°16.5	137°59.4 -5°17.5	152°59.6 -5°18.5	167°59.8 -5°19.4	+0.2 -1.0
di 7	183°00.0 -5°20.4	198°00.2 -5°21.3	213°00.3 -5°22.3	228°00.5 -5°23.2	243°00.7 -5°24.2	258°00.9 -5°25.2	93°03.2 -5°37.6	108°03.4 -5°38.5	123°03.6 -5°39.5	138°03.8 -5°40.4	153°04.0 -5°41.4	168°04.1 -5°42.4	+0.2 -1.0
wo 8	183°04.3 -5°43.3	198°04.5 -5°44.3	213°04.7 -5°45.2	228°04.8 -5°46.2	243°05.0 -5°47.1	258°05.2 -5°48.1	93°07.5 -6°00.5	108°07.7 -6°01.4	123°07.8 -6°02.4	138°08.0 -6°03.3	153°08.2 -6°04.3	168°08.4 -6°05.2	+0.2 -1.0
do 9	183°08.5 -6°06.2	198°08.7 -6°07.1	213°08.9 -6°08.1	228°09.1 -6°09.0	243°09.2 -6°10.0	258°09.4 -6°10.9	93°11.6 -6°23.3	108°11.8 -6°24.2	123°12.0 -6°25.2	138°12.1 -6°26.1	153°12.3 -6°27.1	168°12.5 -6°28.0	+0.2 -1.0
vr 10	183°12.6 -6°29.0	198°12.8 -6°29.9	213°13.0 -6°30.9	228°13.1 -6°31.8	243°13.3 -6°32.8	258°13.5 -6°33.7	93°15.6 -6°46.0	108°15.8 -6°46.9	123°16.0 -6°47.9	138°16.1 -6°48.8	153°16.3 -6°49.8	168°16.5 -6°50.7	+0.2 -0.9
za 11	183°16.6 -6°51.7	198°16.8 -6°52.6	213°17.0 -6°53.6	228°17.1 -6°54.5	243°17.3 -6°55.4	258°17.5 -6°56.4	93°19.5 -7°08.6	108°19.7 -7°09.6	123°19.9 -7°10.5	138°20.0 -7°11.5	153°20.2 -7°12.4	168°20.3 -7°13.3	+0.2 -0.9
zo 12	183°20.5 -7°14.3	198°20.7 -7°15.2	213°20.8 -7°16.2	228°21.0 -7°17.1	243°21.1 -7°18.0	258°21.3 -7°19.0	93°23.3 -7°31.2	108°23.5 -7°32.1	123°23.6 -7°33.1	138°23.8 -7°34.0	153°23.9 -7°34.9	168°24.1 -7°35.9	+0.2 -0.9
ma 13	183°24.2 -7°36.8	198°24.4 -7°37.7	213°24.6 -7°38.7	228°24.7 -7°39.6	243°24.9 -7°40.5	258°25.0 -7°41.5	93°27.0 -7°53.6	108°27.1 -7°54.6	123°27.3 -7°55.5	138°27.4 -7°56.4	153°27.6 -7°57.3	168°27.7 -7°58.3	+0.2 -0.9
di 14	183°27.9 -7°59.2	198°28.0 -8°00.1	213°28.1 -8°01.1	228°28.3 -8°02.0	243°28.4 -8°02.9	258°28.6 -8°03.9	93°30.5 -8°15.9	108°30.6 -8°16.9	123°30.8 -8°17.8	138°30.9 -8°18.7	153°31.0 -8°19.7	168°31.2 -8°20.6	+0.1 -0.9
wo 15	183°31.3 -8°21.5	198°31.5 -8°22.4	213°31.6 -8°23.4	228°31.8 -8°24.3	243°31.9 -8°25.2	258°32.0 -8°26.1	93°33.8 -8°38.2	108°34.0 -8°39.1	123°34.1 -8°40.0	138°34.3 -8°40.9	153°34.4 -8°41.9	168°34.5 -8°42.8	+0.1 -0.9
do 16	183°34.7 -8°43.7	198°34.8 -8°44.6	213°34.9 -8°45.5	228°35.1 -8°46.5	243°35.2 -8°47.4	258°35.3 -8°48.3	93°37.1 -9°00.3	108°37.2 -9°01.2	123°37.3 -9°02.1	138°37.5 -9°03.0	153°37.6 -9°03.9	168°37.7 -9°04.8	+0.1 -0.9
vr 17	183°37.9 -9°05.8	198°38.0 -9°06.7	213°38.1 -9°07.6	228°38.2 -9°08.5	243°38.4 -9°09.4	258°38.5 -9°10.3	93°40.2 -9°22.2	108°40.3 -9°23.1	123°40.4 -9°24.0	138°40.5 -9°25.0	153°40.7 -9°25.9	168°40.8 -9°26.8	+0.1 -0.9
za 18	183°40.9 -9°27.7	198°41.0 -9°28.6	213°41.1 -9°29.5	228°41.3 -9°30.4	243°41.4 -9°31.3	258°41.5 -9°32.2	93°43.1 -9°44.0	108°43.2 -9°45.0	123°43.3 -9°45.9	138°43.4 -9°46.8	153°43.6 -9°47.7	168°43.7 -9°48.6	+0.1 -0.9
zo 19	183°43.8 -9°49.5	198°43.9 -9°50.4	213°44.0 -9°51.3	228°44.1 -9°52.2	243°44.3 -9°53.1	258°44.4 -9°54.0	93°45.9 -10°05.7	108°46.0 -10°06.6	123°46.1 -10°07.5	138°46.2 -10°08.4	153°46.3 -10°09.3	168°46.4 -10°10.2	+0.1 -0.9
ma 20	183°46.5 -10°11.1	198°46.7 -10°12.0	213°46.8 -10°12.9	228°46.9 -10°13.8	243°47.0 -10°14.7	258°47.1 -10°15.6	93°48.5 -10°27.3	108°48.6 -10°28.2	123°48.7 -10°29.1	138°48.8 -10°30.0	153°48.9 -10°30.8	168°49.0 -10°31.7	+0.1 -0.9
di 21	183°49.1 -10°32.6	198°49.2 -10°33.5	213°49.3 -10°34.4	228°49.4 -10°35.3	243°49.5 -10°36.2	258°49.6 -10°37.1	93°51.0 -10°48.7	108°51.1 -10°49.5	123°51.2 -10°50.4	138°51.3 -10°51.3	153°51.4 -10°52.2	168°51.5 -10°53.1	+0.1 -0.9
wo 22	183°51.6 -10°54.0	198°51.7 -10°54.9	213°51.8 -10°55.7	228°51.9 -10°56.6	243°51.9 -10°57.5	258°52.0 -10°58.4	93°53.3 -11°09.9	108°53.4 -11°10.8	123°53.5 -11°11.6	138°53.6 -11°12.5	153°53.6 -11°13.4	168°53.7 -11°14.3	+0.1 -0.9
do 23	183°53.8 -11°15.2	198°53.9 -11°16.0	213°54.0 -11°16.9	228°54.1 -11°17.8	243°54.2 -11°18.7	258°54.3 -11°19.5	93°55.4 -11°30.9	108°55.5 -11°31.8	123°55.6 -11°32.7	138°55.7 -11°33.5	153°55.8 -11°34.4	168°55.8 -11°35.3	+0.1 -0.9
vr 24	183°56.1 -11°36.2	198°56.0 -11°37.0	213°56.1 -11°37.9	228°56.2 -11°38.8	243°56.3 -11°39.6	258°56.3 -11°40.5	93°57.4 -11°51.8	108°57.5 -11°52.7	123°57.6 -11°53.5	138°57.6 -11°54.4	153°57.7 -11°55.3	168°57.8 -11°56.1	+0.1 -0.9
za 25	183°57.9 -11°57.0	198°57.9 -11°57.9	213°58.0 -11°58.7	228°58.1 -11°59.6	243°58.2 -12°00.5	258°58.2 -12°01.3	93°59.2 -12°12.5	108°59.3 -12°13.4	123°59.3 -12°14.2	138°59.4 -12°15.1	153°59.5 -12°15.9	168°59.6 -12°16.8	+0.1 -0.9
zo 26	184°00.9 -12°17.6	199°00.9 -12°18.5	214°01.0 -12°19.4	229°01.1 -12°20.2	244°01.2 -12°21.1	259°01.3 -12°21.9	94°02.8 -12°33.0	109°02.9 -12°33.9	124°03.0 -12°34.7	139°03.1 -12°35.6	154°03.2 -12°36.4	169°03.3 -12°37.3	+0.1 -0.9
ma 27	184°01.2 -12°38.1	199°01.3 -12°39.0	214°01.3 -12°39.8	229°01.4 -12°40.6	244°01.5 -12°41.5	259°01.5 -12°42.3	94°02.3 -12°53.3	109°02.3 -12°54.2	124°02.4 -12°55.0	139°02.4 -12°55.8	154°02.5 -12°56.7	169°02.6 -12°57.5	+0.1 -0.8
di 28	184°02.6 -12°58.4	199°02.7 -12°59.2	214°02.7 -13°00.0	229°02.8 -13°00.9	244°02.8 -13°01.7	259°02.9 -13°02.6	94°03.5 -13°13.4	109°03.6 -13°14.3	124°03.6 -13°15.1	139°03.7 -13°15.9	154°03.7 -13°16.8	169°03.8 -13°17.6	+0.1 -0.8
wo 29	184°03.8 -13°18.4	199°03.9 -13°19.3	214°03.9 -13°20.1	229°04.0 -13°20.9	244°04.0 -13°21.7	259°04.1 -13°22.6	94°04.6 -13°33.3	109°04.7 -13°34.2	124°04.7 -13°35.0	139°04.7 -13°35.8	154°04.8 -13°36.6	169°04.8 -13°37.5	+0.0 -0.8
do 30	184°04.9 -13°38.3	199°04.9 -13°39.1	214°04.9 -13°39.9	229°05.0 -13°40.7	244°05.0 -13°41.6	259°05.0 -13°42.4	94°05.5 -13°53.0	109°05.5 -13°53.8	124°05.6 -13°54.7	139°05.6 -13°55.5	154°05.6 -13°56.3	169°05.7 -13°57.1	+0.0 -0.8
vr 31	184°05.7 -13°57.9	199°05.7 -13°58.7	214°05.7 -13°59.5	229°05.8 -14°00.4	244°05.8 -14°01.2	259°05.8 -14°02.0	94°06.2 -14°12.5	109°06.2 -14°13.3	124°06.2 -14°14.1	139°06.3 -14°14.9	154°06.3 -14°15.7	169°06.3 -14°16.5	+0.0 -0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2031

D	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
wo 1	73°45.5	88°14.8	102°44.1	117°13.4	131°42.8	146°12.1	160°41.4	175°10.7	189°40.0	204°09.3	218°38.6	+29.3	15.9
	8°02.7	8°13.9	8°25.0	8°36.1	8°47.1	8°58.1	9°09.0	9°19.8	9°30.6	9°41.3	9°51.9	+10.9	58.3
do 2	75°57.8	90°27.1	104°56.3	119°25.5	133°54.8	148°24.0	162°53.2	177°22.5	191°51.7	206°20.9	220°50.1	+29.2	15.7
	12°23.3	12°32.8	12°42.2	12°51.6	13°00.8	13°10.0	13°19.1	13°28.1	13°37.1	13°45.9	13°54.7	+9.1	57.5
vr 3	78°07.9	92°37.0	107°06.2	121°35.4	136°04.5	150°33.7	165°02.8	179°32.0	194°01.1	208°30.3	222°59.5	+29.2	15.5
	15°55.6	16°02.9	16°10.1	16°17.2	16°24.3	16°31.2	16°38.1	16°44.8	16°51.5	16°58.1	17°04.5	+6.9	56.7
za 4	80°17.1	94°46.3	109°15.5	123°44.7	138°13.9	152°43.2	167°12.4	181°41.7	196°10.9	210°40.2	225°09.5	+29.2	15.3
	18°29.4	18°34.3	18°39.0	18°43.7	18°48.2	18°52.7	18°57.0	19°01.2	19°05.3	19°09.4	19°13.3	+4.4	56.0
zo 5	82°30.2	96°59.7	111°29.2	125°58.7	140°28.3	154°57.8	169°27.4	183°57.0	198°26.7	212°56.3	227°26.0	+29.6	15.1
	19°59.6	20°01.8	20°04.0	20°06.0	20°09.8	20°09.8	20°11.5	20°13.2	20°14.7	20°16.1	20°17.4	+1.8	55.3
ma 6	84°53.8	99°23.9	113°54.0	128°24.1	142°54.2	157°24.4	171°54.6	186°24.9	200°55.1	215°25.4	229°55.7	+30.2	14.9
	20°25.0	20°24.7	20°24.3	20°23.8	20°23.2	20°22.4	20°21.6	20°20.8	20°19.8	20°18.7	20°17.5	-0.8	54.8
di 7	87°34.4	102°05.2	116°36.1	131°07.0	145°37.9	160°08.9	174°39.9	189°11.0	203°42.0	218°13.1	232°44.3	+31.0	14.8
	19°48.2	19°45.5	19°42.7	19°39.8	19°36.8	19°33.8	19°30.6	19°27.4	19°24.0	19°20.6	19°17.1	-3.1	54.4
◑ wo 8	90°35.7	105°07.4	119°39.2	134°11.0	148°42.8	163°14.6	177°46.5	192°18.4	206°50.4	221°22.3	235°54.3	+31.9	14.8
	18°14.3	18°09.4	18°04.5	17°59.5	17°54.4	17°49.2	17°44.0	17°38.6	17°33.2	17°27.8	17°22.2	-5.2	54.2
do 9	93°58.5	108°31.0	123°03.5	137°36.1	152°08.7	166°41.4	181°14.0	195°46.7	210°19.4	224°52.2	239°25.0	+32.7	14.8
	15°49.9	15°43.2	15°36.4	15°29.5	15°22.6	15°15.6	15°08.5	15°01.4	14°54.2	14°46.9	14°39.6	-7.0	54.2
vr 10	97°39.6	112°12.7	126°45.9	141°19.1	155°52.3	170°25.5	184°58.7	199°32.0	214°05.3	228°38.5	243°11.9	+33.2	14.8
	12°42.3	12°34.0	12°25.6	12°17.2	12°08.8	12°00.2	11°51.7	11°43.1	11°34.4	11°25.6	11°16.9	-8.5	54.4
za 11	101°32.9	116°06.4	130°39.9	145°13.4	159°46.9	174°20.4	188°53.9	203°27.4	218°00.9	232°34.4	247°07.9	+33.5	14.9
	8°59.2	8°49.6	8°40.0	8°30.4	8°20.7	8°11.0	8°01.2	7°51.4	7°41.6	7°31.7	7°21.8	-9.7	54.7
zo 12	105°30.2	120°03.7	134°37.1	149°10.5	163°43.9	178°17.3	192°50.7	207°24.0	221°57.4	236°30.7	251°04.1	+33.4	15.0
	4°48.8	4°38.3	4°27.8	4°17.3	4°06.8	3°56.2	3°45.6	3°35.0	3°24.3	3°13.7	3°03.0	-10.6	55.2
ma 13	109°21.5	123°54.5	138°27.4	153°00.4	167°33.3	182°06.1	196°39.0	211°11.8	225°44.5	240°17.3	254°50.0	+32.8	15.2
	0°20.3	0°09.4	-0°01.6	-0°12.6	-0°23.6	-0°34.6	-0°45.6	-0°56.6	-1°07.7	-1°18.7	-1°29.7	-11.0	55.8
di 14	112°56.1	127°28.2	142°00.2	156°32.2	171°04.2	185°36.1	200°07.9	214°39.7	229°11.5	243°43.2	258°14.8	+31.9	15.4
	-4°15.2	-4°26.2	-4°37.2	-4°48.1	-4°59.1	-5°10.0	-5°21.0	-5°31.9	-5°42.8	-5°53.7	-6°04.5	-10.9	56.4
wo 15	116°03.4	130°34.1	145°04.9	159°35.5	174°06.1	188°36.7	203°07.2	217°37.6	232°08.0	246°38.3	261°08.5	+30.5	15.6
	-8°44.6	-8°55.1	-9°05.5	-9°15.8	-9°26.2	-9°36.5	-9°46.7	-9°56.9	-10°07.1	-10°17.2	-10°27.3	-10.3	57.0
● do 16	118°34.3	133°03.5	147°32.6	162°01.7	176°30.7	190°59.6	205°28.5	219°57.3	234°26.0	248°54.6	263°23.2	+28.9	15.7
	-12°52.4	-13°01.6	-13°10.7	-13°19.8	-13°28.8	-13°37.8	-13°46.7	-13°55.5	-14°04.2	-14°12.9	-14°21.5	-8.9	57.6
vr 17	120°23.8	134°51.3	149°18.7	163°46.1	178°13.4	192°40.7	207°07.9	221°35.0	236°02.0	250°29.0	264°56.0	+27.2	15.9
	-16°20.9	-16°28.2	-16°35.3	-16°42.4	-16°49.4	-16°56.3	-17°03.1	-17°09.8	-17°16.4	-17°22.9	-17°29.3	-6.8	58.2
za 18	121°32.9	135°58.9	150°24.9	164°50.8	179°16.7	193°42.5	208°08.3	222°34.1	236°59.8	251°25.4	265°51.0	+25.8	16.0
	-18°52.5	-18°57.2	-19°01.7	-19°06.1	-19°10.4	-19°14.6	-19°18.6	-19°22.6	-19°26.4	-19°30.1	-19°33.7	-4.1	58.6
zo 19	122°10.9	136°36.0	151°01.1	165°26.1	179°51.1	194°16.2	208°41.1	223°06.1	237°31.1	251°56.0	266°21.0	+25.0	16.1
	-20°12.1	-20°13.6	-20°15.0	-20°16.3	-20°17.4	-20°18.4	-20°19.3	-20°20.0	-20°20.6	-20°21.1	-20°21.4	-0.9	58.9
ma 20	136°36.0	151°01.1	165°26.1	179°51.1	194°16.2	208°41.1	223°06.1	237°31.1	251°56.0	266°21.0	280°45.9	+25.0	16.1
	-20°13.6	-20°15.0	-20°16.3	-20°17.4	-20°18.4	-20°19.3	-20°20.0	-20°20.6	-20°21.1	-20°21.4	-20°21.6	-0.8	58.9
di 21	136°59.3	151°24.2	165°49.1	180°14.1	194°39.0	209°04.0	223°29.0	237°54.0	252°19.0	266°44.1	281°09.1	+25.0	16.1
	-20°08.5	-20°06.6	-20°04.5	-20°02.3	-19°59.9	-19°57.5	-19°54.9	-19°52.1	-19°49.3	-19°46.3	-19°43.1	+2.5	59.1
wo 22	137°28.1	151°53.6	166°19.2	180°44.8	195°10.4	209°36.0	224°01.7	238°27.5	252°53.3	267°19.1	281°45.0	+25.7	16.1
	-18°41.0	-18°35.9	-18°30.6	-18°25.2	-18°19.8	-18°14.1	-18°08.4	-18°02.6	-17°56.6	-17°50.5	-17°44.4	+5.7	59.2
◐ do 23	138°18.2	152°44.8	167°11.5	181°38.2	196°04.9	210°31.7	224°58.5	239°25.4	253°52.4	268°19.3	282°46.4	+26.8	16.1
	-15°58.5	-15°50.6	-15°42.6	-15°34.5	-15°26.3	-15°18.1	-15°09.7	-15°01.3	-14°52.7	-14°44.1	-14°35.3	+8.3	59.2
vr 24	139°37.8	154°05.6	168°33.4	183°01.4	197°29.3	211°57.3	226°25.4	240°53.4	255°21.6	269°49.8	284°18.0	+28.0	16.1
	-12°14.4	-12°04.4	-11°54.3	-11°44.2	-11°34.0	-11°23.7	-11°13.3	-11°02.9	-10°52.5	-10°41.9	-10°31.3	+10.3	59.1
za 25	141°26.5	155°55.4	170°24.3	184°53.2	199°22.2	213°51.2	228°20.3	242°49.4	257°18.5	271°47.7	286°16.8	+29.0	16.1
	-7°45.9	-7°34.5	-7°23.0	-7°11.6	-7°00.0	-6°48.5	-6°36.9	-6°25.2	-6°13.6	-6°01.9	-5°50.2	+11.6	58.9
zo 26	143°38.0	158°07.6	172°37.3	187°06.9	201°36.6	216°06.3	230°36.0	245°05.7	259°35.5	274°05.2	288°35.0	+29.7	16.0
	-2°51.3	-2°39.3	-2°27.2	-2°15.1	-2°03.0	-1°51.0	-1°38.9	-1°26.7	-1°14.6	-1°02.5	-0°50.4	+12.1	58.7
ma 27	146°03.0	160°33.0	175°02.9	189°32.9	204°02.8	218°32.8	233°02.7	247°32.7	262°02.7	276°32.6	291°02.6	+30.0	15.9
	2°10.7	2°22.6	2°34.6	2°46.5	2°58.5	3°10.4	3°22.2	3°34.1	3°45.9	3°57.7	4°09.5	+11.9	58.3
di 28	148°31.7	163°01.6	177°31.5	192°01.4	206°31.3	221°01.2	235°31.0	250°00.9	264°30.7	279°00.6	293°30.4	+29.9	15.8
	7°02.1	7°13.3	7°24.5	7°35.6	7°46.6	7°57.6	8°08.6	8°19.5	8°30.3	8°41.1	8°51.9	+11.0	57.9
wo 29	150°56.3	165°26.0	179°55.6	194°25.2	208°54.7	223°24.3	237°53.9	252°23.4	266°52.9	281°22.4	295°51.9	+29.6	15.6
	11°26.1	11°35.9	11°45.6	11°55.2	12°04.7	12°14.2	12°23.6	12°33.0	12°42.3	12°51.4	13°00.6	+9.5	57.4
○ do 30	153°12.7	167°42.0	182°11.2	196°40.5	211°09.7	225°39.0	240°08.2	254°37.4	269°06.6	283°35.8	298°04.9	+29.2	15.5
	15°07.7	15°15.5	15°23.2	15°30.8	15°38.3	15°45.8	15°53.1	16°00.4	16°07.6	16°14.7	16°21.6	+7.4	56.8
vr 31	155°21.6	169°50.6	184°19.7	198°48.7	213°17.8	227°46.8	242°15.9	256°44.9	271°14.0	285°43.0	300°12.1	+29.0	15.3
	17°54.9	18°00.4	18°05.7	18°10.9	18°16.1	18°21.1	18°26.0	18°30.9	18°35.6	18°40.2	18°44.7	+5.0	56.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 8 10h50 — NM: 16 08h20 — EK: 23 07h36 — VM: 30 07h32

ZON

November 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	184°06.3	199°06.3	214°06.4	229°06.4	244°06.4	259°06.4	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	+0.0
	-14°17.3	-14°18.1	-14°18.9	-14°19.7	-14°20.5	-14°21.3	-14°31.7	-14°32.5	-14°33.3	-14°34.1	-14°34.9	-14°35.7	-0.8
zo 2	184°06.8	199°06.8	214°06.8	229°06.8	244°06.8	259°06.8	94°07.0	109°07.0	124°07.0	139°07.0	154°07.0	169°07.0	+0.0
	-14°36.5	-14°37.3	-14°38.1	-14°38.9	-14°39.7	-14°40.5	-14°50.8	-14°51.5	-14°52.3	-14°53.1	-14°53.9	-14°54.7	-0.8
ma 3	184°07.0	199°07.0	214°07.0	229°07.0	244°07.0	259°07.0	94°07.0	109°07.0	124°07.0	139°07.0	154°07.0	169°07.0	+0.0
	-14°55.5	-14°56.3	-14°57.0	-14°57.8	-14°58.6	-14°59.4	-15°09.5	-15°10.3	-15°11.1	-15°11.9	-15°12.6	-15°13.4	-0.8
di 4	184°07.0	199°07.0	214°07.0	229°07.0	244°07.0	259°07.0	94°06.9	109°06.9	124°06.9	139°06.9	154°06.9	169°06.9	-0.0
	-15°14.2	-15°15.0	-15°15.7	-15°16.5	-15°17.3	-15°18.0	-15°28.0	-15°28.8	-15°29.6	-15°30.3	-15°31.1	-15°31.9	-0.8
wo 5	184°06.8	199°06.8	214°06.8	229°06.8	244°06.8	259°06.8	94°06.6	109°06.6	124°06.5	139°06.5	154°06.5	169°06.5	-0.0
	-15°32.6	-15°33.4	-15°34.2	-15°34.9	-15°35.7	-15°36.5	-15°46.3	-15°47.1	-15°47.8	-15°48.6	-15°49.3	-15°50.1	-0.8
do 6	184°06.5	199°06.4	214°06.4	229°06.4	244°06.4	259°06.3	94°06.0	109°06.0	124°06.0	139°05.9	154°05.9	169°05.9	-0.0
	-15°50.8	-15°51.6	-15°52.4	-15°53.1	-15°53.9	-15°54.6	-16°04.3	-16°05.1	-16°05.8	-16°06.6	-16°07.3	-16°08.0	-0.8
vr 7	184°05.9	199°05.8	214°05.8	229°05.8	244°05.7	259°05.7	94°05.3	109°05.2	124°05.2	139°05.1	154°05.1	169°05.1	-0.0
	-16°08.8	-16°09.5	-16°10.3	-16°11.0	-16°11.8	-16°12.5	-16°22.1	-16°22.8	-16°23.5	-16°24.3	-16°25.0	-16°25.7	-0.7
za 8	184°05.0	199°05.0	214°05.0	229°04.9	244°04.9	259°04.8	94°04.3	109°04.2	124°04.2	139°04.1	154°04.1	169°04.0	-0.0
	-16°26.5	-16°27.2	-16°27.9	-16°28.7	-16°29.4	-16°30.1	-16°39.5	-16°40.3	-16°41.0	-16°41.7	-16°42.4	-16°43.2	-0.7
zo 9	184°04.0	199°04.0	214°03.9	229°03.9	244°03.8	259°03.8	94°03.1	109°03.0	124°03.0	139°02.9	154°02.9	169°02.8	-0.0
	-16°43.9	-16°44.6	-16°45.3	-16°46.0	-16°46.7	-16°47.5	-16°56.7	-16°57.4	-16°58.2	-16°58.9	-16°59.6	-17°00.3	-0.7
ma 10	184°02.8	199°02.7	214°02.6	229°02.6	244°02.5	259°02.5	94°01.7	109°01.6	124°01.5	139°01.5	154°01.4	169°01.4	-0.1
	-17°01.0	-17°01.7	-17°02.4	-17°03.1	-17°03.8	-17°04.5	-17°13.6	-17°14.3	-17°15.0	-17°15.7	-17°16.4	-17°17.1	-0.7
di 11	184°01.3	199°01.2	214°01.2	229°01.1	244°01.0	259°01.0	94°00.0	109°00.0	123°59.9	138°59.8	153°59.8	168°59.7	-0.1
	-17°17.8	-17°18.5	-17°19.2	-17°19.9	-17°20.6	-17°21.3	-17°30.2	-17°30.9	-17°31.6	-17°32.3	-17°33.0	-17°33.7	-0.7
wo 12	183°59.6	198°59.5	213°59.5	228°59.4	243°59.3	258°59.2	93°58.2	108°58.1	123°58.0	138°58.0	153°57.9	168°57.8	-0.1
	-17°34.4	-17°35.0	-17°35.7	-17°36.4	-17°37.1	-17°37.8	-17°46.6	-17°47.2	-17°47.9	-17°48.6	-17°49.2	-17°49.9	-0.7
do 13	183°57.7	198°57.6	213°57.5	228°57.5	243°57.4	258°57.3	93°56.2	108°56.1	123°56.0	138°55.9	153°55.8	168°55.7	-0.1
	-17°50.6	-17°51.3	-17°51.9	-17°52.6	-17°53.3	-17°53.9	-18°02.6	-18°03.2	-18°03.9	-18°04.5	-18°05.2	-18°05.8	-0.7
vr 14	183°55.6	198°55.5	213°55.4	228°55.3	243°55.2	258°55.1	93°53.9	108°53.8	123°53.7	138°53.6	153°53.5	168°53.4	-0.1
	-18°06.5	-18°07.2	-18°07.8	-18°08.5	-18°09.1	-18°09.8	-18°18.2	-18°18.9	-18°19.5	-18°20.2	-18°20.8	-18°21.5	-0.7
za 15	183°53.3	198°53.2	213°53.1	228°53.0	243°52.9	258°52.8	93°51.4	108°51.3	123°51.2	138°51.1	153°51.0	168°50.9	-0.1
	-18°22.1	-18°22.8	-18°23.4	-18°24.0	-18°24.7	-18°25.3	-18°33.6	-18°34.2	-18°34.9	-18°35.5	-18°36.1	-18°36.8	-0.6
zo 16	183°50.7	198°50.6	213°50.5	228°50.4	243°50.3	258°50.2	93°48.7	108°48.6	123°48.5	138°48.4	153°48.2	168°48.1	-0.1
	-18°37.4	-18°38.0	-18°38.7	-18°39.3	-18°39.9	-18°40.5	-18°48.6	-18°49.3	-18°49.9	-18°50.5	-18°51.1	-18°51.7	-0.6
ma 17	183°48.0	198°47.9	213°47.8	228°47.6	243°47.5	258°47.4	93°45.8	108°45.7	123°45.6	138°45.4	153°45.3	168°45.2	-0.1
	-18°52.3	-18°53.0	-18°53.6	-18°54.2	-18°54.8	-18°55.4	-19°03.3	-19°03.9	-19°04.6	-19°05.2	-19°05.8	-19°06.4	-0.6
di 18	183°45.0	198°44.9	213°44.8	228°44.7	243°44.5	258°44.4	93°42.7	108°42.6	123°42.4	138°42.3	153°42.2	168°42.0	-0.1
	-19°07.0	-19°07.6	-19°08.2	-19°08.8	-19°09.4	-19°10.0	-19°17.7	-19°18.3	-19°18.9	-19°19.5	-19°20.1	-19°20.7	-0.6
wo 19	183°41.9	198°41.8	213°41.6	228°41.5	243°41.3	258°41.2	93°39.4	108°39.2	123°39.1	138°39.0	153°38.8	168°38.7	-0.1
	-19°21.2	-19°21.8	-19°22.4	-19°23.0	-19°23.6	-19°24.2	-19°31.7	-19°32.3	-19°32.9	-19°33.4	-19°34.0	-19°34.6	-0.6
do 20	183°38.5	198°38.4	213°38.2	228°38.1	243°38.0	258°37.8	93°35.9	108°35.7	123°35.6	138°35.4	153°35.3	168°35.1	-0.1
	-19°35.2	-19°35.7	-19°36.3	-19°36.9	-19°37.5	-19°38.0	-19°45.4	-19°45.9	-19°46.5	-19°47.1	-19°47.6	-19°48.2	-0.6
vr 21	183°35.0	198°34.8	213°34.7	228°34.5	243°34.4	258°34.2	93°32.2	108°32.0	123°31.9	138°31.7	153°31.5	168°31.4	-0.2
	-19°48.7	-19°49.3	-19°49.9	-19°50.4	-19°51.0	-19°51.5	-19°58.7	-19°59.2	-19°59.8	-20°00.3	-20°00.9	-20°01.4	-0.6
za 22	183°31.2	198°31.1	213°30.9	228°30.7	243°30.6	258°30.4	93°28.3	108°28.1	123°27.9	138°27.8	153°27.6	168°27.4	-0.2
	-20°02.0	-20°02.5	-20°03.0	-20°03.6	-20°04.1	-20°04.7	-20°11.6	-20°12.2	-20°12.7	-20°13.2	-20°13.7	-20°14.3	-0.5
zo 23	183°27.3	198°27.1	213°26.9	228°26.8	243°26.6	258°26.4	93°24.2	108°24.0	123°23.8	138°23.7	153°23.5	168°23.3	-0.2
	-20°14.8	-20°15.3	-20°15.9	-20°16.4	-20°16.9	-20°17.4	-20°24.2	-20°24.7	-20°25.2	-20°25.7	-20°26.2	-20°26.8	-0.5
ma 24	183°23.1	198°23.0	213°22.8	228°22.6	243°22.4	258°22.2	93°19.9	108°19.7	123°19.5	138°19.4	153°19.2	168°19.0	-0.2
	-20°27.3	-20°27.8	-20°28.3	-20°28.8	-20°29.3	-20°29.8	-20°36.4	-20°36.9	-20°37.4	-20°37.9	-20°38.4	-20°38.9	-0.5
di 25	183°18.6	198°18.6	213°18.4	228°18.3	243°18.1	258°17.9	93°15.4	108°15.2	123°15.1	138°14.9	153°14.7	168°14.5	-0.2
	-20°39.4	-20°39.9	-20°40.4	-20°40.9	-20°41.3	-20°41.8	-20°48.2	-20°48.7	-20°49.2	-20°49.6	-20°50.1	-20°50.6	-0.5
wo 26	183°14.3	198°14.1	213°13.9	228°13.7	243°13.5	258°13.3	93°10.8	108°10.6	123°10.4	138°10.2	153°10.0	168°09.8	-0.2
	-20°51.1	-20°51.6	-20°52.0	-20°52.5	-20°53.0	-20°53.5	-20°59.6	-21°00.1	-21°00.5	-21°01.0	-21°01.5	-21°01.9	-0.5
do 27	183°09.6	198°09.4	213°09.2	228°09.0	243°08.8	258°08.6	93°06.0	108°05.7	123°05.5	138°05.3	153°05.1	168°04.9	-0.2
	-21°02.4	-21°02.9	-21°03.3	-21°03.8	-21°04.2	-21°04.7	-21°10.6	-21°11.1	-21°11.5	-21°12.0	-21°12.4	-21°12.9	-0.5
vr 28	183°04.7	198°04.5	213°04.3	228°04.1	243°03.9	258°03.7	93°00.9	108°00.7	123°00.5	138°00.3	153°00.1	167°59.9	-0.2
	-21°13.3	-21°13.8	-21°14.2	-21°14.7	-21°15.1	-21°15.5	-21°21.3	-21°21.7	-21°22.1	-21°22.6	-21°23.0	-21°23.4	-0.4
za 29	182°59.7	197°59.4	212°59.2	227°59.0	242°58.8	257°58.6	92°55.8	107°55.5	122°55.3	137°55.1	152°54.9	167°54.7	-0.2
	-21°23.8	-21°24.3	-21°24.7	-21°25.1	-21°25.6	-21°26.0	-21°31.5	-21°31.9	-21°32.3	-21°32.7	-21°33.1	-21°33.6	-0.4
zo 30	182°54.4	197°54.2	212°54.0	227°53.8	242°53.5	257°53.3	92°50.4	107°50.2	122°49.9	137°49.7	152°49.5	167°49.3	-0.2
	-21°34.0	-21°34.4	-21°34.8	-21°35.2	-21°35.6	-21°36.0	-21°41.3	-21°41.7	-21°42.1	-21°42.5	-21°42.9	-21°43.3	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2031

D	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	SD/HP
za 1	70°33.7	85°02.8	99°31.9	114°01.0	128°30.1	142°59.2	157°28.3	171°57.5	186°26.6	200°55.8	215°25.0	+29.1	15.2
	19°20.7	19°24.2	19°27.6	19°30.9	19°34.0	19°37.1	19°40.0	19°42.9	19°45.6	19°48.3	19°50.8	+3.0	55.7
zo 2	72°44.5	87°14.0	101°43.5	116°13.0	130°42.5	145°12.1	159°41.6	174°11.2	188°40.9	203°10.5	217°40.2	+29.6	15.0
	20°16.2	20°17.1	20°17.8	20°18.5	20°19.0	20°19.5	20°19.8	20°20.1	20°20.2	20°20.2	20°20.2	+0.4	55.1
ma 3	75°09.0	89°39.2	104°09.4	118°39.6	133°09.9	147°40.2	162°10.6	176°41.0	191°11.4	205°41.9	220°12.4	+30.3	14.9
	20°07.1	20°05.4	20°03.7	20°01.8	19°59.9	19°57.8	19°55.7	19°53.5	19°51.1	19°48.7	19°46.2	-2.1	54.7
di 4	77°54.6	92°25.7	106°56.9	121°28.1	135°59.4	150°30.7	165°02.0	179°33.4	194°04.8	208°36.2	223°07.7	+31.3	14.8
	18°57.6	18°53.7	18°49.6	18°45.5	18°41.3	18°37.0	18°32.7	18°28.2	18°23.7	18°19.1	18°14.4	-4.3	54.3
wo 5	81°05.1	95°37.2	110°09.4	124°41.6	139°13.9	153°46.1	168°18.5	182°50.8	197°23.3	211°55.7	226°28.2	+32.3	14.8
	16°54.5	16°48.6	16°42.6	16°36.5	16°30.4	16°24.1	16°17.9	16°11.5	16°05.1	15°58.6	15°52.0	-6.3	54.2
do 6	84°39.5	99°12.5	113°45.6	128°18.7	142°51.8	157°24.9	171°58.1	186°31.3	201°04.5	215°37.7	230°11.0	+33.2	14.8
	14°05.7	13°58.1	13°50.5	13°42.8	13°35.0	13°27.2	13°19.3	13°11.4	13°03.4	12°55.3	12°47.2	-7.9	54.2
◑ vr 7	88°32.9	103°06.5	117°40.1	132°13.8	146°47.5	161°21.1	175°54.8	190°28.5	205°02.3	219°36.0	234°09.7	+33.7	14.8
	10°39.3	10°30.4	10°21.4	10°12.4	10°03.4	9°54.2	9°45.1	9°35.9	9°26.7	9°17.4	9°08.0	-9.1	54.4
za 8	92°36.8	107°10.6	121°44.4	136°18.2	150°52.1	165°25.9	179°59.7	194°33.5	209°07.3	223°41.1	238°14.9	+33.8	14.9
	6°43.3	6°33.4	6°23.4	6°13.4	6°03.4	5°53.3	5°43.2	5°33.0	5°22.9	5°12.7	5°02.4	-10.1	54.8
zo 9	96°40.5	111°14.1	125°47.6	140°21.2	154°54.7	169°28.2	184°01.6	198°35.1	213°08.5	227°41.9	242°15.3	+33.5	15.1
	2°25.9	2°15.2	2°04.6	1°53.9	1°43.2	1°32.5	1°21.8	1°11.1	1°00.3	0°49.6	0°38.8	-10.7	55.3
ma 10	100°32.0	115°04.8	129°37.6	144°10.3	158°43.0	173°15.6	187°48.3	202°20.8	216°53.3	231°25.8	245°58.2	+32.6	15.3
	-2°04.1	-2°15.0	-2°26.0	-2°36.9	-2°47.8	-2°58.7	-3°09.6	-3°20.6	-3°31.5	-3°42.4	-3°53.3	-10.9	56.0
di 11	103°58.3	118°29.9	133°01.4	147°32.8	162°04.2	176°35.5	191°06.8	205°38.0	220°09.1	234°40.1	249°11.1	+31.3	15.5
	-6°35.8	-6°46.5	-6°57.2	-7°07.9	-7°18.6	-7°29.2	-7°39.8	-7°50.4	-8°01.0	-8°11.5	-8°22.0	-10.6	56.8
wo 12	106°47.5	121°17.4	135°47.1	150°16.8	164°46.5	179°16.0	193°45.5	208°14.8	222°44.1	237°13.4	251°42.5	+29.5	15.7
	-10°55.6	-11°05.5	-11°15.4	-11°25.2	-11°34.9	-11°44.7	-11°54.3	-12°04.0	-12°13.5	-12°23.0	-12°32.5	-9.7	57.6
do 13	108°50.1	123°17.9	137°45.7	152°13.4	166°41.0	181°08.5	195°36.0	210°03.3	224°30.6	238°57.8	253°25.0	+27.5	15.9
	-14°46.6	-14°55.0	-15°03.3	-15°11.5	-15°19.7	-15°27.7	-15°35.7	-15°43.6	-15°51.4	-15°59.1	-16°06.8	-8.0	58.4
● vr 14	110°02.5	124°28.4	138°54.2	153°19.9	167°45.6	182°11.2	196°36.8	211°02.3	225°27.7	239°53.0	254°18.3	+25.6	16.1
	-17°49.7	-17°55.8	-18°01.7	-18°07.6	-18°13.3	-18°18.9	-18°24.4	-18°29.7	-18°35.0	-18°40.1	-18°45.2	-5.5	59.0
za 15	110°30.6	124°55.0	139°19.4	153°43.7	168°08.0	182°32.2	196°56.5	211°20.6	225°44.8	240°08.9	254°32.9	+24.2	16.2
	-19°45.7	-19°48.7	-19°51.6	-19°54.3	-19°57.0	-19°59.4	-20°01.8	-20°04.0	-20°06.0	-20°08.0	-20°09.8	-2.4	59.5
zo 16	110°31.3	124°55.1	139°18.9	153°42.6	168°06.4	182°30.2	196°54.0	211°17.8	225°41.6	240°05.4	254°29.2	+23.8	16.3
	-20°19.8	-20°19.4	-20°18.8	-20°18.0	-20°17.2	-20°16.1	-20°15.0	-20°13.7	-20°12.2	-20°10.6	-20°08.9	+1.1	59.8
ma 17	110°28.5	124°52.7	139°16.9	153°41.2	168°05.4	182°29.7	196°54.1	211°18.5	225°42.9	240°07.4	254°31.9	+24.3	16.3
	-19°26.3	-19°22.4	-19°18.3	-19°14.1	-19°09.8	-19°05.3	-19°00.7	-18°56.0	-18°51.2	-18°46.2	-18°41.1	+4.5	59.8
di 18	110°45.8	125°11.2	139°36.6	154°02.1	168°27.6	182°53.2	197°18.9	211°44.6	226°10.4	240°36.2	255°02.1	+25.6	16.3
	-17°10.0	-17°03.0	-16°55.9	-16°48.6	-16°41.3	-16°33.9	-16°26.3	-16°18.7	-16°11.0	-16°03.1	-15°55.2	+7.5	59.7
wo 19	125°11.2	139°36.6	154°02.1	168°27.6	182°53.2	197°18.9	211°44.6	226°10.4	240°36.2	255°02.1	269°28.1	+25.7	16.3
	-17°03.0	-16°55.9	-16°48.6	-16°41.3	-16°33.9	-16°26.3	-16°18.7	-16°11.0	-16°03.1	-15°55.2	-15°47.1	+7.6	59.7
do 20	126°05.3	140°32.3	154°59.4	169°26.5	183°53.7	198°20.9	212°48.3	227°15.6	241°43.1	256°10.6	270°38.1	+27.3	16.2
	-13°35.4	-13°25.9	-13°16.4	-13°06.7	-12°57.1	-12°47.3	-12°37.4	-12°27.5	-12°17.6	-12°07.5	-11°57.4	+9.8	59.4
◐ vr 21	127°38.9	142°07.4	156°36.0	171°04.6	185°33.3	200°02.0	214°30.8	228°59.6	243°28.5	257°57.4	272°26.4	+28.8	16.1
	-9°18.4	-9°07.4	-8°56.3	-8°45.2	-8°34.0	-8°22.8	-8°11.6	-8°00.3	-7°49.0	-7°37.6	-7°26.2	+11.2	59.0
za 22	129°46.7	144°16.4	158°46.1	173°15.8	187°45.6	202°15.5	216°45.3	231°15.2	245°45.1	260°15.1	274°45.1	+29.8	16.0
	-4°31.8	-4°20.0	-4°08.2	-3°56.3	-3°44.5	-3°32.6	-3°20.7	-3°08.8	-2°56.9	-2°45.0	-2°33.1	+11.9	58.6
zo 23	132°18.2	146°48.5	161°18.9	175°49.4	190°19.8	204°50.2	219°20.7	233°51.2	248°21.7	262°52.2	277°22.7	+30.5	15.8
	0°25.8	0°37.7	0°49.6	1°01.4	1°13.3	1°25.1	1°36.9	1°48.7	2°00.5	2°12.3	2°24.1	+11.8	58.1
ma 24	135°01.3	149°31.9	164°02.5	178°33.1	193°03.7	207°34.3	222°04.9	236°35.5	251°06.0	265°36.6	280°07.2	+30.6	15.7
	5°17.5	5°28.8	5°40.1	5°51.3	6°02.5	6°13.7	6°24.9	6°36.0	6°47.0	6°58.0	7°09.0	+11.2	57.6
di 25	137°44.9	152°15.3	166°45.7	181°16.1	195°46.5	210°16.9	224°47.3	239°17.6	253°47.9	268°18.3	282°48.6	+30.4	15.6
	9°47.9	9°58.1	10°08.2	10°18.3	10°28.3	10°38.2	10°48.1	10°57.9	11°07.7	11°17.4	11°27.0	+9.9	57.1
wo 26	140°21.0	154°51.0	169°21.0	183°51.0	198°20.9	212°50.9	227°20.8	241°50.7	256°20.6	270°50.5	285°20.3	+29.9	15.4
	13°43.3	13°51.8	14°00.2	14°08.6	14°16.9	14°25.0	14°33.2	14°41.2	14°49.2	14°57.0	15°04.8	+8.2	56.6
do 27	142°46.0	157°15.5	171°45.1	186°14.7	200°44.2	215°13.7	229°43.2	244°12.7	258°42.2	273°11.6	287°41.1	+29.5	15.3
	16°51.4	16°57.8	17°04.1	17°10.3	17°16.4	17°22.5	17°28.4	17°34.2	17°40.0	17°45.6	17°51.2	+6.0	56.1
○ vr 28	145°01.7	159°31.0	174°00.3	188°29.7	202°59.0	217°28.3	231°57.6	246°26.9	260°56.2	275°25.5	289°54.8	+29.3	15.2
	19°02.7	19°06.7	19°10.5	19°14.3	19°18.0	19°21.5	19°25.0	19°28.4	19°31.6	19°34.8	19°37.8	+3.5	55.6
za 29	147°15.1	161°44.5	176°13.9	190°43.4	205°12.8	219°42.3	234°11.8	248°41.3	263°10.8	277°40.4	292°09.9	+29.5	15.0
	20°11.2	20°12.6	20°13.8	20°15.0	20°16.1	20°17.1	20°18.0	20°18.7	20°19.4	20°20.0	20°20.4	+0.9	55.1
zo 30	149°35.9	164°05.8	178°35.8	193°05.8	207°35.8	222°05.9	236°36.0	251°06.1	265°36.2	280°06.4	294°36.6	+30.1	14.9
	20°15.2	20°14.0	20°12.8	20°11.4	20°10.0	20°08.4	20°06.8	20°05.0	20°03.2	20°01.2	19°59.2	-1.6	54.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 7 07h02 — NM: 14 21h09 — EK: 21 14h44 — VM: 28 23h18

ZON

December 2031

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	182°49.0	197°48.8	212°48.6	227°48.3	242°48.1	257°47.9	92°44.9	107°44.6	122°44.4	137°44.2	152°43.9	167°43.7	-0.2
	-21°43.7	-21°44.1	-21°44.5	-21°44.9	-21°45.3	-21°45.7	-21°50.7	-21°51.1	-21°51.5	-21°51.8	-21°52.2	-21°52.6	-0.4
di 2	182°43.5	197°43.2	212°43.0	227°42.8	242°42.5	257°42.3	92°39.2	107°38.9	122°38.7	137°38.5	152°38.2	167°38.0	-0.2
	-21°53.0	-21°53.4	-21°53.7	-21°54.1	-21°54.5	-21°54.9	-21°59.7	-22°00.0	-22°00.4	-22°00.8	-22°01.1	-22°01.5	-0.4
wo 3	182°37.7	197°37.5	212°37.3	227°37.0	242°36.8	257°36.5	92°33.3	107°33.1	122°32.8	137°32.6	152°32.3	167°32.1	-0.2
	-22°01.9	-22°02.2	-22°02.6	-22°02.9	-22°03.3	-22°03.7	-22°08.2	-22°08.6	-22°08.9	-22°09.3	-22°09.6	-22°10.0	-0.4
do 4	182°31.9	197°31.6	212°31.4	227°31.1	242°30.9	257°30.6	92°27.3	107°27.1	122°26.8	137°26.6	152°26.3	167°26.1	-0.2
	-22°10.3	-22°10.7	-22°11.0	-22°11.3	-22°11.7	-22°12.0	-22°16.4	-22°16.7	-22°17.0	-22°17.4	-22°17.7	-22°18.0	-0.3
vr 5	182°25.8	197°25.6	212°25.3	227°25.1	242°24.8	257°24.5	92°21.2	107°20.9	122°20.7	137°20.4	152°20.2	167°19.9	-0.3
	-22°18.3	-22°18.7	-22°19.0	-22°19.3	-22°19.6	-22°20.0	-22°24.1	-22°24.4	-22°24.7	-22°25.0	-22°25.3	-22°25.6	-0.3
za 6	182°19.6	197°19.4	212°19.1	227°18.9	242°18.6	257°18.3	92°14.9	107°14.6	122°14.4	137°14.1	152°13.8	167°13.6	-0.3
	-22°25.9	-22°26.2	-22°26.6	-22°26.9	-22°27.2	-22°27.5	-22°31.3	-22°31.6	-22°31.9	-22°32.2	-22°32.5	-22°32.8	-0.3
zo 7	182°13.3	197°13.1	212°12.8	227°12.5	242°12.3	257°12.0	92°08.5	107°08.2	122°07.9	137°07.7	152°07.4	167°07.1	-0.3
	-22°33.1	-22°33.4	-22°33.7	-22°34.0	-22°34.2	-22°34.5	-22°38.2	-22°38.4	-22°38.7	-22°39.0	-22°39.3	-22°39.5	-0.3
ma 8	182°06.9	197°06.6	212°06.3	227°06.0	242°05.8	257°05.5	92°01.9	107°01.7	122°01.4	137°01.1	152°00.8	167°00.6	-0.3
	-22°39.8	-22°40.1	-22°40.4	-22°40.6	-22°40.9	-22°41.2	-22°44.6	-22°44.8	-22°45.1	-22°45.3	-22°45.6	-22°45.8	-0.3
di 9	182°00.3	197°00.0	211°59.7	226°59.5	241°59.2	256°58.9	91°55.3	106°55.0	121°54.7	136°54.4	151°54.1	166°53.9	-0.3
	-22°46.1	-22°46.3	-22°46.6	-22°46.8	-22°47.1	-22°47.3	-22°50.5	-22°50.7	-22°51.0	-22°51.2	-22°51.4	-22°51.7	-0.3
wo 10	181°53.6	196°53.3	211°53.0	226°52.7	241°52.5	256°52.2	91°48.5	106°48.2	121°47.9	136°47.6	151°47.3	166°47.1	-0.3
	-22°51.9	-22°52.1	-22°52.4	-22°52.6	-22°52.8	-22°53.1	-22°56.0	-22°56.2	-22°56.4	-22°56.6	-22°56.9	-22°57.1	-0.2
do 11	181°46.8	196°46.5	211°46.2	226°45.9	241°45.6	256°45.3	91°41.6	106°41.3	121°41.0	136°40.7	151°40.4	166°40.1	-0.3
	-22°57.3	-22°57.5	-22°57.7	-22°57.9	-22°58.1	-22°58.3	-23°01.0	-23°01.2	-23°01.4	-23°01.6	-23°01.8	-23°02.0	-0.2
vr 12	181°39.9	196°39.6	211°39.3	226°39.0	241°38.7	256°38.4	91°34.6	106°34.3	121°34.0	136°33.7	151°33.4	166°33.1	-0.3
	-23°02.2	-23°02.4	-23°02.6	-23°02.8	-23°03.0	-23°03.2	-23°05.6	-23°05.8	-23°06.0	-23°06.1	-23°06.3	-23°06.5	-0.2
za 13	181°32.8	196°32.6	211°32.3	226°32.0	241°31.7	256°31.4	91°27.5	106°27.2	121°26.9	136°26.6	151°26.3	166°26.0	-0.3
	-23°06.7	-23°06.8	-23°07.0	-23°07.2	-23°07.4	-23°07.5	-23°09.7	-23°09.9	-23°10.0	-23°10.2	-23°10.4	-23°10.5	-0.2
zo 14	181°25.7	196°25.5	211°25.2	226°24.9	241°24.6	256°24.3	91°20.4	106°20.1	121°19.8	136°19.5	151°19.2	166°18.9	-0.3
	-23°10.7	-23°10.8	-23°11.0	-23°11.1	-23°11.3	-23°11.5	-23°13.4	-23°13.5	-23°13.7	-23°13.8	-23°13.9	-23°14.1	-0.2
ma 15	181°18.6	196°18.3	211°18.0	226°17.7	241°17.4	256°17.1	91°13.1	106°12.8	121°12.5	136°12.2	151°11.9	166°11.6	-0.3
	-23°14.2	-23°14.4	-23°14.5	-23°14.6	-23°14.8	-23°14.9	-23°16.6	-23°16.7	-23°16.8	-23°16.9	-23°17.1	-23°17.2	-0.1
di 16	181°11.3	196°11.0	211°10.7	226°10.4	241°10.1	256°09.8	91°05.9	106°05.6	121°05.3	136°04.9	151°04.6	166°04.3	-0.3
	-23°17.3	-23°17.4	-23°17.5	-23°17.7	-23°17.8	-23°17.9	-23°19.3	-23°19.4	-23°19.5	-23°19.6	-23°19.7	-23°19.8	-0.1
wo 17	181°04.0	196°03.7	211°03.4	226°03.1	241°02.8	256°02.5	90°58.5	105°58.2	120°57.9	135°57.6	150°57.3	165°57.0	-0.3
	-23°19.9	-23°20.0	-23°20.1	-23°20.2	-23°20.3	-23°20.4	-23°21.6	-23°21.7	-23°21.7	-23°21.8	-23°21.9	-23°22.0	-0.1
do 18	180°56.7	195°56.4	210°56.1	225°55.8	240°55.5	255°55.1	90°51.1	105°50.8	120°50.5	135°50.2	150°49.9	165°49.6	-0.3
	-23°22.1	-23°22.2	-23°22.2	-23°22.3	-23°22.4	-23°22.5	-23°23.4	-23°23.4	-23°23.5	-23°23.6	-23°23.6	-23°23.7	-0.1
vr 19	180°49.3	195°49.0	210°48.7	225°48.4	240°48.1	255°47.8	90°43.7	105°43.4	120°43.1	135°42.8	150°42.5	165°42.2	-0.3
	-23°23.8	-23°23.8	-23°23.9	-23°23.9	-23°24.0	-23°24.0	-23°24.7	-23°24.8	-23°24.8	-23°24.8	-23°24.9	-23°24.9	-0.1
za 20	180°41.9	195°41.6	210°41.3	225°40.9	240°40.6	255°40.3	90°36.3	105°36.0	120°35.7	135°35.4	150°35.1	165°34.7	-0.3
	-23°25.0	-23°25.0	-23°25.0	-23°25.1	-23°25.1	-23°25.2	-23°25.6	-23°25.6	-23°25.6	-23°25.6	-23°25.7	-23°25.7	-0.0
zo 21	180°34.4	195°34.1	210°33.8	225°33.5	240°33.2	255°32.9	90°28.9	105°28.5	120°28.2	135°27.9	150°27.6	165°27.3	-0.3
	-23°25.7	-23°25.7	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-0.0
ma 22	180°27.0	195°26.7	210°26.4	225°26.1	240°25.7	255°25.4	90°21.4	105°21.1	120°20.8	135°20.5	150°20.2	165°19.8	-0.3
	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°25.9	-23°25.9	-23°25.9	-23°25.8	-23°25.8	-23°25.8	-0.0
di 23	180°19.5	195°19.2	210°18.9	225°18.6	240°18.3	255°18.0	90°13.9	105°13.6	120°13.3	135°13.0	150°12.7	165°12.4	-0.3
	-23°25.8	-23°25.8	-23°25.8	-23°25.7	-23°25.7	-23°25.7	-23°25.3	-23°25.3	-23°25.3	-23°25.2	-23°25.2	-23°25.2	+0.0
wo 24	180°12.1	195°11.8	210°11.5	225°11.1	240°10.8	255°10.5	90°06.5	105°06.2	120°05.9	135°05.6	150°05.3	165°04.9	-0.3
	-23°25.1	-23°25.1	-23°25.0	-23°25.0	-23°25.0	-23°24.9	-23°24.3	-23°24.3	-23°24.2	-23°24.2	-23°24.1	-23°24.0	+0.0
do 25	180°04.6	195°04.3	210°04.0	225°03.7	240°03.4	255°03.1	89°59.1	104°58.8	119°58.5	134°58.1	149°57.8	164°57.5	-0.3
	-23°24.0	-23°23.9	-23°23.9	-23°23.8	-23°23.8	-23°23.7	-23°22.8	-23°22.8	-23°22.7	-23°22.6	-23°22.5	-23°22.5	+0.1
vr 26	179°57.2	194°56.9	209°56.6	224°56.3	239°56.0	254°55.7	89°51.7	104°51.4	119°51.1	134°50.7	149°50.4	164°50.1	-0.3
	-23°22.4	-23°22.3	-23°22.2	-23°22.1	-23°22.1	-23°22.0	-23°20.9	-23°20.8	-23°20.7	-23°20.6	-23°20.5	-23°20.4	+0.1
za 27	179°49.8	194°49.5	209°49.2	224°48.9	239°48.6	254°48.3	89°44.3	104°44.0	119°43.7	134°43.4	149°43.1	164°42.8	-0.3
	-23°20.3	-23°20.2	-23°20.1	-23°20.0	-23°19.9	-23°19.8	-23°18.4	-23°18.3	-23°18.2	-23°18.1	-23°18.0	-23°17.9	+0.1
zo 28	179°42.5	194°42.2	209°41.8	224°41.5	239°41.2	254°40.9	89°37.0	104°36.7	119°36.4	134°36.1	149°35.8	164°35.4	-0.3
	-23°17.8	-23°17.6	-23°17.5	-23°17.4	-23°17.3	-23°17.2	-23°15.5	-23°15.4	-23°15.3	-23°15.1	-23°15.0	-23°14.9	+0.1
ma 29	179°35.1	194°34.8	209°34.5	224°34.2	239°33.9	254°33.6	89°29.7	104°29.4	119°29.1	134°28.8	149°28.5	164°28.2	-0.3
	-23°14.7	-23°14.6	-23°14.5	-23°14.3	-23°14.2	-23°14.1	-23°12.2	-23°12.0	-23°11.9	-23°11.7	-23°11.6	-23°11.4	+0.1
di 30	179°27.9	194°27.6	209°27.3	224°27.0	239°26.7	254°26.4	89°22.5	104°22.2	119°21.9	134°21.6	149°21.3	164°21.0	-0.3
	-23°11.3	-23°11.1	-23°11.0	-23°10.8	-23°10.6	-23°10.5	-23°08.4	-23°08.2	-23°08.0	-23°07.8	-23°07.7	-23°07.5	+0.2
wo 31	179°20.7	194°20.4	209°20.1	224°19.8	239°19.5	254°19.2	89°15.3	104°15.0	119°14.7	134°14.4	149°14.1	164°13.8	-0.3
	-23°07.3	-23°07.2	-23°07.0	-23°06.8	-23°06.6	-23°06.4	-23°04.1	-23°03.9	-23°03.7	-23°03.5	-23°03.3	-23°03.1	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2031

D	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	Δ'/h	SD/HP
ma 1	65°10.1 19°36.7	79°40.7 19°33.7	94°11.3 19°30.6	108°41.9 19°27.5	123°12.6 19°24.2	137°43.3 19°20.9	152°14.1 19°17.5	166°44.9 19°14.0	181°15.7 19°10.3	195°46.6 19°06.7	210°17.5 19°02.9	+30.7 -3.4	14.8 54.4
di 2	68°06.2 17°56.1	82°37.8 17°51.0	97°09.4 17°45.8	111°41.1 17°40.5	126°12.8 17°35.2	140°44.5 17°29.8	155°16.3 17°24.3	169°48.2 17°18.7	184°20.0 17°13.0	198°52.0 17°07.3	213°23.9 17°01.5	+31.8 -5.5	14.8 54.2
wo 3	71°28.4 15°26.1	86°01.0 15°19.2	100°33.7 15°12.3	115°06.4 15°05.2	129°39.1 14°58.1	144°11.9 14°51.0	158°44.7 14°43.8	173°17.6 14°36.5	187°50.5 14°29.1	202°23.4 14°21.7	216°56.4 14°14.3	+32.8 -7.2	14.7 54.0
do 4	75°15.1 12°15.6	89°48.6 12°07.3	104°22.1 11°58.9	118°55.6 11°50.5	133°29.2 11°42.0	148°02.8 11°33.4	162°36.5 11°24.8	177°10.2 11°16.2	191°43.8 11°07.5	206°17.6 10°58.8	220°51.3 10°50.0	+33.6 -8.6	14.7 54.1
vr 5	79°20.1 8°33.3	93°54.1 8°23.9	108°28.2 8°14.4	123°02.3 8°04.9	137°36.4 7°55.4	152°10.5 7°45.8	166°44.6 7°36.2	181°18.7 7°26.6	195°52.9 7°16.9	210°27.0 7°07.2	225°01.2 6°57.4	+34.1 -9.6	14.8 54.3
za 6	83°34.1 4°27.7	98°08.3 4°17.5	112°42.4 4°07.3	127°16.6 3°57.1	141°50.8 3°46.8	156°24.9 3°36.5	170°59.1 3°26.2	185°33.2 3°15.9	200°07.4 3°05.5	214°41.5 2°55.2	229°15.6 2°44.8	+34.2 -10.3	14.9 54.6
◑ zo 7	87°45.3 0°07.0	102°19.2 -0°03.6	116°52.9 -0°14.3	131°26.7 -0°24.9	146°00.4 -0°35.5	160°34.1 -0°46.2	175°07.8 -0°56.9	189°41.4 -1°07.5	204°15.0 -1°18.2	218°48.6 -1°28.9	233°22.2 -1°39.6	+33.7 -10.7	15.1 55.2
ma 8	91°40.6 -4°19.9	106°13.5 -4°30.5	120°46.3 -4°41.2	135°19.1 -4°51.8	149°51.8 -5°02.5	164°24.5 -5°13.1	178°57.1 -5°23.7	193°29.7 -5°34.3	208°02.2 -5°44.9	222°34.7 -5°55.5	237°07.1 -6°06.1	+32.7 -10.6	15.3 55.9
di 9	95°05.8 -8°42.3	109°37.2 -8°52.5	124°08.6 -9°02.7	138°39.8 -9°12.9	153°11.0 -9°23.1	167°42.1 -9°33.2	182°13.1 -9°43.2	196°44.1 -9°53.3	211°14.9 -10°03.3	225°45.7 -10°13.2	240°16.5 -10°23.2	+31.1 -10.1	15.5 56.8
wo 10	97°47.6 -12°46.9	112°17.0 -12°56.1	126°46.4 -13°05.2	141°15.6 -13°14.3	155°44.7 -13°23.3	170°13.8 -13°32.2	184°42.7 -13°41.1	199°11.6 -13°50.0	213°40.4 -13°58.7	228°09.1 -14°07.4	242°37.7 -14°16.1	+29.0 -8.9	15.7 57.7
do 11	99°35.7 -16°16.7	114°02.8 -16°24.1	128°29.9 -16°31.4	142°56.8 -16°38.6	157°23.7 -16°45.8	171°50.4 -16°52.8	186°17.1 -16°59.7	200°43.7 -17°06.6	215°10.2 -17°13.3	229°36.6 -17°20.0	244°02.9 -17°26.5	+26.7 -7.0	16.0 58.7
vr 12	100°26.9 -18°52.0	114°51.9 -18°56.8	129°16.7 -19°01.5	143°41.5 -19°06.0	158°06.2 -19°10.5	172°30.8 -19°14.8	186°55.4 -19°19.0	201°19.9 -19°23.0	215°44.3 -19°26.9	230°08.6 -19°30.7	244°32.9 -19°34.4	+24.6 -4.2	16.2 59.5
za 13	100°29.4 -20°13.3	114°52.8 -20°14.8	129°16.1 -20°16.1	143°39.3 -20°17.3	158°02.6 -20°18.4	172°25.7 -20°19.3	186°48.9 -20°20.0	201°12.0 -20°20.6	215°35.1 -20°21.1	229°58.1 -20°21.4	244°21.1 -20°21.6	+23.2 -0.8	16.4 60.2
● zo 14	100°04.1 -20°06.4	114°26.9 -20°04.1	128°49.7 -20°01.8	143°12.6 -19°59.3	157°35.4 -19°56.6	171°58.2 -19°53.9	186°21.1 -19°50.9	200°43.9 -19°47.8	215°06.8 -19°44.6	229°29.7 -19°41.2	243°52.6 -19°37.7	+22.8 +2.9	16.5 60.6
ma 15	99°39.4 -18°27.8	114°02.9 -18°22.1	128°26.3 -18°16.2	142°49.8 -18°10.2	157°13.4 -18°04.0	171°37.0 -17°57.8	186°00.7 -17°51.3	200°24.4 -17°44.8	214°48.2 -17°38.2	229°12.0 -17°31.4	243°35.9 -17°24.5	+23.6 +6.3	16.6 60.8
di 16	99°41.3 -15°27.1	114°06.2 -15°18.4	128°31.2 -15°09.6	142°56.2 -15°00.7	157°21.3 -14°51.7	171°46.4 -14°42.6	186°11.7 -14°33.4	200°37.0 -14°24.1	215°02.4 -14°14.8	229°27.8 -14°05.3	243°53.3 -13°55.8	+25.2 +9.1	16.5 60.6
wo 17	100°24.9 -11°23.1	114°51.6 -11°12.3	129°18.3 -11°01.5	143°45.1 -10°50.6	158°12.0 -10°39.7	172°39.0 -10°28.7	187°06.1 -10°17.7	201°33.2 -10°06.6	216°00.3 -9°55.4	230°27.6 -9°44.2	244°54.9 -9°32.9	+27.0 +11.0	16.4 60.1
do 18	101°52.6 -6°39.0	116°20.9 -6°27.1	130°49.3 -6°15.3	145°17.8 -6°03.3	159°46.3 -5°51.4	174°14.9 -5°39.4	188°43.5 -5°27.4	203°12.2 -5°15.4	217°41.0 -5°03.4	232°09.8 -4°51.4	246°38.7 -4°39.3	+28.6 +12.0	16.2 59.5
vr 19	116°20.9 -6°27.1	130°49.3 -6°15.3	145°17.8 -6°03.3	159°46.3 -5°51.4	174°14.9 -5°39.4	188°43.5 -5°27.4	203°12.2 -5°15.4	217°41.0 -5°03.4	232°09.8 -4°51.4	246°38.7 -4°39.3	261°07.6 -4°27.3	+28.7 +12.0	16.2 59.5
za 20	118°27.0 -1°25.3	132°56.7 -1°13.2	147°26.3 -1°01.1	161°56.1 -0°49.0	176°25.8 -0°36.8	190°55.6 -0°24.7	205°25.5 -0°12.7	219°55.3 -0°00.6	234°25.2 0°11.5	248°55.2 0°23.5	263°25.1 0°35.6	+29.8 +12.1	16.0 58.7
◐ zo 21	120°58.0 3°33.7	135°28.4 3°45.4	149°58.8 3°57.0	164°29.2 4°08.6	178°59.6 4°20.2	193°30.1 4°31.7	208°00.6 4°43.2	222°31.0 4°54.6	237°01.5 5°06.1	251°32.0 5°17.5	266°02.5 5°28.8	+30.5 +11.5	15.8 58.0
ma 22	123°41.4 8°13.8	138°12.0 8°24.4	152°42.6 8°35.0	167°13.2 8°45.5	181°43.9 8°56.0	196°14.5 9°06.4	210°45.1 9°16.7	225°15.8 9°27.0	239°46.4 9°37.2	254°17.0 9°47.4	268°47.6 9°57.5	+30.6 +10.4	15.6 57.3
di 23	126°26.2 12°21.7	140°56.7 12°30.8	155°27.2 12°39.8	169°57.7 12°48.7	184°28.2 12°57.6	198°58.6 13°06.4	213°29.1 13°15.1	227°59.5 13°23.8	242°29.9 13°32.3	257°00.3 13°40.8	271°30.7 13°49.3	+30.5 +8.8	15.4 56.6
wo 24	129°05.2 15°46.2	143°35.4 15°53.3	158°05.5 16°00.4	172°35.7 16°07.4	187°05.8 16°14.2	201°35.9 16°21.0	216°06.1 16°27.8	230°36.1 16°34.4	245°06.2 16°40.9	259°36.3 16°47.4	274°06.4 16°53.7	+30.1 +6.8	15.3 56.0
do 25	131°35.7 18°18.2	146°05.5 18°23.1	160°35.4 18°27.9	175°05.2 18°32.6	189°35.0 18°37.2	204°04.9 18°41.7	218°34.7 18°46.1	233°04.5 18°50.4	247°34.3 18°54.6	262°04.1 18°58.7	276°33.9 19°02.7	+29.8 +4.5	15.1 55.5
vr 26	134°00.1 19°51.1	148°29.9 19°53.5	162°59.6 19°55.8	177°29.4 19°58.0	191°59.1 20°00.2	206°28.9 20°02.2	220°58.6 20°04.1	235°28.4 20°05.9	249°58.1 20°07.7	264°27.9 20°09.3	278°57.7 20°10.8	+29.8 +2.0	15.0 55.0
za 27	136°25.4 20°21.4	150°55.4 20°21.2	165°25.4 20°21.2	179°55.3 20°20.9	194°25.3 20°20.5	208°55.4 20°20.0	223°25.4 20°19.4	237°55.5 20°18.7	252°25.6 20°17.9	266°55.7 20°17.0	281°25.8 20°16.0	+30.0 -0.5	14.9 54.6
○ zo 28	139°00.6 19°49.7	153°31.1 19°47.1	168°01.7 19°44.5	182°32.3 19°41.8	197°02.9 19°39.0	211°33.5 19°36.1	226°04.2 19°33.2	240°35.0 19°30.1	255°05.7 19°26.9	269°36.5 19°23.7	284°07.3 19°20.3	+30.7 -2.9	14.8 54.3
ma 29	141°53.9 18°19.8	156°25.3 18°15.1	170°56.7 18°10.3	185°28.2 18°05.4	199°59.7 18°00.5	214°31.3 17°55.4	229°02.9 17°50.3	243°34.5 17°45.1	258°06.2 17°39.8	272°37.9 17°34.5	287°09.7 17°29.1	+31.6 -5.1	14.8 54.1
di 30	145°10.7 15°58.8	159°43.1 15°52.2	174°15.5 15°45.6	188°48.0 15°38.9	203°20.5 15°32.1	217°53.1 15°25.2	232°25.7 15°18.3	246°58.3 15°11.4	261°30.9 15°04.3	276°03.6 14°57.2	290°36.4 14°50.0	+32.6 -6.9	14.7 54.0
wo 31	148°51.9 12°55.5	163°25.2 12°47.4	177°58.6 12°39.2	192°32.0 12°31.1	207°05.4 12°22.8	221°38.9 12°14.5	236°12.3 12°06.2	250°45.9 11°57.8	265°19.4 11°49.4	279°53.0 11°40.9	294°26.6 11°32.3	+33.5 -8.3	14.7 53.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 7 03h19 — NM: 14 09h05 — EK: 21 00h00 — VM: 28 17h33

ZON

Januari 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	179°13.5	194°13.2	209°12.9	224°12.6	239°12.3	254°12.0	89°08.2	104°07.9	119°07.6	134°07.3	149°07.0	164°06.7	-0.3
	-23°02.9	-23°02.7	-23°02.5	-23°02.3	-23°02.1	-23°01.9	-22°59.3	-22°59.1	-22°58.9	-22°58.7	-22°58.5	-22°58.3	+0.2
vr 2	179°06.4	194°06.1	209°05.8	224°05.6	239°05.3	254°05.0	89°01.2	104°00.9	119°00.6	134°00.3	149°00.0	163°59.7	-0.3
	-22°58.1	-22°57.8	-22°57.6	-22°57.4	-22°57.2	-22°57.0	-22°54.1	-22°53.9	-22°53.7	-22°53.4	-22°53.2	-22°53.0	+0.2
za 3	178°59.4	193°59.1	208°58.9	223°58.6	238°58.3	253°58.0	88°54.2	103°54.0	118°53.7	133°53.4	148°53.1	163°52.8	-0.3
	-22°52.7	-22°52.5	-22°52.3	-22°52.0	-22°51.8	-22°51.6	-22°48.4	-22°48.2	-22°47.9	-22°47.7	-22°47.5	-22°47.2	+0.2
zo 4	178°52.5	193°52.2	208°51.9	223°51.7	238°51.4	253°51.1	88°47.4	103°47.1	118°46.8	133°46.5	148°46.3	163°46.0	-0.3
	-22°47.0	-22°46.7	-22°46.4	-22°46.2	-22°45.9	-22°45.7	-22°42.3	-22°42.1	-22°41.8	-22°41.5	-22°41.3	-22°41.0	+0.3
ma 5	178°45.7	193°45.4	208°45.1	223°44.9	238°44.6	253°44.3	88°40.6	103°40.4	118°40.1	133°39.8	148°39.5	163°39.3	-0.3
	-22°40.7	-22°40.4	-22°40.2	-22°39.9	-22°39.6	-22°39.4	-22°35.7	-22°35.5	-22°35.2	-22°34.9	-22°34.6	-22°34.3	+0.3
di 6	178°39.0	193°38.7	208°38.4	223°38.1	238°37.9	253°37.6	88°34.0	103°33.7	118°33.5	133°33.2	148°32.9	163°32.6	-0.3
	-22°34.0	-22°33.7	-22°33.5	-22°33.2	-22°32.9	-22°32.6	-22°28.7	-22°28.4	-22°28.1	-22°27.8	-22°27.5	-22°27.2	+0.3
wo 7	178°32.4	193°32.1	208°31.8	223°31.5	238°31.3	253°31.0	88°27.5	103°27.2	118°26.9	133°26.7	148°26.4	163°26.1	-0.3
	-22°26.9	-22°26.6	-22°26.3	-22°26.0	-22°25.7	-22°25.4	-22°21.3	-22°20.9	-22°20.6	-22°20.3	-22°20.0	-22°19.7	+0.3
do 8	178°25.9	193°25.6	208°25.3	223°25.1	238°24.8	253°24.5	88°21.1	103°20.8	118°20.5	133°20.3	148°20.0	163°19.7	-0.3
	-22°19.3	-22°19.0	-22°18.7	-22°18.3	-22°18.0	-22°17.7	-22°13.4	-22°13.0	-22°12.7	-22°12.3	-22°12.0	-22°11.7	+0.3
vr 9	178°19.5	193°19.2	208°18.9	223°18.7	238°18.4	253°18.2	88°14.8	103°14.5	118°14.2	133°14.0	148°13.7	163°13.5	-0.3
	-22°11.3	-22°11.0	-22°10.6	-22°10.3	-22°09.9	-22°09.6	-22°05.0	-22°04.7	-22°04.3	-22°03.9	-22°03.6	-22°03.2	+0.3
za 10	178°13.2	193°13.0	208°12.7	223°12.4	238°12.2	253°11.9	88°08.6	103°08.4	118°08.1	133°07.8	148°07.6	163°07.3	-0.3
	-22°02.9	-22°02.5	-22°02.1	-22°01.8	-22°01.4	-22°01.0	-21°56.2	-21°55.9	-21°55.5	-21°55.1	-21°54.7	-21°54.4	+0.4
zo 11	178°07.1	193°06.8	208°06.6	223°06.3	238°06.1	253°05.8	88°02.6	103°02.3	118°02.1	133°01.8	148°01.6	163°01.4	-0.3
	-21°54.0	-21°53.6	-21°53.2	-21°52.8	-21°52.5	-21°52.1	-21°47.0	-21°46.6	-21°46.2	-21°45.9	-21°45.5	-21°45.1	+0.4
ma 12	178°01.1	193°00.9	208°00.6	223°00.4	238°00.1	252°59.9	87°56.7	102°56.5	117°56.2	132°56.0	147°55.7	162°55.5	-0.2
	-21°44.7	-21°44.3	-21°43.9	-21°43.5	-21°43.1	-21°42.7	-21°37.4	-21°37.0	-21°36.6	-21°36.2	-21°35.8	-21°35.3	+0.4
di 13	177°55.3	192°55.0	207°54.8	222°54.5	237°54.3	252°54.1	87°51.0	102°50.8	117°50.5	132°50.3	147°50.1	162°49.8	-0.2
	-21°34.9	-21°34.5	-21°34.1	-21°33.7	-21°33.3	-21°32.9	-21°27.4	-21°26.9	-21°26.5	-21°26.1	-21°25.6	-21°25.2	+0.4
wo 14	177°49.6	192°49.4	207°49.1	222°48.9	237°48.7	252°48.4	87°45.4	102°45.2	117°45.0	132°44.7	147°44.5	162°44.3	-0.2
	-21°24.8	-21°24.4	-21°23.9	-21°23.5	-21°23.1	-21°22.6	-21°16.9	-21°16.5	-21°16.0	-21°15.6	-21°15.1	-21°14.7	+0.4
do 15	177°44.1	192°43.8	207°43.6	222°43.4	237°43.2	252°42.9	87°40.0	102°39.8	117°39.6	132°39.4	147°39.2	162°38.9	-0.2
	-21°14.2	-21°13.8	-21°13.3	-21°12.9	-21°12.4	-21°12.0	-21°06.0	-21°05.6	-21°05.1	-21°04.6	-21°04.2	-21°03.7	+0.4
vr 16	177°38.7	192°38.5	207°38.3	222°38.1	237°37.8	252°37.6	87°34.8	102°34.6	117°34.4	132°34.2	147°34.0	162°33.7	-0.2
	-21°03.3	-21°02.8	-21°02.3	-21°01.9	-21°01.4	-21°00.9	-20°54.8	-20°54.3	-20°53.8	-20°53.3	-20°52.8	-20°52.4	+0.5
za 17	177°33.5	192°33.3	207°33.1	222°32.9	237°32.7	252°32.5	87°29.8	102°29.6	117°29.4	132°29.1	147°28.9	162°28.7	-0.2
	-20°51.9	-20°51.4	-20°50.9	-20°50.4	-20°49.9	-20°49.5	-20°43.1	-20°42.6	-20°42.1	-20°41.6	-20°41.1	-20°40.6	+0.5
zo 18	177°28.5	192°28.3	207°28.1	222°27.9	237°27.7	252°27.5	87°24.9	102°24.7	117°24.5	132°24.3	147°24.1	162°23.9	-0.2
	-20°40.1	-20°39.6	-20°39.1	-20°38.6	-20°38.1	-20°37.6	-20°31.0	-20°30.5	-20°30.0	-20°29.5	-20°29.0	-20°28.5	+0.5
ma 19	177°23.7	192°23.5	207°23.3	222°23.1	237°22.9	252°22.7	87°20.2	102°20.0	117°19.8	132°19.6	147°19.5	162°19.3	-0.2
	-20°28.0	-20°27.4	-20°26.9	-20°26.4	-20°25.9	-20°25.4	-20°18.6	-20°18.1	-20°17.5	-20°17.0	-20°16.5	-20°15.9	+0.5
di 20	177°19.1	192°18.9	207°18.7	222°18.5	237°18.3	252°18.1	87°15.7	102°15.5	117°15.4	132°15.2	147°15.0	162°14.8	-0.2
	-20°15.4	-20°14.9	-20°14.3	-20°13.8	-20°13.3	-20°12.7	-20°05.7	-20°05.2	-20°04.7	-20°04.1	-20°03.6	-20°03.0	+0.5
wo 21	177°14.6	192°14.5	207°14.3	222°14.1	237°13.9	252°13.7	87°11.4	102°11.2	117°11.1	132°10.9	147°10.7	162°10.6	-0.2
	-20°02.5	-20°01.9	-20°01.4	-20°00.8	-20°00.3	-19°59.7	-19°52.5	-19°52.0	-19°51.4	-19°50.9	-19°50.3	-19°49.7	+0.5
do 22	177°10.4	192°10.2	207°10.0	222°09.9	237°09.7	252°09.5	87°07.3	102°07.2	117°07.0	132°06.8	147°06.7	162°06.5	-0.2
	-19°49.2	-19°48.6	-19°48.1	-19°47.5	-19°46.9	-19°46.4	-19°39.0	-19°38.4	-19°37.8	-19°37.2	-19°36.7	-19°36.1	+0.6
vr 23	177°06.3	192°06.2	207°06.0	222°05.8	237°05.7	252°05.5	87°03.4	102°03.3	117°03.1	132°02.9	147°02.8	162°02.6	-0.2
	-19°35.5	-19°34.9	-19°34.4	-19°33.8	-19°33.2	-19°32.6	-19°25.0	-19°24.4	-19°23.8	-19°23.3	-19°22.7	-19°22.1	+0.6
za 24	177°02.5	192°02.3	207°02.1	222°02.0	237°01.8	252°01.7	86°59.7	101°59.5	116°59.4	131°59.2	146°59.1	161°58.9	-0.2
	-19°21.5	-19°20.9	-19°20.3	-19°19.7	-19°19.1	-19°18.5	-19°10.7	-19°10.1	-19°09.5	-19°08.9	-19°08.3	-19°07.7	+0.6
zo 25	176°58.8	191°58.7	206°58.5	221°58.4	236°58.2	251°58.1	86°56.2	101°56.0	116°55.9	131°55.8	146°55.6	161°55.5	-0.1
	-19°07.1	-19°06.5	-19°05.9	-19°05.3	-19°04.7	-19°04.1	-18°56.1	-18°55.5	-18°54.8	-18°54.2	-18°53.6	-18°53.0	+0.6
ma 26	176°55.3	191°55.2	206°55.1	221°54.9	236°54.8	251°54.6	86°52.9	101°52.7	116°52.6	131°52.5	146°52.3	161°52.2	-0.1
	-18°52.4	-18°51.7	-18°51.1	-18°50.5	-18°49.9	-18°49.2	-18°41.1	-18°40.4	-18°39.8	-18°39.2	-18°38.5	-18°37.9	+0.6
di 27	176°52.1	191°51.9	206°51.8	221°51.7	236°51.6	251°51.4	86°49.8	101°49.6	116°49.5	131°49.4	146°49.3	161°49.1	-0.1
	-18°37.3	-18°36.6	-18°36.0	-18°35.4	-18°34.7	-18°34.1	-18°25.7	-18°25.1	-18°24.5	-18°23.8	-18°23.2	-18°22.5	+0.6
wo 28	176°49.0	191°48.9	206°48.8	221°48.6	236°48.5	251°48.4	86°46.8	101°46.7	116°46.6	131°46.5	146°46.4	161°46.3	-0.1
	-18°21.9	-18°21.2	-18°20.6	-18°19.9	-18°19.3	-18°18.6	-18°10.1	-18°09.4	-18°08.8	-18°08.1	-18°07.4	-18°06.8	+0.6
do 29	176°46.2	191°46.0	206°45.9	221°45.8	236°45.7	251°45.6	86°44.1	101°44.0	116°43.9	131°43.8	146°43.7	161°43.6	-0.1
	-18°06.1	-18°05.4	-18°04.8	-18°04.1	-18°03.4	-18°02.8	-17°54.1	-17°53.4	-17°52.7	-17°52.1	-17°51.4	-17°50.7	+0.7
vr 30	176°43.5	191°43.4	206°43.3	221°43.2	236°43.1	251°43.0	86°41.6	101°41.5	116°41.4	131°41.3	146°41.2	161°41.1	-0.1
	-17°50.0	-17°49.4	-17°48.7	-17°48.0	-17°47.3	-17°46.6	-17°37.8	-17°37.1	-17°36.4	-17°35.7	-17°35.0	-17°34.3	+0.7
za 31	176°41.0	191°40.9	206°40.8	221°40.7	236°40.6	251°40.6	86°39.3	101°39.2	116°39.1	131°39.1	146°39.0	161°38.9	-0.1
	-17°33.6	-17°32.9	-17°32.2	-17°31.6	-17°30.9	-17°30.2	-17°21.1	-17°20.4	-17°19.7	-17°19.0	-17°18.3	-17°17.6	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2032

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
do 1	65°30.3	80°04.2	94°38.1	109°12.1	123°46.0	138°20.0	152°54.0	167°28.1	182°02.1	196°36.2	211°10.3	+34.0	14.7
	10°13.5	10°04.5	9°55.5	9°46.5	9°37.4	9°28.2	9°19.1	9°09.8	9°00.6	8°51.3	8°42.0	-9.2	54.0
vr 2	69°43.7	84°18.0	98°52.4	113°26.8	128°01.1	142°35.5	157°09.9	171°44.3	186°18.7	200°53.1	215°27.5	+34.4	14.8
	6°18.1	6°08.3	5°58.5	5°48.6	5°38.7	5°28.7	5°18.8	5°08.8	4°58.8	4°48.8	4°38.7	-9.9	54.2
za 3	74°03.5	88°37.9	103°12.2	117°46.6	132°20.9	146°55.3	161°29.6	176°03.9	190°38.2	205°12.4	219°46.7	+34.3	14.9
	2°05.7	1°55.3	1°45.0	1°34.6	1°24.3	1°13.9	1°03.5	0°53.1	0°42.7	0°32.3	0°21.8	-10.4	54.5
zo 4	78°18.2	92°52.2	107°26.0	121°59.9	136°33.7	151°07.5	165°41.2	180°14.9	194°48.6	209°22.3	223°55.9	+33.8	15.0
	-2°15.1	-2°25.6	-2°36.1	-2°46.5	-2°57.0	-3°07.5	-3°17.9	-3°28.4	-3°38.8	-3°49.3	-3°59.7	-10.5	55.0
◑ ma 5	82°15.0	96°47.9	111°20.7	125°53.5	140°26.3	154°59.0	169°31.6	184°04.2	198°36.7	213°09.2	227°41.6	+32.7	15.2
	-6°34.9	-6°45.1	-6°55.3	-7°05.5	-7°15.7	-7°25.8	-7°36.0	-7°46.1	-7°56.1	-8°06.2	-8°16.2	-10.1	55.7
di 6	85°40.1	100°11.4	114°42.7	129°13.9	143°45.1	158°16.1	172°47.1	187°18.0	201°48.8	216°19.6	230°50.3	+31.0	15.4
	-10°43.0	-10°52.5	-11°02.0	-11°11.4	-11°20.8	-11°30.1	-11°39.4	-11°48.6	-11°57.8	-12°07.0	-12°16.1	-9.3	56.5
wo 7	88°20.5	102°49.9	117°19.1	131°48.3	146°17.4	160°46.3	175°15.2	189°44.0	204°12.7	218°41.3	233°09.9	+28.9	15.7
	-14°26.3	-14°34.5	-14°42.6	-14°50.7	-14°58.7	-15°06.6	-15°14.5	-15°22.2	-15°30.0	-15°37.6	-15°45.2	-7.9	57.5
do 8	90°06.7	104°33.7	119°00.6	133°27.5	147°54.3	162°20.9	176°47.5	191°14.0	205°40.4	220°06.7	234°32.9	+26.6	16.0
	-17°28.7	-17°34.9	-17°41.0	-17°47.0	-17°52.9	-17°58.7	-18°04.4	-18°10.0	-18°15.5	-18°20.9	-18°26.2	-5.7	58.5
vr 9	90°55.7	105°20.6	119°45.4	134°10.1	148°34.7	162°59.2	177°23.7	191°48.1	206°12.4	220°36.7	235°00.9	+24.5	16.2
	-19°31.9	-19°35.3	-19°38.6	-19°41.8	-19°44.9	-19°47.8	-19°50.6	-19°53.3	-19°55.8	-19°58.2	-20°00.5	-2.9	59.5
za 10	90°56.3	105°19.5	119°42.7	134°05.9	148°29.1	162°52.2	177°15.2	191°38.2	206°01.2	220°24.2	234°47.1	+23.1	16.5
	-20°17.9	-20°18.0	-20°17.8	-20°17.6	-20°17.2	-20°16.6	-20°15.9	-20°15.1	-20°14.1	-20°12.9	-20°11.6	+0.6	60.4
zo 11	90°28.7	104°51.4	119°14.1	133°36.8	147°59.5	162°22.2	176°44.9	191°07.6	205°30.4	219°53.1	234°15.9	+22.7	16.6
	-19°34.4	-19°30.7	-19°26.9	-19°23.0	-19°18.8	-19°14.6	-19°10.2	-19°05.6	-19°01.0	-18°56.1	-18°51.1	+4.3	61.0
● ma 12	90°00.3	104°23.6	118°46.8	133°10.1	147°33.5	161°56.9	176°20.3	190°43.8	205°07.4	219°31.0	233°54.6	+23.4	16.7
	-17°19.8	-17°12.7	-17°05.4	-16°58.0	-16°50.4	-16°42.7	-16°35.0	-16°27.1	-16°19.0	-16°10.9	-16°02.6	+7.7	61.3
di 13	89°55.9	104°20.5	118°45.1	133°09.8	147°34.5	161°59.4	176°24.2	190°49.2	205°14.2	219°39.3	234°04.4	+24.9	16.7
	-13°45.5	-13°35.5	-13°25.5	-13°15.4	-13°05.1	-12°54.8	-12°44.4	-12°34.0	-12°23.4	-12°12.8	-12°02.0	+10.4	61.3
wo 14	90°29.7	104°55.9	119°22.2	133°48.5	148°14.9	162°41.4	177°07.9	191°34.5	206°01.2	220°27.9	234°54.7	+26.5	16.6
	-9°12.9	-9°01.1	-8°49.3	-8°37.5	-8°25.6	-8°13.6	-8°01.7	-7°49.6	-7°37.6	-7°25.5	-7°13.3	+12.0	60.9
do 15	91°44.0	106°11.7	120°39.5	135°07.4	149°35.3	164°03.3	178°31.3	192°59.3	207°27.5	221°55.6	236°23.9	+28.0	16.4
	-4°07.9	-3°55.3	-3°42.8	-3°30.3	-3°17.7	-3°05.2	-2°52.7	-2°40.1	-2°27.6	-2°15.0	-2°02.5	+12.5	60.2
vr 16	93°32.6	108°01.6	122°30.5	136°59.5	151°28.5	165°57.6	180°26.7	194°55.9	209°25.0	223°54.2	238°23.5	+29.1	16.2
	1°04.7	1°17.1	1°29.4	1°41.7	1°53.9	2°06.2	2°18.4	2°30.6	2°42.7	2°54.9	3°07.0	+12.2	59.3
za 17	95°45.4	110°15.0	124°44.7	139°14.4	153°44.1	168°13.8	182°43.6	197°13.3	211°43.1	226°12.9	240°42.7	+29.7	15.9
	6°03.7	6°15.2	6°26.6	6°37.9	6°49.2	7°00.4	7°11.6	7°22.7	7°33.8	7°44.8	7°55.7	+11.2	58.4
zo 18	110°15.0	124°44.7	139°14.4	153°44.1	168°13.8	182°43.6	197°13.3	211°43.1	226°12.9	240°42.7	255°12.6	+29.8	15.9
	6°15.2	6°26.6	6°37.9	6°49.2	7°00.4	7°11.6	7°22.7	7°33.8	7°44.8	7°55.7	8°06.6	+11.1	58.3
◐ ma 19	112°41.4	127°11.4	141°41.4	156°11.4	170°41.4	185°11.4	199°41.4	214°11.4	228°41.5	243°11.5	257°41.5	+30.0	15.7
	10°42.7	10°52.6	11°02.4	11°12.2	11°21.8	11°31.4	11°41.0	11°50.4	11°59.8	12°09.1	12°18.4	+9.6	57.4
di 20	115°12.1	129°42.1	144°12.1	158°42.2	173°12.2	187°42.2	202°12.2	216°42.2	231°12.3	245°42.3	260°12.3	+30.0	15.4
	14°27.5	14°35.5	14°43.4	14°51.2	14°58.9	15°06.5	15°14.1	15°21.5	15°28.9	15°36.2	15°43.4	+7.6	56.5
wo 21	117°42.0	132°12.0	146°41.9	161°11.9	175°41.8	190°11.8	204°41.7	219°11.7	233°41.6	248°11.5	262°41.5	+29.9	15.2
	17°20.6	17°26.4	17°32.0	17°37.6	17°43.1	17°48.4	17°53.7	17°58.9	18°04.0	18°09.0	18°13.9	+5.3	55.8
do 22	120°10.4	134°40.3	149°10.2	163°40.2	178°10.1	192°40.1	207°10.0	221°40.0	236°09.9	250°39.9	265°09.9	+29.9	15.0
	19°15.9	19°19.2	19°22.5	19°25.7	19°28.7	19°31.7	19°34.5	19°37.3	19°40.0	19°42.5	19°45.0	+2.9	55.2
vr 23	122°40.3	137°10.4	151°40.5	166°10.6	180°40.8	195°10.9	209°41.1	224°11.3	238°41.5	253°11.7	267°42.0	+30.2	14.9
	20°10.0	20°10.9	20°11.7	20°12.4	20°13.0	20°13.4	20°13.8	20°14.1	20°14.3	20°14.4	20°14.4	+0.4	54.7
za 24	125°17.6	139°48.2	154°18.8	168°49.3	183°20.0	197°50.6	212°21.3	226°52.0	241°22.7	255°53.4	270°24.2	+30.7	14.8
	20°02.7	20°01.1	19°59.5	19°57.8	19°55.9	19°54.0	19°52.0	19°49.9	19°47.7	19°45.4	19°43.0	-2.0	54.3
zo 25	128°09.1	142°40.3	157°11.6	171°42.9	186°14.2	200°45.6	215°17.0	229°48.4	244°19.8	258°51.3	273°22.9	+31.4	14.7
	18°56.5	18°52.7	18°48.8	18°44.8	18°40.8	18°36.6	18°32.4	18°28.1	18°23.7	18°19.2	18°14.7	-4.2	54.1
ma 26	131°19.9	145°51.9	160°24.0	174°56.2	189°28.4	204°00.6	218°32.8	233°05.1	247°37.5	262°09.8	276°42.2	+32.2	14.7
	16°56.8	16°51.0	16°45.2	16°39.2	16°33.2	16°27.1	16°21.0	16°14.7	16°08.4	16°02.1	15°55.6	-6.1	53.9
○ di 27	134°52.3	149°25.2	163°58.2	178°31.2	193°04.2	207°37.3	222°10.4	236°43.5	251°16.7	265°49.9	280°23.1	+33.1	14.7
	14°11.2	14°03.8	13°56.2	13°48.7	13°41.0	13°33.3	13°25.6	13°17.8	13°09.9	13°02.0	12°54.0	-7.7	53.9
wo 28	138°45.1	153°18.8	167°52.5	182°26.3	197°00.0	211°33.8	226°07.6	240°41.5	255°15.3	269°49.2	284°23.1	+33.8	14.7
	10°48.4	10°39.6	10°30.8	10°22.0	10°13.1	10°04.2	9°55.2	9°46.2	9°37.1	9°28.0	9°18.9	-8.9	53.9
do 29	142°53.9	157°28.1	172°02.3	186°36.5	201°10.7	215°45.0	230°19.2	244°53.5	259°27.8	274°02.0	288°36.3	+34.2	14.7
	6°57.7	6°48.0	6°38.3	6°28.6	6°18.9	6°09.1	5°59.3	5°49.4	5°39.6	5°29.7	5°19.8	-9.8	54.1
vr 30	147°11.4	161°45.7	176°20.1	190°54.4	205°28.8	220°03.1	234°37.4	249°11.8	263°46.1	278°20.4	292°54.7	+34.3	14.8
	2°48.7	2°38.5	2°28.3	2°18.0	2°07.8	1°57.5	1°47.3	1°37.0	1°26.7	1°16.4	1°06.1	-10.3	54.3
za 31	151°28.1	166°02.2	180°36.3	195°10.4	209°44.5	224°18.5	238°52.5	253°26.5	268°00.4	282°34.4	297°08.3	+34.0	14.9
	-1°29.1	-1°39.5	-1°49.8	-2°00.2	-2°10.5	-2°20.9	-2°31.2	-2°41.6	-2°51.9	-3°02.2	-3°12.5	-10.3	54.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 5 22h04 — NM: 12 20h06 — EK: 19 12h14 — VM: 27 12h52

ZON

Februari 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	176°38.8	191°38.7	206°38.6	221°38.5	236°38.4	251°38.3	86°37.2	101°37.1	116°37.1	131°37.0	146°36.9	161°36.8	-0.1
	-17°16.9	-17°16.2	-17°15.5	-17°14.8	-17°14.1	-17°13.4	-17°04.2	-17°03.5	-17°02.8	-17°02.0	-17°01.3	-17°00.6	+0.7
ma 2	176°36.7	191°36.6	206°36.6	221°36.5	236°36.4	251°36.3	86°35.3	101°35.2	116°35.2	131°35.1	146°35.0	161°35.0	-0.1
	-16°59.9	-16°59.2	-16°58.5	-16°57.8	-16°57.0	-16°56.3	-16°46.9	-16°46.2	-16°45.5	-16°44.8	-16°44.0	-16°43.3	+0.7
di 3	176°34.9	191°34.8	206°34.7	221°34.7	236°34.6	251°34.5	86°33.6	101°33.6	116°33.5	131°33.4	146°33.4	161°33.3	-0.1
	-16°42.6	-16°41.9	-16°41.1	-16°40.4	-16°39.7	-16°38.9	-16°29.4	-16°28.7	-16°27.9	-16°27.2	-16°26.5	-16°25.7	+0.7
wo 4	176°33.2	191°33.2	206°33.1	221°33.0	236°33.0	251°32.9	86°32.1	101°32.1	116°32.0	131°31.9	146°31.9	161°31.8	-0.1
	-16°25.0	-16°24.2	-16°23.5	-16°22.8	-16°22.0	-16°21.3	-16°11.6	-16°10.8	-16°10.1	-16°09.3	-16°08.6	-16°07.8	+0.7
do 5	176°31.8	191°31.7	206°31.7	221°31.6	236°31.5	251°31.5	86°30.8	101°30.8	116°30.7	131°30.7	146°30.6	161°30.6	-0.1
	-16°07.1	-16°06.3	-16°05.6	-16°04.8	-16°04.1	-16°03.3	-15°53.5	-15°52.7	-15°51.9	-15°51.2	-15°50.4	-15°49.7	+0.8
vr 6	176°30.5	191°30.5	206°30.4	221°30.4	236°30.3	251°30.3	86°29.7	101°29.6	116°29.6	131°29.6	146°29.5	161°29.5	-0.0
	-15°48.9	-15°48.1	-15°47.4	-15°46.6	-15°45.8	-15°45.1	-15°35.1	-15°34.3	-15°33.5	-15°32.8	-15°32.0	-15°31.2	+0.8
za 7	176°29.4	191°29.4	206°29.4	221°29.3	236°29.3	251°29.2	86°28.8	101°28.7	116°28.7	131°28.7	146°28.6	161°28.6	-0.0
	-15°30.4	-15°29.7	-15°28.9	-15°28.1	-15°27.3	-15°26.6	-15°16.4	-15°15.6	-15°14.9	-15°14.1	-15°13.3	-15°12.5	+0.8
zo 8	176°28.6	191°28.5	206°28.5	221°28.5	236°28.4	251°28.4	86°28.1	101°28.0	116°28.0	131°28.0	146°27.9	161°27.9	-0.0
	-15°11.7	-15°10.9	-15°10.2	-15°09.4	-15°08.6	-15°07.8	-14°57.5	-14°56.7	-14°55.9	-14°55.1	-14°54.3	-14°53.5	+0.8
ma 9	176°27.9	191°27.9	206°27.9	221°27.8	236°27.8	251°27.8	86°27.5	101°27.5	116°27.5	131°27.5	146°27.5	161°27.4	-0.0
	-14°52.8	-14°52.0	-14°51.2	-14°50.4	-14°49.6	-14°48.8	-14°38.4	-14°37.6	-14°36.7	-14°35.9	-14°35.1	-14°34.3	+0.8
di 10	176°27.4	191°27.4	206°27.4	221°27.4	236°27.4	251°27.3	86°27.2	101°27.2	116°27.2	131°27.2	146°27.2	161°27.1	-0.0
	-14°33.5	-14°32.7	-14°31.9	-14°31.1	-14°30.3	-14°29.5	-14°18.9	-14°18.1	-14°17.3	-14°16.5	-14°15.7	-14°14.9	+0.8
wo 11	176°27.1	191°27.1	206°27.1	221°27.1	236°27.1	251°27.1	86°27.0	101°27.0	116°27.0	131°27.0	146°27.0	161°27.0	-0.0
	-14°14.1	-14°13.2	-14°12.4	-14°11.6	-14°10.8	-14°10.0	-13°59.3	-13°58.5	-13°57.7	-13°56.8	-13°56.0	-13°55.2	+0.8
do 12	176°27.0	191°27.0	206°27.0	221°27.0	236°27.0	251°27.0	86°27.1	101°27.1	116°27.1	131°27.1	146°27.1	161°27.1	+0.0
	-13°54.4	-13°53.5	-13°52.7	-13°51.9	-13°51.0	-13°50.2	-13°39.4	-13°38.6	-13°37.8	-13°36.9	-13°36.1	-13°35.3	+0.8
vr 13	176°27.1	191°27.1	206°27.2	221°27.2	236°27.2	251°27.2	86°27.3	101°27.4	116°27.4	131°27.4	146°27.4	161°27.4	+0.0
	-13°34.4	-13°33.6	-13°32.7	-13°31.9	-13°31.1	-13°30.2	-13°19.3	-13°18.5	-13°17.6	-13°16.8	-13°15.9	-13°15.1	+0.8
za 14	176°27.4	191°27.4	206°27.5	221°27.5	236°27.5	251°27.5	86°27.8	101°27.8	116°27.8	131°27.8	146°27.9	161°27.9	+0.0
	-13°14.3	-13°13.4	-13°12.6	-13°11.7	-13°10.9	-13°10.0	-12°59.0	-12°58.2	-12°57.3	-12°56.4	-12°55.6	-12°54.7	+0.8
zo 15	176°27.9	191°27.9	206°28.0	221°28.0	236°28.0	251°28.0	86°28.4	101°28.4	116°28.4	131°28.5	146°28.5	161°28.5	+0.0
	-12°53.9	-12°53.0	-12°52.2	-12°51.3	-12°50.5	-12°49.6	-12°38.5	-12°37.6	-12°36.8	-12°35.9	-12°35.0	-12°34.2	+0.9
ma 16	176°28.6	191°28.6	206°28.6	221°28.7	236°28.7	251°28.7	86°29.2	101°29.2	116°29.3	131°29.3	146°29.3	161°29.4	+0.0
	-12°33.3	-12°32.4	-12°31.6	-12°30.7	-12°29.9	-12°29.0	-12°17.7	-12°16.9	-12°16.0	-12°15.1	-12°14.3	-12°13.4	+0.9
di 17	176°29.4	191°29.5	206°29.5	221°29.5	236°29.6	251°29.6	86°30.2	101°30.2	116°30.3	131°30.3	146°30.4	161°30.4	+0.0
	-12°12.5	-12°11.7	-12°10.8	-12°09.9	-12°09.0	-12°08.2	-11°56.8	-11°55.9	-11°55.1	-11°54.2	-11°53.3	-11°52.4	+0.9
wo 18	176°30.4	191°30.5	206°30.5	221°30.6	236°30.6	251°30.7	86°31.3	101°31.4	116°31.4	131°31.5	146°31.5	161°31.6	+0.0
	-11°51.6	-11°50.7	-11°49.8	-11°48.9	-11°48.0	-11°47.2	-11°35.7	-11°34.8	-11°33.9	-11°33.1	-11°32.2	-11°31.3	+0.9
do 19	176°31.7	191°31.7	206°31.8	221°31.8	236°31.9	251°31.9	86°32.7	101°32.7	116°32.8	131°32.9	146°32.9	161°33.0	+0.1
	-11°30.4	-11°29.5	-11°28.6	-11°27.7	-11°26.9	-11°26.0	-11°14.4	-11°13.5	-11°12.6	-11°11.7	-11°10.8	-11°10.0	+0.9
vr 20	176°33.0	191°33.1	206°33.2	221°33.2	236°33.3	251°33.3	86°34.2	101°34.3	116°34.3	131°34.4	146°34.5	161°34.5	+0.1
	-11°09.1	-11°08.2	-11°07.3	-11°06.4	-11°05.5	-11°04.6	-10°52.9	-10°52.0	-10°51.1	-10°50.2	-10°49.3	-10°48.4	+0.9
za 21	176°34.6	191°34.7	206°34.7	221°34.8	236°34.9	251°34.9	86°35.9	101°35.9	116°36.0	131°36.1	146°36.2	161°36.2	+0.1
	-10°47.5	-10°46.6	-10°45.7	-10°44.8	-10°43.9	-10°43.0	-10°31.3	-10°30.4	-10°29.5	-10°28.6	-10°27.7	-10°26.8	+0.9
zo 22	176°36.3	191°36.4	206°36.5	221°36.5	236°36.6	251°36.7	86°37.7	101°37.8	116°37.9	131°38.0	146°38.0	161°38.1	+0.1
	-10°25.9	-10°25.0	-10°24.1	-10°23.1	-10°22.2	-10°21.3	-10°09.5	-10°08.6	-10°07.7	-10°06.8	-10°05.9	-10°04.9	+0.9
ma 23	176°38.2	191°38.3	206°38.4	221°38.4	236°38.5	251°38.6	86°39.7	101°39.8	116°39.9	131°40.0	146°40.1	161°40.1	+0.1
	-10°04.0	-10°03.1	-10°02.2	-10°01.3	-10°00.4	-9°59.5	-9°47.5	-9°46.6	-9°45.7	-9°44.8	-9°43.9	-9°43.0	+0.9
di 24	176°40.2	191°40.3	206°40.4	221°40.5	236°40.6	251°40.7	86°41.9	101°42.0	116°42.0	131°42.1	146°42.2	161°42.3	+0.1
	-9°42.0	-9°41.1	-9°40.2	-9°39.3	-9°38.4	-9°37.4	-9°25.4	-9°24.5	-9°23.6	-9°22.7	-9°21.7	-9°20.8	+0.9
wo 25	176°42.4	191°42.5	206°42.6	221°42.7	236°42.8	251°42.9	86°44.2	101°44.3	116°44.4	131°44.5	146°44.6	161°44.7	+0.1
	-9°19.9	-9°19.0	-9°18.0	-9°17.1	-9°16.2	-9°15.3	-9°03.2	-9°02.3	-9°01.3	-9°00.4	-8°59.5	-8°58.5	+0.9
do 26	176°44.8	191°44.9	206°45.0	221°45.1	236°45.2	251°45.3	86°46.6	101°46.7	116°46.8	131°46.9	146°47.0	161°47.1	+0.1
	-8°57.6	-8°56.7	-8°55.8	-8°54.8	-8°53.9	-8°53.0	-8°40.8	-8°39.9	-8°39.0	-8°38.0	-8°37.1	-8°36.1	+0.9
vr 27	176°47.2	191°47.4	206°47.5	221°47.6	236°47.7	251°47.8	86°49.2	101°49.3	116°49.4	131°49.5	146°49.6	161°49.8	+0.1
	-8°35.2	-8°34.3	-8°33.3	-8°32.4	-8°31.5	-8°30.5	-8°18.3	-8°17.4	-8°16.4	-8°15.5	-8°14.5	-8°13.6	+0.9
za 28	176°49.9	191°50.0	206°50.1	221°50.2	236°50.3	251°50.4	86°51.9	101°52.0	116°52.2	131°52.3	146°52.4	161°52.5	+0.1
	-8°12.7	-8°11.7	-8°10.8	-8°09.8	-8°08.9	-8°08.0	-7°55.7	-7°54.7	-7°53.8	-7°52.8	-7°51.9	-7°51.0	+0.9
zo 29	176°52.6	191°52.7	206°52.9	221°53.0	236°53.1	251°53.2	86°54.8	101°54.9	116°55.0	131°55.1	146°55.3	161°55.4	+0.1
	-7°50.0	-7°49.1	-7°48.1	-7°47.2	-7°46.2	-7°45.3	-7°32.9	-7°32.0	-7°31.0	-7°30.1	-7°29.1	-7°28.2	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2032

D	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	Δ'/h	SD/HP
zo 1	68°12.2	82°45.9	97°19.5	111°53.0	126°26.5	141°00.0	155°33.5	170°06.9	184°40.3	199°13.6	213°46.9	+33.5	15.0
	-4°45.0	-4°55.2	-5°05.4	-5°15.6	-5°25.7	-5°35.9	-5°46.0	-5°56.1	-6°06.2	-6°16.3	-6°26.3	-10.1	55.0
ma 2	72°01.1	86°33.7	101°06.2	115°38.7	130°11.1	144°43.4	159°15.7	173°48.0	188°20.2	202°52.3	217°24.4	+32.3	15.2
	-8°54.3	-9°03.9	-9°13.5	-9°23.1	-9°32.6	-9°42.1	-9°51.6	-10°01.0	-10°10.4	-10°19.7	-10°29.0	-9.5	55.6
di 3	75°18.1	89°49.2	104°20.2	118°51.1	133°22.0	147°52.8	162°23.5	176°54.1	191°24.7	205°55.2	220°25.6	+30.7	15.4
	-12°43.5	-12°52.0	-13°00.6	-13°09.0	-13°17.4	-13°25.8	-13°34.1	-13°42.3	-13°50.5	-13°58.6	-14°06.7	-8.3	56.3
◑ wo 4	77°52.9	92°22.1	106°51.2	121°20.3	135°49.2	150°18.1	164°46.9	179°15.6	193°44.3	208°12.8	222°41.3	+28.8	15.6
	-15°59.6	-16°06.5	-16°13.4	-16°20.2	-16°26.9	-16°33.6	-16°40.1	-16°46.6	-16°53.0	-16°59.3	-17°05.5	-6.6	57.1
do 5	79°38.7	94°05.9	108°33.0	123°00.0	137°27.0	151°53.8	166°20.6	180°47.3	195°14.0	209°40.5	224°07.0	+26.8	15.8
	-18°27.8	-18°32.5	-18°37.1	-18°41.6	-18°46.0	-18°50.3	-18°54.5	-18°58.5	-19°02.5	-19°06.4	-19°10.1	-4.2	58.1
vr 6	80°35.4	95°00.8	109°26.0	123°51.3	138°16.4	152°41.5	167°06.5	181°31.5	195°56.4	210°21.2	224°46.0	+25.1	16.1
	-19°52.3	-19°54.2	-19°55.9	-19°57.5	-19°59.0	-20°00.3	-20°01.5	-20°02.6	-20°03.5	-20°04.3	-20°05.0	-1.3	59.0
za 7	80°52.0	95°16.1	109°40.1	124°04.1	138°28.0	152°51.9	167°15.8	181°39.7	196°03.5	210°27.4	224°51.1	+23.9	16.3
	-19°59.1	-19°57.6	-19°56.0	-19°54.2	-19°52.3	-19°50.3	-19°48.1	-19°45.8	-19°43.3	-19°40.7	-19°37.9	+2.1	59.9
zo 8	80°46.1	95°09.7	109°33.3	123°56.9	138°20.5	152°44.1	167°07.8	181°31.4	195°55.0	210°18.7	224°42.3	+23.6	16.6
	-18°39.8	-18°34.8	-18°29.7	-18°24.4	-18°19.0	-18°13.5	-18°07.8	-18°02.0	-17°56.0	-17°50.0	-17°43.8	+5.6	60.7
ma 9	80°39.3	95°03.3	109°27.3	123°51.4	138°15.4	152°39.6	167°03.7	181°27.9	195°52.1	210°16.4	224°40.7	+24.1	16.7
	-15°55.3	-15°47.1	-15°38.8	-15°30.3	-15°21.8	-15°13.1	-15°04.3	-14°55.4	-14°46.4	-14°37.3	-14°28.1	+8.7	61.2
di 10	80°50.0	95°15.0	109°40.0	124°05.1	138°30.2	152°55.3	167°20.5	181°45.8	196°11.1	210°36.4	225°01.8	+25.2	16.7
	-11°57.9	-11°47.1	-11°36.3	-11°25.4	-11°14.4	-11°03.4	-10°52.2	-10°41.0	-10°29.7	-10°18.4	-10°07.0	+11.1	61.4
● wo 11	81°28.6	95°54.8	110°21.0	124°47.3	139°13.6	153°39.9	168°06.3	182°32.8	196°59.3	211°25.8	225°52.4	+26.4	16.7
	-7°08.6	-6°56.3	-6°43.9	-6°31.6	-6°19.2	-6°06.7	-5°54.2	-5°41.7	-5°29.2	-5°16.6	-5°04.1	+12.5	61.2
do 12	82°36.6	97°03.8	111°31.2	125°58.5	140°25.9	154°53.3	169°20.8	183°48.3	198°15.9	212°43.4	227°11.1	+27.5	16.5
	-1°53.2	-1°40.4	-1°27.6	-1°14.9	-1°02.1	-0°49.3	-0°36.6	-0°23.8	-0°11.1	0°01.7	0°14.4	+12.8	60.6
vr 13	84°09.3	98°37.4	113°05.5	127°33.7	142°01.9	156°30.1	170°58.4	185°26.7	199°55.0	214°23.3	228°51.6	+28.2	16.3
	3°22.5	3°34.8	3°47.1	3°59.3	4°11.5	4°23.6	4°35.7	4°47.8	4°59.8	5°11.8	5°23.7	+12.1	59.8
za 14	85°59.4	100°28.1	114°56.8	129°25.4	143°54.2	158°22.9	172°51.6	187°20.4	201°49.2	216°18.0	230°46.8	+28.7	16.0
	8°16.3	8°27.3	8°38.3	8°49.2	9°00.0	9°10.8	9°21.5	9°32.1	9°42.7	9°53.1	10°03.6	+10.7	58.8
zo 15	88°00.2	102°29.1	116°58.1	131°27.1	145°56.1	160°25.1	174°54.1	189°23.2	203°52.2	218°21.3	232°50.3	+29.0	15.8
	12°30.8	12°40.0	12°49.1	12°58.1	13°07.0	13°15.8	13°24.6	13°33.3	13°41.9	13°50.3	13°58.8	+8.8	57.8
ma 16	90°07.0	104°36.2	119°05.4	133°34.5	148°03.7	162°32.9	177°02.1	191°31.4	206°00.6	220°29.8	234°59.1	+29.2	15.5
	15°54.0	16°00.9	16°07.8	16°14.5	16°21.2	16°27.7	16°34.2	16°40.6	16°46.8	16°53.0	16°59.1	+6.5	56.8
di 17	104°36.2	119°05.4	133°34.5	148°03.7	162°32.9	177°02.1	191°31.4	206°00.6	220°29.8	234°59.1	249°28.3	+29.2	15.5
	16°00.9	16°07.8	16°14.5	16°21.2	16°27.7	16°34.2	16°40.6	16°46.8	16°53.0	16°59.1	17°05.0	+6.4	56.8
◐ wo 18	106°48.1	121°17.5	135°46.9	150°16.3	164°45.8	179°15.2	193°44.7	208°14.1	222°43.6	237°13.1	251°42.6	+29.5	15.3
	18°22.8	18°27.2	18°31.5	18°35.7	18°39.7	18°43.7	18°47.6	18°51.4	18°55.1	18°58.6	19°02.1	+3.9	55.9
do 19	109°07.0	123°36.7	138°06.5	152°36.3	167°06.1	181°35.9	196°05.8	210°35.7	225°05.5	239°35.5	254°05.4	+29.8	15.1
	19°42.2	19°44.0	19°45.8	19°47.5	19°49.0	19°50.5	19°51.8	19°53.1	19°54.3	19°55.3	19°56.3	+1.4	55.2
vr 20	111°37.0	126°07.3	140°37.7	155°08.0	169°38.4	184°08.8	198°39.2	213°09.7	227°40.2	242°10.7	256°41.3	+30.4	14.9
	19°58.9	19°58.3	19°57.6	19°56.8	19°55.9	19°55.0	19°53.9	19°52.7	19°51.4	19°50.1	19°48.6	-1.0	54.6
za 21	114°23.0	128°54.0	143°25.1	157°56.2	172°27.3	186°58.5	201°29.6	216°00.9	230°32.1	245°03.4	259°34.7	+31.2	14.8
	19°15.8	19°12.9	19°09.9	19°06.8	19°03.6	19°00.3	18°57.0	18°53.6	18°50.1	18°46.5	18°42.8	-3.3	54.3
zo 22	117°28.5	132°00.4	146°32.3	161°04.2	175°36.2	190°08.2	204°40.2	219°12.3	233°44.4	248°16.5	262°48.7	+32.0	14.7
	17°37.7	17°32.7	17°27.6	17°22.5	17°17.3	17°12.0	17°06.6	17°01.2	16°55.7	16°50.1	16°44.5	-5.3	54.0
ma 23	120°55.1	135°27.8	150°00.5	164°33.2	179°06.0	193°38.8	208°11.7	222°44.6	237°17.5	251°50.4	266°23.4	+32.8	14.7
	15°11.2	15°04.5	14°57.7	14°50.8	14°43.9	14°36.8	14°29.8	14°22.6	14°15.5	14°08.2	14°00.9	-7.0	53.9
di 24	124°41.2	139°14.6	153°48.1	168°21.5	182°55.0	197°28.5	212°02.0	226°35.6	241°09.1	255°42.7	270°16.3	+33.5	14.7
	12°04.4	11°56.2	11°47.9	11°39.6	11°31.3	11°22.9	11°14.4	11°05.9	10°57.4	10°48.8	10°40.2	-8.4	53.9
wo 25	128°42.9	143°16.9	157°50.8	172°24.7	186°58.7	201°32.6	216°06.6	230°40.6	245°14.6	259°48.6	274°22.7	+34.0	14.7
	8°25.6	8°16.3	8°07.0	7°57.6	7°48.2	7°38.8	7°29.3	7°19.8	7°10.3	7°00.8	6°51.2	-9.4	54.1
○ do 26	132°54.0	147°28.2	162°02.3	176°36.4	191°10.6	205°44.7	220°18.8	234°53.0	249°27.1	264°01.2	278°35.4	+34.1	14.8
	4°24.1	4°14.1	4°04.1	3°54.0	3°44.0	3°33.9	3°23.8	3°13.7	3°03.6	2°53.4	2°43.3	-10.1	54.3
vr 27	137°06.6	151°40.6	166°14.6	180°48.6	195°22.5	209°56.5	224°30.4	239°04.4	253°38.3	268°12.2	282°46.0	+33.9	14.9
	0°09.5	-0°00.8	-0°11.1	-0°21.4	-0°31.8	-0°42.1	-0°52.4	-1°02.7	-1°13.1	-1°23.4	-1°33.7	-10.3	54.6
za 28	141°11.6	155°45.1	170°18.6	184°52.1	199°25.5	213°58.9	228°32.3	243°05.6	257°38.9	272°12.2	286°45.4	+33.4	15.0
	-4°07.9	-4°18.2	-4°28.3	-4°38.5	-4°48.7	-4°58.8	-5°09.0	-5°19.1	-5°29.2	-5°39.3	-5°49.3	-10.1	54.9
zo 29	144°59.6	159°32.2	174°04.8	188°37.4	203°09.9	217°42.3	232°14.7	246°47.1	261°19.4	275°51.7	290°23.9	+32.4	15.1
	-8°17.4	-8°27.1	-8°36.7	-8°46.3	-8°55.8	-9°05.4	-9°14.8	-9°24.3	-9°33.7	-9°43.1	-9°52.4	-9.5	55.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

LK: 4 13h48 — NM: 11 06h24 — EK: 18 03h29 — VM: 26 07h43

ZON

Maart 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	176°55.5	191°55.6	206°55.8	221°55.9	236°56.0	251°56.1	86°57.8	101°57.9	116°58.0	131°58.1	146°58.3	161°58.4	+0.1
	-7°27.2	-7°26.3	-7°25.3	-7°24.4	-7°23.4	-7°22.5	-7°10.1	-7°09.1	-7°08.2	-7°07.2	-7°06.3	-7°05.3	+1.0
di 2	176°58.5	191°58.6	206°58.8	221°58.9	236°59.0	251°59.2	87°00.8	102°01.0	117°01.1	132°01.2	147°01.4	162°01.5	+0.1
	-7°04.3	-7°03.4	-7°02.4	-7°01.5	-7°00.5	-6°59.6	-6°47.1	-6°46.2	-6°45.2	-6°44.2	-6°43.3	-6°42.3	+1.0
wo 3	177°01.6	192°01.8	207°01.9	222°02.0	237°02.2	252°02.3	87°04.1	102°04.2	117°04.3	132°04.5	147°04.6	162°04.7	+0.1
	-6°41.4	-6°40.4	-6°39.4	-6°38.5	-6°37.5	-6°36.6	-6°24.1	-6°23.1	-6°22.1	-6°21.2	-6°20.2	-6°19.2	+1.0
do 4	177°04.9	192°05.0	207°05.1	222°05.3	237°05.4	252°05.6	87°07.4	102°07.5	117°07.7	132°07.8	147°07.9	162°08.1	+0.1
	-6°18.3	-6°17.3	-6°16.4	-6°15.4	-6°14.4	-6°13.5	-6°00.9	-5°59.9	-5°59.0	-5°58.0	-5°57.0	-5°56.1	+1.0
vr 5	177°08.2	192°08.4	207°08.5	222°08.6	237°08.8	252°08.9	87°10.8	102°10.9	117°11.1	132°11.2	147°11.4	162°11.5	+0.1
	-5°55.1	-5°54.1	-5°53.2	-5°52.2	-5°51.2	-5°50.3	-5°37.7	-5°36.7	-5°35.7	-5°34.8	-5°33.8	-5°32.8	+1.0
za 6	177°11.7	192°11.8	207°11.9	222°12.1	237°12.2	252°12.4	87°14.3	102°14.5	117°14.6	132°14.7	147°14.9	162°15.0	+0.1
	-5°31.9	-5°30.9	-5°29.9	-5°28.9	-5°28.0	-5°27.0	-5°14.4	-5°13.4	-5°12.4	-5°11.4	-5°10.5	-5°09.5	+1.0
zo 7	177°15.2	192°15.3	207°15.5	222°15.6	237°15.8	252°15.9	87°17.9	102°18.1	117°18.2	132°18.4	147°18.5	162°18.7	+0.1
	-5°08.5	-5°07.5	-5°06.6	-5°05.6	-5°04.6	-5°03.7	-4°51.0	-4°50.0	-4°49.0	-4°48.1	-4°47.1	-4°46.1	+1.0
ma 8	177°18.8	192°19.0	207°19.1	222°19.3	237°19.4	252°19.6	87°21.6	102°21.8	117°21.9	132°22.1	147°22.2	162°22.4	+0.2
	-4°45.1	-4°44.1	-4°43.2	-4°42.2	-4°41.2	-4°40.2	-4°27.5	-4°26.6	-4°25.6	-4°24.6	-4°23.6	-4°22.6	+1.0
di 9	177°22.5	192°22.7	207°22.9	222°23.0	237°23.2	252°23.3	87°25.4	102°25.6	117°25.7	132°25.9	147°26.0	162°26.2	+0.2
	-4°21.7	-4°20.7	-4°19.7	-4°18.7	-4°17.7	-4°16.8	-4°04.0	-4°03.0	-4°02.1	-4°01.1	-4°00.1	-3°59.1	+1.0
wo 10	177°26.3	192°26.5	207°26.7	222°26.8	237°27.0	252°27.2	87°29.3	102°29.4	117°29.6	132°29.7	147°29.9	162°30.1	+0.2
	-3°58.1	-3°57.2	-3°56.2	-3°55.2	-3°54.2	-3°53.2	-3°40.5	-3°39.5	-3°38.5	-3°37.5	-3°36.5	-3°35.6	+1.0
do 11	177°30.2	192°30.4	207°30.6	222°30.7	237°30.9	252°31.1	87°33.2	102°33.4	117°33.5	132°33.7	147°33.9	162°34.0	+0.2
	-3°34.6	-3°33.6	-3°32.6	-3°31.6	-3°30.6	-3°29.7	-3°16.9	-3°15.9	-3°14.9	-3°13.9	-3°12.9	-3°12.0	+1.0
vr 12	177°34.2	192°34.4	207°34.5	222°34.7	237°34.9	252°35.0	87°37.2	102°37.4	117°37.5	132°37.7	147°37.9	162°38.1	+0.2
	-3°11.0	-3°10.0	-3°09.0	-3°08.0	-3°07.0	-3°06.0	-2°53.2	-2°52.3	-2°51.3	-2°50.3	-2°49.3	-2°48.3	+1.0
za 13	177°38.2	192°38.4	207°38.6	222°38.7	237°38.9	252°39.1	87°41.3	102°41.5	117°41.6	132°41.8	147°42.0	162°42.1	+0.2
	-2°47.3	-2°46.3	-2°45.4	-2°44.4	-2°43.4	-2°42.4	-2°29.6	-2°28.6	-2°27.6	-2°26.6	-2°25.6	-2°24.6	+1.0
zo 14	177°42.3	192°42.5	207°42.7	222°42.8	237°43.0	252°43.2	87°45.4	102°45.6	117°45.8	132°46.0	147°46.1	162°46.3	+0.2
	-2°23.7	-2°22.7	-2°21.7	-2°20.7	-2°19.7	-2°18.7	-2°05.9	-2°04.9	-2°03.9	-2°02.9	-2°01.9	-2°00.9	+1.0
ma 15	177°46.5	192°46.7	207°46.8	222°47.0	237°47.2	252°47.4	87°49.6	102°49.8	117°50.0	132°50.2	147°50.4	162°50.5	+0.2
	-2°00.0	-1°59.0	-1°58.0	-1°57.0	-1°56.0	-1°55.0	-1°42.2	-1°41.2	-1°40.2	-1°39.2	-1°38.2	-1°37.2	+1.0
di 16	177°50.7	192°50.9	207°51.1	222°51.2	237°51.4	252°51.6	87°53.9	102°54.1	117°54.3	132°54.4	147°54.6	162°54.8	+0.2
	-1°36.2	-1°35.3	-1°34.3	-1°33.3	-1°32.3	-1°31.3	-1°18.5	-1°17.5	-1°16.5	-1°15.5	-1°14.5	-1°13.5	+1.0
wo 17	177°55.0	192°55.2	207°55.3	222°55.5	237°55.7	252°55.9	87°58.2	102°58.4	117°58.6	132°58.8	147°59.0	162°59.1	+0.2
	-1°12.5	-1°11.5	-1°10.5	-1°09.6	-1°08.6	-1°07.6	-0°54.7	-0°53.7	-0°52.7	-0°51.8	-0°50.8	-0°49.8	+1.0
do 18	177°59.3	192°59.5	207°59.7	222°59.9	238°00.0	253°00.2	88°02.6	103°02.8	118°03.0	133°03.1	148°03.3	163°03.5	+0.2
	-0°48.8	-0°47.8	-0°46.8	-0°45.8	-0°44.8	-0°43.8	-0°31.0	-0°30.0	-0°29.0	-0°28.0	-0°27.0	-0°26.1	+1.0
vr 19	178°03.7	193°03.9	208°04.1	223°04.2	238°04.4	253°04.6	88°07.0	103°07.2	118°07.4	133°07.6	148°07.7	163°07.9	+0.2
	-0°25.1	-0°24.1	-0°23.1	-0°22.1	-0°21.1	-0°20.1	-0°07.3	-0°06.3	-0°05.3	-0°04.3	-0°03.3	-0°02.3	+1.0
za 20	178°08.1	193°08.3	208°08.5	223°08.7	238°08.8	253°09.0	88°11.4	103°11.6	118°11.8	133°12.0	148°12.2	163°12.4	+0.2
	-0°01.4	-0°00.4	0°00.6	0°01.6	0°02.6	0°03.6	0°16.4	0°17.4	0°18.4	0°19.4	0°20.4	0°21.4	+1.0
zo 21	178°12.6	193°12.7	208°12.9	223°13.1	238°13.3	253°13.5	88°15.9	103°16.1	118°16.3	133°16.5	148°16.7	163°16.8	+0.2
	0°22.3	0°23.3	0°24.3	0°25.3	0°26.3	0°27.3	0°40.1	0°41.1	0°42.1	0°43.1	0°44.1	0°45.0	+1.0
ma 22	178°17.0	193°17.2	208°17.4	223°17.6	238°17.8	253°18.0	88°20.4	103°20.6	118°20.8	133°21.0	148°21.2	163°21.4	+0.2
	0°46.0	0°47.0	0°48.0	0°49.0	0°50.0	0°51.0	1°03.8	1°04.8	1°05.7	1°06.7	1°07.7	1°08.7	+1.0
di 23	178°21.5	193°21.7	208°21.9	223°22.1	238°22.3	253°22.5	88°24.9	103°25.1	118°25.3	133°25.5	148°25.7	163°25.9	+0.2
	1°09.7	1°10.7	1°11.7	1°12.6	1°13.6	1°14.6	1°27.4	1°28.4	1°29.4	1°30.4	1°31.3	1°32.3	+1.0
wo 24	178°26.1	193°26.3	208°26.4	223°26.6	238°26.8	253°27.0	88°29.5	103°29.7	118°29.8	133°30.0	148°30.2	163°30.4	+0.2
	1°33.3	1°34.3	1°35.3	1°36.3	1°37.2	1°38.2	1°51.0	1°52.0	1°53.0	1°53.9	1°54.9	1°55.9	+1.0
do 25	178°30.6	193°30.8	208°31.0	223°31.2	238°31.4	253°31.5	88°34.0	103°34.2	118°34.4	133°34.6	148°34.8	163°35.0	+0.2
	1°56.9	1°57.9	1°58.9	1°59.8	2°00.8	2°01.8	2°14.6	2°15.5	2°16.5	2°17.5	2°18.5	2°19.5	+1.0
vr 26	178°35.1	193°35.3	208°35.5	223°35.7	238°35.9	253°36.1	88°38.6	103°38.7	118°38.9	133°39.1	148°39.3	163°39.5	+0.2
	2°20.4	2°21.4	2°22.4	2°23.4	2°24.4	2°25.3	2°38.1	2°39.0	2°40.0	2°41.0	2°42.0	2°42.9	+1.0
za 27	178°39.7	193°39.9	208°40.1	223°40.3	238°40.4	253°40.6	88°43.1	103°43.3	118°43.5	133°43.7	148°43.9	163°44.0	+0.2
	2°43.9	2°44.9	2°45.9	2°46.9	2°47.8	2°48.8	3°01.5	3°02.5	3°03.5	3°04.4	3°05.4	3°06.4	+1.0
zo 28	178°44.2	193°44.4	208°44.6	223°44.8	238°45.0	253°45.2	88°47.6	103°47.8	118°48.0	133°48.2	148°48.4	163°48.6	+0.2
	3°07.4	3°08.3	3°09.3	3°10.3	3°11.3	3°12.2	3°24.9	3°25.9	3°26.9	3°27.8	3°28.8	3°29.8	+1.0
ma 29	178°48.8	193°49.0	208°49.1	223°49.3	238°49.5	253°49.7	88°52.2	103°52.3	118°52.5	133°52.7	148°52.9	163°53.1	+0.2
	3°30.7	3°31.7	3°32.7	3°33.7	3°34.6	3°35.6	3°48.2	3°49.2	3°50.2	3°51.1	3°52.1	3°53.1	+1.0
di 30	178°53.3	193°53.5	208°53.7	223°53.8	238°54.0	253°54.2	88°56.7	103°56.8	118°57.0	133°57.2	148°57.4	163°57.6	+0.2
	3°54.1	3°55.0	3°56.0	3°57.0	3°57.9	3°58.9	4°11.5	4°12.5	4°13.4	4°14.4	4°15.4	4°16.3	+1.0
wo 31	178°57.8	193°58.0	208°58.2	223°58.3	238°58.5	253°58.7	89°01.1	104°01.3	119°01.5	134°01.7	149°01.9	164°02.1	+0.2
	4°17.3	4°18.3	4°19.2	4°20.2	4°21.2	4°22.1	4°34.7	4°35.6	4°36.6	4°37.6	4°38.5	4°39.5	+1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2032

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
ma 1	61°11.6	75°43.3	90°15.0	104°46.6	119°18.2	133°49.7	148°21.1	162°52.5	177°23.8	191°55.1	206°26.3	+31.5	15.2
	-11°14.5	-11°23.4	-11°32.3	-11°41.1	-11°49.8	-11°58.5	-12°07.2	-12°15.8	-12°24.4	-12°32.9	-12°41.3	-8.7	55.8
di 2	64°07.5	78°37.8	93°08.0	107°38.1	122°08.2	136°38.2	151°08.1	165°38.0	180°07.8	194°37.6	209°07.3	+30.0	15.4
	-14°40.9	-14°48.3	-14°55.7	-15°03.1	-15°10.3	-15°17.5	-15°24.6	-15°31.6	-15°38.6	-15°45.5	-15°52.3	-7.1	56.4
wo 3	66°24.8	80°53.4	95°22.0	109°50.5	124°18.9	138°47.3	153°15.6	167°43.9	182°12.1	196°40.2	211°08.3	+28.4	15.6
	-17°24.7	-17°30.2	-17°35.5	-17°40.8	-17°46.0	-17°51.1	-17°56.1	-18°01.1	-18°05.9	-18°10.6	-18°15.2	-5.1	57.1
do 4	68°01.8	82°28.9	96°55.9	111°22.9	125°49.8	140°16.7	154°43.5	169°10.2	183°36.9	198°03.6	212°30.2	+26.8	15.8
	-19°12.4	-19°15.3	-19°18.2	-19°20.9	-19°23.6	-19°26.1	-19°28.5	-19°30.8	-19°32.9	-19°35.0	-19°36.9	-2.5	57.8
◑ vr 5	69°03.2	83°29.1	97°54.9	112°20.7	126°46.4	141°12.1	155°37.8	170°03.4	184°29.0	198°54.6	213°20.1	+25.7	16.0
	-19°51.7	-19°51.7	-19°51.6	-19°51.4	-19°51.0	-19°50.5	-19°49.9	-19°49.1	-19°48.3	-19°47.3	-19°46.1	+0.6	58.6
za 6	69°40.0	84°05.1	98°30.3	112°55.4	127°20.5	141°45.6	156°10.7	170°35.8	185°00.9	199°26.0	213°51.0	+25.1	16.2
	-19°13.8	-19°10.7	-19°07.3	-19°03.9	-19°00.3	-18°56.6	-18°52.8	-18°48.8	-18°44.8	-18°40.5	-18°36.2	+3.8	59.3
zo 7	70°06.7	84°31.8	98°56.9	113°22.0	127°47.1	142°12.2	156°37.3	171°02.5	185°27.6	199°52.8	214°18.0	+25.1	16.4
	-17°16.0	-17°09.7	-17°03.2	-16°56.6	-16°49.9	-16°43.1	-16°36.2	-16°29.2	-16°22.0	-16°14.7	-16°07.3	+6.9	60.0
ma 8	70°37.8	85°03.3	99°28.8	113°54.4	128°19.9	142°45.5	157°11.2	171°36.8	186°02.5	200°28.2	214°53.9	+25.6	16.5
	-14°03.3	-13°54.2	-13°45.0	-13°35.7	-13°26.3	-13°16.8	-13°07.2	-12°57.5	-12°47.7	-12°37.9	-12°27.9	+9.5	60.5
di 9	71°23.1	85°49.3	100°15.5	114°41.7	129°08.0	143°34.3	158°00.6	172°26.9	186°53.3	201°19.7	215°46.2	+26.3	16.6
	-9°48.9	-9°37.7	-9°26.4	-9°15.1	-9°03.7	-8°52.2	-8°40.7	-8°29.1	-8°17.5	-8°05.8	-7°54.1	+11.5	60.8
wo 10	72°26.1	86°53.0	101°19.9	115°46.8	130°13.8	144°40.8	159°07.8	173°34.8	188°01.9	202°28.9	216°56.0	+27.0	16.6
	-4°52.5	-4°40.1	-4°27.7	-4°15.2	-4°02.8	-3°50.3	-3°37.7	-3°25.2	-3°12.6	-3°00.1	-2°47.5	+12.5	60.8
● do 11	73°45.1	88°12.6	102°40.0	117°07.5	131°35.0	146°02.5	160°30.0	174°57.5	189°25.0	203°52.6	218°20.2	+27.5	16.5
	0°22.2	0°34.8	0°47.4	1°00.0	1°12.6	1°25.1	1°37.7	1°50.2	2°02.7	2°15.2	2°27.7	+12.6	60.5
vr 12	75°15.4	89°43.2	104°11.0	118°38.8	133°06.6	147°34.4	162°02.2	176°30.0	190°57.9	205°25.7	219°53.6	+27.8	16.3
	5°30.9	5°42.8	5°54.7	6°06.5	6°18.2	6°30.0	6°41.6	6°53.2	7°04.8	7°16.3	7°27.7	+11.7	59.8
za 13	76°52.2	91°20.1	105°48.1	120°16.0	134°44.0	149°12.0	163°40.0	178°07.9	192°35.9	207°03.9	221°31.9	+28.0	16.1
	10°11.7	10°22.1	10°32.4	10°42.7	10°52.8	11°02.9	11°12.9	11°22.8	11°32.7	11°42.4	11°52.1	+10.0	59.0
zo 14	78°32.6	93°00.7	107°28.7	121°56.8	136°25.0	150°53.1	165°21.2	179°49.3	194°17.5	208°45.6	223°13.8	+28.1	15.8
	14°07.0	14°15.2	14°23.4	14°31.5	14°39.5	14°47.4	14°55.2	15°02.9	15°10.5	15°18.0	15°25.4	+7.8	58.1
ma 15	80°17.2	94°45.5	109°13.8	123°42.1	138°10.5	152°38.9	167°07.2	181°35.6	196°04.1	210°32.5	225°00.9	+28.4	15.6
	17°04.4	17°10.2	17°15.9	17°21.5	17°26.9	17°32.3	17°37.6	17°42.7	17°47.8	17°52.7	17°57.6	+5.3	57.1
di 16	82°09.7	96°38.5	111°07.2	125°36.0	140°04.9	154°33.7	169°02.6	183°31.5	198°00.4	212°29.3	226°58.3	+28.9	15.3
	18°57.5	19°00.7	19°03.7	19°06.6	19°09.5	19°12.2	19°14.8	19°17.3	19°19.7	19°22.0	19°24.2	+2.7	56.2
wo 17	84°16.1	98°45.5	113°15.0	127°44.5	142°14.0	156°43.6	171°13.2	185°42.8	200°12.5	214°42.2	229°11.9	+29.6	15.1
	19°44.7	19°45.3	19°45.7	19°46.0	19°46.3	19°46.4	19°46.5	19°46.4	19°46.2	19°46.0	19°45.6	+0.1	55.4
◐ do 18	98°45.5	113°15.0	127°44.5	142°14.0	156°43.6	171°13.2	185°42.8	200°12.5	214°42.2	229°11.9	243°41.7	+29.6	15.1
	19°45.3	19°45.7	19°46.0	19°46.3	19°46.4	19°46.5	19°46.4	19°46.2	19°46.0	19°45.6	19°45.2	-0.0	55.4
vr 19	101°12.6	115°42.9	130°13.3	144°43.8	159°14.2	173°44.8	188°15.3	202°45.9	217°16.5	231°47.2	246°17.9	+30.5	14.9
	19°26.7	19°24.7	19°22.6	19°20.5	19°18.2	19°15.8	19°13.4	19°10.9	19°08.2	19°05.5	19°02.7	-2.4	54.8
za 20	104°03.5	118°34.9	133°06.3	147°37.8	162°09.2	176°40.8	191°12.3	205°43.9	220°15.6	234°47.3	249°19.0	+31.5	14.8
	18°10.3	18°06.2	18°01.9	17°57.6	17°53.2	17°48.7	17°44.2	17°39.6	17°34.8	17°30.0	17°25.2	-4.5	54.3
zo 21	107°19.5	121°51.9	136°24.2	150°56.7	165°29.1	180°01.6	194°34.1	209°06.7	223°39.2	238°11.9	252°44.5	+32.5	14.8
	16°03.3	15°57.2	15°51.1	15°45.0	15°38.7	15°32.4	15°26.1	15°19.6	15°13.1	15°06.6	14°59.9	-6.3	54.1
ma 22	110°58.3	125°31.5	140°04.7	154°37.9	169°11.2	183°44.5	198°17.8	212°51.1	227°24.4	241°57.8	256°31.2	+33.3	14.7
	13°13.2	13°05.6	12°58.0	12°50.3	12°42.5	12°34.7	12°26.9	12°19.0	12°11.0	12°03.0	11°54.9	-7.8	54.0
di 23	114°55.1	129°28.8	144°02.6	158°36.4	173°10.2	187°44.0	202°17.8	216°51.6	231°25.5	245°59.4	260°33.3	+33.8	14.8
	9°48.3	9°39.5	9°30.6	9°21.7	9°12.8	9°03.8	8°54.8	8°45.8	8°36.7	8°27.6	8°18.4	-9.0	54.1
wo 24	119°02.7	133°36.7	148°10.7	162°44.7	177°18.8	191°52.8	206°26.8	221°00.9	235°34.9	250°08.9	264°42.9	+34.0	14.8
	5°56.9	5°47.2	5°37.5	5°27.7	5°18.0	5°08.2	4°58.4	4°48.5	4°38.7	4°28.8	4°18.9	-9.8	54.3
do 25	123°12.8	137°46.7	152°20.6	166°54.5	181°28.4	196°02.3	210°36.2	225°10.0	239°43.9	254°17.7	268°51.5	+33.9	14.9
	1°47.9	1°37.7	1°27.5	1°17.2	1°07.0	0°56.8	0°46.5	0°36.3	0°26.0	0°15.7	0°05.4	-10.2	54.6
vr 26	127°16.2	141°49.7	156°23.1	170°56.5	185°29.9	200°03.2	214°36.6	229°09.9	243°43.1	258°16.4	272°49.6	+33.3	15.0
	-2°29.1	-2°39.4	-2°49.7	-3°00.0	-3°10.3	-3°20.5	-3°30.8	-3°41.0	-3°51.3	-4°01.5	-4°11.7	-10.3	55.0
○ za 27	131°03.5	145°36.1	160°08.7	174°41.3	189°13.8	203°46.3	218°18.7	232°51.1	247°23.4	261°55.7	276°27.9	+32.4	15.1
	-6°43.2	-6°53.2	-7°03.1	-7°13.0	-7°22.8	-7°32.7	-7°42.5	-7°52.2	-8°02.0	-8°11.7	-8°21.4	-9.8	55.5
zo 28	134°25.9	148°57.4	163°28.8	178°00.2	192°31.5	207°02.8	221°34.0	236°05.1	250°36.2	265°07.3	279°38.2	+31.2	15.3
	-10°42.4	-10°51.5	-11°00.5	-11°09.5	-11°18.4	-11°27.3	-11°36.1	-11°44.9	-11°53.6	-12°02.3	-12°10.9	-8.9	56.0
ma 29	137°16.3	151°46.4	166°16.4	180°46.4	195°16.3	209°46.2	224°15.9	238°45.7	253°15.4	267°45.0	282°14.5	+29.8	15.4
	-14°13.3	-14°20.9	-14°28.5	-14°36.0	-14°43.5	-14°50.9	-14°58.2	-15°05.4	-15°12.5	-15°19.6	-15°26.6	-7.3	56.5
di 30	139°30.8	153°59.4	168°28.0	182°56.5	197°25.0	211°53.4	226°21.7	240°50.0	255°18.2	269°46.4	284°14.6	+28.4	15.5
	-17°02.0	-17°07.6	-17°13.2	-17°18.7	-17°24.1	-17°29.4	-17°34.6	-17°39.7	-17°44.8	-17°49.7	-17°54.5	-5.3	57.0
wo 31	141°10.2	155°37.6	170°04.8	184°32.1	198°59.3	213°26.4	227°53.5	242°20.6	256°47.6	271°14.6	285°41.5	+27.1	15.7
	-18°54.9	-18°58.0	-19°01.1	-19°04.1	-19°06.9	-19°09.7	-19°12.3	-19°14.8	-19°17.3	-19°19.5	-19°21.7	-2.7	57.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 5 01h47 — NM: 11 16h24 — EK: 18 20h56 — VM: 27 00h46

ZON

April 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	179°02.2	194°02.4	209°02.6	224°02.8	239°03.0	254°03.2	89°05.6	104°05.8	119°05.9	134°06.1	149°06.3	164°06.5	+0.2
	4°40.5	4°41.4	4°42.4	4°43.4	4°44.3	4°45.3	4°57.8	4°58.7	4°59.7	5°00.7	5°01.6	5°02.6	+1.0
vr 2	179°06.7	194°06.9	209°07.0	224°07.2	239°07.4	254°07.6	89°10.0	104°10.2	119°10.3	134°10.5	149°10.7	164°10.9	+0.2
	5°03.5	5°04.5	5°05.5	5°06.4	5°07.4	5°08.3	5°20.8	5°21.8	5°22.7	5°23.7	5°24.6	5°25.6	+1.0
za 3	179°11.1	194°11.3	209°11.4	224°11.6	239°11.8	254°12.0	89°14.3	104°14.5	119°14.7	134°14.9	149°15.1	164°15.2	+0.2
	5°26.5	5°27.5	5°28.5	5°29.4	5°30.4	5°31.3	5°43.7	5°44.7	5°45.6	5°46.6	5°47.5	5°48.5	+1.0
zo 4	179°15.4	194°15.6	209°15.8	224°16.0	239°16.2	254°16.3	89°18.7	104°18.8	119°19.0	134°19.2	149°19.4	164°19.6	+0.2
	5°49.4	5°50.4	5°51.3	5°52.3	5°53.2	5°54.2	6°06.6	6°07.5	6°08.4	6°09.4	6°10.3	6°11.3	+1.0
ma 5	179°19.7	194°19.9	209°20.1	224°20.3	239°20.4	254°20.6	89°22.9	104°23.1	119°23.3	134°23.5	149°23.6	164°23.8	+0.2
	6°12.2	6°13.2	6°14.1	6°15.1	6°16.0	6°17.0	6°29.3	6°30.2	6°31.2	6°32.1	6°33.0	6°34.0	+0.9
di 6	179°24.0	194°24.2	209°24.3	224°24.5	239°24.7	254°24.9	89°27.1	104°27.3	119°27.5	134°27.7	149°27.8	164°28.0	+0.2
	6°34.9	6°35.9	6°36.8	6°37.8	6°38.7	6°39.7	6°51.9	6°52.8	6°53.8	6°54.7	6°55.6	6°56.6	+0.9
wo 7	179°28.2	194°28.4	209°28.5	224°28.7	239°28.9	254°29.1	89°31.3	104°31.5	119°31.6	134°31.8	149°32.0	164°32.2	+0.2
	6°57.5	6°58.5	6°59.4	7°00.3	7°01.3	7°02.2	7°14.4	7°15.3	7°16.2	7°17.2	7°18.1	7°19.0	+0.9
do 8	179°32.3	194°32.5	209°32.7	224°32.8	239°33.0	254°33.2	89°35.4	104°35.6	119°35.7	134°35.9	149°36.1	164°36.2	+0.2
	7°20.0	7°20.9	7°21.8	7°22.8	7°23.7	7°24.6	7°36.8	7°37.7	7°38.6	7°39.5	7°40.5	7°41.4	+0.9
vr 9	179°36.4	194°36.6	209°36.7	224°36.9	239°37.1	254°37.2	89°39.4	104°39.6	119°39.7	134°39.9	149°40.1	164°40.2	+0.2
	7°42.3	7°43.3	7°44.2	7°45.1	7°46.0	7°47.0	7°59.0	7°59.9	8°00.8	8°01.8	8°02.7	8°03.6	+0.9
za 10	179°40.4	194°40.6	209°40.7	224°40.9	239°41.1	254°41.2	89°43.4	104°43.5	119°43.7	134°43.9	149°44.0	164°44.2	+0.2
	8°04.5	8°05.5	8°06.4	8°07.3	8°08.2	8°09.1	8°21.1	8°22.0	8°22.9	8°23.9	8°24.8	8°25.7	+0.9
zo 11	179°44.3	194°44.5	209°44.7	224°44.8	239°45.0	254°45.2	89°47.2	104°47.4	119°47.6	134°47.7	149°47.9	164°48.0	+0.2
	8°26.6	8°27.5	8°28.4	8°29.4	8°30.3	8°31.2	8°43.1	8°44.0	8°44.9	8°45.8	8°46.7	8°47.6	+0.9
ma 12	179°48.2	194°48.4	209°48.5	224°48.7	239°48.8	254°49.0	89°51.1	104°51.2	119°51.4	134°51.5	149°51.7	164°51.8	+0.2
	8°48.5	8°49.5	8°50.4	8°51.3	8°52.2	8°53.1	9°04.9	9°05.8	9°06.7	9°07.6	9°08.5	9°09.4	+0.9
di 13	179°52.0	194°52.2	209°52.3	224°52.5	239°52.6	254°52.8	89°54.8	104°54.9	119°55.1	134°55.3	149°55.4	164°55.6	+0.2
	9°10.3	9°11.2	9°12.1	9°13.0	9°13.9	9°14.8	9°26.6	9°27.5	9°28.4	9°29.3	9°30.2	9°31.1	+0.9
wo 14	179°55.7	194°55.9	209°56.0	224°56.2	239°56.3	254°56.5	89°58.4	104°58.6	119°58.7	134°58.9	149°59.0	164°59.2	+0.2
	9°32.0	9°32.9	9°33.8	9°34.7	9°35.6	9°36.4	9°48.1	9°49.0	9°49.9	9°50.8	9°51.7	9°52.5	+0.9
do 15	179°59.3	194°59.5	209°59.6	224°59.8	239°59.9	255°00.1	90°02.0	105°02.2	120°02.3	135°02.4	150°02.6	165°02.7	+0.1
	9°53.4	9°54.3	9°55.2	9°56.1	9°57.0	9°57.9	10°09.4	10°10.3	10°11.2	10°12.1	10°13.0	10°13.9	+0.9
vr 16	180°02.9	195°03.0	210°03.2	225°03.3	240°03.5	255°03.6	90°05.5	105°05.6	120°05.8	135°05.9	150°06.1	165°06.2	+0.1
	10°14.7	10°15.6	10°16.5	10°17.4	10°18.3	10°19.2	10°30.6	10°31.5	10°32.4	10°33.2	10°34.1	10°35.0	+0.9
za 17	180°06.3	195°06.5	210°06.6	225°06.8	240°06.9	255°07.0	90°08.9	105°09.0	120°09.1	135°09.3	150°09.4	165°09.6	+0.1
	10°35.9	10°36.8	10°37.6	10°38.5	10°39.4	10°40.3	10°51.6	10°52.5	10°53.4	10°54.2	10°55.1	10°56.0	+0.9
zo 18	180°09.7	195°09.8	210°10.0	225°10.1	240°10.3	255°10.4	90°12.2	105°12.3	120°12.4	135°12.6	150°12.7	165°12.8	+0.1
	10°56.8	10°57.7	10°58.6	10°59.4	11°00.3	11°01.2	11°12.4	11°13.3	11°14.2	11°15.0	11°15.9	11°16.8	+0.9
ma 19	180°13.0	195°13.1	210°13.2	225°13.4	240°13.5	255°13.6	90°15.4	105°15.5	120°15.6	135°15.7	150°15.9	165°16.0	+0.1
	11°17.6	11°18.5	11°19.3	11°20.2	11°21.1	11°21.9	11°33.1	11°33.9	11°34.8	11°35.6	11°36.5	11°37.4	+0.9
di 20	180°16.1	195°16.3	210°16.4	225°16.5	240°16.7	255°16.8	90°18.4	105°18.6	120°18.7	135°18.8	150°18.9	165°19.1	+0.1
	11°38.2	11°39.1	11°39.9	11°40.8	11°41.6	11°42.5	11°53.5	11°54.4	11°55.2	11°56.1	11°56.9	11°57.8	+0.9
wo 21	180°19.2	195°19.3	210°19.4	225°19.6	240°19.7	255°19.8	90°21.4	105°21.5	120°21.7	135°21.8	150°21.9	165°22.0	+0.1
	11°58.6	11°59.5	12°00.3	12°01.1	12°02.0	12°02.8	12°13.8	12°14.6	12°15.5	12°16.3	12°17.1	12°18.0	+0.8
do 22	180°22.2	195°22.3	210°22.4	225°22.5	240°22.6	255°22.8	90°24.3	105°24.4	120°24.5	135°24.7	150°24.8	165°24.9	+0.1
	12°18.8	12°19.6	12°20.5	12°21.3	12°22.2	12°23.0	12°33.8	12°34.7	12°35.5	12°36.3	12°37.2	12°38.0	+0.8
vr 23	180°25.0	195°25.1	210°25.2	225°25.4	240°25.5	255°25.6	90°27.1	105°27.2	120°27.3	135°27.4	150°27.5	165°27.6	+0.1
	12°38.8	12°39.6	12°40.5	12°41.3	12°42.1	12°43.0	12°53.7	12°54.5	12°55.3	12°56.1	12°57.0	12°57.8	+0.8
za 24	180°27.7	195°27.8	210°28.0	225°28.1	240°28.2	255°28.3	90°29.7	105°29.8	120°29.9	135°30.0	150°30.1	165°30.2	+0.1
	12°58.6	12°59.4	13°00.2	13°01.1	13°01.9	13°02.7	13°13.3	13°14.1	13°14.9	13°15.7	13°16.6	13°17.4	+0.8
zo 25	180°30.4	195°30.5	210°30.6	225°30.7	240°30.8	255°30.9	90°32.2	105°32.3	120°32.4	135°32.5	150°32.6	165°32.7	+0.1
	13°18.2	13°19.0	13°19.8	13°20.6	13°21.4	13°22.2	13°32.7	13°33.5	13°34.3	13°35.1	13°35.9	13°36.7	+0.8
ma 26	180°32.8	195°32.9	210°33.1	225°33.2	240°33.3	255°33.4	90°34.6	105°34.7	120°34.8	135°34.9	150°35.0	165°35.1	+0.1
	13°37.5	13°38.3	13°39.1	13°39.9	13°40.7	13°41.5	13°51.9	13°52.7	13°53.5	13°54.3	13°55.1	13°55.9	+0.8
di 27	180°35.2	195°35.3	210°35.4	225°35.5	240°35.6	255°35.7	90°36.9	105°37.0	120°37.1	135°37.2	150°37.3	165°37.4	+0.1
	13°56.7	13°57.5	13°58.2	13°59.0	13°59.8	14°00.6	14°10.9	14°11.6	14°12.4	14°13.2	14°14.0	14°14.8	+0.8
wo 28	180°37.5	195°37.6	210°37.6	225°37.7	240°37.8	255°37.9	90°39.1	105°39.1	120°39.2	135°39.3	150°39.4	165°39.5	+0.1
	14°15.6	14°16.4	14°17.1	14°17.9	14°18.7	14°19.5	14°29.6	14°30.4	14°31.1	14°31.9	14°32.7	14°33.5	+0.8
do 29	180°39.6	195°39.7	210°39.7	225°39.8	240°39.9	255°40.0	90°41.1	105°41.2	120°41.2	135°41.3	150°41.4	165°41.5	+0.1
	14°34.2	14°35.0	14°35.8	14°36.6	14°37.3	14°38.1	14°48.1	14°48.8	14°49.6	14°50.4	14°51.1	14°51.9	+0.8
vr 30	180°41.6	195°41.6	210°41.7	225°41.8	240°41.9	255°41.9	90°42.9	105°43.0	120°43.1	135°43.2	150°43.2	165°43.3	+0.1
	14°52.7	14°53.4	14°54.2	14°55.0	14°55.7	14°56.5	15°06.3	15°07.1	15°07.8	15°08.6	15°09.3	15°10.1	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2032

D	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
do 1	70°08.8	84°35.3	99°01.9	113°28.3	127°54.8	142°21.2	156°47.6	171°14.0	185°40.3	200°06.7	214°33.0	+26.4	15.8
	-19°37.3	-19°38.2	-19°39.0	-19°39.6	-19°40.2	-19°40.6	-19°40.9	-19°41.1	-19°41.2	-19°41.1	-19°41.0	-0.4	58.0
vr 2	71°05.1	85°31.2	99°57.2	114°23.2	128°49.2	143°15.2	157°41.2	172°07.2	186°33.2	200°59.2	215°25.2	+26.0	15.9
	-19°23.9	-19°21.7	-19°19.5	-19°17.1	-19°14.7	-19°12.1	-19°09.3	-19°06.5	-19°03.5	-19°00.4	-18°57.2	+2.7	58.5
◑ za 3	71°55.3	86°21.4	100°47.5	115°13.5	129°39.6	144°05.8	158°31.9	172°58.0	187°24.2	201°50.3	216°16.5	+26.1	16.1
	-17°54.6	-17°49.4	-17°44.2	-17°38.8	-17°33.4	-17°27.8	-17°22.1	-17°16.3	-17°10.4	-17°04.4	-16°58.2	+5.6	59.0
zo 4	72°51.5	87°18.0	101°44.5	116°11.1	130°37.6	145°04.2	159°30.9	173°57.5	188°24.2	202°50.8	217°17.6	+26.6	16.2
	-15°13.1	-15°05.3	-14°57.4	-14°49.3	-14°41.2	-14°33.0	-14°24.7	-14°16.2	-14°07.7	-13°59.1	-13°50.4	+8.3	59.4
ma 5	74°01.3	88°28.4	102°55.5	117°22.7	131°49.9	146°17.1	160°44.3	175°11.6	189°38.9	204°06.2	218°33.6	+27.2	16.3
	-11°29.6	-11°19.6	-11°09.5	-10°59.3	-10°49.1	-10°38.7	-10°28.3	-10°17.9	-10°07.4	-9°56.8	-9°46.1	+10.4	59.8
di 6	75°26.3	89°54.0	104°21.7	118°49.5	133°17.2	147°45.0	162°12.7	176°40.5	191°08.4	205°36.2	220°04.0	+27.8	16.4
	-6°59.2	-6°47.6	-6°36.1	-6°24.4	-6°12.8	-6°01.1	-5°49.3	-5°37.5	-5°25.7	-5°13.8	-5°02.0	+11.7	60.0
wo 7	77°03.4	91°31.5	105°59.5	120°27.6	134°55.7	149°23.7	163°51.8	178°19.9	192°48.0	207°16.1	221°44.3	+28.1	16.4
	-2°00.6	-1°48.3	-1°36.1	-1°23.8	-1°11.5	-0°59.3	-0°47.0	-0°34.7	-0°22.4	-0°10.2	0°02.1	+12.3	60.0
do 8	78°46.4	93°14.5	107°42.7	122°10.8	136°38.9	151°07.1	165°35.2	180°03.4	194°31.5	208°59.6	223°27.7	+28.1	16.3
	3°05.3	3°17.4	3°29.4	3°41.4	3°53.4	4°05.4	4°17.4	4°29.3	4°41.2	4°53.0	5°04.8	+12.0	59.7
vr 9	80°28.9	94°57.0	109°25.0	123°53.0	138°21.0	152°49.0	167°17.0	181°44.9	196°12.9	210°40.9	225°08.8	+28.0	16.2
	7°57.0	8°08.0	8°19.1	8°30.0	8°41.0	8°51.8	9°02.6	9°13.3	9°24.0	9°34.6	9°45.1	+10.8	59.3
● za 10	82°07.0	96°34.8	111°02.6	125°30.4	139°58.2	154°26.0	168°53.8	183°21.6	197°49.3	212°17.1	226°44.8	+27.8	16.0
	12°14.6	12°23.9	12°33.2	12°42.4	12°51.5	13°00.5	13°09.4	13°18.3	13°27.0	13°35.7	13°44.3	+9.0	58.6
zo 11	83°40.6	98°08.3	112°36.0	127°03.7	141°31.4	155°59.1	170°26.9	184°54.6	199°22.3	213°50.0	228°17.7	+27.7	15.8
	15°41.7	15°48.7	15°55.7	16°02.5	16°09.3	16°15.9	16°22.5	16°28.9	16°35.3	16°41.5	16°47.6	+6.6	57.9
ma 12	85°14.4	99°42.3	114°10.2	128°38.1	143°06.0	157°33.9	172°01.8	186°29.8	200°57.8	215°25.8	229°53.8	+27.9	15.6
	18°06.9	18°11.3	18°15.6	18°19.8	18°23.9	18°27.9	18°31.8	18°35.5	18°39.2	18°42.7	18°46.2	+3.9	57.0
di 13	86°56.7	101°25.1	115°53.6	130°22.0	144°50.5	159°19.1	173°47.6	188°16.2	202°44.8	217°13.5	231°42.2	+28.5	15.3
	19°24.7	19°26.4	19°28.0	19°29.4	19°30.8	19°32.1	19°33.2	19°34.3	19°35.2	19°36.1	19°36.8	+1.2	56.2
wo 14	88°57.0	103°26.4	117°55.7	132°25.1	146°54.5	161°24.0	175°53.5	190°23.1	204°52.7	219°22.4	233°52.1	+29.5	15.1
	19°35.3	19°34.4	19°33.4	19°32.3	19°31.0	19°29.7	19°28.3	19°26.8	19°25.2	19°23.5	19°21.7	-1.4	55.5
do 15	91°23.1	105°53.5	120°24.0	134°54.5	149°25.1	163°55.8	178°26.5	192°57.2	207°28.0	221°58.8	236°29.7	+30.7	15.0
	18°43.5	18°40.2	18°36.9	18°33.4	18°29.9	18°26.3	18°22.6	18°18.8	18°14.9	18°11.0	18°06.9	-3.7	54.9
vr 16	105°53.5	120°24.0	134°54.5	149°25.1	163°55.8	178°26.5	192°57.2	207°28.0	221°58.8	236°29.7	251°00.6	+30.7	15.0
	18°40.2	18°36.9	18°33.4	18°29.9	18°26.3	18°22.6	18°18.8	18°14.9	18°11.0	18°06.9	18°02.8	-3.7	54.9
◐ za 17	108°50.3	123°22.0	137°53.7	152°25.5	166°57.3	181°29.2	196°01.1	210°33.0	225°05.0	239°37.1	254°09.2	+31.9	14.8
	16°51.5	16°46.1	16°40.6	16°35.1	16°29.6	16°23.9	16°18.2	16°12.4	16°06.5	16°00.6	15°54.6	-5.7	54.4
zo 18	112°15.7	126°48.5	141°21.3	155°54.1	170°27.0	184°59.9	199°32.8	214°05.8	228°38.8	243°11.9	257°44.9	+32.9	14.8
	14°16.7	14°09.7	14°02.6	13°55.4	13°48.2	13°41.0	13°33.7	13°26.3	13°18.9	13°11.4	13°03.9	-7.3	54.2
ma 19	116°05.0	130°38.6	145°12.2	159°45.8	174°19.4	188°53.1	203°26.8	218°00.5	232°34.2	247°08.0	261°41.7	+33.7	14.8
	11°04.6	10°56.3	10°47.9	10°39.5	10°31.0	10°22.5	10°13.9	10°05.3	9°56.7	9°48.0	9°39.3	-8.5	54.1
di 20	120°10.4	134°44.4	149°18.5	163°52.5	178°26.6	193°00.6	207°34.7	222°08.7	236°42.8	251°16.9	265°51.0	+34.1	14.8
	7°23.7	7°14.4	7°05.0	6°55.6	6°46.2	6°36.8	6°27.3	6°17.8	6°08.2	5°58.7	5°49.1	-9.5	54.3
wo 21	124°22.4	138°56.4	153°30.5	168°04.5	182°38.6	197°12.6	211°46.6	226°20.6	240°54.6	255°28.6	270°02.6	+34.0	14.9
	3°22.1	3°12.1	3°02.1	2°52.1	2°42.1	2°32.1	2°22.0	2°11.9	2°01.8	1°51.7	1°41.6	-10.1	54.6
do 22	128°30.2	143°03.9	157°37.5	172°11.2	186°44.8	201°18.3	215°51.9	230°25.4	244°58.9	259°32.3	274°05.8	+33.6	15.0
	-0°51.5	-1°01.8	-1°12.0	-1°22.3	-1°32.6	-1°42.9	-1°53.1	-2°03.4	-2°13.7	-2°23.9	-2°34.2	-10.3	55.0
vr 23	132°23.1	146°55.9	161°28.7	176°01.5	190°34.2	205°06.9	219°39.6	234°12.2	248°44.7	263°17.2	277°49.7	+32.7	15.1
	-5°07.5	-5°17.6	-5°27.7	-5°37.8	-5°47.9	-5°58.0	-6°08.1	-6°18.1	-6°28.1	-6°38.1	-6°48.1	-10.1	55.5
za 24	135°50.5	150°22.2	164°53.8	179°25.3	193°56.8	208°28.2	222°59.5	237°30.8	252°02.1	266°33.3	281°04.4	+31.4	15.3
	-9°14.5	-9°24.0	-9°33.5	-9°42.9	-9°52.3	-10°01.7	-10°11.0	-10°20.3	-10°29.5	-10°38.7	-10°47.9	-9.3	56.1
○ zo 25	138°43.9	153°14.1	167°44.1	182°14.1	196°44.1	211°14.0	225°43.8	240°13.5	254°43.2	269°12.8	283°42.4	+29.8	15.5
	-12°59.3	-13°07.6	-13°15.9	-13°24.1	-13°32.2	-13°40.3	-13°48.3	-13°56.2	-14°04.1	-14°11.9	-14°19.7	-8.0	56.7
ma 26	140°58.0	155°26.5	169°55.0	184°23.4	198°51.7	213°20.0	227°48.2	242°16.3	256°44.4	271°12.5	285°40.4	+28.2	15.6
	-16°06.9	-16°13.4	-16°19.8	-16°26.2	-16°32.4	-16°38.6	-16°44.7	-16°50.7	-16°56.6	-17°02.4	-17°08.1	-6.1	57.2
di 27	142°33.0	157°00.1	171°27.1	185°54.1	200°21.0	214°47.9	229°14.7	243°41.5	258°08.3	272°34.9	287°01.6	+26.9	15.8
	-18°22.1	-18°26.2	-18°30.2	-18°34.1	-18°37.9	-18°41.5	-18°45.1	-18°48.6	-18°51.9	-18°55.2	-18°58.3	-3.6	57.8
wo 28	143°36.6	158°02.6	172°28.7	186°54.7	201°20.7	215°46.6	230°12.5	244°38.5	259°04.3	273°30.2	287°56.1	+25.9	15.9
	-19°31.3	-19°32.5	-19°33.7	-19°34.7	-19°35.5	-19°36.3	-19°37.0	-19°37.5	-19°37.9	-19°38.1	-19°38.3	-0.7	58.2
do 29	144°22.3	158°48.0	173°13.7	187°39.4	202°05.1	216°30.8	230°56.5	245°22.2	259°47.9	274°13.6	288°39.3	+25.7	16.0
	-19°25.7	-19°23.9	-19°21.9	-19°19.8	-19°17.6	-19°15.3	-19°12.8	-19°10.2	-19°07.5	-19°04.7	-19°01.8	+2.4	58.6
vr 30	145°06.8	159°32.8	173°58.8	188°24.9	202°50.9	217°17.0	231°43.1	246°09.2	260°35.4	275°01.5	289°27.7	+26.1	16.1
	-18°03.2	-17°58.3	-17°53.4	-17°48.3	-17°43.1	-17°37.8	-17°32.4	-17°26.8	-17°21.2	-17°15.4	-17°09.6	+5.4	58.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

LK: 3 10h10 — NM: 10 02h39 — EK: 17 15h24 — VM: 25 15h09

ZON

Mei 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	180°43.4	195°43.5	210°43.5	225°43.6	240°43.7	255°43.8	90°44.7	105°44.8	120°44.8	135°44.9	150°45.0	165°45.0	+0.1
	15°10.9	15°11.6	15°12.4	15°13.1	15°13.9	15°14.6	15°24.3	15°25.1	15°25.8	15°26.6	15°27.3	15°28.0	+0.8
zo 2	180°45.1	195°45.2	210°45.2	225°45.3	240°45.4	255°45.4	90°46.3	105°46.3	120°46.4	135°46.5	150°46.5	165°46.6	+0.1
	15°28.8	15°29.5	15°30.3	15°31.0	15°31.8	15°32.5	15°42.1	15°42.8	15°43.5	15°44.3	15°45.0	15°45.7	+0.7
ma 3	180°46.7	195°46.7	210°46.8	225°46.8	240°46.9	255°47.0	90°47.7	105°47.8	120°47.8	135°47.9	150°48.0	165°48.0	+0.1
	15°46.5	15°47.2	15°47.9	15°48.7	15°49.4	15°50.1	15°59.6	16°00.3	16°01.0	16°01.7	16°02.4	16°03.2	+0.7
di 4	180°48.1	195°48.1	210°48.2	225°48.2	240°48.3	255°48.4	90°49.0	105°49.1	120°49.1	135°49.2	150°49.2	165°49.3	+0.1
	16°03.9	16°04.6	16°05.3	16°06.0	16°06.8	16°07.5	16°16.8	16°17.5	16°18.2	16°18.9	16°19.6	16°20.3	+0.7
wo 5	180°49.3	195°49.4	210°49.4	225°49.5	240°49.5	255°49.6	90°50.2	105°50.3	120°50.3	135°50.3	150°50.4	165°50.4	+0.1
	16°21.0	16°21.7	16°22.5	16°23.2	16°23.9	16°24.6	16°33.7	16°34.4	16°35.1	16°35.8	16°36.5	16°37.2	+0.7
do 6	180°50.5	195°50.5	210°50.6	225°50.6	240°50.6	255°50.7	90°51.2	105°51.3	120°51.3	135°51.3	150°51.4	165°51.4	+0.0
	16°37.9	16°38.6	16°39.3	16°40.0	16°40.7	16°41.4	16°50.4	16°51.1	16°51.8	16°52.5	16°53.2	16°53.8	+0.7
vr 7	180°51.5	195°51.5	210°51.5	225°51.6	240°51.6	255°51.6	90°52.1	105°52.1	120°52.2	135°52.2	150°52.2	165°52.3	+0.0
	16°54.5	16°55.2	16°55.9	16°56.6	16°57.3	16°57.9	17°06.8	17°07.5	17°08.1	17°08.8	17°09.5	17°10.2	+0.7
za 8	180°52.3	195°52.3	210°52.4	225°52.4	240°52.4	255°52.5	90°52.8	105°52.9	120°52.9	135°52.9	150°52.9	165°53.0	+0.0
	17°10.8	17°11.5	17°12.2	17°12.9	17°13.5	17°14.2	17°22.9	17°23.6	17°24.2	17°24.9	17°25.6	17°26.2	+0.7
zo 9	180°53.0	195°53.0	210°53.0	225°53.1	240°53.1	255°53.1	90°53.4	105°53.4	120°53.5	135°53.5	150°53.5	165°53.5	+0.0
	17°26.9	17°27.5	17°28.2	17°28.9	17°29.5	17°30.2	17°38.7	17°39.4	17°40.0	17°40.7	17°41.3	17°42.0	+0.7
ma 10	180°53.5	195°53.6	210°53.6	225°53.6	240°53.6	255°53.6	90°53.9	105°53.9	120°53.9	135°53.9	150°53.9	165°53.9	+0.0
	17°42.6	17°43.3	17°43.9	17°44.6	17°45.2	17°45.9	17°54.2	17°54.9	17°55.5	17°56.2	17°56.8	17°57.4	+0.6
di 11	180°53.9	195°54.0	210°54.0	225°54.0	240°54.0	255°54.0	90°54.2	105°54.2	120°54.2	135°54.2	150°54.2	165°54.2	+0.0
	17°58.1	17°58.7	17°59.3	18°00.0	18°00.6	18°01.3	18°09.5	18°10.1	18°10.7	18°11.3	18°12.0	18°12.6	+0.6
wo 12	180°54.2	195°54.2	210°54.2	225°54.2	240°54.2	255°54.3	90°54.3	105°54.3	120°54.3	135°54.3	150°54.3	165°54.3	+0.0
	18°13.2	18°13.8	18°14.5	18°15.1	18°15.7	18°16.3	18°24.4	18°25.0	18°25.6	18°26.2	18°26.8	18°27.4	+0.6
do 13	180°54.3	195°54.3	210°54.3	225°54.3	240°54.4	255°54.4	90°54.3	105°54.3	120°54.3	135°54.3	150°54.3	165°54.3	+0.0
	18°28.1	18°28.7	18°29.3	18°29.9	18°30.5	18°31.1	18°39.0	18°39.6	18°40.2	18°40.8	18°41.4	18°42.0	+0.6
vr 14	180°54.3	195°54.3	210°54.3	225°54.3	240°54.3	255°54.3	90°54.2	105°54.2	120°54.2	135°54.2	150°54.2	165°54.2	-0.0
	18°42.6	18°43.2	18°43.8	18°44.4	18°45.0	18°45.6	18°53.3	18°53.9	18°54.4	18°55.0	18°55.6	18°56.2	+0.6
za 15	180°54.2	195°54.2	210°54.2	225°54.1	240°54.1	255°54.1	90°54.0	105°54.0	120°53.9	135°53.9	150°53.9	165°53.9	-0.0
	18°56.8	18°57.4	18°58.0	18°58.5	18°59.1	18°59.7	19°07.2	19°07.8	19°08.4	19°09.0	19°09.5	19°10.1	+0.6
zo 16	180°53.9	195°53.9	210°53.9	225°53.8	240°53.8	255°53.8	90°53.6	105°53.6	120°53.5	135°53.5	150°53.5	165°53.5	-0.0
	19°10.7	19°11.3	19°11.8	19°12.4	19°13.0	19°13.5	19°20.9	19°21.4	19°22.0	19°22.6	19°23.1	19°23.7	+0.6
ma 17	180°53.5	195°53.4	210°53.4	225°53.4	240°53.4	255°53.4	90°53.1	105°53.0	120°53.0	135°53.0	150°53.0	165°52.9	-0.0
	19°24.2	19°24.8	19°25.4	19°25.9	19°26.5	19°27.0	19°34.2	19°34.7	19°35.3	19°35.8	19°36.4	19°36.9	+0.6
di 18	180°52.9	195°52.9	210°52.9	225°52.8	240°52.8	255°52.8	90°52.4	105°52.4	120°52.3	135°52.3	150°52.3	165°52.2	-0.0
	19°37.5	19°38.0	19°38.6	19°39.1	19°39.6	19°40.2	19°47.2	19°47.7	19°48.2	19°48.8	19°49.3	19°49.8	+0.5
wo 19	180°52.2	195°52.2	210°52.2	225°52.1	240°52.1	255°52.1	90°51.6	105°51.6	120°51.5	135°51.5	150°51.5	165°51.4	-0.0
	19°50.4	19°50.9	19°51.4	19°52.0	19°52.5	19°53.0	19°59.8	20°00.3	20°00.9	20°01.4	20°01.9	20°02.4	+0.5
do 20	180°51.4	195°51.4	210°51.3	225°51.3	240°51.2	255°51.2	90°50.7	105°50.6	120°50.6	135°50.6	150°50.5	165°50.5	-0.0
	20°02.9	20°03.4	20°04.0	20°04.5	20°05.0	20°05.5	20°12.1	20°12.6	20°13.1	20°13.6	20°14.1	20°14.6	+0.5
vr 21	180°50.4	195°50.4	210°50.4	225°50.3	240°50.3	255°50.2	90°49.6	105°49.6	120°49.5	135°49.5	150°49.5	165°49.4	-0.0
	20°15.1	20°15.6	20°16.2	20°16.7	20°17.2	20°17.6	20°24.1	20°24.6	20°25.1	20°25.6	20°26.0	20°26.5	+0.5
za 22	180°49.4	195°49.3	210°49.3	225°49.2	240°49.2	255°49.1	90°48.5	105°48.4	120°48.4	135°48.3	150°48.3	165°48.2	-0.0
	20°27.0	20°27.5	20°28.0	20°28.5	20°29.0	20°29.4	20°35.7	20°36.2	20°36.6	20°37.1	20°37.6	20°38.1	+0.5
zo 23	180°48.1	195°48.1	210°48.0	225°48.0	240°47.9	255°47.9	90°47.2	105°47.1	120°47.0	135°47.0	150°46.9	165°46.9	-0.1
	20°38.5	20°39.0	20°39.5	20°39.9	20°40.4	20°40.9	20°46.9	20°47.4	20°47.9	20°48.3	20°48.8	20°49.2	+0.5
ma 24	180°46.8	195°46.8	210°46.7	225°46.6	240°46.6	255°46.5	90°45.7	105°45.7	120°45.6	135°45.5	150°45.5	165°45.4	-0.1
	20°49.7	20°50.2	20°50.6	20°51.1	20°51.5	20°52.0	20°57.8	20°58.3	20°58.7	20°59.2	20°59.6	21°00.1	+0.5
di 25	180°45.4	195°45.3	210°45.2	225°45.2	240°45.1	255°45.0	90°44.2	105°44.1	120°44.0	135°44.0	150°43.9	165°43.8	-0.1
	21°00.5	21°00.9	21°01.4	21°01.8	21°02.3	21°02.7	21°08.4	21°08.8	21°09.2	21°09.7	21°10.1	21°10.5	+0.4
wo 26	180°43.8	195°43.7	210°43.6	225°43.6	240°43.5	255°43.4	90°42.5	105°42.4	120°42.4	135°42.3	150°42.2	165°42.2	-0.1
	21°10.9	21°11.4	21°11.8	21°12.2	21°12.6	21°13.1	21°18.5	21°18.9	21°19.4	21°19.8	21°20.2	21°20.6	+0.4
do 27	180°42.1	195°42.0	210°41.9	225°41.9	240°41.8	255°41.7	90°40.7	105°40.6	120°40.6	135°40.5	150°40.4	165°40.3	-0.1
	21°21.0	21°21.4	21°21.8	21°22.3	21°22.7	21°23.1	21°28.3	21°28.7	21°29.1	21°29.5	21°29.9	21°30.3	+0.4
vr 28	180°40.3	195°40.2	210°40.1	225°40.0	240°39.9	255°39.9	90°38.8	105°38.7	120°38.7	135°38.6	150°38.5	165°38.4	-0.1
	21°30.7	21°31.1	21°31.5	21°31.9	21°32.3	21°32.7	21°37.8	21°38.1	21°38.5	21°38.9	21°39.3	21°39.7	+0.4
za 29	180°38.3	195°38.2	210°38.2	225°38.1	240°38.0	255°37.9	90°36.8	105°36.7	120°36.6	135°36.5	150°36.4	165°36.4	-0.1
	21°40.1	21°40.4	21°40.8	21°41.2	21°41.6	21°42.0	21°46.8	21°47.2	21°47.6	21°47.9	21°48.3	21°48.7	+0.4
zo 30	180°36.3	195°36.2	210°36.1	225°36.0	240°35.9	255°35.8	90°34.7	105°34.6	120°34.5	135°34.4	150°34.3	165°34.2	-0.1
	21°49.0	21°49.4	21°49.8	21°50.1	21°50.5	21°50.8	21°55.5	21°55.8	21°56.2	21°56.5	21°56.9	21°57.3	+0.4
ma 31	180°34.1	195°34.0	210°33.9	225°33.8	240°33.7	255°33.7	90°32.4	105°32.3	120°32.2	135°32.1	150°32.0	165°31.9	-0.1
	21°57.6	21°58.0	21°58.3	21°58.6	21°59.0	21°59.3	22°03.8	22°04.1	22°04.5	22°04.8	22°05.1	22°05.5	+0.3

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2032

	D	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
	za 1	73°51.5	88°18.1	102°44.7	117°11.3	131°37.9	146°04.6	160°31.3	174°58.1	189°24.9	203°51.7	218°18.6	+26.7	16.1
		-16°05.1	-15°58.0	-15°50.9	-15°43.7	-15°36.4	-15°28.9	-15°21.4	-15°13.8	-15°06.1	-14°58.3	-14°50.4	+7.5	59.1
◑	zo 2	75°06.1	89°33.5	104°01.0	118°28.5	132°56.1	147°23.7	161°51.4	176°19.0	190°46.7	205°14.5	219°42.3	+27.6	16.1
		-12°41.3	-12°32.0	-12°22.7	-12°13.3	-12°03.8	-11°54.2	-11°44.6	-11°34.8	-11°25.1	-11°15.2	-11°05.3	+9.6	59.2
	ma 3	76°43.1	91°11.4	105°39.7	120°08.1	134°36.4	149°04.9	163°33.3	178°01.8	192°30.3	206°58.8	221°27.4	+28.4	16.2
		-8°29.0	-8°18.2	-8°07.3	-7°56.3	-7°45.3	-7°34.2	-7°23.1	-7°12.0	-7°00.8	-6°49.6	-6°38.3	+11.1	59.3
	di 4	78°38.3	93°07.1	107°36.0	122°04.9	136°33.9	151°02.8	165°31.8	180°00.7	194°29.7	208°58.7	223°27.7	+28.9	16.2
		-3°45.4	-3°33.6	-3°21.9	-3°10.1	-2°58.3	-2°46.5	-2°34.6	-2°22.8	-2°10.9	-1°59.1	-1°47.2	+11.8	59.2
	wo 5	80°43.5	95°12.6	109°41.7	124°10.8	138°39.9	153°09.0	167°38.1	182°07.2	196°36.2	211°05.3	225°34.4	+29.1	16.1
		1°11.4	1°23.3	1°35.2	1°47.0	1°58.9	2°10.7	2°22.5	2°34.3	2°46.1	2°57.9	3°09.6	+11.8	59.1
	do 6	82°49.7	97°18.6	111°47.6	126°16.5	140°45.4	155°14.3	169°43.2	184°12.0	198°40.9	213°09.7	227°38.6	+28.9	16.0
		6°02.7	6°14.0	6°25.2	6°36.4	6°47.6	6°58.7	7°09.8	7°20.8	7°31.8	7°42.7	7°53.6	+11.1	58.8
	vr 7	84°49.0	99°17.5	113°46.1	128°14.6	142°43.1	157°11.6	171°40.0	186°08.5	200°36.9	215°05.3	229°33.7	+28.5	15.9
		10°30.3	10°40.2	10°50.1	11°00.0	11°09.7	11°19.4	11°29.0	11°38.6	11°48.1	11°57.5	12°06.8	+9.7	58.4
	za 8	86°37.4	101°05.5	115°33.6	130°01.7	144°29.8	158°57.8	173°25.9	187°53.9	202°21.9	216°49.9	231°17.9	+28.0	15.8
		14°17.2	14°25.3	14°33.2	14°41.1	14°48.8	14°56.5	15°04.0	15°11.5	15°18.9	15°26.2	15°33.4	+7.6	57.9
●	zo 9	88°16.5	102°44.3	117°12.2	131°40.0	146°07.9	160°35.7	175°03.5	189°31.4	203°59.2	218°27.0	232°54.9	+27.8	15.6
		17°09.7	17°15.3	17°20.8	17°26.2	17°31.5	17°36.7	17°41.8	17°46.7	17°51.6	17°56.4	18°01.1	+5.1	57.3
	ma 10	89°53.1	104°21.1	118°49.1	133°17.1	147°45.1	162°13.1	176°41.1	191°09.2	205°37.3	220°05.4	234°33.5	+28.0	15.4
		18°58.1	19°01.0	19°03.8	19°06.5	19°09.1	19°11.6	19°14.0	19°16.3	19°18.4	19°20.5	19°22.4	+2.4	56.6
	di 11	91°38.2	106°06.8	120°35.3	135°04.0	149°32.6	164°01.3	178°30.0	192°58.7	207°27.5	221°56.4	236°25.2	+28.7	15.3
		19°38.6	19°38.8	19°39.0	19°39.0	19°38.9	19°38.7	19°38.4	19°37.9	19°37.4	19°36.8	19°36.1	-0.3	56.0
	wo 12	93°43.1	108°12.7	122°42.2	137°11.9	151°41.6	166°11.3	180°41.1	195°10.9	209°40.8	224°10.7	238°40.7	+29.8	15.1
		19°13.1	19°10.8	19°08.4	19°05.9	19°03.3	19°00.6	18°57.8	18°55.0	18°52.0	18°48.9	18°45.8	-2.7	55.3
	do 13	96°16.3	110°47.1	125°17.9	139°48.8	154°19.7	168°50.7	183°21.8	197°52.9	212°24.0	226°55.2	241°26.4	+31.0	14.9
		17°47.9	17°43.4	17°38.8	17°34.1	17°29.3	17°24.5	17°19.6	17°14.5	17°09.5	17°04.3	16°59.1	-4.9	54.8
	vr 14	99°21.2	113°53.2	128°25.3	142°57.5	157°29.6	172°01.9	186°34.2	201°06.5	215°38.9	230°11.3	244°43.7	+32.3	14.8
		15°31.8	15°25.5	15°19.0	15°12.5	15°06.0	14°59.4	14°52.7	14°45.9	14°39.1	14°32.2	14°25.3	-6.7	54.4
	za 15	113°53.2	128°25.3	142°57.5	157°29.6	172°01.9	186°34.2	201°06.5	215°38.9	230°11.3	244°43.7	259°16.3	+32.3	14.8
		15°25.5	15°19.0	15°12.5	15°06.0	14°59.4	14°52.7	14°45.9	14°39.1	14°32.2	14°25.3	14°18.3	-6.7	54.4
	zo 16	117°29.0	132°02.2	146°35.4	161°08.6	175°41.9	190°15.2	204°48.6	219°21.9	233°55.4	248°28.8	263°02.3	+33.3	14.8
		12°26.7	12°18.8	12°10.9	12°02.9	11°54.9	11°46.8	11°38.7	11°30.6	11°22.4	11°14.1	11°05.8	-8.1	54.2
◐	ma 17	121°28.0	136°02.0	150°35.9	165°09.9	179°43.8	194°17.8	208°51.9	223°25.9	238°00.0	252°34.0	267°08.1	+34.0	14.8
		8°56.3	8°47.3	8°38.4	8°29.3	8°20.3	8°11.2	8°02.1	7°52.9	7°43.7	7°34.5	7°25.3	-9.1	54.2
	di 18	125°40.9	140°15.2	154°49.5	169°23.7	183°58.0	198°32.2	213°06.5	227°40.8	242°15.0	256°49.3	271°23.5	+34.3	14.8
		5°03.0	4°53.3	4°43.6	4°33.8	4°24.1	4°14.3	4°04.5	3°54.6	3°44.8	3°34.9	3°25.1	-9.8	54.3
	wo 19	129°56.6	144°30.7	159°04.8	173°38.8	188°12.9	202°46.9	217°21.0	231°55.0	246°28.9	261°02.9	275°36.8	+34.0	14.9
		0°54.9	0°44.8	0°34.7	0°24.5	0°14.4	0°04.3	-0°05.9	-0°16.1	-0°26.2	-0°36.4	-0°46.6	-10.2	54.7
	do 20	134°02.7	148°36.2	163°09.6	177°43.0	192°16.3	206°49.7	221°23.0	235°56.2	250°29.4	265°02.6	279°35.7	+33.3	15.0
		-3°19.4	-3°29.6	-3°39.7	-3°49.9	-4°00.0	-4°10.2	-4°20.3	-4°30.4	-4°40.6	-4°50.7	-5°00.8	-10.1	55.2
	vr 21	137°46.9	152°19.3	166°51.6	181°23.8	195°56.0	210°28.1	225°00.2	239°32.2	254°04.2	268°36.0	283°07.9	+32.1	15.2
		-7°30.3	-7°40.1	-7°49.9	-7°59.6	-8°09.3	-8°19.0	-8°28.7	-8°38.4	-8°48.0	-8°57.6	-9°07.1	-9.7	55.8
	za 22	140°57.8	155°28.6	169°59.3	184°30.0	199°00.6	213°31.1	228°01.5	242°31.9	257°02.2	271°32.4	286°02.6	+30.5	15.4
		-11°26.0	-11°35.0	-11°43.8	-11°52.7	-12°01.4	-12°10.2	-12°18.9	-12°27.5	-12°36.0	-12°44.6	-12°53.0	-8.7	56.5
	zo 23	143°26.2	157°55.1	172°24.0	186°52.9	201°21.6	215°50.3	230°18.9	244°47.4	259°15.8	273°44.2	288°12.5	+28.6	15.6
		-14°52.6	-15°00.0	-15°07.4	-15°14.7	-15°21.9	-15°29.0	-15°36.1	-15°43.0	-15°49.9	-15°56.8	-16°03.5	-7.1	57.3
	ma 24	145°08.1	159°35.3	174°02.4	188°29.4	202°56.3	217°23.2	231°50.0	246°16.7	260°43.4	275°10.0	289°36.5	+26.8	15.8
		-17°33.9	-17°39.2	-17°44.3	-17°49.4	-17°54.4	-17°59.3	-18°04.0	-18°08.7	-18°13.2	-18°17.7	-18°22.0	-4.8	58.0
○	di 25	146°07.6	160°33.2	174°58.8	189°24.4	203°49.9	218°15.4	232°40.8	247°06.2	261°31.5	275°56.8	290°22.1	+25.4	16.0
		-19°13.7	-19°16.2	-19°18.6	-19°20.8	-19°23.0	-19°25.0	-19°26.9	-19°28.7	-19°30.3	-19°31.9	-19°33.3	-2.0	58.6
	wo 26	146°37.4	161°02.3	175°27.1	189°51.9	204°16.7	218°41.5	233°06.3	247°31.1	261°55.8	276°20.6	290°45.3	+24.8	16.1
		-19°38.9	-19°38.3	-19°37.5	-19°36.5	-19°35.5	-19°34.3	-19°33.0	-19°31.6	-19°30.0	-19°28.3	-19°26.5	+1.2	59.1
	do 27	146°57.3	161°22.2	175°47.1	190°12.0	204°36.9	219°01.9	233°26.9	247°51.9	262°17.0	276°42.0	291°07.1	+25.0	16.2
		-18°43.4	-18°39.5	-18°35.5	-18°31.4	-18°27.1	-18°22.7	-18°18.2	-18°13.6	-18°08.8	-18°03.9	-17°58.9	+4.5	59.4
	vr 28	147°27.5	161°53.2	176°18.9	190°44.6	205°10.4	219°36.3	234°02.1	248°28.1	262°54.0	277°20.0	291°46.1	+25.9	16.2
		-16°30.0	-16°23.1	-16°16.2	-16°09.2	-16°02.0	-15°54.8	-15°47.4	-15°40.0	-15°32.4	-15°24.8	-15°17.0	+7.3	59.6
	za 29	148°22.7	162°49.5	177°16.4	191°43.3	206°10.3	220°37.4	235°04.4	249°31.6	263°58.7	278°26.0	292°53.3	+27.1	16.2
		-13°09.7	-13°00.6	-12°51.3	-12°42.0	-12°32.6	-12°23.1	-12°13.5	-12°03.9	-11°54.2	-11°44.4	-11°34.6	+9.5	59.6
	zo 30	149°48.2	164°16.2	178°44.3	193°12.4	207°40.5	222°08.7	236°37.0	251°05.3	265°33.6	280°02.0	294°30.4	+28.2	16.2
		-8°59.4	-8°48.6	-8°37.7	-8°26.8	-8°15.9	-8°04.9	-7°53.9	-7°42.8	-7°31.7	-7°20.6	-7°09.4	+11.0	59.4
◑	ma 31	151°40.9	166°09.9	180°38.9	195°07.9	209°36.9	224°06.0	238°35.1	253°04.3	267°33.4	282°02.6	296°31.8	+29.1	16.1
		-4°17.7	-4°06.0	-3°54.4	-3°42.7	-3°31.0	-3°19.3	-3°07.5	-2°55.8	-2°44.0	-2°32.3	-2°20.5	+11.7	59.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 2 16h01 — NM: 9 13h35 — EK: 17 09h43 — VM: 25 02h37 — LK: 31 20h51

ZON

Juni 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	180°31.8	195°31.8	210°31.7	225°31.6	240°31.5	255°31.4	90°30.1	105°30.0	120°29.9	135°29.8	150°29.7	165°29.6	-0.1
	22°05.8	22°06.1	22°06.5	22°06.8	22°07.1	22°07.5	22°11.7	22°12.0	22°12.3	22°12.7	22°13.0	22°13.3	+0.3
wo 2	180°29.5	195°29.4	210°29.3	225°29.2	240°29.1	255°29.0	90°27.6	105°27.5	120°27.4	135°27.3	150°27.2	165°27.1	-0.1
	22°13.6	22°13.9	22°14.2	22°14.6	22°14.9	22°15.2	22°19.2	22°19.5	22°19.8	22°20.1	22°20.4	22°20.7	+0.3
do 3	180°27.0	195°26.9	210°26.8	225°26.7	240°26.6	255°26.5	90°25.1	105°25.0	120°24.9	135°24.8	150°24.7	165°24.6	-0.1
	22°21.0	22°21.3	22°21.6	22°21.9	22°22.2	22°22.5	22°26.3	22°26.6	22°26.9	22°27.2	22°27.5	22°27.8	+0.3
vr 4	180°24.4	195°24.3	210°24.2	225°24.1	240°24.0	255°23.9	90°22.5	105°22.4	120°22.2	135°22.1	150°22.0	165°21.9	-0.1
	22°28.1	22°28.4	22°28.6	22°28.9	22°29.2	22°29.5	22°33.1	22°33.4	22°33.6	22°33.9	22°34.2	22°34.4	+0.3
za 5	180°21.8	195°21.7	210°21.6	225°21.5	240°21.3	255°21.2	90°19.8	105°19.6	120°19.5	135°19.4	150°19.3	165°19.2	-0.1
	22°34.7	22°35.0	22°35.2	22°35.5	22°35.8	22°36.0	22°39.4	22°39.7	22°39.9	22°40.2	22°40.4	22°40.7	+0.3
zo 6	180°19.1	195°18.9	210°18.8	225°18.7	240°18.6	255°18.5	90°17.0	105°16.8	120°16.7	135°16.6	150°16.5	165°16.4	-0.1
	22°41.0	22°41.2	22°41.5	22°41.7	22°42.0	22°42.2	22°45.4	22°45.6	22°45.9	22°46.1	22°46.3	22°46.6	+0.3
ma 7	180°16.3	195°16.1	210°16.0	225°15.9	240°15.8	255°15.7	90°14.1	105°14.0	120°13.9	135°13.7	150°13.6	165°13.5	-0.1
	22°46.8	22°47.0	22°47.3	22°47.5	22°47.7	22°48.0	22°50.9	22°51.1	22°51.4	22°51.6	22°51.8	22°52.0	+0.2
di 8	180°13.4	195°13.2	210°13.1	225°13.0	240°12.9	255°12.8	90°11.2	105°11.0	120°10.9	135°10.8	150°10.7	165°10.5	-0.1
	22°52.2	22°52.5	22°52.7	22°52.9	22°53.1	22°53.3	22°56.1	22°56.3	22°56.5	22°56.7	22°56.9	22°57.1	+0.2
wo 9	180°10.4	195°10.3	210°10.2	225°10.1	240°09.9	255°09.8	90°08.2	105°08.1	120°07.9	135°07.8	150°07.7	165°07.5	-0.1
	22°57.3	22°57.5	22°57.7	22°57.9	22°58.1	22°58.3	23°00.8	23°01.0	23°01.2	23°01.4	23°01.6	23°01.7	+0.2
do 10	180°07.4	195°07.3	210°07.2	225°07.0	240°06.9	255°06.8	90°05.1	105°05.0	120°04.9	135°04.7	150°04.6	165°04.5	-0.1
	23°01.9	23°02.1	23°02.3	23°02.5	23°02.7	23°02.8	23°05.1	23°05.3	23°05.5	23°05.7	23°05.8	23°06.0	+0.2
vr 11	180°04.4	195°04.2	210°04.1	225°04.0	240°03.8	255°03.7	90°02.0	105°01.9	120°01.8	135°01.7	150°01.5	165°01.4	-0.1
	23°06.2	23°06.3	23°06.5	23°06.7	23°06.8	23°07.0	23°09.1	23°09.2	23°09.4	23°09.5	23°09.7	23°09.8	+0.2
za 12	180°01.3	195°01.1	210°01.0	225°00.9	240°00.7	255°00.6	89°58.9	104°58.8	119°58.6	134°58.5	149°58.4	164°58.2	-0.1
	23°10.0	23°10.1	23°10.3	23°10.4	23°10.6	23°10.7	23°12.6	23°12.7	23°12.9	23°13.0	23°13.1	23°13.3	+0.2
zo 13	179°58.1	194°58.0	209°57.9	224°57.7	239°57.6	254°57.5	89°55.7	104°55.6	119°55.5	134°55.3	149°55.2	164°55.1	-0.1
	23°13.4	23°13.5	23°13.7	23°13.8	23°13.9	23°14.1	23°15.7	23°15.8	23°16.0	23°16.1	23°16.2	23°16.3	+0.1
ma 14	179°54.9	194°54.8	209°54.7	224°54.5	239°54.4	254°54.3	89°52.5	104°52.4	119°52.3	134°52.1	149°52.0	164°51.9	-0.1
	23°16.4	23°16.5	23°16.7	23°16.8	23°16.9	23°17.0	23°18.4	23°18.5	23°18.6	23°18.7	23°18.8	23°18.9	+0.1
di 15	179°51.7	194°51.6	209°51.5	224°51.3	239°51.2	254°51.1	89°49.3	104°49.2	119°49.1	134°48.9	149°48.8	164°48.6	-0.1
	23°19.0	23°19.1	23°19.2	23°19.3	23°19.4	23°19.5	23°20.7	23°20.8	23°20.9	23°21.0	23°21.0	23°21.1	+0.1
wo 16	179°48.5	194°48.4	209°48.2	224°48.1	239°48.0	254°47.8	89°46.1	104°45.9	119°45.8	134°45.7	149°45.5	164°45.4	-0.1
	23°21.2	23°21.3	23°21.4	23°21.5	23°21.5	23°21.6	23°22.6	23°22.7	23°22.7	23°22.8	23°22.9	23°22.9	+0.1
do 17	179°45.3	194°45.1	209°45.0	224°44.9	239°44.7	254°44.6	89°42.8	104°42.7	119°42.6	134°42.4	149°42.3	164°42.2	-0.1
	23°23.0	23°23.1	23°23.1	23°23.2	23°23.2	23°23.3	23°24.1	23°24.1	23°24.2	23°24.2	23°24.3	23°24.3	+0.1
vr 18	179°42.0	194°41.9	209°41.8	224°41.6	239°41.5	254°41.3	89°39.6	104°39.4	119°39.3	134°39.2	149°39.0	164°38.9	-0.1
	23°24.4	23°24.4	23°24.5	23°24.5	23°24.5	23°24.6	23°25.1	23°25.1	23°25.2	23°25.2	23°25.2	23°25.3	+0.0
za 19	179°38.8	194°38.6	209°38.5	224°38.4	239°38.2	254°38.1	89°36.3	104°36.2	119°36.1	134°35.9	149°35.8	164°35.7	-0.1
	23°25.3	23°25.3	23°25.4	23°25.4	23°25.4	23°25.5	23°25.7	23°25.8	23°25.8	23°25.8	23°25.8	23°25.8	+0.0
zo 20	179°35.5	194°35.4	209°35.2	224°35.1	239°35.0	254°34.8	89°33.1	104°33.0	119°32.8	134°32.7	149°32.5	164°32.4	-0.1
	23°25.8	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	+0.0
ma 21	179°32.3	194°32.1	209°32.0	224°31.9	239°31.7	254°31.6	89°29.9	104°29.7	119°29.6	134°29.4	149°29.3	164°29.2	-0.1
	23°26.0	23°26.0	23°26.0	23°26.0	23°25.9	23°25.9	23°25.8	23°25.8	23°25.8	23°25.7	23°25.7	23°25.7	-0.0
di 22	179°29.0	194°28.9	209°28.8	224°28.6	239°28.5	254°28.4	89°26.6	104°26.5	119°26.4	134°26.2	149°26.1	164°26.0	-0.1
	23°25.7	23°25.7	23°25.6	23°25.6	23°25.6	23°25.6	23°25.2	23°25.2	23°25.1	23°25.1	23°25.1	23°25.0	-0.0
wo 23	179°25.8	194°25.7	209°25.6	224°25.4	239°25.3	254°25.2	89°23.4	104°23.3	119°23.2	134°23.0	149°22.9	164°22.8	-0.1
	23°25.0	23°24.9	23°24.9	23°24.9	23°24.8	23°24.8	23°24.2	23°24.1	23°24.1	23°24.0	23°24.0	23°23.9	-0.0
do 24	179°22.6	194°22.5	209°22.4	224°22.2	239°22.1	254°22.0	89°20.3	104°20.1	119°20.0	134°19.9	149°19.7	164°19.6	-0.1
	23°23.9	23°23.8	23°23.8	23°23.7	23°23.6	23°23.6	23°22.8	23°22.7	23°22.6	23°22.6	23°22.5	23°22.4	-0.1
vr 25	179°19.5	194°19.3	209°19.2	224°19.1	239°18.9	254°18.8	89°17.1	104°17.0	119°16.9	134°16.7	149°16.6	164°16.5	-0.1
	23°22.3	23°22.3	23°22.2	23°22.1	23°22.0	23°22.0	23°20.9	23°20.8	23°20.8	23°20.7	23°20.6	23°20.5	-0.1
za 26	179°16.3	194°16.2	209°16.1	224°15.9	239°15.8	254°15.7	89°14.0	104°13.9	119°13.7	134°13.6	149°13.5	164°13.4	-0.1
	23°20.4	23°20.3	23°20.2	23°20.1	23°20.0	23°19.9	23°18.7	23°18.6	23°18.5	23°18.4	23°18.3	23°18.2	-0.1
zo 27	179°13.2	194°13.1	209°13.0	224°12.8	239°12.7	254°12.6	89°10.9	104°10.8	119°10.7	134°10.6	149°10.4	164°10.3	-0.1
	23°18.1	23°18.0	23°17.8	23°17.7	23°17.6	23°17.5	23°16.0	23°15.9	23°15.8	23°15.7	23°15.5	23°15.4	-0.1
ma 28	179°10.2	194°10.0	209°09.9	224°09.8	239°09.7	254°09.5	89°07.9	104°07.8	119°07.7	134°07.5	149°07.4	164°07.3	-0.1
	23°15.3	23°15.2	23°15.1	23°14.9	23°14.8	23°14.7	23°13.0	23°12.8	23°12.7	23°12.6	23°12.4	23°12.3	-0.1
di 29	179°07.2	194°07.0	209°06.9	224°06.8	239°06.7	254°06.5	89°04.9	104°04.8	119°04.7	134°04.6	149°04.4	164°04.3	-0.1
	23°12.1	23°12.0	23°11.9	23°11.7	23°11.6	23°11.4	23°09.5	23°09.3	23°09.2	23°09.0	23°08.9	23°08.7	-0.1
wo 30	179°04.2	194°04.1	209°03.9	224°03.8	239°03.7	254°03.6	89°02.0	104°01.9	119°01.8	134°01.6	149°01.5	164°01.4	-0.1
	23°08.6	23°08.4	23°08.2	23°08.1	23°07.9	23°07.8	23°05.6	23°05.4	23°05.3	23°05.1	23°04.9	23°04.8	-0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2032

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
di 1	66°55.7	81°25.1	95°54.5	110°24.0	124°53.4	139°22.9	153°52.4	168°21.9	182°51.4	197°20.9	211°50.4	+29.5	16.1
	-0°34.3	-0°22.5	-0°10.7	0°01.1	0°12.9	0°24.7	0°36.4	0°48.2	1°00.0	1°11.7	1°23.5	+11.8	58.9
wo 2	69°14.2	83°43.8	98°13.4	112°43.0	127°12.6	141°42.2	156°11.8	170°41.4	185°11.0	199°40.6	214°10.2	+29.6	16.0
	4°17.3	4°28.7	4°40.1	4°51.4	5°02.7	5°14.0	5°25.3	5°36.5	5°47.6	5°58.8	6°09.8	+11.3	58.5
do 3	71°32.9	86°02.4	100°31.8	115°01.2	129°30.6	143°59.9	158°29.3	172°58.6	187°27.9	201°57.3	216°26.6	+29.4	15.8
	8°51.0	9°01.3	9°11.6	9°21.8	9°32.0	9°42.1	9°52.2	10°02.2	10°12.2	10°22.0	10°31.9	+10.1	58.1
vr 4	73°43.9	88°12.9	102°41.9	117°10.8	131°39.8	146°08.7	160°37.6	175°06.5	189°35.4	204°04.2	218°33.1	+28.9	15.7
	12°51.2	12°59.9	13°08.5	13°17.1	13°25.6	13°34.0	13°42.3	13°50.5	13°58.7	14°06.8	14°14.8	+8.4	57.6
za 5	75°43.5	90°12.0	104°40.6	119°09.1	133°37.6	148°06.1	162°34.6	177°03.1	191°31.6	206°00.0	220°28.4	+28.5	15.6
	16°04.4	16°10.9	16°17.4	16°23.8	16°30.1	16°36.3	16°42.4	16°48.5	16°54.4	17°00.2	17°05.9	+6.2	57.1
zo 6	77°34.0	92°02.3	106°30.6	120°58.9	135°27.2	149°55.6	164°23.9	178°52.2	193°20.5	207°48.8	222°17.2	+28.3	15.4
	18°19.7	18°23.8	18°27.8	18°31.7	18°35.5	18°39.2	18°42.8	18°46.2	18°49.6	18°52.9	18°56.0	+3.6	56.6
ma 7	79°23.0	93°51.4	108°19.9	122°48.4	137°17.0	151°45.5	166°14.1	180°42.7	195°11.3	209°39.9	224°08.6	+28.6	15.3
	19°30.6	19°32.0	19°33.4	19°34.6	19°35.7	19°36.8	19°37.7	19°38.5	19°39.2	19°39.8	19°40.3	+1.0	56.0
● di 8	81°21.5	95°50.6	110°19.7	124°48.9	139°18.1	153°47.3	168°16.6	182°45.9	197°15.3	211°44.7	226°14.1	+29.3	15.1
	19°35.2	19°34.0	19°32.8	19°31.4	19°30.0	19°28.4	19°26.7	19°25.0	19°23.1	19°21.2	19°19.1	-1.6	55.5
wo 9	83°40.5	98°10.7	112°40.8	127°11.0	141°41.3	156°11.6	170°41.9	185°12.3	199°42.8	214°13.3	228°43.8	+30.3	15.0
	18°36.9	18°33.4	18°29.7	18°26.0	18°22.2	18°18.3	18°14.3	18°10.2	18°06.1	18°01.8	17°57.5	-3.9	55.0
do 10	86°27.8	100°59.1	115°30.5	130°01.9	144°33.4	159°04.9	173°36.5	188°08.1	202°39.8	217°11.6	231°43.3	+31.6	14.9
	16°42.9	16°37.3	16°31.7	16°25.9	16°20.1	16°14.3	16°08.3	16°02.3	15°56.2	15°50.0	15°43.8	-5.9	54.6
vr 11	89°45.8	104°18.3	118°50.9	133°23.5	147°56.2	162°28.9	177°01.7	191°34.5	206°07.3	220°40.2	235°13.1	+32.7	14.8
	14°02.7	13°55.5	13°48.2	13°40.9	13°33.5	13°26.0	13°18.5	13°10.9	13°03.3	12°55.7	12°47.9	-7.5	54.3
za 12	93°31.9	108°05.4	122°39.0	137°12.6	151°46.3	166°19.9	180°53.7	195°27.4	210°01.2	224°35.0	239°08.8	+33.7	14.8
	10°46.3	10°37.9	10°29.4	10°20.8	10°12.2	10°03.6	9°54.9	9°46.2	9°37.4	9°28.7	9°19.8	-8.7	54.1
zo 13	97°39.3	112°13.5	126°47.8	141°22.0	155°56.3	170°30.5	185°04.8	199°39.2	214°13.5	228°47.8	243°22.2	+34.3	14.8
	7°03.4	6°54.1	6°44.7	6°35.3	6°25.9	6°16.4	6°07.0	5°57.5	5°47.9	5°38.4	5°28.8	-9.5	54.1
ma 14	112°13.5	126°47.8	141°22.0	155°56.3	170°30.5	185°04.8	199°39.2	214°13.5	228°47.8	243°22.2	257°56.5	+34.3	14.8
	6°54.1	6°44.7	6°35.3	6°25.9	6°16.4	6°07.0	5°57.5	5°47.9	5°38.4	5°28.8	5°19.2	-9.5	54.1
di 15	116°32.8	131°07.3	145°41.7	160°16.1	174°50.6	189°25.0	203°59.4	218°33.9	233°08.3	247°42.7	262°17.1	+34.4	14.8
	2°52.9	2°43.0	2°33.1	2°23.2	2°13.3	2°03.3	1°53.4	1°43.4	1°33.4	1°23.5	1°13.5	-9.9	54.3
◐ wo 16	120°51.6	135°25.8	150°00.0	164°34.1	179°08.2	193°42.2	208°16.3	222°50.3	237°24.3	251°58.3	266°32.2	+34.1	14.9
	-1°17.3	-1°27.3	-1°37.4	-1°47.5	-1°57.6	-2°07.6	-2°17.7	-2°27.8	-2°37.9	-2°47.9	-2°58.0	-10.1	54.7
do 17	124°57.3	139°30.7	154°04.0	168°37.3	183°10.6	197°43.8	212°16.9	226°50.0	241°23.1	255°56.1	270°29.0	+33.2	15.1
	-5°27.9	-5°37.8	-5°47.7	-5°57.6	-6°07.4	-6°17.3	-6°27.1	-6°36.9	-6°46.7	-6°56.5	-7°06.2	-9.8	55.2
vr 18	128°36.9	143°09.0	157°41.0	172°12.9	186°44.8	201°16.6	215°48.4	230°20.0	244°51.6	259°23.2	273°54.7	+31.8	15.2
	-9°29.4	-9°38.7	-9°48.0	-9°57.2	-10°06.4	-10°15.6	-10°24.7	-10°33.8	-10°42.9	-10°51.9	-11°00.9	-9.2	55.9
za 19	131°38.3	146°08.6	160°38.8	175°09.0	189°39.1	204°09.1	218°39.0	233°08.8	247°38.6	262°08.3	276°37.9	+30.0	15.5
	-13°10.0	-13°18.2	-13°26.3	-13°34.4	-13°42.4	-13°50.4	-13°58.3	-14°06.1	-14°13.9	-14°21.6	-14°29.2	-7.9	56.7
zo 20	133°52.1	148°20.4	162°48.6	177°16.7	191°44.8	206°12.7	220°40.6	235°08.4	249°36.1	264°03.8	278°31.3	+27.9	15.7
	-16°15.4	-16°21.9	-16°28.3	-16°34.6	-16°40.8	-16°46.9	-16°52.9	-16°58.9	-17°04.7	-17°10.5	-17°16.2	-6.1	57.6
ma 21	135°15.1	149°41.4	164°07.6	178°33.8	192°59.8	207°25.9	221°51.8	236°17.7	250°43.5	265°09.2	279°34.9	+26.0	15.9
	-18°29.5	-18°33.5	-18°37.5	-18°41.3	-18°45.0	-18°48.7	-18°52.2	-18°55.5	-18°58.8	-19°02.0	-19°05.0	-3.6	58.5
di 22	135°52.7	150°17.5	164°42.2	179°06.9	193°31.5	207°56.1	222°20.6	236°45.1	251°09.6	265°34.0	279°58.4	+24.6	16.2
	-19°35.9	-19°37.0	-19°37.9	-19°38.7	-19°39.3	-19°39.9	-19°40.3	-19°40.5	-19°40.7	-19°40.7	-19°40.5	-0.5	59.3
○ wo 23	136°00.9	150°24.9	164°48.9	179°12.9	193°36.9	208°00.9	222°24.9	236°48.9	251°12.9	265°36.9	280°00.9	+24.0	16.3
	-19°22.4	-19°20.1	-19°17.7	-19°15.1	-19°12.4	-19°09.6	-19°06.6	-19°03.5	-19°00.2	-18°56.9	-18°53.4	+2.9	59.9
do 24	136°02.0	150°26.2	164°50.5	179°14.7	193°39.0	208°03.4	222°27.7	236°52.1	251°16.6	265°41.0	280°05.5	+24.4	16.4
	-17°44.9	-17°39.3	-17°33.6	-17°27.8	-17°21.8	-17°15.7	-17°09.5	-17°03.2	-16°56.8	-16°50.2	-16°43.5	+6.1	60.3
vr 25	136°17.9	150°43.1	165°08.3	179°33.6	193°58.9	208°24.3	222°49.7	237°15.2	251°40.7	266°06.3	280°31.9	+25.4	16.5
	-14°49.9	-14°41.5	-14°33.0	-14°24.4	-14°15.7	-14°06.9	-13°58.0	-13°49.0	-13°39.9	-13°30.7	-13°21.5	+8.8	60.4
za 26	137°02.9	151°29.4	165°56.0	180°22.6	194°49.2	209°16.0	223°42.7	238°09.5	252°36.4	267°03.4	281°30.3	+26.7	16.4
	-10°53.0	-10°42.5	-10°31.9	-10°21.3	-10°10.6	-9°59.9	-9°49.1	-9°38.3	-9°27.4	-9°16.4	-9°05.4	+10.8	60.3
zo 27	138°21.2	152°49.0	167°16.8	181°44.7	196°12.6	210°40.6	225°08.6	239°36.7	254°04.8	268°32.9	283°01.1	+28.0	16.3
	-6°14.8	-6°03.1	-5°51.4	-5°39.7	-5°28.0	-5°16.2	-5°04.4	-4°52.6	-4°40.7	-4°28.9	-4°17.0	+11.8	59.9
ma 28	140°08.4	154°37.2	169°06.0	183°34.8	198°03.7	212°32.6	227°01.5	241°30.4	255°59.4	270°28.4	284°57.4	+28.9	16.2
	-1°17.4	-1°05.4	-0°53.4	-0°41.4	-0°29.4	-0°17.5	-0°05.5	0°06.5	0°18.4	0°30.4	0°42.3	+12.0	59.4
di 29	142°15.3	156°44.6	171°14.0	185°43.3	200°12.7	214°42.1	229°11.5	243°40.9	258°10.3	272°39.7	287°09.2	+29.4	16.0
	3°38.9	3°50.5	4°02.0	4°13.6	4°25.0	4°36.5	4°47.9	4°59.2	5°10.6	5°21.9	5°33.1	+11.4	58.8
◑ wo 30	144°31.3	159°00.8	173°30.2	187°59.7	202°29.2	216°58.7	231°28.2	245°57.6	260°27.1	274°56.6	289°26.0	+29.5	15.9
	8°16.5	8°27.0	8°37.5	8°47.9	8°58.2	9°08.5	9°18.7	9°28.8	9°38.9	9°49.0	9°58.9	+10.2	58.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

NM: 8 01h32 — EK: 16 02h59 — VM: 23 11h32 — LK: 30 02h11

ZON

Juli 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	179°01.3	194°01.2	209°01.0	224°00.9	239°00.8	254°00.7	88°59.1	103°59.0	118°58.9	133°58.8	148°58.7	163°58.6	-0.1
	23°04.6	23°04.4	23°04.2	23°04.1	23°03.9	23°03.7	23°01.3	23°01.1	23°01.0	23°00.8	23°00.6	23°00.4	-0.2
vr 2	178°58.4	193°58.3	208°58.2	223°58.1	238°58.0	253°57.8	88°56.3	103°56.2	118°56.1	133°56.0	148°55.9	163°55.8	-0.1
	23°00.2	23°00.0	22°59.8	22°59.6	22°59.4	22°59.2	22°56.6	22°56.4	22°56.2	22°56.0	22°55.8	22°55.6	-0.2
za 3	178°55.7	193°55.5	208°55.4	223°55.3	238°55.2	253°55.1	88°53.6	103°53.5	118°53.4	133°53.3	148°53.2	163°53.1	-0.1
	22°55.4	22°55.2	22°55.0	22°54.8	22°54.6	22°54.4	22°51.6	22°51.3	22°51.1	22°50.9	22°50.7	22°50.5	-0.2
zo 4	178°52.9	193°52.8	208°52.7	223°52.6	238°52.5	253°52.4	88°51.0	103°50.9	118°50.7	133°50.6	148°50.5	163°50.4	-0.1
	22°50.2	22°50.0	22°49.8	22°49.6	22°49.3	22°49.1	22°46.1	22°45.8	22°45.6	22°45.4	22°45.1	22°44.9	-0.2
ma 5	178°50.3	193°50.2	208°50.1	223°50.0	238°49.9	253°49.8	88°48.4	103°48.3	118°48.2	133°48.1	148°48.0	163°47.9	-0.1
	22°44.6	22°44.4	22°44.2	22°43.9	22°43.7	22°43.4	22°40.2	22°39.9	22°39.7	22°39.4	22°39.2	22°38.9	-0.2
di 6	178°47.8	193°47.7	208°47.6	223°47.5	238°47.4	253°47.2	88°45.9	103°45.8	118°45.7	133°45.6	148°45.5	163°45.4	-0.1
	22°38.7	22°38.4	22°38.2	22°37.9	22°37.6	22°37.4	22°33.9	22°33.7	22°33.4	22°33.1	22°32.8	22°32.6	-0.3
wo 7	178°45.3	193°45.2	208°45.1	223°45.0	238°44.9	253°44.8	88°43.5	103°43.4	118°43.3	133°43.2	148°43.1	163°43.0	-0.1
	22°32.3	22°32.0	22°31.8	22°31.5	22°31.2	22°30.9	22°27.3	22°27.0	22°26.7	22°26.4	22°26.1	22°25.8	-0.3
do 8	178°43.0	193°42.9	208°42.8	223°42.7	238°42.6	253°42.5	88°41.2	103°41.2	118°41.1	133°41.0	148°40.9	163°40.8	-0.1
	22°25.5	22°25.3	22°25.0	22°24.7	22°24.4	22°24.1	22°20.2	22°19.9	22°19.6	22°19.3	22°19.0	22°18.7	-0.3
vr 9	178°40.7	193°40.6	208°40.5	223°40.4	238°40.3	253°40.2	88°39.1	103°39.0	118°38.9	133°38.8	148°38.7	163°38.6	-0.1
	22°18.4	22°18.1	22°17.8	22°17.5	22°17.2	22°16.9	22°12.8	22°12.5	22°12.2	22°11.8	22°11.5	22°11.2	-0.3
za 10	178°38.5	193°38.5	208°38.4	223°38.3	238°38.2	253°38.1	88°37.0	103°36.9	118°36.8	133°36.7	148°36.7	163°36.6	-0.1
	22°10.9	22°10.5	22°10.2	22°09.9	22°09.6	22°09.3	22°05.0	22°04.6	22°04.3	22°04.0	22°03.6	22°03.3	-0.3
zo 11	178°36.5	193°36.4	208°36.3	223°36.3	238°36.2	253°36.1	88°35.0	103°35.0	118°34.9	133°34.8	148°34.7	163°34.7	-0.1
	22°03.0	22°02.6	22°02.3	22°01.9	22°01.6	22°01.3	21°56.8	21°56.4	21°56.1	21°55.7	21°55.4	21°55.0	-0.3
ma 12	178°34.6	193°34.5	208°34.4	223°34.3	238°34.3	253°34.2	88°33.2	103°33.1	118°33.1	133°33.0	148°32.9	163°32.8	-0.1
	21°54.7	21°54.3	21°54.0	21°53.6	21°53.3	21°52.9	21°48.2	21°47.8	21°47.5	21°47.1	21°46.7	21°46.4	-0.4
di 13	178°32.8	193°32.7	208°32.6	223°32.6	238°32.5	253°32.4	88°31.5	103°31.4	118°31.4	133°31.3	148°31.2	163°31.2	-0.1
	21°46.0	21°45.6	21°45.3	21°44.9	21°44.5	21°44.2	21°39.3	21°38.9	21°38.5	21°38.1	21°37.7	21°37.4	-0.4
wo 14	178°31.1	193°31.0	208°31.0	223°30.9	238°30.8	253°30.8	88°29.9	103°29.8	118°29.8	133°29.7	148°29.7	163°29.6	-0.1
	21°37.0	21°36.6	21°36.2	21°35.8	21°35.4	21°35.0	21°30.0	21°29.6	21°29.2	21°28.8	21°28.4	21°28.0	-0.4
do 15	178°29.5	193°29.5	208°29.4	223°29.4	238°29.3	253°29.2	88°28.5	103°28.4	118°28.3	133°28.3	148°28.2	163°28.2	-0.1
	21°27.6	21°27.2	21°26.8	21°26.4	21°26.0	21°25.6	21°20.3	21°19.9	21°19.5	21°19.0	21°18.6	21°18.2	-0.4
vr 16	178°28.1	193°28.1	208°28.0	223°27.9	238°27.9	253°27.8	88°27.1	103°27.1	118°27.0	133°27.0	148°26.9	163°26.9	-0.1
	21°17.8	21°17.4	21°17.0	21°16.6	21°16.1	21°15.7	21°10.2	21°09.8	21°09.4	21°09.0	21°08.5	21°08.1	-0.4
za 17	178°26.8	193°26.8	208°26.7	223°26.7	238°26.6	253°26.6	88°26.0	103°25.9	118°25.9	133°25.8	148°25.8	163°25.7	-0.1
	21°07.7	21°07.2	21°06.8	21°06.4	21°06.0	21°05.5	20°59.8	20°59.4	20°59.0	20°58.5	20°58.1	20°57.6	-0.4
zo 18	178°25.7	193°25.6	208°25.6	223°25.5	238°25.5	253°25.5	88°24.9	103°24.9	118°24.8	133°24.8	148°24.8	163°24.7	-0.0
	20°57.2	20°56.7	20°56.3	20°55.9	20°55.4	20°55.0	20°49.1	20°48.6	20°48.2	20°47.7	20°47.3	20°46.8	-0.4
ma 19	178°24.7	193°24.6	208°24.6	223°24.6	238°24.5	253°24.5	88°24.0	103°24.0	118°23.9	133°23.9	148°23.9	163°23.8	-0.0
	20°46.4	20°45.9	20°45.4	20°45.0	20°44.5	20°44.1	20°38.0	20°37.5	20°37.1	20°36.6	20°36.1	20°35.6	-0.5
di 20	178°23.8	193°23.8	208°23.7	223°23.7	238°23.7	253°23.6	88°23.3	103°23.2	118°23.2	133°23.2	148°23.1	163°23.1	-0.0
	20°35.2	20°34.7	20°34.2	20°33.7	20°33.3	20°32.8	20°26.6	20°26.1	20°25.6	20°25.1	20°24.6	20°24.1	-0.5
wo 21	178°23.1	193°23.1	208°23.0	223°23.0	238°23.0	253°23.0	88°22.6	103°22.6	118°22.6	133°22.6	148°22.6	163°22.5	-0.0
	20°23.6	20°23.2	20°22.7	20°22.2	20°21.7	20°21.2	20°14.8	20°14.3	20°13.8	20°13.3	20°12.8	20°12.3	-0.5
do 22	178°22.5	193°22.5	208°22.5	223°22.4	238°22.4	253°22.4	88°22.2	103°22.2	118°22.1	133°22.1	148°22.1	163°22.1	-0.0
	20°11.8	20°11.3	20°10.8	20°10.3	20°09.8	20°09.3	20°02.6	20°02.1	20°01.6	20°01.1	20°00.6	20°00.1	-0.5
vr 23	178°22.1	193°22.1	208°22.1	223°22.0	238°22.0	253°22.0	88°21.9	103°21.8	118°21.8	133°21.8	148°21.8	163°21.8	-0.0
	19°59.6	19°59.0	19°58.5	19°58.0	19°57.5	19°57.0	19°50.2	19°49.7	19°49.1	19°48.6	19°48.1	19°47.5	-0.5
za 24	178°21.8	193°21.8	208°21.8	223°21.8	238°21.8	253°21.8	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	19°47.0	19°46.5	19°46.0	19°45.4	19°44.9	19°44.4	19°37.4	19°36.9	19°36.3	19°35.8	19°35.2	19°34.7	-0.5
zo 25	178°21.7	193°21.7	208°21.6	223°21.6	238°21.6	253°21.6	88°21.6	103°21.6	118°21.6	133°21.7	148°21.7	163°21.7	-0.0
	19°34.1	19°33.6	19°33.1	19°32.5	19°32.0	19°31.4	19°24.3	19°23.7	19°23.2	19°22.6	19°22.1	19°21.5	-0.5
ma 26	178°21.7	193°21.7	208°21.7	223°21.7	238°21.7	253°21.7	88°21.8	103°21.8	118°21.8	133°21.8	148°21.8	163°21.8	+0.0
	19°20.9	19°20.4	19°19.8	19°19.3	19°18.7	19°18.2	19°10.8	19°10.3	19°09.7	19°09.1	19°08.6	19°08.0	-0.6
di 27	178°21.8	193°21.8	208°21.8	223°21.8	238°21.9	253°21.9	88°22.0	103°22.0	118°22.1	133°22.1	148°22.1	163°22.1	+0.0
	19°07.4	19°06.9	19°06.3	19°05.7	19°05.1	19°04.6	18°57.1	18°56.5	18°55.9	18°55.3	18°54.8	18°54.2	-0.6
wo 28	178°22.1	193°22.1	208°22.1	223°22.2	238°22.2	253°22.2	88°22.4	103°22.5	118°22.5	133°22.5	148°22.5	163°22.5	+0.0
	18°53.6	18°53.0	18°52.4	18°51.8	18°51.3	18°50.7	18°43.0	18°42.4	18°41.8	18°41.2	18°40.6	18°40.0	-0.6
do 29	178°22.6	193°22.6	208°22.6	223°22.6	238°22.6	253°22.7	88°23.0	103°23.0	118°23.0	133°23.1	148°23.1	163°23.1	+0.0
	18°39.4	18°38.9	18°38.3	18°37.7	18°37.1	18°36.5	18°28.6	18°28.0	18°27.4	18°26.8	18°26.2	18°25.6	-0.6
vr 30	178°23.1	193°23.2	208°23.2	223°23.2	238°23.3	253°23.3	88°23.7	103°23.7	118°23.8	133°23.8	148°23.8	163°23.8	+0.0
	18°25.0	18°24.4	18°23.8	18°23.2	18°22.6	18°21.9	18°14.0	18°13.3	18°12.7	18°12.1	18°11.5	18°10.9	-0.6
za 31	178°23.9	193°23.9	208°24.0	223°24.0	238°24.0	253°24.1	88°24.5	103°24.6	118°24.6	133°24.6	148°24.7	163°24.7	+0.0
	18°10.2	18°09.6	18°09.0	18°08.4	18°07.7	18°07.1	17°59.0	17°58.3	17°57.7	17°57.1	17°56.4	17°55.8	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2032

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
do 1	74°20.3	88°49.7	103°19.1	117°48.5	132°17.8	146°47.2	161°16.5	175°45.8	190°15.2	204°44.5	219°13.8	+29.3	15.7
	11°35.0	11°44.3	11°53.4	12°02.5	12°11.6	12°20.5	12°29.4	12°38.2	12°46.9	12°55.6	13°04.1	+8.9	57.6
vr 2	76°31.9	91°01.0	105°30.1	119°59.2	134°28.3	148°57.4	163°26.4	177°55.5	192°24.5	206°53.5	221°22.6	+29.1	15.5
	15°03.1	15°10.3	15°17.5	15°24.6	15°31.6	15°38.5	15°45.3	15°52.0	15°58.7	16°05.2	16°11.6	+6.9	57.0
za 3	78°36.7	93°05.5	107°34.4	122°03.3	136°32.2	151°01.0	165°29.9	179°58.7	194°27.6	208°56.4	223°25.2	+28.9	15.4
	17°37.2	17°42.1	17°46.9	17°51.7	17°56.3	18°00.8	18°05.3	18°09.6	18°13.9	18°18.0	18°22.0	+4.5	56.4
zo 4	80°37.9	95°06.8	109°35.7	124°04.5	138°33.4	153°02.3	167°31.2	182°00.2	196°29.1	210°58.0	225°27.0	+28.9	15.2
	19°10.3	19°12.7	19°15.0	19°17.2	19°19.3	19°21.3	19°23.2	19°25.0	19°26.6	19°28.2	19°29.7	+1.9	55.9
ma 5	82°43.1	97°12.4	111°41.6	126°10.9	140°40.2	155°09.5	169°38.9	184°08.2	198°37.6	213°07.0	227°36.5	+29.3	15.1
	19°39.4	19°39.2	19°39.0	19°38.6	19°38.1	19°37.5	19°36.9	19°36.1	19°35.2	19°34.2	19°33.2	-0.6	55.4
di 6	85°01.9	99°31.9	114°01.9	128°31.9	143°02.0	157°32.1	172°02.2	186°32.4	201°02.6	215°32.9	230°03.2	+30.1	15.0
	19°05.4	19°02.8	19°00.1	18°57.3	18°54.4	18°51.4	18°48.4	18°45.2	18°41.9	18°38.6	18°35.2	-3.0	55.0
● wo 7	87°42.7	102°13.6	116°44.7	131°15.7	145°46.8	160°18.0	174°49.2	189°20.4	203°51.7	218°23.0	232°54.4	+31.2	14.9
	17°33.4	17°28.6	17°23.8	17°18.8	17°13.8	17°08.7	17°03.6	16°58.3	16°53.0	16°47.6	16°42.1	-5.1	54.6
do 8	90°50.5	105°22.6	119°54.7	134°26.9	148°59.1	163°31.4	178°03.7	192°36.1	207°08.5	221°41.0	236°13.5	+32.3	14.8
	15°11.5	15°04.9	14°58.2	14°51.5	14°44.7	14°37.9	14°31.0	14°24.0	14°17.0	14°09.9	14°02.8	-6.9	54.3
vr 9	94°25.9	108°59.1	123°32.3	138°05.5	152°38.8	167°12.1	181°45.4	196°18.8	210°52.2	225°25.6	239°59.1	+33.3	14.7
	12°09.1	12°01.1	11°53.1	11°45.0	11°36.9	11°28.7	11°20.5	11°12.2	11°03.9	10°55.5	10°47.1	-8.2	54.1
za 10	98°25.3	112°59.3	127°33.3	142°07.3	156°41.4	171°15.4	185°49.6	200°23.7	214°57.8	229°32.0	244°06.2	+34.1	14.7
	8°36.4	8°27.4	8°18.4	8°09.3	8°00.2	7°51.1	7°41.9	7°32.7	7°23.5	7°14.3	7°05.0	-9.1	54.0
zo 11	102°41.4	117°15.9	131°50.4	146°24.9	160°59.4	175°33.9	190°08.4	204°42.9	219°17.5	233°52.0	248°26.5	+34.5	14.7
	4°42.9	4°33.3	4°23.6	4°14.0	4°04.3	3°54.5	3°44.8	3°35.1	3°25.3	3°15.5	3°05.8	-9.7	54.0
ma 12	107°04.9	121°39.4	136°13.9	150°48.5	165°23.0	179°57.5	194°32.0	209°06.4	223°40.9	238°15.4	252°49.8	+34.5	14.8
	0°37.7	0°27.8	0°17.8	0°07.9	-0°02.1	-0°12.0	-0°22.0	-0°31.9	-0°41.9	-0°51.8	-1°01.8	-9.9	54.2
di 13	121°39.4	136°13.9	150°48.5	165°23.0	179°57.5	194°32.0	209°06.4	223°40.9	238°15.4	252°49.8	267°24.3	+34.5	14.8
	0°27.8	0°17.8	0°07.9	-0°02.1	-0°12.0	-0°22.0	-0°31.9	-0°41.9	-0°51.8	-1°01.8	-1°11.7	-9.9	54.2
wo 14	125°58.6	140°32.7	155°06.7	169°40.8	184°14.8	198°48.8	213°22.8	227°56.7	242°30.6	257°04.5	271°38.3	+34.0	14.9
	-3°40.6	-3°50.4	-4°00.3	-4°10.1	-4°20.0	-4°29.8	-4°39.6	-4°49.4	-4°59.2	-5°08.9	-5°18.7	-9.8	54.6
◐ do 15	130°01.2	144°34.4	159°07.6	173°40.7	188°13.7	202°46.7	217°19.7	231°52.5	246°25.4	260°58.2	275°30.9	+33.0	15.0
	-7°42.8	-7°52.2	-8°01.6	-8°11.0	-8°20.4	-8°29.7	-8°39.0	-8°48.2	-8°57.5	-9°06.7	-9°15.8	-9.3	55.1
vr 16	133°35.1	148°06.9	162°38.6	177°10.3	191°41.9	206°13.4	220°44.9	235°16.3	249°47.6	264°18.8	278°50.0	+31.5	15.2
	-11°29.1	-11°37.7	-11°46.2	-11°54.6	-12°03.1	-12°11.4	-12°19.8	-12°28.1	-12°36.3	-12°44.5	-12°52.6	-8.4	55.8
za 17	136°28.9	150°58.9	165°28.8	179°58.6	194°28.4	208°58.0	223°27.6	237°57.1	252°26.6	266°55.9	281°25.2	+29.6	15.5
	-14°47.8	-14°54.9	-15°02.1	-15°09.1	-15°16.1	-15°23.0	-15°29.8	-15°36.6	-15°43.3	-15°49.9	-15°56.5	-6.9	56.7
zo 18	138°34.4	153°02.4	167°30.2	181°58.0	196°25.7	210°53.4	225°20.9	239°48.4	254°15.8	268°43.1	283°10.3	+27.6	15.7
	-17°25.0	-17°30.2	-17°35.3	-17°40.3	-17°45.3	-17°50.1	-17°54.8	-17°59.5	-18°04.0	-18°08.5	-18°12.8	-4.8	57.6
ma 19	139°49.5	154°15.5	168°41.4	183°07.3	197°33.1	211°58.8	226°24.5	240°50.1	255°15.7	269°41.1	284°06.5	+25.7	16.0
	-19°05.3	-19°08.0	-19°10.4	-19°12.8	-19°15.1	-19°17.2	-19°19.3	-19°21.2	-19°23.0	-19°24.6	-19°26.2	-2.1	58.6
di 20	140°20.8	154°45.4	169°09.9	183°34.3	197°58.7	212°23.1	226°47.4	241°11.7	255°36.0	270°00.2	284°24.4	+24.4	16.2
	-19°34.1	-19°33.6	-19°33.0	-19°32.2	-19°31.3	-19°30.3	-19°29.1	-19°27.8	-19°26.3	-19°24.8	-19°23.1	+1.1	59.5
wo 21	140°24.4	154°48.3	169°12.2	183°36.0	197°59.9	212°23.7	226°47.5	241°11.4	255°35.2	269°59.1	284°22.9	+23.8	16.4
	-18°41.1	-18°37.2	-18°33.2	-18°29.1	-18°24.8	-18°20.4	-18°15.8	-18°11.1	-18°06.3	-18°01.4	-17°56.3	+4.5	60.3
○ do 22	140°21.8	154°45.9	169°10.0	183°34.1	197°58.3	212°22.4	226°46.6	241°10.9	255°35.1	269°59.4	284°23.7	+24.2	16.6
	-16°24.7	-16°17.6	-16°10.4	-16°03.1	-15°55.6	-15°48.1	-15°40.4	-15°32.6	-15°24.7	-15°16.7	-15°08.5	+7.6	60.9
vr 23	140°33.0	154°57.9	169°22.9	183°48.0	198°13.0	212°38.2	227°03.3	241°28.5	255°53.8	270°19.1	284°44.4	+25.1	16.7
	-12°54.1	-12°44.4	-12°34.5	-12°24.6	-12°14.6	-12°04.6	-11°54.4	-11°44.1	-11°33.8	-11°23.4	-11°12.9	+10.1	61.1
za 24	141°10.4	155°36.5	170°02.7	184°28.9	198°55.2	213°21.5	227°47.8	242°14.2	256°40.7	271°07.2	285°33.7	+26.3	16.6
	-8°27.6	-8°16.1	-8°04.5	-7°52.9	-7°41.3	-7°29.6	-7°17.9	-7°06.1	-6°54.3	-6°42.4	-6°30.5	+11.7	61.0
zo 25	142°17.2	156°44.4	171°11.7	185°39.0	200°06.4	214°33.8	229°01.2	243°28.7	257°56.2	272°23.8	286°51.4	+27.4	16.5
	-3°28.7	-3°16.4	-3°04.1	-2°51.8	-2°39.5	-2°27.2	-2°14.9	-2°02.5	-1°50.2	-1°37.9	-1°25.6	+12.3	60.5
ma 26	143°49.2	158°17.3	172°45.4	187°13.6	201°41.7	216°10.0	230°38.2	245°06.4	259°34.7	274°03.0	288°31.3	+28.2	16.3
	1°38.3	1°50.4	2°02.6	2°14.6	2°26.7	2°38.7	2°50.7	3°02.7	3°14.6	3°26.5	3°38.4	+12.0	59.9
di 27	145°38.6	160°07.2	174°35.8	189°04.5	203°33.1	218°01.8	232°30.5	246°59.1	261°27.8	275°56.6	290°25.3	+28.7	16.1
	6°31.7	6°42.8	6°54.0	7°05.1	7°16.1	7°27.1	7°38.0	7°48.8	7°59.6	8°10.4	8°21.0	+10.9	59.1
wo 28	147°37.0	162°05.9	176°34.7	191°03.5	205°32.4	220°01.2	234°30.1	248°58.9	263°27.8	277°56.6	292°25.5	+28.8	15.9
	10°53.5	11°03.1	11°12.7	11°22.1	11°31.5	11°40.9	11°50.1	11°59.3	12°08.3	12°17.3	12°26.3	+9.3	58.2
◑ do 29	149°38.4	164°07.3	178°36.1	193°05.0	207°33.9	222°02.7	236°31.6	251°00.5	265°29.3	279°58.2	294°27.0	+28.9	15.7
	14°30.2	14°37.8	14°45.3	14°52.7	15°00.0	15°07.3	15°14.4	15°21.4	15°28.4	15°35.2	15°42.0	+7.2	57.4
vr 30	151°40.1	166°09.0	180°37.8	195°06.7	209°35.6	224°04.5	238°33.4	253°02.3	267°31.2	282°00.1	296°29.0	+28.9	15.4
	17°12.1	17°17.3	17°22.4	17°27.5	17°32.4	17°37.3	17°42.0	17°46.6	17°51.2	17°55.6	18°00.0	+4.8	56.6
za 31	153°43.6	168°12.6	182°41.7	197°10.7	211°39.8	226°08.9	240°38.0	255°07.1	269°36.2	284°05.4	298°34.5	+29.1	15.2
	18°53.0	18°55.7	18°58.3	19°00.8	19°03.2	19°05.6	19°07.8	19°09.9	19°11.9	19°13.8	19°15.6	+2.3	55.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 7 14h41 — EK: 15 18h32 — VM: 22 18h51 — LK: 29 09h25

ZON

Augustus 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	178° 24.8	193° 24.8	208° 24.8	223° 24.9	238° 24.9	253° 25.0	88° 25.5	103° 25.6	118° 25.6	133° 25.7	148° 25.7	163° 25.8	+0.0
	17° 55.2	17° 54.5	17° 53.9	17° 53.3	17° 52.6	17° 52.0	17° 43.7	17° 43.1	17° 42.4	17° 41.8	17° 41.1	17° 40.5	-0.6
ma 2	178° 25.8	193° 25.8	208° 25.9	223° 25.9	238° 26.0	253° 26.0	88° 26.7	103° 26.7	118° 26.8	133° 26.8	148° 26.9	163° 26.9	+0.0
	17° 39.8	17° 39.2	17° 38.5	17° 37.9	17° 37.2	17° 36.6	17° 28.1	17° 27.5	17° 26.8	17° 26.2	17° 25.5	17° 24.9	-0.6
di 3	178° 27.0	193° 27.0	208° 27.1	223° 27.1	238° 27.2	253° 27.2	88° 28.0	103° 28.0	118° 28.1	133° 28.1	148° 28.2	163° 28.3	+0.1
	17° 24.2	17° 23.5	17° 22.9	17° 22.2	17° 21.6	17° 20.9	17° 12.3	17° 11.6	17° 10.9	17° 10.3	17° 09.6	17° 08.9	-0.7
wo 4	178° 28.3	193° 28.4	208° 28.4	223° 28.5	238° 28.5	253° 28.6	88° 29.4	103° 29.5	118° 29.5	133° 29.6	148° 29.7	163° 29.7	+0.1
	17° 08.3	17° 07.6	17° 06.9	17° 06.3	17° 05.6	17° 04.9	16° 56.2	16° 55.5	16° 54.8	16° 54.1	16° 53.4	16° 52.8	-0.7
do 5	178° 29.8	193° 29.9	208° 29.9	223° 30.0	238° 30.1	253° 30.1	88° 31.0	103° 31.1	118° 31.1	133° 31.2	148° 31.3	163° 31.3	+0.1
	16° 52.1	16° 51.4	16° 50.7	16° 50.0	16° 49.4	16° 48.7	16° 39.8	16° 39.1	16° 38.4	16° 37.7	16° 37.0	16° 36.3	-0.7
vr 6	178° 31.4	193° 31.5	208° 31.6	223° 31.6	238° 31.7	253° 31.8	88° 32.7	103° 32.8	118° 32.9	133° 33.0	148° 33.0	163° 33.1	+0.1
	16° 35.6	16° 34.9	16° 34.2	16° 33.5	16° 32.8	16° 32.1	16° 23.1	16° 22.4	16° 21.7	16° 21.0	16° 20.3	16° 19.6	-0.7
za 7	178° 33.2	193° 33.3	208° 33.3	223° 33.4	238° 33.5	253° 33.6	88° 34.6	103° 34.7	118° 34.8	133° 34.9	148° 35.0	163° 35.0	+0.1
	16° 18.9	16° 18.2	16° 17.5	16° 16.8	16° 16.1	16° 15.4	16° 06.2	16° 05.4	16° 04.7	16° 04.0	16° 03.3	16° 02.6	-0.7
zo 8	178° 35.1	193° 35.2	208° 35.3	223° 35.4	238° 35.5	253° 35.5	88° 36.7	103° 36.7	118° 36.8	133° 36.9	148° 37.0	163° 37.1	+0.1
	16° 01.9	16° 01.2	16° 00.5	15° 59.7	15° 59.0	15° 58.3	15° 49.0	15° 48.2	15° 47.5	15° 46.8	15° 46.1	15° 45.4	-0.7
ma 9	178° 37.2	193° 37.3	208° 37.4	223° 37.5	238° 37.5	253° 37.6	88° 38.8	103° 38.9	118° 39.0	133° 39.1	148° 39.2	163° 39.3	+0.1
	15° 44.6	15° 43.9	15° 43.2	15° 42.5	15° 41.7	15° 41.0	15° 31.5	15° 30.8	15° 30.1	15° 29.3	15° 28.6	15° 27.9	-0.7
di 10	178° 39.4	193° 39.5	208° 39.6	223° 39.7	238° 39.8	253° 39.9	88° 41.2	103° 41.3	118° 41.4	133° 41.5	148° 41.6	163° 41.7	+0.1
	15° 27.1	15° 26.4	15° 25.7	15° 24.9	15° 24.2	15° 23.4	15° 13.8	15° 13.1	15° 12.4	15° 11.6	15° 10.9	15° 10.1	-0.7
wo 11	178° 41.8	193° 41.9	208° 42.0	223° 42.1	238° 42.2	253° 42.3	88° 43.6	103° 43.7	118° 43.8	133° 44.0	148° 44.1	163° 44.2	+0.1
	15° 09.4	15° 08.6	15° 07.9	15° 07.1	15° 06.4	15° 05.6	14° 55.9	14° 55.2	14° 54.4	14° 53.6	14° 52.9	14° 52.1	-0.7
do 12	178° 44.3	193° 44.4	208° 44.5	223° 44.6	238° 44.7	253° 44.8	88° 46.3	103° 46.4	118° 46.5	133° 46.6	148° 46.7	163° 46.8	+0.1
	14° 51.4	14° 50.6	14° 49.9	14° 49.1	14° 48.4	14° 47.6	14° 37.7	14° 37.0	14° 36.2	14° 35.4	14° 34.7	14° 33.9	-0.8
vr 13	178° 46.9	193° 47.0	208° 47.2	223° 47.3	238° 47.4	253° 47.5	88° 49.0	103° 49.1	118° 49.2	133° 49.4	148° 49.5	163° 49.6	+0.1
	14° 33.2	14° 32.4	14° 31.6	14° 30.9	14° 30.1	14° 29.3	14° 19.3	14° 18.6	14° 17.8	14° 17.0	14° 16.2	14° 15.5	-0.8
za 14	178° 49.7	193° 49.8	208° 50.0	223° 50.1	238° 50.2	253° 50.3	88° 51.9	103° 52.0	118° 52.2	133° 52.3	148° 52.4	163° 52.5	+0.1
	14° 14.7	14° 13.9	14° 13.2	14° 12.4	14° 11.6	14° 10.8	14° 00.7	13° 59.9	13° 59.1	13° 58.4	13° 57.6	13° 56.8	-0.8
zo 15	178° 52.7	193° 52.8	208° 52.9	223° 53.0	238° 53.2	253° 53.3	88° 54.9	103° 55.1	118° 55.2	133° 55.3	148° 55.5	163° 55.6	+0.1
	13° 56.0	13° 55.2	13° 54.5	13° 53.7	13° 52.9	13° 52.1	13° 41.9	13° 41.1	13° 40.3	13° 39.5	13° 38.7	13° 37.9	-0.8
ma 16	178° 55.7	193° 55.8	208° 56.0	223° 56.1	238° 56.2	253° 56.4	88° 58.1	103° 58.2	118° 58.4	133° 58.5	148° 58.6	163° 58.8	+0.1
	13° 37.1	13° 36.3	13° 35.5	13° 34.7	13° 33.9	13° 33.2	13° 22.8	13° 22.0	13° 21.2	13° 20.4	13° 19.6	13° 18.8	-0.8
di 17	178° 58.9	193° 59.1	208° 59.2	223° 59.3	238° 59.5	253° 59.6	89° 01.4	104° 01.5	119° 01.7	134° 01.8	149° 02.0	164° 02.1	+0.1
	13° 18.0	13° 17.2	13° 16.4	13° 15.6	13° 14.8	13° 14.0	13° 03.5	13° 02.7	13° 01.9	13° 01.1	13° 00.3	12° 59.5	-0.8
wo 18	179° 02.3	194° 02.4	209° 02.5	224° 02.7	239° 02.8	254° 03.0	89° 04.8	104° 05.0	119° 05.1	134° 05.3	149° 05.4	164° 05.6	+0.1
	12° 58.7	12° 57.9	12° 57.1	12° 56.2	12° 55.4	12° 54.6	12° 44.0	12° 43.2	12° 42.4	12° 41.6	12° 40.8	12° 40.0	-0.8
do 19	179° 05.7	194° 05.9	209° 06.0	224° 06.2	239° 06.3	254° 06.5	89° 08.4	104° 08.5	119° 08.7	134° 08.8	149° 09.0	164° 09.1	+0.1
	12° 39.1	12° 38.3	12° 37.5	12° 36.7	12° 35.9	12° 35.1	12° 24.4	12° 23.5	12° 22.7	12° 21.9	12° 21.1	12° 20.2	-0.8
vr 20	179° 09.3	194° 09.5	209° 09.6	224° 09.8	239° 09.9	254° 10.1	89° 12.1	104° 12.2	119° 12.4	134° 12.5	149° 12.7	164° 12.8	+0.2
	12° 19.4	12° 18.6	12° 17.8	12° 16.9	12° 16.1	12° 15.3	12° 04.5	12° 03.7	12° 02.8	12° 02.0	12° 01.2	12° 00.3	-0.8
za 21	179° 13.0	194° 13.2	209° 13.3	224° 13.5	239° 13.6	254° 13.8	89° 15.9	104° 16.0	119° 16.2	134° 16.3	149° 16.5	164° 16.7	+0.2
	11° 59.5	11° 58.7	11° 57.8	11° 57.0	11° 56.2	11° 55.3	11° 44.4	11° 43.6	11° 42.7	11° 41.9	11° 41.1	11° 40.2	-0.8
zo 22	179° 16.8	194° 17.0	209° 17.1	224° 17.3	239° 17.5	254° 17.6	89° 19.8	104° 19.9	119° 20.1	134° 20.3	149° 20.4	164° 20.6	+0.2
	11° 39.4	11° 38.5	11° 37.7	11° 36.9	11° 36.0	11° 35.2	11° 24.2	11° 23.3	11° 22.5	11° 21.6	11° 20.8	11° 19.9	-0.8
ma 23	179° 20.8	194° 20.9	209° 21.1	224° 21.3	239° 21.4	254° 21.6	89° 23.8	104° 23.9	119° 24.1	134° 24.3	149° 24.4	164° 24.6	+0.2
	11° 19.1	11° 18.2	11° 17.4	11° 16.5	11° 15.7	11° 14.8	11° 03.7	11° 02.9	11° 02.0	11° 01.2	11° 00.3	10° 59.5	-0.8
di 24	179° 24.8	194° 25.0	209° 25.1	224° 25.3	239° 25.5	254° 25.6	89° 27.9	104° 28.1	119° 28.2	134° 28.4	149° 28.6	164° 28.8	+0.2
	10° 58.6	10° 57.7	10° 56.9	10° 56.0	10° 55.2	10° 54.3	10° 43.1	10° 42.3	10° 41.4	10° 40.5	10° 39.7	10° 38.8	-0.9
wo 25	179° 28.9	194° 29.1	209° 29.3	224° 29.5	239° 29.6	254° 29.8	89° 32.1	104° 32.3	119° 32.4	134° 32.6	149° 32.8	164° 33.0	+0.2
	10° 38.0	10° 37.1	10° 36.2	10° 35.4	10° 34.5	10° 33.6	10° 22.3	10° 21.5	10° 20.6	10° 19.7	10° 18.9	10° 18.0	-0.9
do 26	179° 33.2	194° 33.3	209° 33.5	224° 33.7	239° 33.9	254° 34.1	89° 36.4	104° 36.6	119° 36.8	134° 36.9	149° 37.1	164° 37.3	+0.2
	10° 17.1	10° 16.3	10° 15.4	10° 14.5	10° 13.6	10° 12.8	10° 01.4	10° 00.5	9° 59.6	9° 58.8	9° 57.9	9° 57.0	-0.9
vr 27	179° 37.5	194° 37.7	209° 37.9	224° 38.0	239° 38.2	254° 38.4	89° 40.8	104° 41.0	119° 41.2	134° 41.3	149° 41.5	164° 41.7	+0.2
	9° 56.1	9° 55.3	9° 54.4	9° 53.5	9° 52.6	9° 51.7	9° 40.3	9° 39.4	9° 38.5	9° 37.6	9° 36.8	9° 35.9	-0.9
za 28	179° 41.9	194° 42.1	209° 42.3	224° 42.5	239° 42.6	254° 42.8	89° 45.3	104° 45.5	119° 45.6	134° 45.8	149° 46.0	164° 46.2	+0.2
	9° 35.0	9° 34.1	9° 33.2	9° 32.3	9° 31.5	9° 30.6	9° 19.0	9° 18.1	9° 17.3	9° 16.4	9° 15.5	9° 14.6	-0.9
zo 29	179° 46.4	194° 46.6	209° 46.8	224° 47.0	239° 47.2	254° 47.4	89° 49.8	104° 50.0	119° 50.2	134° 50.4	149° 50.6	164° 50.8	+0.2
	9° 13.7	9° 12.8	9° 11.9	9° 11.0	9° 10.1	9° 09.2	8° 57.6	8° 56.7	8° 55.8	8° 54.9	8° 54.0	8° 53.1	-0.9
ma 30	179° 51.0	194° 51.2	209° 51.4	224° 51.6	239° 51.8	254° 51.9	89° 54.5	104° 54.7	119° 54.9	134° 55.1	149° 55.3	164° 55.4	+0.2
	8° 52.2	8° 51.3	8° 50.4	8° 49.6	8° 48.7	8° 47.8	8° 36.1	8° 35.2	8° 34.3	8° 33.4	8° 32.5	8° 31.6	-0.9
di 31	179° 55.6	194° 55.8	209° 56.0	224° 56.2	239° 56.4	254° 56.6	89° 59.2	104° 59.4	119° 59.6	134° 59.8	150° 00.0	165° 00.2	+0.2
	8° 30.7	8° 29.7	8° 28.8	8° 27.9	8° 27.0	8° 26.1	8° 14.4	8° 13.5	8° 12.6	8° 11.6	8° 10.7	8° 09.8	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2032

D	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
zo 1	68°57.7	83°27.0	97°56.4	112°25.7	126°55.1	141°24.5	155°54.0	170°23.4	184°52.9	199°22.4	213°51.9	+29.4	15.1
	19°27.3	19°28.1	19°28.8	19°29.4	19°29.9	19°30.3	19°30.6	19°30.8	19°30.9	19°30.9	19°30.7	+0.3	55.5
ma 2	71°17.9	85°47.9	100°17.9	114°47.9	129°18.0	143°48.0	158°18.2	172°48.3	187°18.5	201°48.7	216°19.0	+30.1	15.0
	19°17.5	19°15.8	19°14.1	19°12.2	19°10.3	19°08.2	19°06.1	19°03.9	19°01.6	18°59.2	18°56.7	-2.1	55.0
di 3	73°57.0	88°27.9	102°58.7	117°29.6	132°00.6	146°31.6	161°02.6	175°33.7	190°04.8	204°35.9	219°07.1	+31.0	14.9
	18°08.7	18°04.8	18°00.8	17°56.8	17°52.7	17°48.4	17°44.1	17°39.7	17°35.3	17°30.7	17°26.1	-4.3	54.6
wo 4	76°59.8	91°31.6	106°03.5	120°35.4	135°07.4	149°39.4	164°11.4	178°43.5	193°15.7	207°47.8	222°20.0	+32.0	14.8
	16°01.6	16°01.8	15°55.9	15°50.0	15°43.9	15°37.8	15°31.7	15°25.5	15°19.2	15°12.8	15°06.4	-6.1	54.2
do 5	80°27.9	95°00.7	109°33.6	124°06.5	138°39.4	153°12.4	167°45.4	182°18.5	196°51.6	211°24.7	225°57.9	+33.0	14.7
	13°22.6	13°15.3	13°07.8	13°00.3	12°52.8	12°45.2	12°37.5	12°29.8	12°22.1	12°14.3	12°06.4	-7.6	54.0
● vr 6	84°19.3	98°53.0	113°26.7	128°00.5	142°34.2	157°08.0	171°41.9	186°15.7	200°49.6	215°23.5	229°57.4	+33.8	14.7
	10°03.2	9°54.6	9°46.0	9°37.4	9°28.7	9°20.0	9°11.2	9°02.4	8°53.6	8°44.8	8°35.9	-8.7	53.9
za 7	88°29.2	103°03.4	117°37.7	132°12.0	146°46.4	161°20.7	175°55.1	190°29.5	205°03.8	219°38.2	234°12.7	+34.4	14.7
	6°18.8	6°09.5	6°00.1	5°50.7	5°41.3	5°31.8	5°22.4	5°12.9	5°03.4	4°53.8	4°44.3	-9.5	53.9
zo 8	92°50.0	107°24.6	121°59.1	136°33.7	151°08.2	165°42.8	180°17.3	194°51.9	209°26.4	224°01.0	238°35.5	+34.5	14.7
	2°19.2	2°09.4	1°59.6	1°49.8	1°40.0	1°30.2	1°20.4	1°10.6	1°00.7	0°50.9	0°41.1	-9.8	54.0
ma 9	97°12.9	111°47.3	126°21.7	140°56.1	155°30.5	170°04.9	184°39.2	199°13.5	213°47.8	228°22.1	242°56.4	+34.3	14.8
	-1°46.7	-1°56.5	-2°06.3	-2°16.2	-2°26.0	-2°35.8	-2°45.6	-2°55.4	-3°05.2	-3°14.9	-3°24.7	-9.8	54.2
di 10	101°27.7	116°01.5	130°35.4	145°09.2	159°43.0	174°16.7	188°50.4	203°24.1	217°57.7	232°31.3	247°04.9	+33.7	14.9
	-5°49.6	-5°59.1	-6°08.6	-6°18.1	-6°27.6	-6°37.0	-6°46.4	-6°55.8	-7°05.2	-7°14.5	-7°23.8	-9.4	54.5
wo 11	105°23.7	119°56.6	134°29.4	149°02.2	163°35.0	178°07.7	192°40.3	207°12.9	221°45.5	236°18.0	250°50.4	+32.7	15.0
	-9°40.1	-9°49.0	-9°57.7	-10°06.5	-10°15.2	-10°23.9	-10°32.5	-10°41.1	-10°49.7	-10°58.2	-11°06.6	-8.7	55.0
do 12	119°56.6	134°29.4	149°02.2	163°35.0	178°07.7	192°40.3	207°12.9	221°45.5	236°18.0	250°50.4	265°22.8	+32.6	15.0
	-9°49.0	-9°57.7	-10°06.5	-10°15.2	-10°23.9	-10°32.5	-10°41.1	-10°49.7	-10°58.2	-11°06.6	-11°15.1	-8.6	55.0
vr 13	123°21.9	137°53.4	152°24.8	166°56.1	181°27.4	195°58.6	210°29.8	225°00.8	239°31.8	254°02.8	268°33.7	+31.2	15.2
	-13°15.8	-13°23.5	-13°31.0	-13°38.6	-13°46.0	-13°53.4	-14°00.8	-14°08.1	-14°15.3	-14°22.5	-14°29.6	-7.4	55.7
◐ za 14	126°08.7	140°38.5	155°08.2	169°37.8	184°07.4	198°36.9	213°06.3	227°35.6	242°04.9	256°34.1	271°03.2	+29.4	15.4
	-16°08.1	-16°14.1	-16°20.0	-16°25.9	-16°31.6	-16°37.3	-16°42.9	-16°48.5	-16°53.9	-16°59.3	-17°04.5	-5.6	56.5
zo 15	128°11.3	142°39.2	157°07.1	171°35.0	186°02.7	200°30.4	214°58.0	229°25.5	243°53.0	258°20.4	272°47.7	+27.6	15.6
	-18°13.0	-18°16.9	-18°20.6	-18°24.2	-18°27.7	-18°31.1	-18°34.5	-18°37.7	-18°40.8	-18°43.8	-18°46.7	-3.4	57.4
ma 16	129°29.7	143°56.0	158°22.2	172°48.4	187°14.5	201°40.5	216°06.5	230°32.5	244°58.4	259°24.2	273°50.0	+26.0	15.9
	-19°17.2	-19°18.3	-19°19.3	-19°20.2	-19°21.0	-19°21.7	-19°22.2	-19°22.6	-19°22.9	-19°23.1	-19°23.1	-0.6	58.4
di 17	130°11.1	144°36.1	159°01.2	173°26.2	187°51.1	202°16.1	216°41.0	231°05.8	245°30.7	259°55.5	274°20.3	+24.9	16.2
	-19°08.9	-19°06.9	-19°04.8	-19°02.6	-19°00.3	-18°57.8	-18°55.2	-18°52.4	-18°49.6	-18°46.6	-18°43.5	+2.5	59.3
wo 18	130°29.5	144°54.0	159°18.5	173°42.9	188°07.4	202°31.9	216°56.4	231°20.8	245°45.3	260°09.8	274°34.2	+24.5	16.4
	-17°41.1	-17°35.9	-17°30.6	-17°25.1	-17°19.6	-17°13.9	-17°08.1	-17°02.1	-16°56.0	-16°49.9	-16°43.6	+5.8	60.2
do 19	130°41.9	145°06.5	159°31.1	173°55.8	188°20.4	202°45.1	217°09.8	231°34.5	245°59.2	260°23.9	274°48.7	+24.7	16.6
	-14°54.6	-14°46.4	-14°38.1	-14°29.8	-14°21.2	-14°12.6	-14°03.9	-13°55.1	-13°46.2	-13°37.2	-13°28.0	+8.7	60.9
vr 20	131°03.2	145°28.4	159°53.6	174°18.9	188°44.2	203°09.5	217°34.8	232°00.2	246°25.6	260°51.0	275°16.5	+25.3	16.7
	-10°59.9	-10°49.4	-10°38.7	-10°28.0	-10°17.2	-10°06.4	-9°55.4	-9°44.4	-9°33.3	-9°22.2	-9°11.0	+10.9	61.3
○ za 21	131°42.2	146°08.2	160°34.2	175°00.2	189°26.3	203°52.4	218°18.5	232°44.7	247°10.9	261°37.1	276°03.4	+26.1	16.7
	-6°16.0	-6°03.9	-5°51.8	-5°39.7	-5°27.5	-5°15.3	-5°03.1	-4°50.8	-4°38.5	-4°26.2	-4°13.9	+12.2	61.3
zo 22	132°40.7	147°07.4	161°34.2	176°00.9	190°27.7	204°54.5	219°21.4	233°48.3	248°15.1	262°42.1	277°09.0	+26.8	16.6
	-1°06.8	-0°54.3	-0°41.8	-0°29.3	-0°16.7	-0°04.2	0°08.3	0°20.8	0°33.2	0°45.7	0°58.1	+12.5	61.0
ma 23	133°55.6	148°22.9	162°50.2	177°17.5	191°44.8	206°12.1	220°39.5	235°06.9	249°34.2	264°01.6	278°29.1	+27.3	16.5
	4°02.1	4°14.1	4°26.1	4°38.0	4°49.9	5°01.8	5°13.6	5°25.3	5°37.0	5°48.7	6°00.3	+11.8	60.4
di 24	135°21.9	149°49.5	164°17.1	178°44.8	193°12.4	207°40.1	222°07.7	236°35.4	251°03.1	265°30.8	279°58.5	+27.7	16.2
	8°47.8	8°58.5	9°09.1	9°19.6	9°30.1	9°40.5	9°50.8	10°01.0	10°11.2	10°21.3	10°31.3	+10.4	59.5
wo 25	136°55.1	151°23.0	165°50.8	180°18.7	194°46.6	209°14.4	223°42.3	238°10.2	252°38.1	267°06.0	281°33.9	+27.9	16.0
	12°51.9	13°00.6	13°09.2	13°17.7	13°26.2	13°34.5	13°42.8	13°50.9	13°59.0	14°06.9	14°14.8	+8.3	58.6
do 26	138°33.8	153°01.9	167°29.9	181°58.0	196°26.1	210°54.2	225°22.4	239°50.5	254°18.7	268°46.8	283°15.0	+28.1	15.7
	16°01.4	16°07.7	16°14.0	16°20.1	16°26.1	16°32.0	16°37.8	16°43.5	16°49.1	16°54.6	17°00.0	+5.9	57.6
◑ vr 27	140°19.5	154°47.9	169°16.4	183°44.8	198°13.3	212°41.8	227°10.4	241°38.9	256°07.5	270°36.1	285°04.7	+28.5	15.5
	18°08.7	18°12.4	18°16.1	18°19.6	18°23.0	18°26.3	18°29.6	18°32.7	18°35.7	18°38.6	18°41.4	+3.3	56.7
za 28	142°16.8	156°45.8	171°14.8	185°43.9	200°13.0	214°42.1	229°11.3	243°40.4	258°09.7	272°38.9	287°08.2	+29.1	15.2
	19°10.9	19°12.1	19°13.1	19°14.1	19°14.9	19°15.6	19°16.3	19°16.8	19°17.2	19°17.6	19°17.8	+0.7	55.9
zo 29	144°31.3	159°01.2	173°31.0	188°00.9	202°30.8	217°00.8	231°30.8	246°00.9	260°30.9	275°01.1	289°31.2	+30.0	15.1
	19°09.5	19°08.2	19°06.8	19°05.2	19°03.6	19°01.9	19°00.1	18°58.2	18°56.3	18°54.2	18°52.0	-1.7	55.2
ma 30	147°08.4	161°39.2	176°10.0	190°40.9	205°11.8	219°42.8	234°13.8	248°44.8	263°15.9	277°47.0	292°18.2	+31.0	14.9
	18°08.9	18°05.3	18°01.7	17°58.0	17°54.2	17°50.3	17°46.3	17°42.2	17°38.1	17°33.9	17°29.6	-3.9	54.7
di 31	150°10.8	164°42.6	179°14.5	193°46.4	208°18.4	222°50.4	237°22.4	251°54.5	266°26.6	280°58.8	295°31.0	+32.0	14.8
	16°15.9	16°10.4	16°04.8	15°59.2	15°53.5	15°47.7	15°41.9	15°36.0	15°30.0	15°23.9	15°17.8	-5.8	54.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 05h11 — EK: 14 07h51 — VM: 21 01h46 — LK: 27 19h33

ZON

September 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	180° 00.4 8° 08.9	195° 00.6 8° 08.0	210° 00.8 8° 07.1	225° 01.0 8° 06.2	240° 01.2 8° 05.3	255° 01.4 8° 04.4	90° 04.0 7° 52.5	105° 04.2 7° 51.6	120° 04.4 7° 50.7	135° 04.6 7° 49.8	150° 04.8 7° 48.9	165° 05.0 7° 48.0	+0.2 -0.9
do 2	180° 05.2 7° 47.1	195° 05.4 7° 46.1	210° 05.6 7° 45.2	225° 05.8 7° 44.3	240° 06.0 7° 43.4	255° 06.2 7° 42.5	90° 08.8 7° 30.6	105° 09.0 7° 29.7	120° 09.2 7° 28.7	135° 09.4 7° 27.8	150° 09.6 7° 26.9	165° 09.8 7° 26.0	+0.2 -0.9
vr 3	180° 10.0 7° 25.1	195° 10.3 7° 24.2	210° 10.5 7° 23.2	225° 10.7 7° 22.3	240° 10.9 7° 21.4	255° 11.1 7° 20.5	90° 13.7 7° 08.5	105° 13.9 7° 07.6	120° 14.2 7° 06.7	135° 14.4 7° 05.7	150° 14.6 7° 04.8	165° 14.8 7° 03.9	+0.2 -0.9
za 4	180° 15.0 7° 03.0	195° 15.2 7° 02.0	210° 15.4 7° 01.1	225° 15.6 7° 00.2	240° 15.8 6° 59.3	255° 16.0 6° 58.3	90° 18.7 6° 46.3	105° 18.9 6° 45.4	120° 19.1 6° 44.5	135° 19.3 6° 43.5	150° 19.6 6° 42.6	165° 19.8 6° 41.7	+0.2 -0.9
zo 5	180° 20.0 6° 40.7	195° 20.2 6° 39.8	210° 20.4 6° 38.9	225° 20.6 6° 38.0	240° 20.8 6° 37.0	255° 21.0 6° 36.1	90° 23.8 6° 24.0	105° 24.0 6° 23.1	120° 24.2 6° 22.1	135° 24.4 6° 21.2	150° 24.6 6° 20.3	165° 24.8 6° 19.4	+0.2 -0.9
ma 6	180° 25.0 6° 18.4	195° 25.2 6° 17.5	210° 25.4 6° 16.6	225° 25.7 6° 15.6	240° 25.9 6° 14.7	255° 26.1 6° 13.8	90° 28.8 6° 01.6	105° 29.1 6° 00.7	120° 29.3 5° 59.7	135° 29.5 5° 58.8	150° 29.7 5° 57.9	165° 29.9 5° 56.9	+0.2 -0.9
di 7	180° 30.1 5° 56.0	195° 30.3 5° 55.1	210° 30.5 5° 54.1	225° 30.8 5° 53.2	240° 31.0 5° 52.2	255° 31.2 5° 51.3	90° 34.0 5° 39.1	105° 34.2 5° 38.2	120° 34.4 5° 37.2	135° 34.6 5° 36.3	150° 34.8 5° 35.3	165° 35.1 5° 34.4	+0.2 -0.9
wo 8	180° 35.3 5° 33.5	195° 35.5 5° 32.5	210° 35.7 5° 31.6	225° 35.9 5° 30.6	240° 36.1 5° 29.7	255° 36.3 5° 28.8	90° 39.2 5° 16.5	105° 39.4 5° 15.6	120° 39.6 5° 14.6	135° 39.8 5° 13.7	150° 40.0 5° 12.7	165° 40.2 5° 11.8	+0.2 -0.9
do 9	180° 40.5 5° 10.8	195° 40.7 5° 09.9	210° 40.9 5° 08.9	225° 41.1 5° 08.0	240° 41.3 5° 07.1	255° 41.5 5° 06.1	90° 44.4 4° 53.8	105° 44.6 4° 52.9	120° 44.8 4° 51.9	135° 45.0 4° 51.0	150° 45.3 4° 50.0	165° 45.5 4° 49.1	+0.2 -0.9
vr 10	180° 45.7 4° 48.1	195° 45.9 4° 47.2	210° 46.1 4° 46.2	225° 46.3 4° 45.3	240° 46.6 4° 44.3	255° 46.8 4° 43.4	90° 49.6 4° 31.0	105° 49.9 4° 30.1	120° 50.1 4° 29.1	135° 50.3 4° 28.2	150° 50.5 4° 27.2	165° 50.7 4° 26.3	+0.2 -0.9
za 11	180° 51.0 4° 25.3	195° 51.2 4° 24.4	210° 51.4 4° 23.4	225° 51.6 4° 22.5	240° 51.8 4° 21.5	255° 52.1 4° 20.6	90° 54.9 4° 08.2	105° 55.1 4° 07.2	120° 55.4 4° 06.3	135° 55.6 4° 05.3	150° 55.8 4° 04.4	165° 56.0 4° 03.4	+0.2 -1.0
zo 12	180° 56.3 4° 02.5	195° 56.5 4° 01.5	210° 56.7 4° 00.6	225° 56.9 3° 59.6	240° 57.1 3° 58.6	255° 57.4 3° 57.7	91° 00.2 3° 45.3	106° 00.5 3° 44.3	121° 00.7 3° 43.4	136° 00.9 3° 42.4	151° 01.1 3° 41.4	166° 01.4 3° 40.5	+0.2 -1.0
ma 13	181° 01.6 3° 39.5	196° 01.8 3° 38.6	211° 02.0 3° 37.6	226° 02.2 3° 36.7	241° 02.5 3° 35.7	256° 02.7 3° 34.7	91° 05.6 3° 22.3	106° 05.8 3° 21.3	121° 06.0 3° 20.4	136° 06.3 3° 19.4	151° 06.5 3° 18.5	166° 06.7 3° 17.5	+0.2 -1.0
di 14	181° 06.9 3° 16.5	196° 07.2 3° 15.6	211° 07.4 3° 14.6	226° 07.6 3° 13.7	241° 07.8 3° 12.7	256° 08.0 3° 11.7	91° 10.9 2° 59.2	106° 11.2 2° 58.3	121° 11.4 2° 57.3	136° 11.6 2° 56.4	151° 11.8 2° 55.4	166° 12.1 2° 54.4	+0.2 -1.0
wo 15	181° 12.3 2° 53.5	196° 12.5 2° 52.5	211° 12.7 2° 51.5	226° 13.0 2° 50.6	241° 13.2 2° 49.6	256° 13.4 2° 48.7	91° 16.3 2° 36.1	106° 16.5 2° 35.2	121° 16.8 2° 34.2	136° 17.0 2° 33.3	151° 17.2 2° 32.3	166° 17.4 2° 31.3	+0.2 -1.0
do 16	181° 17.7 2° 30.4	196° 17.9 2° 29.4	211° 18.1 2° 28.4	226° 18.3 2° 27.5	241° 18.6 2° 26.5	256° 18.8 2° 25.5	91° 21.7 2° 13.0	106° 21.9 2° 12.0	121° 22.2 2° 11.1	136° 22.4 2° 10.1	151° 22.6 2° 09.1	166° 22.8 2° 08.2	+0.2 -1.0
vr 17	181° 23.1 2° 07.2	196° 23.3 2° 06.2	211° 23.5 2° 05.3	226° 23.7 2° 04.3	241° 24.0 2° 03.3	256° 24.2 2° 02.4	91° 27.1 1° 49.8	106° 27.3 1° 48.8	121° 27.5 1° 47.9	136° 27.8 1° 46.9	151° 28.0 1° 45.9	166° 28.2 1° 45.0	+0.2 -1.0
za 18	181° 28.4 1° 44.0	196° 28.7 1° 43.0	211° 28.9 1° 42.1	226° 29.1 1° 41.1	241° 29.3 1° 40.1	256° 29.6 1° 39.2	91° 32.5 1° 26.6	106° 32.7 1° 25.6	121° 32.9 1° 24.6	136° 33.1 1° 23.7	151° 33.4 1° 22.7	166° 33.6 1° 21.7	+0.2 -1.0
zo 19	181° 33.8 1° 20.8	196° 34.0 1° 19.8	211° 34.3 1° 18.8	226° 34.5 1° 17.9	241° 34.7 1° 16.9	256° 34.9 1° 15.9	91° 37.8 1° 03.3	106° 38.1 1° 02.3	121° 38.3 1° 01.4	136° 38.5 1° 00.4	151° 38.7 0° 59.4	166° 39.0 0° 58.5	+0.2 -1.0
ma 20	181° 39.2 0° 57.5	196° 39.4 0° 56.5	211° 39.6 0° 55.5	226° 39.9 0° 54.6	241° 40.1 0° 53.6	256° 40.3 0° 52.6	91° 43.2 0° 40.0	106° 43.4 0° 39.0	121° 43.6 0° 38.1	136° 43.9 0° 37.1	151° 44.1 0° 36.1	166° 44.3 0° 35.2	+0.2 -1.0
di 21	181° 44.5 0° 34.2	196° 44.8 0° 33.2	211° 45.0 0° 32.2	226° 45.2 0° 31.3	241° 45.4 0° 30.3	256° 45.6 0° 29.3	91° 48.5 0° 16.7	106° 48.8 0° 15.7	121° 49.0 0° 14.8	136° 49.2 0° 13.8	151° 49.4 0° 12.8	166° 49.6 0° 11.8	+0.2 -1.0
wo 22	181° 49.9 0° 10.9	196° 50.1 0° 09.9	211° 50.3 0° 08.9	226° 50.5 0° 08.0	241° 50.7 0° 07.0	256° 51.0 0° 06.0	91° 53.8 -0° 06.6	106° 54.1 -0° 07.6	121° 54.3 -0° 08.6	136° 54.5 -0° 09.6	151° 54.7 -0° 10.5	166° 54.9 -0° 11.5	+0.2 -1.0
do 23	181° 55.2 -0° 12.5	196° 55.4 -0° 13.4	211° 55.6 -0° 14.4	226° 55.8 -0° 15.4	241° 56.0 -0° 16.4	256° 56.3 -0° 17.3	91° 59.1 -0° 30.0	106° 59.3 -0° 31.0	121° 59.5 -0° 31.9	136° 59.8 -0° 32.9	152° 00.0 -0° 33.9	167° 00.2 -0° 34.8	+0.2 -1.0
vr 24	182° 00.4 -0° 35.8	197° 00.6 -0° 36.8	212° 00.9 -0° 37.8	227° 01.1 -0° 38.7	242° 01.3 -0° 39.7	257° 01.5 -0° 40.7	92° 04.3 -0° 53.3	107° 04.5 -0° 54.3	122° 04.8 -0° 55.3	137° 05.0 -0° 56.3	152° 05.2 -0° 57.2	167° 05.4 -0° 58.2	+0.2 -1.0
za 25	182° 05.6 -0° 59.2	197° 05.8 -1° 00.2	212° 06.1 -1° 01.1	227° 06.3 -1° 02.1	242° 06.5 -1° 03.1	257° 06.7 -1° 04.0	92° 09.5 -1° 16.7	107° 09.7 -1° 17.7	122° 09.9 -1° 18.6	137° 10.2 -1° 19.6	152° 10.4 -1° 20.6	167° 10.6 -1° 21.6	+0.2 -1.0
zo 26	182° 10.8 -1° 22.5	197° 11.0 -1° 23.5	212° 11.2 -1° 24.5	227° 11.4 -1° 25.5	242° 11.7 -1° 26.4	257° 11.9 -1° 27.4	92° 14.6 -1° 40.0	107° 14.9 -1° 41.0	122° 15.1 -1° 42.0	137° 15.3 -1° 43.0	152° 15.5 -1° 43.9	167° 15.7 -1° 44.9	+0.2 -1.0
ma 27	182° 15.9 -1° 45.9	197° 16.1 -1° 46.9	212° 16.3 -1° 47.8	227° 16.6 -1° 48.8	242° 16.8 -1° 49.8	257° 17.0 -1° 50.8	92° 19.7 -2° 03.4	107° 19.9 -2° 04.4	122° 20.1 -2° 05.3	137° 20.3 -2° 06.3	152° 20.6 -2° 07.3	167° 20.8 -2° 08.3	+0.2 -1.0
di 28	182° 21.0 -2° 09.2	197° 21.2 -2° 10.2	212° 21.4 -2° 11.2	227° 21.6 -2° 12.1	242° 21.8 -2° 13.1	257° 22.0 -2° 14.1	92° 24.7 -2° 26.7	107° 24.9 -2° 27.7	122° 25.1 -2° 28.7	137° 25.4 -2° 29.6	152° 25.6 -2° 30.6	167° 25.8 -2° 31.6	+0.2 -1.0
wo 29	182° 26.0 -2° 32.5	197° 26.2 -2° 33.5	212° 26.4 -2° 34.5	227° 26.6 -2° 35.5	242° 26.8 -2° 36.4	257° 27.0 -2° 37.4	92° 29.7 -2° 50.0	107° 29.9 -2° 51.0	122° 30.1 -2° 52.0	137° 30.3 -2° 52.9	152° 30.5 -2° 53.9	167° 30.7 -2° 54.9	+0.2 -1.0
do 30	182° 30.9 -2° 55.8	197° 31.1 -2° 56.8	212° 31.3 -2° 57.8	227° 31.5 -2° 58.8	242° 31.7 -2° 59.7	257° 31.9 -3° 00.7	92° 34.6 -3° 13.3	107° 34.8 -3° 14.3	122° 35.0 -3° 15.2	137° 35.2 -3° 16.2	152° 35.4 -3° 17.2	167° 35.6 -3° 18.1	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2032

D	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
wo 1	66°22.6	80°55.2	95°27.8	110°00.5	124°33.2	139°05.9	153°38.7	168°11.5	182°44.4	197°17.3	211°50.2	+32.8	14.7
	14°20.0	14°13.2	14°06.4	13°59.6	13°52.6	13°45.7	13°38.6	13°31.5	13°24.4	13°17.2	13°09.9	-7.0	54.1
do 2	70°08.1	84°41.5	99°15.0	113°48.5	128°22.0	142°55.6	157°29.2	172°02.8	186°36.5	201°10.1	215°43.8	+33.6	14.7
	11°14.9	11°06.9	10°58.8	10°50.6	10°42.4	10°34.2	10°25.9	10°17.6	10°09.2	10°00.8	9°52.4	-8.3	53.9
vr 3	74°12.3	88°46.3	103°20.4	117°54.5	132°28.7	147°02.8	161°37.0	176°11.1	190°45.3	205°19.5	219°53.8	+34.2	14.7
	7°41.3	7°32.3	7°23.3	7°14.2	7°05.1	6°56.0	6°46.9	6°37.7	6°28.5	6°19.2	6°10.0	-9.1	53.9
● za 4	78°28.6	93°03.0	107°37.4	122°11.8	136°46.2	151°20.6	165°55.0	180°29.5	195°03.9	209°38.3	224°12.7	+34.4	14.7
	3°48.4	3°38.9	3°29.3	3°19.6	3°10.0	3°00.4	2°50.7	2°41.0	2°31.4	2°21.7	2°12.0	-9.7	53.9
zo 5	82°49.0	97°23.4	111°57.8	126°32.1	141°06.5	155°40.8	170°15.2	184°49.5	199°23.8	213°58.1	228°32.4	+34.3	14.7
	-0°14.5	-0°24.3	-0°34.1	-0°43.9	-0°53.7	-1°03.5	-1°13.2	-1°23.0	-1°32.8	-1°42.6	-1°52.4	-9.8	54.1
ma 6	87°04.9	101°38.9	116°12.9	130°46.8	145°20.8	159°54.7	174°28.6	189°02.4	203°36.3	218°10.1	232°43.9	+33.9	14.8
	-4°18.0	-4°27.6	-4°37.2	-4°46.8	-4°56.4	-5°05.9	-5°15.5	-5°25.0	-5°34.5	-5°44.0	-5°53.4	-9.5	54.3
di 7	91°07.1	105°40.4	120°13.6	134°46.8	149°20.0	163°53.1	178°26.2	192°59.3	207°32.3	222°05.2	236°38.2	+33.1	14.9
	-8°12.4	-8°21.4	-8°30.4	-8°39.4	-8°48.4	-8°57.3	-9°06.1	-9°15.0	-9°23.8	-9°32.6	-9°41.3	-8.9	54.7
wo 8	94°47.0	109°19.2	123°51.4	138°23.5	152°55.6	167°27.6	181°59.5	196°31.5	211°03.3	225°35.1	240°06.9	+32.0	15.0
	-11°47.3	-11°55.4	-12°03.4	-12°11.3	-12°19.2	-12°27.0	-12°34.8	-12°42.6	-12°50.2	-12°57.9	-13°05.4	-7.8	55.1
do 9	97°56.9	112°27.8	126°58.7	141°29.4	156°00.2	170°30.8	185°01.4	199°32.0	214°02.5	228°32.9	243°03.3	+30.6	15.2
	-14°51.9	-14°58.5	-15°05.1	-15°11.5	-15°17.9	-15°24.2	-15°30.5	-15°36.7	-15°42.8	-15°48.8	-15°54.8	-6.3	55.7
vr 10	100°31.7	115°01.1	129°30.5	143°59.8	158°29.0	172°58.2	187°27.3	201°56.4	216°25.4	230°54.4	245°23.3	+29.2	15.4
	-17°14.8	-17°19.5	-17°24.1	-17°28.6	-17°33.0	-17°37.3	-17°41.6	-17°45.7	-17°49.8	-17°53.8	-17°57.7	-4.3	56.3
za 11	115°01.1	129°30.5	143°59.8	158°29.0	172°58.2	187°27.3	201°56.4	216°25.4	230°54.4	245°23.3	259°52.1	+29.1	15.4
	-17°19.5	-17°24.1	-17°28.6	-17°33.0	-17°37.3	-17°41.6	-17°45.7	-17°49.8	-17°53.8	-17°57.7	-18°01.4	-4.2	56.4
◐ zo 12	116°57.7	131°25.6	145°53.5	160°21.3	174°49.1	189°16.8	203°44.5	218°12.1	232°39.7	247°07.2	261°34.7	+27.7	15.6
	-18°46.7	-18°48.9	-18°51.0	-18°53.0	-18°54.9	-18°56.7	-18°58.4	-19°00.0	-19°01.5	-19°02.8	-19°04.1	-1.7	57.1
ma 13	118°21.1	132°47.8	147°14.6	161°41.2	176°07.9	190°34.5	205°01.0	219°27.5	233°54.0	248°20.5	262°46.9	+26.6	15.8
	-19°09.7	-19°09.1	-19°08.5	-19°07.7	-19°06.8	-19°05.8	-19°04.7	-19°03.5	-19°02.1	-19°00.6	-18°59.1	+1.1	58.0
di 14	119°19.6	133°45.6	148°11.6	162°37.5	177°03.4	191°29.3	205°55.2	220°21.1	234°46.9	249°12.8	263°38.6	+25.9	16.1
	-18°20.9	-18°17.4	-18°13.8	-18°10.1	-18°06.2	-18°02.2	-17°58.1	-17°53.9	-17°49.6	-17°45.1	-17°40.5	+4.0	58.9
wo 15	120°04.6	134°30.3	148°56.0	163°21.7	177°47.4	192°13.0	206°38.7	221°04.4	235°30.1	249°55.8	264°21.4	+25.7	16.3
	-16°17.8	-16°11.4	-16°04.8	-15°58.2	-15°51.4	-15°44.5	-15°37.5	-15°30.4	-15°23.2	-15°15.9	-15°08.4	+6.9	59.7
do 16	120°47.3	135°13.0	149°38.8	164°04.6	178°30.4	192°56.3	207°22.1	221°47.9	236°13.8	250°39.7	265°05.5	+25.8	16.5
	-13°04.5	-12°55.5	-12°46.3	-12°37.1	-12°27.8	-12°18.3	-12°08.8	-11°59.2	-11°49.5	-11°39.8	-11°29.9	+9.5	60.5
vr 17	121°35.3	136°01.3	150°27.4	164°53.6	179°19.7	193°45.8	208°12.0	222°38.2	237°04.4	251°30.6	265°56.8	+26.2	16.6
	-8°52.6	-8°41.5	-8°30.4	-8°19.2	-8°08.0	-7°56.7	-7°45.3	-7°33.9	-7°22.4	-7°10.9	-6°59.3	+11.3	61.0
za 18	122°31.6	136°58.1	151°24.5	165°50.9	180°17.4	194°43.9	209°10.4	223°36.8	238°03.3	252°29.9	266°56.4	+26.5	16.7
	-4°00.3	-3°48.1	-3°35.8	-3°23.5	-3°11.2	-2°58.9	-2°46.6	-2°34.2	-2°21.9	-2°09.5	-1°57.1	+12.3	61.2
○ zo 19	123°35.3	138°01.9	152°28.6	166°55.2	181°21.9	195°48.6	210°15.2	224°41.9	239°08.6	253°35.3	268°02.0	+26.7	16.6
	1°09.5	1°21.9	1°34.3	1°46.6	1°59.0	2°11.3	2°23.6	2°35.9	2°48.2	3°00.5	3°12.7	+12.3	61.0
ma 20	124°42.9	139°09.6	153°36.4	168°03.1	182°29.9	196°56.6	211°23.4	225°50.1	240°16.9	254°43.6	269°10.4	+26.8	16.5
	6°12.0	6°23.6	6°35.1	6°46.6	6°58.1	7°09.5	7°20.8	7°32.1	7°43.3	7°54.5	8°05.6	+11.4	60.6
di 21	125°51.9	140°18.6	154°45.4	169°12.2	183°39.0	198°05.7	212°32.5	226°59.3	241°26.1	255°52.9	270°19.7	+26.8	16.3
	10°44.0	10°54.0	11°03.9	11°13.7	11°23.4	11°33.1	11°42.6	11°52.1	12°01.5	12°10.8	12°20.0	+9.6	59.8
wo 22	127°02.2	141°29.1	155°56.0	170°22.9	184°49.8	199°16.7	213°43.6	228°10.5	242°37.5	257°04.4	271°31.4	+26.9	16.1
	14°26.9	14°34.6	14°42.2	14°49.7	14°57.1	15°04.4	15°11.6	15°18.7	15°25.6	15°32.5	15°39.3	+7.2	58.9
do 23	128°17.6	142°44.8	157°12.1	171°39.3	186°06.6	200°33.9	215°01.2	229°28.5	243°55.9	258°23.3	272°50.7	+27.3	15.8
	17°08.0	17°13.0	17°18.0	17°22.8	17°27.5	17°32.1	17°36.6	17°41.0	17°45.3	17°49.5	17°53.5	+4.6	57.9
vr 24	129°45.1	144°12.9	158°40.8	173°08.8	187°36.7	202°04.7	216°32.7	231°00.8	245°28.9	259°57.1	274°25.2	+28.0	15.5
	18°41.2	18°43.5	18°45.7	18°47.8	18°49.8	18°51.6	18°53.4	18°55.0	18°56.6	18°58.0	18°59.3	+1.8	56.9
za 25	131°32.6	146°01.4	160°30.3	174°59.2	189°28.2	203°57.2	218°26.2	232°55.3	247°24.5	261°53.7	276°22.9	+29.0	15.3
	19°06.6	19°06.2	19°05.8	19°05.2	19°04.6	19°03.8	19°03.0	19°02.0	19°01.0	18°59.9	18°58.6	-0.8	56.0
◑ zo 26	133°47.1	148°17.1	162°47.1	177°17.2	191°47.4	206°17.6	220°47.8	235°18.1	249°48.5	264°18.9	278°49.3	+30.2	15.1
	18°28.6	18°25.9	18°23.1	18°20.2	18°17.2	18°14.1	18°10.9	18°07.6	18°04.3	18°00.9	17°57.4	-3.1	55.3
ma 27	136°32.1	151°03.4	165°34.6	180°06.0	194°37.4	209°08.8	223°40.3	238°11.9	252°43.4	267°15.1	281°46.7	+31.5	14.9
	16°54.8	16°50.0	16°45.2	16°40.2	16°35.2	16°30.1	16°25.0	16°19.7	16°14.4	16°09.0	16°03.6	-5.1	54.7
di 28	139°47.5	154°19.9	168°52.3	183°24.8	197°57.3	212°29.9	227°02.5	241°35.2	256°07.9	270°40.6	285°13.4	+32.6	14.8
	14°33.8	14°27.4	14°20.8	14°14.2	14°07.5	14°00.8	13°54.0	13°47.1	13°40.2	13°33.3	13°26.3	-6.8	54.3
wo 29	143°29.5	158°02.9	172°36.3	187°09.7	201°43.1	216°16.6	230°50.1	245°23.7	259°57.2	274°30.8	289°04.4	+33.5	14.7
	11°34.7	11°26.9	11°19.0	11°11.0	11°03.1	10°55.1	10°47.0	10°38.9	10°30.7	10°22.6	10°14.3	-8.0	54.0
do 30	147°31.9	162°05.9	176°40.0	191°14.0	205°48.1	220°22.2	234°56.3	249°30.4	264°04.5	278°38.7	293°12.9	+34.1	14.7
	8°06.2	7°57.4	7°48.5	7°39.6	7°30.7	7°21.8	7°12.8	7°03.8	6°54.7	6°45.7	6°36.6	-9.0	54.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 4 20h56 — EK: 12 18h49 — VM: 19 09h30 — LK: 26 09h12

ZON

Oktober 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	182°35.8	197°36.0	212°36.2	227°36.4	242°36.6	257°36.8	92°39.4	107°39.6	122°39.7	137°39.9	152°40.1	167°40.3	+0.2
	-3°19.1	-3°20.1	-3°21.1	-3°22.0	-3°23.0	-3°24.0	-3°36.5	-3°37.5	-3°38.5	-3°39.4	-3°40.4	-3°41.4	-1.0
za 2	182°40.5	197°40.7	212°40.9	227°41.1	242°41.3	257°41.5	92°44.1	107°44.3	122°44.5	137°44.7	152°44.9	167°45.0	+0.2
	-3°42.3	-3°43.3	-3°44.3	-3°45.2	-3°46.2	-3°47.2	-3°59.7	-4°00.7	-4°01.7	-4°02.6	-4°03.6	-4°04.6	-1.0
zo 3	182°45.2	197°45.4	212°45.6	227°45.8	242°46.0	257°46.2	92°48.7	107°48.9	122°49.1	137°49.3	152°49.5	167°49.7	+0.2
	-4°05.5	-4°06.5	-4°07.5	-4°08.4	-4°09.4	-4°10.4	-4°22.9	-4°23.9	-4°24.8	-4°25.8	-4°26.8	-4°27.7	-1.0
ma 4	182°49.9	197°50.0	212°50.2	227°50.4	242°50.6	257°50.8	92°53.3	107°53.4	122°53.6	137°53.8	152°54.0	167°54.2	+0.2
	-4°28.7	-4°29.6	-4°30.6	-4°31.6	-4°32.5	-4°33.5	-4°46.0	-4°47.0	-4°47.9	-4°48.9	-4°49.8	-4°50.8	-1.0
di 5	182°54.4	197°54.6	212°54.8	227°54.9	242°55.1	257°55.3	92°57.7	107°57.9	122°58.1	137°58.3	152°58.4	167°58.6	+0.2
	-4°51.8	-4°52.7	-4°53.7	-4°54.7	-4°55.6	-4°56.6	-5°09.0	-5°10.0	-5°11.0	-5°11.9	-5°12.9	-5°13.8	-1.0
wo 6	182°58.8	197°59.0	212°59.2	227°59.4	242°59.5	257°59.7	93°02.1	108°02.3	123°02.4	138°02.6	153°02.8	168°03.0	+0.2
	-5°14.8	-5°15.8	-5°16.7	-5°17.7	-5°18.6	-5°19.6	-5°32.0	-5°33.0	-5°33.9	-5°34.9	-5°35.8	-5°36.8	-1.0
do 7	183°03.2	198°03.3	213°03.5	228°03.7	243°03.9	258°04.0	93°06.3	108°06.5	123°06.7	138°06.9	153°07.0	168°07.2	+0.2
	-5°37.8	-5°38.7	-5°39.7	-5°40.6	-5°41.6	-5°42.5	-5°54.9	-5°55.9	-5°56.8	-5°57.8	-5°58.7	-5°59.7	-1.0
vr 8	183°07.4	198°07.6	213°07.7	228°07.9	243°08.1	258°08.3	93°10.5	108°10.7	123°10.8	138°11.0	153°11.2	168°11.3	+0.2
	-6°00.6	-6°01.6	-6°02.6	-6°03.5	-6°04.5	-6°05.4	-6°17.8	-6°18.7	-6°19.7	-6°20.6	-6°21.6	-6°22.5	-1.0
za 9	183°11.5	198°11.7	213°11.8	228°12.0	243°12.2	258°12.4	93°14.5	108°14.7	123°14.9	138°15.0	153°15.2	168°15.4	+0.2
	-6°23.5	-6°24.4	-6°25.4	-6°26.3	-6°27.3	-6°28.2	-6°40.5	-6°41.5	-6°42.4	-6°43.3	-6°44.3	-6°45.2	-0.9
zo 10	183°15.5	198°15.7	213°15.9	228°16.0	243°16.2	258°16.4	93°18.5	108°18.6	123°18.8	138°19.0	153°19.1	168°19.3	+0.2
	-6°46.2	-6°47.1	-6°48.1	-6°49.0	-6°50.0	-6°50.9	-7°03.2	-7°04.1	-7°05.0	-7°06.0	-7°06.9	-7°07.9	-0.9
ma 11	183°19.4	198°19.6	213°19.8	228°19.9	243°20.1	258°20.2	93°22.3	108°22.4	123°22.6	138°22.8	153°22.9	168°23.1	+0.2
	-7°08.8	-7°09.8	-7°10.7	-7°11.6	-7°12.6	-7°13.5	-7°25.7	-7°26.7	-7°27.6	-7°28.5	-7°29.5	-7°30.4	-0.9
di 12	183°23.2	198°23.4	213°23.5	228°23.7	243°23.8	258°24.0	93°26.0	108°26.1	123°26.3	138°26.4	153°26.6	168°26.7	+0.2
	-7°31.3	-7°32.3	-7°33.2	-7°34.2	-7°35.1	-7°36.0	-7°48.2	-7°49.1	-7°50.0	-7°51.0	-7°51.9	-7°52.8	-0.9
wo 13	183°26.9	198°27.0	213°27.2	228°27.3	243°27.5	258°27.6	93°29.5	108°29.7	123°29.8	138°30.0	153°30.1	168°30.3	+0.2
	-7°53.8	-7°54.7	-7°55.6	-7°56.6	-7°57.5	-7°58.4	-8°10.5	-8°11.5	-8°12.4	-8°13.3	-8°14.2	-8°15.2	-0.9
do 14	183°30.4	198°30.6	213°30.7	228°30.8	243°31.0	258°31.1	93°33.0	108°33.1	123°33.3	138°33.4	153°33.5	168°33.7	+0.1
	-8°16.1	-8°17.0	-8°18.0	-8°18.9	-8°19.8	-8°20.7	-8°32.8	-8°33.7	-8°34.6	-8°35.5	-8°36.5	-8°37.4	-0.9
vr 15	183°33.8	198°34.0	213°34.1	228°34.2	243°34.4	258°34.5	93°36.3	108°36.4	123°36.6	138°36.7	153°36.8	168°37.0	+0.1
	-8°38.3	-8°39.2	-8°40.1	-8°41.1	-8°42.0	-8°42.9	-8°54.9	-8°55.8	-8°56.7	-8°57.6	-8°58.5	-8°59.5	-0.9
za 16	183°37.1	198°37.2	213°37.4	228°37.5	243°37.6	258°37.8	93°39.4	108°39.6	123°39.7	138°39.8	153°40.0	168°40.1	+0.1
	-9°00.4	-9°01.3	-9°02.2	-9°03.1	-9°04.0	-9°05.0	-9°16.9	-9°17.8	-9°18.7	-9°19.6	-9°20.5	-9°21.4	-0.9
zo 17	183°40.2	198°40.3	213°40.5	228°40.6	243°40.7	258°40.8	93°42.5	108°42.6	123°42.7	138°42.8	153°42.9	168°43.1	+0.1
	-9°22.3	-9°23.2	-9°24.2	-9°25.1	-9°26.0	-9°26.9	-9°38.7	-9°39.6	-9°40.5	-9°41.4	-9°42.3	-9°43.2	-0.9
ma 18	183°43.2	198°43.3	213°43.4	228°43.6	243°43.7	258°43.8	93°45.3	108°45.4	123°45.6	138°45.7	153°45.8	168°45.9	+0.1
	-9°44.1	-9°45.0	-9°46.0	-9°46.9	-9°47.8	-9°48.7	-10°00.4	-10°01.3	-10°02.2	-10°03.1	-10°04.0	-10°04.9	-0.9
di 19	183°46.0	198°46.1	213°46.2	228°46.4	243°46.5	258°46.6	93°48.0	108°48.1	123°48.3	138°48.4	153°48.5	168°48.6	+0.1
	-10°05.8	-10°06.7	-10°07.6	-10°08.5	-10°09.4	-10°10.3	-10°22.0	-10°22.9	-10°23.8	-10°24.7	-10°25.6	-10°26.4	-0.9
wo 20	183°48.7	198°48.8	213°48.9	228°49.0	243°49.1	258°49.2	93°50.6	108°50.7	123°50.8	138°50.9	153°51.0	168°51.1	+0.1
	-10°27.3	-10°28.2	-10°29.1	-10°30.0	-10°30.9	-10°31.8	-10°43.4	-10°44.3	-10°45.2	-10°46.1	-10°46.9	-10°47.8	-0.9
do 21	183°51.2	198°51.3	213°51.4	228°51.5	243°51.6	258°51.7	93°53.0	108°53.0	123°53.1	138°53.2	153°53.3	168°53.4	+0.1
	-10°48.7	-10°49.6	-10°50.5	-10°51.4	-10°52.3	-10°53.1	-11°04.6	-11°05.5	-11°06.4	-11°07.3	-11°08.2	-11°09.0	-0.9
vr 22	183°53.5	198°53.6	213°53.7	228°53.8	243°53.9	258°54.0	93°55.2	108°55.2	123°55.3	138°55.4	153°55.5	168°55.6	+0.1
	-11°09.9	-11°10.8	-11°11.7	-11°12.6	-11°13.4	-11°14.3	-11°25.7	-11°26.6	-11°27.5	-11°28.4	-11°29.2	-11°30.1	-0.9
za 23	183°55.7	198°55.8	213°55.9	228°55.9	243°56.0	258°56.1	93°57.2	108°57.3	123°57.4	138°57.4	153°57.5	168°57.6	+0.1
	-11°31.0	-11°31.8	-11°32.7	-11°33.6	-11°34.5	-11°35.3	-11°46.6	-11°47.5	-11°48.4	-11°49.2	-11°50.1	-11°51.0	-0.9
zo 24	183°57.7	198°57.7	213°57.8	228°57.9	243°58.0	258°58.1	93°59.0	108°59.1	123°59.2	138°59.3	153°59.3	168°59.4	+0.1
	-11°51.8	-11°52.7	-11°53.6	-11°54.4	-11°55.3	-11°56.2	-12°07.4	-12°08.2	-12°09.1	-12°10.0	-12°10.8	-12°11.7	-0.9
ma 25	183°59.5	198°59.5	213°59.6	228°59.7	243°59.8	258°59.8	94°00.7	109°00.8	124°00.8	139°00.9	154°01.0	169°01.0	+0.1
	-12°12.5	-12°13.4	-12°14.3	-12°15.1	-12°16.0	-12°16.8	-12°27.9	-12°28.8	-12°29.6	-12°30.5	-12°31.3	-12°32.2	-0.9
di 26	184°01.1	199°01.2	214°01.2	229°01.3	244°01.3	259°01.4	94°02.2	109°02.2	124°02.3	139°02.4	154°02.4	169°02.5	+0.1
	-12°33.1	-12°33.9	-12°34.8	-12°35.6	-12°36.5	-12°37.3	-12°48.3	-12°49.2	-12°50.0	-12°50.8	-12°51.7	-12°52.5	-0.9
wo 27	184°02.5	199°02.6	214°02.6	229°02.7	244°02.7	259°02.8	94°03.5	109°03.5	124°03.6	139°03.6	154°03.7	169°03.7	+0.1
	-12°53.4	-12°54.2	-12°55.1	-12°55.9	-12°56.7	-12°57.6	-13°08.5	-13°09.3	-13°10.1	-13°11.0	-13°11.8	-13°12.6	-0.8
do 28	184°03.8	199°03.8	214°03.9	229°03.9	244°03.9	259°04.0	94°04.6	109°04.6	124°04.6	139°04.7	154°04.7	169°04.8	+0.0
	-13°13.5	-13°14.3	-13°15.2	-13°16.0	-13°16.8	-13°17.6	-13°28.4	-13°29.3	-13°30.1	-13°30.9	-13°31.7	-13°32.6	-0.8
vr 29	184°04.8	199°04.8	214°04.9	229°04.9	244°05.0	259°05.0	94°05.5	109°05.5	124°05.5	139°05.6	154°05.6	169°05.6	+0.0
	-13°33.4	-13°34.2	-13°35.0	-13°35.9	-13°36.7	-13°37.5	-13°48.2	-13°49.0	-13°49.8	-13°50.6	-13°51.5	-13°52.3	-0.8
za 30	184°05.7	199°05.7	214°05.7	229°05.7	244°05.8	259°05.8	94°06.2	109°06.2	124°06.2	139°06.2	154°06.3	169°06.3	+0.0
	-13°53.1	-13°53.9	-13°54.7	-13°55.5	-13°56.4	-13°57.2	-14°07.7	-14°08.5	-14°09.3	-14°10.1	-14°11.0	-14°11.8	-0.8
zo 31	184°06.3	199°06.3	214°06.3	229°06.4	244°06.4	259°06.4	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	+0.0
	-14°12.6	-14°13.4	-14°14.2	-14°15.0	-14°15.8	-14°16.6	-14°27.0	-14°27.8	-14°28.6	-14°29.4	-14°30.2	-14°31.0	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2032

D	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Δ'/h	SD/HP
vr 1	64°20.9	78°55.2	93°29.5	108°03.8	122°38.1	137°12.5	151°46.8	166°21.1	180°55.5	195°29.8	210°04.1	+34.3	14.7
	5°13.5	5°04.2	4°54.8	4°45.4	4°36.0	4°26.6	4°17.1	4°07.7	3°58.2	3°48.7	3°39.2	-9.4	54.0
za 2	68°39.4	83°13.7	97°48.1	112°22.4	126°56.7	141°31.0	156°05.3	170°39.6	185°13.8	199°48.1	214°22.4	+34.3	14.8
	1°14.7	1°05.0	0°55.2	0°45.5	0°35.8	0°26.0	0°16.3	0°06.5	-0°03.2	-0°13.0	-0°22.7	-9.7	54.1
zo 3	72°54.5	87°28.6	102°02.5	116°36.5	131°10.5	145°44.4	160°18.3	174°52.2	189°26.0	203°59.9	218°33.7	+33.9	14.8
	-2°49.0	-2°58.7	-3°08.4	-3°18.1	-3°27.8	-3°37.5	-3°47.2	-3°56.8	-4°06.5	-4°16.1	-4°25.7	-9.7	54.4
● ma 4	76°57.4	91°30.8	106°04.1	120°37.3	135°10.6	149°43.8	164°16.9	178°50.1	193°23.2	207°56.2	222°29.2	+33.2	14.9
	-6°47.9	-6°57.2	-7°06.4	-7°15.7	-7°24.9	-7°34.1	-7°43.3	-7°52.4	-8°01.6	-8°10.6	-8°19.7	-9.2	54.7
di 5	80°39.7	95°12.1	109°44.4	124°16.7	138°48.9	153°21.1	167°53.2	182°25.3	196°57.4	211°29.4	226°01.3	+32.2	15.0
	-10°31.3	-10°39.7	-10°48.1	-10°56.5	-11°04.8	-11°13.1	-11°21.3	-11°29.5	-11°37.7	-11°45.8	-11°53.8	-8.3	55.0
wo 6	83°54.8	98°25.9	112°57.0	127°28.1	141°59.1	156°30.1	171°01.0	185°31.8	200°02.6	214°33.4	229°04.1	+30.9	15.1
	-13°47.9	-13°55.1	-14°02.1	-14°09.2	-14°16.1	-14°23.0	-14°29.8	-14°36.6	-14°43.3	-14°49.9	-14°56.4	-6.9	55.5
do 7	86°38.3	101°08.2	115°38.0	130°07.8	144°37.5	159°07.2	173°36.8	188°06.3	202°35.9	217°05.3	231°34.7	+29.6	15.3
	-16°26.0	-16°31.4	-16°36.6	-16°41.8	-16°46.9	-16°52.0	-16°56.9	-17°01.8	-17°06.5	-17°11.2	-17°15.8	-5.0	56.0
vr 8	88°50.0	103°18.7	117°47.2	132°15.8	146°44.3	161°12.8	175°41.2	190°09.6	204°37.9	219°06.2	233°34.5	+28.4	15.4
	-18°14.0	-18°17.2	-18°20.2	-18°23.1	-18°26.0	-18°28.7	-18°31.3	-18°33.9	-18°36.3	-18°38.7	-18°40.9	-2.7	56.5
za 9	90°33.7	105°01.3	119°29.0	133°56.6	148°24.1	162°51.7	177°19.2	191°46.7	206°14.1	220°41.6	235°09.0	+27.5	15.6
	-19°02.0	-19°02.5	-19°03.0	-19°03.3	-19°03.6	-19°03.7	-19°03.7	-19°03.6	-19°03.4	-19°03.1	-19°02.6	-0.1	57.2
zo 10	91°57.2	106°24.3	120°51.3	135°18.3	149°45.4	164°12.4	178°39.4	193°06.3	207°33.3	222°00.3	236°27.2	+27.0	15.8
	-18°42.8	-18°40.6	-18°38.2	-18°35.8	-18°33.2	-18°30.5	-18°27.8	-18°24.9	-18°21.9	-18°18.7	-18°15.5	+2.7	57.8
ma 11	106°24.3	120°51.3	135°18.3	149°45.4	164°12.4	178°39.4	193°06.3	207°33.3	222°00.3	236°27.2	250°54.1	+27.0	15.8
	-18°40.6	-18°38.2	-18°35.8	-18°33.2	-18°30.5	-18°27.8	-18°24.9	-18°21.9	-18°18.7	-18°15.5	-18°12.1	+2.8	57.8
◐ di 12	107°37.4	122°04.2	136°31.1	150°57.9	165°24.8	179°51.6	194°18.5	208°45.4	223°12.2	237°39.1	252°06.0	+26.9	16.0
	-17°08.6	-17°03.5	-16°58.2	-16°52.9	-16°47.5	-16°41.9	-16°36.3	-16°30.5	-16°24.6	-16°18.7	-16°12.6	+5.6	58.5
wo 13	108°49.6	123°16.6	137°43.6	152°10.5	166°37.5	181°04.5	195°31.5	209°58.6	224°25.6	238°52.6	253°19.7	+27.0	16.1
	-14°29.2	-14°21.5	-14°13.7	-14°05.8	-13°57.9	-13°49.8	-13°41.7	-13°33.4	-13°25.1	-13°16.7	-13°08.1	+8.1	59.2
do 14	110°06.6	124°33.8	139°01.0	153°28.2	167°55.5	182°22.7	196°50.0	211°17.2	225°44.5	240°11.8	254°39.1	+27.2	16.3
	-10°50.3	-10°40.5	-10°30.6	-10°20.7	-10°10.6	-10°00.5	-9°50.3	-9°40.1	-9°29.8	-9°19.4	-9°08.9	+10.1	59.8
vr 15	111°29.3	125°56.7	140°24.1	154°51.5	169°18.9	183°46.3	198°13.7	212°41.1	227°08.5	241°35.9	256°03.4	+27.4	16.4
	-6°25.2	-6°13.8	-6°02.4	-5°51.0	-5°39.5	-5°28.0	-5°16.5	-5°04.9	-4°53.3	-4°41.6	-4°29.9	+11.5	60.2
za 16	112°54.6	127°22.0	141°49.4	156°16.8	170°44.2	185°11.6	199°39.0	214°06.3	228°33.7	243°01.0	257°28.4	+27.4	16.5
	-1°31.1	-1°19.1	-1°07.0	-0°54.9	-0°42.8	-0°30.7	-0°18.5	-0°06.4	0°05.7	0°17.8	0°30.0	+12.1	60.5
zo 17	114°17.5	128°44.7	143°11.8	157°39.0	172°06.2	186°33.3	201°00.4	215°27.5	229°54.6	244°21.7	258°48.7	+27.1	16.5
	3°30.9	3°42.9	3°54.8	4°06.6	4°18.5	4°30.3	4°42.1	4°53.9	5°05.6	5°17.3	5°29.0	+11.8	60.5
○ ma 18	115°32.9	129°59.7	144°26.5	158°53.3	173°20.1	187°46.9	202°13.6	216°40.3	231°07.0	245°33.7	260°00.4	+26.7	16.4
	8°18.6	8°29.5	8°40.3	8°51.1	9°01.8	9°12.4	9°23.0	9°33.5	9°44.0	9°54.3	10°04.6	+10.6	60.2
di 19	116°38.9	131°05.4	145°31.9	159°58.3	174°24.8	188°51.2	203°17.6	217°44.0	232°10.4	246°36.8	261°03.2	+26.4	16.3
	12°30.1	12°39.2	12°48.1	12°57.0	13°05.8	13°14.4	13°23.0	13°31.5	13°39.9	13°48.2	13°56.4	+8.6	59.6
wo 20	117°38.5	132°04.8	146°31.2	160°57.6	175°23.9	189°50.3	204°16.6	218°43.0	233°09.4	247°35.8	262°02.2	+26.4	16.1
	15°47.5	15°54.1	16°00.6	16°06.9	16°13.2	16°19.3	16°25.4	16°31.3	16°37.1	16°42.8	16°48.4	+6.1	58.9
do 21	118°39.8	133°06.4	147°33.1	161°59.8	176°26.5	190°53.2	205°20.0	219°46.8	234°13.6	248°40.5	263°07.4	+26.8	15.8
	17°58.7	18°02.4	18°06.1	18°09.6	18°13.1	18°16.4	18°19.6	18°22.7	18°25.6	18°28.5	18°31.2	+3.3	58.0
vr 22	119°54.5	134°21.9	148°49.4	163°16.9	177°44.5	192°12.1	206°39.8	221°07.5	235°35.2	250°03.0	264°30.8	+27.6	15.6
	18°58.7	18°59.6	19°00.4	19°01.1	19°01.7	19°02.2	19°02.6	19°02.9	19°03.1	19°03.1	19°03.1	+0.4	57.1
za 23	121°34.3	136°03.0	150°31.7	165°00.5	179°29.3	193°58.2	208°27.1	222°56.1	237°25.1	251°54.2	266°23.4	+28.9	15.3
	18°49.6	18°47.9	18°46.1	18°44.2	18°42.2	18°40.1	18°37.9	18°35.6	18°33.2	18°30.7	18°28.1	-2.2	56.2
zo 24	123°47.6	138°17.7	152°47.9	167°18.1	181°48.3	196°18.7	210°49.1	225°19.5	239°50.0	254°20.6	268°51.2	+30.4	15.1
	17°38.5	17°34.5	17°30.4	17°26.3	17°22.0	17°17.7	17°13.3	17°08.8	17°04.2	16°59.6	16°54.8	-4.4	55.4
ma 25	126°37.3	141°08.8	155°40.4	170°12.1	184°43.8	199°15.5	213°47.3	228°19.1	242°51.0	257°23.0	271°55.0	+31.8	14.9
	15°35.0	15°29.1	15°23.2	15°17.2	15°11.1	15°04.9	14°58.7	14°52.4	14°46.1	14°39.7	14°33.2	-6.2	54.8
◑ di 26	130°01.1	144°33.8	159°06.7	173°39.5	188°12.4	202°45.4	217°18.4	231°51.4	246°24.5	260°57.6	275°30.8	+33.0	14.8
	12°49.4	12°42.0	12°34.6	12°27.1	12°19.6	12°12.1	12°04.4	11°56.8	11°49.1	11°41.3	11°33.5	-7.6	54.4
wo 27	133°52.5	148°26.2	162°59.9	177°33.7	192°07.5	206°41.3	221°15.2	235°49.1	250°23.0	264°56.9	279°30.9	+33.8	14.8
	9°31.4	9°22.9	9°14.4	9°05.9	8°57.3	8°48.7	8°40.0	8°31.4	8°22.6	8°13.9	8°05.1	-8.6	54.1
do 28	138°02.7	152°36.9	167°11.2	181°45.5	196°19.8	210°54.1	225°28.4	240°02.7	254°37.1	269°11.4	283°45.8	+34.3	14.7
	5°49.9	5°40.7	5°31.5	5°22.2	5°12.9	5°03.6	4°54.3	4°44.9	4°35.5	4°26.1	4°16.7	-9.3	54.1
vr 29	142°21.4	156°55.8	171°30.1	186°04.5	200°38.9	215°13.2	229°47.6	244°21.9	258°56.2	273°30.6	288°04.9	+34.3	14.8
	1°53.5	1°43.9	1°34.2	1°24.5	1°14.9	1°05.2	0°55.5	0°45.8	0°36.1	0°26.3	0°16.6	-9.7	54.2
za 30	146°37.9	161°12.0	175°46.0	190°20.0	204°54.0	219°28.0	234°02.0	248°35.9	263°09.8	277°43.7	292°17.5	+34.0	14.8
	-2°09.5	-2°19.2	-2°28.9	-2°38.7	-2°48.4	-2°58.1	-3°07.8	-3°17.5	-3°27.2	-3°36.9	-3°46.5	-9.7	54.4
zo 31	150°41.7	165°15.0	179°48.3	194°21.6	208°54.9	223°28.0	238°01.2	252°34.3	267°07.4	281°40.4	296°13.4	+33.2	14.9
	-6°10.0	-6°19.4	-6°28.8	-6°38.2	-6°47.6	-6°56.9	-7°06.2	-7°15.5	-7°24.8	-7°34.1	-7°43.3	-9.3	54.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

NM: 4 13h26 — EK: 12 03h47 — VM: 18 18h58 — LK: 26 02h28

ZON

November 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	184°06.8	199°06.8	214°06.8	229°06.8	244°06.8	259°06.8	94°07.0	109°07.0	124°07.0	139°07.0	154°07.0	169°07.0	+0.0
	-14°31.8	-14°32.6	-14°33.4	-14°34.2	-14°35.0	-14°35.8	-14°46.1	-14°46.9	-14°47.7	-14°48.5	-14°49.3	-14°50.0	-0.8
di 2	184°07.0	199°07.0	214°07.0	229°07.0	244°07.0	259°07.0	94°07.0	109°07.0	124°07.0	139°07.0	154°07.0	169°07.0	+0.0
	-14°50.8	-14°51.6	-14°52.4	-14°53.2	-14°54.0	-14°54.8	-15°04.9	-15°05.7	-15°06.5	-15°07.3	-15°08.1	-15°08.8	-0.8
wo 3	184°07.0	199°07.0	214°07.0	229°07.0	244°07.0	259°07.0	94°06.9	109°06.9	124°06.9	139°06.9	154°06.9	169°06.9	-0.0
	-15°09.6	-15°10.4	-15°11.2	-15°11.9	-15°12.7	-15°13.5	-15°23.5	-15°24.3	-15°25.1	-15°25.8	-15°26.6	-15°27.4	-0.8
do 4	184°06.9	199°06.9	214°06.9	229°06.8	244°06.8	259°06.8	94°06.6	109°06.6	124°06.6	139°06.6	154°06.6	169°06.5	-0.0
	-15°28.1	-15°28.9	-15°29.7	-15°30.4	-15°31.2	-15°32.0	-15°41.9	-15°42.6	-15°43.4	-15°44.1	-15°44.9	-15°45.7	-0.8
vr 5	184°06.5	199°06.5	214°06.5	229°06.5	244°06.4	259°06.4	94°06.1	109°06.1	124°06.0	139°06.0	154°06.0	169°06.0	-0.0
	-15°46.4	-15°47.2	-15°47.9	-15°48.7	-15°49.4	-15°50.2	-15°59.9	-16°00.7	-16°01.4	-16°02.2	-16°02.9	-16°03.7	-0.8
za 6	184°05.9	199°05.9	214°05.9	229°05.9	244°05.8	259°05.8	94°05.4	109°05.3	124°05.3	139°05.3	154°05.2	169°05.2	-0.0
	-16°04.4	-16°05.2	-16°05.9	-16°06.7	-16°07.4	-16°08.1	-16°17.8	-16°18.5	-16°19.2	-16°20.0	-16°20.7	-16°21.4	-0.7
zo 7	184°05.2	199°05.1	214°05.1	229°05.0	244°05.0	259°05.0	94°04.4	109°04.4	124°04.4	139°04.3	154°04.3	169°04.2	-0.0
	-16°22.2	-16°22.9	-16°23.6	-16°24.4	-16°25.1	-16°25.8	-16°35.3	-16°36.0	-16°36.7	-16°37.5	-16°38.2	-16°38.9	-0.7
ma 8	184°04.2	199°04.1	214°04.1	229°04.0	244°04.0	259°03.9	94°03.3	109°03.2	124°03.2	139°03.1	154°03.1	169°03.0	-0.0
	-16°39.6	-16°40.4	-16°41.1	-16°41.8	-16°42.5	-16°43.2	-16°52.6	-16°53.3	-16°54.0	-16°54.7	-16°55.4	-16°56.1	-0.7
di 9	184°03.0	199°02.9	214°02.9	229°02.8	244°02.8	259°02.7	94°01.9	109°01.9	124°01.8	139°01.8	154°01.7	169°01.6	-0.1
	-16°56.8	-16°57.5	-16°58.2	-16°59.0	-16°59.7	-17°00.4	-17°09.5	-17°10.2	-17°10.9	-17°11.6	-17°12.3	-17°13.0	-0.7
wo 10	184°01.6	199°01.5	214°01.5	229°01.4	244°01.3	259°01.3	94°00.4	109°00.3	124°00.3	139°00.2	154°00.1	169°00.0	-0.1
	-17°13.7	-17°14.4	-17°15.1	-17°15.8	-17°16.5	-17°17.2	-17°26.2	-17°26.9	-17°27.6	-17°28.3	-17°29.0	-17°29.6	-0.7
do 11	184°00.0	198°59.9	213°59.8	228°59.8	243°59.7	258°59.6	93°58.6	108°58.6	123°58.5	138°58.4	153°58.3	168°58.2	-0.1
	-17°30.3	-17°31.0	-17°31.7	-17°32.4	-17°33.1	-17°33.8	-17°42.6	-17°43.3	-17°43.9	-17°44.6	-17°45.3	-17°46.0	-0.7
vr 12	183°58.2	198°58.1	213°58.0	228°57.9	243°57.8	258°57.8	93°56.7	108°56.6	123°56.5	138°56.4	153°56.3	168°56.2	-0.1
	-17°46.6	-17°47.3	-17°48.0	-17°48.6	-17°49.3	-17°50.0	-17°58.7	-17°59.3	-18°00.0	-18°00.6	-18°01.3	-18°02.0	-0.7
za 13	183°56.1	198°56.0	213°56.0	228°55.9	243°55.8	258°55.7	93°54.5	108°54.4	123°54.3	138°54.2	153°54.1	168°54.0	-0.1
	-18°02.6	-18°03.3	-18°03.9	-18°04.6	-18°05.3	-18°05.9	-18°14.4	-18°15.1	-18°15.7	-18°16.4	-18°17.0	-18°17.7	-0.7
zo 14	183°53.9	198°53.8	213°53.7	228°53.6	243°53.5	258°53.4	93°52.1	108°52.0	123°51.9	138°51.8	153°51.7	168°51.6	-0.1
	-18°18.3	-18°18.9	-18°19.6	-18°20.2	-18°20.9	-18°21.5	-18°29.8	-18°30.5	-18°31.1	-18°31.8	-18°32.4	-18°33.0	-0.6
ma 15	183°51.5	198°51.4	213°51.3	228°51.2	243°51.0	258°50.9	93°49.5	108°49.4	123°49.3	138°49.2	153°49.1	168°48.9	-0.1
	-18°33.7	-18°34.3	-18°34.9	-18°35.6	-18°36.2	-18°36.8	-18°45.0	-18°45.6	-18°46.2	-18°46.8	-18°47.4	-18°48.1	-0.6
di 16	183°48.8	198°48.7	213°48.6	228°48.5	243°48.4	258°48.3	93°46.7	108°46.6	123°46.5	138°46.3	153°46.2	168°46.1	-0.1
	-18°48.7	-18°49.3	-18°49.9	-18°50.5	-18°51.2	-18°51.8	-18°59.7	-19°00.3	-19°01.0	-19°01.6	-19°02.2	-19°02.8	-0.6
wo 17	183°46.0	198°45.9	213°45.7	228°45.6	243°45.5	258°45.4	93°43.7	108°43.6	123°43.4	138°43.3	153°43.2	168°43.0	-0.1
	-19°03.4	-19°04.0	-19°04.6	-19°05.2	-19°05.8	-19°06.4	-19°14.2	-19°14.8	-19°15.4	-19°16.0	-19°16.5	-19°17.1	-0.6
do 18	183°42.9	198°42.8	213°42.7	228°42.5	243°42.4	258°42.3	93°40.5	108°40.3	123°40.2	138°40.1	153°39.9	168°39.8	-0.1
	-19°17.7	-19°18.3	-19°18.9	-19°19.5	-19°20.1	-19°20.7	-19°28.3	-19°28.8	-19°29.4	-19°30.0	-19°30.6	-19°31.2	-0.6
vr 19	183°39.6	198°39.5	213°39.4	228°39.2	243°39.1	258°38.9	93°37.1	108°36.9	123°36.8	138°36.6	153°36.5	168°36.3	-0.1
	-19°31.7	-19°32.3	-19°32.9	-19°33.5	-19°34.0	-19°34.6	-19°42.0	-19°42.6	-19°43.1	-19°43.7	-19°44.3	-19°44.8	-0.6
za 20	183°36.2	198°36.0	213°35.9	228°35.7	243°35.6	258°35.4	93°33.4	108°33.3	123°33.1	138°33.0	153°32.8	168°32.7	-0.1
	-19°45.4	-19°46.0	-19°46.5	-19°47.1	-19°47.6	-19°48.2	-19°55.4	-19°56.0	-19°56.5	-19°57.0	-19°57.6	-19°58.1	-0.6
zo 21	183°32.5	198°32.3	213°32.2	228°32.0	243°31.9	258°31.7	93°29.6	108°29.4	123°29.3	138°29.1	153°28.9	168°28.8	-0.2
	-19°58.7	-19°59.2	-19°59.8	-20°00.3	-20°00.9	-20°01.4	-20°08.4	-20°09.0	-20°09.5	-20°10.0	-20°10.6	-20°11.1	-0.5
ma 22	183°28.6	198°28.4	213°28.3	228°28.1	243°27.9	258°27.8	93°25.6	108°25.4	123°25.2	138°25.0	153°24.9	168°24.7	-0.2
	-20°11.6	-20°12.2	-20°12.7	-20°13.2	-20°13.7	-20°14.3	-20°21.1	-20°21.6	-20°22.1	-20°22.6	-20°23.2	-20°23.7	-0.5
di 23	183°24.5	198°24.4	213°24.2	228°24.0	243°23.8	258°23.6	93°21.3	108°21.2	123°21.0	138°20.8	153°20.6	168°20.4	-0.2
	-20°24.2	-20°24.7	-20°25.2	-20°25.7	-20°26.2	-20°26.8	-20°33.4	-20°33.9	-20°34.4	-20°34.9	-20°35.4	-20°35.9	-0.5
wo 24	183°20.2	198°20.1	213°19.9	228°19.7	243°19.5	258°19.3	93°16.9	108°16.7	123°16.5	138°16.3	153°16.1	168°16.0	-0.2
	-20°36.4	-20°36.9	-20°37.4	-20°37.9	-20°38.4	-20°38.9	-20°45.3	-20°45.8	-20°46.2	-20°46.7	-20°47.2	-20°47.7	-0.5
do 25	183°15.8	198°15.6	213°15.4	228°15.2	243°15.0	258°14.8	93°12.3	108°12.1	123°11.9	138°11.7	153°11.5	168°11.3	-0.2
	-20°48.2	-20°48.7	-20°49.1	-20°49.6	-20°50.1	-20°50.6	-20°56.8	-20°57.3	-20°57.7	-20°58.2	-20°58.7	-20°59.1	-0.5
vr 26	183°11.1	198°10.9	213°10.7	228°10.5	243°10.3	258°10.1	93°07.5	108°07.3	123°07.1	138°06.8	153°06.6	168°06.4	-0.2
	-20°59.6	-21°00.1	-21°00.5	-21°01.0	-21°01.5	-21°01.9	-21°07.9	-21°08.4	-21°08.8	-21°09.3	-21°09.7	-21°10.2	-0.5
za 27	183°06.2	198°06.0	213°05.8	228°05.6	243°05.4	258°05.2	93°02.5	108°02.3	123°02.0	138°01.8	153°01.6	168°01.4	-0.2
	-21°10.6	-21°11.1	-21°11.5	-21°12.0	-21°12.4	-21°12.9	-21°18.6	-21°19.1	-21°19.5	-21°19.9	-21°20.4	-21°20.8	-0.5
zo 28	183°01.2	198°01.0	213°00.8	228°00.5	243°00.3	258°00.1	92°57.3	107°57.1	122°56.8	137°56.6	152°56.4	167°56.2	-0.2
	-21°21.3	-21°21.7	-21°22.1	-21°22.6	-21°23.0	-21°23.4	-21°29.0	-21°29.4	-21°29.8	-21°30.2	-21°30.6	-21°31.1	-0.4
ma 29	182°56.0	197°55.7	212°55.5	227°55.3	242°55.1	257°54.9	92°51.9	107°51.7	122°51.5	137°51.2	152°51.0	167°50.8	-0.2
	-21°31.5	-21°31.9	-21°32.3	-21°32.7	-21°33.1	-21°33.6	-21°38.9	-21°39.3	-21°39.7	-21°40.1	-21°40.5	-21°40.9	-0.4
di 30	182°50.6	197°50.3	212°50.1	227°49.9	242°49.6	257°49.4	92°46.4	107°46.2	122°45.9	137°45.7	152°45.5	167°45.2	-0.2
	-21°41.3	-21°41.7	-21°42.1	-21°42.5	-21°42.9	-21°43.3	-21°48.4	-21°48.8	-21°49.2	-21°49.5	-21°49.9	-21°50.3	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2032

	D	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	SD/HP
	ma 1	67°08.5 -9°04.9	81°41.0 -9°13.8	96°13.6 -9°22.7	110°46.0 -9°31.5	125°18.4 -9°40.3	139°50.8 -9°49.1	154°23.1 -9°57.8	168°55.4 -10°06.5	183°27.6 -10°15.1	197°59.8 -10°23.7	212°31.9 -10°32.3	+32.3 -8.7	15.0 55.1
	di 2	70°27.7 -12°35.3	84°58.9 -12°43.1	99°30.2 -12°50.8	114°01.4 -12°58.5	128°32.5 -13°06.2	143°03.6 -13°13.7	157°34.6 -13°21.2	172°05.5 -13°28.7	186°36.4 -13°36.1	201°07.3 -13°43.4	215°38.1 -13°50.7	+31.0 -7.5	15.2 55.6
●	wo 3	73°13.1 -15°31.8	87°43.0 -15°38.0	102°12.8 -15°44.1	116°42.6 -15°50.1	131°12.3 -15°56.1	145°42.0 -16°01.9	160°11.6 -16°07.7	174°41.1 -16°13.4	189°10.6 -16°19.0	203°40.1 -16°24.6	218°09.5 -16°30.0	+29.6 -5.8	15.3 56.1
	do 4	75°23.9 -17°41.6	89°52.5 -17°45.6	104°21.0 -17°49.6	118°49.5 -17°53.5	133°17.9 -17°57.2	147°46.2 -18°00.9	162°14.6 -18°04.5	176°42.8 -18°07.9	191°11.1 -18°11.3	205°39.3 -18°14.6	220°07.4 -18°17.7	+28.3 -3.6	15.4 56.6
	vr 5	77°04.7 -18°53.0	91°32.2 -18°54.5	105°59.7 -18°55.9	120°27.2 -18°57.2	134°54.6 -18°58.4	149°22.1 -18°59.5	163°49.4 -19°00.5	178°16.8 -19°01.3	192°44.1 -19°02.1	207°11.4 -19°02.7	221°38.7 -19°03.2	+27.4 -1.0	15.6 57.1
	za 6	78°25.2 -18°57.7	92°52.2 -18°56.4	107°19.2 -18°55.0	121°46.1 -18°53.5	136°13.1 -18°51.9	150°40.0 -18°50.2	165°07.0 -18°48.4	179°33.9 -18°46.4	194°00.8 -18°44.3	208°27.7 -18°42.2	222°54.6 -18°39.9	+26.9 +1.8	15.7 57.6
	zo 7	79°38.2 -17°52.1	94°05.1 -17°48.0	108°32.1 -17°43.9	122°59.0 -17°39.6	137°26.0 -17°35.2	151°53.0 -17°30.7	166°19.9 -17°26.1	180°46.9 -17°21.3	195°14.0 -17°16.5	209°41.0 -17°11.6	224°08.0 -17°06.5	+27.0 +4.6	15.8 58.1
	ma 8	80°55.3 -15°38.6	95°22.6 -15°32.0	109°50.0 -15°25.2	124°17.3 -15°18.4	138°44.6 -15°11.4	153°12.0 -15°04.4	167°39.4 -14°57.3	182°06.9 -14°50.0	196°34.3 -14°42.7	211°01.8 -14°35.3	225°29.2 -14°27.8	+27.4 +7.1	16.0 58.5
	di 9	82°24.2 -12°25.0	96°52.0 -12°16.1	111°19.9 -12°07.2	125°47.8 -11°58.2	140°15.7 -11°49.2	154°43.6 -11°40.0	169°11.5 -11°30.8	183°39.5 -11°21.5	198°07.5 -11°12.2	212°35.5 -11°02.7	227°03.5 -10°53.2	+27.9 +9.2	16.1 58.9
◐	wo 10	96°52.0 -12°16.1	111°19.9 -12°07.2	125°47.8 -11°58.2	140°15.7 -11°49.2	154°43.6 -11°40.0	169°11.5 -11°30.8	183°39.5 -11°21.5	198°07.5 -11°12.2	212°35.5 -11°02.7	227°03.5 -10°53.2	241°31.6 -10°43.7	+28.0 +9.3	16.1 58.9
	do 11	98°34.6 -8°12.6	113°03.0 -8°02.1	127°31.3 -7°51.5	141°59.7 -7°40.9	156°28.1 -7°30.2	170°56.5 -7°19.5	185°24.9 -7°08.7	199°53.3 -6°57.9	214°21.7 -6°47.0	228°50.2 -6°36.1	243°18.6 -6°25.2	+28.4 +10.8	16.2 59.2
	vr 12	100°26.5 -3°36.5	114°55.0 -3°25.0	129°23.6 -3°13.5	143°52.2 -3°01.9	158°20.7 -2°50.4	172°49.3 -2°38.8	187°17.9 -2°27.2	201°46.5 -2°15.6	216°15.0 -2°03.9	230°43.6 -1°52.3	245°12.2 -1°40.6	+28.6 +11.6	16.2 59.5
	za 13	102°20.0 1°15.2	116°48.5 1°26.9	131°16.9 1°38.6	145°45.3 1°50.3	160°13.7 2°02.0	174°42.1 2°13.7	189°10.5 2°25.4	203°38.9 2°37.0	218°07.3 2°48.7	232°35.6 3°00.3	247°04.0 3°12.0	+28.4 +11.7	16.3 59.6
	zo 14	104°06.7 6°03.5	118°34.8 6°14.7	133°02.8 6°25.8	147°30.7 6°36.9	161°58.7 6°48.0	176°26.6 6°59.0	190°54.5 7°10.0	205°22.4 7°20.9	219°50.3 7°31.8	234°18.1 7°42.7	248°45.9 7°53.5	+27.9 +11.0	16.2 59.6
	ma 15	105°39.9 10°29.0	120°07.3 10°38.9	134°34.6 10°48.7	149°02.0 10°58.4	163°29.3 11°08.1	177°56.6 11°17.7	192°23.8 11°27.2	206°51.1 11°36.7	221°18.3 11°46.0	235°45.5 11°55.3	250°12.6 12°04.6	+27.3 +9.6	16.2 59.4
	di 16	106°57.0 14°13.0	121°23.8 14°20.8	135°50.6 14°28.6	150°17.3 14°36.3	164°44.0 14°43.8	179°10.7 14°51.3	193°37.4 14°58.7	208°04.1 15°06.0	222°30.7 15°13.1	236°57.4 15°20.2	251°24.0 15°27.2	+26.7 +7.4	16.1 59.0
○	wo 17	108°01.9 16°59.5	122°28.4 17°04.8	136°54.8 17°10.0	151°21.3 17°15.1	165°47.8 17°20.1	180°14.2 17°24.9	194°40.7 17°29.7	209°07.2 17°34.3	223°33.6 17°38.8	238°00.1 17°43.2	252°26.6 17°47.5	+26.5 +4.8	15.9 58.4
	do 18	109°04.8 18°38.2	123°31.5 18°40.6	137°58.2 18°43.0	152°24.9 18°45.2	166°51.6 18°47.3	181°18.4 18°49.3	195°45.2 18°51.2	210°12.0 18°52.9	224°38.8 18°54.6	239°05.7 18°56.1	253°32.6 18°57.6	+26.8 +1.9	15.7 57.7
	vr 19	110°20.0 19°05.3	124°47.5 19°04.9	139°15.0 19°04.5	153°42.5 19°03.9	168°10.1 19°03.2	182°37.8 19°02.4	197°05.5 19°01.5	211°33.2 19°00.4	226°01.0 18°59.3	240°28.8 18°58.1	254°56.7 18°56.7	+27.7 -0.9	15.5 56.9
	za 20	112°01.3 18°24.4	126°30.0 18°21.4	140°58.8 18°18.4	155°27.7 18°15.2	169°56.6 18°12.0	184°25.6 18°08.7	198°54.6 18°05.3	213°23.7 18°01.8	227°52.9 17°58.2	242°22.1 17°54.5	256°51.4 17°50.7	+29.0 -3.4	15.3 56.2
	zo 21	114°18.0 16°43.8	128°48.3 16°38.7	143°18.6 16°33.5	157°49.0 16°28.2	172°19.4 16°22.9	186°50.0 16°17.5	201°20.5 16°12.0	215°51.2 16°06.4	230°21.9 16°00.8	244°52.6 15°55.1	259°23.5 15°49.3	+30.5 -5.5	15.1 55.5
	ma 22	117°13.1 14°16.4	131°44.8 14°07.8	146°16.7 14°00.9	160°48.6 13°54.0	175°20.5 13°47.0	189°52.5 13°39.9	204°24.6 13°32.8	218°56.7 13°25.7	233°28.8 13°18.4	248°01.0 13°11.2	262°33.3 13°03.8	+32.0 -7.1	15.0 54.9
	di 23	120°43.4 11°08.1	135°16.4 11°00.0	149°49.5 10°51.9	164°22.7 10°43.7	178°55.8 10°35.5	193°29.1 10°27.2	208°02.3 10°18.9	222°35.6 10°10.6	237°09.0 10°02.2	251°42.3 9°53.8	266°15.8 9°45.4	+33.2 -8.3	14.9 54.5
◑	wo 24	124°41.3 7°34.6	139°15.3 7°25.6	153°49.3 7°16.6	168°23.3 7°07.6	182°57.3 6°58.6	197°31.4 6°49.5	212°05.4 6°40.4	226°39.5 6°31.3	241°13.7 6°22.1	255°47.8 6°13.0	270°22.0 6°03.8	+34.1 -9.1	14.8 54.2
	do 25	128°56.6 3°43.4	143°31.1 3°33.9	158°05.5 3°24.3	172°39.9 3°14.8	187°14.3 3°05.3	201°48.8 2°55.7	216°23.2 2°46.1	230°57.7 2°36.6	245°32.1 2°27.0	260°06.6 2°17.4	274°41.0 2°07.8	+34.4 -9.6	14.8 54.2
	vr 26	133°17.7 -0°17.4	147°52.1 -0°27.1	162°26.4 -0°36.8	177°00.8 -0°46.5	191°35.2 -0°56.2	206°09.5 -1°06.0	220°43.8 -1°15.7	235°18.1 -1°25.4	249°52.4 -1°35.1	264°26.7 -1°44.8	279°01.0 -1°54.5	+34.3 -9.7	14.8 54.3
	za 27	137°32.3 -4°19.4	152°06.2 -4°29.0	166°40.0 -4°38.6	181°13.9 -4°48.2	195°47.6 -4°57.7	210°21.4 -5°07.3	224°55.1 -5°16.8	239°28.8 -5°26.3	254°02.5 -5°35.8	268°36.1 -5°45.2	283°09.7 -5°54.7	+33.7 -9.5	14.9 54.6
	zo 28	141°28.7 -8°14.0	156°01.6 -8°23.0	170°34.4 -8°32.1	185°07.3 -8°41.1	199°40.0 -8°50.1	214°12.8 -8°59.1	228°45.4 -9°08.0	243°18.1 -9°16.9	257°50.6 -9°25.8	272°23.2 -9°34.6	286°55.6 -9°43.4	+32.7 -8.9	15.0 55.1
	ma 29	144°56.0 -11°50.6	159°27.6 -11°58.8	173°59.1 -12°06.8	188°30.5 -12°14.9	203°01.9 -12°22.9	217°33.3 -12°30.8	232°04.5 -12°38.7	246°35.7 -12°46.5	261°06.8 -12°54.3	275°37.9 -13°02.0	290°08.9 -13°09.7	+31.3 -7.9	15.2 55.7
	di 30	147°46.3 -14°57.4	162°16.3 -15°04.0	176°46.2 -15°10.6	191°16.0 -15°17.1	205°45.8 -15°23.6	220°15.5 -15°29.9	234°45.1 -15°36.2	249°14.7 -15°42.5	263°44.2 -15°48.6	278°13.6 -15°54.7	292°43.0 -16°00.7	+29.7 -6.3	15.4 56.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 3 05h44 — EK: 10 11h33 — VM: 17 06h42 — LK: 24 22h47

ZON

December 2032

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	182°45.0	197°44.8	212°44.5	227°44.3	242°44.1	257°43.8	92°40.7	107°40.5	122°40.2	137°40.0	152°39.8	167°39.5	-0.2
	-21°50.7	-21°51.1	-21°51.5	-21°51.8	-21°52.2	-21°52.6	-21°57.5	-21°57.8	-21°58.2	-21°58.6	-21°58.9	-21°59.3	-0.4
do 2	182°39.3	197°39.0	212°38.8	227°38.5	242°38.3	257°38.1	92°34.9	107°34.6	122°34.4	137°34.1	152°33.9	167°33.6	-0.2
	-21°59.7	-22°00.0	-22°00.4	-22°00.8	-22°01.1	-22°01.5	-22°06.1	-22°06.5	-22°06.8	-22°07.2	-22°07.5	-22°07.9	-0.4
vr 3	182°33.4	197°33.1	212°32.9	227°32.6	242°32.4	257°32.1	92°28.9	107°28.6	122°28.4	137°28.1	152°27.9	167°27.6	-0.2
	-22°08.2	-22°08.6	-22°08.9	-22°09.3	-22°09.6	-22°10.0	-22°14.4	-22°14.7	-22°15.0	-22°15.4	-22°15.7	-22°16.0	-0.3
za 4	182°27.4	197°27.1	212°26.8	227°26.6	242°26.3	257°26.1	92°22.7	107°22.5	122°22.2	137°22.0	152°21.7	167°21.4	-0.3
	-22°16.4	-22°16.7	-22°17.0	-22°17.4	-22°17.7	-22°18.0	-22°22.2	-22°22.5	-22°22.8	-22°23.1	-22°23.4	-22°23.8	-0.3
zo 5	182°21.2	197°20.9	212°20.7	227°20.4	242°20.1	257°19.9	92°16.5	107°16.2	122°15.9	137°15.7	152°15.4	167°15.1	-0.3
	-22°24.1	-22°24.4	-22°24.7	-22°25.0	-22°25.3	-22°25.6	-22°29.6	-22°29.9	-22°30.2	-22°30.5	-22°30.8	-22°31.0	-0.3
ma 6	182°14.9	197°14.6	212°14.3	227°14.1	242°13.8	257°13.5	92°10.1	107°09.8	122°09.5	137°09.2	152°09.0	167°08.7	-0.3
	-22°31.3	-22°31.6	-22°31.9	-22°32.2	-22°32.5	-22°32.8	-22°36.5	-22°36.8	-22°37.1	-22°37.3	-22°37.6	-22°37.9	-0.3
di 7	182°08.4	197°08.2	212°07.9	227°07.6	242°07.4	257°07.1	92°03.5	107°03.3	122°03.0	137°02.7	152°02.4	167°02.2	-0.3
	-22°38.2	-22°38.4	-22°38.7	-22°39.0	-22°39.3	-22°39.5	-22°43.0	-22°43.3	-22°43.5	-22°43.8	-22°44.0	-22°44.3	-0.3
wo 8	182°01.9	197°01.6	212°01.3	227°01.1	242°00.8	257°00.5	91°56.9	106°56.6	121°56.3	136°56.1	151°55.8	166°55.5	-0.3
	-22°44.6	-22°44.8	-22°45.1	-22°45.3	-22°45.6	-22°45.8	-22°49.0	-22°49.3	-22°49.5	-22°49.8	-22°50.0	-22°50.3	-0.3
do 9	181°55.2	196°54.9	211°54.7	226°54.4	241°54.1	256°53.8	91°50.2	106°49.9	121°49.6	136°49.3	151°49.0	166°48.7	-0.3
	-22°50.5	-22°50.7	-22°51.0	-22°51.2	-22°51.4	-22°51.7	-22°54.6	-22°54.9	-22°55.1	-22°55.3	-22°55.5	-22°55.8	-0.2
vr 10	181°48.5	196°48.2	211°47.9	226°47.6	241°47.3	256°47.0	91°43.3	106°43.0	121°42.7	136°42.5	151°42.2	166°41.9	-0.3
	-22°56.0	-22°56.2	-22°56.4	-22°56.6	-22°56.8	-22°57.1	-22°59.8	-23°00.0	-23°00.2	-23°00.4	-23°00.6	-23°00.8	-0.2
za 11	181°41.6	196°41.3	211°41.0	226°40.7	241°40.4	256°40.2	91°36.4	106°36.1	121°35.8	136°35.5	151°35.2	166°34.9	-0.3
	-23°01.0	-23°01.2	-23°01.4	-23°01.6	-23°01.8	-23°02.0	-23°04.5	-23°04.7	-23°04.9	-23°05.0	-23°05.2	-23°05.4	-0.2
zo 12	181°34.6	196°34.3	211°34.1	226°33.8	241°33.5	256°33.2	91°29.4	106°29.1	121°28.8	136°28.5	151°28.2	166°27.9	-0.3
	-23°05.6	-23°05.8	-23°05.9	-23°06.1	-23°06.3	-23°06.5	-23°08.7	-23°08.9	-23°09.1	-23°09.2	-23°09.4	-23°09.5	-0.2
ma 13	181°27.6	196°27.3	211°27.0	226°26.7	241°26.4	256°26.1	91°22.3	106°22.0	121°21.7	136°21.4	151°21.1	166°20.8	-0.3
	-23°09.7	-23°09.9	-23°10.0	-23°10.2	-23°10.4	-23°10.5	-23°12.5	-23°12.6	-23°12.8	-23°12.9	-23°13.1	-23°13.2	-0.2
di 14	181°20.5	196°20.2	211°19.9	226°19.6	241°19.3	256°19.0	91°15.1	106°14.8	121°14.5	136°14.2	151°13.9	166°13.6	-0.3
	-23°13.4	-23°13.5	-23°13.7	-23°13.8	-23°13.9	-23°14.1	-23°15.8	-23°15.9	-23°16.1	-23°16.2	-23°16.3	-23°16.4	-0.1
wo 15	181°13.3	196°13.0	211°12.7	226°12.4	241°12.1	256°11.8	91°07.9	106°07.6	121°07.3	136°07.0	151°06.7	166°06.4	-0.3
	-23°16.6	-23°16.7	-23°16.8	-23°16.9	-23°17.1	-23°17.2	-23°18.7	-23°18.8	-23°18.9	-23°19.0	-23°19.1	-23°19.2	-0.1
do 16	181°06.1	196°05.8	211°05.5	226°05.2	241°04.9	256°04.6	91°00.6	106°00.3	121°00.0	135°59.7	150°59.4	165°59.1	-0.3
	-23°19.3	-23°19.4	-23°19.5	-23°19.6	-23°19.7	-23°19.8	-23°21.0	-23°21.1	-23°21.2	-23°21.3	-23°21.4	-23°21.5	-0.1
vr 17	180°58.8	195°58.5	210°58.2	225°57.9	240°57.6	255°57.3	90°53.3	105°53.0	120°52.7	135°52.4	150°52.1	165°51.8	-0.3
	-23°21.6	-23°21.6	-23°21.7	-23°21.8	-23°21.9	-23°22.0	-23°23.0	-23°23.0	-23°23.1	-23°23.2	-23°23.2	-23°23.3	-0.1
za 18	180°51.5	195°51.2	210°50.9	225°50.5	240°50.2	255°49.9	90°45.9	105°45.6	120°45.3	135°45.0	150°44.7	165°44.4	-0.3
	-23°23.4	-23°23.4	-23°23.5	-23°23.6	-23°23.6	-23°23.7	-23°24.4	-23°24.5	-23°24.5	-23°24.6	-23°24.6	-23°24.6	-0.1
zo 19	180°44.1	195°43.8	210°43.5	225°43.2	240°42.9	255°42.6	90°38.5	105°38.2	120°37.9	135°37.6	150°37.3	165°37.0	-0.3
	-23°24.7	-23°24.7	-23°24.8	-23°24.8	-23°24.9	-23°24.9	-23°25.4	-23°25.4	-23°25.4	-23°25.5	-23°25.5	-23°25.5	-0.0
ma 20	180°36.7	195°36.4	210°36.1	225°35.8	240°35.5	255°35.1	90°31.1	105°30.8	120°30.5	135°30.2	150°29.9	165°29.6	-0.3
	-23°25.6	-23°25.6	-23°25.6	-23°25.6	-23°25.7	-23°25.7	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-0.0
di 21	180°29.3	195°28.9	210°28.6	225°28.3	240°28.0	255°27.7	90°23.7	105°23.4	120°23.1	135°22.7	150°22.4	165°22.1	-0.3
	-23°25.9	-23°25.9	-23°26.0	-23°26.0	-23°26.0	-23°26.0	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-0.0
wo 22	180°21.8	195°21.5	210°21.2	225°20.9	240°20.6	255°20.3	90°16.2	105°15.9	120°15.6	135°15.3	150°15.0	165°14.7	-0.3
	-23°25.9	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°25.5	-23°25.5	-23°25.4	-23°25.4	-23°25.4	-23°25.3	+0.0
do 23	180°14.4	195°14.1	210°13.7	225°13.4	240°13.1	255°12.8	90°08.8	105°08.5	120°08.2	135°07.8	150°07.5	165°07.2	-0.3
	-23°25.3	-23°25.3	-23°25.2	-23°25.2	-23°25.2	-23°25.1	-23°24.6	-23°24.5	-23°24.5	-23°24.4	-23°24.4	-23°24.3	+0.0
vr 24	180°06.9	195°06.6	210°06.3	225°06.0	240°05.7	255°05.4	90°01.3	105°01.0	120°00.7	135°00.4	150°00.1	164°59.8	-0.3
	-23°24.3	-23°24.2	-23°24.2	-23°24.1	-23°24.1	-23°24.0	-23°23.2	-23°23.1	-23°23.1	-23°23.0	-23°22.9	-23°22.9	+0.1
za 25	179°59.5	194°59.2	209°58.9	224°58.5	239°58.2	254°57.9	89°53.9	104°53.6	119°53.3	134°53.0	149°52.7	164°52.4	-0.3
	-23°22.8	-23°22.7	-23°22.7	-23°22.6	-23°22.5	-23°22.4	-23°21.4	-23°21.3	-23°21.2	-23°21.1	-23°21.0	-23°20.9	+0.1
zo 26	179°52.0	194°51.7	209°51.4	224°51.1	239°50.8	254°50.5	89°46.5	104°46.2	119°45.9	134°45.6	149°45.3	164°45.0	-0.3
	-23°20.8	-23°20.7	-23°20.6	-23°20.6	-23°20.5	-23°20.4	-23°19.1	-23°18.9	-23°18.8	-23°18.7	-23°18.6	-23°18.5	+0.1
ma 27	179°44.7	194°44.3	209°44.0	224°43.7	239°43.4	254°43.1	89°39.1	104°38.8	119°38.5	134°38.2	149°37.9	164°37.6	-0.3
	-23°18.4	-23°18.3	-23°18.2	-23°18.1	-23°17.9	-23°17.8	-23°16.3	-23°16.1	-23°16.0	-23°15.9	-23°15.8	-23°15.6	+0.1
di 28	179°37.3	194°37.0	209°36.7	224°36.4	239°36.1	254°35.8	89°31.8	104°31.5	119°31.2	134°30.9	149°30.6	164°30.3	-0.3
	-23°15.5	-23°15.4	-23°15.2	-23°15.1	-23°15.0	-23°14.8	-23°13.0	-23°12.9	-23°12.7	-23°12.6	-23°12.4	-23°12.3	+0.1
wo 29	179°30.0	194°29.7	209°29.4	224°29.1	239°28.8	254°28.4	89°24.5	104°24.2	119°23.9	134°23.6	149°23.3	164°23.0	-0.3
	-23°12.1	-23°12.0	-23°11.8	-23°11.7	-23°11.5	-23°11.4	-23°09.3	-23°09.1	-23°09.0	-23°08.8	-23°08.6	-23°08.5	+0.2
do 30	179°22.7	194°22.4	209°22.1	224°21.8	239°21.5	254°21.2	89°17.3	104°17.0	119°16.7	134°16.4	149°16.1	164°15.8	-0.3
	-23°08.3	-23°08.1	-23°08.0	-23°07.8	-23°07.6	-23°07.4	-23°05.1	-23°04.9	-23°04.8	-23°04.6	-23°04.4	-23°04.2	+0.2
vr 31	179°15.5	194°15.2	209°14.9	224°14.6	239°14.3	254°14.0	89°10.1	104°09.8	119°09.5	134°09.2	149°08.9	164°08.6	-0.3
	-23°04.0	-23°03.8	-23°03.6	-23°03.4	-23°03.2	-23°03.0	-23°00.5	-23°00.3	-23°00.1	-22°59.9	-22°59.7	-22°59.5	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2032

D	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	SD/HP
wo 1	63°04.4	77°33.1	92°01.8	106°30.4	120°58.9	135°27.4	149°55.8	164°24.2	178°52.5	193°20.7	207°48.9	+28.4	15.5
	-16°51.0	-16°56.1	-17°01.2	-17°06.2	-17°11.1	-17°15.9	-17°20.7	-17°25.3	-17°29.8	-17°34.3	-17°38.6	-4.8	56.8
● do 2	64°44.5	79°11.8	93°39.1	108°06.2	122°33.4	137°00.5	151°27.5	165°54.5	180°21.5	194°48.4	209°15.3	+27.1	15.7
	-18°32.2	-18°34.9	-18°37.6	-18°40.1	-18°42.5	-18°44.8	-18°47.1	-18°49.2	-18°51.2	-18°53.0	-18°54.8	-2.3	57.4
vr 3	65°54.0	80°20.3	94°46.6	109°12.9	123°39.1	138°05.4	152°31.6	166°57.8	181°24.0	195°50.1	210°16.3	+26.2	15.8
	-19°07.8	-19°07.7	-19°07.5	-19°07.2	-19°06.8	-19°06.3	-19°05.7	-19°04.9	-19°04.0	-19°03.0	-19°01.9	+0.6	58.0
za 4	66°47.3	81°13.3	95°39.4	110°05.4	124°31.5	138°57.5	153°23.6	167°49.7	182°15.8	196°41.9	211°08.0	+26.1	15.9
	-18°30.8	-18°27.7	-18°24.6	-18°21.4	-18°18.0	-18°14.5	-18°10.9	-18°07.2	-18°03.3	-17°59.4	-17°55.3	+3.5	58.5
zo 5	67°41.3	82°07.7	96°34.1	111°00.6	125°27.0	139°53.5	154°20.0	168°46.6	183°13.1	197°39.7	212°06.4	+26.5	16.0
	-16°40.9	-16°35.1	-16°29.2	-16°23.1	-16°17.0	-16°10.8	-16°04.4	-15°58.0	-15°51.4	-15°44.8	-15°38.0	+6.3	58.8
ma 6	68°49.6	83°16.7	97°43.9	112°11.1	126°38.4	141°05.7	155°33.0	170°00.4	184°27.8	198°55.2	213°22.7	+27.3	16.1
	-13°45.4	-13°37.2	-13°28.9	-13°20.5	-13°12.0	-13°03.5	-12°54.8	-12°46.1	-12°37.3	-12°28.5	-12°19.5	+8.6	59.0
di 7	70°18.9	84°46.9	99°15.0	113°43.1	128°11.2	142°39.3	157°07.5	171°35.7	186°04.0	200°32.2	215°00.6	+28.2	16.1
	-9°56.9	-9°46.9	-9°36.8	-9°26.7	-9°16.5	-9°06.3	-8°56.0	-8°45.6	-8°35.2	-8°24.8	-8°14.3	+10.3	59.2
wo 8	72°08.5	86°37.2	101°06.0	115°34.8	130°03.6	144°32.4	159°01.2	173°30.1	187°58.9	202°27.8	216°56.7	+28.8	16.1
	-5°31.6	-5°20.5	-5°09.3	-4°58.1	-4°46.9	-4°35.6	-4°24.4	-4°13.1	-4°01.7	-3°50.4	-3°39.0	+11.3	59.2
◐ do 9	74°12.0	88°41.1	103°10.2	117°39.3	132°08.4	146°37.5	161°06.6	175°35.8	190°04.9	204°34.0	219°03.2	+29.1	16.1
	-0°46.8	-0°35.2	-0°23.7	-0°12.1	-0°00.6	0°11.0	0°22.5	0°34.1	0°45.6	0°57.2	1°08.7	+11.6	59.1
vr 10	88°41.1	103°10.2	117°39.3	132°08.4	146°37.5	161°06.6	175°35.8	190°04.9	204°34.0	219°03.2	233°32.3	+29.1	16.1
	-0°35.2	-0°23.7	-0°12.1	-0°00.6	0°11.0	0°22.5	0°34.1	0°45.6	0°57.2	1°08.7	1°20.2	+11.5	59.1
za 11	90°48.8	105°17.9	119°46.9	134°15.9	148°44.9	163°13.9	177°42.9	192°11.9	206°40.9	221°09.8	235°38.7	+29.0	16.1
	4°11.3	4°22.5	4°33.7	4°44.9	4°56.1	5°07.2	5°18.3	5°29.4	5°40.4	5°51.4	6°02.4	+11.1	59.0
zo 12	92°50.7	107°19.3	121°47.9	136°16.5	150°45.1	165°13.6	179°42.1	194°10.6	208°39.1	223°07.5	237°36.0	+28.5	16.0
	8°41.8	8°52.1	9°02.3	9°12.4	9°22.5	9°32.5	9°42.5	9°52.4	10°02.3	10°12.1	10°21.8	+10.0	58.7
ma 13	94°39.3	109°07.3	123°35.3	138°03.2	152°31.1	166°59.1	181°26.9	195°54.8	210°22.6	224°50.4	239°18.2	+27.9	15.9
	12°39.8	12°48.4	12°56.9	13°05.4	13°13.8	13°22.1	13°30.3	13°38.4	13°46.5	13°54.5	14°02.4	+8.3	58.4
di 14	96°12.1	110°39.5	125°06.9	139°34.3	154°01.7	168°29.0	182°56.3	197°23.7	211°50.9	226°18.2	240°45.5	+27.3	15.8
	15°50.0	15°56.4	16°02.7	16°09.0	16°15.1	16°21.1	16°27.1	16°32.9	16°38.7	16°44.3	16°49.8	+6.0	58.0
wo 15	97°33.1	112°00.2	126°27.3	140°54.5	155°21.6	169°48.7	184°15.8	198°42.9	213°10.0	227°37.2	242°04.3	+27.1	15.7
	18°00.2	18°04.0	18°07.8	18°11.4	18°14.9	18°18.3	18°21.6	18°24.7	18°27.8	18°30.8	18°33.6	+3.3	57.6
○ do 16	98°52.3	113°19.6	127°47.0	142°14.4	156°41.7	171°09.1	185°36.6	200°04.0	214°31.5	228°59.0	243°26.6	+27.4	15.5
	19°02.9	19°03.9	19°04.9	19°05.7	19°06.4	19°07.0	19°07.5	19°07.9	19°08.2	19°08.4	19°08.5	+0.6	57.0
vr 17	100°23.4	114°51.5	129°19.7	143°47.8	158°16.0	172°44.3	187°12.6	201°40.9	216°09.3	230°37.8	245°06.3	+28.3	15.4
	18°56.5	18°54.8	18°53.1	18°51.2	18°49.2	18°47.2	18°45.0	18°42.8	18°40.4	18°37.9	18°35.4	-2.1	56.4
za 18	102°19.5	116°48.8	131°18.2	145°47.6	160°17.0	174°46.6	189°16.1	203°45.8	218°15.5	232°45.2	247°15.0	+29.6	15.2
	17°45.5	17°41.4	17°37.3	17°33.0	17°28.7	17°24.3	17°19.8	17°15.2	17°10.6	17°05.8	17°01.0	-4.5	55.8
zo 19	104°49.2	119°19.9	133°50.7	148°21.6	162°52.5	177°23.5	191°54.5	206°25.6	220°56.7	235°27.9	249°59.2	+31.0	15.1
	15°39.1	15°33.0	15°26.9	15°20.7	15°14.4	15°08.1	15°01.7	14°55.3	14°48.7	14°42.1	14°35.5	-6.4	55.3
ma 20	107°54.9	122°27.1	136°59.3	151°31.5	166°03.8	180°36.2	195°08.6	209°41.1	224°13.6	238°46.2	253°18.8	+32.4	14.9
	12°48.5	12°41.0	12°33.3	12°25.7	12°17.9	12°10.2	12°02.3	11°54.5	11°46.6	11°38.6	11°30.6	-7.8	54.8
di 21	111°33.5	126°06.9	140°40.2	155°13.6	169°47.1	184°20.6	198°54.1	213°27.7	228°01.3	242°34.9	257°08.6	+33.5	14.8
	9°25.5	9°16.8	9°08.2	8°59.4	8°50.7	8°41.9	8°33.1	8°24.3	8°15.4	8°06.5	7°57.6	-8.8	54.4
wo 22	115°37.4	130°11.6	144°45.7	159°19.9	173°54.1	188°28.4	203°02.6	217°36.9	232°11.2	246°45.5	261°19.8	+34.2	14.8
	5°40.6	5°31.3	5°21.9	5°12.6	5°03.2	4°53.8	4°44.4	4°35.0	4°25.6	4°16.1	4°06.6	-9.4	54.2
do 23	119°56.4	134°30.9	149°05.4	163°40.0	178°14.5	192°49.0	207°23.5	221°58.1	236°32.6	251°07.1	265°41.6	+34.5	14.8
	1°43.2	1°33.6	1°23.9	1°14.3	1°04.6	0°55.0	0°45.3	0°35.7	0°26.0	0°16.3	0°06.7	-9.7	54.2
◑ vr 24	124°18.8	138°53.2	153°27.5	168°01.9	182°36.2	197°10.6	211°44.9	226°19.1	240°53.4	255°27.7	270°01.9	+34.3	14.8
	-2°18.2	-2°27.8	-2°37.5	-2°47.1	-2°56.7	-3°06.3	-3°15.9	-3°25.4	-3°35.0	-3°44.6	-3°54.1	-9.6	54.3
za 25	128°32.1	143°05.9	157°39.6	172°13.3	186°47.0	201°20.6	215°54.2	230°27.8	245°01.3	259°34.8	274°08.2	+33.6	14.9
	-6°15.5	-6°24.8	-6°34.1	-6°43.3	-6°52.6	-7°01.8	-7°10.9	-7°20.1	-7°29.2	-7°38.3	-7°47.4	-9.2	54.6
zo 26	132°24.2	146°56.9	161°29.5	176°02.1	190°34.6	205°07.1	219°39.5	234°11.8	248°44.1	263°16.4	277°48.6	+32.4	15.0
	-10°00.1	-10°08.6	-10°17.2	-10°25.7	-10°34.1	-10°42.6	-10°51.0	-10°59.3	-11°07.6	-11°15.9	-11°24.1	-8.4	55.1
ma 27	135°43.9	150°15.0	164°46.2	179°17.2	193°48.2	208°19.1	222°49.9	237°20.7	251°51.4	266°22.0	280°52.6	+30.9	15.2
	-13°21.7	-13°29.1	-13°36.5	-13°43.8	-13°51.0	-13°58.2	-14°05.4	-14°12.5	-14°19.5	-14°26.4	-14°33.3	-7.2	55.8
di 28	138°22.4	152°51.9	167°21.2	181°50.5	196°19.7	210°48.8	225°17.9	239°46.8	254°15.7	268°44.6	283°13.3	+29.1	15.4
	-16°08.5	-16°14.2	-16°19.9	-16°25.5	-16°31.0	-16°36.5	-16°41.8	-16°47.1	-16°52.3	-16°57.4	-17°02.4	-5.4	56.6
wo 29	140°16.3	154°44.0	169°11.5	183°39.0	198°06.5	212°33.9	227°01.2	241°28.5	255°55.6	270°22.8	284°49.9	+27.4	15.7
	-18°07.0	-18°10.5	-18°13.9	-18°17.3	-18°20.5	-18°23.7	-18°26.7	-18°29.6	-18°32.4	-18°35.2	-18°37.8	-3.1	57.4
do 30	141°29.0	155°55.2	170°21.4	184°47.5	199°13.5	213°39.5	228°05.5	242°31.4	256°57.3	271°23.2	285°49.0	+26.0	15.9
	-19°03.7	-19°04.5	-19°05.2	-19°05.8	-19°06.3	-19°06.6	-19°06.9	-19°07.0	-19°07.0	-19°06.8	-19°06.6	-0.3	58.2
vr 31	142°12.3	156°37.7	171°03.0	185°28.4	199°53.7	214°19.0	228°44.3	243°09.5	257°34.8	272°00.0	286°25.3	+25.3	16.1
	-18°48.2	-18°46.0	-18°43.6	-18°41.2	-18°38.6	-18°35.9	-18°33.0	-18°30.1	-18°27.0	-18°23.8	-18°20.5	+2.8	58.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 2 20h52 — EK: 9 19h08 — VM: 16 20h49 — LK: 24 20h39

ZON

Januari 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°08.4	194°08.1	209°07.8	224°07.5	239°07.2	254°06.9	89°03.1	104°02.8	119°02.5	134°02.2	149°01.9	164°01.6	-0.3
	-22°59.2	-22°59.0	-22°58.8	-22°58.6	-22°58.4	-22°58.2	-22°55.4	-22°55.2	-22°54.9	-22°54.7	-22°54.5	-22°54.3	+0.2
zo 2	179°01.3	194°01.0	209°00.7	224°00.4	239°00.1	253°59.8	88°56.1	103°55.8	118°55.5	133°55.2	148°54.9	163°54.6	-0.3
	-22°54.0	-22°53.8	-22°53.6	-22°53.3	-22°53.1	-22°52.9	-22°49.8	-22°49.6	-22°49.3	-22°49.1	-22°48.9	-22°48.6	+0.2
ma 3	178°54.3	193°54.0	208°53.7	223°53.5	238°53.2	253°52.9	88°49.2	103°48.9	118°48.6	133°48.3	148°48.0	163°47.7	-0.3
	-22°48.4	-22°48.1	-22°47.9	-22°47.6	-22°47.4	-22°47.1	-22°43.8	-22°43.6	-22°43.3	-22°43.0	-22°42.8	-22°42.5	+0.2
di 4	178°47.5	193°47.2	208°46.9	223°46.6	238°46.3	253°46.0	88°42.4	103°42.1	118°41.8	133°41.5	148°41.2	163°41.0	-0.3
	-22°42.2	-22°42.0	-22°41.7	-22°41.4	-22°41.2	-22°40.9	-22°37.3	-22°37.1	-22°36.8	-22°36.5	-22°36.2	-22°35.9	+0.3
wo 5	178°40.7	193°40.4	208°40.1	223°39.8	238°39.6	253°39.3	88°35.7	103°35.4	118°35.1	133°34.9	148°34.6	163°34.3	-0.3
	-22°35.7	-22°35.4	-22°35.1	-22°34.8	-22°34.5	-22°34.2	-22°30.4	-22°30.1	-22°29.8	-22°29.5	-22°29.2	-22°28.9	+0.3
do 6	178°34.0	193°33.8	208°33.5	223°33.2	238°32.9	253°32.7	88°29.1	103°28.8	118°28.6	133°28.3	148°28.0	163°27.8	-0.3
	-22°28.6	-22°28.3	-22°28.0	-22°27.7	-22°27.4	-22°27.1	-22°23.1	-22°22.8	-22°22.5	-22°22.1	-22°21.8	-22°21.5	+0.3
vr 7	178°27.5	193°27.2	208°27.0	223°26.7	238°26.4	253°26.2	88°22.7	103°22.4	118°22.2	133°21.9	148°21.6	163°21.4	-0.3
	-22°21.2	-22°20.9	-22°20.5	-22°20.2	-22°19.9	-22°19.6	-22°15.3	-22°15.0	-22°14.6	-22°14.3	-22°14.0	-22°13.6	+0.3
za 8	178°21.1	193°20.8	208°20.6	223°20.3	238°20.0	253°19.8	88°16.4	103°16.1	118°15.9	133°15.6	148°15.3	163°15.1	-0.3
	-22°13.3	-22°12.9	-22°12.6	-22°12.3	-22°11.9	-22°11.6	-22°07.1	-22°06.7	-22°06.4	-22°06.0	-22°05.7	-22°05.3	+0.3
zo 9	178°14.8	193°14.6	208°14.3	223°14.0	238°13.8	253°13.5	88°10.2	103°10.0	118°09.7	133°09.5	148°09.2	163°08.9	-0.3
	-22°04.9	-22°04.6	-22°04.2	-22°03.9	-22°03.5	-22°03.2	-21°58.4	-21°58.0	-21°57.7	-21°57.3	-21°56.9	-21°56.5	+0.4
ma 10	178°08.7	193°08.4	208°08.2	223°07.9	238°07.7	253°07.4	88°04.2	103°03.9	118°03.7	133°03.5	148°03.2	163°03.0	-0.3
	-21°56.2	-21°55.8	-21°55.4	-21°55.0	-21°54.7	-21°54.3	-21°49.3	-21°48.9	-21°48.5	-21°48.1	-21°47.8	-21°47.4	+0.4
di 11	178°02.7	193°02.5	208°02.2	223°02.0	238°01.7	253°01.5	87°58.3	102°58.1	117°57.8	132°57.6	147°57.4	162°57.1	-0.2
	-21°47.0	-21°46.6	-21°46.2	-21°45.8	-21°45.4	-21°45.0	-21°39.8	-21°39.4	-21°39.0	-21°38.6	-21°38.2	-21°37.8	+0.4
wo 12	177°56.9	192°56.6	207°56.4	222°56.2	237°55.9	252°55.7	87°52.6	102°52.4	117°52.1	132°51.9	147°51.7	162°51.4	-0.2
	-21°37.4	-21°36.9	-21°36.5	-21°36.1	-21°35.7	-21°35.3	-21°29.9	-21°29.4	-21°29.0	-21°28.6	-21°28.2	-21°27.7	+0.4
do 13	177°51.2	192°51.0	207°50.7	222°50.5	237°50.3	252°50.0	87°47.1	102°46.8	117°46.6	132°46.4	147°46.1	162°45.9	-0.2
	-21°27.3	-21°26.9	-21°26.5	-21°26.0	-21°25.6	-21°25.2	-21°19.5	-21°19.1	-21°18.6	-21°18.2	-21°17.8	-21°17.3	+0.4
vr 14	177°45.7	192°45.5	207°45.2	222°45.0	237°44.8	252°44.6	87°41.7	102°41.4	117°41.2	132°41.0	147°40.8	162°40.6	-0.2
	-21°16.9	-21°16.4	-21°16.0	-21°15.5	-21°15.1	-21°14.6	-21°08.8	-21°08.3	-21°07.8	-21°07.4	-21°06.9	-21°06.5	+0.4
za 15	177°40.3	192°40.1	207°39.9	222°39.7	237°39.5	252°39.3	87°36.4	102°36.2	117°36.0	132°35.8	147°35.6	162°35.4	-0.2
	-21°06.0	-21°05.5	-21°05.1	-21°04.6	-21°04.2	-21°03.7	-20°57.6	-20°57.1	-20°56.6	-20°56.2	-20°55.7	-20°55.2	+0.5
zo 16	177°35.2	192°35.0	207°34.7	222°34.5	237°34.3	252°34.1	87°31.4	102°31.2	117°31.0	132°30.8	147°30.6	162°30.4	-0.2
	-20°54.7	-20°54.3	-20°53.8	-20°53.3	-20°52.8	-20°52.3	-20°46.0	-20°45.5	-20°45.0	-20°44.6	-20°44.1	-20°43.6	+0.5
ma 17	177°30.2	192°30.0	207°29.7	222°29.5	237°29.3	252°29.1	87°26.5	102°26.3	117°26.1	132°25.9	147°25.7	162°25.5	-0.2
	-20°43.1	-20°42.6	-20°42.1	-20°41.6	-20°41.1	-20°40.6	-20°34.1	-20°33.6	-20°33.1	-20°32.5	-20°32.0	-20°31.5	+0.5
di 18	177°25.3	192°25.1	207°24.9	222°24.7	237°24.5	252°24.3	87°21.8	102°21.6	117°21.4	132°21.2	147°21.0	162°20.9	-0.2
	-20°31.0	-20°30.5	-20°30.0	-20°29.5	-20°29.0	-20°28.5	-20°21.7	-20°21.2	-20°20.7	-20°20.1	-20°19.6	-20°19.1	+0.5
wo 19	177°20.7	192°20.5	207°20.3	222°20.1	237°19.9	252°19.7	87°17.3	102°17.1	117°16.9	132°16.7	147°16.6	162°16.4	-0.2
	-20°18.6	-20°18.0	-20°17.5	-20°17.0	-20°16.5	-20°15.9	-20°09.0	-20°08.4	-20°07.9	-20°07.4	-20°06.8	-20°06.3	+0.5
do 20	177°16.2	192°16.0	207°15.8	222°15.6	237°15.5	252°15.3	87°13.0	102°12.8	117°12.6	132°12.4	147°12.2	162°12.1	-0.2
	-20°05.7	-20°05.2	-20°04.7	-20°04.1	-20°03.6	-20°03.0	-19°55.9	-19°55.3	-19°54.8	-19°54.2	-19°53.7	-19°53.1	+0.5
vr 21	177°11.9	192°11.7	207°11.5	222°11.4	237°11.2	252°11.0	87°08.8	102°08.6	117°08.5	132°08.3	147°08.1	162°08.0	-0.2
	-19°52.5	-19°52.0	-19°51.4	-19°50.9	-19°50.3	-19°49.7	-19°42.4	-19°41.8	-19°41.2	-19°40.7	-19°40.1	-19°39.5	+0.6
za 22	177°07.8	192°07.6	207°07.5	222°07.3	237°07.1	252°07.0	87°04.8	102°04.7	117°04.5	132°04.4	147°04.2	162°04.0	-0.2
	-19°39.0	-19°38.4	-19°37.8	-19°37.2	-19°36.7	-19°36.1	-19°28.5	-19°27.9	-19°27.4	-19°26.8	-19°26.2	-19°25.6	+0.6
zo 23	177°03.9	192°03.7	207°03.6	222°03.4	237°03.2	252°03.1	87°01.1	102°00.9	117°00.8	132°00.6	147°00.4	162°00.3	-0.2
	-19°25.0	-19°24.4	-19°23.8	-19°23.2	-19°22.7	-19°22.1	-19°14.3	-19°13.7	-19°13.1	-19°12.5	-19°11.9	-19°11.3	+0.6
ma 24	177°00.1	192°00.0	206°59.8	221°59.7	236°59.5	251°59.4	86°57.5	101°57.3	116°57.2	131°57.0	146°56.9	161°56.8	-0.2
	-19°10.7	-19°10.1	-19°09.5	-19°08.9	-19°08.3	-19°07.7	-18°59.7	-18°59.1	-18°58.5	-18°57.9	-18°57.3	-18°56.7	+0.6
di 25	176°56.6	191°56.5	206°56.3	221°56.2	236°56.0	251°55.9	86°54.1	101°53.9	116°53.8	131°53.7	146°53.5	161°53.4	-0.1
	-18°56.0	-18°55.4	-18°54.8	-18°54.2	-18°53.6	-18°52.9	-18°44.8	-18°44.2	-18°43.6	-18°42.9	-18°42.3	-18°41.7	+0.6
wo 26	176°53.3	191°53.1	206°53.0	221°52.9	236°52.7	251°52.6	86°50.9	101°50.8	116°50.6	131°50.5	146°50.4	161°50.2	-0.1
	-18°41.0	-18°40.4	-18°39.8	-18°39.1	-18°38.5	-18°37.9	-18°29.6	-18°28.9	-18°28.3	-18°27.6	-18°27.0	-18°26.3	+0.6
do 27	176°50.1	191°50.0	206°49.9	221°49.7	236°49.6	251°49.5	86°47.9	101°47.8	116°47.6	131°47.5	146°47.4	161°47.3	-0.1
	-18°25.7	-18°25.0	-18°24.4	-18°23.8	-18°23.2	-18°22.5	-18°14.0	-18°13.3	-18°12.6	-18°12.0	-18°11.3	-18°10.7	+0.6
vr 28	176°47.2	191°47.1	206°46.9	221°46.8	236°46.7	251°46.6	86°45.1	101°45.0	116°44.9	131°44.8	146°44.6	161°44.5	-0.1
	-18°10.0	-18°09.4	-18°08.7	-18°08.0	-18°07.4	-18°06.7	-17°58.0	-17°57.4	-17°56.7	-17°56.0	-17°55.3	-17°54.7	+0.7
za 29	176°44.4	191°44.3	206°44.2	221°44.1	236°44.0	251°43.9	86°42.5	101°42.4	116°42.3	131°42.2	146°42.1	161°42.0	-0.1
	-17°54.0	-17°53.3	-17°52.7	-17°52.0	-17°51.3	-17°50.6	-17°41.8	-17°41.1	-17°40.4	-17°39.7	-17°39.0	-17°38.4	+0.7
zo 30	176°41.9	191°41.8	206°41.7	221°41.6	236°41.5	251°41.4	86°40.1	101°40.0	116°39.9	131°39.8	146°39.7	161°39.6	-0.1
	-17°37.7	-17°37.0	-17°36.3	-17°35.6	-17°34.9	-17°34.2	-17°25.2	-17°24.5	-17°23.8	-17°23.1	-17°22.4	-17°21.7	+0.7
ma 31	176°39.5	191°39.4	206°39.3	221°39.2	236°39.2	251°39.1	86°37.9	101°37.8	116°37.7	131°37.6	146°37.6	161°37.5	-0.1
	-17°21.0	-17°20.3	-17°19.6	-17°18.9	-17°18.2	-17°17.5	-17°08.3	-17°07.6	-17°06.9	-17°06.2	-17°05.5	-17°04.8	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2033

	D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
●	za 1	56°12.3	70°37.6	85°02.8	99°28.0	113°53.3	128°18.5	142°43.8	157°09.1	171°34.4	185°59.7	200°25.0	+25.3	16.2
		-17°45.1	-17°40.5	-17°35.9	-17°31.1	-17°26.2	-17°21.2	-17°16.1	-17°10.8	-17°05.4	-17°00.0	-16°54.4	+5.1	59.4
	zo 2	56°47.1	71°12.7	85°38.4	100°04.2	114°29.9	128°55.7	143°21.5	157°47.4	172°13.2	186°39.2	201°05.1	+25.8	16.3
		-15°17.1	-15°09.8	-15°02.3	-14°54.8	-14°47.1	-14°39.4	-14°31.6	-14°23.6	-14°15.6	-14°07.5	-13°59.2	+7.8	59.8
	ma 3	57°38.6	72°05.1	86°31.7	100°58.3	115°25.0	129°51.7	144°18.4	158°45.2	173°12.0	187°38.8	202°05.7	+26.7	16.3
		-11°45.5	-11°35.9	-11°26.3	-11°16.6	-11°06.8	-10°56.9	-10°47.0	-10°37.0	-10°26.9	-10°16.8	-10°06.6	+9.9	59.9
	di 4	58°53.8	73°21.3	87°48.8	102°16.4	116°44.1	131°11.7	145°39.4	160°07.1	174°34.9	189°02.7	203°30.5	+27.7	16.3
		-7°27.1	-7°16.0	-7°05.0	-6°53.9	-6°42.7	-6°31.5	-6°20.3	-6°09.0	-5°57.7	-5°46.4	-5°35.1	+11.2	59.9
	wo 5	60°31.7	75°00.0	89°28.3	103°56.7	118°25.0	132°53.5	147°21.9	161°50.3	176°18.8	190°47.3	205°15.8	+28.4	16.3
		-2°41.8	-2°30.1	-2°18.5	-2°06.8	-1°55.1	-1°43.4	-1°31.6	-1°19.9	-1°08.2	-0°56.5	-0°44.8	+11.7	59.7
	do 6	62°25.6	76°54.4	91°23.2	105°52.0	120°20.8	134°49.6	149°18.4	163°47.2	178°16.0	192°44.9	207°13.7	+28.8	16.2
		2°10.1	2°21.7	2°33.2	2°44.7	2°56.2	3°07.6	3°19.1	3°30.5	3°41.9	3°53.2	4°04.5	+11.4	59.3
	vr 7	64°26.6	78°55.5	93°24.3	107°53.2	122°22.0	136°50.8	151°19.7	165°48.5	180°17.3	194°46.1	209°14.9	+28.8	16.0
		6°50.1	7°00.9	7°11.5	7°22.1	7°32.7	7°43.2	7°53.7	8°04.1	8°14.5	8°24.8	8°35.0	+10.5	58.8
◐	za 8	66°25.8	80°54.5	95°23.1	109°51.7	124°20.3	138°48.9	153°17.4	167°46.0	182°14.5	196°43.1	211°11.6	+28.6	15.9
		11°01.7	11°10.9	11°20.1	11°29.3	11°38.3	11°47.3	11°56.2	12°05.0	12°13.8	12°22.5	12°31.1	+8.9	58.3
	zo 9	80°54.5	95°23.1	109°51.7	124°20.3	138°48.9	153°17.4	167°46.0	182°14.5	196°43.1	211°11.6	225°40.1	+28.6	15.9
		11°10.9	11°20.1	11°29.3	11°38.3	11°47.3	11°56.2	12°05.0	12°13.8	12°22.5	12°31.1	12°39.6	+8.9	58.3
	ma 10	82°45.6	97°13.9	111°42.1	126°10.3	140°38.5	155°06.7	169°34.9	184°03.1	198°31.2	212°59.3	227°27.5	+28.2	15.8
		14°37.8	14°45.0	14°52.2	14°59.2	15°06.1	15°13.0	15°19.7	15°26.4	15°33.0	15°39.5	15°45.9	+6.8	57.8
	di 11	84°27.8	98°55.8	113°23.7	127°51.6	142°19.5	156°47.5	171°15.4	185°43.3	200°11.2	214°39.1	229°07.0	+27.9	15.6
		17°10.2	17°15.0	17°19.7	17°24.4	17°28.9	17°33.3	17°37.6	17°41.9	17°46.0	17°50.0	17°53.9	+4.4	57.3
	wo 12	86°05.4	100°33.3	115°01.2	129°29.1	143°57.1	158°25.0	172°53.0	187°21.0	201°49.0	216°17.0	230°45.0	+28.0	15.5
		18°40.0	18°42.2	18°44.3	18°46.4	18°48.3	18°50.1	18°51.8	18°53.3	18°54.8	18°56.2	18°57.5	+1.7	56.8
	do 13	87°47.2	102°15.5	116°43.8	131°12.2	145°40.6	160°09.0	174°37.4	189°05.9	203°34.4	218°02.9	232°31.5	+28.4	15.3
		19°03.8	19°03.3	19°02.8	19°02.2	19°01.5	19°00.6	18°59.7	18°58.7	18°57.5	18°56.3	18°54.9	-0.9	56.3
	vr 14	89°44.0	104°13.2	118°42.4	133°11.6	147°40.8	162°10.1	176°39.5	191°08.9	205°38.3	220°07.8	234°37.3	+29.3	15.2
		18°22.8	18°19.9	18°16.9	18°13.8	18°10.6	18°07.4	18°04.0	18°00.5	17°56.9	17°53.3	17°49.6	-3.3	55.8
○	za 15	92°05.6	106°35.9	121°06.2	135°36.6	150°07.0	164°37.5	179°08.0	193°38.5	208°09.2	222°39.8	237°10.6	+30.5	15.1
		16°43.2	16°38.1	16°32.9	16°27.7	16°22.3	16°16.9	16°11.5	16°05.9	16°00.3	15°54.6	15°48.8	-5.4	55.3
	zo 16	94°57.5	109°29.0	124°00.6	138°32.2	153°03.9	167°35.6	182°07.4	196°39.3	211°11.1	225°43.1	240°15.0	+31.8	15.0
		14°13.9	14°07.1	14°00.2	13°53.2	13°46.2	13°39.1	13°32.0	13°24.8	13°17.5	13°10.2	13°02.8	-7.1	54.9
	ma 17	98°20.4	112°53.1	127°25.9	141°58.7	156°31.6	171°04.5	185°37.4	200°10.4	214°43.4	229°16.5	243°49.6	+32.9	14.9
		11°06.2	10°58.0	10°49.8	10°41.6	10°33.3	10°25.0	10°16.6	10°08.2	9°59.8	9°51.3	9°42.8	-8.3	54.5
	di 18	102°10.7	116°44.3	131°18.1	145°51.8	160°25.6	174°59.4	189°33.2	204°07.1	218°41.0	233°14.9	247°48.9	+33.8	14.8
		7°31.0	7°22.0	7°12.9	7°03.9	6°54.8	6°45.6	6°36.5	6°27.3	6°18.1	6°08.9	5°59.7	-9.1	54.2
	wo 19	106°21.1	120°55.4	135°29.7	150°04.1	164°38.4	179°12.8	193°47.2	208°21.6	222°56.0	237°30.4	252°04.9	+34.4	14.7
		3°39.0	3°29.5	3°20.0	3°10.4	3°00.9	2°51.4	2°41.8	2°32.3	2°22.7	2°13.1	2°03.6	-9.5	54.1
	do 20	110°42.4	125°16.9	139°51.4	154°26.0	169°00.5	183°35.0	198°09.5	212°44.1	227°18.6	241°53.1	256°27.6	+34.5	14.7
		-0°20.5	-0°30.1	-0°39.7	-0°49.3	-0°58.9	-1°08.5	-1°18.1	-1°27.7	-1°37.2	-1°46.8	-1°56.4	-9.6	54.1
	vr 21	115°03.9	129°38.2	144°12.5	158°46.8	173°21.0	187°55.2	202°29.4	217°03.6	231°37.8	246°11.9	260°46.0	+34.2	14.8
		-4°18.6	-4°28.0	-4°37.4	-4°46.7	-4°56.0	-5°05.4	-5°14.7	-5°23.9	-5°33.2	-5°42.4	-5°51.6	-9.3	54.2
	za 22	119°14.3	133°48.0	148°21.6	162°55.1	177°28.6	192°02.1	206°35.5	221°08.9	235°42.3	250°15.6	264°48.9	+33.5	14.9
		-8°07.1	-8°15.9	-8°24.7	-8°33.4	-8°42.2	-8°50.8	-8°59.5	-9°08.1	-9°16.7	-9°25.3	-9°33.8	-8.7	54.5
◑	zo 23	123°02.5	137°35.0	152°07.5	166°39.9	181°12.2	195°44.5	210°16.8	224°48.9	239°21.1	253°53.1	268°25.1	+32.3	15.0
		-11°37.1	-11°45.0	-11°52.8	-12°00.6	-12°08.3	-12°16.0	-12°23.7	-12°31.3	-12°38.8	-12°46.3	-12°53.8	-7.7	55.0
	ma 24	126°18.1	140°49.1	155°20.1	169°51.0	184°21.8	198°52.6	213°23.2	227°53.9	242°24.4	256°54.9	271°25.3	+30.7	15.2
		-14°38.8	-14°45.3	-14°51.8	-14°58.2	-15°04.5	-15°10.8	-15°17.0	-15°23.1	-15°29.2	-15°35.2	-15°41.1	-6.2	55.7
	di 25	128°53.4	143°22.7	157°51.9	172°21.1	186°50.2	201°19.2	215°48.1	230°17.0	244°45.8	259°14.6	273°43.2	+29.0	15.4
		-17°01.0	-17°05.7	-17°10.3	-17°14.8	-17°19.3	-17°23.6	-17°27.9	-17°32.1	-17°36.2	-17°40.2	-17°44.1	-4.3	56.5
	wo 26	130°45.1	145°12.6	159°40.2	174°07.6	188°35.0	203°02.3	217°29.6	231°56.8	246°23.9	260°51.0	275°18.0	+27.3	15.7
		-18°31.3	-18°33.7	-18°35.9	-18°38.1	-18°40.1	-18°42.1	-18°43.9	-18°45.6	-18°47.2	-18°48.8	-18°50.2	-1.9	57.5
	do 27	131°56.5	146°22.7	160°48.8	175°14.8	189°40.8	204°06.8	218°32.7	232°58.6	247°24.4	261°50.2	276°16.0	+25.9	15.9
		-18°57.7	-18°57.2	-18°56.7	-18°56.0	-18°55.3	-18°54.4	-18°53.3	-18°52.2	-18°50.9	-18°49.6	-18°48.1	+1.0	58.4
	vr 28	132°38.2	147°03.5	161°28.7	175°54.0	190°19.2	204°44.3	219°09.5	233°34.7	247°59.8	262°24.9	276°50.0	+25.2	16.2
		-18°10.8	-18°07.4	-18°03.8	-18°00.1	-17°56.2	-17°52.3	-17°48.2	-17°44.0	-17°39.7	-17°35.2	-17°30.7	+4.0	59.3
	za 29	133°05.9	147°30.9	161°56.0	176°21.0	190°46.1	205°11.2	219°36.3	234°01.3	248°26.4	262°51.6	277°16.7	+25.1	16.4
		-16°07.8	-16°01.3	-15°54.8	-15°48.1	-15°41.3	-15°34.4	-15°27.3	-15°20.2	-15°13.0	-15°05.6	-14°58.1	+7.0	60.1
●	zo 30	133°35.5	148°01.0	162°26.4	176°51.9	191°17.3	205°42.9	220°08.4	234°34.0	248°59.6	263°25.2	277°50.8	+25.5	16.5
		-12°54.0	-12°44.9	-12°35.8	-12°26.5	-12°17.2	-12°07.8	-11°58.3	-11°48.7	-11°39.1	-11°29.3	-11°19.5	+9.5	60.6
	ma 31	134°19.0	148°45.1	163°11.3	177°37.4	192°03.6	206°29.9	220°56.2	235°22.5	249°48.8	264°15.2	278°41.5	+26.3	16.6
		-8°43.4	-8°32.4	-8°21.5	-8°10.4	-7°59.3	-7°48.2	-7°37.0	-7°25.7	-7°14.4	-7°03.1	-6°51.7	+11.2	60.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 1 10h17 — EK: 8 03h34 — VM: 15 13h07 — LK: 23 17h45 — NM: 30 21h59

ZON

Februari 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	176°37.4	191°37.3	206°37.2	221°37.1	236°37.0	251°37.0	86°35.9	101°35.8	116°35.8	131°35.7	146°35.6	161°35.5	-0.1
	-17°04.1	-17°03.4	-17°02.7	-17°01.9	-17°01.2	-17°00.5	-16°51.2	-16°50.4	-16°49.7	-16°49.0	-16°48.3	-16°47.6	+0.7
wo 2	176°35.4	191°35.4	206°35.3	221°35.2	236°35.1	251°35.1	86°34.1	101°34.1	116°34.0	131°33.9	146°33.9	161°33.8	-0.1
	-16°46.8	-16°46.1	-16°45.4	-16°44.7	-16°43.9	-16°43.2	-16°33.7	-16°33.0	-16°32.2	-16°31.5	-16°30.8	-16°30.0	+0.7
do 3	176°33.7	191°33.6	206°33.6	221°33.5	236°33.4	251°33.4	86°32.6	101°32.5	116°32.4	131°32.4	146°32.3	161°32.3	-0.1
	-16°29.3	-16°28.6	-16°27.8	-16°27.1	-16°26.3	-16°25.6	-16°15.9	-16°15.2	-16°14.5	-16°13.7	-16°13.0	-16°12.2	+0.7
vr 4	176°32.2	191°32.1	206°32.1	221°32.0	236°32.0	251°31.9	86°31.2	101°31.1	116°31.1	131°31.0	146°31.0	161°30.9	-0.1
	-16°11.5	-16°10.7	-16°10.0	-16°09.2	-16°08.5	-16°07.7	-15°57.9	-15°57.1	-15°56.4	-15°55.6	-15°54.9	-15°54.1	+0.7
za 5	176°30.9	191°30.8	206°30.8	221°30.7	236°30.7	251°30.6	86°30.0	101°30.0	116°29.9	131°29.9	146°29.9	161°29.8	-0.1
	-15°53.4	-15°52.6	-15°51.8	-15°51.1	-15°50.3	-15°49.5	-15°39.6	-15°38.8	-15°38.1	-15°37.3	-15°36.5	-15°35.7	+0.8
zo 6	176°29.8	191°29.7	206°29.7	221°29.6	236°29.6	251°29.6	86°29.1	101°29.0	116°29.0	131°29.0	146°28.9	161°28.9	-0.0
	-15°35.0	-15°34.2	-15°33.4	-15°32.7	-15°31.9	-15°31.1	-15°21.0	-15°20.2	-15°19.5	-15°18.7	-15°17.9	-15°17.1	+0.8
ma 7	176°28.9	191°28.8	206°28.8	221°28.8	236°28.7	251°28.7	86°28.3	101°28.3	116°28.3	131°28.2	146°28.2	161°28.2	-0.0
	-15°16.3	-15°15.5	-15°14.8	-15°14.0	-15°13.2	-15°12.4	-15°02.2	-15°01.4	-15°00.6	-14°59.8	-14°59.0	-14°58.2	+0.8
di 8	176°28.2	191°28.1	206°28.1	221°28.1	236°28.1	251°28.0	86°27.8	101°27.8	116°27.7	131°27.7	146°27.7	161°27.7	-0.0
	-14°57.4	-14°56.6	-14°55.8	-14°55.0	-14°54.3	-14°53.5	-14°43.1	-14°42.3	-14°41.5	-14°40.7	-14°39.9	-14°39.1	+0.8
wo 9	176°27.7	191°27.6	206°27.6	221°27.6	236°27.6	251°27.6	86°27.4	101°27.4	116°27.4	131°27.4	146°27.4	161°27.4	-0.0
	-14°38.3	-14°37.5	-14°36.7	-14°35.9	-14°35.1	-14°34.3	-14°23.7	-14°22.9	-14°22.1	-14°21.3	-14°20.5	-14°19.7	+0.8
do 10	176°27.4	191°27.4	206°27.4	221°27.3	236°27.3	251°27.3	86°27.3	101°27.3	116°27.3	131°27.3	146°27.3	161°27.3	-0.0
	-14°18.9	-14°18.1	-14°17.3	-14°16.4	-14°15.6	-14°14.8	-14°04.2	-14°03.4	-14°02.5	-14°01.7	-14°00.9	-14°00.1	+0.8
vr 11	176°27.3	191°27.3	206°27.3	221°27.3	236°27.3	251°27.3	86°27.3	101°27.3	116°27.3	131°27.3	146°27.3	161°27.4	-0.0
	-13°59.2	-13°58.4	-13°57.6	-13°56.8	-13°55.9	-13°55.1	-13°44.4	-13°43.5	-13°42.7	-13°41.9	-13°41.0	-13°40.2	+0.8
za 12	176°27.4	191°27.4	206°27.4	221°27.4	236°27.4	251°27.4	86°27.6	101°27.6	116°27.6	131°27.6	146°27.6	161°27.6	+0.0
	-13°39.4	-13°38.5	-13°37.7	-13°36.9	-13°36.0	-13°35.2	-13°24.3	-13°23.5	-13°22.7	-13°21.8	-13°21.0	-13°20.1	+0.8
zo 13	176°27.6	191°27.7	206°27.7	221°27.7	236°27.7	251°27.7	86°28.0	101°28.0	116°28.0	131°28.0	146°28.1	161°28.1	+0.0
	-13°19.3	-13°18.4	-13°17.6	-13°16.8	-13°15.9	-13°15.1	-13°04.1	-13°03.2	-13°02.4	-13°01.5	-13°00.7	-12°59.8	+0.8
ma 14	176°28.1	191°28.1	206°28.2	221°28.2	236°28.2	251°28.2	86°28.6	101°28.6	116°28.6	131°28.7	146°28.7	161°28.7	+0.0
	-12°59.0	-12°58.1	-12°57.3	-12°56.4	-12°55.6	-12°54.7	-12°43.6	-12°42.8	-12°41.9	-12°41.0	-12°40.2	-12°39.3	+0.9
di 15	176°28.8	191°28.8	206°28.8	221°28.9	236°28.9	251°28.9	86°29.4	101°29.4	116°29.4	131°29.5	146°29.5	161°29.6	+0.0
	-12°38.5	-12°37.6	-12°36.7	-12°35.9	-12°35.0	-12°34.2	-12°22.9	-12°22.1	-12°21.2	-12°20.3	-12°19.5	-12°18.6	+0.9
wo 16	176°29.6	191°29.6	206°29.7	221°29.7	236°29.8	251°29.8	86°30.3	101°30.4	116°30.4	131°30.5	146°30.5	161°30.6	+0.0
	-12°17.7	-12°16.9	-12°16.0	-12°15.1	-12°14.3	-12°13.4	-12°02.1	-12°01.2	-12°00.3	-11°59.4	-11°58.6	-11°57.7	+0.9
do 17	176°30.6	191°30.7	206°30.7	221°30.7	236°30.8	251°30.8	86°31.5	101°31.5	116°31.6	131°31.6	146°31.7	161°31.7	+0.0
	-11°56.8	-11°55.9	-11°55.1	-11°54.2	-11°53.3	-11°52.4	-11°41.0	-11°40.1	-11°39.2	-11°38.4	-11°37.5	-11°36.6	+0.9
vr 18	176°31.8	191°31.8	206°31.9	221°31.9	236°32.0	251°32.1	86°32.8	101°32.8	116°32.9	131°33.0	146°33.0	161°33.1	+0.1
	-11°35.7	-11°34.8	-11°33.9	-11°33.1	-11°32.2	-11°31.3	-11°19.8	-11°18.9	-11°18.0	-11°17.1	-11°16.2	-11°15.3	+0.9
za 19	176°33.1	191°33.2	206°33.3	221°33.3	236°33.4	251°33.4	86°34.3	101°34.3	116°34.4	131°34.5	146°34.5	161°34.6	+0.1
	-11°14.4	-11°13.5	-11°12.6	-11°11.7	-11°10.9	-11°10.0	-10°58.3	-10°57.4	-10°56.5	-10°55.6	-10°54.7	-10°53.8	+0.9
zo 20	176°34.7	191°34.7	206°34.8	221°34.9	236°34.9	251°35.0	86°35.9	101°36.0	116°36.0	131°36.1	146°36.2	161°36.3	+0.1
	-10°52.9	-10°52.0	-10°51.2	-10°50.3	-10°49.4	-10°48.5	-10°36.7	-10°35.8	-10°34.9	-10°34.0	-10°33.1	-10°32.2	+0.9
ma 21	176°36.3	191°36.4	206°36.5	221°36.5	236°36.6	251°36.7	86°37.7	101°37.8	116°37.8	131°37.9	146°38.0	161°38.1	+0.1
	-10°31.3	-10°30.4	-10°29.5	-10°28.6	-10°27.7	-10°26.8	-10°15.0	-10°14.1	-10°13.1	-10°12.2	-10°11.3	-10°10.4	+0.9
di 22	176°38.2	191°38.2	206°38.3	221°38.4	236°38.5	251°38.6	86°39.6	101°39.7	116°39.8	131°39.9	146°40.0	161°40.1	+0.1
	-10°09.5	-10°08.6	-10°07.7	-10°06.8	-10°05.8	-10°04.9	-9°53.0	-9°52.1	-9°51.2	-9°50.3	-9°49.4	-9°48.5	+0.9
wo 23	176°40.1	191°40.2	206°40.3	221°40.4	236°40.5	251°40.6	86°41.7	101°41.8	116°41.9	131°42.0	146°42.1	161°42.2	+0.1
	-9°47.5	-9°46.6	-9°45.7	-9°44.8	-9°43.9	-9°42.9	-9°31.0	-9°30.0	-9°29.1	-9°28.2	-9°27.3	-9°26.3	+0.9
do 24	176°42.3	191°42.4	206°42.5	221°42.5	236°42.6	251°42.7	86°44.0	101°44.1	116°44.2	131°44.2	146°44.3	161°44.4	+0.1
	-9°25.4	-9°24.5	-9°23.6	-9°22.6	-9°21.7	-9°20.8	-9°08.7	-9°07.8	-9°06.9	-9°06.0	-9°05.0	-9°04.1	+0.9
vr 25	176°44.5	191°44.6	206°44.7	221°44.8	236°44.9	251°45.0	86°46.3	101°46.4	116°46.5	131°46.6	146°46.7	161°46.8	+0.1
	-9°03.2	-9°02.2	-9°01.3	-9°00.4	-8°59.4	-8°58.5	-8°46.4	-8°45.4	-8°44.5	-8°43.6	-8°42.6	-8°41.7	+0.9
za 26	176°47.0	191°47.1	206°47.2	221°47.3	236°47.4	251°47.5	86°48.9	101°49.0	116°49.1	131°49.2	146°49.3	161°49.4	+0.1
	-8°40.8	-8°39.8	-8°38.9	-8°38.0	-8°37.0	-8°36.1	-8°23.9	-8°23.0	-8°22.0	-8°21.1	-8°20.1	-8°19.2	+0.9
zo 27	176°49.5	191°49.6	206°49.7	221°49.8	236°49.9	251°50.0	86°51.5	101°51.6	116°51.7	131°51.8	146°52.0	161°52.1	+0.1
	-8°18.2	-8°17.3	-8°16.4	-8°15.4	-8°14.5	-8°13.5	-8°01.3	-8°00.3	-7°59.4	-7°58.4	-7°57.5	-7°56.5	+0.9
ma 28	176°52.2	191°52.3	206°52.4	221°52.5	236°52.6	251°52.8	86°54.3	101°54.4	116°54.5	131°54.6	146°54.8	161°54.9	+0.1
	-7°55.6	-7°54.7	-7°53.7	-7°52.8	-7°51.8	-7°50.9	-7°38.5	-7°37.6	-7°36.6	-7°35.7	-7°34.7	-7°33.8	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2033

D	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
di 1	63°07.2	77°33.9	92°00.6	106°27.4	120°54.2	135°21.1	149°47.9	164°14.8	178°41.8	193°08.7	207°35.7	+26.9	16.6
	-4°55.6	-4°43.8	-4°32.0	-4°20.1	-4°08.3	-3°56.4	-3°44.5	-3°32.5	-3°20.6	-3°08.6	-2°56.6	+11.9	60.8
wo 2	64°23.3	78°50.7	93°18.1	107°45.5	122°12.9	136°40.3	151°07.8	165°35.3	180°02.8	194°30.3	208°57.8	+27.4	16.5
	0°03.9	0°15.9	0°27.9	0°39.9	0°51.9	1°03.9	1°15.9	1°27.8	1°39.7	1°51.6	2°03.5	+12.0	60.4
do 3	65°52.6	80°20.3	94°48.1	109°15.9	123°43.7	138°11.5	152°39.3	167°07.1	181°34.9	196°02.7	210°30.5	+27.8	16.3
	4°58.5	5°09.9	5°21.3	5°32.6	5°43.8	5°55.0	6°06.2	6°17.3	6°28.4	6°39.4	6°50.4	+11.2	59.9
vr 4	67°28.7	81°56.6	96°24.5	110°52.4	125°20.3	139°48.2	154°16.2	168°44.1	183°12.0	197°39.9	212°07.8	+27.9	16.1
	9°28.1	9°38.1	9°48.0	9°57.9	10°07.7	10°17.4	10°27.1	10°36.7	10°46.2	10°55.7	11°05.0	+9.7	59.2
za 5	69°06.5	83°34.4	98°02.4	112°30.3	126°58.2	141°26.1	155°54.0	170°21.9	184°49.8	199°17.7	213°45.6	+27.9	15.9
	13°16.1	13°24.1	13°32.1	13°40.0	13°47.8	13°55.5	14°03.2	14°10.7	14°18.2	14°25.5	14°32.8	+7.7	58.4
◐ zo 6	70°44.1	85°12.0	99°39.9	114°07.9	128°35.8	143°03.7	157°31.6	171°59.6	186°27.5	200°55.4	215°23.4	+27.9	15.7
	16°10.4	16°16.1	16°21.8	16°27.3	16°32.7	16°38.1	16°43.3	16°48.4	16°53.5	16°58.4	17°03.2	+5.3	57.6
ma 7	85°12.0	99°39.9	114°07.9	128°35.8	143°03.7	157°31.6	171°59.6	186°27.5	200°55.4	215°23.4	229°51.3	+27.9	15.7
	16°16.1	16°21.8	16°27.3	16°32.7	16°38.1	16°43.3	16°48.4	16°53.5	16°58.4	17°03.2	17°07.9	+5.2	57.6
di 8	86°51.5	101°19.6	115°47.7	130°15.8	144°43.9	159°12.0	173°40.2	188°08.4	202°36.5	217°04.7	231°33.0	+28.1	15.5
	18°06.5	18°09.5	18°12.5	18°15.4	18°18.1	18°20.8	18°23.3	18°25.8	18°28.1	18°30.4	18°32.5	+2.6	56.9
wo 9	88°38.4	103°07.0	117°35.5	132°04.1	146°32.7	161°01.4	175°30.0	189°58.7	204°27.5	218°56.2	233°25.0	+28.7	15.3
	18°51.9	18°52.4	18°52.8	18°53.0	18°53.2	18°53.3	18°53.2	18°53.1	18°52.8	18°52.5	18°52.1	+0.0	56.2
do 10	90°40.4	105°09.7	119°39.0	134°08.4	148°37.8	163°07.2	177°36.7	192°06.2	206°35.8	221°05.4	235°35.0	+29.5	15.2
	18°33.5	18°31.5	18°29.4	18°27.2	18°24.9	18°22.5	18°20.1	18°17.5	18°14.8	18°12.1	18°09.2	-2.4	55.7
vr 11	93°04.4	107°34.7	122°05.0	136°35.4	151°05.8	165°36.3	180°06.8	194°37.4	209°08.0	223°38.6	238°09.3	+30.5	15.0
	17°16.0	17°11.7	17°07.4	17°03.0	16°58.6	16°54.0	16°49.4	16°44.6	16°39.9	16°35.0	16°30.0	-4.6	55.2
za 12	95°55.1	110°26.5	124°58.0	139°29.5	154°01.0	168°32.6	183°04.2	197°35.9	212°07.6	226°39.4	241°11.2	+31.6	14.9
	15°06.9	15°00.8	14°54.6	14°48.4	14°42.1	14°35.7	14°29.3	14°22.8	14°16.3	14°09.6	14°03.0	-6.4	54.8
zo 13	99°13.5	113°46.0	128°18.6	142°51.2	157°23.8	171°56.4	186°29.1	201°01.8	215°34.6	230°07.4	244°40.3	+32.7	14.8
	12°15.8	12°08.3	12°00.6	11°53.0	11°45.3	11°37.5	11°29.7	11°21.8	11°13.9	11°05.9	10°57.9	-7.8	54.4
○ ma 14	102°57.4	117°30.8	132°04.3	146°37.8	161°11.3	175°44.8	190°18.4	204°52.0	219°25.6	233°59.3	248°33.0	+33.6	14.8
	8°53.0	8°44.4	8°35.7	8°27.0	8°18.3	8°09.6	8°00.8	7°52.0	7°43.1	7°34.2	7°25.3	-8.8	54.2
di 15	107°01.4	121°35.5	136°09.6	150°43.7	165°17.9	179°52.0	194°26.2	209°00.4	223°34.6	238°08.8	252°43.1	+34.2	14.7
	5°08.8	4°59.5	4°50.3	4°40.9	4°31.6	4°22.3	4°12.9	4°03.6	3°54.2	3°44.8	3°35.4	-9.3	54.0
wo 16	111°18.3	125°52.7	140°27.2	155°01.6	169°36.0	184°10.5	198°44.9	213°19.4	227°53.8	242°28.3	257°02.8	+34.4	14.7
	1°13.1	1°03.6	0°54.1	0°44.5	0°35.0	0°25.5	0°15.9	0°06.4	-0°03.1	-0°12.7	-0°22.2	-9.5	53.9
do 17	115°39.5	130°13.9	144°48.3	159°22.7	173°57.1	188°31.5	203°05.8	217°40.2	232°14.5	246°48.8	261°23.1	+34.4	14.7
	-2°44.6	-2°54.0	-3°03.4	-3°12.8	-3°22.2	-3°31.6	-3°40.9	-3°50.3	-3°59.6	-4°08.9	-4°18.2	-9.4	54.0
vr 18	119°55.8	134°29.8	149°03.8	163°37.8	178°11.7	192°45.6	207°19.5	221°53.4	236°27.2	251°01.0	265°34.8	+33.9	14.8
	-6°35.4	-6°44.3	-6°53.3	-7°02.2	-7°11.1	-7°19.9	-7°28.7	-7°37.5	-7°46.3	-7°55.1	-8°03.8	-8.8	54.1
za 19	123°57.7	138°31.0	153°04.2	167°37.4	182°10.5	196°43.6	211°16.6	225°49.6	240°22.6	254°55.5	269°28.4	+33.1	14.8
	-10°10.3	-10°18.5	-10°26.6	-10°34.7	-10°42.7	-10°50.7	-10°58.6	-11°06.5	-11°14.3	-11°22.1	-11°29.9	-8.0	54.4
zo 20	127°36.3	142°08.5	156°40.6	171°12.6	185°44.6	200°16.6	214°48.4	229°20.3	243°52.1	258°23.8	272°55.5	+31.9	15.0
	-13°20.4	-13°27.3	-13°34.2	-13°41.1	-13°47.9	-13°54.6	-14°01.2	-14°07.8	-14°14.4	-14°20.9	-14°27.3	-6.7	54.9
ma 21	130°44.0	145°14.8	159°45.5	174°16.2	188°46.8	203°17.3	217°47.8	232°18.2	246°48.6	261°18.9	275°49.2	+30.5	15.1
	-15°55.8	-16°01.2	-16°06.5	-16°11.7	-16°16.8	-16°21.8	-16°26.8	-16°31.7	-16°36.6	-16°41.3	-16°46.0	-5.0	55.5
◑ di 22	133°15.7	147°45.0	162°14.2	176°43.4	191°12.5	205°41.5	220°10.5	234°39.4	249°08.3	263°37.1	278°05.9	+29.0	15.4
	-17°46.3	-17°49.6	-17°52.8	-17°56.0	-17°59.1	-18°02.0	-18°04.9	-18°07.7	-18°10.4	-18°13.0	-18°15.5	-2.9	56.3
wo 23	135°10.3	149°38.1	164°05.9	178°33.7	193°01.3	207°29.0	221°56.6	236°24.1	250°51.6	265°19.0	279°46.4	+27.6	15.6
	-18°41.2	-18°42.1	-18°42.9	-18°43.6	-18°44.2	-18°44.7	-18°45.1	-18°45.3	-18°45.5	-18°45.6	-18°45.5	-0.4	57.2
do 24	136°31.7	150°58.4	165°25.0	179°51.6	194°18.2	208°44.7	223°11.2	237°37.6	252°04.1	266°30.4	280°56.8	+26.5	15.9
	-18°31.3	-18°29.5	-18°27.5	-18°25.4	-18°23.2	-18°20.9	-18°18.5	-18°15.9	-18°13.3	-18°10.5	-18°07.6	+2.4	58.2
vr 25	137°28.6	151°54.5	166°20.4	180°46.3	195°12.2	209°38.0	224°03.9	238°29.7	252°55.5	267°21.3	281°47.0	+25.8	16.1
	-17°10.3	-17°05.5	-17°00.7	-16°55.7	-16°50.6	-16°45.4	-16°40.0	-16°34.6	-16°29.0	-16°23.3	-16°17.6	+5.3	59.2
za 26	138°12.4	152°38.0	167°03.6	181°29.3	195°54.9	210°20.5	224°46.2	239°11.8	253°37.4	268°03.1	282°28.7	+25.6	16.4
	-14°37.4	-14°29.9	-14°22.2	-14°14.5	-14°06.6	-13°58.7	-13°50.6	-13°42.5	-13°34.2	-13°25.9	-13°17.4	+8.0	60.1
zo 27	138°53.7	153°19.4	167°45.2	182°10.9	196°36.6	211°02.4	225°28.2	239°53.9	254°19.7	268°45.5	283°11.3	+25.8	16.6
	-10°59.4	-10°49.5	-10°39.6	-10°29.5	-10°19.4	-10°09.2	-9°58.9	-9°48.5	-9°38.1	-9°27.6	-9°17.0	+10.2	60.8
ma 28	139°39.8	154°05.8	168°31.8	182°57.9	197°23.9	211°49.9	226°16.0	240°42.1	255°08.1	269°34.2	284°00.3	+26.1	16.7
	-6°30.8	-6°19.3	-6°07.7	-5°56.1	-5°44.4	-5°32.7	-5°21.0	-5°09.2	-4°57.4	-4°45.5	-4°33.6	+11.7	61.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 13h34 — VM: 14 07h04 — LK: 22 11h53

ZON

Maart 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	176°55.0 -7°32.8	191°55.1 -7°31.9	206°55.2 -7°30.9	221°55.4 -7°30.0	236°55.5 -7°29.0	251°55.6 -7°28.1	86°57.2 -7°15.7	101°57.3 -7°14.7	116°57.4 -7°13.8	131°57.6 -7°12.8	146°57.7 -7°11.9	161°57.8 -7°10.9	+0.1 +1.0
wo 2	176°57.9 -7°10.0	191°58.1 -7°09.0	206°58.2 -7°08.1	221°58.3 -7°07.1	236°58.4 -7°06.2	251°58.6 -7°05.2	87°00.2 -6°52.8	102°00.3 -6°51.8	117°00.5 -6°50.8	132°00.6 -6°49.9	147°00.7 -6°48.9	162°00.9 -6°48.0	+0.1 +1.0
do 3	177°01.0 -6°47.0	192°01.1 -6°46.0	207°01.2 -6°45.1	222°01.4 -6°44.1	237°01.5 -6°43.2	252°01.6 -6°42.2	87°03.4 -6°29.7	102°03.5 -6°28.7	117°03.6 -6°27.8	132°03.8 -6°26.8	147°03.9 -6°25.9	162°04.0 -6°24.9	+0.1 +1.0
vr 4	177°04.2 -6°23.9	192°04.3 -6°23.0	207°04.4 -6°22.0	222°04.6 -6°21.0	237°04.7 -6°20.1	252°04.8 -6°19.1	87°06.6 -6°06.6	102°06.8 -6°05.6	117°06.9 -6°04.6	132°07.0 -6°03.7	147°07.2 -6°02.7	162°07.3 -6°01.7	+0.1 +1.0
za 5	177°07.5 -6°00.8	192°07.6 -5°59.8	207°07.7 -5°58.9	222°07.9 -5°57.9	237°08.0 -5°56.9	252°08.2 -5°55.9	87°10.0 -5°43.4	102°10.1 -5°42.4	117°10.3 -5°41.4	132°10.4 -5°40.5	147°10.6 -5°39.5	162°10.7 -5°38.5	+0.1 +1.0
zo 6	177°10.9 -5°37.5	192°11.0 -5°36.6	207°11.1 -5°35.6	222°11.3 -5°34.6	237°11.4 -5°33.7	252°11.6 -5°32.7	87°13.5 -5°20.1	102°13.6 -5°19.1	117°13.8 -5°18.1	132°13.9 -5°17.2	147°14.1 -5°16.2	162°14.2 -5°15.2	+0.1 +1.0
ma 7	177°14.4 -5°14.2	192°14.5 -5°13.3	207°14.7 -5°12.3	222°14.8 -5°11.3	237°15.0 -5°10.3	252°15.1 -5°09.4	87°17.1 -4°56.7	102°17.2 -4°55.7	117°17.4 -4°54.8	132°17.5 -4°53.8	147°17.7 -4°52.8	162°17.8 -4°51.8	+0.1 +1.0
di 8	177°18.0 -4°50.9	192°18.1 -4°49.9	207°18.3 -4°48.9	222°18.4 -4°47.9	237°18.6 -4°47.0	252°18.7 -4°46.0	87°20.8 -4°33.3	102°20.9 -4°32.3	117°21.1 -4°31.3	132°21.2 -4°30.4	147°21.4 -4°29.4	162°21.5 -4°28.4	+0.2 +1.0
wo 9	177°21.7 -4°27.4	192°21.9 -4°26.4	207°22.0 -4°25.5	222°22.2 -4°24.5	237°22.3 -4°23.5	252°22.5 -4°22.5	87°24.5 -4°09.8	102°24.7 -4°08.8	117°24.9 -4°07.8	132°25.0 -4°06.9	147°25.2 -4°05.9	162°25.3 -4°04.9	+0.2 +1.0
do 10	177°25.5 -4°03.9	192°25.7 -4°02.9	207°25.8 -4°02.0	222°26.0 -4°01.0	237°26.1 -4°00.0	252°26.3 -3°59.0	87°28.4 -3°46.3	102°28.6 -3°45.3	117°28.7 -3°44.3	132°28.9 -3°43.3	147°29.1 -3°42.3	162°29.2 -3°41.4	+0.2 +1.0
vr 11	177°29.4 -3°40.4	192°29.6 -3°39.4	207°29.7 -3°38.4	222°29.9 -3°37.4	237°30.1 -3°36.5	252°30.2 -3°35.5	87°32.4 -3°22.7	102°32.5 -3°21.7	117°32.7 -3°20.7	132°32.9 -3°19.8	147°33.0 -3°18.8	162°33.2 -3°17.8	+0.2 +1.0
za 12	177°33.4 -3°16.8	192°33.5 -3°15.8	207°33.7 -3°14.8	222°33.9 -3°13.8	237°34.0 -3°12.9	252°34.2 -3°11.9	87°36.4 -2°59.1	102°36.6 -2°58.1	117°36.7 -2°57.1	132°36.9 -2°56.1	147°37.1 -2°55.1	162°37.2 -2°54.2	+0.2 +1.0
zo 13	177°37.4 -2°53.2	192°37.6 -2°52.2	207°37.8 -2°51.2	222°37.9 -2°50.2	237°38.1 -2°49.2	252°38.3 -2°48.3	87°40.5 -2°35.4	102°40.7 -2°34.5	117°40.8 -2°33.5	132°41.0 -2°32.5	147°41.2 -2°31.5	162°41.4 -2°30.5	+0.2 +1.0
ma 14	177°41.5 -2°29.5	192°41.7 -2°28.5	207°41.9 -2°27.6	222°42.1 -2°26.6	237°42.2 -2°25.6	252°42.4 -2°24.6	87°44.7 -2°11.8	102°44.8 -2°10.8	117°45.0 -2°09.8	132°45.2 -2°08.8	147°45.4 -2°07.8	162°45.5 -2°06.8	+0.2 +1.0
di 15	177°45.7 -2°05.8	192°45.9 -2°04.9	207°46.1 -2°03.9	222°46.3 -2°02.9	237°46.4 -2°01.9	252°46.6 -2°00.9	87°48.9 -1°48.1	102°49.1 -1°47.1	117°49.3 -1°46.1	132°49.4 -1°45.1	147°49.6 -1°44.1	162°49.8 -1°43.1	+0.2 +1.0
wo 16	177°50.0 -1°42.1	192°50.1 -1°41.2	207°50.3 -1°40.2	222°50.5 -1°39.2	237°50.7 -1°38.2	252°50.9 -1°37.2	87°53.2 -1°24.4	102°53.4 -1°23.4	117°53.5 -1°22.4	132°53.7 -1°21.4	147°53.9 -1°20.4	162°54.1 -1°19.4	+0.2 +1.0
do 17	177°54.3 -1°18.4	192°54.4 -1°17.4	207°54.6 -1°16.5	222°54.8 -1°15.5	237°55.0 -1°14.5	252°55.2 -1°13.5	87°57.5 -1°00.6	102°57.7 -0°59.7	117°57.9 -0°58.7	132°58.1 -0°57.7	147°58.2 -0°56.7	162°58.4 -0°55.7	+0.2 +1.0
vr 18	177°58.6 -0°54.7	192°58.8 -0°53.7	207°59.0 -0°52.7	222°59.2 -0°51.8	237°59.3 -0°50.8	252°59.5 -0°49.8	88°01.9 -0°36.9	103°02.1 -0°35.9	118°02.3 -0°35.0	133°02.4 -0°34.0	148°02.6 -0°33.0	163°02.8 -0°32.0	+0.2 +1.0
za 19	178°03.0 -0°31.0	193°03.2 -0°30.0	208°03.4 -0°29.0	223°03.5 -0°28.0	238°03.7 -0°27.0	253°03.9 -0°26.1	88°06.3 -0°13.2	103°06.5 -0°12.2	118°06.7 -0°11.2	133°06.9 -0°10.2	148°07.0 -0°09.3	163°07.2 -0°08.3	+0.2 +1.0
zo 20	178°07.4 -0°07.3	193°07.6 -0°06.3	208°07.8 -0°05.3	223°08.0 -0°04.3	238°08.2 -0°03.3	253°08.3 -0°02.3	88°10.7 0°10.5	103°10.9 0°11.5	118°11.1 0°12.5	133°11.3 0°13.5	148°11.5 0°14.4	163°11.7 0°15.4	+0.2 +1.0
ma 21	178°11.9 0°16.4	193°12.0 0°17.4	208°12.2 0°18.4	223°12.4 0°19.4	238°12.6 0°20.4	253°12.8 0°21.4	88°15.2 0°34.2	103°15.4 0°35.2	118°15.6 0°36.2	133°15.8 0°37.1	148°16.0 0°38.1	163°16.1 0°39.1	+0.2 +1.0
di 22	178°16.3 0°40.1	193°16.5 0°41.1	208°16.7 0°42.1	223°16.9 0°43.1	238°17.1 0°44.1	253°17.3 0°45.0	88°19.7 0°57.9	103°19.9 0°58.8	118°20.1 0°59.8	133°20.3 1°00.8	148°20.4 1°01.8	163°20.6 1°02.8	+0.2 +1.0
wo 23	178°20.8 1°03.8	193°21.0 1°04.8	208°21.2 1°05.7	223°21.4 1°06.7	238°21.6 1°07.7	253°21.8 1°08.7	88°24.2 1°21.5	103°24.4 1°22.5	118°24.6 1°23.5	133°24.8 1°24.5	148°25.0 1°25.4	163°25.1 1°26.4	+0.2 +1.0
do 24	178°25.3 1°27.4	193°25.5 1°28.4	208°25.7 1°29.4	223°25.9 1°30.4	238°26.1 1°31.3	253°26.3 1°32.3	88°28.7 1°45.1	103°28.9 1°46.1	118°29.1 1°47.1	133°29.3 1°48.1	148°29.5 1°49.1	163°29.7 1°50.0	+0.2 +1.0
vr 25	178°29.8 1°51.0	193°30.0 1°52.0	208°30.2 1°53.0	223°30.4 1°54.0	238°30.6 1°54.9	253°30.8 1°55.9	88°33.2 2°08.7	103°33.4 2°09.7	118°33.6 2°10.7	133°33.8 2°11.6	148°34.0 2°12.6	163°34.2 2°13.6	+0.2 +1.0
za 26	178°34.4 2°14.6	193°34.5 2°15.6	208°34.7 2°16.5	223°34.9 2°17.5	238°35.1 2°18.5	253°35.3 2°19.5	88°37.7 2°32.2	103°37.9 2°33.2	118°38.1 2°34.2	133°38.3 2°35.2	148°38.5 2°36.1	163°38.7 2°37.1	+0.2 +1.0
zo 27	178°38.9 2°38.1	193°39.0 2°39.1	208°39.2 2°40.1	223°39.4 2°41.0	238°39.6 2°42.0	253°39.8 2°43.0	88°42.2 2°55.7	103°42.4 2°56.7	118°42.6 2°57.7	133°42.8 2°58.6	148°43.0 2°59.6	163°43.2 3°00.6	+0.2 +1.0
ma 28	178°43.4 3°01.6	193°43.6 3°02.5	208°43.7 3°03.5	223°43.9 3°04.5	238°44.1 3°05.5	253°44.3 3°06.4	88°46.7 3°19.1	103°46.9 3°20.1	118°47.1 3°21.1	133°47.3 3°22.1	148°47.5 3°23.0	163°47.7 3°24.0	+0.2 +1.0
di 29	178°47.9 3°25.0	193°48.0 3°25.9	208°48.2 3°26.9	223°48.4 3°27.9	238°48.6 3°28.9	253°48.8 3°29.8	88°51.2 3°42.5	103°51.4 3°43.5	118°51.6 3°44.4	133°51.8 3°45.4	148°52.0 3°46.4	163°52.1 3°47.3	+0.2 +1.0
wo 30	178°52.3 3°48.3	193°52.5 3°49.3	208°52.7 3°50.3	223°52.9 3°51.2	238°53.1 3°52.2	253°53.3 3°53.2	88°55.7 4°05.8	103°55.9 4°06.7	118°56.0 4°07.7	133°56.2 4°08.7	148°56.4 4°09.7	163°56.6 4°10.6	+0.2 +1.0
do 31	178°56.8 4°11.6	193°57.0 4°12.6	208°57.2 4°13.5	223°57.3 4°14.5	238°57.5 4°15.5	253°57.7 4°16.4	89°00.1 4°29.0	104°00.3 4°30.0	119°00.5 4°30.9	134°00.7 4°31.9	149°00.9 4°32.9	164°01.0 4°33.8	+0.2 +1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2033

	D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
●	di 1	68°22.0	82°48.3	97°14.5	111°40.8	126°07.0	140°33.3	154°59.6	169°25.9	183°52.2	198°18.5	212°44.8	+26.3	16.7
		-2°33.2	-2°21.1	-2°08.9	-1°56.7	-1°44.5	-1°32.3	-1°20.1	-1°07.9	-0°55.6	-0°43.4	-0°31.2	+12.2	61.3
	wo 2	69°20.7	83°47.1	98°13.6	112°40.0	127°06.5	141°33.0	155°59.5	170°25.9	184°52.4	199°18.9	213°45.4	+26.5	16.7
		2°31.6	2°43.7	2°55.7	3°07.7	3°19.7	3°31.7	3°43.6	3°55.5	4°07.4	4°19.2	4°31.0	+11.9	61.1
	do 3	70°23.4	84°49.9	99°16.5	113°43.0	128°09.6	142°36.2	157°02.7	171°29.3	185°55.9	200°22.4	214°49.0	+26.6	16.5
		7°22.5	7°33.5	7°44.5	7°55.3	8°06.2	8°17.0	8°27.7	8°38.3	8°48.9	8°59.4	9°09.8	+10.7	60.5
	vr 4	71°28.0	85°54.6	100°21.3	114°47.9	129°14.5	143°41.2	158°07.8	172°34.4	187°01.1	201°27.7	215°54.4	+26.6	16.3
		11°37.5	11°46.7	11°55.8	12°04.8	12°13.7	12°22.6	12°31.3	12°40.0	12°48.6	12°57.1	13°05.5	+8.8	59.7
	za 5	72°35.1	87°01.8	101°28.6	115°55.4	130°22.2	144°49.1	159°15.9	173°42.7	188°09.6	202°36.4	217°03.3	+26.8	16.0
		14°59.8	15°06.7	15°13.4	15°20.0	15°26.5	15°32.9	15°39.3	15°45.5	15°51.6	15°57.6	16°03.4	+6.4	58.8
	zo 6	73°48.4	88°15.5	102°42.7	117°09.9	131°37.1	146°04.3	160°31.6	174°58.9	189°26.2	203°53.5	218°20.9	+27.2	15.8
		17°19.0	17°23.1	17°27.2	17°31.2	17°35.0	17°38.7	17°42.3	17°45.9	17°49.3	17°52.6	17°55.8	+3.7	57.9
	ma 7	75°14.5	89°42.3	104°10.2	118°38.1	133°06.0	147°34.0	162°02.0	176°30.0	190°58.1	205°26.2	219°54.3	+28.0	15.5
		18°30.5	18°32.0	18°33.3	18°34.6	18°35.7	18°36.7	18°37.6	18°38.5	18°39.2	18°39.8	18°40.3	+1.0	57.0
◐	di 8	89°42.3	104°10.2	118°38.1	133°06.0	147°34.0	162°02.0	176°30.0	190°58.1	205°26.2	219°54.3	234°22.5	+28.0	15.5
		18°32.0	18°33.3	18°34.6	18°35.7	18°36.7	18°37.6	18°38.5	18°39.2	18°39.8	18°40.3	18°40.7	+0.9	56.9
	wo 9	91°29.9	105°58.7	120°27.6	134°56.5	149°25.5	163°54.5	178°23.5	192°52.6	207°21.8	221°50.9	236°20.2	+29.0	15.3
		18°34.4	18°33.1	18°31.8	18°30.4	18°28.9	18°27.3	18°25.6	18°23.8	18°21.9	18°19.9	18°17.8	-1.7	56.1
	do 10	93°44.4	108°14.4	122°44.4	137°14.5	151°44.6	166°14.8	180°45.1	195°15.4	209°45.7	224°16.1	238°46.5	+30.2	15.1
		17°35.6	17°32.1	17°28.5	17°24.8	17°21.0	17°17.2	17°13.2	17°09.2	17°05.1	17°01.0	16°56.7	-3.9	55.4
	vr 11	96°29.0	111°00.2	125°31.5	140°02.8	154°34.2	169°05.6	183°37.1	198°08.6	212°40.1	227°11.7	241°43.4	+31.4	15.0
		15°43.6	15°38.1	15°32.6	15°27.0	15°21.3	15°15.6	15°09.8	15°03.9	14°58.0	14°52.0	14°45.9	-5.8	54.9
	za 12	99°43.6	114°15.9	128°48.3	143°20.8	157°53.3	172°25.8	186°58.4	201°31.0	216°03.6	230°36.3	245°09.0	+32.6	14.9
		13°07.6	13°00.5	12°53.5	12°46.3	12°39.1	12°31.9	12°24.6	12°17.3	12°09.9	12°02.5	11°55.0	-7.3	54.5
	zo 13	103°24.5	117°57.8	132°31.2	147°04.5	161°37.9	176°11.4	190°44.9	205°18.4	219°51.9	234°25.5	248°59.0	+33.5	14.8
		9°57.2	9°49.0	9°40.7	9°32.5	9°24.2	9°15.8	9°07.4	8°59.0	8°50.6	8°42.1	8°33.6	-8.4	54.2
	ma 14	107°26.1	122°00.1	136°34.1	151°08.1	165°42.1	180°16.2	194°50.3	209°24.4	223°58.5	238°32.7	253°06.8	+34.1	14.7
		6°22.1	6°13.1	6°04.1	5°55.1	5°46.0	5°37.0	5°27.9	5°18.8	5°09.6	5°00.5	4°51.3	-9.1	54.0
	di 15	111°40.9	126°15.3	140°49.6	155°24.0	169°58.4	184°32.8	199°07.1	213°41.5	228°15.9	242°50.3	257°24.8	+34.4	14.7
		2°31.9	2°22.5	2°13.1	2°03.6	1°54.2	1°44.8	1°35.4	1°25.9	1°16.5	1°07.0	0°57.6	-9.4	53.9
○	wo 16	116°00.9	130°35.3	145°09.7	159°44.1	174°18.4	188°52.8	203°27.1	218°01.5	232°35.8	247°10.2	261°44.5	+34.4	14.7
		-1°24.3	-1°33.7	-1°43.2	-1°52.6	-2°02.0	-2°11.4	-2°20.8	-2°30.2	-2°39.6	-2°49.0	-2°58.3	-9.4	53.9
	do 17	120°17.7	134°51.8	149°25.9	163°59.9	178°33.9	193°08.0	207°41.9	222°15.9	236°49.9	251°23.8	265°57.7	+34.0	14.7
		-5°17.1	-5°26.2	-5°35.3	-5°44.3	-5°53.4	-6°02.4	-6°11.4	-6°20.4	-6°29.3	-6°38.3	-6°47.2	-9.0	54.0
	vr 18	124°23.1	138°56.6	153°30.0	168°03.5	182°36.8	197°10.2	211°43.5	226°16.8	240°50.0	255°23.2	269°56.4	+33.3	14.8
		-8°57.2	-9°05.6	-9°13.9	-9°22.3	-9°30.6	-9°38.8	-9°47.1	-9°55.2	-10°03.4	-10°11.5	-10°19.5	-8.2	54.2
	za 19	128°09.7	142°42.3	157°14.8	171°47.3	186°19.8	200°52.2	215°24.6	229°56.9	244°29.2	259°01.5	273°33.7	+32.4	14.9
		-12°15.1	-12°22.4	-12°29.7	-12°36.9	-12°44.1	-12°51.2	-12°58.2	-13°05.2	-13°12.2	-13°19.1	-13°25.9	-7.1	54.5
	zo 20	131°31.4	146°02.9	160°34.3	175°05.7	189°37.1	204°08.4	218°39.6	233°10.8	247°42.0	262°13.1	276°44.1	+31.3	15.0
		-15°01.2	-15°07.1	-15°12.9	-15°18.6	-15°24.2	-15°29.8	-15°35.3	-15°40.7	-15°46.1	-15°51.4	-15°56.6	-5.5	55.0
	ma 21	134°24.2	148°54.5	163°24.8	177°55.0	192°25.1	206°55.2	221°25.3	235°55.3	250°25.2	264°55.1	279°25.0	+30.1	15.1
		-17°05.9	-17°09.8	-17°13.7	-17°17.6	-17°21.3	-17°25.0	-17°28.5	-17°32.0	-17°35.4	-17°38.7	-17°42.0	-3.6	55.5
	di 22	136°47.3	151°16.4	165°45.5	180°14.5	194°43.5	209°12.5	223°41.4	238°10.3	252°39.1	267°07.9	281°36.6	+28.9	15.3
		-18°19.7	-18°21.4	-18°23.1	-18°24.7	-18°26.2	-18°27.6	-18°28.9	-18°30.1	-18°31.2	-18°32.2	-18°33.1	-1.3	56.2
	wo 23	138°43.0	153°11.2	167°39.2	182°07.3	196°35.3	211°03.3	225°31.3	239°59.2	254°27.1	268°55.0	283°22.8	+28.0	15.5
		-18°34.5	-18°33.8	-18°32.9	-18°32.0	-18°31.0	-18°29.8	-18°28.6	-18°27.2	-18°25.7	-18°24.2	-18°22.5	+1.2	57.0
◑	do 24	140°17.0	154°44.4	169°11.7	183°39.1	198°06.4	212°33.8	227°01.1	241°28.3	255°55.6	270°22.8	284°50.0	+27.3	15.8
		-17°44.5	-17°41.1	-17°37.6	-17°34.0	-17°30.3	-17°26.4	-17°22.5	-17°18.5	-17°14.3	-17°10.0	-17°05.7	+3.9	57.9
	vr 25	141°36.3	156°03.3	170°30.3	184°57.2	199°24.1	213°51.1	228°18.0	242°44.9	257°11.8	271°38.7	286°05.6	+26.9	16.0
		-15°47.4	-15°41.4	-15°35.2	-15°28.9	-15°22.6	-15°16.1	-15°09.5	-15°02.8	-14°56.1	-14°49.2	-14°42.2	+6.5	58.8
	za 26	142°47.9	157°14.7	171°41.4	186°08.2	200°35.0	215°01.7	229°28.5	243°55.2	258°22.0	272°48.7	287°15.4	+26.8	16.3
		-12°45.9	-12°37.4	-12°28.8	-12°20.1	-12°11.4	-12°02.5	-11°53.6	-11°44.6	-11°35.4	-11°26.2	-11°17.0	+8.9	59.7
	zo 27	143°56.1	158°22.8	172°49.4	187°16.1	201°42.8	216°09.5	230°36.1	245°02.8	259°29.4	273°56.1	288°22.8	+26.7	16.5
		-8°48.5	-8°38.0	-8°27.4	-8°16.8	-8°06.2	-7°55.4	-7°44.6	-7°33.8	-7°22.9	-7°11.9	-7°00.9	+10.8	60.5
	ma 28	145°02.0	159°28.5	173°55.1	188°21.7	202°48.2	217°14.8	231°41.3	246°07.8	260°34.3	275°00.9	289°27.4	+26.5	16.6
		-4°09.6	-3°57.8	-3°46.0	-3°34.2	-3°22.4	-3°10.5	-2°58.6	-2°46.7	-2°34.7	-2°22.7	-2°10.7	+11.9	61.0
	di 29	146°03.8	160°30.2	174°56.5	189°22.9	203°49.2	218°15.5	232°41.8	247°08.0	261°34.3	276°00.6	290°26.8	+26.3	16.7
		0°50.8	1°02.9	1°15.1	1°27.2	1°39.3	1°51.4	2°03.5	2°15.6	2°27.7	2°39.7	2°51.8	+12.1	61.3
●	wo 30	146°58.9	161°24.9	175°50.9	190°16.9	204°42.9	219°08.9	233°34.8	248°00.8	262°26.7	276°52.6	291°18.5	+26.0	16.7
		5°49.1	6°00.6	6°12.1	6°23.6	6°35.0	6°46.3	6°57.6	7°08.9	7°20.1	7°31.2	7°42.3	+11.3	61.2
	do 31	147°45.5	162°11.2	176°36.9	191°02.6	205°28.3	219°54.0	234°19.6	248°45.3	263°10.9	277°36.6	292°02.2	+25.7	16.5
		10°21.0	10°31.0	10°41.0	10°50.8	11°00.6	11°10.3	11°19.9	11°29.4	11°38.8	11°48.2	11°57.4	+9.6	60.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 1 08h23 — EK: 8 01h27 — VM: 16 01h37 — LK: 24 01h49 — NM: 30 17h51

ZON

April 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	179°01.2	194°01.4	209°01.6	224°01.8	239°02.0	254°02.1	89°04.5	104°04.7	119°04.9	134°05.1	149°05.3	164°05.5	+0.2
	4°34.8	4°35.7	4°36.7	4°37.7	4°38.6	4°39.6	4°52.1	4°53.1	4°54.0	4°55.0	4°56.0	4°56.9	+1.0
za 2	179°05.6	194°05.8	209°06.0	224°06.2	239°06.4	254°06.6	89°08.9	104°09.1	119°09.3	134°09.5	149°09.7	164°09.8	+0.2
	4°57.9	4°58.9	4°59.8	5°00.8	5°01.7	5°02.7	5°15.2	5°16.1	5°17.1	5°18.0	5°19.0	5°20.0	+1.0
zo 3	179°10.0	194°10.2	209°10.4	224°10.6	239°10.7	254°10.9	89°13.3	104°13.5	119°13.6	134°13.8	149°14.0	164°14.2	+0.2
	5°20.9	5°21.9	5°22.8	5°23.8	5°24.7	5°25.7	5°38.1	5°39.1	5°40.0	5°41.0	5°41.9	5°42.9	+1.0
ma 4	179°14.4	194°14.5	209°14.7	224°14.9	239°15.1	254°15.3	89°17.6	104°17.8	119°18.0	134°18.1	149°18.3	164°18.5	+0.2
	5°43.8	5°44.8	5°45.8	5°46.7	5°47.7	5°48.6	6°01.0	6°01.9	6°02.9	6°03.8	6°04.8	6°05.7	+1.0
di 5	179°18.7	194°18.8	209°19.0	224°19.2	239°19.4	254°19.6	89°21.9	104°22.1	119°22.2	134°22.4	149°22.6	164°22.8	+0.2
	6°06.7	6°07.6	6°08.6	6°09.5	6°10.5	6°11.4	6°23.7	6°24.7	6°25.6	6°26.6	6°27.5	6°28.4	+0.9
wo 6	179°22.9	194°23.1	209°23.3	224°23.5	239°23.6	254°23.8	89°26.1	104°26.3	119°26.5	134°26.6	149°26.8	164°27.0	+0.2
	6°29.4	6°30.3	6°31.3	6°32.2	6°33.2	6°34.1	6°46.4	6°47.3	6°48.2	6°49.2	6°50.1	6°51.1	+0.9
do 7	179°27.2	194°27.3	209°27.5	224°27.7	239°27.9	254°28.0	89°30.3	104°30.5	119°30.6	134°30.8	149°31.0	164°31.2	+0.2
	6°52.0	6°52.9	6°53.9	6°54.8	6°55.8	6°56.7	7°08.9	7°09.8	7°10.7	7°11.7	7°12.6	7°13.6	+0.9
vr 8	179°31.3	194°31.5	209°31.7	224°31.8	239°32.0	254°32.2	89°34.4	104°34.6	119°34.8	134°34.9	149°35.1	164°35.3	+0.2
	7°14.5	7°15.4	7°16.4	7°17.3	7°18.2	7°19.2	7°31.3	7°32.2	7°33.1	7°34.1	7°35.0	7°35.9	+0.9
za 9	179°35.4	194°35.6	209°35.8	224°36.0	239°36.1	254°36.3	89°38.5	104°38.7	119°38.8	134°39.0	149°39.2	164°39.3	+0.2
	7°36.9	7°37.8	7°38.7	7°39.6	7°40.6	7°41.5	7°53.5	7°54.5	7°55.4	7°56.3	7°57.2	7°58.2	+0.9
zo 10	179°39.5	194°39.7	209°39.8	224°40.0	239°40.2	254°40.3	89°42.5	104°42.7	119°42.8	134°43.0	149°43.2	164°43.3	+0.2
	7°59.1	8°00.0	8°00.9	8°01.9	8°02.8	8°03.7	8°15.7	8°16.6	8°17.5	8°18.4	8°19.3	8°20.3	+0.9
ma 11	179°43.5	194°43.6	209°43.8	224°44.0	239°44.1	254°44.3	89°46.4	104°46.6	119°46.8	134°46.9	149°47.1	164°47.2	+0.2
	8°21.2	8°22.1	8°23.0	8°23.9	8°24.9	8°25.8	8°37.7	8°38.6	8°39.5	8°40.4	8°41.3	8°42.2	+0.9
di 12	179°47.4	194°47.6	209°47.7	224°47.9	239°48.1	254°48.2	89°50.3	104°50.5	119°50.6	134°50.8	149°50.9	164°51.1	+0.2
	8°43.1	8°44.1	8°45.0	8°45.9	8°46.8	8°47.7	8°59.5	9°00.4	9°01.3	9°02.2	9°03.1	9°04.0	+0.9
wo 13	179°51.2	194°51.4	209°51.6	224°51.7	239°51.9	254°52.0	89°54.1	104°54.2	119°54.4	134°54.5	149°54.7	164°54.9	+0.2
	9°05.0	9°05.9	9°06.8	9°07.7	9°08.6	9°09.5	9°21.2	9°22.1	9°23.0	9°23.9	9°24.8	9°25.7	+0.9
do 14	179°55.0	194°55.2	209°55.3	224°55.5	239°55.6	254°55.8	89°57.8	104°57.9	119°58.1	134°58.2	149°58.4	164°58.5	+0.2
	9°26.6	9°27.5	9°28.4	9°29.3	9°30.2	9°31.1	9°42.8	9°43.7	9°44.5	9°45.4	9°46.3	9°47.2	+0.9
vr 15	179°58.7	194°58.8	209°59.0	224°59.2	239°59.3	254°59.5	90°01.4	105°01.5	120°01.7	135°01.8	150°02.0	165°02.1	+0.2
	9°48.1	9°49.0	9°49.9	9°50.8	9°51.7	9°52.6	10°04.1	10°05.0	10°05.9	10°06.8	10°07.7	10°08.6	+0.9
za 16	180°02.3	195°02.4	210°02.6	225°02.7	240°02.9	255°03.0	90°04.9	105°05.1	120°05.2	135°05.4	150°05.5	165°05.6	+0.1
	10°09.5	10°10.3	10°11.2	10°12.1	10°13.0	10°13.9	10°25.4	10°26.2	10°27.1	10°28.0	10°28.9	10°29.8	+0.9
zo 17	180°05.8	195°05.9	210°06.1	225°06.2	240°06.4	255°06.5	90°08.4	105°08.5	120°08.6	135°08.8	150°08.9	165°09.1	+0.1
	10°30.6	10°31.5	10°32.4	10°33.3	10°34.1	10°35.0	10°46.4	10°47.3	10°48.1	10°49.0	10°49.9	10°50.8	+0.9
ma 18	180°09.2	195°09.3	210°09.5	225°09.6	240°09.8	255°09.9	90°11.7	105°11.8	120°12.0	135°12.1	150°12.2	165°12.4	+0.1
	10°51.6	10°52.5	10°53.4	10°54.2	10°55.1	10°56.0	11°07.3	11°08.1	11°09.0	11°09.9	11°10.7	11°11.6	+0.9
di 19	180°12.5	195°12.6	210°12.8	225°12.9	240°13.0	255°13.2	90°14.9	105°15.0	120°15.2	135°15.3	150°15.4	165°15.6	+0.1
	11°12.5	11°13.3	11°14.2	11°15.0	11°15.9	11°16.8	11°28.0	11°28.8	11°29.7	11°30.5	11°31.4	11°32.2	+0.9
wo 20	180°15.7	195°15.8	210°16.0	225°16.1	240°16.2	255°16.3	90°18.0	105°18.1	120°18.3	135°18.4	150°18.5	165°18.6	+0.1
	11°33.1	11°33.9	11°34.8	11°35.7	11°36.5	11°37.4	11°48.4	11°49.3	11°50.1	11°51.0	11°51.8	11°52.7	+0.9
do 21	180°18.8	195°18.9	210°19.0	225°19.2	240°19.3	255°19.4	90°21.0	105°21.1	120°21.3	135°21.4	150°21.5	165°21.6	+0.1
	11°53.5	11°54.4	11°55.2	11°56.1	11°56.9	11°57.8	12°08.8	12°09.6	12°10.4	12°11.3	12°12.1	12°13.0	+0.8
vr 22	180°21.7	195°21.9	210°22.0	225°22.1	240°22.2	255°22.3	90°23.9	105°24.0	120°24.1	135°24.2	150°24.4	165°24.5	+0.1
	12°13.8	12°14.6	12°15.5	12°16.3	12°17.2	12°18.0	12°28.9	12°29.7	12°30.5	12°31.4	12°32.2	12°33.0	+0.8
za 23	180°24.6	195°24.7	210°24.8	225°24.9	240°25.1	255°25.2	90°26.7	105°26.8	120°26.9	135°27.0	150°27.1	165°27.2	+0.1
	12°33.9	12°34.7	12°35.5	12°36.3	12°37.2	12°38.0	12°48.8	12°49.6	12°50.4	12°51.2	12°52.1	12°52.9	+0.8
zo 24	180°27.3	195°27.4	210°27.6	225°27.7	240°27.8	255°27.9	90°29.3	105°29.4	120°29.5	135°29.6	150°29.7	165°29.8	+0.1
	12°53.7	12°54.5	12°55.3	12°56.2	12°57.0	12°57.8	13°08.5	13°09.3	13°10.1	13°10.9	13°11.7	13°12.5	+0.8
ma 25	180°29.9	195°30.0	210°30.2	225°30.3	240°30.4	255°30.5	90°31.8	105°31.9	120°32.0	135°32.1	150°32.2	165°32.3	+0.1
	13°13.3	13°14.2	13°15.0	13°15.8	13°16.6	13°17.4	13°27.9	13°28.7	13°29.5	13°30.3	13°31.2	13°32.0	+0.8
di 26	180°32.4	195°32.5	210°32.6	225°32.7	240°32.8	255°32.9	90°34.2	105°34.3	120°34.4	135°34.5	150°34.6	165°34.7	+0.1
	13°32.8	13°33.6	13°34.4	13°35.2	13°36.0	13°36.8	13°47.2	13°48.0	13°48.8	13°49.6	13°50.4	13°51.2	+0.8
wo 27	180°34.8	195°34.9	210°35.0	225°35.1	240°35.2	255°35.3	90°36.5	105°36.6	120°36.6	135°36.7	150°36.8	165°36.9	+0.1
	13°52.0	13°52.8	13°53.5	13°54.3	13°55.1	13°55.9	14°06.2	14°07.0	14°07.8	14°08.6	14°09.4	14°10.1	+0.8
do 28	180°37.0	195°37.1	210°37.2	225°37.3	240°37.4	255°37.5	90°38.6	105°38.7	120°38.8	135°38.9	150°38.9	165°39.0	+0.1
	14°10.9	14°11.7	14°12.5	14°13.3	14°14.1	14°14.9	14°25.0	14°25.8	14°26.6	14°27.3	14°28.1	14°28.9	+0.8
vr 29	180°39.1	195°39.2	210°39.3	225°39.4	240°39.4	255°39.5	90°40.6	105°40.7	120°40.8	135°40.8	150°40.9	165°41.0	+0.1
	14°29.7	14°30.4	14°31.2	14°32.0	14°32.8	14°33.5	14°43.6	14°44.3	14°45.1	14°45.9	14°46.6	14°47.4	+0.8
za 30	180°41.1	195°41.2	210°41.2	225°41.3	240°41.4	255°41.5	90°42.5	105°42.5	120°42.6	135°42.7	150°42.8	165°42.8	+0.1
	14°48.2	14°48.9	14°49.7	14°50.5	14°51.2	14°52.0	15°01.9	15°02.6	15°03.4	15°04.1	15°04.9	15°05.7	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2033

D	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
vr 1	61°52.6	76°18.2	90°43.7	105°09.3	119°34.9	134°00.4	148°26.0	162°51.6	177°17.2	191°42.7	206°08.3	+25.6	16.4
	13°16.7	13°25.0	13°33.2	13°41.3	13°49.4	13°57.3	14°05.1	14°12.9	14°20.5	14°28.0	14°35.4	+7.9	60.1
za 2	62°32.7	76°58.4	91°24.2	105°49.9	120°15.6	134°41.4	149°07.2	163°33.0	177°58.8	192°24.7	206°50.5	+25.8	16.2
	16°13.6	16°19.3	16°24.8	16°30.2	16°35.6	16°40.8	16°45.8	16°50.8	16°55.7	17°00.4	17°05.0	+5.1	59.2
zo 3	63°21.5	77°47.8	92°14.2	106°40.5	121°07.0	135°33.4	149°59.9	164°26.4	178°52.9	193°19.5	207°46.2	+26.5	15.9
	18°00.5	18°03.3	18°05.9	18°08.4	18°10.9	18°13.2	18°15.3	18°17.4	18°19.4	18°21.2	18°23.0	+2.2	58.2
ma 4	64°30.9	78°58.3	93°25.7	107°53.1	122°20.6	136°48.2	151°15.8	165°43.5	180°11.2	194°39.0	209°06.8	+27.6	15.6
	18°35.4	18°35.3	18°35.2	18°34.9	18°34.5	18°34.0	18°33.4	18°32.7	18°31.9	18°31.0	18°30.0	-0.5	57.3
di 5	66°11.0	80°39.8	95°08.6	109°37.5	124°06.4	138°35.4	153°04.4	167°33.5	182°02.7	196°31.9	211°01.2	+29.0	15.4
	18°02.8	18°00.2	17°57.5	17°54.7	17°51.9	17°48.9	17°45.9	17°42.7	17°39.5	17°36.2	17°32.7	-3.0	56.3
◐ wo 6	68°27.8	82°58.1	97°28.4	111°58.8	126°29.2	140°59.7	155°30.3	170°00.9	184°31.6	199°02.3	213°33.1	+30.5	15.1
	16°31.4	16°26.7	16°21.9	16°17.0	16°12.0	16°07.0	16°01.9	15°56.7	15°51.4	15°46.1	15°40.7	-5.1	55.5
do 7	82°58.1	97°28.4	111°58.8	126°29.2	140°59.7	155°30.3	170°00.9	184°31.6	199°02.3	213°33.1	228°04.0	+30.6	15.1
	16°26.7	16°21.9	16°17.0	16°12.0	16°07.0	16°01.9	15°56.7	15°51.4	15°46.1	15°40.7	15°35.2	-5.1	55.5
vr 8	85°53.6	100°25.4	114°57.2	129°29.0	144°01.0	158°32.9	173°04.9	187°37.0	202°09.1	216°41.3	231°13.5	+32.0	15.0
	14°05.2	13°58.7	13°52.1	13°45.5	13°38.8	13°32.1	13°25.3	13°18.4	13°11.5	13°04.6	12°57.5	-6.8	54.9
za 9	89°22.4	103°55.3	118°28.3	133°01.4	147°34.4	162°07.5	176°40.7	191°13.9	205°47.1	220°20.4	234°53.7	+33.1	14.8
	11°06.3	10°58.5	10°50.7	10°42.8	10°34.9	10°26.9	10°18.9	10°10.9	10°02.8	9°54.7	9°46.5	-8.0	54.4
zo 10	93°17.3	107°51.1	122°24.9	136°58.8	151°32.7	166°06.6	180°40.6	195°14.6	209°48.6	224°22.6	238°56.6	+33.9	14.8
	7°40.0	7°31.3	7°22.6	7°13.8	7°05.1	6°56.3	6°47.4	6°38.6	6°29.7	6°20.8	6°11.9	-8.8	54.1
ma 11	97°29.5	112°03.8	126°38.2	141°12.5	155°46.9	170°21.2	184°55.6	199°30.0	214°04.4	228°38.8	243°13.2	+34.4	14.7
	3°55.5	3°46.3	3°37.0	3°27.8	3°18.5	3°09.2	2°59.9	2°50.6	2°41.3	2°31.9	2°22.6	-9.3	54.0
di 12	101°49.7	116°24.1	130°58.6	145°33.0	160°07.4	174°41.8	189°16.2	203°50.7	218°25.1	232°59.5	247°33.8	+34.4	14.7
	0°01.6	-0°07.8	-0°17.2	-0°26.7	-0°36.1	-0°45.5	-0°54.9	-1°04.4	-1°13.8	-1°23.2	-1°32.6	-9.4	53.9
wo 13	106°08.3	120°42.5	135°16.7	149°50.8	164°25.0	178°59.1	193°33.2	208°07.3	222°41.3	237°15.3	251°49.4	+34.1	14.7
	-3°52.8	-4°02.1	-4°11.4	-4°20.6	-4°29.8	-4°39.0	-4°48.2	-4°57.4	-5°06.5	-5°15.7	-5°24.8	-9.2	54.0
○ do 14	110°16.6	124°50.2	139°23.8	153°57.3	168°30.8	183°04.3	197°37.8	212°11.2	226°44.6	241°17.9	255°51.2	+33.5	14.8
	-7°38.8	-7°47.5	-7°56.2	-8°04.9	-8°13.5	-8°22.1	-8°30.7	-8°39.2	-8°47.7	-8°56.2	-9°04.6	-8.6	54.2
vr 15	114°06.8	128°39.5	143°12.2	157°44.9	172°17.5	186°50.1	201°22.6	215°55.1	230°27.6	245°00.0	259°32.4	+32.6	14.9
	-11°06.5	-11°14.3	-11°22.1	-11°29.8	-11°37.4	-11°45.0	-11°52.6	-12°00.1	-12°07.5	-12°14.9	-12°22.3	-7.6	54.5
za 16	117°32.9	132°04.6	146°36.3	161°07.9	175°39.4	190°10.9	204°42.4	219°13.8	233°45.2	248°16.5	262°47.8	+31.5	15.0
	-14°06.0	-14°12.4	-14°18.8	-14°25.1	-14°31.4	-14°37.6	-14°43.7	-14°49.7	-14°55.7	-15°01.7	-15°07.5	-6.2	54.8
zo 17	120°31.8	135°02.3	149°32.9	164°03.3	178°33.8	193°04.2	207°34.5	222°04.9	236°35.1	251°05.4	265°35.5	+30.4	15.1
	-16°26.8	-16°31.5	-16°36.2	-16°40.7	-16°45.1	-16°49.5	-16°53.8	-16°58.0	-17°02.2	-17°06.2	-17°10.2	-4.3	55.3
ma 18	123°03.4	137°32.9	152°02.4	166°31.8	181°01.3	195°30.7	210°00.0	224°29.3	238°58.6	253°27.9	267°57.1	+29.4	15.2
	-17°59.4	-18°02.0	-18°04.5	-18°06.9	-18°09.2	-18°11.4	-18°13.5	-18°15.5	-18°17.4	-18°19.3	-18°21.0	-2.2	55.8
di 19	125°11.4	139°40.1	154°08.8	168°37.4	183°06.0	197°34.7	212°03.2	226°31.8	241°00.3	255°28.9	269°57.3	+28.6	15.4
	-18°35.5	-18°35.7	-18°35.8	-18°35.7	-18°35.6	-18°35.4	-18°35.1	-18°34.6	-18°34.1	-18°33.5	-18°32.8	+0.3	56.3
wo 20	127°02.3	141°30.4	155°58.6	170°26.8	184°54.9	199°23.1	213°51.2	228°19.3	242°47.4	257°15.5	271°43.5	+28.1	15.5
	-18°09.5	-18°07.1	-18°04.6	-18°02.1	-17°59.4	-17°56.6	-17°53.7	-17°50.7	-17°47.6	-17°44.4	-17°41.1	+2.8	57.0
do 21	128°43.6	143°11.6	157°39.5	172°07.5	186°35.4	201°03.4	215°31.3	229°59.3	244°27.2	258°55.1	273°23.0	+27.9	15.7
	-16°39.4	-16°34.4	-16°29.4	-16°24.3	-16°19.1	-16°13.7	-16°08.3	-16°02.8	-15°57.2	-15°51.5	-15°45.7	+5.4	57.7
◑ vr 22	130°21.9	144°49.8	159°17.7	173°45.6	188°13.6	202°41.5	217°09.4	231°37.3	246°05.3	260°33.2	275°01.1	+27.9	15.9
	-14°07.1	-13°59.8	-13°52.4	-13°45.0	-13°37.4	-13°29.7	-13°22.0	-13°14.2	-13°06.3	-12°58.3	-12°50.2	+7.7	58.4
za 23	132°00.2	146°28.1	160°56.1	175°24.0	189°51.9	204°19.9	218°47.8	233°15.7	247°43.7	262°11.6	276°39.5	+27.9	16.1
	-10°39.3	-10°29.9	-10°20.5	-10°11.0	-10°01.5	-9°51.9	-9°42.2	-9°32.4	-9°22.6	-9°12.7	-9°02.7	+9.7	59.2
zo 24	133°37.9	148°05.8	162°33.6	177°01.4	191°29.3	205°57.1	220°24.9	234°52.7	249°20.5	263°48.2	278°16.0	+27.8	16.3
	-6°26.3	-6°15.5	-6°04.5	-5°53.6	-5°42.6	-5°31.6	-5°20.5	-5°09.3	-4°58.2	-4°47.0	-4°35.7	+11.1	59.9
ma 25	135°10.9	149°38.4	164°06.0	178°33.5	193°00.9	207°28.4	221°55.8	236°23.3	250°50.7	265°18.1	279°45.4	+27.5	16.5
	-1°43.1	-1°31.4	-1°19.7	-1°08.0	-0°56.2	-0°44.5	-0°32.7	-0°20.9	-0°09.1	0°02.7	0°14.5	+11.8	60.4
di 26	136°33.1	151°00.1	165°27.0	179°54.0	194°20.9	208°47.7	223°14.6	237°41.4	252°08.2	266°34.9	281°01.7	+26.9	16.6
	3°11.6	3°03.3	3°35.0	3°46.7	3°58.4	4°10.0	4°21.7	4°33.3	4°44.8	4°56.4	5°07.9	+11.6	60.7
wo 27	137°39.1	152°05.3	166°31.5	180°57.7	195°23.9	209°50.0	224°16.1	238°42.2	253°08.2	267°34.2	282°00.2	+26.1	16.6
	7°56.2	8°07.1	8°17.9	8°28.6	8°39.3	8°50.0	9°00.5	9°11.0	9°21.5	9°31.9	9°42.2	+10.6	60.7
do 28	138°26.6	152°52.2	167°17.7	181°43.2	196°08.7	210°34.1	224°59.6	239°25.0	253°50.4	268°15.8	282°41.1	+25.4	16.5
	12°08.2	12°17.3	12°26.4	12°35.3	12°44.1	12°52.9	13°01.5	13°10.1	13°18.5	13°26.9	13°35.2	+8.7	60.4
● vr 29	138°59.6	153°24.7	167°49.8	182°15.0	196°40.1	211°05.2	225°30.3	239°55.4	254°20.6	268°45.7	283°10.8	+25.1	16.3
	15°27.2	15°33.8	15°40.3	15°46.7	15°53.0	15°59.2	16°05.2	16°11.2	16°17.0	16°22.7	16°28.3	+6.1	59.9
za 30	139°28.4	153°53.7	168°19.0	182°44.3	197°09.7	211°35.0	226°00.4	240°25.8	254°51.2	269°16.7	283°42.2	+25.4	16.1
	17°38.2	17°41.9	17°45.5	17°49.0	17°52.3	17°55.5	17°58.6	18°01.6	18°04.5	18°07.2	18°09.8	+3.2	59.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 15h13 — VM: 14 19h17 — LK: 22 11h42 — NM: 29 02h46

ZON

Mei 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	180°42.9	195°43.0	210°43.1	225°43.1	240°43.2	255°43.3	90°44.2	105°44.3	120°44.3	135°44.4	150°44.5	165°44.5	+0.1
	15°06.4	15°07.2	15°07.9	15°08.7	15°09.4	15°10.2	15°19.9	15°20.7	15°21.4	15°22.2	15°22.9	15°23.7	+0.8
ma 2	180°44.6	195°44.7	210°44.7	225°44.8	240°44.9	255°45.0	90°45.8	105°45.9	120°45.9	135°46.0	150°46.1	165°46.1	+0.1
	15°24.4	15°25.2	15°25.9	15°26.7	15°27.4	15°28.1	15°37.8	15°38.5	15°39.2	15°40.0	15°40.7	15°41.4	+0.7
di 3	180°46.2	195°46.2	210°46.3	225°46.4	240°46.4	255°46.5	90°47.3	105°47.3	120°47.4	135°47.4	150°47.5	165°47.6	+0.1
	15°42.2	15°42.9	15°43.6	15°44.4	15°45.1	15°45.8	15°55.3	15°56.0	15°56.8	15°57.5	15°58.2	15°58.9	+0.7
wo 4	180°47.6	195°47.7	210°47.7	225°47.8	240°47.8	255°47.9	90°48.6	105°48.7	120°48.7	135°48.8	150°48.8	165°48.9	+0.1
	15°59.7	16°00.4	16°01.1	16°01.8	16°02.5	16°03.3	16°12.6	16°13.3	16°14.0	16°14.7	16°15.4	16°16.2	+0.7
do 5	180°48.9	195°49.0	210°49.0	225°49.1	240°49.1	255°49.2	90°49.8	105°49.9	120°49.9	135°50.0	150°50.0	165°50.0	+0.1
	16°16.9	16°17.6	16°18.3	16°19.0	16°19.7	16°20.4	16°29.6	16°30.3	16°31.0	16°31.7	16°32.4	16°33.1	+0.7
vr 6	180°50.1	195°50.1	210°50.2	225°50.2	240°50.3	255°50.3	90°50.9	105°50.9	120°51.0	135°51.0	150°51.0	165°51.1	+0.0
	16°33.8	16°34.5	16°35.2	16°35.9	16°36.6	16°37.3	16°46.4	16°47.0	16°47.7	16°48.4	16°49.1	16°49.8	+0.7
za 7	180°51.1	195°51.2	210°51.2	225°51.2	240°51.3	255°51.3	90°51.8	105°51.8	120°51.9	135°51.9	150°52.0	165°52.0	+0.0
	16°50.5	16°51.2	16°51.9	16°52.6	16°53.2	16°53.9	17°02.8	17°03.5	17°04.2	17°04.8	17°05.5	17°06.2	+0.7
zo 8	180°52.0	195°52.1	210°52.1	225°52.1	240°52.2	255°52.2	90°52.6	105°52.6	120°52.7	135°52.7	150°52.7	165°52.8	+0.0
	17°06.9	17°07.6	17°08.2	17°08.9	17°09.6	17°10.3	17°19.0	17°19.7	17°20.3	17°21.0	17°21.7	17°22.3	+0.7
ma 9	180°52.8	195°52.8	210°52.8	225°52.9	240°52.9	255°52.9	90°53.3	105°53.3	120°53.3	135°53.3	150°53.4	165°53.4	+0.0
	17°23.0	17°23.6	17°24.3	17°25.0	17°25.6	17°26.3	17°34.9	17°35.5	17°36.2	17°36.8	17°37.5	17°38.1	+0.7
di 10	180°53.4	195°53.4	210°53.4	225°53.5	240°53.5	255°53.5	90°53.8	105°53.8	120°53.8	135°53.8	150°53.8	165°53.9	+0.0
	17°38.8	17°39.4	17°40.1	17°40.7	17°41.4	17°42.1	17°50.5	17°51.1	17°51.7	17°52.4	17°53.0	17°53.7	+0.7
wo 11	180°53.9	195°53.9	210°53.9	225°53.9	240°53.9	255°54.0	90°54.1	105°54.2	120°54.2	135°54.2	150°54.2	165°54.2	+0.0
	17°54.3	17°54.9	17°55.6	17°56.2	17°56.9	17°57.5	18°05.7	18°06.4	18°07.0	18°07.6	18°08.3	18°08.9	+0.6
do 12	180°54.2	195°54.2	210°54.2	225°54.2	240°54.3	255°54.3	90°54.4	105°54.4	120°54.4	135°54.4	150°54.4	165°54.4	+0.0
	18°09.5	18°10.1	18°10.8	18°11.4	18°12.0	18°12.7	18°20.7	18°21.3	18°22.0	18°22.6	18°23.2	18°23.8	+0.6
vr 13	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.4	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	+0.0
	18°24.4	18°25.0	18°25.7	18°26.3	18°26.9	18°27.5	18°35.4	18°36.0	18°36.6	18°37.2	18°37.8	18°38.4	+0.6
za 14	180°54.5	195°54.5	210°54.5	225°54.5	240°54.5	255°54.5	90°54.4	105°54.4	120°54.4	135°54.4	150°54.4	165°54.4	-0.0
	18°39.0	18°39.6	18°40.2	18°40.8	18°41.4	18°42.0	18°49.8	18°50.4	18°50.9	18°51.5	18°52.1	18°52.7	+0.6
zo 15	180°54.4	195°54.4	210°54.4	225°54.4	240°54.4	255°54.3	90°54.2	105°54.2	120°54.2	135°54.2	150°54.2	165°54.2	-0.0
	18°53.3	18°53.9	18°54.5	18°55.1	18°55.7	18°56.2	19°03.8	19°04.4	19°05.0	19°05.5	19°06.1	19°06.7	+0.6
ma 16	180°54.2	195°54.1	210°54.1	225°54.1	240°54.1	255°54.1	90°53.9	105°53.9	120°53.9	135°53.8	150°53.8	165°53.8	-0.0
	19°07.3	19°07.8	19°08.4	19°09.0	19°09.6	19°10.1	19°17.5	19°18.1	19°18.7	19°19.2	19°19.8	19°20.3	+0.6
di 17	180°53.8	195°53.8	210°53.8	225°53.7	240°53.7	255°53.7	90°53.4	105°53.4	120°53.4	135°53.3	150°53.3	165°53.3	-0.0
	19°20.9	19°21.5	19°22.0	19°22.6	19°23.1	19°23.7	19°30.9	19°31.5	19°32.0	19°32.6	19°33.1	19°33.7	+0.6
wo 18	180°53.3	195°53.3	210°53.2	225°53.2	240°53.2	255°53.2	90°52.8	105°52.8	120°52.7	135°52.7	150°52.7	165°52.7	-0.0
	19°34.2	19°34.8	19°35.3	19°35.9	19°36.4	19°37.0	19°44.0	19°44.5	19°45.1	19°45.6	19°46.1	19°46.7	+0.5
do 19	180°52.6	195°52.6	210°52.6	225°52.5	240°52.5	255°52.5	90°52.0	105°52.0	120°52.0	135°51.9	150°51.9	165°51.9	-0.0
	19°47.2	19°47.7	19°48.3	19°48.8	19°49.3	19°49.9	19°56.7	19°57.2	19°57.8	19°58.3	19°58.8	19°59.3	+0.5
vr 20	180°51.8	195°51.8	210°51.8	225°51.7	240°51.7	255°51.7	90°51.1	105°51.1	120°51.1	135°51.0	150°51.0	165°50.9	-0.0
	19°59.8	20°00.4	20°00.9	20°01.4	20°01.9	20°02.4	20°09.1	20°09.6	20°10.1	20°10.6	20°11.1	20°11.6	+0.5
za 21	180°50.9	195°50.9	210°50.8	225°50.8	240°50.7	255°50.7	90°50.1	105°50.1	120°50.0	135°50.0	150°49.9	165°49.9	-0.0
	20°12.1	20°12.6	20°13.1	20°13.7	20°14.2	20°14.7	20°21.1	20°21.6	20°22.1	20°22.6	20°23.1	20°23.6	+0.5
zo 22	180°49.8	195°49.8	210°49.7	225°49.7	240°49.6	255°49.6	90°48.9	105°48.9	120°48.8	135°48.8	150°48.7	165°48.7	-0.0
	20°24.1	20°24.6	20°25.1	20°25.6	20°26.1	20°26.5	20°32.8	20°33.3	20°33.8	20°34.3	20°34.7	20°35.2	+0.5
ma 23	180°48.6	195°48.6	210°48.5	225°48.5	240°48.4	255°48.4	90°47.6	105°47.6	120°47.5	135°47.5	150°47.4	165°47.3	-0.1
	20°35.7	20°36.2	20°36.7	20°37.1	20°37.6	20°38.1	20°44.2	20°44.6	20°45.1	20°45.6	20°46.0	20°46.5	+0.5
di 24	180°47.3	195°47.2	210°47.2	225°47.1	240°47.0	255°47.0	90°46.2	105°46.1	120°46.1	135°46.0	150°45.9	165°45.9	-0.1
	20°47.0	20°47.4	20°47.9	20°48.3	20°48.8	20°49.3	20°55.2	20°55.6	20°56.1	20°56.5	20°57.0	20°57.4	+0.5
wo 25	180°45.8	195°45.7	210°45.7	225°45.6	240°45.6	255°45.5	90°44.6	105°44.6	120°44.5	135°44.4	150°44.4	165°44.3	-0.1
	20°57.8	20°58.3	20°58.7	20°59.2	20°59.6	21°00.1	21°05.8	21°06.2	21°06.7	21°07.1	21°07.5	21°08.0	+0.4
do 26	180°44.2	195°44.1	210°44.1	225°44.0	240°43.9	255°43.9	90°42.9	105°42.9	120°42.8	135°42.7	150°42.6	165°42.6	-0.1
	21°08.4	21°08.8	21°09.2	21°09.7	21°10.1	21°10.5	21°16.0	21°16.5	21°16.9	21°17.3	21°17.7	21°18.1	+0.4
vr 27	180°42.5	195°42.4	210°42.3	225°42.3	240°42.2	255°42.1	90°41.1	105°41.0	120°41.0	135°40.9	150°40.8	165°40.7	-0.1
	21°18.6	21°19.0	21°19.4	21°19.8	21°20.2	21°20.6	21°25.9	21°26.3	21°26.7	21°27.1	21°27.6	21°28.0	+0.4
za 28	180°40.7	195°40.6	210°40.5	225°40.4	240°40.3	255°40.3	90°39.2	105°39.1	120°39.0	135°38.9	150°38.9	165°38.8	-0.1
	21°28.4	21°28.8	21°29.2	21°29.6	21°30.0	21°30.3	21°35.5	21°35.9	21°36.2	21°36.6	21°37.0	21°37.4	+0.4
zo 29	180°38.7	195°38.6	210°38.5	225°38.4	240°38.4	255°38.3	90°37.2	105°37.1	120°37.0	135°36.9	150°36.8	165°36.7	-0.1
	21°37.8	21°38.2	21°38.6	21°38.9	21°39.3	21°39.7	21°44.6	21°45.0	21°45.4	21°45.7	21°46.1	21°46.5	+0.4
ma 30	180°36.6	195°36.5	210°36.5	225°36.4	240°36.3	255°36.2	90°35.0	105°34.9	120°34.8	135°34.7	150°34.6	165°34.6	-0.1
	21°46.8	21°47.2	21°47.6	21°47.9	21°48.3	21°48.7	21°53.4	21°53.7	21°54.1	21°54.5	21°54.8	21°55.2	+0.4
di 31	180°34.5	195°34.4	210°34.3	225°34.2	240°34.1	255°34.0	90°32.8	105°32.7	120°32.6	135°32.5	150°32.4	165°32.3	-0.1
	21°55.5	21°55.9	21°56.2	21°56.6	21°56.9	21°57.3	22°01.8	22°02.1	22°02.5	22°02.8	22°03.1	22°03.5	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2033

D	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	Δ'/h	SD/HP
zo 1	53°33.0	67°58.9	82°24.7	96°50.6	111°16.6	125°42.6	140°08.6	154°34.7	169°00.8	183°26.9	197°53.1	+26.0	15.9
	18°28.0	18°29.4	18°30.7	18°31.9	18°32.9	18°33.9	18°34.7	18°35.4	18°36.0	18°36.4	18°36.8	+0.9	58.4
ma 2	54°32.4	68°59.5	83°26.6	97°53.8	112°21.1	126°48.4	141°15.7	155°43.2	170°10.7	184°38.2	199°05.8	+27.3	15.7
	18°28.5	18°27.1	18°25.6	18°23.9	18°22.2	18°20.3	18°18.3	18°16.3	18°14.1	18°11.8	18°09.4	-1.9	57.5
di 3	56°08.0	70°36.7	85°05.5	99°34.3	114°03.2	128°32.2	143°01.2	157°30.3	171°59.5	186°28.7	200°58.0	+29.0	15.4
	17°22.1	17°18.2	17°14.2	17°10.2	17°06.0	17°01.7	16°57.4	16°53.0	16°48.5	16°43.9	16°39.2	-4.3	56.5
wo 4	58°25.9	72°56.3	87°26.8	101°57.4	116°28.0	130°58.6	145°29.4	160°00.2	174°31.0	189°02.0	203°33.0	+30.7	15.2
	15°19.9	15°14.0	15°08.0	15°02.0	14°55.9	14°49.8	14°43.6	14°37.3	14°30.9	14°24.5	14°18.1	-6.2	55.7
do 5	61°25.4	75°57.4	90°29.4	105°01.5	119°33.6	134°05.8	148°38.1	163°10.4	177°42.7	192°15.1	206°47.6	+32.2	15.0
	12°34.0	12°26.7	12°19.3	12°11.8	12°04.3	11°56.7	11°49.1	11°41.4	11°33.7	11°26.0	11°18.2	-7.6	55.1
◐ vr 6	65°00.3	79°33.6	94°06.8	108°40.1	123°13.4	137°46.8	152°20.2	166°53.7	181°27.2	196°00.7	210°34.2	+33.4	14.9
	9°16.4	9°08.0	8°59.5	8°51.0	8°42.5	8°34.0	8°25.4	8°16.8	8°08.1	7°59.5	7°50.8	-8.6	54.5
za 7	79°33.6	94°06.8	108°40.1	123°13.4	137°46.8	152°20.2	166°53.7	181°27.2	196°00.7	210°34.2	225°07.8	+33.4	14.9
	9°08.0	8°59.5	8°51.0	8°42.5	8°34.0	8°25.4	8°16.8	8°08.1	7°59.5	7°50.8	7°42.0	-8.6	54.5
zo 8	83°35.5	98°09.6	112°43.7	127°17.8	141°51.9	156°26.1	171°00.3	185°34.4	200°08.7	214°42.9	229°17.1	+34.2	14.8
	5°28.1	5°19.0	5°09.9	5°00.7	4°51.6	4°42.4	4°33.2	4°24.0	4°14.8	4°05.5	3°56.3	-9.2	54.2
ma 9	87°52.5	102°26.9	117°01.3	131°35.8	146°10.2	160°44.7	175°19.1	189°53.6	204°28.0	219°02.5	233°36.9	+34.4	14.7
	1°36.1	1°26.7	1°17.3	1°07.9	0°58.5	0°49.0	0°39.6	0°30.2	0°20.7	0°11.3	0°01.8	-9.4	54.1
di 10	92°13.2	106°47.6	121°21.9	135°56.2	150°30.6	165°04.9	179°39.1	194°13.4	208°47.7	223°21.9	237°56.1	+34.3	14.7
	-2°19.5	-2°28.9	-2°38.3	-2°47.7	-2°57.0	-3°06.4	-3°15.7	-3°25.1	-3°34.4	-3°43.7	-3°53.0	-9.3	54.1
wo 11	96°27.0	111°00.9	125°34.7	140°08.5	154°42.3	169°16.0	183°49.8	198°23.5	212°57.1	227°30.8	242°04.3	+33.7	14.8
	-6°10.5	-6°19.5	-6°28.5	-6°37.5	-6°46.4	-6°55.3	-7°04.2	-7°13.1	-7°21.9	-7°30.8	-7°39.5	-8.9	54.2
do 12	100°24.1	114°57.2	129°30.1	144°03.1	158°36.0	173°08.8	187°41.6	202°14.4	216°47.1	231°19.8	245°52.5	+32.8	14.9
	-9°47.7	-9°55.9	-10°04.2	-10°12.4	-10°20.5	-10°28.6	-10°36.7	-10°44.7	-10°52.7	-11°00.6	-11°08.5	-8.1	54.5
vr 13	103°56.7	118°28.7	133°00.5	147°32.3	162°04.1	176°35.8	191°07.5	205°39.1	220°10.7	234°42.2	249°13.7	+31.7	15.0
	-13°01.2	-13°08.3	-13°15.4	-13°22.4	-13°29.3	-13°36.2	-13°43.0	-13°49.7	-13°56.4	-14°03.1	-14°09.6	-6.8	54.9
○ za 14	106°59.8	121°30.5	136°01.1	150°31.7	165°02.3	179°32.7	194°03.2	208°33.6	223°03.9	237°34.2	252°04.4	+30.5	15.1
	-15°40.4	-15°45.9	-15°51.3	-15°56.7	-16°02.0	-16°07.2	-16°12.3	-16°17.3	-16°22.3	-16°27.2	-16°32.0	-5.2	55.3
zo 15	109°32.4	124°01.9	138°31.4	153°00.8	167°30.2	181°59.5	196°28.8	210°58.1	225°27.3	239°56.5	254°25.6	+29.3	15.2
	-17°34.4	-17°37.9	-17°41.3	-17°44.6	-17°47.8	-17°50.9	-17°53.9	-17°56.9	-17°59.7	-18°02.4	-18°05.1	-3.1	55.8
ma 16	111°38.2	126°06.8	140°35.4	155°03.9	169°32.4	184°00.8	198°29.3	212°57.7	227°26.1	241°54.4	256°22.8	+28.4	15.4
	-18°33.5	-18°34.6	-18°35.6	-18°36.5	-18°37.3	-18°38.0	-18°38.6	-18°39.1	-18°39.5	-18°39.8	-18°40.0	-0.7	56.3
di 17	113°25.3	127°53.3	142°21.4	156°49.4	171°17.4	185°45.4	200°13.3	214°41.3	229°09.3	243°37.2	258°05.2	+28.0	15.5
	-18°30.6	-18°29.2	-18°27.6	-18°25.9	-18°24.2	-18°22.3	-18°20.3	-18°18.2	-18°16.0	-18°13.7	-18°11.3	+1.9	56.8
wo 18	115°03.9	129°31.8	143°59.7	158°27.6	172°55.5	187°23.5	201°51.4	216°19.3	230°47.3	245°15.2	259°43.2	+27.9	15.6
	-17°22.9	-17°18.8	-17°14.7	-17°10.4	-17°06.1	-17°01.6	-16°57.1	-16°52.4	-16°47.7	-16°42.8	-16°37.9	+4.5	57.4
do 19	116°43.5	131°11.6	145°39.7	160°07.8	174°36.0	189°04.1	203°32.3	218°00.5	232°28.7	246°56.9	261°25.1	+28.2	15.8
	-15°12.1	-15°05.6	-14°59.1	-14°52.4	-14°45.7	-14°38.9	-14°31.9	-14°24.9	-14°17.9	-14°10.7	-14°03.4	+6.9	57.9
vr 20	118°30.0	132°58.5	147°26.9	161°55.4	176°23.8	190°52.3	205°20.8	219°49.3	234°17.9	248°46.4	263°14.9	+28.5	15.9
	-12°04.7	-11°56.1	-11°47.5	-11°38.8	-11°30.1	-11°21.2	-11°12.3	-11°03.4	-10°54.3	-10°45.2	-10°36.0	+8.9	58.4
◑ za 21	120°24.3	134°53.0	149°21.7	163°50.4	178°19.1	192°47.8	207°16.5	221°45.3	236°14.0	250°42.7	265°11.4	+28.7	16.1
	-8°10.9	-8°00.7	-7°50.6	-7°40.3	-7°30.0	-7°19.7	-7°09.3	-6°58.9	-6°48.4	-6°37.8	-6°27.3	+10.4	58.9
zo 22	122°22.3	136°51.0	151°19.7	165°48.4	180°17.1	194°45.8	209°14.4	223°43.1	238°11.7	252°40.4	267°09.0	+28.7	16.2
	-3°43.9	-3°32.8	-3°21.6	-3°10.4	-2°59.2	-2°47.9	-2°36.6	-2°25.3	-2°14.0	-2°02.7	-1°51.3	+11.3	59.4
ma 23	124°16.6	138°45.0	153°13.4	167°41.7	182°10.0	196°38.3	211°06.5	225°34.8	240°03.0	254°31.2	268°59.3	+28.3	16.3
	1°00.4	1°11.9	1°23.4	1°34.9	1°46.4	1°57.9	2°09.4	2°20.8	2°32.3	2°43.7	2°55.2	+11.5	59.7
di 24	125°58.5	140°26.2	154°53.9	169°21.5	183°49.1	198°16.7	212°44.2	227°11.7	241°39.2	256°06.6	270°34.0	+27.6	16.3
	5°44.5	5°55.5	6°06.6	6°17.6	6°28.6	6°39.5	6°50.4	7°01.3	7°12.1	7°22.9	7°33.6	+10.9	59.9
wo 25	127°20.7	141°47.5	156°14.3	170°41.0	185°07.7	199°34.4	214°01.0	228°27.6	242°54.2	257°20.7	271°47.2	+26.7	16.3
	10°08.6	10°18.5	10°28.3	10°38.0	10°47.7	10°57.3	11°06.8	11°16.3	11°25.7	11°35.0	11°44.3	+9.6	59.9
do 26	128°20.3	142°46.3	157°12.2	171°38.1	186°03.9	200°29.7	214°55.5	229°21.3	243°47.1	258°12.8	272°38.5	+25.8	16.3
	13°53.1	14°01.0	14°08.8	14°16.5	14°24.2	14°31.7	14°39.1	14°46.4	14°53.6	15°00.7	15°07.8	+7.5	59.7
vr 27	129°01.5	143°26.9	157°52.3	172°17.7	186°43.1	201°08.4	215°33.8	229°59.1	244°24.5	258°49.9	273°15.2	+25.4	16.2
	16°40.4	16°45.7	16°50.8	16°55.9	17°00.9	17°05.7	17°10.4	17°15.0	17°19.5	17°23.9	17°28.2	+4.8	59.3
● za 28	129°36.0	144°01.4	158°26.9	172°52.4	187°17.9	201°43.5	216°09.1	230°34.7	245°00.3	259°25.9	273°51.6	+25.6	16.0
	18°17.8	18°20.1	18°22.4	18°24.5	18°26.4	18°28.3	18°30.1	18°31.7	18°33.2	18°34.6	18°35.8	+1.8	58.7
zo 29	130°20.6	144°46.9	159°13.2	173°39.5	188°05.9	202°32.3	216°58.8	231°25.3	245°51.9	260°18.6	274°45.3	+26.5	15.8
	18°40.6	18°39.9	18°39.2	18°38.4	18°37.4	18°36.3	18°35.1	18°33.8	18°32.4	18°30.9	18°29.3	-1.1	58.0
ma 30	131°32.4	146°00.0	160°27.7	174°55.5	189°23.3	203°51.2	218°19.1	232°47.2	247°15.2	261°43.4	276°11.6	+27.9	15.6
	17°52.1	17°48.7	17°45.3	17°41.9	17°38.3	17°34.6	17°30.8	17°26.9	17°22.9	17°18.9	17°14.7	-3.7	57.2
di 31	146°00.0	160°27.7	174°55.5	189°23.3	203°51.2	218°19.1	232°47.2	247°15.2	261°43.4	276°11.6	290°39.9	+28.0	15.6
	17°48.7	17°45.3	17°41.9	17°38.3	17°34.6	17°30.8	17°26.9	17°22.9	17°18.9	17°14.7	17°10.5	-3.8	57.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 6 06h45 — VM: 14 10h42 — LK: 21 18h29 — NM: 28 11h36

ZON

Juni 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	180°32.2	195°32.1	210°32.0	225°31.9	240°31.8	255°31.7	90°30.4	105°30.3	120°30.2	135°30.1	150°30.0	165°29.9	-0.1
	22°03.8	22°04.1	22°04.5	22°04.8	22°05.2	22°05.5	22°09.8	22°10.1	22°10.4	22°10.8	22°11.1	22°11.4	+0.3
do 2	180°29.8	195°29.7	210°29.6	225°29.5	240°29.4	255°29.3	90°28.0	105°27.9	120°27.8	135°27.7	150°27.6	165°27.5	-0.1
	22°11.7	22°12.0	22°12.4	22°12.7	22°13.0	22°13.3	22°17.4	22°17.7	22°18.0	22°18.3	22°18.6	22°18.9	+0.3
vr 3	180°27.4	195°27.3	210°27.2	225°27.1	240°27.0	255°26.9	90°25.5	105°25.4	120°25.3	135°25.2	150°25.1	165°24.9	-0.1
	22°19.2	22°19.5	22°19.8	22°20.2	22°20.5	22°20.8	22°24.6	22°24.9	22°25.2	22°25.5	22°25.8	22°26.1	+0.3
za 4	180°24.8	195°24.7	210°24.6	225°24.5	240°24.4	255°24.3	90°22.9	105°22.8	120°22.7	135°22.6	150°22.4	165°22.3	-0.1
	22°26.4	22°26.7	22°26.9	22°27.2	22°27.5	22°27.8	22°31.5	22°31.7	22°32.0	22°32.3	22°32.6	22°32.8	+0.3
zo 5	180°22.2	195°22.1	210°22.0	225°21.9	240°21.8	255°21.7	90°20.2	105°20.1	120°20.0	135°19.9	150°19.8	165°19.6	-0.1
	22°33.1	22°33.4	22°33.7	22°33.9	22°34.2	22°34.5	22°37.9	22°38.2	22°38.4	22°38.7	22°38.9	22°39.2	+0.3
ma 6	180°19.5	195°19.4	210°19.3	225°19.2	240°19.1	255°19.0	90°17.5	105°17.3	120°17.2	135°17.1	150°17.0	165°16.9	-0.1
	22°39.5	22°39.7	22°40.0	22°40.2	22°40.5	22°40.7	22°43.9	22°44.2	22°44.4	22°44.7	22°44.9	22°45.2	+0.3
di 7	180°16.8	195°16.6	210°16.5	225°16.4	240°16.3	255°16.2	90°14.6	105°14.5	120°14.4	135°14.3	150°14.2	165°14.0	-0.1
	22°45.4	22°45.6	22°45.9	22°46.1	22°46.3	22°46.6	22°49.6	22°49.8	22°50.0	22°50.3	22°50.5	22°50.7	+0.2
wo 8	180°13.9	195°13.8	210°13.7	225°13.6	240°13.4	255°13.3	90°11.8	105°11.6	120°11.5	135°11.4	150°11.3	165°11.1	-0.1
	22°50.9	22°51.2	22°51.4	22°51.6	22°51.8	22°52.0	22°54.8	22°55.0	22°55.3	22°55.5	22°55.7	22°55.9	+0.2
do 9	180°11.0	195°10.9	210°10.8	225°10.7	240°10.5	255°10.4	90°08.8	105°08.7	120°08.6	135°08.4	150°08.3	165°08.2	-0.1
	22°56.1	22°56.3	22°56.5	22°56.7	22°56.9	22°57.1	22°59.7	22°59.9	23°00.1	23°00.3	23°00.4	23°00.6	+0.2
vr 10	180°08.1	195°07.9	210°07.8	225°07.7	240°07.6	255°07.5	90°05.8	105°05.7	120°05.6	135°05.4	150°05.3	165°05.2	-0.1
	23°00.8	23°01.0	23°01.2	23°01.4	23°01.6	23°01.8	23°04.1	23°04.3	23°04.5	23°04.6	23°04.8	23°05.0	+0.2
za 11	180°05.1	195°04.9	210°04.8	225°04.7	240°04.6	255°04.4	90°02.8	105°02.7	120°02.5	135°02.4	150°02.3	165°02.1	-0.1
	23°05.2	23°05.3	23°05.5	23°05.7	23°05.8	23°06.0	23°08.1	23°08.3	23°08.5	23°08.6	23°08.8	23°08.9	+0.2
zo 12	180°02.0	195°01.9	210°01.8	225°01.6	240°01.5	255°01.4	89°59.7	104°59.6	119°59.4	134°59.3	149°59.2	164°59.0	-0.1
	23°09.1	23°09.2	23°09.4	23°09.5	23°09.7	23°09.8	23°11.8	23°11.9	23°12.0	23°12.2	23°12.3	23°12.5	+0.2
ma 13	179°58.9	194°58.8	209°58.7	224°58.5	239°58.4	254°58.3	89°56.6	104°56.4	119°56.3	134°56.2	149°56.0	164°55.9	-0.1
	23°12.6	23°12.7	23°12.9	23°13.0	23°13.1	23°13.3	23°15.0	23°15.1	23°15.2	23°15.3	23°15.5	23°15.6	+0.1
di 14	179°55.8	194°55.6	209°55.5	224°55.4	239°55.3	254°55.1	89°53.4	104°53.3	119°53.1	134°53.0	149°52.9	164°52.7	-0.1
	23°15.7	23°15.8	23°15.9	23°16.1	23°16.2	23°16.3	23°17.8	23°17.9	23°18.0	23°18.1	23°18.2	23°18.3	+0.1
wo 15	179°52.6	194°52.5	209°52.3	224°52.2	239°52.1	254°51.9	89°50.2	104°50.1	119°49.9	134°49.8	149°49.7	164°49.5	-0.1
	23°18.4	23°18.5	23°18.6	23°18.7	23°18.8	23°18.9	23°20.2	23°20.3	23°20.3	23°20.4	23°20.5	23°20.6	+0.1
do 16	179°49.4	194°49.3	209°49.1	224°49.0	239°48.9	254°48.7	89°47.0	104°46.9	119°46.7	134°46.6	149°46.5	164°46.3	-0.1
	23°20.7	23°20.8	23°20.9	23°21.0	23°21.0	23°21.1	23°22.1	23°22.2	23°22.3	23°22.4	23°22.4	23°22.5	+0.1
vr 17	179°46.2	194°46.1	209°45.9	224°45.8	239°45.6	254°45.5	89°43.8	104°43.6	119°43.5	134°43.3	149°43.2	164°43.1	-0.1
	23°22.6	23°22.6	23°22.7	23°22.8	23°22.8	23°22.9	23°23.7	23°23.8	23°23.8	23°23.9	23°23.9	23°24.0	+0.1
za 18	179°42.9	194°42.8	209°42.7	224°42.5	239°42.4	254°42.3	89°40.5	104°40.4	119°40.2	134°40.1	149°40.0	164°39.8	-0.1
	23°24.0	23°24.1	23°24.1	23°24.2	23°24.2	23°24.3	23°24.9	23°24.9	23°24.9	23°25.0	23°25.0	23°25.0	+0.1
zo 19	179°39.7	194°39.5	209°39.4	224°39.3	239°39.1	254°39.0	89°37.2	104°37.1	119°37.0	134°36.8	149°36.7	164°36.5	-0.1
	23°25.1	23°25.1	23°25.2	23°25.2	23°25.2	23°25.2	23°25.6	23°25.6	23°25.6	23°25.7	23°25.7	23°25.7	+0.0
ma 20	179°36.4	194°36.3	209°36.1	224°36.0	239°35.9	254°35.7	89°34.0	104°33.8	119°33.7	134°33.5	149°33.4	164°33.3	-0.1
	23°25.7	23°25.7	23°25.8	23°25.8	23°25.8	23°25.8	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	+0.0
di 21	179°33.1	194°33.0	209°32.9	224°32.7	239°32.6	254°32.5	89°30.7	104°30.6	119°30.4	134°30.3	149°30.1	164°30.0	-0.1
	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	23°25.8	23°25.8	23°25.8	+0.0
wo 22	179°29.9	194°29.7	209°29.6	224°29.5	239°29.3	254°29.2	89°27.4	104°27.3	119°27.2	134°27.0	149°26.9	164°26.7	-0.1
	23°25.7	23°25.7	23°25.7	23°25.7	23°25.7	23°25.7	23°25.3	23°25.3	23°25.3	23°25.2	23°25.2	23°25.2	-0.0
do 23	179°26.6	194°26.5	209°26.3	224°26.2	239°26.1	254°25.9	89°24.2	104°24.0	119°23.9	134°23.8	149°23.6	164°23.5	-0.1
	23°25.1	23°25.1	23°25.1	23°25.0	23°25.0	23°25.0	23°24.4	23°24.4	23°24.3	23°24.3	23°24.2	23°24.2	-0.0
vr 24	179°23.4	194°23.2	209°23.1	224°23.0	239°22.8	254°22.7	89°20.9	104°20.8	119°20.7	134°20.5	149°20.4	164°20.3	-0.1
	23°24.1	23°24.1	23°24.0	23°24.0	23°23.9	23°23.9	23°23.1	23°23.0	23°23.0	23°22.9	23°22.8	23°22.8	-0.1
za 25	179°20.1	194°20.0	209°19.9	224°19.7	239°19.6	254°19.5	89°17.7	104°17.6	119°17.5	134°17.3	149°17.2	164°17.1	-0.1
	23°22.7	23°22.6	23°22.6	23°22.5	23°22.4	23°22.3	23°21.4	23°21.3	23°21.2	23°21.1	23°21.0	23°20.9	-0.1
zo 26	179°16.9	194°16.8	209°16.7	224°16.5	239°16.4	254°16.3	89°14.6	104°14.4	119°14.3	134°14.2	149°14.0	164°13.9	-0.1
	23°20.9	23°20.8	23°20.7	23°20.6	23°20.5	23°20.4	23°19.2	23°19.1	23°19.0	23°18.9	23°18.8	23°18.7	-0.1
ma 27	179°13.8	194°13.7	209°13.5	224°13.4	239°13.3	254°13.1	89°11.4	104°11.3	119°11.2	134°11.1	149°10.9	164°10.8	-0.1
	23°18.6	23°18.5	23°18.4	23°18.3	23°18.2	23°18.1	23°16.6	23°16.5	23°16.4	23°16.3	23°16.2	23°16.1	-0.1
di 28	179°10.7	194°10.5	209°10.4	224°10.3	239°10.2	254°10.0	89°08.4	104°08.2	119°08.1	134°08.0	149°07.9	164°07.7	-0.1
	23°15.9	23°15.8	23°15.7	23°15.6	23°15.5	23°15.3	23°13.7	23°13.5	23°13.4	23°13.3	23°13.1	23°13.0	-0.1
wo 29	179°07.6	194°07.5	209°07.4	224°07.2	239°07.1	254°07.0	89°05.3	104°05.2	119°05.1	134°05.0	149°04.8	164°04.7	-0.1
	23°12.9	23°12.7	23°12.6	23°12.5	23°12.3	23°12.2	23°10.3	23°10.2	23°10.0	23°09.9	23°09.7	23°09.6	-0.1
do 30	179°04.6	194°04.5	209°04.4	224°04.2	239°04.1	254°04.0	89°02.4	104°02.3	119°02.1	134°02.0	149°01.9	164°01.8	-0.1
	23°09.4	23°09.2	23°09.1	23°08.9	23°08.8	23°08.6	23°06.5	23°06.4	23°06.2	23°06.0	23°05.9	23°05.7	-0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2033

D	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
wo 1	48°52.3	63°23.0	77°53.7	92°24.4	106°55.3	121°26.2	135°57.2	150°28.2	164°59.3	179°30.5	194°01.7	+30.9	15.2
	14°04.8	13°58.0	13°51.1	13°44.1	13°37.1	13°30.1	13°22.9	13°15.7	13°08.5	13°01.2	12°53.9	-7.1	55.8
do 2	51°57.6	66°29.8	81°02.0	95°34.3	110°06.7	124°39.1	139°11.5	153°44.1	168°16.6	182°49.2	197°21.9	+32.4	15.0
	10°57.6	10°49.5	10°41.3	10°33.1	10°24.9	10°16.6	10°08.3	9°59.9	9°51.6	9°43.1	9°34.7	-8.3	55.1
vr 3	55°37.6	70°11.0	84°44.4	99°17.8	113°51.4	128°24.9	142°58.5	157°32.1	172°05.7	186°39.4	201°13.1	+33.6	14.9
	7°23.9	7°15.0	7°06.0	6°57.0	6°48.0	6°39.0	6°29.9	6°20.8	6°11.7	6°02.6	5°53.4	-9.0	54.6
◐ za 4	59°42.2	74°16.4	88°50.5	103°24.7	117°58.9	132°33.1	147°07.3	161°41.6	176°15.8	190°50.1	205°24.4	+34.2	14.8
	3°34.3	3°24.9	3°15.5	3°06.1	2°56.7	2°47.3	2°37.9	2°28.5	2°19.0	2°09.6	2°00.1	-9.4	54.3
zo 5	63°59.9	78°34.3	93°08.7	107°43.1	122°17.5	136°51.9	151°26.4	166°00.8	180°35.2	195°09.5	209°43.9	+34.4	14.8
	-0°22.1	-0°31.6	-0°41.0	-0°50.5	-1°00.0	-1°09.5	-1°18.9	-1°28.4	-1°37.8	-1°47.3	-1°56.7	-9.5	54.2
ma 6	78°34.3	93°08.7	107°43.1	122°17.5	136°51.9	151°26.4	166°00.8	180°35.2	195°09.5	209°43.9	224°18.3	+34.4	14.8
	-0°31.6	-0°41.0	-0°50.5	-1°00.0	-1°09.5	-1°18.9	-1°28.4	-1°37.8	-1°47.3	-1°56.7	-2°06.1	-9.5	54.2
di 7	82°52.8	97°27.0	112°01.1	126°35.3	141°09.4	155°43.5	170°17.6	184°51.7	199°25.7	213°59.7	228°33.7	+34.1	14.8
	-4°26.3	-4°35.6	-4°44.8	-4°54.0	-5°03.2	-5°12.4	-5°21.5	-5°30.7	-5°39.8	-5°48.9	-5°57.9	-9.2	54.2
wo 8	87°00.2	101°33.7	116°07.2	130°40.7	145°14.1	159°47.5	174°20.8	188°54.1	203°27.3	218°00.6	232°33.7	+33.4	14.8
	-8°11.2	-8°19.8	-8°28.5	-8°37.1	-8°45.6	-8°54.2	-9°02.7	-9°11.1	-9°19.6	-9°28.0	-9°36.3	-8.5	54.4
do 9	90°46.2	105°18.7	119°51.1	134°23.5	148°55.8	163°28.1	178°00.3	192°32.5	207°04.6	221°36.7	236°08.7	+32.2	14.9
	-11°37.1	-11°44.8	-11°52.5	-12°00.1	-12°07.7	-12°15.2	-12°22.7	-12°30.1	-12°37.4	-12°44.8	-12°52.0	-7.5	54.8
vr 10	94°02.6	108°33.8	123°04.9	137°36.0	152°06.9	166°37.9	181°08.8	195°39.6	210°10.4	224°41.1	239°11.7	+30.9	15.1
	-14°34.2	-14°40.5	-14°46.8	-14°53.0	-14°59.1	-15°05.2	-15°11.2	-15°17.1	-15°23.0	-15°28.8	-15°34.5	-6.0	55.3
za 11	96°44.9	111°14.7	125°44.4	140°14.0	154°43.6	169°13.2	183°42.7	198°12.1	212°41.5	227°10.9	241°40.1	+29.5	15.2
	-16°51.4	-16°55.9	-17°00.3	-17°04.6	-17°08.9	-17°13.0	-17°17.1	-17°21.1	-17°25.0	-17°28.8	-17°32.5	-4.1	55.8
○ zo 12	98°53.5	113°22.0	127°50.5	142°18.9	156°47.3	171°15.6	185°43.9	200°12.2	214°40.4	229°08.6	243°36.8	+28.3	15.4
	-18°17.5	-18°19.8	-18°21.9	-18°23.9	-18°25.9	-18°27.7	-18°29.5	-18°31.1	-18°32.7	-18°34.1	-18°35.5	-1.8	56.4
ma 13	100°34.8	115°02.4	129°30.0	143°57.6	158°25.2	172°52.7	187°20.2	201°47.7	216°15.2	230°42.6	245°10.1	+27.5	15.6
	-18°43.1	-18°42.8	-18°42.3	-18°41.8	-18°41.1	-18°40.3	-18°39.5	-18°38.5	-18°37.4	-18°36.2	-18°34.9	+0.8	57.0
di 14	101°59.9	116°27.2	130°54.4	145°21.7	159°48.9	174°16.2	188°43.4	203°10.7	217°37.9	232°05.2	246°32.4	+27.2	15.7
	-18°02.3	-17°59.2	-17°56.1	-17°52.8	-17°49.4	-17°46.0	-17°42.4	-17°38.7	-17°34.9	-17°31.0	-17°27.0	+3.5	57.6
wo 15	103°21.9	117°49.3	132°16.7	146°44.1	161°11.5	175°38.9	190°06.4	204°33.9	219°01.3	233°28.9	247°56.4	+27.4	15.8
	-16°14.5	-16°08.9	-16°03.1	-15°57.3	-15°51.3	-15°45.3	-15°39.2	-15°32.9	-15°26.6	-15°20.2	-15°13.7	+6.1	58.1
do 16	104°51.5	119°19.3	133°47.2	148°15.1	162°43.0	177°10.9	191°38.9	206°06.9	220°34.9	235°02.9	249°30.9	+27.9	15.9
	-13°25.3	-13°17.3	-13°09.3	-13°01.3	-12°53.1	-12°44.9	-12°36.6	-12°28.2	-12°19.7	-12°11.2	-12°02.6	+8.3	58.5
vr 17	106°34.3	121°02.8	135°31.2	149°59.6	164°28.1	178°56.6	193°25.1	207°53.6	222°22.1	236°50.7	251°19.3	+28.5	16.0
	-9°45.0	-9°35.3	-9°25.6	-9°15.8	-9°05.9	-8°56.0	-8°46.1	-8°36.1	-8°26.0	-8°15.9	-8°05.7	+9.9	58.8
za 18	108°30.0	122°58.8	137°27.6	151°56.5	166°25.3	180°54.2	195°23.1	209°52.0	224°20.9	238°49.8	253°18.7	+28.9	16.1
	-5°27.8	-5°16.9	-5°06.1	-4°55.2	-4°44.2	-4°33.3	-4°22.3	-4°11.3	-4°00.2	-3°49.2	-3°38.1	+11.0	59.0
◑ zo 19	110°32.7	125°01.7	139°30.6	153°59.5	168°28.5	182°57.4	197°26.3	211°55.2	226°24.1	240°53.0	255°21.9	+28.9	16.1
	-0°49.5	-0°38.2	-0°26.8	-0°15.5	-0°04.2	0°07.2	0°18.5	0°29.9	0°41.2	0°52.6	1°03.9	+11.3	59.2
ma 20	112°33.9	127°02.6	141°31.3	155°59.9	170°28.6	184°57.2	199°25.8	213°54.3	228°22.9	242°51.4	257°19.9	+28.6	16.2
	3°52.8	4°03.9	4°15.0	4°26.1	4°37.2	4°48.2	4°59.2	5°10.2	5°21.2	5°32.1	5°43.0	+11.0	59.3
di 21	114°24.4	128°52.5	143°20.5	157°48.6	172°16.6	186°44.5	201°12.4	215°40.3	230°08.2	244°36.0	259°03.9	+27.9	16.2
	8°21.7	8°31.9	8°42.1	8°52.2	9°02.3	9°12.3	9°22.3	9°32.2	9°42.0	9°51.8	10°01.6	+10.0	59.3
wo 22	115°57.0	130°24.3	144°51.5	159°18.8	173°45.9	188°13.1	202°40.2	217°07.3	231°34.3	246°01.4	260°28.3	+27.1	16.1
	12°19.7	12°28.3	12°36.9	12°45.4	12°53.8	13°02.1	13°10.4	13°18.5	13°26.6	13°34.6	13°42.5	+8.3	59.1
do 23	117°09.5	131°36.0	146°02.5	160°29.0	174°55.5	189°21.9	203°48.3	218°14.7	232°41.0	247°07.4	261°33.7	+26.4	16.1
	15°30.3	15°36.7	15°43.1	15°49.3	15°55.4	16°01.5	16°07.4	16°13.2	16°18.9	16°24.5	16°30.1	+6.0	58.9
vr 24	118°06.5	132°32.6	146°58.7	161°24.8	175°50.9	190°17.0	204°43.0	219°09.1	233°35.2	248°01.3	262°27.4	+26.1	15.9
	17°39.8	17°43.5	17°47.2	17°50.7	17°54.1	17°57.4	18°00.6	18°03.7	18°06.7	18°09.5	18°12.2	+3.2	58.5
za 25	118°59.5	133°25.7	147°52.0	162°18.3	176°44.6	191°10.9	205°37.3	220°03.7	234°30.1	248°56.5	263°23.0	+26.3	15.8
	18°39.3	18°40.2	18°41.0	18°41.6	18°42.1	18°42.5	18°42.8	18°43.0	18°43.1	18°43.0	18°42.9	+0.4	58.0
● zo 26	120°04.0	134°31.1	148°58.2	163°25.3	177°52.5	192°19.7	206°47.0	221°14.3	235°41.7	250°09.1	264°36.6	+27.3	15.6
	18°27.0	18°25.1	18°23.1	18°20.9	18°18.7	18°16.3	18°13.8	18°11.3	18°08.6	18°05.8	18°02.9	-2.4	57.4
ma 27	121°35.2	136°03.5	150°32.0	165°00.4	179°29.0	193°57.6	208°26.3	222°55.0	237°23.8	251°52.6	266°21.5	+28.6	15.5
	17°07.9	17°03.5	16°59.0	16°54.4	16°49.7	16°44.9	16°40.1	16°35.1	16°30.1	16°25.0	16°19.8	-4.8	56.7
di 28	123°42.9	138°12.8	152°42.8	167°12.9	181°43.0	196°13.2	210°43.5	225°13.8	239°44.2	254°14.7	268°45.2	+30.2	15.3
	14°52.3	14°45.9	14°39.4	14°32.9	14°26.2	14°19.5	14°12.8	14°06.0	13°59.1	13°52.1	13°45.1	-6.7	56.1
wo 29	126°30.3	141°01.8	155°33.4	170°05.0	184°36.7	199°08.4	213°40.2	228°12.0	242°43.9	257°15.8	271°47.9	+31.8	15.1
	11°53.1	11°45.2	11°37.3	11°29.3	11°21.3	11°13.2	11°05.1	10°56.9	10°48.7	10°40.5	10°32.2	-8.1	55.5
do 30	141°01.8	155°33.4	170°05.0	184°36.7	199°08.4	213°40.2	228°12.0	242°43.9	257°15.8	271°47.9	286°19.9	+31.8	15.1
	11°45.2	11°37.3	11°29.3	11°21.3	11°13.2	11°05.1	10°56.9	10°48.7	10°40.5	10°32.2	10°23.9	-8.1	55.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 4 23h38 — VM: 12 23h19 — LK: 19 23h29 — NM: 26 21h07

ZON

Juli 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	179°01.7	194°01.5	209°01.4	224°01.3	239°01.2	254°01.0	88°59.5	103°59.4	118°59.3	133°59.1	148°59.0	163°58.9	-0.1
	23°05.5	23°05.4	23°05.2	23°05.0	23°04.8	23°04.7	23°02.3	23°02.2	23°02.0	23°01.8	23°01.6	23°01.4	-0.2
za 2	178°58.8	193°58.7	208°58.5	223°58.4	238°58.3	253°58.2	88°56.7	103°56.6	118°56.4	133°56.3	148°56.2	163°56.1	-0.1
	23°01.2	23°01.1	23°00.9	23°00.7	23°00.5	23°00.3	22°57.8	22°57.6	22°57.4	22°57.2	22°57.0	22°56.8	-0.2
zo 3	178°56.0	193°55.9	208°55.7	223°55.6	238°55.5	253°55.4	88°53.9	103°53.8	118°53.7	133°53.6	148°53.5	163°53.4	-0.1
	22°56.6	22°56.3	22°56.1	22°55.9	22°55.7	22°55.5	22°52.8	22°52.6	22°52.3	22°52.1	22°51.9	22°51.7	-0.2
ma 4	178°53.3	193°53.1	208°53.0	223°52.9	238°52.8	253°52.7	88°51.3	103°51.2	118°51.1	133°50.9	148°50.8	163°50.7	-0.1
	22°51.5	22°51.2	22°51.0	22°50.8	22°50.6	22°50.4	22°47.4	22°47.2	22°46.9	22°46.7	22°46.5	22°46.2	-0.2
di 5	178°50.6	193°50.5	208°50.4	223°50.3	238°50.2	253°50.1	88°48.7	103°48.6	118°48.5	133°48.4	148°48.3	163°48.2	-0.1
	22°46.0	22°45.7	22°45.5	22°45.3	22°45.0	22°44.8	22°41.6	22°41.4	22°41.1	22°40.9	22°40.6	22°40.4	-0.2
wo 6	178°48.1	193°48.0	208°47.9	223°47.8	238°47.7	253°47.6	88°46.2	103°46.1	118°46.0	133°45.9	148°45.8	163°45.7	-0.1
	22°40.1	22°39.9	22°39.6	22°39.3	22°39.1	22°38.8	22°35.4	22°35.2	22°34.9	22°34.6	22°34.4	22°34.1	-0.3
do 7	178°45.6	193°45.5	208°45.4	223°45.3	238°45.2	253°45.1	88°43.9	103°43.8	118°43.7	133°43.6	148°43.5	163°43.4	-0.1
	22°33.8	22°33.6	22°33.3	22°33.0	22°32.8	22°32.5	22°28.9	22°28.6	22°28.3	22°28.0	22°27.7	22°27.5	-0.3
vr 8	178°43.3	193°43.2	208°43.1	223°43.0	238°42.9	253°42.8	88°41.6	103°41.5	118°41.4	133°41.3	148°41.2	163°41.1	-0.1
	22°27.2	22°26.9	22°26.6	22°26.3	22°26.0	22°25.7	22°21.9	22°21.6	22°21.3	22°21.0	22°20.7	22°20.4	-0.3
za 9	178°41.0	193°40.9	208°40.8	223°40.8	238°40.7	253°40.6	88°39.4	103°39.3	118°39.2	133°39.1	148°39.1	163°39.0	-0.1
	22°20.1	22°19.8	22°19.5	22°19.2	22°18.9	22°18.6	22°14.6	22°14.3	22°14.0	22°13.6	22°13.3	22°13.0	-0.3
zo 10	178°38.9	193°38.8	208°38.7	223°38.6	238°38.5	253°38.5	88°37.4	103°37.3	118°37.2	133°37.1	148°37.0	163°36.9	-0.1
	22°12.7	22°12.4	22°12.1	22°11.7	22°11.4	22°11.1	22°06.9	22°06.5	22°06.2	22°05.9	22°05.6	22°05.2	-0.3
ma 11	178°36.9	193°36.8	208°36.7	223°36.6	238°36.5	253°36.4	88°35.4	103°35.3	118°35.2	133°35.2	148°35.1	163°35.0	-0.1
	22°04.9	22°04.6	22°04.2	22°03.9	22°03.5	22°03.2	21°58.8	21°58.4	21°58.1	21°57.7	21°57.4	21°57.0	-0.3
di 12	178°34.9	193°34.9	208°34.8	223°34.7	238°34.6	253°34.6	88°33.6	103°33.5	118°33.4	133°33.4	148°33.3	163°33.2	-0.1
	21°56.7	21°56.3	21°56.0	21°55.6	21°55.3	21°54.9	21°50.3	21°49.9	21°49.6	21°49.2	21°48.9	21°48.5	-0.3
wo 13	178°33.1	193°33.1	208°33.0	223°32.9	238°32.8	253°32.8	88°31.9	103°31.8	118°31.7	133°31.7	148°31.6	163°31.5	-0.1
	21°48.1	21°47.8	21°47.4	21°47.0	21°46.7	21°46.3	21°41.5	21°41.1	21°40.7	21°40.3	21°39.9	21°39.6	-0.4
do 14	178°31.5	193°31.4	208°31.3	223°31.3	238°31.2	253°31.1	88°30.3	103°30.2	118°30.1	133°30.1	148°30.0	163°30.0	-0.1
	21°39.2	21°38.8	21°38.4	21°38.0	21°37.7	21°37.3	21°32.2	21°31.8	21°31.4	21°31.1	21°30.7	21°30.3	-0.4
vr 15	178°29.9	193°29.8	208°29.8	223°29.7	238°29.6	253°29.6	88°28.8	103°28.8	118°28.7	133°28.6	148°28.6	163°28.5	-0.1
	21°29.9	21°29.5	21°29.1	21°28.7	21°28.3	21°27.9	21°22.6	21°22.2	21°21.8	21°21.4	21°21.0	21°20.6	-0.4
za 16	178°28.5	193°28.4	208°28.3	223°28.3	238°28.2	253°28.2	88°27.5	103°27.4	118°27.4	133°27.3	148°27.3	163°27.2	-0.1
	21°20.2	21°19.8	21°19.4	21°19.0	21°18.5	21°18.1	21°12.7	21°12.3	21°11.8	21°11.4	21°11.0	21°10.6	-0.4
zo 17	178°27.2	193°27.1	208°27.0	223°27.0	238°26.9	253°26.9	88°26.3	103°26.2	118°26.2	133°26.1	148°26.1	163°26.0	-0.1
	21°10.2	21°09.7	21°09.3	21°08.9	21°08.4	21°08.0	21°02.4	21°01.9	21°01.5	21°01.1	21°00.6	21°00.2	-0.4
ma 18	178°26.0	193°25.9	208°25.9	223°25.8	238°25.8	253°25.7	88°25.2	103°25.1	118°25.1	133°25.0	148°25.0	163°25.0	-0.0
	20°59.8	20°59.3	20°58.9	20°58.4	20°58.0	20°57.5	20°51.7	20°51.3	20°50.8	20°50.4	20°49.9	20°49.4	-0.4
di 19	178°24.9	193°24.9	208°24.8	223°24.8	238°24.8	253°24.7	88°24.2	103°24.2	118°24.1	133°24.1	148°24.1	163°24.0	-0.0
	20°49.0	20°48.5	20°48.1	20°47.6	20°47.2	20°46.7	20°40.7	20°40.2	20°39.8	20°39.3	20°38.8	20°38.4	-0.5
wo 20	178°24.0	193°24.0	208°23.9	223°23.9	238°23.9	253°23.8	88°23.4	103°23.4	118°23.3	133°23.3	148°23.3	163°23.2	-0.0
	20°37.9	20°37.4	20°36.9	20°36.5	20°36.0	20°35.5	20°29.3	20°28.8	20°28.4	20°27.9	20°27.4	20°26.9	-0.5
do 21	178°23.2	193°23.2	208°23.1	223°23.1	238°23.1	253°23.1	88°22.7	103°22.7	118°22.7	133°22.6	148°22.6	163°22.6	-0.0
	20°26.4	20°25.9	20°25.5	20°25.0	20°24.5	20°24.0	20°17.6	20°17.1	20°16.6	20°16.1	20°15.6	20°15.1	-0.5
vr 22	178°22.6	193°22.5	208°22.5	223°22.5	238°22.5	253°22.4	88°22.2	103°22.1	118°22.1	133°22.1	148°22.1	163°22.1	-0.0
	20°14.6	20°14.1	20°13.6	20°13.1	20°12.6	20°12.1	20°05.6	20°05.0	20°04.5	20°04.0	20°03.5	20°03.0	-0.5
za 23	178°22.0	193°22.0	208°22.0	223°22.0	238°22.0	253°22.0	88°21.8	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	20°02.5	20°02.0	20°01.5	20°00.9	20°00.4	19°59.9	19°53.2	19°52.6	19°52.1	19°51.6	19°51.1	19°50.5	-0.5
zo 24	178°21.7	193°21.7	208°21.7	223°21.6	238°21.6	253°21.6	88°21.5	103°21.5	118°21.5	133°21.5	148°21.5	163°21.5	-0.0
	19°50.0	19°49.5	19°49.0	19°48.4	19°47.9	19°47.4	19°40.4	19°39.9	19°39.4	19°38.8	19°38.3	19°37.8	-0.5
ma 25	178°21.5	193°21.4	208°21.4	223°21.4	238°21.4	253°21.4	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.4	-0.0
	19°37.2	19°36.7	19°36.1	19°35.6	19°35.0	19°34.5	19°27.4	19°26.8	19°26.3	19°25.7	19°25.2	19°24.6	-0.5
di 26	178°21.4	193°21.4	208°21.4	223°21.4	238°21.4	253°21.4	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.4	-0.0
	19°24.1	19°23.5	19°23.0	19°22.4	19°21.9	19°21.3	19°14.0	19°13.5	19°12.9	19°12.3	19°11.8	19°11.2	-0.6
wo 27	178°21.5	193°21.5	208°21.5	223°21.5	238°21.5	253°21.5	88°21.6	103°21.6	118°21.6	133°21.6	148°21.7	163°21.7	+0.0
	19°10.6	19°10.1	19°09.5	19°08.9	19°08.4	19°07.8	19°00.3	18°59.8	18°59.2	18°58.6	18°58.0	18°57.5	-0.6
do 28	178°21.7	193°21.7	208°21.7	223°21.7	238°21.7	253°21.7	88°21.9	103°22.0	118°22.0	133°22.0	148°22.0	163°22.0	+0.0
	18°56.9	18°56.3	18°55.7	18°55.1	18°54.5	18°54.0	18°46.3	18°45.8	18°45.2	18°44.6	18°44.0	18°43.4	-0.6
vr 29	178°22.1	193°22.1	208°22.1	223°22.1	238°22.1	253°22.2	88°22.4	103°22.5	118°22.5	133°22.5	148°22.5	163°22.6	+0.0
	18°42.8	18°42.2	18°41.6	18°41.0	18°40.4	18°39.8	18°32.0	18°31.4	18°30.8	18°30.2	18°29.6	18°29.0	-0.6
za 30	178°22.6	193°22.6	208°22.6	223°22.7	238°22.7	253°22.7	88°23.1	103°23.1	118°23.1	133°23.2	148°23.2	163°23.2	+0.0
	18°28.4	18°27.8	18°27.2	18°26.6	18°26.0	18°25.4	18°17.4	18°16.8	18°16.2	18°15.6	18°15.0	18°14.3	-0.6
zo 31	178°23.3	193°23.3	208°23.3	223°23.4	238°23.4	253°23.4	88°23.9	103°23.9	118°24.0	133°24.0	148°24.0	163°24.1	+0.0
	18°13.7	18°13.1	18°12.5	18°11.9	18°11.2	18°10.6	18°02.5	18°01.9	18°01.3	18°00.6	18°00.0	17°59.4	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2033

D	18h	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	Δ'/h	SD/HP
vr 1	46°24.9	60°58.5	75°32.1	90°05.7	104°39.4	119°13.1	133°46.9	148°20.6	162°54.4	177°28.2	192°02.1	+33.7	14.9
	5°31.0	5°21.7	5°12.4	5°03.1	4°53.8	4°44.4	4°35.1	4°25.7	4°16.3	4°06.9	3°57.5	-9.4	54.6
za 2	50°32.6	65°06.8	79°41.0	94°15.2	108°49.5	123°23.7	137°58.0	152°32.3	167°06.5	181°40.8	196°15.1	+34.3	14.8
	1°35.4	1°25.9	1°16.4	1°06.9	0°57.4	0°47.8	0°38.3	0°28.8	0°19.3	0°09.8	0°00.3	-9.5	54.3
zo 3	54°50.1	69°24.5	83°58.8	98°33.1	113°07.5	127°41.8	142°16.1	156°50.4	171°24.7	185°59.0	200°33.3	+34.3	14.8
	-2°21.8	-2°31.2	-2°40.6	-2°49.9	-2°59.3	-3°08.7	-3°18.0	-3°27.3	-3°36.6	-3°45.9	-3°55.2	-9.3	54.2
◐ ma 4	59°05.7	73°39.7	88°13.7	102°47.7	117°21.6	131°55.5	146°29.4	161°03.3	175°37.1	190°11.0	204°44.7	+33.9	14.8
	-6°12.3	-6°21.3	-6°30.2	-6°39.2	-6°48.1	-6°56.9	-7°05.8	-7°14.6	-7°23.4	-7°32.2	-7°40.9	-8.9	54.3
di 5	63°07.8	77°41.0	92°14.2	106°47.4	121°20.5	135°53.6	150°26.7	164°59.7	179°32.6	194°05.5	208°38.4	+33.1	14.9
	-9°48.1	-9°56.3	-10°04.5	-10°12.6	-10°20.7	-10°28.8	-10°36.8	-10°44.8	-10°52.7	-11°00.6	-11°08.4	-8.0	54.5
wo 6	77°41.0	92°14.2	106°47.4	121°20.5	135°53.6	150°26.7	164°59.7	179°32.6	194°05.5	208°38.4	223°11.2	+33.0	14.9
	-9°56.3	-10°04.5	-10°12.6	-10°20.7	-10°28.8	-10°36.8	-10°44.8	-10°52.7	-11°00.6	-11°08.4	-11°16.2	-8.0	54.5
do 7	81°18.0	95°50.1	110°22.1	124°54.0	139°25.9	153°57.8	168°29.6	183°01.3	197°33.0	212°04.6	226°36.1	+31.8	15.0
	-13°07.5	-13°14.5	-13°21.5	-13°28.4	-13°35.3	-13°42.1	-13°48.8	-13°55.5	-14°02.1	-14°08.6	-14°15.1	-6.8	55.0
vr 8	84°22.7	98°53.4	113°24.0	127°54.5	142°24.9	156°55.3	171°25.7	185°56.0	200°26.2	214°56.3	229°26.4	+30.4	15.1
	-15°45.0	-15°50.4	-15°55.8	-16°01.1	-16°06.3	-16°11.5	-16°16.6	-16°21.6	-16°26.5	-16°31.3	-16°36.1	-5.1	55.6
za 9	86°50.9	101°20.0	115°49.1	130°18.2	144°47.2	159°16.1	173°45.0	188°13.8	202°42.6	217°11.3	231°39.9	+28.9	15.3
	-17°37.9	-17°41.3	-17°44.7	-17°47.9	-17°51.1	-17°54.1	-17°57.1	-18°00.0	-18°02.8	-18°05.5	-18°08.1	-3.0	56.2
zo 10	88°43.6	103°11.4	117°39.2	132°07.0	146°34.7	161°02.4	175°30.1	189°57.7	204°25.2	218°52.7	233°20.2	+27.7	15.5
	-18°35.4	-18°36.4	-18°37.3	-18°38.1	-18°38.8	-18°39.4	-18°39.9	-18°40.3	-18°40.5	-18°40.7	-18°40.8	-0.5	57.0
ma 11	90°08.2	104°35.2	119°02.1	133°29.0	147°55.9	162°22.8	176°49.7	191°16.5	205°43.3	220°10.1	234°36.9	+26.9	15.7
	-18°28.5	-18°26.8	-18°25.0	-18°23.1	-18°21.1	-18°18.9	-18°16.7	-18°14.3	-18°11.8	-18°09.2	-18°06.5	+2.2	57.7
○ di 12	91°17.0	105°43.6	120°10.2	134°36.9	149°03.5	163°30.1	177°56.7	192°23.3	206°49.9	221°16.6	235°43.2	+26.6	15.9
	-17°12.6	-17°08.1	-17°03.5	-16°58.8	-16°54.0	-16°49.1	-16°44.1	-16°39.0	-16°33.7	-16°28.4	-16°23.0	+5.0	58.4
wo 13	92°23.6	106°50.4	121°17.2	135°44.1	150°10.9	164°37.8	179°04.6	193°31.5	207°58.4	222°25.4	236°52.3	+26.9	16.1
	-14°49.0	-14°42.0	-14°34.8	-14°27.6	-14°20.3	-14°12.8	-14°05.3	-13°57.7	-13°50.0	-13°42.2	-13°34.3	+7.5	58.9
do 14	93°39.1	108°06.4	122°33.7	137°01.1	151°28.4	165°55.8	180°23.3	194°50.7	209°18.2	223°45.7	238°13.2	+27.4	16.2
	-11°26.1	-11°17.0	-11°07.7	-10°58.4	-10°49.0	-10°39.6	-10°30.1	-10°20.5	-10°10.8	-10°01.1	-9°51.3	+9.5	59.3
vr 15	95°08.8	109°36.7	124°04.6	138°32.5	153°00.5	167°28.5	181°56.5	196°24.5	210°52.5	225°20.6	239°48.7	+28.0	16.2
	-7°17.8	-7°07.1	-6°56.4	-6°45.7	-6°34.9	-6°24.1	-6°13.3	-6°02.4	-5°51.5	-5°40.5	-5°29.5	+10.8	59.5
za 16	96°51.9	111°20.2	125°48.6	140°17.0	154°45.3	169°13.7	183°42.1	198°10.5	212°38.9	227°07.4	241°35.8	+28.4	16.2
	-2°41.3	-2°30.0	-2°18.6	-2°07.2	-1°55.7	-1°44.3	-1°32.9	-1°21.4	-1°10.0	-0°58.6	-0°47.1	+11.4	59.6
zo 17	98°42.9	113°11.4	127°39.9	142°08.4	156°36.9	171°05.4	185°33.9	200°02.4	214°30.9	228°59.3	243°27.8	+28.5	16.2
	2°04.4	2°15.7	2°27.1	2°38.4	2°49.7	3°01.0	3°12.3	3°23.5	3°34.7	3°45.9	3°57.1	+11.3	59.5
ma 18	100°34.0	115°02.3	129°30.7	143°59.0	158°27.2	172°55.5	187°23.8	201°52.0	216°20.3	230°48.5	245°16.7	+28.3	16.2
	6°40.8	6°51.4	7°02.0	7°12.5	7°23.0	7°33.4	7°43.8	7°54.1	8°04.4	8°14.6	8°24.8	+10.4	59.3
◑ di 19	102°17.5	116°45.4	131°13.3	145°41.2	160°09.0	174°36.8	189°04.6	203°32.4	218°00.2	232°27.9	246°55.6	+27.8	16.1
	10°50.5	10°59.7	11°08.8	11°17.9	11°26.9	11°35.8	11°44.6	11°53.4	12°02.1	12°10.7	12°19.3	+8.9	58.9
wo 20	103°48.7	118°16.0	132°43.4	147°10.7	161°38.0	176°05.3	190°32.6	204°59.8	219°27.1	233°54.3	248°21.5	+27.3	16.0
	14°17.8	14°25.0	14°32.1	14°39.1	14°46.1	14°52.9	14°59.7	15°06.4	15°12.9	15°19.4	15°25.8	+6.8	58.6
do 21	105°07.5	119°34.4	134°01.4	148°28.3	162°55.2	177°22.1	191°49.1	206°16.0	220°42.9	235°09.7	249°36.6	+26.9	15.9
	16°49.7	16°54.5	16°59.1	17°03.7	17°08.2	17°12.5	17°16.8	17°20.9	17°25.0	17°28.9	17°32.7	+4.3	58.1
vr 22	106°19.7	120°46.6	135°13.5	149°40.4	164°07.3	178°34.2	193°01.2	207°28.1	221°55.1	236°22.0	250°49.0	+26.9	15.7
	18°17.1	18°19.1	18°21.1	18°23.0	18°24.7	18°26.3	18°27.9	18°29.3	18°30.6	18°31.8	18°32.8	+1.6	57.7
za 23	107°36.0	122°03.3	136°30.6	150°58.0	165°25.4	179°52.8	194°20.3	208°47.8	223°15.3	237°42.9	252°10.5	+27.4	15.6
	18°35.8	18°35.1	18°34.4	18°33.5	18°32.5	18°31.4	18°30.2	18°28.8	18°27.4	18°25.9	18°24.3	-1.2	57.2
zo 24	109°08.9	123°37.1	138°05.4	152°33.7	167°02.1	181°30.5	195°58.9	210°27.4	224°56.0	239°24.6	253°53.2	+28.4	15.4
	17°47.5	17°44.3	17°41.0	17°37.5	17°34.0	17°30.4	17°26.6	17°22.8	17°18.9	17°14.9	17°10.9	-3.7	56.7
ma 25	111°09.1	125°38.6	140°08.1	154°37.7	169°07.4	183°37.1	198°06.8	212°36.7	227°06.5	241°36.4	256°06.4	+29.7	15.3
	15°59.1	15°53.7	15°48.2	15°42.6	15°36.9	15°31.1	15°25.3	15°19.4	15°13.4	15°07.4	15°01.2	-5.8	56.1
● di 26	113°42.8	128°13.7	142°44.6	157°15.6	171°46.6	186°17.7	200°48.9	215°20.1	229°51.3	244°22.6	258°54.0	+31.1	15.2
	13°21.2	13°14.0	13°06.8	12°59.5	12°52.2	12°44.8	12°37.3	12°29.8	12°22.2	12°14.6	12°06.9	-7.4	55.6
wo 27	116°50.6	131°22.8	145°55.0	160°27.3	174°59.6	189°32.0	204°04.4	218°36.9	233°09.4	247°41.9	262°14.5	+32.4	15.0
	10°06.1	9°57.7	9°49.2	9°40.8	9°32.3	9°23.7	9°15.1	9°06.5	8°57.8	8°49.1	8°40.4	-8.6	55.1
do 28	120°28.5	135°01.7	149°35.0	164°08.3	178°41.7	193°15.0	207°48.5	222°21.9	236°55.4	251°28.9	266°02.5	+33.4	14.9
	6°26.1	6°17.0	6°07.8	5°58.6	5°49.4	5°40.2	5°30.9	5°21.7	5°12.4	5°03.1	4°53.8	-9.2	54.7
vr 29	124°29.0	139°02.9	153°36.9	168°10.9	182°44.9	197°19.0	211°53.0	226°27.1	241°01.2	255°35.3	270°09.4	+34.0	14.8
	2°32.7	2°23.2	2°13.7	2°04.2	1°54.8	1°45.3	1°35.8	1°26.3	1°16.8	1°07.3	0°57.8	-9.5	54.3
za 30	139°02.9	153°36.9	168°10.9	182°44.9	197°19.0	211°53.0	226°27.1	241°01.2	255°35.3	270°09.4	284°43.6	+34.1	14.8
	2°23.2	2°13.7	2°04.2	1°54.8	1°45.3	1°35.8	1°26.3	1°16.8	1°07.3	0°57.8	0°48.3	-9.5	54.3
zo 31	143°17.0	157°51.3	172°25.6	186°59.8	201°34.1	216°08.4	230°42.7	245°17.0	259°51.3	274°25.6	288°59.9	+34.3	14.8
	-1°33.7	-1°43.1	-1°52.5	-2°01.9	-2°11.3	-2°20.6	-2°30.0	-2°39.3	-2°48.7	-2°58.0	-3°07.3	-9.4	54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 4 17h12 — VM: 12 09h28 — LK: 19 04h07 — NM: 26 08h12

ZON

Augustus 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	178° 24.1 17° 58.7	193° 24.2 17° 58.1	208° 24.2 17° 57.5	223° 24.2 17° 56.8	238° 24.3 17° 56.2	253° 24.3 17° 55.6	88° 24.8 17° 47.3	103° 24.9 17° 46.7	118° 24.9 17° 46.0	133° 25.0 17° 45.4	148° 25.0 17° 44.8	163° 25.1 17° 44.1	+0.0 -0.6
di 2	178° 25.1 17° 43.5	193° 25.2 17° 42.8	208° 25.2 17° 42.2	223° 25.2 17° 41.5	238° 25.3 17° 40.9	253° 25.3 17° 40.2	88° 26.0 17° 31.8	103° 26.0 17° 31.2	118° 26.1 17° 30.5	133° 26.1 17° 29.9	148° 26.2 17° 29.2	163° 26.2 17° 28.6	+0.0 -0.6
wo 3	178° 26.3 17° 27.9	193° 26.3 17° 27.3	208° 26.4 17° 26.6	223° 26.4 17° 25.9	238° 26.5 17° 25.3	253° 26.5 17° 24.6	88° 27.2 17° 16.0	103° 27.3 17° 15.4	118° 27.3 17° 14.7	133° 27.4 17° 14.1	148° 27.5 17° 13.4	163° 27.5 17° 12.7	+0.1 -0.7
do 4	178° 27.6 17° 12.1	193° 27.6 17° 11.4	208° 27.7 17° 10.7	223° 27.8 17° 10.1	238° 27.8 17° 09.4	253° 27.9 17° 08.7	88° 28.7 17° 00.0	103° 28.7 16° 59.3	118° 28.8 16° 58.6	133° 28.8 16° 58.0	148° 28.9 16° 57.3	163° 29.0 16° 56.6	+0.1 -0.7
vr 5	178° 29.0 16° 55.9	193° 29.1 16° 55.3	208° 29.2 16° 54.6	223° 29.2 16° 53.9	238° 29.3 16° 53.2	253° 29.4 16° 52.5	88° 30.2 16° 43.7	103° 30.3 16° 43.0	118° 30.4 16° 42.3	133° 30.4 16° 41.6	148° 30.5 16° 40.9	163° 30.6 16° 40.2	+0.1 -0.7
za 6	178° 30.7 16° 39.5	193° 30.7 16° 38.9	208° 30.8 16° 38.2	223° 30.9 16° 37.5	238° 30.9 16° 36.8	253° 31.0 16° 36.1	88° 32.0 16° 27.1	103° 32.1 16° 26.4	118° 32.1 16° 25.7	133° 32.2 16° 25.0	148° 32.3 16° 24.3	163° 32.4 16° 23.6	+0.1 -0.7
zo 7	178° 32.4 16° 22.9	193° 32.5 16° 22.2	208° 32.6 16° 21.5	223° 32.7 16° 20.8	238° 32.7 16° 20.1	253° 32.8 16° 19.4	88° 33.9 16° 10.2	103° 33.9 16° 09.5	118° 34.0 16° 08.8	133° 34.1 16° 08.1	148° 34.2 16° 07.4	163° 34.3 16° 06.7	+0.1 -0.7
ma 8	178° 34.4 16° 06.0	193° 34.4 16° 05.2	208° 34.5 16° 04.5	223° 34.6 16° 03.8	238° 34.7 16° 03.1	253° 34.8 16° 02.4	88° 35.9 15° 53.1	103° 36.0 15° 52.4	118° 36.1 15° 51.7	133° 36.2 15° 50.9	148° 36.3 15° 50.2	163° 36.3 15° 49.5	+0.1 -0.7
di 9	178° 36.4 15° 48.8	193° 36.5 15° 48.1	208° 36.6 15° 47.3	223° 36.7 15° 46.6	238° 36.8 15° 45.9	253° 36.9 15° 45.2	88° 38.1 15° 35.7	103° 38.2 15° 35.0	118° 38.3 15° 34.3	133° 38.4 15° 33.5	148° 38.5 15° 32.8	163° 38.6 15° 32.1	+0.1 -0.7
wo 10	178° 38.6 15° 31.3	193° 38.7 15° 30.6	208° 38.8 15° 29.9	223° 38.9 15° 29.1	238° 39.0 15° 28.4	253° 39.1 15° 27.7	88° 40.4 15° 18.1	103° 40.5 15° 17.4	118° 40.6 15° 16.6	133° 40.7 15° 15.9	148° 40.8 15° 15.1	163° 40.9 15° 14.4	+0.1 -0.7
do 11	178° 41.0 15° 13.7	193° 41.1 15° 12.9	208° 41.2 15° 12.2	223° 41.3 15° 11.4	238° 41.4 15° 10.7	253° 41.5 15° 09.9	88° 42.9 15° 00.2	103° 43.0 14° 59.5	118° 43.1 14° 58.7	133° 43.2 14° 58.0	148° 43.3 14° 57.2	163° 43.4 14° 56.5	+0.1 -0.7
vr 12	178° 43.5 14° 55.7	193° 43.6 14° 55.0	208° 43.7 14° 54.2	223° 43.8 14° 53.5	238° 43.9 14° 52.7	253° 44.1 14° 52.0	88° 45.5 14° 42.1	103° 45.6 14° 41.4	118° 45.7 14° 40.6	133° 45.8 14° 39.8	148° 45.9 14° 39.1	163° 46.0 14° 38.3	+0.1 -0.8
za 13	178° 46.2 14° 37.6	193° 46.3 14° 36.8	208° 46.4 14° 36.0	223° 46.5 14° 35.3	238° 46.6 14° 34.5	253° 46.7 14° 33.8	88° 48.2 14° 23.8	103° 48.4 14° 23.0	118° 48.5 14° 22.2	133° 48.6 14° 21.5	148° 48.7 14° 20.7	163° 48.8 14° 19.9	+0.1 -0.8
zo 14	178° 48.9 14° 19.2	193° 49.1 14° 18.4	208° 49.2 14° 17.6	223° 49.3 14° 16.9	238° 49.4 14° 16.1	253° 49.5 14° 15.3	88° 51.1 14° 05.2	103° 51.2 14° 04.4	118° 51.4 14° 03.7	133° 51.5 14° 02.9	148° 51.6 14° 02.1	163° 51.7 14° 01.3	+0.1 -0.8
ma 15	178° 51.9 14° 00.5	193° 52.0 13° 59.8	208° 52.1 13° 59.0	223° 52.2 13° 58.2	238° 52.3 13° 57.4	253° 52.5 13° 56.6	88° 54.1 13° 46.4	103° 54.2 13° 45.6	118° 54.4 13° 44.8	133° 54.5 13° 44.1	148° 54.6 13° 43.3	163° 54.8 13° 42.5	+0.1 -0.8
di 16	178° 54.9 13° 41.7	193° 55.0 13° 40.9	208° 55.1 13° 40.1	223° 55.3 13° 39.3	238° 55.4 13° 38.5	253° 55.5 13° 37.7	88° 57.2 13° 27.4	103° 57.4 13° 26.6	118° 57.5 13° 25.8	133° 57.7 13° 25.0	148° 57.8 13° 24.2	163° 57.9 13° 23.4	+0.1 -0.8
wo 17	178° 58.1 13° 22.6	193° 58.2 13° 21.8	208° 58.3 13° 21.0	223° 58.5 13° 20.2	238° 58.6 13° 19.4	253° 58.7 13° 18.6	89° 00.5 13° 08.2	104° 00.6 13° 07.4	119° 00.8 13° 06.6	134° 00.9 13° 05.8	149° 01.1 13° 04.9	164° 01.2 13° 04.1	+0.1 -0.8
do 18	179° 01.3 13° 03.3	194° 01.5 13° 02.5	209° 01.6 13° 01.7	224° 01.8 13° 00.9	239° 01.9 13° 00.1	254° 02.0 12° 59.3	89° 03.9 12° 48.7	104° 04.0 12° 47.9	119° 04.2 12° 47.1	134° 04.3 12° 46.3	149° 04.5 12° 45.5	164° 04.6 12° 44.7	+0.1 -0.8
vr 19	179° 04.7 12° 43.8	194° 04.9 12° 43.0	209° 05.0 12° 42.2	224° 05.2 12° 41.4	239° 05.3 12° 40.6	254° 05.5 12° 39.8	89° 07.4 12° 29.1	104° 07.5 12° 28.3	119° 07.7 12° 27.4	134° 07.8 12° 26.6	149° 08.0 12° 25.8	164° 08.1 12° 25.0	+0.1 -0.8
za 20	179° 08.3 12° 24.1	194° 08.4 12° 23.3	209° 08.6 12° 22.5	224° 08.7 12° 21.7	239° 08.9 12° 20.8	254° 09.0 12° 20.0	89° 11.0 12° 09.2	104° 11.1 12° 08.4	119° 11.3 12° 07.6	134° 11.4 12° 06.8	149° 11.6 12° 05.9	164° 11.8 12° 05.1	+0.1 -0.8
zo 21	179° 11.9 12° 04.3	194° 12.1 12° 03.4	209° 12.2 12° 02.6	224° 12.4 12° 01.8	239° 12.5 12° 00.9	254° 12.7 12° 00.1	89° 14.7 11° 49.2	104° 14.9 11° 48.4	119° 15.0 11° 47.5	134° 15.2 11° 46.7	149° 15.3 11° 45.9	164° 15.5 11° 45.0	+0.2 -0.8
ma 22	179° 15.7 11° 44.2	194° 15.8 11° 43.3	209° 16.0 11° 42.5	224° 16.1 11° 41.7	239° 16.3 11° 40.8	254° 16.4 11° 40.0	89° 18.5 11° 29.0	104° 18.7 11° 28.1	119° 18.9 11° 27.3	134° 19.0 11° 26.5	149° 19.2 11° 25.6	164° 19.4 11° 24.8	+0.2 -0.8
di 23	179° 19.5 11° 23.9	194° 19.7 11° 23.1	209° 19.8 11° 22.2	224° 20.0 11° 21.4	239° 20.2 11° 20.5	254° 20.3 11° 19.7	89° 22.5 11° 08.6	104° 22.6 11° 07.7	119° 22.8 11° 06.9	134° 23.0 11° 06.0	149° 23.1 11° 05.2	164° 23.3 11° 04.3	+0.2 -0.8
wo 24	179° 23.5 11° 03.5	194° 23.6 11° 02.6	209° 23.8 11° 01.7	224° 24.0 11° 00.9	239° 24.2 11° 00.0	254° 24.3 10° 59.2	89° 26.5 10° 48.0	104° 26.7 10° 47.1	119° 26.9 10° 46.3	134° 27.0 10° 45.4	149° 27.2 10° 44.6	164° 27.4 10° 43.7	+0.2 -0.9
do 25	179° 27.6 10° 42.8	194° 27.7 10° 42.0	209° 27.9 10° 41.1	224° 28.1 10° 40.2	239° 28.2 10° 39.4	254° 28.4 10° 38.5	89° 30.7 10° 27.3	104° 30.8 10° 26.4	119° 31.0 10° 25.5	134° 31.2 10° 24.7	149° 31.4 10° 23.8	164° 31.6 10° 22.9	+0.2 -0.9
vr 26	179° 31.7 10° 22.0	194° 31.9 10° 21.2	209° 32.1 10° 20.3	224° 32.3 10° 19.4	239° 32.4 10° 18.6	254° 32.6 10° 17.7	89° 34.9 10° 06.3	104° 35.1 10° 05.5	119° 35.3 10° 04.6	134° 35.5 10° 03.7	149° 35.6 10° 02.8	164° 35.8 10° 02.0	+0.2 -0.9
za 27	179° 36.0 10° 01.1	194° 36.2 10° 00.2	209° 36.4 9° 59.3	224° 36.5 9° 58.5	239° 36.7 9° 57.6	254° 36.9 9° 56.7	89° 39.3 9° 45.3	104° 39.5 9° 44.4	119° 39.6 9° 43.5	134° 39.8 9° 42.6	149° 40.0 9° 41.7	164° 40.2 9° 40.9	+0.2 -0.9
zo 28	179° 40.4 9° 40.0	194° 40.6 9° 39.1	209° 40.7 9° 38.2	224° 40.9 9° 37.3	239° 41.1 9° 36.4	254° 41.3 9° 35.6	89° 43.7 9° 24.0	104° 43.9 9° 23.2	119° 44.1 9° 22.3	134° 44.3 9° 21.4	149° 44.5 9° 20.5	164° 44.6 9° 19.6	+0.2 -0.9
ma 29	179° 44.8 9° 18.7	194° 45.0 9° 17.8	209° 45.2 9° 16.9	224° 45.4 9° 16.0	239° 45.6 9° 15.2	254° 45.8 9° 14.3	89° 48.2 9° 02.7	104° 48.4 9° 01.8	119° 48.6 9° 00.9	134° 48.8 9° 00.0	149° 49.0 8° 59.1	164° 49.2 8° 58.2	+0.2 -0.9
di 30	179° 49.4 8° 57.3	194° 49.6 8° 56.4	209° 49.8 8° 55.5	224° 50.0 8° 54.6	239° 50.1 8° 53.7	254° 50.3 8° 52.8	89° 52.9 8° 41.1	104° 53.0 8° 40.2	119° 53.2 8° 39.3	134° 53.4 8° 38.4	149° 53.6 8° 37.5	164° 53.8 8° 36.6	+0.2 -0.9
wo 31	179° 54.0 8° 35.7	194° 54.2 8° 34.8	209° 54.4 8° 33.9	224° 54.6 8° 33.0	239° 54.8 8° 32.1	254° 55.0 8° 31.2	89° 57.6 8° 19.5	104° 57.7 8° 18.6	119° 57.9 8° 17.7	134° 58.1 8° 16.8	149° 58.3 8° 15.9	164° 58.5 8° 15.0	+0.2 -0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2033

D	19h	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	Δ'/h	SD/HP
ma 1	49°45.8	64°19.6	78°53.4	93°27.1	108°00.9	122°34.6	137°08.3	151°41.9	166°15.5	180°49.1	195°22.7	+33.7	14.8
	-8°03.0	-8°11.5	-8°20.0	-8°28.5	-8°36.9	-8°45.3	-8°53.6	-9°01.9	-9°10.2	-9°18.4	-9°26.6	-8.4	54.2
di 2	53°42.0	68°15.0	82°48.0	97°20.9	111°53.7	126°26.6	140°59.3	155°32.1	170°04.8	184°37.4	199°10.0	+32.8	14.9
	-11°25.0	-11°32.5	-11°40.0	-11°47.5	-11°54.9	-12°02.2	-12°09.5	-12°16.8	-12°24.0	-12°31.2	-12°38.3	-7.3	54.5
◐ wo 3	57°13.5	71°45.3	86°17.1	100°48.8	115°20.5	129°52.1	144°23.7	158°55.2	173°26.7	187°58.1	202°29.4	+31.6	15.0
	-14°18.5	-14°24.7	-14°30.8	-14°36.9	-14°43.0	-14°48.9	-14°54.8	-15°00.7	-15°06.4	-15°12.2	-15°17.8	-5.9	54.9
do 4	60°13.0	74°43.5	89°13.9	103°44.2	118°14.5	132°44.7	147°14.8	161°45.0	176°15.0	190°45.0	205°14.9	+30.2	15.2
	-16°34.1	-16°38.6	-16°43.0	-16°47.3	-16°51.6	-16°55.8	-16°59.9	-17°03.9	-17°07.8	-17°11.7	-17°15.5	-4.1	55.6
vr 5	74°43.5	89°13.9	103°44.2	118°14.5	132°44.7	147°14.8	161°45.0	176°15.0	190°45.0	205°14.9	219°44.8	+30.1	15.2
	-16°38.6	-16°43.0	-16°47.3	-16°51.6	-16°55.8	-16°59.9	-17°03.9	-17°07.8	-17°11.7	-17°15.5	-17°19.2	-4.1	55.6
za 6	77°06.0	91°34.9	106°03.8	120°32.7	135°01.5	149°30.2	163°58.9	178°27.6	192°56.1	207°24.7	221°53.1	+28.7	15.4
	-18°04.2	-18°06.5	-18°08.7	-18°10.7	-18°12.7	-18°14.6	-18°16.4	-18°18.2	-18°19.8	-18°21.3	-18°22.7	-1.9	56.4
zo 7	78°54.3	93°22.0	107°49.7	122°17.3	136°44.8	151°12.4	165°39.9	180°07.3	194°34.7	209°02.1	223°29.4	+27.5	15.6
	-18°31.8	-18°31.6	-18°31.2	-18°30.8	-18°30.3	-18°29.6	-18°28.8	-18°28.0	-18°27.0	-18°25.9	-18°24.7	+0.7	57.2
ma 8	80°15.2	94°42.0	109°08.8	123°35.6	138°02.3	152°29.0	166°55.7	181°22.4	195°49.0	210°15.7	224°42.3	+26.7	15.8
	-17°53.6	-17°50.7	-17°47.6	-17°44.4	-17°41.1	-17°37.7	-17°34.2	-17°30.6	-17°26.8	-17°23.0	-17°19.0	+3.5	58.1
di 9	81°19.6	95°46.0	110°12.4	124°38.8	139°05.2	153°31.6	167°58.0	182°24.3	196°50.7	211°17.1	225°43.5	+26.4	16.1
	-16°06.4	-16°00.7	-15°54.9	-15°48.9	-15°42.9	-15°36.8	-15°30.5	-15°24.2	-15°17.7	-15°11.2	-15°04.5	+6.2	58.9
○ wo 10	82°19.4	96°45.8	111°12.2	125°38.7	140°05.2	154°31.6	168°58.1	183°24.6	197°51.1	212°17.6	226°44.2	+26.5	16.3
	-13°12.9	-13°04.7	-12°56.4	-12°48.0	-12°39.6	-12°31.0	-12°22.4	-12°13.6	-12°04.8	-11°55.9	-11°47.0	+8.6	59.6
do 11	83°23.8	97°50.5	112°17.3	126°44.1	141°10.9	155°37.7	170°04.5	184°31.4	198°58.2	213°25.1	227°52.0	+26.8	16.4
	-9°23.1	-9°13.0	-9°02.8	-8°52.5	-8°42.1	-8°31.7	-8°21.3	-8°10.8	-8°00.2	-7°49.6	-7°38.9	+10.4	60.1
vr 12	84°37.3	99°04.5	113°31.6	127°58.8	142°26.0	156°53.2	171°20.4	185°47.6	200°14.9	214°42.1	229°09.4	+27.2	16.5
	-4°53.2	-4°41.8	-4°30.4	-4°19.0	-4°07.6	-3°56.1	-3°44.6	-3°33.1	-3°21.5	-3°10.0	-2°58.4	+11.5	60.4
za 13	85°59.6	100°27.0	114°54.4	129°21.8	143°49.3	158°16.7	172°44.2	187°11.6	201°39.1	216°06.6	230°34.0	+27.4	16.5
	-0°03.2	0°08.5	0°20.2	0°31.9	0°43.6	0°55.3	1°07.0	1°18.7	1°30.3	1°42.0	1°53.6	+11.7	60.3
zo 14	87°26.4	101°53.9	116°21.4	130°48.8	145°16.3	159°43.8	174°11.3	188°38.8	203°06.3	217°33.7	232°01.2	+27.5	16.4
	4°45.4	4°56.6	5°07.8	5°18.9	5°30.0	5°41.1	5°52.1	6°03.1	6°14.0	6°24.9	6°35.8	+11.0	60.1
ma 15	88°52.6	103°19.9	117°47.3	132°14.7	146°42.0	161°09.4	175°36.7	190°04.0	204°31.3	218°58.6	233°25.9	+27.3	16.3
	9°12.1	9°22.1	9°31.9	9°41.8	9°51.5	10°01.2	10°10.8	10°20.4	10°29.8	10°39.2	10°48.6	+9.6	59.6
di 16	90°14.3	104°41.5	119°08.6	133°35.7	148°02.9	162°30.0	176°57.1	191°24.2	205°51.3	220°18.4	234°45.5	+27.1	16.1
	12°59.2	13°07.2	13°15.2	13°23.1	13°30.8	13°38.5	13°46.1	13°53.7	14°01.1	14°08.4	14°15.7	+7.6	59.0
◑ wo 17	91°31.0	105°58.0	120°25.0	134°52.0	149°19.0	163°46.0	178°13.0	192°40.0	207°07.0	221°34.0	236°01.0	+27.0	15.9
	15°52.7	15°58.4	16°04.0	16°09.5	16°14.8	16°20.1	16°25.3	16°30.3	16°35.3	16°40.1	16°44.9	+5.2	58.4
do 18	92°46.4	107°13.5	121°40.6	136°07.7	150°34.9	165°02.0	179°29.1	193°56.3	208°23.5	222°50.7	237°17.9	+27.1	15.8
	17°43.4	17°46.4	17°49.4	17°52.2	17°54.9	17°57.5	18°00.0	18°02.4	18°04.7	18°06.9	18°08.9	+2.6	57.8
vr 19	94°08.2	108°35.7	123°03.3	137°30.9	151°58.5	166°26.1	180°53.8	195°21.5	209°49.2	224°17.0	238°44.8	+27.7	15.6
	18°26.9	18°27.2	18°27.5	18°27.6	18°27.6	18°27.5	18°27.3	18°27.0	18°26.6	18°26.1	18°25.5	-0.1	57.1
za 20	95°45.7	110°14.0	124°42.4	139°10.9	153°39.4	168°07.9	182°36.4	197°05.0	211°33.7	226°02.4	240°31.1	+28.5	15.4
	18°04.1	18°01.8	17°59.5	17°57.1	17°54.5	17°51.9	17°49.2	17°46.4	17°43.5	17°40.5	17°37.4	-2.7	56.5
zo 21	97°47.5	112°16.9	126°46.4	141°16.0	155°45.6	170°15.3	184°45.0	199°14.7	213°44.5	228°14.4	242°44.3	+29.7	15.3
	16°40.2	16°35.7	16°31.1	16°26.4	16°21.7	16°16.8	16°11.9	16°06.9	16°01.9	15°56.7	15°51.5	-4.9	56.0
ma 22	100°18.9	114°49.6	129°20.4	143°51.2	158°22.1	172°53.0	187°23.9	201°54.9	216°26.0	230°57.1	245°28.3	+30.9	15.1
	14°24.1	14°17.7	14°11.3	14°04.8	13°58.2	13°51.5	13°44.8	13°38.1	13°31.2	13°24.3	13°17.4	-6.7	55.5
di 23	103°21.4	117°53.3	132°25.3	146°57.3	161°29.3	176°01.4	190°33.6	205°05.7	219°38.0	234°10.2	248°42.6	+32.1	15.0
	11°26.5	11°18.7	11°10.8	11°02.9	10°55.0	10°47.0	10°39.0	10°30.9	10°22.8	10°14.6	10°06.4	-8.0	55.1
● wo 24	106°52.2	121°25.2	135°58.1	150°31.2	165°04.2	179°37.3	194°10.5	208°43.6	223°16.8	237°50.0	252°23.3	+33.1	14.9
	7°58.8	7°50.1	7°41.3	7°32.4	7°23.6	7°14.7	7°05.8	6°56.9	6°47.9	6°38.9	6°29.9	-8.9	54.7
do 25	110°45.8	125°19.5	139°53.3	154°27.1	169°00.8	183°34.7	198°08.5	212°42.3	227°16.2	241°50.1	256°24.0	+33.8	14.8
	4°12.4	4°03.1	3°53.8	3°44.5	3°35.2	3°25.8	3°16.5	3°07.1	2°57.8	2°48.4	2°39.0	-9.3	54.4
vr 26	114°54.7	129°28.9	144°03.1	158°37.2	173°11.4	187°45.6	202°19.8	216°54.0	231°28.3	246°02.5	260°36.7	+34.2	14.8
	0°17.8	0°08.4	-0°01.0	-0°10.5	-0°19.9	-0°29.3	-0°38.7	-0°48.1	-0°57.4	-1°06.8	-1°16.2	-9.4	54.1
za 27	119°10.4	133°44.7	148°18.9	162°53.1	177°27.4	192°01.6	206°35.8	221°10.0	235°44.2	250°18.4	264°52.6	+34.2	14.7
	-3°35.4	-3°44.6	-3°53.7	-4°02.9	-4°12.0	-4°21.1	-4°30.1	-4°39.2	-4°48.2	-4°57.3	-5°06.3	-9.1	54.0
zo 28	123°23.9	137°57.9	152°31.8	167°05.8	181°39.7	196°13.6	210°47.4	225°21.3	239°55.1	254°28.9	269°02.7	+33.9	14.7
	-7°18.2	-7°26.8	-7°35.3	-7°43.8	-7°52.3	-8°00.8	-8°09.2	-8°17.6	-8°25.9	-8°34.2	-8°42.5	-8.4	54.0
ma 29	137°57.9	152°31.8	167°05.8	181°39.7	196°13.6	210°47.4	225°21.3	239°55.1	254°28.9	269°02.7	283°36.5	+33.9	14.7
	-7°26.8	-7°35.3	-7°43.8	-7°52.3	-8°00.8	-8°09.2	-8°17.6	-8°25.9	-8°34.2	-8°42.5	-8°50.8	-8.4	54.0
di 30	141°59.8	156°33.1	171°06.4	185°39.7	200°12.9	214°46.1	229°19.3	243°52.4	258°25.5	272°58.6	287°31.6	+33.2	14.8
	-10°49.8	-10°57.4	-11°05.0	-11°12.5	-11°20.0	-11°27.4	-11°34.8	-11°42.1	-11°49.4	-11°56.6	-12°03.8	-7.4	54.2
wo 31	145°42.4	160°14.8	174°47.2	189°19.5	203°51.8	218°24.0	232°56.2	247°28.4	262°00.5	276°32.5	291°04.6	+32.2	14.9
	-13°45.3	-13°51.7	-13°57.9	-14°04.1	-14°10.3	-14°16.4	-14°22.4	-14°28.4	-14°34.3	-14°40.1	-14°45.9	-6.1	54.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 3 10h25 — VM: 10 18h07 — LK: 17 09h42 — NM: 24 21h39

ZON

September 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	179°58.7 8°14.0	194°58.9 8°13.1	209°59.1 8°12.2	224°59.3 8°11.3	239°59.5 8°10.4	254°59.7 8°09.5	90°02.3 7°57.7	105°02.5 7°56.8	120°02.7 7°55.9	135°02.9 7°55.0	150°03.1 7°54.0	165°03.3 7°53.1	+0.2 -0.9
vr 2	180°03.5 7°52.2	195°03.7 7°51.3	210°03.9 7°50.4	225°04.1 7°49.5	240°04.3 7°48.6	255°04.5 7°47.7	90°07.2 7°35.8	105°07.4 7°34.9	120°07.6 7°33.9	135°07.8 7°33.0	150°08.0 7°32.1	165°08.2 7°31.2	+0.2 -0.9
za 3	180°08.4 7°30.3	195°08.6 7°29.4	210°08.8 7°28.4	225°09.0 7°27.5	240°09.2 7°26.6	255°09.4 7°25.7	90°12.1 7°13.7	105°12.3 7°12.8	120°12.5 7°11.9	135°12.7 7°11.0	150°12.9 7°10.0	165°13.1 7°09.1	+0.2 -0.9
zo 4	180°13.4 7°08.2	195°13.6 7°07.3	210°13.8 7°06.4	225°14.0 7°05.4	240°14.2 7°04.5	255°14.4 7°03.6	90°17.1 6°51.6	105°17.3 6°50.7	120°17.5 6°49.7	135°17.7 6°48.8	150°17.9 6°47.9	165°18.1 6°46.9	+0.2 -0.9
ma 5	180°18.4 6°46.0	195°18.6 6°45.1	210°18.8 6°44.2	225°19.0 6°43.2	240°19.2 6°42.3	255°19.4 6°41.4	90°22.2 6°29.3	105°22.4 6°28.4	120°22.6 6°27.5	135°22.8 6°26.5	150°23.0 6°25.6	165°23.2 6°24.7	+0.2 -0.9
di 6	180°23.4 6°23.7	195°23.6 6°22.8	210°23.9 6°21.9	225°24.1 6°20.9	240°24.3 6°20.0	255°24.5 6°19.1	90°27.3 6°06.9	105°27.5 6°06.0	120°27.7 6°05.1	135°27.9 6°04.1	150°28.1 6°03.2	165°28.3 6°02.3	+0.2 -0.9
wo 7	180°28.6 6°01.3	195°28.8 6°00.4	210°29.0 5°59.5	225°29.2 5°58.5	240°29.4 5°57.6	255°29.6 5°56.7	90°32.4 5°44.5	105°32.6 5°43.5	120°32.9 5°42.6	135°33.1 5°41.7	150°33.3 5°40.7	165°33.5 5°39.8	+0.2 -0.9
do 8	180°33.7 5°38.8	195°33.9 5°37.9	210°34.2 5°37.0	225°34.4 5°36.0	240°34.6 5°35.1	255°34.8 5°34.1	90°37.6 5°21.9	105°37.9 5°21.0	120°38.1 5°20.0	135°38.3 5°19.1	150°38.5 5°18.1	165°38.7 5°17.2	+0.2 -0.9
vr 9	180°38.9 5°16.2	195°39.2 5°15.3	210°39.4 5°14.4	225°39.6 5°13.4	240°39.8 5°12.5	255°40.0 5°11.5	90°42.9 4°59.2	105°43.1 4°58.3	120°43.3 4°57.4	135°43.5 4°56.4	150°43.8 4°55.5	165°44.0 4°54.5	+0.2 -0.9
za 10	180°44.2 4°53.6	195°44.4 4°52.6	210°44.6 4°51.7	225°44.9 4°50.7	240°45.1 4°49.8	255°45.3 4°48.8	90°48.2 4°36.5	105°48.4 4°35.6	120°48.6 4°34.6	135°48.8 4°33.7	150°49.0 4°32.7	165°49.3 4°31.8	+0.2 -0.9
zo 11	180°49.5 4°30.8	195°49.7 4°29.9	210°49.9 4°28.9	225°50.2 4°28.0	240°50.4 4°27.0	255°50.6 4°26.1	90°53.5 4°13.7	105°53.7 4°12.7	120°53.9 4°11.8	135°54.1 4°10.8	150°54.4 4°09.9	165°54.6 4°08.9	+0.2 -1.0
ma 12	180°54.8 4°08.0	195°55.0 4°07.0	210°55.2 4°06.1	225°55.5 4°05.1	240°55.7 4°04.2	255°55.9 4°03.2	90°58.8 3°50.8	105°59.0 3°49.8	120°59.3 3°48.9	135°59.5 3°47.9	150°59.7 3°47.0	165°59.9 3°46.0	+0.2 -1.0
di 13	181°00.1 3°45.1	196°00.4 3°44.1	211°00.6 3°43.1	226°00.8 3°42.2	241°01.0 3°41.2	256°01.3 3°40.3	91°04.2 3°27.8	106°04.4 3°26.9	121°04.6 3°25.9	136°04.8 3°24.9	151°05.0 3°24.0	166°05.3 3°23.0	+0.2 -1.0
wo 14	181°05.5 3°22.1	196°05.7 3°21.1	211°05.9 3°20.1	226°06.2 3°19.2	241°06.4 3°18.2	256°06.6 3°17.3	91°09.5 3°04.8	106°09.7 3°03.8	121°10.0 3°02.9	136°10.2 3°01.9	151°10.4 3°00.9	166°10.6 3°00.0	+0.2 -1.0
do 15	181°10.9 2°59.0	196°11.1 2°58.1	211°11.3 2°57.1	226°11.5 2°56.1	241°11.7 2°55.2	256°12.0 2°54.2	91°14.9 2°41.7	106°15.1 2°40.7	121°15.3 2°39.8	136°15.5 2°38.8	151°15.8 2°37.8	166°16.0 2°36.9	+0.2 -1.0
vr 16	181°16.2 2°35.9	196°16.4 2°35.0	211°16.7 2°34.0	226°16.9 2°33.0	241°17.1 2°32.1	256°17.3 2°31.1	91°20.2 2°18.6	106°20.5 2°17.6	121°20.7 2°16.6	136°20.9 2°15.7	151°21.1 2°14.7	166°21.4 2°13.7	+0.2 -1.0
za 17	181°21.6 2°12.8	196°21.8 2°11.8	211°22.0 2°10.8	226°22.2 2°09.9	241°22.5 2°08.9	256°22.7 2°07.9	91°25.6 1°55.4	106°25.8 1°54.4	121°26.0 1°53.4	136°26.3 1°52.5	151°26.5 1°51.5	166°26.7 1°50.5	+0.2 -1.0
zo 18	181°26.9 1°49.6	196°27.2 1°48.6	211°27.4 1°47.6	226°27.6 1°46.7	241°27.8 1°45.7	256°28.1 1°44.7	91°30.9 1°32.1	106°31.2 1°31.2	121°31.4 1°30.2	136°31.6 1°29.2	151°31.8 1°28.2	166°32.1 1°27.3	+0.2 -1.0
ma 19	181°32.3 1°26.3	196°32.5 1°25.3	211°32.7 1°24.4	226°33.0 1°23.4	241°33.2 1°22.4	256°33.4 1°21.5	91°36.3 1°08.9	106°36.5 1°07.9	121°36.7 1°06.9	136°37.0 1°05.9	151°37.2 1°05.0	166°37.4 1°04.0	+0.2 -1.0
di 20	181°37.6 1°03.0	196°37.8 1°02.1	211°38.1 1°01.1	226°38.3 1°00.1	241°38.5 0°59.2	256°38.7 0°58.2	91°41.6 0°45.6	106°41.8 0°44.6	121°42.0 0°43.6	136°42.3 0°42.6	151°42.5 0°41.7	166°42.7 0°40.7	+0.2 -1.0
wo 21	181°42.9 0°39.7	196°43.2 0°38.8	211°43.4 0°37.8	226°43.6 0°36.8	241°43.8 0°35.8	256°44.0 0°34.9	91°46.9 0°22.2	106°47.1 0°21.3	121°47.3 0°20.3	136°47.6 0°19.3	151°47.8 0°18.3	166°48.0 0°17.4	+0.2 -1.0
do 22	181°48.2 0°16.4	196°48.4 0°15.4	211°48.7 0°14.5	226°48.9 0°13.5	241°49.1 0°12.5	256°49.3 0°11.5	91°52.2 -0°01.1	106°52.4 -0°02.1	121°52.6 -0°03.1	136°52.8 -0°04.0	151°53.0 -0°05.0	166°53.3 -0°06.0	+0.2 -1.0
vr 23	181°53.5 -0°06.9	196°53.7 -0°07.9	211°53.9 -0°08.9	226°54.1 -0°09.9	241°54.4 -0°10.8	256°54.6 -0°11.8	91°57.4 -0°24.5	106°57.6 -0°25.4	121°57.8 -0°26.4	136°58.1 -0°27.4	151°58.3 -0°28.4	166°58.5 -0°29.3	+0.2 -1.0
za 24	181°58.7 -0°30.3	196°58.9 -0°31.3	211°59.2 -0°32.3	226°59.4 -0°33.2	241°59.6 -0°34.2	256°59.8 -0°35.2	92°02.6 -0°47.8	107°02.8 -0°48.8	122°03.1 -0°49.8	137°03.3 -0°50.8	152°03.5 -0°51.7	167°03.7 -0°52.7	+0.2 -1.0
zo 25	182°03.9 -0°53.7	197°04.1 -0°54.6	212°04.3 -0°55.6	227°04.6 -0°56.6	242°04.8 -0°57.6	257°05.0 -0°58.5	92°07.8 -1°11.2	107°08.0 -1°12.2	122°08.2 -1°13.1	137°08.4 -1°14.1	152°08.6 -1°15.1	167°08.9 -1°16.1	+0.2 -1.0
ma 26	182°09.1 -1°17.0	197°09.3 -1°18.0	212°09.5 -1°19.0	227°09.7 -1°20.0	242°09.9 -1°20.9	257°10.1 -1°21.9	92°12.9 -1°34.6	107°13.1 -1°35.5	122°13.3 -1°36.5	137°13.5 -1°37.5	152°13.8 -1°38.4	167°14.0 -1°39.4	+0.2 -1.0
di 27	182°14.2 -1°40.4	197°14.4 -1°41.4	212°14.6 -1°42.3	227°14.8 -1°43.3	242°15.0 -1°44.3	257°15.2 -1°45.3	92°18.0 -1°57.9	107°18.2 -1°58.9	122°18.4 -1°59.8	137°18.6 -2°00.8	152°18.8 -2°01.8	167°19.0 -2°02.8	+0.2 -1.0
wo 28	182°19.2 -2°03.7	197°19.4 -2°04.7	212°19.7 -2°05.7	227°19.9 -2°06.7	242°20.1 -2°07.6	257°20.3 -2°08.6	92°23.0 -2°21.2	107°23.2 -2°22.2	122°23.4 -2°23.2	137°23.6 -2°24.1	152°23.8 -2°25.1	167°24.0 -2°26.1	+0.2 -1.0
do 29	182°24.2 -2°27.1	197°24.5 -2°28.0	212°24.7 -2°29.0	227°24.9 -2°30.0	242°25.1 -2°30.9	257°25.3 -2°31.9	92°28.0 -2°44.5	107°28.2 -2°45.5	122°28.4 -2°46.5	137°28.6 -2°47.5	152°28.8 -2°48.4	167°29.0 -2°49.4	+0.2 -1.0
vr 30	182°29.2 -2°50.4	197°29.4 -2°51.3	212°29.6 -2°52.3	227°29.8 -2°53.3	242°30.0 -2°54.2	257°30.2 -2°55.2	92°32.9 -3°07.8	107°33.1 -3°08.8	122°33.3 -3°09.8	137°33.5 -3°10.7	152°33.7 -3°11.7	167°33.9 -3°12.7	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2033

D	20h	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	Δ'/h	SD/HP
do 1	50°14.4	64°44.8	79°15.1	93°45.4	108°15.6	122°45.7	137°15.9	151°45.9	166°16.0	180°45.9	195°15.8	+30.1	15.1
	-17°18.0	-17°21.3	-17°24.5	-17°27.7	-17°30.7	-17°33.7	-17°36.6	-17°39.4	-17°42.2	-17°44.8	-17°47.4	-2.9	55.4
◐ vr 2	52°38.7	67°07.9	81°37.0	96°06.0	110°35.0	125°04.0	139°32.9	154°01.8	168°30.6	182°59.3	197°28.1	+28.9	15.3
	-18°15.0	-18°16.1	-18°17.1	-18°18.0	-18°18.9	-18°19.6	-18°20.2	-18°20.7	-18°21.2	-18°21.5	-18°21.7	-0.7	56.2
za 3	54°33.9	69°02.0	83°30.0	97°58.0	112°26.0	126°53.9	141°21.8	155°49.6	170°17.4	184°45.2	199°12.9	+27.9	15.6
	-18°13.2	-18°11.8	-18°10.3	-18°08.7	-18°07.0	-18°05.2	-18°03.3	-18°01.2	-17°59.1	-17°56.9	-17°54.6	+1.9	57.1
zo 4	69°02.0	83°30.0	97°58.0	112°26.0	126°53.9	141°21.8	155°49.6	170°17.4	184°45.2	199°12.9	213°40.6	+27.9	15.6
	-18°11.8	-18°10.3	-18°08.7	-18°07.0	-18°05.2	-18°03.3	-18°01.2	-17°59.1	-17°56.9	-17°54.6	-17°52.1	+2.0	57.1
ma 5	70°32.6	84°59.9	99°27.1	113°54.3	128°21.5	142°48.6	157°15.8	171°42.9	186°09.9	200°37.0	215°04.1	+27.1	15.8
	-17°02.7	-16°58.6	-16°54.3	-16°50.0	-16°45.5	-16°40.9	-16°36.2	-16°31.4	-16°26.5	-16°21.5	-16°16.4	+4.6	58.1
di 6	71°47.6	86°14.4	100°41.2	115°08.0	129°34.7	144°01.5	158°28.2	172°54.9	187°21.7	201°48.4	216°15.1	+26.7	16.1
	-14°47.4	-14°40.6	-14°33.8	-14°26.8	-14°19.8	-14°12.6	-14°05.4	-13°58.0	-13°50.6	-13°43.0	-13°35.4	+7.2	59.1
wo 7	72°54.8	87°21.4	101°48.0	116°14.6	130°41.2	145°07.8	159°34.4	174°01.0	188°27.6	202°54.2	217°20.7	+26.6	16.4
	-11°29.9	-11°20.8	-11°11.6	-11°02.4	-10°53.1	-10°43.7	-10°34.2	-10°24.7	-10°15.1	-10°05.4	-9°55.6	+9.4	60.0
do 8	73°59.5	88°26.0	102°52.6	117°19.2	131°45.8	146°12.3	160°38.9	175°05.5	189°32.1	203°58.6	218°25.2	+26.6	16.5
	-7°20.8	-7°10.0	-6°59.1	-6°48.2	-6°37.2	-6°26.2	-6°15.1	-6°04.0	-5°52.8	-5°41.6	-5°30.3	+11.1	60.6
○ vr 9	75°03.7	89°30.3	103°56.9	118°23.4	132°50.0	147°16.5	161°43.1	176°09.6	190°36.1	205°02.7	219°29.2	+26.5	16.6
	-2°37.1	-2°25.3	-2°13.5	-2°01.7	-1°49.9	-1°38.0	-1°26.1	-1°14.3	-1°02.4	-0°50.5	-0°38.6	+11.9	61.0
za 10	76°06.7	90°33.1	104°59.6	119°26.0	133°52.4	148°18.9	162°45.3	177°11.7	191°38.1	206°04.5	220°30.9	+26.4	16.7
	2°19.8	2°31.6	2°43.4	2°55.1	3°06.9	3°18.6	3°30.3	3°42.0	3°53.7	4°05.3	4°16.9	+11.7	61.1
zo 11	77°05.8	91°32.1	105°58.3	120°24.6	134°50.8	149°17.0	163°43.3	178°09.5	192°35.7	207°01.9	221°28.0	+26.2	16.6
	7°06.2	7°17.1	7°27.9	7°38.8	7°49.5	8°00.2	8°10.8	8°21.4	8°31.9	8°42.3	8°52.7	+10.7	60.8
ma 12	77°59.8	92°25.9	106°51.9	121°18.0	135°44.0	150°10.1	164°36.1	179°02.1	193°28.1	207°54.2	222°20.2	+26.0	16.4
	11°19.8	11°29.0	11°38.1	11°47.1	11°56.1	12°04.9	12°13.7	12°22.3	12°30.9	12°39.4	12°47.8	+8.8	60.2
di 13	78°50.1	93°16.2	107°42.2	122°08.2	136°34.2	151°00.2	165°26.2	179°52.2	194°18.3	208°44.3	223°10.4	+26.0	16.2
	14°42.3	14°49.1	14°55.9	15°02.5	15°09.0	15°15.4	15°21.7	15°27.9	15°34.0	15°40.0	15°45.9	+6.4	59.5
wo 14	79°42.3	94°08.6	108°34.8	123°01.1	137°27.4	151°53.7	166°20.0	180°46.4	195°12.8	209°39.2	224°05.6	+26.3	16.0
	17°01.1	17°05.2	17°09.2	17°13.1	17°16.9	17°20.6	17°24.2	17°27.6	17°31.0	17°34.2	17°37.3	+3.6	58.6
◑ do 15	80°45.1	95°12.0	109°38.9	124°05.8	138°32.8	152°59.8	167°26.8	181°53.9	196°21.0	210°48.2	225°15.4	+27.0	15.8
	18°10.5	18°11.8	18°13.0	18°14.1	18°15.1	18°16.0	18°16.7	18°17.4	18°18.0	18°18.4	18°18.7	+0.8	57.8
vr 16	82°08.3	96°36.1	111°04.1	125°32.0	140°00.0	154°28.1	168°56.2	183°24.4	197°52.6	212°20.9	226°49.2	+28.1	15.5
	18°10.9	18°09.6	18°08.1	18°06.6	18°04.9	18°03.2	18°01.3	17°59.4	17°57.3	17°55.2	17°52.9	-1.8	57.0
za 17	84°00.0	98°29.1	112°58.3	127°27.5	141°56.8	156°26.2	170°55.6	185°25.1	199°54.6	214°24.2	228°53.8	+29.4	15.3
	17°08.0	17°04.3	17°00.5	16°56.6	16°52.6	16°48.5	16°44.4	16°40.2	16°35.9	16°31.5	16°27.0	-4.1	56.2
zo 18	86°24.7	100°55.2	115°25.7	129°56.3	144°27.0	158°57.7	173°28.4	187°59.2	202°30.1	217°01.0	231°32.0	+30.7	15.2
	15°10.5	15°04.8	14°59.0	14°53.2	14°47.3	14°41.3	14°35.3	14°29.2	14°23.0	14°16.8	14°10.5	-6.0	55.6
ma 19	89°22.6	103°54.3	118°26.2	132°58.0	147°29.9	162°01.9	176°33.9	191°05.9	205°38.0	220°10.2	234°42.3	+32.0	15.0
	12°28.7	12°21.5	12°14.2	12°06.9	11°59.5	11°52.1	11°44.6	11°37.0	11°29.4	11°21.8	11°14.1	-7.5	55.1
di 20	92°50.2	107°23.0	121°55.9	136°28.8	151°01.8	165°34.8	180°07.8	194°40.9	209°14.0	223°47.1	238°20.3	+33.0	14.9
	9°13.7	9°05.4	8°57.0	8°48.6	8°40.1	8°31.6	8°23.1	8°14.6	8°06.0	7°57.4	7°48.7	-8.5	54.7
wo 21	96°41.4	111°15.1	125°48.7	140°22.4	154°56.1	169°29.9	184°03.6	198°37.4	213°11.2	227°45.1	242°18.9	+33.7	14.8
	5°36.0	5°26.9	5°17.9	5°08.8	4°59.7	4°50.6	4°41.5	4°32.3	4°23.2	4°14.0	4°04.8	-9.1	54.3
do 22	100°48.8	115°22.9	129°57.0	144°31.2	159°05.3	173°39.5	188°13.6	202°47.8	217°22.0	231°56.2	246°30.4	+34.2	14.7
	1°45.7	1°36.4	1°27.1	1°17.7	1°08.4	0°59.0	0°49.7	0°40.4	0°31.0	0°21.7	0°12.3	-9.3	54.1
● vr 23	105°04.0	119°38.3	134°12.6	148°46.8	163°21.1	177°55.3	192°29.6	207°03.8	221°38.1	236°12.3	250°46.5	+34.2	14.7
	-2°07.3	-2°16.6	-2°25.8	-2°35.0	-2°44.3	-2°53.5	-3°02.7	-3°11.8	-3°21.0	-3°30.1	-3°39.3	-9.2	53.9
za 24	109°19.0	123°53.1	138°27.2	153°01.2	167°35.3	182°09.3	196°43.3	211°17.3	225°51.3	240°25.2	254°59.2	+34.0	14.7
	-5°54.0	-6°02.8	-6°11.5	-6°20.3	-6°29.0	-6°37.7	-6°46.4	-6°55.0	-7°03.7	-7°12.2	-7°20.8	-8.7	53.9
zo 25	113°26.0	127°59.6	142°33.2	157°06.7	171°40.3	186°13.8	200°47.3	215°20.7	229°54.1	244°27.5	259°00.9	+33.5	14.7
	-9°25.2	-9°33.2	-9°41.2	-9°49.1	-9°57.0	-10°04.8	-10°12.6	-10°20.4	-10°28.1	-10°35.8	-10°43.4	-7.8	53.9
ma 26	117°18.1	131°50.9	146°23.8	160°56.6	175°29.4	190°02.2	204°34.9	219°07.6	233°40.2	248°12.9	262°45.5	+32.7	14.8
	-12°32.2	-12°39.1	-12°45.9	-12°52.7	-12°59.4	-13°06.0	-13°12.6	-13°19.1	-13°25.6	-13°32.0	-13°38.4	-6.6	54.1
di 27	120°49.9	135°21.9	149°53.8	164°25.7	178°57.6	193°29.4	208°01.2	222°33.0	237°04.7	251°36.4	266°08.1	+31.8	14.8
	-15°06.6	-15°11.9	-15°17.2	-15°22.5	-15°27.7	-15°32.8	-15°37.8	-15°42.8	-15°47.7	-15°52.5	-15°57.2	-5.1	54.4
wo 28	135°21.9	149°53.8	164°25.7	178°57.6	193°29.4	208°01.2	222°33.0	237°04.7	251°36.4	266°08.1	280°39.7	+31.8	14.8
	-15°11.9	-15°17.2	-15°22.5	-15°27.7	-15°32.8	-15°37.8	-15°42.8	-15°47.7	-15°52.5	-15°57.2	-16°01.9	-5.0	54.4
do 29	138°28.9	152°59.9	167°30.8	182°01.7	196°32.5	211°03.4	225°34.1	240°04.8	254°35.5	269°06.2	283°36.8	+30.8	15.0
	-17°03.4	-17°06.9	-17°10.3	-17°13.6	-17°16.9	-17°20.1	-17°23.2	-17°26.2	-17°29.1	-17°31.9	-17°34.7	-3.1	54.9
vr 30	141°11.2	155°41.2	170°11.2	184°41.1	199°11.0	213°40.8	228°10.6	242°40.4	257°10.1	271°39.8	286°09.5	+29.8	15.1
	-18°05.9	-18°07.3	-18°08.5	-18°09.7	-18°10.9	-18°11.9	-18°12.8	-18°13.6	-18°14.4	-18°15.0	-18°15.6	-1.0	55.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 2 02h23 — VM: 9 02h20 — LK: 15 17h33 — NM: 23 13h39

ZON

Oktober 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	182°34.1	197°34.3	212°34.5	227°34.7	242°34.9	257°35.1	92°37.7	107°37.9	122°38.1	137°38.3	152°38.5	167°38.7	+0.2
	-3°13.6	-3°14.6	-3°15.6	-3°16.5	-3°17.5	-3°18.5	-3°31.1	-3°32.0	-3°33.0	-3°34.0	-3°34.9	-3°35.9	-1.0
zo 2	182°38.9	197°39.1	212°39.3	227°39.5	242°39.7	257°39.9	92°42.5	107°42.7	122°42.9	137°43.1	152°43.2	167°43.4	+0.2
	-3°36.9	-3°37.8	-3°38.8	-3°39.8	-3°40.7	-3°41.7	-3°54.3	-3°55.2	-3°56.2	-3°57.2	-3°58.1	-3°59.1	-1.0
ma 3	182°43.6	197°43.8	212°44.0	227°44.2	242°44.4	257°44.6	92°47.1	107°47.3	122°47.5	137°47.7	152°47.9	167°48.1	+0.2
	-4°00.1	-4°01.0	-4°02.0	-4°03.0	-4°03.9	-4°04.9	-4°17.4	-4°18.4	-4°19.4	-4°20.3	-4°21.3	-4°22.2	-1.0
di 4	182°48.3	197°48.5	212°48.7	227°48.9	242°49.1	257°49.3	92°51.8	107°51.9	122°52.1	137°52.3	152°52.5	167°52.7	+0.2
	-4°23.2	-4°24.2	-4°25.1	-4°26.1	-4°27.1	-4°28.0	-4°40.5	-4°41.5	-4°42.5	-4°43.4	-4°44.4	-4°45.3	-1.0
wo 5	182°52.9	197°53.1	212°53.3	227°53.5	242°53.6	257°53.8	92°56.3	107°56.5	122°56.6	137°56.8	152°57.0	167°57.2	+0.2
	-4°46.3	-4°47.3	-4°48.2	-4°49.2	-4°50.1	-4°51.1	-5°03.6	-5°04.5	-5°05.5	-5°06.5	-5°07.4	-5°08.4	-1.0
do 6	182°57.4	197°57.6	212°57.8	227°57.9	242°58.1	257°58.3	93°00.7	108°00.9	123°01.1	138°01.2	153°01.4	168°01.6	+0.2
	-5°09.3	-5°10.3	-5°11.2	-5°12.2	-5°13.2	-5°14.1	-5°26.6	-5°27.5	-5°28.5	-5°29.4	-5°30.4	-5°31.3	-1.0
vr 7	183°01.8	198°02.0	213°02.1	228°02.3	243°02.5	258°02.7	93°05.0	108°05.2	123°05.4	138°05.6	153°05.7	168°05.9	+0.2
	-5°32.3	-5°33.2	-5°34.2	-5°35.2	-5°36.1	-5°37.1	-5°49.5	-5°50.4	-5°51.4	-5°52.3	-5°53.3	-5°54.2	-1.0
za 8	183°06.1	198°06.3	213°06.4	228°06.6	243°06.8	258°07.0	93°09.2	108°09.4	123°09.6	138°09.8	153°09.9	168°10.1	+0.2
	-5°55.2	-5°56.1	-5°57.1	-5°58.0	-5°59.0	-5°59.9	-6°12.3	-6°13.3	-6°14.2	-6°15.2	-6°16.1	-6°17.1	-1.0
zo 9	183°10.3	198°10.5	213°10.6	228°10.8	243°11.0	258°11.1	93°13.3	108°13.5	123°13.7	138°13.9	153°14.0	168°14.2	+0.2
	-6°18.0	-6°19.0	-6°19.9	-6°20.8	-6°21.8	-6°22.7	-6°35.1	-6°36.0	-6°37.0	-6°37.9	-6°38.8	-6°39.8	-0.9
ma 10	183°14.4	198°14.5	213°14.7	228°14.9	243°15.0	258°15.2	93°17.3	108°17.5	123°17.7	138°17.8	153°18.0	168°18.2	+0.2
	-6°40.7	-6°41.7	-6°42.6	-6°43.6	-6°44.5	-6°45.5	-6°57.7	-6°58.7	-6°59.6	-7°00.6	-7°01.5	-7°02.4	-0.9
di 11	183°18.3	198°18.5	213°18.6	228°18.8	243°19.0	258°19.1	93°21.2	108°21.4	123°21.5	138°21.7	153°21.8	168°22.0	+0.2
	-7°03.4	-7°04.3	-7°05.3	-7°06.2	-7°07.1	-7°08.1	-7°20.3	-7°21.2	-7°22.2	-7°23.1	-7°24.1	-7°25.0	-0.9
wo 12	183°22.2	198°22.3	213°22.5	228°22.6	243°22.8	258°22.9	93°25.0	108°25.1	123°25.3	138°25.4	153°25.6	168°25.7	+0.2
	-7°25.9	-7°26.9	-7°27.8	-7°28.7	-7°29.7	-7°30.6	-7°42.8	-7°43.7	-7°44.6	-7°45.6	-7°46.5	-7°47.5	-0.9
do 13	183°25.9	198°26.0	213°26.2	228°26.3	243°26.5	258°26.6	93°28.6	108°28.7	123°28.9	138°29.0	153°29.1	168°29.3	+0.2
	-7°48.4	-7°49.3	-7°50.2	-7°51.2	-7°52.1	-7°53.0	-8°05.2	-8°06.1	-8°07.0	-8°07.9	-8°08.9	-8°09.8	-0.9
vr 14	183°29.4	198°29.6	213°29.7	228°29.9	243°30.0	258°30.2	93°32.0	108°32.2	123°32.3	138°32.4	153°32.6	168°32.7	+0.1
	-8°10.7	-8°11.7	-8°12.6	-8°13.5	-8°14.4	-8°15.4	-8°27.4	-8°28.3	-8°29.3	-8°30.2	-8°31.1	-8°32.0	-0.9
za 15	183°32.9	198°33.0	213°33.1	228°33.3	243°33.4	258°33.6	93°35.3	108°35.5	123°35.6	138°35.8	153°35.9	168°36.0	+0.1
	-8°33.0	-8°33.9	-8°34.8	-8°35.7	-8°36.7	-8°37.6	-8°49.6	-8°50.5	-8°51.4	-8°52.3	-8°53.2	-8°54.2	-0.9
zo 16	183°36.2	198°36.3	213°36.4	228°36.6	243°36.7	258°36.8	93°38.5	108°38.7	123°38.8	138°38.9	153°39.0	168°39.2	+0.1
	-8°55.1	-8°56.0	-8°56.9	-8°57.8	-8°58.7	-8°59.7	-9°11.6	-9°12.5	-9°13.4	-9°14.3	-9°15.2	-9°16.1	-0.9
ma 17	183°39.3	198°39.4	213°39.5	228°39.7	243°39.8	258°39.9	93°41.5	108°41.7	123°41.8	138°41.9	153°42.0	168°42.2	+0.1
	-9°17.1	-9°18.0	-9°18.9	-9°19.8	-9°20.7	-9°21.6	-9°33.5	-9°34.4	-9°35.3	-9°36.2	-9°37.1	-9°38.0	-0.9
di 18	183°42.3	198°42.4	213°42.5	228°42.6	243°42.8	258°42.9	93°44.4	108°44.5	123°44.6	138°44.8	153°44.9	168°45.0	+0.1
	-9°38.9	-9°39.8	-9°40.7	-9°41.6	-9°42.5	-9°43.4	-9°55.2	-9°56.1	-9°57.0	-9°57.9	-9°58.8	-9°59.7	-0.9
wo 19	183°45.1	198°45.2	213°45.3	228°45.5	243°45.6	258°45.7	93°47.1	108°47.2	123°47.3	138°47.5	153°47.6	168°47.7	+0.1
	-10°00.6	-10°01.5	-10°02.4	-10°03.3	-10°04.2	-10°05.1	-10°16.8	-10°17.7	-10°18.6	-10°19.5	-10°20.4	-10°21.3	-0.9
do 20	183°47.8	198°47.9	213°48.0	228°48.1	243°48.2	258°48.3	93°49.7	108°49.8	123°49.9	138°50.0	153°50.1	168°50.2	+0.1
	-10°22.2	-10°23.1	-10°24.0	-10°24.9	-10°25.8	-10°26.7	-10°38.3	-10°39.2	-10°40.1	-10°40.9	-10°41.8	-10°42.7	-0.9
vr 21	183°50.3	198°50.4	213°50.5	228°50.6	243°50.7	258°50.8	93°52.1	108°52.1	123°52.2	138°52.3	153°52.4	168°52.5	+0.1
	-10°43.6	-10°44.5	-10°45.4	-10°46.3	-10°47.2	-10°48.1	-10°59.6	-11°00.5	-11°01.3	-11°02.2	-11°03.1	-11°04.0	-0.9
za 22	183°52.6	198°52.7	213°52.8	228°52.9	243°53.0	258°53.1	93°54.3	108°54.4	123°54.4	138°54.5	153°54.6	168°54.7	+0.1
	-11°04.9	-11°05.8	-11°06.6	-11°07.5	-11°08.4	-11°09.3	-11°20.7	-11°21.6	-11°22.5	-11°23.3	-11°24.2	-11°25.1	-0.9
zo 23	183°54.8	198°54.9	213°55.0	228°55.0	243°55.1	258°55.2	93°56.3	108°56.4	123°56.5	138°56.5	153°56.6	168°56.7	+0.1
	-11°26.0	-11°26.8	-11°27.7	-11°28.6	-11°29.5	-11°30.3	-11°41.7	-11°42.6	-11°43.4	-11°44.3	-11°45.2	-11°46.0	-0.9
ma 24	183°56.8	198°56.9	213°56.9	228°57.0	243°57.1	258°57.2	93°58.2	108°58.2	123°58.3	138°58.4	153°58.5	168°58.5	+0.1
	-11°46.9	-11°47.8	-11°48.6	-11°49.5	-11°50.4	-11°51.2	-12°02.5	-12°03.3	-12°04.2	-12°05.1	-12°05.9	-12°06.8	-0.9
di 25	183°58.6	198°58.7	213°58.7	228°58.8	243°58.9	258°59.0	93°59.9	108°59.9	124°00.0	139°00.1	154°00.1	169°00.2	+0.1
	-12°07.6	-12°08.5	-12°09.4	-12°10.2	-12°11.1	-12°11.9	-12°23.1	-12°23.9	-12°24.8	-12°25.6	-12°26.5	-12°27.3	-0.9
wo 26	184°00.2	199°00.3	214°00.4	229°00.4	244°00.5	259°00.6	94°01.4	109°01.4	124°01.5	139°01.5	154°01.6	169°01.7	+0.1
	-12°28.2	-12°29.0	-12°29.9	-12°30.8	-12°31.6	-12°32.5	-12°43.5	-12°44.3	-12°45.2	-12°46.0	-12°46.9	-12°47.7	-0.9
do 27	184°01.7	199°01.8	214°01.8	229°01.9	244°01.9	259°02.0	94°02.7	109°02.7	124°02.8	139°02.8	154°02.9	169°02.9	+0.1
	-12°48.6	-12°49.4	-12°50.2	-12°51.1	-12°51.9	-12°52.8	-13°03.7	-13°04.5	-13°05.4	-13°06.2	-13°07.1	-13°07.9	-0.8
vr 28	184°03.0	199°03.0	214°03.1	229°03.1	244°03.2	259°03.2	94°03.8	109°03.9	124°03.9	139°04.0	154°04.0	169°04.0	+0.0
	-13°08.7	-13°09.6	-13°10.4	-13°11.2	-13°12.1	-13°12.9	-13°23.7	-13°24.5	-13°25.4	-13°26.2	-13°27.0	-13°27.9	-0.8
za 29	184°04.1	199°04.1	214°04.2	229°04.2	244°04.2	259°04.3	94°04.8	109°04.8	124°04.8	139°04.9	154°04.9	169°04.9	+0.0
	-13°28.7	-13°29.5	-13°30.3	-13°31.2	-13°32.0	-13°32.8	-13°43.5	-13°44.3	-13°45.2	-13°46.0	-13°46.8	-13°47.6	-0.8
zo 30	184°05.0	199°05.0	214°05.1	229°05.1	244°05.1	259°05.1	94°05.5	109°05.6	124°05.6	139°05.6	154°05.6	169°05.7	+0.0
	-13°48.4	-13°49.3	-13°50.1	-13°50.9	-13°51.7	-13°52.5	-14°03.1	-14°03.9	-14°04.7	-14°05.5	-14°06.3	-14°07.2	-0.8
ma 31	184°05.7	199°05.7	214°05.7	229°05.8	244°05.8	259°05.8	94°06.1	109°06.1	124°06.1	139°06.2	154°06.2	169°06.2	+0.0
	-14°08.0	-14°08.8	-14°09.6	-14°10.4	-14°11.2	-14°12.0	-14°22.5	-14°23.3	-14°24.1	-14°24.9	-14°25.7	-14°26.5	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2033

	D	21h	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	Δ'/h	SD/HP
◐	za 1	58°39.0	73°07.6	87°36.2	102°04.7	116°33.3	131°01.8	145°30.3	159°58.7	174°27.2	188°55.6	203°24.0	+28.5	15.5
		-17°37.8	-17°34.9	-17°32.0	-17°29.0	-17°25.8	-17°22.6	-17°19.3	-17°15.8	-17°12.3	-17°08.7	-17°05.0	+3.3	56.9
	zo 2	60°27.3	74°55.4	89°23.4	103°51.5	118°19.5	132°47.5	147°15.5	161°43.5	176°11.4	190°39.4	205°07.3	+28.0	15.8
		-15°57.1	-15°51.7	-15°46.3	-15°40.8	-15°35.2	-15°29.5	-15°23.7	-15°17.8	-15°11.8	-15°05.7	-14°59.5	+5.8	57.8
	ma 3	74°55.4	89°23.4	103°51.5	118°19.5	132°47.5	147°15.5	161°43.5	176°11.4	190°39.4	205°07.3	219°35.2	+28.0	15.8
		-15°51.7	-15°46.3	-15°40.8	-15°35.2	-15°29.5	-15°23.7	-15°17.8	-15°11.8	-15°05.7	-14°59.5	-14°53.2	+5.9	57.8
	di 4	76°32.0	90°59.7	105°27.4	119°55.0	134°22.7	148°50.3	163°17.9	177°45.5	192°13.1	206°40.7	221°08.2	+27.6	16.0
		-13°07.7	-12°59.9	-12°52.1	-12°44.1	-12°36.1	-12°28.0	-12°19.8	-12°11.5	-12°03.1	-11°54.7	-11°46.2	+8.2	58.8
	wo 5	78°00.2	92°27.6	106°54.9	121°22.3	135°49.6	150°16.9	164°44.2	179°11.5	193°38.7	208°06.0	222°33.2	+27.3	16.3
		-9°28.6	-9°18.8	-9°09.0	-8°59.1	-8°49.1	-8°39.0	-8°28.9	-8°18.7	-8°08.5	-7°58.2	-7°47.8	+10.1	59.8
	do 6	79°20.1	93°47.1	108°14.1	122°41.0	137°08.0	151°34.9	166°01.8	180°28.7	194°55.6	209°22.4	223°49.3	+26.9	16.5
		-5°05.6	-4°54.4	-4°43.1	-4°31.8	-4°20.5	-4°09.1	-3°57.7	-3°46.2	-3°34.7	-3°23.2	-3°11.7	+11.4	60.6
	vr 7	80°29.4	94°55.9	109°22.4	123°48.9	138°15.3	152°41.7	167°08.1	181°34.5	196°00.9	210°27.2	224°53.5	+26.4	16.7
		-0°15.4	-0°03.5	0°08.3	0°20.2	0°32.1	0°44.0	0°55.9	1°07.8	1°19.7	1°31.6	1°43.5	+11.9	61.2
○	za 8	81°25.0	95°50.9	110°16.8	124°42.7	139°08.5	153°34.3	168°00.1	182°25.8	196°51.5	211°17.2	225°42.9	+25.8	16.7
		4°40.4	4°52.0	5°03.5	5°15.1	5°26.6	5°38.1	5°49.5	6°00.9	6°12.3	6°23.6	6°34.8	+11.5	61.4
	zo 9	82°05.0	96°30.2	110°55.5	125°20.7	139°45.9	154°11.1	168°36.3	183°01.4	197°26.6	211°51.7	226°16.7	+25.2	16.7
		9°17.6	9°27.9	9°38.2	9°48.4	9°58.6	10°08.7	10°18.7	10°28.6	10°38.4	10°48.2	10°57.9	+10.0	61.2
	ma 10	82°31.0	96°55.8	111°20.6	125°45.4	140°10.2	154°35.0	168°59.8	183°24.6	197°49.4	212°14.1	226°38.9	+24.8	16.6
		13°12.8	13°21.0	13°29.1	13°37.2	13°45.1	13°53.0	14°00.7	14°08.3	14°15.9	14°23.3	14°30.6	+7.8	60.7
	di 11	82°50.4	97°15.2	111°40.0	126°04.8	140°29.6	154°54.5	169°19.3	183°44.2	198°09.1	212°34.0	226°58.9	+24.9	16.4
		16°07.0	16°12.6	16°18.0	16°23.2	16°28.4	16°33.5	16°38.4	16°43.2	16°47.9	16°52.4	16°56.9	+5.0	60.0
	wo 12	83°15.6	97°40.9	112°06.3	126°31.7	140°57.2	155°22.6	169°48.2	184°13.7	198°39.3	213°04.9	227°30.6	+25.5	16.1
		17°49.2	17°51.7	17°54.1	17°56.4	17°58.6	18°00.6	18°02.6	18°04.4	18°06.0	18°07.6	18°09.1	+2.0	59.0
	do 13	84°01.2	98°27.7	112°54.2	127°20.7	141°47.3	156°14.0	170°40.7	185°07.5	199°34.3	214°01.2	228°28.2	+26.7	15.8
		18°16.8	18°16.4	18°15.9	18°15.2	18°14.5	18°13.7	18°12.7	18°11.6	18°10.5	18°09.2	18°07.8	-0.9	58.1
	vr 14	85°19.8	99°47.8	114°15.8	128°43.9	143°12.0	157°40.2	172°08.5	186°36.8	201°05.2	215°33.7	230°02.3	+28.2	15.6
		17°34.7	17°31.7	17°28.6	17°25.4	17°22.1	17°18.7	17°15.2	17°11.7	17°08.0	17°04.3	17°00.5	-3.4	57.1
◑	za 15	87°18.5	101°48.1	116°17.8	130°47.5	145°17.3	159°47.2	174°17.1	188°47.1	203°17.2	217°47.4	232°17.6	+29.9	15.3
		15°52.8	15°47.6	15°42.4	15°37.1	15°31.7	15°26.2	15°20.7	15°15.1	15°09.4	15°03.7	14°57.9	-5.5	56.2
	zo 16	89°58.2	104°29.4	119°00.6	133°31.9	148°03.3	162°34.7	177°06.2	191°37.8	206°09.4	220°41.0	235°12.7	+31.5	15.1
		13°22.8	13°16.0	13°09.1	13°02.2	12°55.2	12°48.2	12°41.1	12°33.9	12°26.7	12°19.4	12°12.1	-7.1	55.5
	ma 17	93°14.7	107°47.3	122°19.8	136°52.5	151°25.1	165°57.8	180°30.6	195°03.4	209°36.2	224°09.1	238°42.0	+32.7	15.0
		10°16.8	10°08.8	10°00.7	9°52.6	9°44.4	9°36.2	9°28.0	9°19.8	9°11.5	9°03.1	8°54.8	-8.2	54.9
	di 18	97°00.6	111°34.1	126°07.6	140°41.2	155°14.8	169°48.4	184°22.1	198°55.8	213°29.5	228°03.3	242°37.0	+33.7	14.8
		6°45.6	6°36.8	6°27.9	6°19.1	6°10.2	6°01.2	5°52.3	5°43.4	5°34.4	5°25.4	5°16.4	-8.9	54.4
	wo 19	101°06.5	115°40.6	130°14.7	144°48.9	159°23.0	173°57.2	188°31.4	203°05.6	217°39.8	232°14.0	246°48.3	+34.2	14.8
		2°59.2	2°50.0	2°40.8	2°31.5	2°22.2	2°13.0	2°03.7	1°54.4	1°45.1	1°35.8	1°26.5	-9.3	54.1
	do 20	105°22.8	119°57.1	134°31.4	149°05.8	163°40.1	178°14.4	192°48.8	207°23.1	221°57.4	236°31.8	251°06.1	+34.3	14.7
		-0°53.0	-1°02.3	-1°11.6	-1°20.9	-1°30.2	-1°39.4	-1°48.7	-1°57.9	-2°07.2	-2°16.4	-2°25.6	-9.3	54.0
	vr 21	109°40.1	124°14.3	138°48.5	153°22.7	167°56.8	182°31.0	197°05.1	211°39.2	226°13.3	240°47.4	255°21.4	+34.1	14.7
		-4°42.4	-4°51.4	-5°00.3	-5°09.3	-5°18.2	-5°27.1	-5°36.0	-5°44.9	-5°53.7	-6°02.5	-6°11.3	-8.9	53.9
	za 22	113°50.1	128°23.8	142°57.6	157°31.2	172°04.9	186°38.6	201°12.2	215°45.8	230°19.3	244°52.9	259°26.4	+33.6	14.7
		-8°19.9	-8°28.2	-8°36.5	-8°44.8	-8°53.0	-9°01.2	-9°09.3	-9°17.4	-9°25.5	-9°33.6	-9°41.6	-8.2	53.9
●	zo 23	117°45.6	132°18.6	146°51.6	161°24.6	175°57.6	190°30.5	205°03.3	219°36.2	234°09.0	248°41.8	263°14.5	+32.9	14.7
		-11°36.5	-11°43.8	-11°51.1	-11°58.3	-12°05.5	-12°12.6	-12°19.6	-12°26.6	-12°33.6	-12°40.5	-12°47.3	-7.1	54.0
	ma 24	121°21.5	135°53.6	150°25.8	164°57.9	179°30.0	194°02.0	208°34.0	223°06.0	237°37.9	252°09.8	266°41.6	+32.0	14.8
		-14°23.2	-14°29.2	-14°35.0	-14°40.8	-14°46.5	-14°52.2	-14°57.8	-15°03.3	-15°08.8	-15°14.2	-15°19.5	-5.6	54.3
	di 25	124°35.0	139°06.3	153°37.5	168°08.7	182°39.9	197°11.0	211°42.1	226°13.2	240°44.2	255°15.2	269°46.2	+31.1	14.9
		-16°31.2	-16°35.3	-16°39.5	-16°43.5	-16°47.5	-16°51.4	-16°55.2	-16°58.9	-17°02.5	-17°06.1	-17°09.6	-3.8	54.6
	wo 26	127°26.5	141°56.9	156°27.3	170°57.7	185°28.0	199°58.3	214°28.6	228°58.9	243°29.1	257°59.3	272°29.4	+30.3	15.0
		-17°52.2	-17°54.4	-17°56.5	-17°58.5	-18°00.4	-18°02.2	-18°03.9	-18°05.6	-18°07.1	-18°08.6	-18°10.0	-1.8	55.0
	do 27	141°56.9	156°27.3	170°57.7	185°28.0	199°58.3	214°28.6	228°58.9	243°29.1	257°59.3	272°29.4	286°59.6	+30.3	15.0
		-17°54.4	-17°56.5	-17°58.5	-18°00.4	-18°02.2	-18°03.9	-18°05.6	-18°07.1	-18°08.6	-18°10.0	-18°11.3	-1.7	55.0
	vr 28	144°28.5	158°58.2	173°27.9	187°57.6	202°27.3	216°57.0	231°26.6	245°56.2	260°25.8	274°55.3	289°24.9	+29.6	15.1
		-18°19.8	-18°19.7	-18°19.4	-18°19.0	-18°18.6	-18°18.1	-18°17.4	-18°16.7	-18°15.9	-18°15.0	-18°13.9	+0.6	55.5
	za 29	146°40.0	161°15.2	175°44.5	190°13.8	204°43.0	219°12.2	233°41.5	248°10.7	262°39.8	277°09.0	291°38.2	+29.2	15.3
		-17°47.4	-17°44.9	-17°42.3	-17°39.5	-17°36.7	-17°33.8	-17°30.8	-17°27.7	-17°24.5	-17°21.2	-17°17.8	+3.0	56.1
	zo 30	148°54.5	163°23.6	177°52.6	192°21.6	206°50.6	221°19.6	235°48.5	250°17.5	264°46.5	279°15.4	293°44.4	+29.0	15.5
		-16°15.7	-16°10.8	-16°05.9	-16°00.8	-15°55.6	-15°50.4	-15°45.0	-15°39.6	-15°34.1	-15°28.4	-15°22.7	+5.3	56.9
◐	ma 31	150°58.0	165°26.9	179°55.7	194°24.6	208°53.4	223°22.3	237°51.1	252°19.9	266°48.7	281°17.5	295°46.3	+28.8	15.7
		-13°46.5	-13°39.4	-13°32.2	-13°24.9	-13°17.6	-13°10.2	-13°02.6	-12°55.0	-12°47.4	-12°39.6	-12°31.7	+7.5	57.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 1 16h32 — VM: 8 10h58 — LK: 15 04h47 — NM: 23 07h28 — EK: 31 04h46

ZON

November 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	184°06.2	199°06.2	214°06.3	229°06.3	244°06.3	259°06.3	94°06.5	109°06.5	124°06.5	139°06.5	154°06.5	169°06.5	+0.0
	-14°27.3	-14°28.1	-14°28.9	-14°29.7	-14°30.5	-14°31.3	-14°41.6	-14°42.4	-14°43.2	-14°44.0	-14°44.7	-14°45.5	-0.8
wo 2	184°06.6	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.7	109°06.7	124°06.7	139°06.7	154°06.7	169°06.7	+0.0
	-14°46.3	-14°47.1	-14°47.9	-14°48.7	-14°49.5	-14°50.3	-15°00.5	-15°01.2	-15°02.0	-15°02.8	-15°03.6	-15°04.4	-0.8
do 3	184°06.7	199°06.7	214°06.7	229°06.7	244°06.7	259°06.7	94°06.7	109°06.6	124°06.6	139°06.6	154°06.6	169°06.6	+0.0
	-15°05.2	-15°05.9	-15°06.7	-15°07.5	-15°08.3	-15°09.0	-15°19.1	-15°19.9	-15°20.6	-15°21.4	-15°22.2	-15°23.0	-0.8
vr 4	184°06.6	199°06.6	214°06.6	229°06.6	244°06.6	259°06.6	94°06.4	109°06.4	124°06.4	139°06.4	154°06.4	169°06.4	-0.0
	-15°23.7	-15°24.5	-15°25.3	-15°26.0	-15°26.8	-15°27.6	-15°37.5	-15°38.3	-15°39.0	-15°39.8	-15°40.5	-15°41.3	-0.8
za 5	184°06.3	199°06.3	214°06.3	229°06.3	244°06.3	259°06.3	94°06.0	109°06.0	124°06.0	139°05.9	154°05.9	169°05.9	-0.0
	-15°42.1	-15°42.8	-15°43.6	-15°44.3	-15°45.1	-15°45.8	-15°55.6	-15°56.4	-15°57.1	-15°57.9	-15°58.6	-15°59.4	-0.8
zo 6	184°05.9	199°05.8	214°05.8	229°05.8	244°05.8	259°05.7	94°05.4	109°05.3	124°05.3	139°05.3	154°05.3	169°05.2	-0.0
	-16°00.1	-16°00.9	-16°01.6	-16°02.4	-16°03.1	-16°03.8	-16°13.5	-16°14.2	-16°15.0	-16°15.7	-16°16.4	-16°17.2	-0.7
ma 7	184°05.2	199°05.2	214°05.1	229°05.1	244°05.1	259°05.0	94°04.5	109°04.5	124°04.5	139°04.4	154°04.4	169°04.3	-0.0
	-16°17.9	-16°18.7	-16°19.4	-16°20.1	-16°20.9	-16°21.6	-16°31.1	-16°31.8	-16°32.5	-16°33.3	-16°34.0	-16°34.7	-0.7
di 8	184°04.3	199°04.3	214°04.2	229°04.2	244°04.1	259°04.1	94°03.5	109°03.4	124°03.4	139°03.3	154°03.3	169°03.2	-0.0
	-16°35.4	-16°36.2	-16°36.9	-16°37.6	-16°38.3	-16°39.1	-16°48.4	-16°49.1	-16°49.8	-16°50.5	-16°51.3	-16°52.0	-0.7
wo 9	184°03.2	199°03.1	214°03.1	229°03.0	244°03.0	259°02.9	94°02.2	109°02.2	124°02.1	139°02.1	154°02.0	169°01.9	-0.1
	-16°52.7	-16°53.4	-16°54.1	-16°54.8	-16°55.5	-16°56.2	-17°05.4	-17°06.1	-17°06.8	-17°07.5	-17°08.2	-17°08.9	-0.7
do 10	184°01.9	199°01.8	214°01.8	229°01.7	244°01.6	259°01.6	94°00.7	109°00.7	124°00.6	139°00.5	154°00.5	169°00.4	-0.1
	-17°09.6	-17°10.3	-17°11.0	-17°11.7	-17°12.4	-17°13.1	-17°22.2	-17°22.9	-17°23.6	-17°24.2	-17°24.9	-17°25.6	-0.7
vr 11	184°00.3	199°00.3	214°00.2	229°00.1	244°00.1	259°00.0	93°59.0	108°59.0	123°58.9	138°58.8	153°58.7	168°58.7	-0.1
	-17°26.3	-17°27.0	-17°27.7	-17°28.4	-17°29.1	-17°29.8	-17°38.6	-17°39.3	-17°40.0	-17°40.7	-17°41.3	-17°42.0	-0.7
za 12	183°58.6	198°58.5	213°58.4	228°58.4	243°58.3	258°58.2	93°57.1	108°57.1	123°57.0	138°56.9	153°56.8	168°56.7	-0.1
	-17°42.7	-17°43.4	-17°44.0	-17°44.7	-17°45.4	-17°46.1	-17°54.8	-17°55.4	-17°56.1	-17°56.8	-17°57.4	-17°58.1	-0.7
zo 13	183°56.6	198°56.5	213°56.4	228°56.4	243°56.3	258°56.2	93°55.0	108°54.9	123°54.8	138°54.7	153°54.6	168°54.5	-0.1
	-17°58.8	-17°59.4	-18°00.1	-18°00.7	-18°01.4	-18°02.1	-18°10.6	-18°11.2	-18°11.9	-18°12.6	-18°13.2	-18°13.9	-0.7
ma 14	183°54.4	198°54.3	213°54.2	228°54.2	243°54.1	258°54.0	93°52.7	108°52.6	123°52.5	138°52.4	153°52.2	168°52.1	-0.1
	-18°14.5	-18°15.2	-18°15.8	-18°16.5	-18°17.1	-18°17.7	-18°26.1	-18°26.7	-18°27.4	-18°28.0	-18°28.7	-18°29.3	-0.6
di 15	183°52.0	198°51.9	213°51.8	228°51.7	243°51.6	258°51.5	93°50.1	108°50.0	123°49.9	138°49.8	153°49.6	168°49.5	-0.1
	-18°29.9	-18°30.6	-18°31.2	-18°31.8	-18°32.5	-18°33.1	-18°41.3	-18°41.9	-18°42.6	-18°43.2	-18°43.8	-18°44.4	-0.6
wo 16	183°49.4	198°49.3	213°49.2	228°49.1	243°49.0	258°48.9	93°47.3	108°47.2	123°47.1	138°47.0	153°46.8	168°46.7	-0.1
	-18°45.0	-18°45.7	-18°46.3	-18°46.9	-18°47.5	-18°48.2	-18°56.2	-18°56.8	-18°57.4	-18°58.0	-18°58.6	-18°59.2	-0.6
do 17	183°46.6	198°46.5	213°46.3	228°46.2	243°46.1	258°46.0	93°44.3	108°44.2	123°44.1	138°43.9	153°43.8	168°43.7	-0.1
	-18°59.8	-19°00.4	-19°01.0	-19°01.6	-19°02.3	-19°02.9	-19°10.7	-19°11.3	-19°11.9	-19°12.5	-19°13.1	-19°13.7	-0.6
vr 18	183°43.5	198°43.4	213°43.3	228°43.2	243°43.0	258°42.9	93°41.1	108°41.0	123°40.9	138°40.7	153°40.6	168°40.4	-0.1
	-19°14.3	-19°14.9	-19°15.5	-19°16.0	-19°16.6	-19°17.2	-19°24.9	-19°25.4	-19°26.0	-19°26.6	-19°27.2	-19°27.8	-0.6
za 19	183°40.3	198°40.2	213°40.0	228°39.9	243°39.7	258°39.6	93°37.7	108°37.6	123°37.4	138°37.3	153°37.1	168°37.0	-0.1
	-19°28.4	-19°28.9	-19°29.5	-19°30.1	-19°30.7	-19°31.3	-19°38.7	-19°39.3	-19°39.8	-19°40.4	-19°41.0	-19°41.5	-0.6
zo 20	183°36.8	198°36.7	213°36.5	228°36.4	243°36.2	258°36.1	93°34.1	108°34.0	123°33.8	138°33.6	153°33.5	168°33.3	-0.1
	-19°42.1	-19°42.7	-19°43.2	-19°43.8	-19°44.4	-19°44.9	-19°52.2	-19°52.7	-19°53.3	-19°53.8	-19°54.4	-19°54.9	-0.6
ma 21	183°33.2	198°33.0	213°32.9	228°32.7	243°32.5	258°32.4	93°30.3	108°30.1	123°30.0	138°29.8	153°29.6	168°29.5	-0.2
	-19°55.5	-19°56.0	-19°56.6	-19°57.1	-19°57.7	-19°58.2	-20°05.3	-20°05.8	-20°06.4	-20°06.9	-20°07.4	-20°08.0	-0.6
di 22	183°29.3	198°29.1	213°29.0	228°28.8	243°28.6	258°28.5	93°26.3	108°26.1	123°25.9	138°25.8	153°25.6	168°25.4	-0.2
	-20°08.5	-20°09.0	-20°09.6	-20°10.1	-20°10.6	-20°11.2	-20°18.0	-20°18.6	-20°19.1	-20°19.6	-20°20.1	-20°20.7	-0.5
wo 23	183°25.2	198°25.1	213°24.9	228°24.7	243°24.5	258°24.4	93°22.1	108°21.9	123°21.7	138°21.5	153°21.3	168°21.2	-0.2
	-20°21.2	-20°21.7	-20°22.2	-20°22.7	-20°23.2	-20°23.8	-20°30.4	-20°30.9	-20°31.4	-20°31.9	-20°32.4	-20°32.9	-0.5
do 24	183°21.0	198°20.8	213°20.6	228°20.4	243°20.2	258°20.1	93°17.7	108°17.5	123°17.3	138°17.1	153°16.9	168°16.7	-0.2
	-20°33.5	-20°34.0	-20°34.5	-20°35.0	-20°35.5	-20°36.0	-20°42.4	-20°42.9	-20°43.4	-20°43.9	-20°44.4	-20°44.9	-0.5
vr 25	183°16.5	198°16.3	213°16.1	228°16.0	243°15.8	258°15.6	93°13.1	108°12.9	123°12.7	138°12.5	153°12.3	168°12.1	-0.2
	-20°45.4	-20°45.8	-20°46.3	-20°46.8	-20°47.3	-20°47.8	-20°54.0	-20°54.5	-20°55.0	-20°55.4	-20°55.9	-20°56.4	-0.5
za 26	183°11.9	198°11.7	213°11.5	228°11.3	243°11.1	258°10.9	93°08.3	108°08.1	123°07.9	138°07.7	153°07.5	168°07.3	-0.2
	-20°56.9	-20°57.3	-20°57.8	-20°58.3	-20°58.7	-20°59.2	-21°05.2	-21°05.7	-21°06.2	-21°06.6	-21°07.1	-21°07.5	-0.5
zo 27	183°07.1	198°06.9	213°06.7	228°06.5	243°06.3	258°06.0	93°03.3	108°03.1	123°02.9	138°02.7	153°02.5	168°02.3	-0.2
	-21°08.0	-21°08.4	-21°08.9	-21°09.4	-21°09.8	-21°10.3	-21°16.1	-21°16.5	-21°17.0	-21°17.4	-21°17.8	-21°18.3	-0.5
ma 28	183°02.1	198°01.9	213°01.7	228°01.4	243°01.2	258°01.0	92°58.2	107°58.0	122°57.8	137°57.6	152°57.4	167°57.1	-0.2
	-21°18.7	-21°19.2	-21°19.6	-21°20.0	-21°20.5	-21°20.9	-21°26.5	-21°26.9	-21°27.3	-21°27.8	-21°28.2	-21°28.6	-0.4
di 29	182°56.9	197°56.7	212°56.5	227°56.3	242°56.0	257°55.8	92°52.9	107°52.7	122°52.5	137°52.3	152°52.0	167°51.8	-0.2
	-21°29.0	-21°29.5	-21°29.9	-21°30.3	-21°30.7	-21°31.1	-21°36.5	-21°36.9	-21°37.3	-21°37.7	-21°38.1	-21°38.5	-0.4
wo 30	182°51.6	197°51.4	212°51.1	227°50.9	242°50.7	257°50.5	92°47.5	107°47.3	122°47.0	137°46.8	152°46.6	167°46.3	-0.2
	-21°38.9	-21°39.4	-21°39.8	-21°40.2	-21°40.6	-21°41.0	-21°46.1	-21°46.5	-21°46.9	-21°47.3	-21°47.7	-21°48.1	-0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2033

D	22h	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	Δ'/h	SD/HP
di 1	53°31.8	68°00.2	82°28.7	96°57.1	111°25.5	125°53.9	140°22.2	154°50.6	169°18.9	183°47.2	198°15.5	+28.4	16.2
	-7°32.0	-7°21.9	-7°11.6	-7°01.3	-6°51.0	-6°40.6	-6°30.1	-6°19.6	-6°09.1	-5°58.5	-5°47.8	+10.4	59.2
wo 2	68°00.2	82°28.7	96°57.1	111°25.5	125°53.9	140°22.2	154°50.6	169°18.9	183°47.2	198°15.5	212°43.8	+28.4	16.2
	-7°21.9	-7°11.6	-7°01.3	-6°51.0	-6°40.6	-6°30.1	-6°19.6	-6°09.1	-5°58.5	-5°47.8	-5°37.1	+10.5	59.3
do 3	69°45.2	84°13.1	98°40.9	113°08.8	127°36.6	142°04.4	156°32.1	170°59.9	185°27.6	199°55.2	214°22.9	+27.8	16.4
	-2°51.7	-2°40.4	-2°29.1	-2°17.7	-2°06.3	-1°54.9	-1°43.5	-1°32.0	-1°20.5	-1°09.0	-0°57.5	+11.4	60.1
vr 4	71°13.4	85°40.5	100°07.6	114°34.6	129°01.6	143°28.5	157°55.4	172°22.2	186°49.1	201°15.8	215°42.6	+26.9	16.6
	1°56.7	2°08.4	2°20.0	2°31.6	2°43.3	2°54.9	3°06.5	3°18.1	3°29.7	3°41.3	3°52.8	+11.6	60.7
za 5	72°18.6	86°44.7	101°10.7	115°36.7	130°02.6	144°28.5	158°54.3	173°20.1	187°45.9	202°11.6	216°37.3	+25.9	16.7
	6°43.3	6°54.4	7°05.5	7°16.5	7°27.5	7°38.4	7°49.3	8°00.2	8°10.9	8°21.7	8°32.3	+10.9	61.1
○ zo 6	72°57.3	87°22.3	101°47.3	116°12.2	130°37.1	145°01.9	159°26.8	173°51.5	188°16.3	202°41.0	217°05.7	+24.8	16.7
	11°05.1	11°14.7	11°24.2	11°33.7	11°43.1	11°52.4	12°01.6	12°10.7	12°19.7	12°28.7	12°37.6	+9.3	61.1
ma 7	73°12.1	87°36.4	102°00.6	116°24.8	130°48.9	145°13.1	159°37.2	174°01.3	188°25.4	202°49.5	217°13.6	+24.1	16.6
	14°38.9	14°46.2	14°53.4	15°00.4	15°07.4	15°14.2	15°20.9	15°27.5	15°34.0	15°40.4	15°46.6	+6.8	60.8
di 8	73°14.0	87°38.0	102°02.1	116°26.1	130°50.2	145°14.3	159°38.4	174°02.5	188°26.6	202°50.7	217°14.9	+24.1	16.4
	17°06.2	17°10.5	17°14.7	17°18.8	17°22.7	17°26.6	17°30.3	17°33.8	17°37.3	17°40.6	17°43.8	+3.8	60.2
wo 9	73°20.5	87°45.1	102°09.8	116°34.5	130°59.3	145°24.1	159°48.9	174°13.8	188°38.8	203°03.8	217°28.8	+24.8	16.2
	18°16.4	18°17.5	18°18.6	18°19.5	18°20.3	18°20.9	18°21.5	18°21.9	18°22.2	18°22.3	18°22.4	+0.6	59.4
do 10	73°51.3	88°17.3	102°43.3	117°09.4	131°35.6	146°01.8	160°28.2	174°54.5	189°21.0	203°47.5	218°14.1	+26.3	15.9
	18°08.9	18°07.1	18°05.1	18°03.1	18°00.9	17°58.7	17°56.3	17°53.8	17°51.3	17°48.6	17°45.8	-2.3	58.4
vr 11	75°01.9	89°29.7	103°57.6	118°25.5	132°53.5	147°21.6	161°49.8	176°18.0	190°46.4	205°14.8	219°43.3	+28.1	15.7
	16°51.8	16°47.5	16°43.0	16°38.5	16°33.8	16°29.1	16°24.3	16°19.5	16°14.5	16°09.4	16°04.3	-4.8	57.4
za 12	76°59.8	91°29.5	105°59.3	120°29.2	134°59.1	149°29.1	163°59.2	178°29.4	192°59.6	207°29.9	222°00.3	+30.0	15.4
	14°38.0	14°31.7	14°25.3	14°18.8	14°12.3	14°05.7	13°59.0	13°52.3	13°45.5	13°38.7	13°31.8	-6.6	56.5
◑ zo 13	79°44.2	94°15.7	108°47.2	123°18.8	137°50.5	152°22.2	166°53.9	181°25.8	195°57.7	210°29.6	225°01.6	+31.7	15.2
	11°41.6	11°33.9	11°26.1	11°18.2	11°10.4	11°02.4	10°54.5	10°46.4	10°38.4	10°30.3	10°22.2	-7.9	55.6
ma 14	83°08.4	97°41.3	112°14.2	126°47.1	141°20.1	155°53.2	170°26.2	184°59.4	199°32.5	214°05.7	228°39.0	+33.1	15.0
	8°15.8	8°07.1	7°58.4	7°49.7	7°40.9	7°32.2	7°23.3	7°14.5	7°05.6	6°56.8	6°47.9	-8.8	55.0
di 15	87°02.2	101°36.0	116°09.9	130°43.7	145°17.6	159°51.5	174°25.5	188°59.5	203°33.4	218°07.5	232°41.5	+33.9	14.9
	4°31.9	4°22.7	4°13.5	4°04.3	3°55.0	3°45.8	3°36.5	3°27.3	3°18.0	3°08.7	2°59.4	-9.2	54.5
wo 16	91°14.3	105°48.6	120°22.9	134°57.2	149°31.5	164°05.8	178°40.2	193°14.5	207°48.9	222°23.2	236°57.6	+34.3	14.8
	0°39.4	0°30.1	0°20.7	0°11.4	0°02.0	-0°07.3	-0°16.7	-0°26.0	-0°35.3	-0°44.7	-0°54.0	-9.3	54.2
do 17	95°33.1	110°07.5	124°41.8	139°16.1	153°50.4	168°24.8	182°59.1	197°33.3	212°07.6	226°41.9	241°16.2	+34.3	14.7
	-3°13.0	-3°22.1	-3°31.3	-3°40.4	-3°49.6	-3°58.7	-4°07.8	-4°16.9	-4°26.0	-4°35.0	-4°44.0	-9.1	54.0
vr 18	99°48.2	114°22.1	128°56.1	143°30.1	158°04.0	172°37.9	187°11.7	201°45.6	216°19.4	230°53.2	245°27.0	+33.9	14.7
	-6°57.0	-7°05.6	-7°14.3	-7°22.9	-7°31.5	-7°40.0	-7°48.6	-7°57.1	-8°05.5	-8°14.0	-8°22.4	-8.5	54.0
za 19	103°50.1	118°23.4	132°56.7	147°29.9	162°03.1	176°36.3	191°09.4	205°42.5	220°15.6	234°48.6	249°21.6	+33.1	14.8
	-10°24.1	-10°31.9	-10°39.7	-10°47.4	-10°55.1	-11°02.7	-11°10.3	-11°17.9	-11°25.4	-11°32.9	-11°40.3	-7.6	54.1
zo 20	107°32.0	122°04.3	136°36.7	151°09.0	165°41.2	180°13.5	194°45.6	209°17.8	223°49.9	238°21.9	252°54.0	+32.2	14.8
	-13°25.4	-13°32.0	-13°38.5	-13°45.0	-13°51.4	-13°57.7	-14°04.0	-14°10.3	-14°16.4	-14°22.5	-14°28.6	-6.3	54.3
ma 21	110°49.3	125°20.7	139°52.0	154°23.3	168°54.6	183°25.8	197°56.9	212°28.1	226°59.2	241°30.2	256°01.2	+31.2	14.9
	-15°51.5	-15°56.4	-16°01.4	-16°06.2	-16°11.0	-16°15.6	-16°20.3	-16°24.8	-16°29.3	-16°33.7	-16°38.0	-4.7	54.6
● di 22	113°41.8	128°12.2	142°42.5	157°12.9	171°43.2	186°13.5	200°43.7	215°13.9	229°44.1	244°14.2	258°44.3	+30.3	15.0
	-17°33.2	-17°36.2	-17°39.2	-17°42.0	-17°44.8	-17°47.5	-17°50.1	-17°52.6	-17°55.1	-17°57.4	-17°59.7	-2.6	55.0
wo 23	116°12.5	130°42.2	145°11.8	159°41.5	174°11.1	188°40.6	203°10.2	217°39.7	232°09.2	246°38.7	261°08.2	+29.6	15.1
	-18°22.7	-18°23.5	-18°24.3	-18°24.9	-18°25.4	-18°25.8	-18°26.2	-18°26.4	-18°26.6	-18°26.6	-18°26.6	-0.4	55.4
do 24	118°28.3	132°57.5	147°26.7	161°55.9	176°25.1	190°54.3	205°23.5	219°52.7	234°21.8	248°51.0	263°20.2	+29.2	15.2
	-18°14.6	-18°13.0	-18°11.4	-18°09.6	-18°07.8	-18°05.8	-18°03.8	-18°01.6	-17°59.4	-17°57.1	-17°54.6	+2.0	55.9
vr 25	120°37.0	135°06.1	149°35.2	164°04.3	178°33.4	193°02.6	207°31.7	222°00.8	236°29.9	250°59.0	265°28.2	+29.1	15.4
	-17°06.7	-17°02.8	-16°58.8	-16°54.6	-16°50.4	-16°46.1	-16°41.7	-16°37.2	-16°32.6	-16°27.9	-16°23.1	+4.4	56.4
za 26	135°06.1	149°35.2	164°04.3	178°33.4	193°02.6	207°31.7	222°00.8	236°29.9	250°59.0	265°28.2	279°57.3	+29.1	15.4
	-17°02.8	-16°58.8	-16°54.6	-16°50.4	-16°46.1	-16°41.7	-16°37.2	-16°32.6	-16°27.9	-16°23.1	-16°18.2	+4.5	56.4
zo 27	137°14.9	151°44.1	166°13.4	180°42.6	195°11.8	209°41.1	224°10.3	238°39.6	253°08.9	267°38.1	282°07.4	+29.3	15.5
	-14°54.6	-14°48.3	-14°42.0	-14°35.6	-14°29.0	-14°22.4	-14°15.8	-14°09.0	-14°02.1	-13°55.2	-13°48.2	+6.6	57.0
ma 28	139°27.5	153°56.9	168°26.3	182°55.7	197°25.1	211°54.5	226°23.9	240°53.3	255°22.7	269°52.2	284°21.6	+29.4	15.7
	-11°53.9	-11°45.7	-11°37.4	-11°29.0	-11°20.6	-11°12.1	-11°03.6	-10°54.9	-10°46.2	-10°37.5	-10°28.7	+8.5	57.6
◐ di 29	141°43.1	156°12.5	170°42.0	185°11.4	199°40.8	214°10.2	228°39.6	243°09.0	257°38.4	272°07.8	286°37.2	+29.4	15.9
	-8°09.0	-7°59.3	-7°49.4	-7°39.6	-7°29.7	-7°19.7	-7°09.7	-6°59.6	-6°49.5	-6°39.3	-6°29.1	+10.0	58.3
wo 30	143°56.7	158°25.9	172°55.1	187°24.2	201°53.4	216°22.5	230°51.6	245°20.7	259°49.8	274°18.8	288°47.8	+29.1	16.1
	-3°51.1	-3°40.3	-3°29.5	-3°18.6	-3°07.7	-2°56.7	-2°45.8	-2°34.8	-2°23.8	-2°12.7	-2°01.7	+10.9	58.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 6 20h32 — LK: 13 20h08 — NM: 22 01h39 — EK: 29 15h15

ZON

December 2033

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	182° 46.1	197° 45.9	212° 45.6	227° 45.4	242° 45.2	257° 44.9	92° 41.9	107° 41.6	122° 41.4	137° 41.2	152° 40.9	167° 40.7	-0.2
	-21° 48.4	-21° 48.8	-21° 49.2	-21° 49.6	-21° 50.0	-21° 50.4	-21° 55.3	-21° 55.7	-21° 56.0	-21° 56.4	-21° 56.8	-21° 57.2	-0.4
vr 2	182° 40.5	197° 40.2	212° 40.0	227° 39.7	242° 39.5	257° 39.3	92° 36.1	107° 35.9	122° 35.6	137° 35.4	152° 35.1	167° 34.9	-0.2
	-21° 57.5	-21° 57.9	-21° 58.3	-21° 58.6	-21° 59.0	-21° 59.4	-22° 04.1	-22° 04.4	-22° 04.8	-22° 05.1	-22° 05.5	-22° 05.8	-0.4
za 3	182° 34.7	197° 34.4	212° 34.2	227° 33.9	242° 33.7	257° 33.4	92° 30.2	107° 30.0	122° 29.7	137° 29.5	152° 29.2	167° 29.0	-0.2
	-22° 06.2	-22° 06.5	-22° 06.9	-22° 07.2	-22° 07.6	-22° 07.9	-22° 12.4	-22° 12.7	-22° 13.1	-22° 13.4	-22° 13.8	-22° 14.1	-0.4
zo 4	182° 28.7	197° 28.5	212° 28.2	227° 28.0	242° 27.7	257° 27.5	92° 24.2	107° 23.9	122° 23.6	137° 23.4	152° 23.1	167° 22.9	-0.3
	-22° 14.4	-22° 14.8	-22° 15.1	-22° 15.4	-22° 15.8	-22° 16.1	-22° 20.3	-22° 20.6	-22° 21.0	-22° 21.3	-22° 21.6	-22° 21.9	-0.3
ma 5	182° 22.6	197° 22.4	212° 22.1	227° 21.9	242° 21.6	257° 21.3	92° 18.0	107° 17.7	122° 17.5	137° 17.2	152° 16.9	167° 16.7	-0.3
	-22° 22.2	-22° 22.5	-22° 22.9	-22° 23.2	-22° 23.5	-22° 23.8	-22° 27.8	-22° 28.1	-22° 28.4	-22° 28.7	-22° 29.0	-22° 29.3	-0.3
di 6	182° 16.4	197° 16.1	212° 15.9	227° 15.6	242° 15.4	257° 15.1	92° 11.7	107° 11.4	122° 11.1	137° 10.9	152° 10.6	167° 10.3	-0.3
	-22° 29.6	-22° 29.9	-22° 30.2	-22° 30.5	-22° 30.8	-22° 31.1	-22° 34.8	-22° 35.1	-22° 35.4	-22° 35.7	-22° 36.0	-22° 36.2	-0.3
wo 7	182° 10.1	197° 09.8	212° 09.5	227° 09.3	242° 09.0	257° 08.7	92° 05.2	107° 04.9	122° 04.7	137° 04.4	152° 04.1	167° 03.8	-0.3
	-22° 36.5	-22° 36.8	-22° 37.1	-22° 37.4	-22° 37.6	-22° 37.9	-22° 41.4	-22° 41.7	-22° 42.0	-22° 42.2	-22° 42.5	-22° 42.8	-0.3
do 8	182° 03.6	197° 03.3	212° 03.0	227° 02.8	242° 02.5	257° 02.2	91° 58.6	106° 58.4	121° 58.1	136° 57.8	151° 57.5	166° 57.3	-0.3
	-22° 43.0	-22° 43.3	-22° 43.5	-22° 43.8	-22° 44.1	-22° 44.3	-22° 47.6	-22° 47.8	-22° 48.1	-22° 48.3	-22° 48.6	-22° 48.8	-0.3
vr 9	181° 57.0	196° 56.7	211° 56.4	226° 56.1	241° 55.9	256° 55.6	91° 52.0	106° 51.7	121° 51.4	136° 51.1	151° 50.8	166° 50.5	-0.3
	-22° 49.1	-22° 49.3	-22° 49.5	-22° 49.8	-22° 50.0	-22° 50.3	-22° 53.3	-22° 53.5	-22° 53.7	-22° 54.0	-22° 54.2	-22° 54.4	-0.2
za 10	181° 50.3	196° 50.0	211° 49.7	226° 49.4	241° 49.1	256° 48.9	91° 45.2	106° 44.9	121° 44.6	136° 44.3	151° 44.0	166° 43.7	-0.3
	-22° 54.6	-22° 54.9	-22° 55.1	-22° 55.3	-22° 55.5	-22° 55.8	-22° 58.5	-22° 58.8	-22° 59.0	-22° 59.2	-22° 59.4	-22° 59.6	-0.2
zo 11	181° 43.4	196° 43.2	211° 42.9	226° 42.6	241° 42.3	256° 42.0	91° 38.3	106° 38.0	121° 37.7	136° 37.4	151° 37.1	166° 36.8	-0.3
	-22° 59.8	-23° 00.0	-23° 00.2	-23° 00.4	-23° 00.6	-23° 00.8	-23° 03.3	-23° 03.5	-23° 03.7	-23° 03.9	-23° 04.1	-23° 04.3	-0.2
ma 12	181° 36.5	196° 36.2	211° 35.9	226° 35.7	241° 35.4	256° 35.1	91° 31.3	106° 31.0	121° 30.7	136° 30.4	151° 30.1	166° 29.8	-0.3
	-23° 04.5	-23° 04.7	-23° 04.8	-23° 05.0	-23° 05.2	-23° 05.4	-23° 07.7	-23° 07.9	-23° 08.0	-23° 08.2	-23° 08.4	-23° 08.5	-0.2
di 13	181° 29.5	196° 29.2	211° 28.9	226° 28.6	241° 28.3	256° 28.0	91° 24.2	106° 23.9	121° 23.6	136° 23.3	151° 23.0	166° 22.7	-0.3
	-23° 08.7	-23° 08.9	-23° 09.0	-23° 09.2	-23° 09.4	-23° 09.5	-23° 11.6	-23° 11.7	-23° 11.9	-23° 12.0	-23° 12.2	-23° 12.3	-0.2
wo 14	181° 22.4	196° 22.1	211° 21.8	226° 21.5	241° 21.2	256° 20.9	91° 17.0	106° 16.7	121° 16.4	136° 16.1	151° 15.8	166° 15.5	-0.3
	-23° 12.5	-23° 12.6	-23° 12.8	-23° 12.9	-23° 13.1	-23° 13.2	-23° 15.0	-23° 15.1	-23° 15.3	-23° 15.4	-23° 15.5	-23° 15.7	-0.1
do 15	181° 15.2	196° 14.9	211° 14.6	226° 14.3	241° 14.0	256° 13.7	91° 09.8	106° 09.5	121° 09.2	136° 08.9	151° 08.6	166° 08.3	-0.3
	-23° 15.8	-23° 15.9	-23° 16.0	-23° 16.2	-23° 16.3	-23° 16.4	-23° 18.0	-23° 18.1	-23° 18.2	-23° 18.3	-23° 18.4	-23° 18.5	-0.1
vr 16	181° 08.0	196° 07.7	211° 07.4	226° 07.1	241° 06.8	256° 06.5	91° 02.5	106° 02.2	121° 01.9	136° 01.6	151° 01.3	166° 01.0	-0.3
	-23° 18.6	-23° 18.7	-23° 18.8	-23° 19.0	-23° 19.1	-23° 19.2	-23° 20.5	-23° 20.6	-23° 20.6	-23° 20.7	-23° 20.8	-23° 20.9	-0.1
za 17	181° 00.7	196° 00.4	211° 00.1	225° 59.8	240° 59.5	255° 59.2	90° 55.2	105° 54.9	120° 54.6	135° 54.3	150° 54.0	165° 53.6	-0.3
	-23° 21.0	-23° 21.1	-23° 21.2	-23° 21.3	-23° 21.4	-23° 21.4	-23° 22.5	-23° 22.6	-23° 22.6	-23° 22.7	-23° 22.8	-23° 22.8	-0.1
zo 18	180° 53.3	195° 53.0	210° 52.7	225° 52.4	240° 52.1	255° 51.8	90° 47.8	105° 47.5	120° 47.2	135° 46.9	150° 46.6	165° 46.2	-0.3
	-23° 22.9	-23° 23.0	-23° 23.1	-23° 23.1	-23° 23.2	-23° 23.3	-23° 24.0	-23° 24.1	-23° 24.2	-23° 24.2	-23° 24.3	-23° 24.3	-0.1
ma 19	180° 45.9	195° 45.6	210° 45.3	225° 45.0	240° 44.7	255° 44.4	90° 40.4	105° 40.1	120° 39.7	135° 39.4	150° 39.1	165° 38.8	-0.3
	-23° 24.4	-23° 24.4	-23° 24.5	-23° 24.5	-23° 24.6	-23° 24.6	-23° 25.1	-23° 25.2	-23° 25.2	-23° 25.2	-23° 25.3	-23° 25.3	-0.1
di 20	180° 38.5	195° 38.2	210° 37.9	225° 37.6	240° 37.3	255° 37.0	90° 32.9	105° 32.6	120° 32.3	135° 32.0	150° 31.7	165° 31.4	-0.3
	-23° 25.3	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.5	-23° 25.5	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.8	-0.0
wo 21	180° 31.0	195° 30.7	210° 30.4	225° 30.1	240° 29.8	255° 29.5	90° 25.4	105° 25.1	120° 24.8	135° 24.5	150° 24.2	165° 23.9	-0.3
	-23° 25.8	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.9	-0.0
do 22	180° 23.6	195° 23.3	210° 23.0	225° 22.6	240° 22.3	255° 22.0	90° 18.0	105° 17.7	120° 17.3	135° 17.0	150° 16.7	165° 16.4	-0.3
	-23° 25.9	-23° 25.9	-23° 25.9	-23° 25.8	-23° 25.8	-23° 25.8	-23° 25.6	-23° 25.6	-23° 25.5	-23° 25.5	-23° 25.5	-23° 25.5	+0.0
vr 23	180° 16.1	195° 15.8	210° 15.5	225° 15.2	240° 14.9	255° 14.5	90° 10.5	105° 10.2	120° 09.9	135° 09.6	150° 09.2	165° 08.9	-0.3
	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.4	-23° 25.3	-23° 25.3	-23° 24.8	-23° 24.8	-23° 24.7	-23° 24.7	-23° 24.6	-23° 24.6	+0.0
za 24	180° 08.6	195° 08.3	210° 08.0	225° 07.7	240° 07.4	255° 07.1	90° 03.0	105° 02.7	120° 02.4	135° 02.1	150° 01.8	165° 01.5	-0.3
	-23° 24.5	-23° 24.5	-23° 24.4	-23° 24.4	-23° 24.3	-23° 24.3	-23° 23.5	-23° 23.5	-23° 23.4	-23° 23.4	-23° 23.3	-23° 23.2	+0.0
zo 25	180° 01.2	195° 00.9	210° 00.5	225° 00.2	239° 59.9	254° 59.6	89° 55.6	104° 55.3	119° 55.0	134° 54.7	149° 54.3	164° 54.0	-0.3
	-23° 23.2	-23° 23.1	-23° 23.0	-23° 23.0	-23° 22.9	-23° 22.8	-23° 21.8	-23° 21.7	-23° 21.7	-23° 21.6	-23° 21.5	-23° 21.4	+0.1
ma 26	179° 53.7	194° 53.4	209° 53.1	224° 52.8	239° 52.5	254° 52.2	89° 48.2	104° 47.9	119° 47.6	134° 47.2	149° 46.9	164° 46.6	-0.3
	-23° 21.3	-23° 21.2	-23° 21.1	-23° 21.0	-23° 21.0	-23° 20.9	-23° 19.6	-23° 19.5	-23° 19.4	-23° 19.3	-23° 19.2	-23° 19.1	+0.1
di 27	179° 46.3	194° 46.0	209° 45.7	224° 45.4	239° 45.1	254° 44.8	89° 40.8	104° 40.5	119° 40.2	134° 39.9	149° 39.6	164° 39.3	-0.3
	-23° 19.0	-23° 18.9	-23° 18.8	-23° 18.7	-23° 18.6	-23° 18.5	-23° 17.0	-23° 16.8	-23° 16.7	-23° 16.6	-23° 16.5	-23° 16.3	+0.1
wo 28	179° 39.0	194° 38.7	209° 38.4	224° 38.0	239° 37.7	254° 37.4	89° 33.5	104° 33.2	119° 32.9	134° 32.6	149° 32.3	164° 32.0	-0.3
	-23° 16.2	-23° 16.1	-23° 16.0	-23° 15.8	-23° 15.7	-23° 15.6	-23° 13.8	-23° 13.7	-23° 13.5	-23° 13.4	-23° 13.3	-23° 13.1	+0.1
do 29	179° 31.7	194° 31.3	209° 31.0	224° 30.7	239° 30.4	254° 30.1	89° 26.2	104° 25.9	119° 25.6	134° 25.3	149° 25.0	164° 24.7	-0.3
	-23° 13.0	-23° 12.8	-23° 12.7	-23° 12.5	-23° 12.4	-23° 12.2	-23° 10.2	-23° 10.1	-23° 09.9	-23° 09.7	-23° 09.6	-23° 09.4	+0.1
vr 30	179° 24.4	194° 24.1	209° 23.8	224° 23.5	239° 23.2	254° 22.9	89° 19.0	104° 18.7	119° 18.4	134° 18.1	149° 17.8	164° 17.5	-0.3
	-23° 09.3	-23° 09.1	-23° 08.9	-23° 08.8	-23° 08.6	-23° 08.4	-23° 06.2	-23° 06.0	-23° 05.8	-23° 05.6	-23° 05.4	-23° 05.3	+0.2
za 31	179° 17.2	194° 16.9	209° 16.6	224° 16.3	239° 16.0	254° 15.7	89° 11.9	104° 11.6	119° 11.3	134° 11.0	149° 10.7	164° 10.4	-0.3
	-23° 05.1	-23° 04.9	-23° 04.7	-23° 04.5	-23° 04.3	-23° 04.1	-23° 01.6	-23° 01.4	-23° 01.2	-23° 01.0	-23° 00.8	-23° 00.6	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2033

D	23h	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	Δ'/h	SD/HP
do 1	73°36.7	88°05.5	102°34.2	117°02.9	131°31.5	146°00.2	160°28.7	174°57.3	189°25.8	203°54.3	218°22.8	+28.6	16.2
	-0°10.1	0°01.2	0°12.4	0°23.7	0°34.9	0°46.2	0°57.5	1°08.7	1°20.0	1°31.3	1°42.6	+11.3	59.4
vr 2	75°25.2	89°53.1	104°20.9	118°48.6	133°16.4	147°44.0	162°11.6	176°39.2	191°06.7	205°34.2	220°01.7	+27.6	16.4
	4°31.1	4°42.2	4°53.3	5°04.4	5°15.4	5°26.5	5°37.5	5°48.5	5°59.4	6°10.4	6°21.3	+11.0	60.0
za 3	76°47.4	91°14.1	105°40.7	120°07.2	134°33.7	149°00.2	163°26.6	177°52.9	192°19.2	206°45.5	221°11.7	+26.4	16.4
	9°00.1	9°10.3	9°20.5	9°30.6	9°40.6	9°50.6	10°00.6	10°10.5	10°20.3	10°30.0	10°39.7	+10.0	60.3
zo 4	77°38.5	92°03.9	106°29.3	120°54.6	135°19.8	149°45.0	164°10.2	178°35.3	193°00.4	207°25.5	221°50.5	+25.2	16.5
	12°56.4	13°04.8	13°13.2	13°21.5	13°29.7	13°37.9	13°45.9	13°53.8	14°01.7	14°09.4	14°17.1	+8.1	60.5
ma 5	78°00.9	92°25.3	106°49.7	121°14.1	135°38.5	150°02.8	164°27.1	178°51.4	193°15.7	207°39.9	222°04.2	+24.3	16.4
	15°59.5	16°05.5	16°11.3	16°17.1	16°22.7	16°28.2	16°33.6	16°38.8	16°44.0	16°49.0	16°54.0	+5.4	60.3
○ di 6	78°06.3	92°30.4	106°54.6	121°18.7	135°42.8	150°07.0	164°31.1	178°55.3	193°19.5	207°43.7	222°07.9	+24.2	16.3
	17°53.0	17°55.9	17°58.8	18°01.4	18°04.0	18°06.4	18°08.7	18°10.9	18°13.0	18°14.9	18°16.7	+2.4	59.9
wo 7	78°14.1	92°38.8	107°03.5	121°28.3	135°53.1	150°17.9	164°42.8	179°07.8	193°32.7	207°57.8	222°22.8	+24.9	16.2
	18°28.3	18°28.1	18°27.7	18°27.2	18°26.6	18°25.9	18°25.1	18°24.1	18°23.0	18°21.8	18°20.5	-0.8	59.3
do 8	78°45.9	93°11.9	107°38.0	122°04.1	136°30.4	150°56.7	165°23.0	179°49.5	194°16.0	208°42.6	223°09.2	+26.3	15.9
	17°46.6	17°43.4	17°40.2	17°36.8	17°33.3	17°29.8	17°26.1	17°22.3	17°18.4	17°14.4	17°10.3	-3.6	58.4
vr 9	79°58.1	94°26.0	108°53.9	123°22.0	137°50.1	152°18.3	166°46.6	181°14.9	195°43.3	210°11.8	224°40.4	+28.2	15.7
	15°57.6	15°52.1	15°46.4	15°40.7	15°34.9	15°29.0	15°23.1	15°17.0	15°10.9	15°04.7	14°58.4	-5.9	57.5
za 10	81°58.6	96°28.5	110°58.4	125°28.4	139°58.4	154°28.6	168°58.8	183°29.1	197°59.4	212°29.8	227°00.3	+30.2	15.4
	13°16.0	13°08.6	13°01.2	12°53.8	12°46.3	12°38.7	12°31.1	12°23.4	12°15.7	12°07.9	12°00.1	-7.6	56.6
zo 11	84°46.2	99°17.8	113°49.5	128°21.2	142°53.0	157°24.8	171°56.7	186°28.7	201°00.7	215°32.8	230°04.9	+31.9	15.2
	9°57.1	9°48.6	9°40.0	9°31.4	9°22.8	9°14.1	9°05.4	8°56.7	8°47.9	8°39.1	8°30.3	-8.7	55.8
ma 12	88°13.4	102°46.3	117°19.3	131°52.4	146°25.5	160°58.6	175°31.8	190°05.0	204°38.3	219°11.6	233°44.9	+33.2	15.0
	6°14.9	6°05.7	5°56.5	5°47.2	5°38.0	5°28.7	5°19.4	5°10.1	5°00.8	4°51.5	4°42.2	-9.3	55.1
◑ di 13	92°09.1	106°43.0	121°16.9	135°50.8	150°24.7	164°58.7	179°32.6	194°06.6	208°40.6	223°14.7	237°48.7	+34.0	14.9
	2°21.0	2°11.6	2°02.1	1°52.6	1°43.2	1°33.7	1°24.3	1°14.8	1°05.3	0°55.9	0°46.4	-9.5	54.6
wo 14	96°21.3	110°55.6	125°29.8	140°04.1	154°38.3	169°12.6	183°46.9	198°21.2	212°55.4	227°29.7	242°04.0	+34.3	14.8
	-1°35.0	-1°44.3	-1°53.7	-2°03.0	-2°12.4	-2°21.7	-2°31.0	-2°40.3	-2°49.6	-2°58.8	-3°08.1	-9.3	54.3
do 15	100°37.7	115°11.8	129°46.0	144°20.2	158°54.3	173°28.4	188°02.5	202°36.6	217°10.7	231°44.7	246°18.8	+34.1	14.8
	-5°24.8	-5°33.7	-5°42.7	-5°51.6	-6°00.5	-6°09.3	-6°18.2	-6°27.0	-6°35.8	-6°44.5	-6°53.2	-8.8	54.1
vr 16	104°46.8	119°20.5	133°54.1	148°27.8	163°01.3	177°34.9	192°08.4	206°41.9	221°15.4	235°48.8	250°22.2	+33.5	14.8
	-9°00.6	-9°08.8	-9°17.0	-9°25.2	-9°33.3	-9°41.4	-9°49.4	-9°57.4	-10°05.4	-10°13.3	-10°21.2	-8.1	54.1
za 17	108°39.0	123°11.8	137°44.6	152°17.3	166°50.0	181°22.7	195°55.3	210°27.9	225°00.4	239°32.9	254°05.3	+32.6	14.8
	-12°14.2	-12°21.4	-12°28.5	-12°35.6	-12°42.6	-12°49.5	-12°56.4	-13°03.3	-13°10.1	-13°16.8	-13°23.5	-6.9	54.3
zo 18	112°06.7	126°38.5	141°10.2	155°41.8	170°13.4	184°45.0	199°16.5	213°47.9	228°19.3	242°50.7	257°22.0	+31.5	14.9
	-14°56.9	-15°02.6	-15°08.3	-15°13.9	-15°19.4	-15°24.9	-15°30.3	-15°35.6	-15°40.9	-15°46.0	-15°51.2	-5.4	54.6
ma 19	115°06.2	129°36.8	144°07.3	158°37.8	173°08.3	187°38.7	202°09.1	216°39.4	231°09.6	245°39.9	260°10.1	+30.4	15.0
	-16°59.2	-17°03.1	-17°07.0	-17°10.7	-17°14.4	-17°18.0	-17°21.5	-17°25.0	-17°28.3	-17°31.6	-17°34.8	-3.6	55.0
di 20	117°38.0	132°07.6	146°37.1	161°06.6	175°36.1	190°05.5	204°34.9	219°04.2	233°33.5	248°02.8	262°32.1	+29.4	15.1
	-18°12.1	-18°13.9	-18°15.6	-18°17.2	-18°18.7	-18°20.1	-18°21.4	-18°22.6	-18°23.8	-18°24.8	-18°25.7	-1.4	55.5
● wo 21	119°47.6	134°16.4	148°45.2	163°14.0	177°42.8	192°11.6	206°40.3	221°09.0	235°37.7	250°06.4	264°35.1	+28.8	15.3
	-18°28.1	-18°27.5	-18°26.8	-18°26.0	-18°25.1	-18°24.1	-18°22.9	-18°21.7	-18°20.4	-18°19.0	-18°17.5	+1.1	56.0
do 22	121°43.9	136°12.5	150°41.0	165°09.5	179°38.0	194°06.5	208°35.0	223°03.6	237°32.1	252°00.6	266°29.1	+28.5	15.4
	-17°42.8	-17°39.7	-17°36.5	-17°33.2	-17°29.8	-17°26.3	-17°22.7	-17°19.0	-17°15.2	-17°11.4	-17°07.4	+3.5	56.6
vr 23	123°37.3	138°05.9	152°34.5	167°03.1	181°31.7	196°00.4	210°29.0	224°57.7	239°26.4	253°55.1	268°23.8	+28.6	15.6
	-15°56.2	-15°50.7	-15°45.1	-15°39.5	-15°33.7	-15°27.8	-15°21.9	-15°15.9	-15°09.8	-15°03.6	-14°57.3	+5.9	57.1
za 24	125°35.9	140°04.8	154°33.7	169°02.7	183°31.7	198°00.7	212°29.7	226°58.7	241°27.7	255°56.8	270°25.8	+29.0	15.7
	-13°13.0	-13°05.4	-12°57.7	-12°49.9	-12°42.1	-12°34.2	-12°26.3	-12°18.2	-12°10.1	-12°01.9	-11°53.7	+7.9	57.6
zo 25	140°04.8	154°33.7	169°02.7	183°31.7	198°00.7	212°29.7	226°58.7	241°27.7	255°56.8	270°25.8	284°54.9	+29.0	15.7
	-13°05.4	-12°57.7	-12°49.9	-12°42.1	-12°34.2	-12°26.3	-12°18.2	-12°10.1	-12°01.9	-11°53.7	-11°45.3	+8.0	57.6
ma 26	142°12.8	156°42.1	171°11.5	185°40.8	200°10.1	214°39.5	229°08.9	243°38.2	258°07.6	272°37.0	287°06.4	+29.4	15.8
	-9°32.7	-9°23.3	-9°13.9	-9°04.5	-8°55.0	-8°45.5	-8°35.9	-8°26.2	-8°16.5	-8°06.7	-7°56.9	+9.6	58.0
di 27	144°28.5	158°58.0	173°27.5	187°57.0	202°26.5	216°56.0	231°25.5	245°55.1	260°24.6	274°54.1	289°23.6	+29.5	15.9
	-5°24.6	-5°14.1	-5°03.6	-4°53.1	-4°42.5	-4°31.9	-4°21.3	-4°10.6	-3°59.9	-3°49.2	-3°38.5	+10.6	58.4
wo 28	146°45.6	161°15.0	175°44.4	190°13.8	204°43.1	219°12.5	233°41.8	248°11.1	262°40.4	277°09.7	291°38.9	+29.3	16.0
	-0°55.0	-0°44.0	-0°32.9	-0°21.9	-0°10.9	0°00.2	0°11.2	0°22.3	0°33.4	0°44.4	0°55.5	+11.0	58.8
◐ do 29	148°55.3	163°24.2	177°53.1	192°21.9	206°50.8	221°19.5	235°48.3	250°17.0	264°45.7	279°14.3	293°43.0	+28.8	16.1
	3°40.8	3°51.7	4°02.6	4°13.5	4°24.4	4°35.2	4°46.0	4°56.9	5°07.6	5°18.4	5°29.1	+10.8	59.1
vr 30	150°48.0	165°16.0	179°44.0	194°11.9	208°39.8	223°07.7	237°35.5	252°03.3	266°31.0	280°58.7	295°26.3	+27.8	16.2
	8°06.2	8°16.3	8°26.4	8°36.5	8°46.5	8°56.5	9°06.4	9°16.2	9°26.0	9°35.8	9°45.5	+9.9	59.4
za 31	152°15.7	166°42.6	181°09.5	195°36.3	210°03.1	224°29.8	238°56.5	253°23.2	267°49.8	282°16.3	296°42.8	+26.7	16.2
	12°03.7	12°12.4	12°21.0	12°29.5	12°37.9	12°46.3	12°54.6	13°02.8	13°10.9	13°19.0	13°26.9	+8.3	59.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 6 07h22 — LK: 13 15h28 — NM: 21 18h46 — EK: 29 00h20

ZON

Januari 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	179°10.1 -23°00.4	194°09.8 -23°00.2	209°09.5 -23°00.0	224°09.2 -22°59.8	239°08.9 -22°59.6	254°08.6 -22°59.4	89°04.8 -22°56.7	104°04.5 -22°56.4	119°04.2 -22°56.2	134°04.0 -22°56.0	149°03.7 -22°55.8	164°03.4 -22°55.6	-0.3 +0.2
ma 2	179°03.1 -22°55.3	194°02.8 -22°55.1	209°02.5 -22°54.9	224°02.2 -22°54.7	239°01.9 -22°54.4	254°01.6 -22°54.2	88°57.9 -22°51.2	103°57.6 -22°51.0	118°57.3 -22°50.7	133°57.0 -22°50.5	148°56.7 -22°50.3	163°56.4 -22°50.0	-0.3 +0.2
di 3	178°56.1 -22°49.8	193°55.9 -22°49.5	208°55.6 -22°49.3	223°55.3 -22°49.1	238°55.0 -22°48.8	253°54.7 -22°48.6	88°51.0 -22°45.3	103°50.7 -22°45.1	118°50.4 -22°44.8	133°50.2 -22°44.6	148°49.9 -22°44.3	163°49.6 -22°44.0	-0.3 +0.2
wo 4	178°49.3 -22°43.8	193°49.0 -22°43.5	208°48.7 -22°43.3	223°48.5 -22°43.0	238°48.2 -22°42.7	253°47.9 -22°42.5	88°44.2 -22°39.0	103°44.0 -22°38.7	118°43.7 -22°38.4	133°43.4 -22°38.1	148°43.1 -22°37.9	163°42.8 -22°37.6	-0.3 +0.3
do 5	178°42.6 -22°37.3	193°42.3 -22°37.0	208°42.0 -22°36.8	223°41.7 -22°36.5	238°41.4 -22°36.2	253°41.2 -22°35.9	88°37.6 -22°32.2	103°37.3 -22°31.9	118°37.0 -22°31.6	133°36.8 -22°31.3	148°36.5 -22°31.0	163°36.2 -22°30.7	-0.3 +0.3
vr 6	178°35.9 -22°30.4	193°35.7 -22°30.1	208°35.4 -22°29.8	223°35.1 -22°29.5	238°34.8 -22°29.2	253°34.6 -22°28.9	88°31.0 -22°24.9	103°30.8 -22°24.6	118°30.5 -22°24.3	133°30.2 -22°24.0	148°29.9 -22°23.7	163°29.7 -22°23.4	-0.3 +0.3
za 7	178°29.4 -22°23.1	193°29.1 -22°22.7	208°28.9 -22°22.4	223°28.6 -22°22.1	238°28.3 -22°21.8	253°28.1 -22°21.5	88°24.6 -22°17.3	103°24.3 -22°16.9	118°24.1 -22°16.6	133°23.8 -22°16.3	148°23.5 -22°15.9	163°23.3 -22°15.6	-0.3 +0.3
zo 8	178°23.0 -22°15.3	193°22.7 -22°14.9	208°22.5 -22°14.6	223°22.2 -22°14.3	238°21.9 -22°13.9	253°21.7 -22°13.6	88°18.3 -22°09.1	103°18.0 -22°08.8	118°17.8 -22°08.4	133°17.5 -22°08.1	148°17.2 -22°07.7	163°17.0 -22°07.4	-0.3 +0.3
ma 9	178°16.7 -22°07.0	193°16.5 -22°06.7	208°16.2 -22°06.3	223°16.0 -22°06.0	238°15.7 -22°05.6	253°15.4 -22°05.3	88°12.1 -22°00.6	103°11.8 -22°00.2	118°11.6 -21°59.9	133°11.3 -21°59.5	148°11.1 -21°59.1	163°10.8 -21°58.7	-0.3 +0.4
di 10	178°10.6 -21°58.4	193°10.3 -21°58.0	208°10.1 -21°57.6	223°09.8 -21°57.3	238°09.6 -21°56.9	253°09.3 -21°56.5	88°06.1 -21°51.6	103°05.8 -21°51.2	118°05.6 -21°50.8	133°05.3 -21°50.4	148°05.1 -21°50.1	163°04.8 -21°49.7	-0.3 +0.4
wo 11	178°04.6 -21°49.3	193°04.3 -21°48.9	208°04.1 -21°48.5	223°03.8 -21°48.1	238°03.6 -21°47.7	253°03.3 -21°47.3	88°00.2 -21°42.2	102°59.9 -21°41.8	117°59.7 -21°41.4	132°59.4 -21°41.0	147°59.2 -21°40.6	162°58.9 -21°40.2	-0.2 +0.4
do 12	177°58.7 -21°39.8	192°58.5 -21°39.4	207°58.2 -21°39.0	222°58.0 -21°38.5	237°57.7 -21°38.1	252°57.5 -21°37.7	87°54.4 -21°32.4	102°54.2 -21°31.9	117°53.9 -21°31.5	132°53.7 -21°31.1	147°53.4 -21°30.7	162°53.2 -21°30.3	-0.2 +0.4
vr 13	177°53.0 -21°29.8	192°52.7 -21°29.4	207°52.5 -21°29.0	222°52.3 -21°28.6	237°52.0 -21°28.1	252°51.8 -21°27.7	87°48.8 -21°22.1	102°48.5 -21°21.7	117°48.3 -21°21.2	132°48.1 -21°20.8	147°47.9 -21°20.4	162°47.6 -21°19.9	-0.2 +0.4
za 14	177°47.4 -21°19.5	192°47.2 -21°19.0	207°46.9 -21°18.6	222°46.7 -21°18.1	237°46.5 -21°17.7	252°46.3 -21°17.3	87°43.3 -21°11.4	102°43.1 -21°11.0	117°42.9 -21°10.5	132°42.7 -21°10.1	147°42.4 -21°09.6	162°42.2 -21°09.2	-0.2 +0.4
zo 15	177°42.0 -21°08.7	192°41.8 -21°08.2	207°41.5 -21°07.8	222°41.3 -21°07.3	237°41.1 -21°06.9	252°40.9 -21°06.4	87°38.0 -21°00.4	102°37.8 -20°59.9	117°37.6 -20°59.4	132°37.4 -20°59.0	147°37.2 -20°58.5	162°36.9 -20°58.0	-0.2 +0.5
ma 16	177°36.7 -20°57.5	192°36.5 -20°57.1	207°36.3 -20°56.6	222°36.1 -20°56.1	237°35.9 -20°55.6	252°35.7 -20°55.2	87°32.9 -20°48.9	102°32.7 -20°48.4	117°32.5 -20°47.9	132°32.3 -20°47.4	147°32.1 -20°46.9	162°31.9 -20°46.5	-0.2 +0.5
di 17	177°31.6 -20°46.0	192°31.4 -20°45.5	207°31.2 -20°45.0	222°31.0 -20°44.5	237°30.8 -20°44.0	252°30.6 -20°43.5	87°27.9 -20°37.0	102°27.7 -20°36.5	117°27.5 -20°36.0	132°27.3 -20°35.5	147°27.1 -20°35.0	162°26.9 -20°34.5	-0.2 +0.5
wo 18	177°26.7 -20°34.0	192°26.5 -20°33.5	207°26.3 -20°33.0	222°26.1 -20°32.5	237°25.9 -20°32.0	252°25.7 -20°31.5	87°23.2 -20°24.8	102°23.0 -20°24.2	117°22.8 -20°23.7	132°22.6 -20°23.2	147°22.4 -20°22.7	162°22.2 -20°22.2	-0.2 +0.5
do 19	177°22.0 -20°21.6	192°21.8 -20°21.1	207°21.6 -20°20.6	222°21.4 -20°20.1	237°21.2 -20°19.5	252°21.0 -20°19.0	87°18.6 -20°12.1	102°18.4 -20°11.6	117°18.2 -20°11.0	132°18.0 -20°10.5	147°17.8 -20°10.0	162°17.6 -20°09.4	-0.2 +0.5
vr 20	177°17.4 -20°08.9	192°17.2 -20°08.4	207°17.1 -20°07.8	222°16.9 -20°07.3	237°16.7 -20°06.7	252°16.5 -20°06.2	87°14.1 -19°59.1	102°14.0 -19°58.5	117°13.8 -19°58.0	132°13.6 -19°57.4	147°13.4 -19°56.9	162°13.2 -19°56.3	-0.2 +0.5
za 21	177°13.1 -19°55.8	192°12.9 -19°55.2	207°12.7 -19°54.7	222°12.5 -19°54.1	237°12.4 -19°53.6	252°12.2 -19°53.0	87°09.9 -19°45.7	102°09.7 -19°45.1	117°09.6 -19°44.6	132°09.4 -19°44.0	147°09.2 -19°43.4	162°09.1 -19°42.9	-0.2 +0.6
zo 22	177°08.9 -19°42.3	192°08.7 -19°41.7	207°08.5 -19°41.1	222°08.4 -19°40.6	237°08.2 -19°40.0	252°08.0 -19°39.4	87°05.9 -19°31.9	102°05.7 -19°31.3	117°05.5 -19°30.8	132°05.4 -19°30.2	147°05.2 -19°29.6	162°05.1 -19°29.0	-0.2 +0.6
ma 23	177°04.9 -19°28.4	192°04.7 -19°27.8	207°04.6 -19°27.3	222°04.4 -19°26.7	237°04.2 -19°26.1	252°04.1 -19°25.5	87°02.0 -19°17.8	102°01.9 -19°17.2	117°01.7 -19°16.6	132°01.6 -19°16.0	147°01.4 -19°15.4	162°01.3 -19°14.8	-0.2 +0.6
di 24	177°01.1 -19°14.2	192°00.9 -19°13.6	207°00.8 -19°13.0	222°00.6 -19°12.4	237°00.5 -19°11.8	252°00.3 -19°11.2	86°58.4 -19°03.3	101°58.2 -19°02.7	116°58.1 -19°02.1	131°57.9 -19°01.5	146°57.8 -19°00.9	161°57.7 -19°00.3	-0.2 +0.6
wo 25	176°57.5 -18°59.6	191°57.4 -18°59.0	206°57.2 -18°58.4	221°57.1 -18°57.8	236°56.9 -18°57.2	251°56.8 -18°56.6	86°54.9 -18°48.5	101°54.8 -18°47.9	116°54.7 -18°47.2	131°54.5 -18°46.6	146°54.4 -18°46.0	161°54.3 -18°45.4	-0.1 +0.6
do 26	176°54.1 -18°44.7	191°54.0 -18°44.1	206°53.8 -18°43.5	221°53.7 -18°42.8	236°53.6 -18°42.2	251°53.4 -18°41.6	86°51.7 -18°33.3	101°51.6 -18°32.7	116°51.5 -18°32.0	131°51.3 -18°31.4	146°51.2 -18°30.8	161°51.1 -18°30.1	-0.1 +0.6
vr 27	176°50.9 -18°29.5	191°50.8 -18°28.8	206°50.7 -18°28.2	221°50.6 -18°27.5	236°50.4 -18°26.9	251°50.3 -18°26.3	86°48.7 -18°17.8	101°48.6 -18°17.2	116°48.4 -18°16.5	131°48.3 -18°15.8	146°48.2 -18°15.2	161°48.1 -18°14.5	-0.1 +0.6
za 28	176°48.0 -18°13.9	191°47.8 -18°13.2	206°47.7 -18°12.6	221°47.6 -18°11.9	236°47.5 -18°11.2	251°47.4 -18°10.6	86°45.9 -18°02.0	101°45.8 -18°01.3	116°45.6 -18°00.6	131°45.5 -18°00.0	146°45.4 -17°59.3	161°45.3 -17°58.6	-0.1 +0.7
zo 29	176°45.2 -17°58.0	191°45.1 -17°57.3	206°45.0 -17°56.6	221°44.9 -17°55.9	236°44.8 -17°55.3	251°44.6 -17°54.6	86°43.3 -17°45.8	101°43.1 -17°45.1	116°43.0 -17°44.4	131°42.9 -17°43.8	146°42.8 -17°43.1	161°42.7 -17°42.4	-0.1 +0.7
ma 30	176°42.6 -17°41.7	191°42.5 -17°41.0	206°42.4 -17°40.4	221°42.3 -17°39.7	236°42.2 -17°39.0	251°42.1 -17°38.3	86°40.8 -17°29.3	101°40.8 -17°28.6	116°40.7 -17°27.9	131°40.6 -17°27.3	146°40.5 -17°26.6	161°40.4 -17°25.9	-0.1 +0.7
di 31	176°40.3 -17°25.2	191°40.2 -17°24.5	206°40.1 -17°23.8	221°40.0 -17°23.1	236°39.9 -17°22.4	251°39.8 -17°21.7	86°38.6 -17°12.5	101°38.6 -17°11.8	116°38.5 -17°11.1	131°38.4 -17°10.4	146°38.3 -17°09.7	161°38.2 -17°09.0	-0.1 +0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2034

D	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	SD/HP
zo 1	66°39.5	81°05.6	95°31.6	109°57.6	124°23.6	138°49.5	153°15.4	167°41.2	182°07.0	196°32.8	210°58.5	+25.9	16.2
	14°34.7	14°41.8	14°48.8	14°55.7	15°02.5	15°09.2	15°15.8	15°22.3	15°28.7	15°35.0	15°41.2	+6.7	59.5
ma 2	67°20.5	81°45.8	96°11.0	110°36.2	125°01.4	139°26.5	153°51.7	168°16.8	182°41.9	197°07.0	211°32.0	+25.1	16.2
	17°01.5	17°06.0	17°10.4	17°14.6	17°18.8	17°22.8	17°26.7	17°30.5	17°34.1	17°37.7	17°41.1	+4.0	59.4
di 3	67°47.1	82°12.1	96°37.1	111°02.1	125°27.2	139°52.2	154°17.2	168°42.3	183°07.4	197°32.4	211°57.5	+25.0	16.1
	18°18.3	18°19.8	18°21.2	18°22.4	18°23.6	18°24.6	18°25.5	18°26.2	18°26.9	18°27.4	18°27.8	+1.0	59.1
○ wo 4	68°16.8	82°42.3	97°07.9	111°33.5	125°59.1	140°24.8	154°50.5	169°16.3	183°42.1	198°07.9	212°33.8	+25.7	16.0
	18°19.5	18°18.0	18°16.3	18°14.6	18°12.7	18°10.8	18°08.7	18°06.5	18°04.2	18°01.7	17°59.2	-2.0	58.6
do 5	69°08.4	83°35.2	98°02.0	112°28.9	126°55.8	141°22.8	155°49.9	170°17.0	184°44.2	199°11.4	213°38.8	+27.0	15.8
	17°08.1	17°03.9	16°59.6	16°55.1	16°50.6	16°46.0	16°41.2	16°36.4	16°31.5	16°26.5	16°21.4	-4.7	58.0
vr 6	70°36.7	85°05.1	99°33.6	114°02.1	128°30.7	142°59.4	157°28.2	171°57.0	186°26.0	200°54.9	215°24.0	+28.7	15.6
	14°54.5	14°48.0	14°41.5	14°34.9	14°28.2	14°21.5	14°14.7	14°07.8	14°00.8	13°53.8	13°46.7	-6.8	57.3
za 7	72°48.2	87°18.4	101°48.6	116°18.9	130°49.3	145°19.7	159°50.2	174°20.8	188°51.5	203°22.2	217°52.9	+30.5	15.4
	11°52.9	11°44.9	11°36.8	11°28.7	11°20.5	11°12.2	11°04.0	10°55.6	10°47.3	10°38.8	10°30.4	-8.3	56.5
zo 8	75°42.0	90°13.7	104°45.6	119°17.4	133°49.3	148°21.3	162°53.3	177°25.4	191°57.5	206°29.7	221°02.0	+32.0	15.2
	8°18.9	8°09.9	8°00.8	7°51.7	7°42.6	7°33.5	7°24.3	7°15.1	7°05.9	6°56.7	6°47.4	-9.2	55.8
ma 9	79°11.2	93°44.2	108°17.2	122°50.3	137°23.4	151°56.5	166°29.7	181°02.9	195°36.1	210°09.4	224°42.7	+33.1	15.0
	4°26.5	4°17.0	4°07.5	3°58.0	3°48.4	3°38.9	3°29.3	3°19.8	3°10.2	3°00.7	2°51.1	-9.5	55.2
di 10	83°05.9	97°39.7	112°13.4	126°47.2	141°21.0	155°54.9	170°28.7	185°02.6	199°36.5	214°10.4	228°44.3	+33.8	14.9
	0°27.5	0°18.0	0°08.4	-0°01.1	-0°10.6	-0°20.2	-0°29.7	-0°39.2	-0°48.7	-0°58.2	-1°07.7	-9.5	54.7
wo 11	87°14.5	101°48.6	116°22.7	130°56.7	145°30.8	160°04.9	174°39.0	189°13.0	203°47.1	218°21.2	232°55.3	+34.1	14.8
	-3°28.3	-3°37.5	-3°46.7	-3°55.9	-4°05.1	-4°14.3	-4°23.4	-4°32.6	-4°41.7	-4°50.7	-4°59.8	-9.2	54.3
◑ do 12	91°25.5	105°59.4	120°33.3	135°07.2	149°41.1	164°15.0	178°48.8	193°22.6	207°56.4	222°30.2	237°04.0	+33.9	14.8
	-7°12.5	-7°21.2	-7°29.8	-7°38.3	-7°46.9	-7°55.3	-8°03.8	-8°12.2	-8°20.6	-8°29.0	-8°37.3	-8.5	54.2
vr 13	95°27.7	110°01.1	124°34.4	139°07.8	153°41.0	168°14.3	182°47.5	197°20.7	211°53.8	226°26.9	241°00.0	+33.2	14.8
	-10°37.6	-10°45.3	-10°53.0	-11°00.6	-11°08.1	-11°15.7	-11°23.1	-11°30.6	-11°37.9	-11°45.3	-11°52.5	-7.5	54.2
za 14	99°11.7	113°44.2	128°16.6	142°49.0	157°21.3	171°53.6	186°25.9	200°58.1	215°30.2	230°02.4	244°34.4	+32.3	14.8
	-13°35.7	-13°42.1	-13°48.5	-13°54.8	-14°01.1	-14°07.3	-14°13.5	-14°19.6	-14°25.6	-14°31.6	-14°37.5	-6.2	54.5
zo 15	102°30.1	117°01.4	131°32.7	146°03.9	160°35.1	175°06.2	189°37.3	204°08.4	218°39.4	233°10.3	247°41.2	+31.1	15.0
	-15°58.4	-16°03.2	-16°08.0	-16°12.7	-16°17.3	-16°21.9	-16°26.4	-16°30.8	-16°35.1	-16°39.4	-16°43.6	-4.5	54.8
ma 16	105°19.0	119°49.1	134°19.2	148°49.2	163°19.2	177°49.2	192°19.1	206°48.9	221°18.7	235°48.5	250°18.2	+29.9	15.1
	-17°36.9	-17°39.8	-17°42.6	-17°45.4	-17°48.0	-17°50.6	-17°53.0	-17°55.4	-17°57.7	-17°59.9	-18°02.0	-2.5	55.4
di 17	107°39.0	122°08.1	136°37.1	151°06.1	165°35.1	180°04.0	194°32.9	209°01.7	223°30.5	237°59.3	252°28.1	+28.9	15.3
	-18°22.7	-18°23.3	-18°23.9	-18°24.3	-18°24.7	-18°24.9	-18°25.0	-18°25.1	-18°25.0	-18°24.9	-18°24.6	-0.2	56.0
wo 18	109°35.8	124°04.1	138°32.3	153°00.6	167°28.8	181°57.1	196°25.3	210°53.5	225°21.6	239°49.8	254°17.9	+28.2	15.5
	-18°08.9	-18°07.0	-18°05.0	-18°03.0	-18°00.8	-17°58.5	-17°56.2	-17°53.7	-17°51.1	-17°48.4	-17°45.7	+2.3	56.7
do 19	111°18.3	125°46.3	140°14.2	154°42.2	169°10.1	183°38.1	198°06.0	212°33.9	227°01.9	241°29.8	255°57.7	+27.9	15.6
	-16°51.8	-16°47.4	-16°42.9	-16°38.3	-16°33.6	-16°28.8	-16°23.9	-16°18.9	-16°13.8	-16°08.7	-16°03.4	+4.8	57.3
● vr 20	112°57.0	127°25.0	141°53.0	156°21.0	170°49.1	185°17.1	199°45.1	214°13.2	228°41.2	243°09.3	257°37.4	+28.0	15.8
	-14°32.8	-14°26.1	-14°19.2	-14°12.3	-14°05.2	-13°58.1	-13°50.9	-13°43.6	-13°36.2	-13°28.8	-13°21.2	+7.2	57.9
za 21	114°40.2	129°08.4	143°36.8	158°05.1	172°33.4	187°01.8	201°30.1	215°58.5	230°26.9	244°55.3	259°23.7	+28.4	15.9
	-11°18.7	-11°09.9	-11°01.1	-10°52.2	-10°43.2	-10°34.2	-10°25.1	-10°15.9	-10°06.7	-9°57.4	-9°48.1	+9.1	58.4
zo 22	116°31.7	131°00.3	145°29.0	159°57.7	174°26.3	188°55.0	203°23.7	217°52.4	232°21.1	246°49.9	261°18.6	+28.7	16.0
	-7°21.0	-7°10.8	-7°00.6	-6°50.3	-6°39.9	-6°29.5	-6°19.1	-6°08.6	-5°58.1	-5°47.6	-5°37.0	+10.4	58.8
ma 23	118°30.7	132°59.5	147°28.4	161°57.2	176°26.1	190°55.0	205°23.8	219°52.7	234°21.6	248°50.4	263°19.3	+28.9	16.1
	-2°54.8	-2°43.8	-2°32.8	-2°21.7	-2°10.7	-1°59.6	-1°48.5	-1°37.4	-1°26.3	-1°15.2	-1°04.1	+11.1	59.1
di 24	132°59.5	147°28.4	161°57.2	176°26.1	190°55.0	205°23.8	219°52.7	234°21.6	248°50.4	263°19.3	277°48.2	+28.9	16.1
	-2°43.8	-2°32.8	-2°21.7	-2°10.7	-1°59.6	-1°48.5	-1°37.4	-1°26.3	-1°15.2	-1°04.1	-0°52.9	+11.1	59.1
wo 25	135°00.7	149°29.5	163°58.3	178°27.0	192°55.8	207°24.5	221°53.3	236°22.0	250°50.7	265°19.4	279°48.1	+28.7	16.1
	1°54.2	2°05.3	2°16.3	2°27.4	2°38.5	2°49.5	3°00.5	3°11.5	3°22.5	3°33.5	3°44.5	+11.0	59.2
do 26	136°56.4	151°24.8	165°53.2	180°21.5	194°49.9	209°18.2	223°46.5	238°14.7	252°43.0	267°11.2	281°39.4	+28.3	16.1
	6°25.5	6°35.9	6°46.4	6°56.8	7°07.1	7°17.4	7°27.7	7°37.9	7°48.1	7°58.2	8°08.3	+10.3	59.2
◐ vr 27	138°39.0	153°06.8	167°34.5	182°02.2	196°29.9	210°57.5	225°25.1	239°52.7	254°20.2	268°47.7	283°15.2	+27.6	16.1
	10°32.9	10°42.1	10°51.2	11°00.2	11°09.2	11°18.1	11°26.9	11°35.7	11°44.4	11°53.0	12°01.5	+8.9	59.1
za 28	140°03.6	154°30.6	168°57.6	183°24.5	197°51.4	212°18.3	226°45.1	241°11.9	255°38.7	270°05.5	284°32.2	+26.9	16.1
	14°00.3	14°07.5	14°14.7	14°21.8	14°28.7	14°35.6	14°42.4	14°49.1	14°55.8	15°02.3	15°08.7	+6.8	59.0
zo 29	141°10.0	155°36.3	170°02.7	184°29.0	198°55.2	213°21.5	227°47.7	242°14.0	256°40.2	271°06.4	285°32.6	+26.3	16.0
	16°33.3	16°38.1	16°42.9	16°47.5	16°52.0	16°56.4	17°00.7	17°04.9	17°08.9	17°12.9	17°16.8	+4.3	58.7
ma 30	142°04.1	156°30.2	170°56.2	185°22.3	199°48.3	214°14.4	228°40.5	243°06.5	257°32.6	271°58.7	286°24.8	+26.1	15.9
	18°01.3	18°03.4	18°05.3	18°07.1	18°08.9	18°10.5	18°12.0	18°13.3	18°14.6	18°15.8	18°16.8	+1.6	58.4
di 31	142°57.5	157°23.8	171°50.2	186°16.6	200°43.0	215°09.4	229°35.8	244°02.3	258°28.8	272°55.3	287°21.9	+26.4	15.8
	18°18.6	18°17.8	18°16.9	18°15.9	18°14.8	18°13.5	18°12.2	18°10.7	18°09.1	18°07.5	18°05.7	-1.3	58.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 4 19h47 — LK: 12 13h17 — NM: 20 10h01 — EK: 27 08h32

ZON

Februari 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	176°38.1	191°38.0	206°38.0	221°37.9	236°37.8	251°37.7	86°36.7	101°36.6	116°36.5	131°36.4	146°36.3	161°36.3	-0.1
	-17°08.3	-17°07.6	-17°06.9	-17°06.2	-17°05.5	-17°04.8	-16°55.5	-16°54.7	-16°54.0	-16°53.3	-16°52.6	-16°51.9	+0.7
do 2	176°36.2	191°36.1	206°36.0	221°36.0	236°35.9	251°35.8	86°34.9	101°34.8	116°34.7	131°34.7	146°34.6	161°34.5	-0.1
	-16°51.1	-16°50.4	-16°49.7	-16°49.0	-16°48.2	-16°47.5	-16°38.1	-16°37.3	-16°36.6	-16°35.9	-16°35.1	-16°34.4	+0.7
vr 3	176°34.5	191°34.4	206°34.3	221°34.3	236°34.2	251°34.1	86°33.3	101°33.2	116°33.2	131°33.1	146°33.0	161°33.0	-0.1
	-16°33.7	-16°32.9	-16°32.2	-16°31.5	-16°30.7	-16°30.0	-16°20.4	-16°19.7	-16°18.9	-16°18.2	-16°17.4	-16°16.7	+0.7
za 4	176°32.9	191°32.9	206°32.8	221°32.8	236°32.7	251°32.6	86°31.9	101°31.9	116°31.8	131°31.8	146°31.7	161°31.7	-0.1
	-16°15.9	-16°15.2	-16°14.4	-16°13.7	-16°12.9	-16°12.2	-16°02.4	-16°01.7	-16°00.9	-16°00.2	-15°59.4	-15°58.7	+0.7
zo 5	176°31.6	191°31.5	206°31.5	221°31.4	236°31.4	251°31.3	86°30.7	101°30.7	116°30.6	131°30.6	146°30.6	161°30.5	-0.1
	-15°57.9	-15°57.1	-15°56.4	-15°55.6	-15°54.9	-15°54.1	-15°44.2	-15°43.4	-15°42.7	-15°41.9	-15°41.1	-15°40.4	+0.8
ma 6	176°30.5	191°30.4	206°30.4	221°30.3	236°30.3	251°30.3	86°29.8	101°29.7	116°29.7	131°29.6	146°29.6	161°29.6	-0.0
	-15°39.6	-15°38.8	-15°38.1	-15°37.3	-15°36.5	-15°35.7	-15°25.7	-15°24.9	-15°24.1	-15°23.4	-15°22.6	-15°21.8	+0.8
di 7	176°29.5	191°29.5	206°29.5	221°29.4	236°29.4	251°29.4	86°29.0	101°28.9	116°28.9	131°28.9	146°28.9	161°28.8	-0.0
	-15°21.0	-15°20.2	-15°19.5	-15°18.7	-15°17.9	-15°17.1	-15°06.9	-15°06.1	-15°05.3	-15°04.6	-15°03.8	-15°03.0	+0.8
wo 8	176°28.8	191°28.8	206°28.8	221°28.7	236°28.7	251°28.7	86°28.4	101°28.4	116°28.3	131°28.3	146°28.3	161°28.3	-0.0
	-15°02.2	-15°01.4	-15°00.6	-14°59.8	-14°59.0	-14°58.2	-14°47.9	-14°47.1	-14°46.3	-14°45.5	-14°44.7	-14°43.9	+0.8
do 9	176°28.3	191°28.2	206°28.2	221°28.2	236°28.2	251°28.2	86°28.0	101°28.0	116°28.0	131°27.9	146°27.9	161°27.9	-0.0
	-14°43.1	-14°42.3	-14°41.5	-14°40.7	-14°39.9	-14°39.1	-14°28.6	-14°27.8	-14°27.0	-14°26.2	-14°25.4	-14°24.6	+0.8
vr 10	176°27.9	191°27.9	206°27.9	221°27.9	236°27.9	251°27.9	86°27.8	101°27.8	116°27.8	131°27.8	146°27.8	161°27.8	-0.0
	-14°23.8	-14°22.9	-14°22.1	-14°21.3	-14°20.5	-14°19.7	-14°09.1	-14°08.3	-14°07.5	-14°06.6	-14°05.8	-14°05.0	+0.8
za 11	176°27.8	191°27.8	206°27.8	221°27.7	236°27.7	251°27.7	86°27.8	101°27.8	116°27.8	131°27.8	146°27.8	161°27.8	-0.0
	-14°04.2	-14°03.4	-14°02.5	-14°01.7	-14°00.9	-14°00.1	-13°49.3	-13°48.5	-13°47.7	-13°46.9	-13°46.0	-13°45.2	+0.8
zo 12	176°27.8	191°27.8	206°27.8	221°27.8	236°27.8	251°27.8	86°27.9	101°27.9	116°27.9	131°28.0	146°28.0	161°28.0	+0.0
	-13°44.4	-13°43.5	-13°42.7	-13°41.9	-13°41.0	-13°40.2	-13°29.4	-13°28.5	-13°27.7	-13°26.8	-13°26.0	-13°25.2	+0.8
ma 13	176°28.0	191°28.0	206°28.0	221°28.0	236°28.0	251°28.1	86°28.3	101°28.3	116°28.3	131°28.3	146°28.4	161°28.4	+0.0
	-13°24.3	-13°23.5	-13°22.6	-13°21.8	-13°21.0	-13°20.1	-13°09.1	-13°08.3	-13°07.4	-13°06.6	-13°05.8	-13°04.9	+0.8
di 14	176°28.4	191°28.4	206°28.4	221°28.5	236°28.5	251°28.5	86°28.8	101°28.8	116°28.9	131°28.9	146°28.9	161°28.9	+0.0
	-13°04.1	-13°03.2	-13°02.4	-13°01.5	-13°00.7	-12°59.8	-12°48.7	-12°47.9	-12°47.0	-12°46.2	-12°45.3	-12°44.4	+0.8
wo 15	176°29.0	191°29.0	206°29.0	221°29.0	236°29.1	251°29.1	86°29.5	101°29.5	116°29.6	131°29.6	146°29.6	161°29.7	+0.0
	-12°43.6	-12°42.7	-12°41.9	-12°41.0	-12°40.1	-12°39.3	-12°28.1	-12°27.2	-12°26.4	-12°25.5	-12°24.6	-12°23.8	+0.9
do 16	176°29.7	191°29.8	206°29.8	221°29.8	236°29.9	251°29.9	86°30.4	101°30.4	116°30.5	131°30.5	146°30.6	161°30.6	+0.0
	-12°22.9	-12°22.0	-12°21.2	-12°20.3	-12°19.4	-12°18.6	-12°07.3	-12°06.4	-12°05.5	-12°04.6	-12°03.8	-12°02.9	+0.9
vr 17	176°30.6	191°30.7	206°30.7	221°30.8	236°30.8	251°30.9	86°31.5	101°31.5	116°31.5	131°31.6	146°31.6	161°31.7	+0.0
	-12°02.0	-12°01.1	-12°00.3	-11°59.4	-11°58.5	-11°57.6	-11°46.2	-11°45.3	-11°44.5	-11°43.6	-11°42.7	-11°41.8	+0.9
za 18	176°31.7	191°31.8	206°31.8	221°31.9	236°31.9	251°32.0	86°32.7	101°32.7	116°32.8	131°32.8	146°32.9	161°33.0	+0.0
	-11°40.9	-11°40.1	-11°39.2	-11°38.3	-11°37.4	-11°36.5	-11°25.0	-11°24.1	-11°23.2	-11°22.3	-11°21.5	-11°20.6	+0.9
zo 19	176°33.0	191°33.1	206°33.1	221°33.2	236°33.2	251°33.3	86°34.1	101°34.1	116°34.2	131°34.3	146°34.3	161°34.4	+0.1
	-11°19.7	-11°18.8	-11°17.9	-11°17.0	-11°16.1	-11°15.2	-11°03.6	-11°02.7	-11°01.8	-11°00.9	-11°00.0	-10°59.1	+0.9
ma 20	176°34.5	191°34.5	206°34.6	221°34.6	236°34.7	251°34.8	86°35.6	101°35.7	116°35.8	131°35.8	146°35.9	161°36.0	+0.1
	-10°58.2	-10°57.3	-10°56.5	-10°55.6	-10°54.7	-10°53.8	-10°42.1	-10°41.2	-10°40.3	-10°39.3	-10°38.4	-10°37.5	+0.9
di 21	176°36.1	191°36.1	206°36.2	221°36.3	236°36.3	251°36.4	86°37.4	101°37.4	116°37.5	131°37.6	146°37.7	161°37.7	+0.1
	-10°36.6	-10°35.7	-10°34.8	-10°33.9	-10°33.0	-10°32.1	-10°20.3	-10°19.4	-10°18.5	-10°17.6	-10°16.7	-10°15.8	+0.9
wo 22	176°37.8	191°37.9	206°38.0	221°38.1	236°38.1	251°38.2	86°39.3	101°39.3	116°39.4	131°39.5	146°39.6	161°39.7	+0.1
	-10°14.9	-10°14.0	-10°13.0	-10°12.1	-10°11.2	-10°10.3	-9°58.4	-9°57.5	-9°56.6	-9°55.7	-9°54.8	-9°53.9	+0.9
do 23	176°39.7	191°39.8	206°39.9	221°40.0	236°40.1	251°40.2	86°41.3	101°41.4	116°41.5	131°41.6	146°41.7	161°41.7	+0.1
	-9°52.9	-9°52.0	-9°51.1	-9°50.2	-9°49.3	-9°48.4	-9°36.4	-9°35.5	-9°34.6	-9°33.6	-9°32.7	-9°31.8	+0.9
vr 24	176°41.8	191°41.9	206°42.0	221°42.1	236°42.2	251°42.3	86°43.5	101°43.6	116°43.7	131°43.8	146°43.9	161°44.0	+0.1
	-9°30.9	-9°29.9	-9°29.0	-9°28.1	-9°27.2	-9°26.2	-9°14.2	-9°13.3	-9°12.4	-9°11.4	-9°10.5	-9°09.6	+0.9
za 25	176°44.1	191°44.2	206°44.3	221°44.4	236°44.5	251°44.6	86°45.9	101°46.0	116°46.1	131°46.2	146°46.3	161°46.4	+0.1
	-9°08.6	-9°07.7	-9°06.8	-9°05.9	-9°04.9	-9°04.0	-8°51.9	-8°51.0	-8°50.0	-8°49.1	-8°48.2	-8°47.2	+0.9
zo 26	176°46.5	191°46.6	206°46.7	221°46.8	236°46.9	251°47.0	86°48.3	101°48.5	116°48.6	131°48.7	146°48.8	161°48.9	+0.1
	-8°46.3	-8°45.4	-8°44.4	-8°43.5	-8°42.6	-8°41.6	-8°29.4	-8°28.5	-8°27.6	-8°26.6	-8°25.7	-8°24.7	+0.9
ma 27	176°49.0	191°49.1	206°49.2	221°49.3	236°49.4	251°49.5	86°51.0	101°51.1	116°51.2	131°51.3	146°51.4	161°51.6	+0.1
	-8°23.8	-8°22.9	-8°21.9	-8°21.0	-8°20.0	-8°19.1	-8°06.9	-8°05.9	-8°05.0	-8°04.0	-8°03.1	-8°02.1	+0.9
di 28	176°51.7	191°51.8	206°51.9	221°52.0	236°52.1	251°52.2	86°53.8	101°53.9	116°54.0	131°54.1	146°54.2	161°54.4	+0.1
	-8°01.2	-8°00.3	-7°59.3	-7°58.4	-7°57.4	-7°56.5	-7°44.2	-7°43.2	-7°42.3	-7°41.3	-7°40.4	-7°39.4	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2034

D	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
wo 1	71°49.4	86°16.3	100°43.3	115°10.4	129°37.4	144°04.5	158°31.7	172°58.9	187°26.2	201°53.4	216°20.8	+27.1	15.7
	17°41.8	17°38.9	17°35.8	17°32.6	17°29.3	17°26.0	17°22.5	17°18.9	17°15.2	17°11.4	17°07.6	-3.4	57.7
do 2	73°16.7	87°44.9	102°13.1	116°41.3	131°09.6	145°38.0	160°06.4	174°34.9	189°03.4	203°32.0	218°00.7	+28.4	15.6
	15°58.0	15°52.6	15°47.2	15°41.7	15°36.0	15°30.3	15°24.6	15°18.7	15°12.8	15°06.7	15°00.6	-5.7	57.2
○ vr 3	75°17.3	89°46.9	104°16.5	118°46.2	133°15.9	147°45.8	162°15.6	176°45.6	191°15.5	205°45.6	220°15.7	+29.8	15.4
	13°20.2	13°13.0	13°05.6	12°58.3	12°50.8	12°43.3	12°35.8	12°28.2	12°20.5	12°12.8	12°05.0	-7.5	56.7
za 4	77°54.1	92°25.1	106°56.2	121°27.3	135°58.5	150°29.7	165°01.0	179°32.3	194°03.7	208°35.1	223°06.6	+31.3	15.3
	10°02.0	9°53.5	9°44.9	9°36.2	9°27.5	9°18.8	9°10.1	9°01.3	8°52.4	8°43.6	8°34.7	-8.7	56.1
zo 5	81°04.8	95°37.0	110°09.3	124°41.7	139°14.0	153°46.5	168°18.9	182°51.4	197°24.0	211°56.5	226°29.2	+32.4	15.1
	6°17.7	6°08.3	5°59.0	5°49.6	5°40.2	5°30.8	5°21.4	5°12.0	5°02.5	4°53.1	4°43.6	-9.4	55.5
ma 6	84°42.8	99°16.0	113°49.2	128°22.4	142°55.7	157°29.0	172°02.3	186°35.6	201°09.0	215°42.4	230°15.8	+33.3	15.0
	2°20.3	2°10.7	2°01.1	1°51.5	1°41.9	1°32.3	1°22.7	1°13.1	1°03.5	0°53.9	0°44.3	-9.6	55.0
di 7	88°39.4	103°13.2	117°46.9	132°20.6	146°54.4	161°28.2	176°01.9	190°35.7	205°09.5	219°43.3	234°17.1	+33.8	14.9
	-1°38.7	-1°48.1	-1°57.6	-2°07.0	-2°16.4	-2°25.8	-2°35.2	-2°44.5	-2°53.9	-3°03.2	-3°12.5	-9.4	54.6
wo 8	92°45.0	107°18.8	121°52.7	136°26.5	151°00.4	165°34.2	180°08.1	194°41.9	209°15.8	223°49.6	238°23.4	+33.8	14.8
	-5°29.4	-5°38.4	-5°47.3	-5°56.2	-6°05.0	-6°13.8	-6°22.6	-6°31.4	-6°40.1	-6°48.8	-6°57.5	-8.8	54.3
do 9	96°49.5	111°23.1	125°56.7	140°30.3	155°03.9	169°37.4	184°10.9	198°44.4	213°17.9	227°51.4	242°24.9	+33.5	14.8
	-9°03.5	-9°11.6	-9°19.7	-9°27.7	-9°35.7	-9°43.6	-9°51.5	-9°59.4	-10°07.2	-10°15.0	-10°22.7	-7.9	54.2
vr 10	100°43.7	115°16.7	129°49.7	144°22.7	158°55.6	173°28.5	188°01.4	202°34.3	217°07.1	231°39.8	246°12.6	+32.9	14.8
	-12°13.1	-12°20.1	-12°27.0	-12°33.8	-12°40.6	-12°47.4	-12°54.1	-13°00.8	-13°07.4	-13°13.9	-13°20.4	-6.7	54.2
◑ za 11	104°19.5	118°51.7	133°23.8	147°55.9	162°27.9	176°59.9	191°31.9	206°03.8	220°35.7	235°07.5	249°39.3	+32.0	14.8
	-14°50.6	-14°56.2	-15°01.6	-15°07.0	-15°12.4	-15°17.6	-15°22.8	-15°28.0	-15°33.0	-15°38.0	-15°43.0	-5.2	54.5
zo 12	107°31.1	122°02.2	136°33.3	151°04.3	165°35.2	180°06.2	194°37.0	209°07.9	223°38.7	238°09.4	252°40.1	+30.9	15.0
	-16°48.4	-16°52.2	-16°55.9	-16°59.5	-17°03.0	-17°06.5	-17°09.9	-17°13.2	-17°16.4	-17°19.6	-17°22.6	-3.4	54.9
ma 13	110°15.4	124°45.4	139°15.3	153°45.2	168°15.1	182°45.0	197°14.7	211°44.5	226°14.2	240°43.9	255°13.5	+29.8	15.1
	-17°58.6	-18°00.3	-18°01.9	-18°03.5	-18°04.9	-18°06.3	-18°07.5	-18°08.7	-18°09.8	-18°10.8	-18°11.7	-1.3	55.5
di 14	112°33.1	127°02.1	141°31.1	156°00.0	170°28.9	184°57.8	199°26.6	213°55.4	228°24.2	242°53.0	257°21.7	+28.9	15.3
	-18°13.9	-18°13.3	-18°12.6	-18°11.8	-18°10.9	-18°09.9	-18°08.8	-18°07.6	-18°06.3	-18°04.9	-18°03.4	+1.1	56.2
wo 15	114°28.8	128°57.0	143°25.3	157°53.5	172°21.7	186°49.9	201°18.0	215°46.1	230°14.3	244°42.4	259°10.4	+28.2	15.6
	-17°28.8	-17°25.7	-17°22.5	-17°19.2	-17°15.8	-17°12.3	-17°08.7	-17°04.9	-17°01.1	-16°57.2	-16°53.2	+3.6	57.0
do 16	116°09.6	130°37.4	145°05.2	159°33.0	174°00.8	188°28.6	202°56.4	217°24.2	231°52.0	246°19.7	260°47.5	+27.8	15.8
	-15°41.0	-15°35.4	-15°29.7	-15°23.9	-15°18.0	-15°12.0	-15°05.9	-14°59.7	-14°53.4	-14°47.1	-14°40.6	+6.0	57.9
vr 17	117°43.3	132°11.0	146°38.7	161°06.4	175°34.0	190°01.7	204°29.4	218°57.1	233°24.8	247°52.5	262°20.2	+27.7	16.0
	-12°52.8	-12°44.9	-12°36.9	-12°28.8	-12°20.7	-12°12.5	-12°04.2	-11°55.8	-11°47.3	-11°38.8	-11°30.2	+8.3	58.6
● za 18	119°16.0	133°43.7	148°11.4	162°39.2	177°06.9	191°34.7	206°02.4	220°30.2	234°57.9	249°25.7	263°53.5	+27.8	16.2
	-9°12.2	-9°02.4	-8°52.6	-8°42.7	-8°32.8	-8°22.8	-8°12.8	-8°02.7	-7°52.5	-7°42.3	-7°32.1	+10.0	59.3
zo 19	120°50.3	135°18.1	149°45.9	164°13.7	178°41.5	193°09.4	207°37.2	222°05.0	236°32.8	251°00.6	265°28.4	+27.8	16.3
	-4°52.5	-4°41.5	-4°30.5	-4°19.5	-4°08.4	-3°57.3	-3°46.2	-3°35.1	-3°23.9	-3°12.7	-3°01.5	+11.1	59.8
ma 20	122°25.3	136°53.1	151°20.9	165°48.6	180°16.4	194°44.1	209°11.9	223°39.6	238°07.3	252°35.0	267°02.8	+27.7	16.4
	-0°11.2	0°00.2	0°11.6	0°23.0	0°34.5	0°45.9	0°57.3	1°08.7	1°20.1	1°31.5	1°42.9	+11.4	60.0
di 21	123°57.3	138°24.9	152°52.4	167°20.0	181°47.5	196°15.0	210°42.5	225°09.9	239°37.4	254°04.8	268°32.3	+27.5	16.4
	4°31.7	4°42.7	4°53.8	5°04.8	5°15.7	5°26.7	5°37.6	5°48.4	5°59.2	6°10.0	6°20.7	+10.9	60.0
wo 22	138°24.9	152°52.4	167°20.0	181°47.5	196°15.0	210°42.5	225°09.9	239°37.4	254°04.8	268°32.3	282°59.7	+27.5	16.4
	9°42.7	4°53.8	5°04.8	5°15.7	5°26.7	5°37.6	5°48.4	5°59.2	6°10.0	6°20.7	6°31.4	+10.9	60.0
do 23	139°49.0	154°16.1	168°43.3	183°10.4	197°37.5	212°04.6	226°31.6	240°58.7	255°25.7	269°52.7	284°19.7	+27.1	16.3
	9°06.0	9°15.8	9°25.6	9°35.3	9°45.0	9°54.6	10°04.2	10°13.6	10°23.0	10°32.3	10°41.6	+9.6	59.8
vr 24	141°02.4	155°29.1	169°55.8	184°22.5	198°49.1	213°15.8	227°42.4	242°09.0	256°35.6	271°02.2	285°28.7	+26.6	16.2
	12°51.4	12°59.4	13°07.3	13°15.1	13°22.9	13°30.5	13°38.1	13°45.5	13°52.9	14°00.2	14°07.4	+7.6	59.4
◐ za 25	142°05.6	156°31.9	170°58.3	185°24.6	199°51.0	214°17.3	228°43.6	243°10.0	257°36.3	272°02.6	286°28.9	+26.3	16.1
	15°43.7	15°49.4	15°54.9	16°00.3	16°05.6	16°10.8	16°15.9	16°20.9	16°25.8	16°30.6	16°35.3	+5.2	58.9
zo 26	143°03.4	157°29.8	171°56.1	186°22.4	200°48.8	215°15.1	229°41.5	244°07.8	258°34.2	273°00.6	287°27.0	+26.4	15.9
	17°32.3	17°35.3	17°38.1	17°40.8	17°43.4	17°45.8	17°48.2	17°50.5	17°52.6	17°54.6	17°56.5	+2.4	58.4
ma 27	144°05.1	158°31.8	172°58.5	187°25.2	201°52.0	216°18.8	230°45.6	245°12.5	259°39.4	274°06.3	288°33.2	+26.8	15.8
	18°11.9	18°12.0	18°12.0	18°11.9	18°11.7	18°11.4	18°11.0	18°10.5	18°09.9	18°09.1	18°08.3	-0.4	57.9
di 28	145°21.3	159°48.8	174°16.4	188°44.0	203°11.6	217°39.3	232°07.0	246°34.7	261°02.5	275°30.4	289°58.3	+27.7	15.6
	17°42.8	17°40.2	17°37.6	17°34.9	17°32.0	17°29.1	17°26.1	17°23.0	17°19.7	17°16.4	17°13.0	-3.0	57.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

VM: 3 10h04 — LK: 11 11h09 — NM: 18 23h10 — EK: 25 16h34

ZON

Maart 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	176°54.5 -7°38.5	191°54.6 -7°37.5	206°54.7 -7°36.6	221°54.8 -7°35.6	236°55.0 -7°34.7	251°55.1 -7°33.7	86°56.7 -7°21.4	101°56.8 -7°20.4	116°56.9 -7°19.5	131°57.1 -7°18.5	146°57.2 -7°17.6	161°57.3 -7°16.6	+0.1 +0.9
do 2	176°57.4 -7°15.7	191°57.6 -7°14.7	206°57.7 -7°13.7	221°57.8 -7°12.8	236°57.9 -7°11.8	251°58.1 -7°10.9	86°59.7 -6°58.5	101°59.8 -6°57.5	117°00.0 -6°56.5	132°00.1 -6°55.6	147°00.2 -6°54.6	162°00.4 -6°53.7	+0.1 +1.0
vr 3	177°00.5 -6°52.7	192°00.6 -6°51.8	207°00.8 -6°50.8	222°00.9 -6°49.8	237°01.0 -6°48.9	252°01.1 -6°47.9	87°02.9 -6°35.5	102°03.0 -6°34.5	117°03.1 -6°33.5	132°03.3 -6°32.6	147°03.4 -6°31.6	162°03.5 -6°30.6	+0.1 +1.0
za 4	177°03.7 -6°29.7	192°03.8 -6°28.7	207°04.0 -6°27.8	222°04.1 -6°26.8	237°04.2 -6°25.8	252°04.4 -6°24.9	87°06.1 -6°12.4	102°06.3 -6°11.4	117°06.4 -6°10.4	132°06.6 -6°09.5	147°06.7 -6°08.5	162°06.8 -6°07.5	+0.1 +1.0
zo 5	177°07.0 -6°06.6	192°07.1 -6°05.6	207°07.3 -6°04.6	222°07.4 -6°03.7	237°07.5 -6°02.7	252°07.7 -6°01.7	87°09.5 -5°49.2	102°09.7 -5°48.2	117°09.8 -5°47.2	132°10.0 -5°46.3	147°10.1 -5°45.3	162°10.3 -5°44.3	+0.1 +1.0
ma 6	177°10.4 -5°43.4	192°10.5 -5°42.4	207°10.7 -5°41.4	222°10.8 -5°40.5	237°11.0 -5°39.5	252°11.1 -5°38.5	87°13.0 -5°25.9	102°13.2 -5°24.9	117°13.3 -5°24.0	132°13.5 -5°23.0	147°13.6 -5°22.0	162°13.8 -5°21.1	+0.1 +1.0
di 7	177°13.9 -5°20.1	192°14.1 -5°19.1	207°14.2 -5°18.1	222°14.4 -5°17.2	237°14.5 -5°16.2	252°14.7 -5°15.2	87°16.6 -5°02.6	102°16.8 -5°01.6	117°16.9 -5°00.6	132°17.1 -4°59.7	147°17.2 -4°58.7	162°17.4 -4°57.7	+0.1 +1.0
wo 8	177°17.5 -4°56.7	192°17.7 -4°55.8	207°17.8 -4°54.8	222°18.0 -4°53.8	237°18.1 -4°52.8	252°18.3 -4°51.9	87°20.3 -4°39.2	102°20.4 -4°38.2	117°20.6 -4°37.2	132°20.8 -4°36.2	147°20.9 -4°35.3	162°21.1 -4°34.3	+0.2 +1.0
do 9	177°21.2 -4°33.3	192°21.4 -4°32.3	207°21.5 -4°31.4	222°21.7 -4°30.4	237°21.8 -4°29.4	252°22.0 -4°28.4	87°24.1 -4°15.7	102°24.2 -4°14.7	117°24.4 -4°13.7	132°24.5 -4°12.8	147°24.7 -4°11.8	162°24.9 -4°10.8	+0.2 +1.0
vr 10	177°25.0 -4°09.8	192°25.2 -4°08.8	207°25.3 -4°07.9	222°25.5 -4°06.9	237°25.7 -4°05.9	252°25.8 -4°04.9	87°27.9 -3°52.2	102°28.1 -3°51.2	117°28.2 -3°50.2	132°28.4 -3°49.2	147°28.6 -3°48.3	162°28.7 -3°47.3	+0.2 +1.0
za 11	177°28.9 -3°46.3	192°29.0 -3°45.3	207°29.2 -3°44.3	222°29.4 -3°43.4	237°29.5 -3°42.4	252°29.7 -3°41.4	87°31.8 -3°28.6	102°32.0 -3°27.6	117°32.2 -3°26.6	132°32.3 -3°25.7	147°32.5 -3°24.7	162°32.7 -3°23.7	+0.2 +1.0
zo 12	177°32.8 -3°22.7	192°33.0 -3°21.7	207°33.2 -3°20.7	222°33.3 -3°19.8	237°33.5 -3°18.8	252°33.7 -3°17.8	87°35.8 -3°05.0	102°36.0 -3°04.0	117°36.2 -3°03.0	132°36.3 -3°02.0	147°36.5 -3°01.1	162°36.7 -3°00.1	+0.2 +1.0
ma 13	177°36.8 -2°59.1	192°37.0 -2°58.1	207°37.2 -2°57.1	222°37.4 -2°56.1	237°37.5 -2°55.2	252°37.7 -2°54.2	87°39.9 -2°41.4	102°40.1 -2°40.4	117°40.2 -2°39.4	132°40.4 -2°38.4	147°40.6 -2°37.4	162°40.8 -2°36.4	+0.2 +1.0
di 14	177°40.9 -2°35.4	192°41.1 -2°34.5	207°41.3 -2°33.5	222°41.4 -2°32.5	237°41.6 -2°31.5	252°41.8 -2°30.5	87°44.0 -2°17.7	102°44.2 -2°16.7	117°44.4 -2°15.7	132°44.5 -2°14.7	147°44.7 -2°13.7	162°44.9 -2°12.7	+0.2 +1.0
wo 15	177°45.1 -2°11.8	192°45.2 -2°10.8	207°45.4 -2°09.8	222°45.6 -2°08.8	237°45.8 -2°07.8	252°45.9 -2°06.8	87°48.2 -1°54.0	102°48.4 -1°53.0	117°48.6 -1°52.0	132°48.7 -1°51.0	147°48.9 -1°50.0	162°49.1 -1°49.0	+0.2 +1.0
do 16	177°49.3 -1°48.1	192°49.4 -1°47.1	207°49.6 -1°46.1	222°49.8 -1°45.1	237°50.0 -1°44.1	252°50.1 -1°43.1	87°52.4 -1°30.3	102°52.6 -1°29.3	117°52.8 -1°28.3	132°53.0 -1°27.3	147°53.2 -1°26.3	162°53.3 -1°25.3	+0.2 +1.0
vr 17	177°53.5 -1°24.3	192°53.7 -1°23.3	207°53.9 -1°22.4	222°54.0 -1°21.4	237°54.2 -1°20.4	252°54.4 -1°19.4	87°56.7 -1°06.5	102°56.9 -1°05.5	117°57.1 -1°04.6	132°57.3 -1°03.6	147°57.4 -1°02.6	162°57.6 -1°01.6	+0.2 +1.0
za 18	177°57.8 -1°00.6	192°58.0 -0°59.6	207°58.2 -0°58.6	222°58.3 -0°57.6	237°58.5 -0°56.6	252°58.7 -0°55.7	88°01.0 -0°42.8	103°01.2 -0°41.8	118°01.4 -0°40.8	133°01.6 -0°39.8	148°01.8 -0°38.8	163°02.0 -0°37.9	+0.2 +1.0
zo 19	178°02.1 -0°36.9	193°02.3 -0°35.9	208°02.5 -0°34.9	223°02.7 -0°33.9	238°02.9 -0°32.9	253°03.0 -0°31.9	88°05.4 -0°19.1	103°05.6 -0°18.1	118°05.8 -0°17.1	133°06.0 -0°16.1	148°06.1 -0°15.1	163°06.3 -0°14.1	+0.2 +1.0
ma 20	178°06.5 -0°13.1	193°06.7 -0°12.1	208°06.9 -0°11.2	223°07.0 -0°10.2	238°07.2 -0°09.2	253°07.4 -0°08.2	88°09.8 0°04.7	103°10.0 0°05.6	118°10.2 0°06.6	133°10.4 0°07.6	148°10.5 0°08.6	163°10.7 0°09.6	+0.2 +1.0
di 21	178°10.9 0°10.6	193°11.1 0°11.6	208°11.3 0°12.6	223°11.5 0°13.5	238°11.6 0°14.5	253°11.8 0°15.5	88°14.2 0°28.4	103°14.4 0°29.4	118°14.6 0°30.3	133°14.8 0°31.3	148°15.0 0°32.3	163°15.1 0°33.3	+0.2 +1.0
wo 22	178°15.3 0°34.3	193°15.5 0°35.3	208°15.7 0°36.3	223°15.9 0°37.2	238°16.1 0°38.2	253°16.3 0°39.2	88°18.7 0°52.1	103°18.9 0°53.0	118°19.0 0°54.0	133°19.2 0°55.0	148°19.4 0°56.0	163°19.6 0°57.0	+0.2 +1.0
do 23	178°19.8 0°58.0	193°20.0 0°59.0	208°20.2 0°59.9	223°20.3 1°00.9	238°20.5 1°01.9	253°20.7 1°02.9	88°23.1 1°15.7	103°23.3 1°16.7	118°23.5 1°17.7	133°23.7 1°18.7	148°23.9 1°19.7	163°24.1 1°20.6	+0.2 +1.0
vr 24	178°24.3 1°21.6	193°24.5 1°22.6	208°24.6 1°23.6	223°24.8 1°24.6	238°25.0 1°25.6	253°25.2 1°26.5	88°27.6 1°39.3	103°27.8 1°40.3	118°28.0 1°41.3	133°28.2 1°42.3	148°28.4 1°43.3	163°28.6 1°44.3	+0.2 +1.0
za 25	178°28.8 1°45.2	193°28.9 1°46.2	208°29.1 1°47.2	223°29.3 1°48.2	238°29.5 1°49.2	253°29.7 1°50.2	88°32.1 2°02.9	103°32.3 2°03.9	118°32.5 2°04.9	133°32.7 2°05.9	148°32.9 2°06.9	163°33.1 2°07.8	+0.2 +1.0
zo 26	178°33.3 2°08.8	193°33.5 2°09.8	208°33.6 2°10.8	223°33.8 2°11.8	238°34.0 2°12.7	253°34.2 2°13.7	88°36.7 2°26.5	103°36.8 2°27.4	118°37.0 2°28.4	133°37.2 2°29.4	148°37.4 2°30.4	163°37.6 2°31.4	+0.2 +1.0
ma 27	178°37.8 2°32.3	193°38.0 2°33.3	208°38.2 2°34.3	223°38.3 2°35.3	238°38.5 2°36.3	253°38.7 2°37.2	88°41.2 2°50.0	103°41.4 2°50.9	118°41.5 2°51.9	133°41.7 2°52.9	148°41.9 2°53.9	163°42.1 2°54.8	+0.2 +1.0
di 28	178°42.3 2°55.8	193°42.5 2°56.8	208°42.7 2°57.8	223°42.9 2°58.7	238°43.1 2°59.7	253°43.2 3°00.7	88°45.7 3°13.4	103°45.9 3°14.4	118°46.1 3°15.3	133°46.3 3°16.3	148°46.4 3°17.3	163°46.6 3°18.3	+0.2 +1.0
wo 29	178°46.8 3°19.2	193°47.0 3°20.2	208°47.2 3°21.2	223°47.4 3°22.2	238°47.6 3°23.1	253°47.8 3°24.1	88°50.2 3°36.8	103°50.4 3°37.7	118°50.6 3°38.7	133°50.8 3°39.7	148°50.9 3°40.6	163°51.1 3°41.6	+0.2 +1.0
do 30	178°51.3 3°42.6	193°51.5 3°43.6	208°51.7 3°44.5	223°51.9 3°45.5	238°52.1 3°46.5	253°52.3 3°47.4	88°54.7 4°00.1	103°54.9 4°01.0	118°55.1 4°02.0	133°55.3 4°03.0	148°55.4 4°03.9	163°55.6 4°04.9	+0.2 +1.0
vr 31	178°55.8 4°05.9	193°56.0 4°06.8	208°56.2 4°07.8	223°56.4 4°08.8	238°56.6 4°09.7	253°56.8 4°10.7	88°59.2 4°23.3	103°59.4 4°24.2	118°59.6 4°25.2	133°59.7 4°26.2	148°59.9 4°27.1	164°00.1 4°28.1	+0.2 +1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2034

D	0h	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	Δ'/h	SD/HP
wo 1	60°11.2 16°38.0	74°39.6 16°33.7	89°08.0 16°29.2	103°36.4 16°24.7	118°04.9 16°20.1	132°33.5 16°15.4	147°02.1 16°10.6	161°30.7 16°05.7	175°59.4 16°00.8	190°28.1 15°55.7	204°56.9 15°50.6	+28.6 -4.7	15.5 56.9
do 2	62°14.9 14°24.2	76°44.5 14°17.8	91°14.2 14°11.4	105°43.9 14°04.9	120°13.7 13°58.3	134°43.5 13°51.7	149°13.4 13°45.0	163°43.3 13°38.2	178°13.3 13°31.4	192°43.3 13°24.5	207°13.4 13°17.5	+29.8 -6.7	15.4 56.4
vr 3	64°50.8 11°25.8	79°21.7 11°17.9	93°52.6 11°09.9	108°23.6 11°01.9	122°54.6 10°53.9	137°25.7 10°45.8	151°56.9 10°37.7	166°28.1 10°29.5	180°59.3 10°21.3	195°30.6 10°13.0	210°01.9 10°04.7	+31.1 -8.1	15.3 55.9
za 4	67°57.2 7°55.3	82°29.2 7°46.4	97°01.3 7°37.4	111°33.4 7°28.5	126°05.6 7°19.5	140°37.8 7°10.5	155°10.0 7°01.4	169°42.3 6°52.3	184°14.6 6°43.2	198°46.9 6°34.1	213°19.3 6°25.0	+32.2 -9.0	15.1 55.5
○ zo 5	71°29.2 4°05.4	86°02.2 3°55.9	100°35.1 3°46.5	115°08.1 3°37.0	129°41.1 3°27.6	144°14.1 3°18.1	158°47.2 3°08.6	173°20.3 2°59.1	187°53.4 2°49.6	202°26.5 2°40.1	216°59.7 2°30.6	+33.0 -9.5	15.0 55.0
ma 6	75°19.8 0°07.8	89°53.3 -0°01.7	104°26.8 -0°11.2	119°00.4 -0°20.7	133°33.9 -0°30.2	148°07.5 -0°39.7	162°41.0 -0°49.2	177°14.6 -0°58.6	191°48.2 -1°08.1	206°21.9 -1°17.5	220°55.5 -1°27.0	+33.6 -9.5	14.9 54.7
di 7	79°21.0 -3°46.8	93°54.7 -3°55.9	108°28.5 -4°05.1	123°02.2 -4°14.2	137°36.0 -4°23.3	152°09.7 -4°32.4	166°43.5 -4°41.5	181°17.3 -4°50.5	195°51.0 -4°59.6	210°24.8 -5°08.6	224°58.5 -5°17.5	+33.8 -9.1	14.8 54.3
wo 8	83°24.5 -7°28.7	97°58.2 -7°37.1	112°31.8 -7°45.6	127°05.5 -7°54.0	141°39.1 -8°02.4	156°12.8 -8°10.7	170°46.4 -8°19.0	185°20.0 -8°27.3	199°53.6 -8°35.6	214°27.2 -8°43.8	229°00.8 -8°51.9	+33.6 -8.3	14.8 54.1
do 9	87°22.6 -10°49.3	101°55.9 -10°56.7	116°29.2 -11°04.2	131°02.5 -11°11.5	145°35.7 -11°18.9	160°08.9 -11°26.1	174°42.1 -11°33.4	189°15.3 -11°40.5	203°48.5 -11°47.7	218°21.6 -11°54.7	232°54.7 -12°01.8	+33.2 -7.3	14.7 54.0
vr 10	91°08.4 -13°40.7	105°41.1 -13°46.8	120°13.8 -13°52.9	134°46.4 -13°58.9	149°19.0 -14°04.9	163°51.6 -14°10.8	178°24.2 -14°16.6	192°56.7 -14°22.4	207°29.2 -14°28.1	222°01.6 -14°33.8	236°34.0 -14°39.4	+32.6 -5.9	14.8 54.1
za 11	94°36.5 -15°55.5	109°08.4 -16°00.0	123°40.3 -16°04.4	138°12.1 -16°08.8	152°43.9 -16°13.1	167°15.7 -16°17.4	181°47.4 -16°21.6	196°19.1 -16°25.6	210°50.8 -16°29.7	225°22.4 -16°33.6	239°54.0 -16°37.5	+31.7 -4.2	14.8 54.4
zo 12	97°43.4 -17°26.5	112°14.5 -17°29.2	126°45.4 -17°31.7	141°16.4 -17°34.2	155°47.3 -17°36.6	170°18.1 -17°38.9	184°49.0 -17°41.1	199°19.8 -17°43.3	213°50.5 -17°45.3	228°21.2 -17°47.3	242°51.9 -17°49.2	+30.8 -2.3	14.9 54.8
◑ ma 13	100°28.0 -18°07.4	114°58.2 -18°07.9	129°28.3 -18°08.3	143°58.3 -18°08.6	158°28.4 -18°08.9	172°58.3 -18°09.0	187°28.3 -18°09.1	201°58.2 -18°09.0	216°28.1 -18°08.9	230°58.0 -18°08.7	245°27.8 -18°08.4	+30.0 -0.1	15.1 55.4
di 14	102°51.7 -17°52.6	117°21.0 -17°50.8	131°50.3 -17°48.9	146°19.6 -17°46.9	160°48.9 -17°44.8	175°18.1 -17°42.6	189°47.3 -17°40.3	204°16.5 -17°37.9	218°45.7 -17°35.4	233°14.8 -17°32.9	247°43.9 -17°30.2	+29.2 +2.2	15.3 56.1
wo 15	104°57.7 -16°38.6	119°26.4 -16°34.3	133°55.1 -16°30.0	148°23.8 -16°25.6	162°52.5 -16°21.1	177°21.1 -16°16.5	191°49.7 -16°11.8	206°18.4 -16°07.0	220°47.0 -16°02.2	235°15.5 -15°57.2	249°44.1 -15°52.1	+28.6 +4.6	15.5 57.0
do 16	106°50.3 -14°24.6	121°18.6 -14°18.1	135°46.9 -14°11.4	150°15.1 -14°04.7	164°43.4 -13°57.8	179°11.6 -13°50.9	193°39.8 -13°43.9	208°08.0 -13°36.8	222°36.2 -13°29.6	237°04.4 -13°22.3	251°32.5 -13°14.9	+28.2 +7.0	15.8 57.9
vr 17	108°33.4 -11°14.2	123°01.3 -11°05.5	137°29.3 -10°56.7	151°57.2 -10°47.9	166°25.1 -10°39.0	180°53.0 -10°30.0	195°20.9 -10°20.9	209°48.8 -10°11.8	224°16.7 -10°02.6	238°44.5 -9°53.3	253°12.4 -9°43.9	+27.9 +9.0	16.1 58.9
za 18	110°08.7 -7°15.6	124°36.4 -7°05.2	139°04.0 -6°54.8	153°31.6 -6°44.3	167°59.3 -6°33.8	182°26.9 -6°23.2	196°54.5 -6°12.6	211°22.0 -6°01.9	225°49.6 -5°51.2	240°17.1 -5°40.4	254°44.7 -5°29.6	+27.6 +10.6	16.3 59.7
zo 19	111°35.9 -2°42.5	126°03.2 -2°31.1	140°30.5 -2°19.7	154°57.8 -2°08.3	169°25.0 -1°56.8	183°52.2 -1°45.3	198°19.4 -1°33.8	212°46.6 -1°22.3	227°13.8 -1°10.8	241°40.9 -0°59.2	256°08.0 -0°47.7	+27.2 +11.5	16.5 60.4
● ma 20	112°52.6 2°06.5	127°19.4 2°18.1	141°46.2 2°29.6	156°13.0 2°41.2	170°39.7 2°52.7	185°06.4 3°04.3	199°33.1 3°15.8	213°59.8 3°27.3	228°26.4 3°38.8	242°53.0 3°50.2	257°19.6 4°01.7	+26.7 +11.5	16.6 60.8
di 21	113°55.8 6°49.5	128°22.1 7°00.4	142°48.2 7°11.2	157°14.4 7°22.0	171°40.6 7°32.7	186°06.7 7°43.4	200°32.8 7°54.0	214°58.9 8°04.6	229°24.9 8°15.1	243°50.9 8°25.5	258°17.0 8°35.9	+26.1 +10.6	16.6 60.8
wo 22	114°44.3 11°04.0	129°09.9 11°13.2	143°35.6 11°22.4	158°01.2 11°31.6	172°26.8 11°40.6	186°52.3 11°49.5	201°17.9 11°58.4	215°43.4 12°07.2	230°08.9 12°15.9	244°34.4 12°24.5	258°59.9 12°33.0	+25.6 +8.9	16.5 60.6
do 23	115°20.3 14°29.5	129°45.6 14°36.5	144°10.9 14°43.4	158°36.1 14°50.1	173°01.4 14°56.8	187°26.6 15°03.3	201°51.9 15°09.8	216°17.1 15°16.1	230°42.3 15°22.3	245°07.6 15°28.5	259°32.8 15°34.5	+25.2 +6.5	16.4 60.1
vr 24	129°45.6 14°36.5	144°10.9 14°43.4	158°36.1 14°50.1	173°01.4 14°56.8	187°26.6 15°03.3	201°51.9 15°09.8	216°17.1 15°16.1	230°42.3 15°22.3	245°07.6 15°28.5	259°32.8 15°34.5	273°58.0 15°40.4	+25.2 +6.4	16.4 60.1
za 25	130°16.6 16°55.4	144°41.9 16°59.5	159°07.2 17°03.4	173°32.5 17°07.3	187°57.9 17°11.0	202°23.2 17°14.6	216°48.6 17°18.1	231°14.0 17°21.5	245°39.4 17°24.8	260°04.8 17°27.9	274°30.2 17°30.9	+25.4 +3.6	16.2 59.4
zo 26	130°54.5 18°02.3	145°20.3 18°03.4	159°46.2 18°04.5	174°12.1 18°05.4	188°38.0 18°06.2	203°04.0 18°06.9	217°30.0 18°07.5	231°56.1 18°07.9	246°22.1 18°08.3	260°48.3 18°08.5	275°14.4 18°08.6	+26.0 +0.6	16.0 58.6
◐ ma 27	131°52.0 17°57.0	146°18.8 17°55.4	160°45.8 17°53.6	175°12.7 17°51.8	189°39.7 17°49.8	204°06.8 17°47.8	218°33.9 17°45.6	233°01.1 17°43.3	247°28.3 17°41.0	261°55.6 17°38.5	276°23.0 17°35.9	+27.1 -2.1	15.8 57.8
di 28	133°19.6 16°45.6	147°47.8 16°41.5	162°16.1 16°37.3	176°44.5 16°33.0	191°12.9 16°28.6	205°41.4 16°24.2	220°09.9 16°19.6	234°38.5 16°15.0	249°07.1 16°10.3	263°35.8 16°05.5	278°04.6 16°00.6	+28.5 -4.5	15.6 57.1
wo 29	135°23.1 14°37.8	149°52.8 14°31.7	164°22.6 14°25.5	178°52.4 14°19.3	193°22.3 14°12.9	207°52.3 14°06.5	222°22.3 14°00.1	236°52.3 13°53.6	251°22.4 13°47.0	265°52.6 13°40.3	280°22.8 13°33.6	+30.0 -6.4	15.4 56.4
do 30	138°03.0 11°45.6	152°34.1 11°38.0	167°05.2 11°30.3	181°36.4 11°22.5	196°07.7 11°14.8	210°39.0 11°06.9	225°10.4 10°59.0	239°41.8 10°51.1	254°13.2 10°43.1	268°44.7 10°35.1	283°16.3 10°27.0	+31.3 -7.9	15.2 55.8
vr 31	141°15.2 8°21.1	155°47.4 8°12.4	170°19.7 8°03.7	184°52.1 7°55.0	199°24.5 7°46.2	213°56.9 7°37.4	228°29.4 7°28.6	243°01.9 7°19.7	257°34.4 7°10.8	272°07.0 7°01.9	286°39.7 6°52.9	+32.5 -8.8	15.1 55.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 5 02h10 — LK: 13 06h44 — NM: 20 10h14 — EK: 27 01h18

ZON

April 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°00.3	194°00.5	209°00.7	224°00.9	239°01.0	254°01.2	89°03.6	104°03.8	119°04.0	134°04.2	149°04.4	164°04.6	+0.2
	4°29.1	4°30.0	4°31.0	4°32.0	4°32.9	4°33.9	4°46.4	4°47.4	4°48.3	4°49.3	4°50.3	4°51.2	+1.0
zo 2	179°04.7	194°04.9	209°05.1	224°05.3	239°05.5	254°05.7	89°08.1	104°08.3	119°08.4	134°08.6	149°08.8	164°09.0	+0.2
	4°52.2	4°53.2	4°54.1	4°55.1	4°56.0	4°57.0	5°09.5	5°10.4	5°11.4	5°12.4	5°13.3	5°14.3	+1.0
ma 3	179°09.2	194°09.4	209°09.5	224°09.7	239°09.9	254°10.1	89°12.5	104°12.6	119°12.8	134°13.0	149°13.2	164°13.4	+0.2
	5°15.2	5°16.2	5°17.1	5°18.1	5°19.1	5°20.0	5°32.4	5°33.4	5°34.4	5°35.3	5°36.3	5°37.2	+1.0
di 4	179°13.6	194°13.7	209°13.9	224°14.1	239°14.3	254°14.5	89°16.8	104°17.0	119°17.2	134°17.4	149°17.5	164°17.7	+0.2
	5°38.2	5°39.1	5°40.1	5°41.0	5°42.0	5°42.9	5°55.3	5°56.3	5°57.2	5°58.2	5°59.1	6°00.1	+1.0
wo 5	179°17.9	194°18.1	209°18.3	224°18.4	239°18.6	254°18.8	89°21.1	104°21.3	119°21.5	134°21.7	149°21.8	164°22.0	+0.2
	6°01.0	6°02.0	6°02.9	6°03.9	6°04.8	6°05.8	6°18.1	6°19.0	6°20.0	6°20.9	6°21.9	6°22.8	+0.9
do 6	179°22.2	194°22.4	209°22.6	224°22.7	239°22.9	254°23.1	89°25.4	104°25.6	119°25.8	134°25.9	149°26.1	164°26.3	+0.2
	6°23.8	6°24.7	6°25.6	6°26.6	6°27.5	6°28.5	6°40.7	6°41.7	6°42.6	6°43.6	6°44.5	6°45.4	+0.9
vr 7	179°26.5	194°26.6	209°26.8	224°27.0	239°27.2	254°27.3	89°29.6	104°29.8	119°30.0	134°30.1	149°30.3	164°30.5	+0.2
	6°46.4	6°47.3	6°48.3	6°49.2	6°50.1	6°51.1	7°03.3	7°04.2	7°05.2	7°06.1	7°07.0	7°08.0	+0.9
za 8	179°30.6	194°30.8	209°31.0	224°31.2	239°31.3	254°31.5	89°33.8	104°33.9	119°34.1	134°34.3	149°34.4	164°34.6	+0.2
	7°08.9	7°09.8	7°10.8	7°11.7	7°12.6	7°13.6	7°25.7	7°26.6	7°27.6	7°28.5	7°29.4	7°30.4	+0.9
zo 9	179°34.8	194°34.9	209°35.1	224°35.3	239°35.5	254°35.6	89°37.8	104°38.0	119°38.2	134°38.3	149°38.5	164°38.7	+0.2
	7°31.3	7°32.2	7°33.1	7°34.1	7°35.0	7°35.9	7°48.0	7°48.9	7°49.9	7°50.8	7°51.7	7°52.6	+0.9
ma 10	179°38.8	194°39.0	209°39.2	224°39.3	239°39.5	254°39.7	89°41.8	104°42.0	119°42.2	134°42.3	149°42.5	164°42.7	+0.2
	7°53.6	7°54.5	7°55.4	7°56.3	7°57.3	7°58.2	8°10.2	8°11.1	8°12.0	8°12.9	8°13.9	8°14.8	+0.9
di 11	179°42.8	194°43.0	209°43.2	224°43.3	239°43.5	254°43.7	89°45.8	104°45.9	119°46.1	134°46.3	149°46.4	164°46.6	+0.2
	8°15.7	8°16.6	8°17.5	8°18.5	8°19.4	8°20.3	8°32.2	8°33.1	8°34.0	8°35.0	8°35.9	8°36.8	+0.9
wo 12	179°46.8	194°46.9	209°47.1	224°47.2	239°47.4	254°47.6	89°49.6	104°49.8	119°50.0	134°50.1	149°50.3	164°50.4	+0.2
	8°37.7	8°38.6	8°39.5	8°40.4	8°41.3	8°42.3	8°54.1	8°55.0	8°55.9	8°56.8	8°57.7	8°58.6	+0.9
do 13	179°50.6	194°50.7	209°50.9	224°51.1	239°51.2	254°51.4	89°53.4	104°53.6	119°53.7	134°53.9	149°54.0	164°54.2	+0.2
	8°59.6	9°00.5	9°01.4	9°02.3	9°03.2	9°04.1	9°15.8	9°16.7	9°17.7	9°18.6	9°19.5	9°20.4	+0.9
vr 14	179°54.3	194°54.5	209°54.7	224°54.8	239°55.0	254°55.1	89°57.1	104°57.2	119°57.4	134°57.6	149°57.7	164°57.9	+0.2
	9°21.3	9°22.2	9°23.1	9°24.0	9°24.9	9°25.8	9°37.4	9°38.3	9°39.2	9°40.1	9°41.0	9°41.9	+0.9
za 15	179°58.0	194°58.2	209°58.3	224°58.5	239°58.6	254°58.8	90°00.7	105°00.8	120°01.0	135°01.1	150°01.3	165°01.4	+0.2
	9°42.8	9°43.7	9°44.6	9°45.5	9°46.4	9°47.3	9°58.9	9°59.8	10°00.7	10°01.5	10°02.4	10°03.3	+0.9
zo 16	180°01.6	195°01.7	210°01.9	225°02.0	240°02.2	255°02.3	90°04.2	105°04.3	120°04.5	135°04.6	150°04.8	165°04.9	+0.1
	10°04.2	10°05.1	10°06.0	10°06.9	10°07.8	10°08.6	10°20.1	10°21.0	10°21.9	10°22.8	10°23.7	10°24.6	+0.9
ma 17	180°05.1	195°05.2	210°05.3	225°05.5	240°05.6	255°05.8	90°07.6	105°07.7	120°07.9	135°08.0	150°08.2	165°08.3	+0.1
	10°25.4	10°26.3	10°27.2	10°28.1	10°29.0	10°29.8	10°41.2	10°42.1	10°43.0	10°43.9	10°44.7	10°45.6	+0.9
di 18	180°08.4	195°08.6	210°08.7	225°08.9	240°09.0	255°09.1	90°10.9	105°11.0	120°11.2	135°11.3	150°11.4	165°11.6	+0.1
	10°46.5	10°47.4	10°48.2	10°49.1	10°50.0	10°50.9	11°02.2	11°03.0	11°03.9	11°04.8	11°05.6	11°06.5	+0.9
wo 19	180°11.7	195°11.9	210°12.0	225°12.1	240°12.3	255°12.4	90°14.1	105°14.2	120°14.4	135°14.5	150°14.6	165°14.8	+0.1
	11°07.4	11°08.2	11°09.1	11°10.0	11°10.8	11°11.7	11°22.9	11°23.8	11°24.6	11°25.5	11°26.3	11°27.2	+0.9
do 20	180°14.9	195°15.0	210°15.2	225°15.3	240°15.4	255°15.5	90°17.2	105°17.3	120°17.5	135°17.6	150°17.7	165°17.8	+0.1
	11°28.1	11°28.9	11°29.8	11°30.6	11°31.5	11°32.4	11°43.5	11°44.3	11°45.2	11°46.0	11°46.9	11°47.7	+0.9
vr 21	180°18.0	195°18.1	210°18.2	225°18.3	240°18.5	255°18.6	90°20.2	105°20.3	120°20.5	135°20.6	150°20.7	165°20.8	+0.1
	11°48.6	11°49.4	11°50.3	11°51.1	11°52.0	11°52.8	12°03.8	12°04.7	12°05.5	12°06.4	12°07.2	12°08.0	+0.9
za 22	180°20.9	195°21.1	210°21.2	225°21.3	240°21.4	255°21.5	90°23.1	105°23.2	120°23.3	135°23.5	150°23.6	165°23.7	+0.1
	12°08.9	12°09.7	12°10.6	12°11.4	12°12.2	12°13.1	12°24.0	12°24.8	12°25.7	12°26.5	12°27.3	12°28.2	+0.8
zo 23	180°23.8	195°23.9	210°24.0	225°24.2	240°24.3	255°24.4	90°25.9	105°26.0	120°26.1	135°26.2	150°26.3	165°26.4	+0.1
	12°29.0	12°29.8	12°30.7	12°31.5	12°32.3	12°33.2	12°43.9	12°44.8	12°45.6	12°46.4	12°47.2	12°48.1	+0.8
ma 24	180°26.6	195°26.7	210°26.8	225°26.9	240°27.0	255°27.1	90°28.5	105°28.7	120°28.8	135°28.9	150°29.0	165°29.1	+0.1
	12°48.9	12°49.7	12°50.5	12°51.4	12°52.2	12°53.0	13°03.7	13°04.5	13°05.3	13°06.1	13°07.0	13°07.8	+0.8
di 25	180°29.2	195°29.3	210°29.4	225°29.5	240°29.6	255°29.7	90°31.1	105°31.2	120°31.3	135°31.4	150°31.5	165°31.6	+0.1
	13°08.6	13°09.4	13°10.2	13°11.0	13°11.8	13°12.7	13°23.2	13°24.0	13°24.8	13°25.6	13°26.4	13°27.3	+0.8
wo 26	180°31.7	195°31.8	210°31.9	225°32.0	240°32.1	255°32.2	90°33.5	105°33.6	120°33.7	135°33.8	150°33.9	165°34.0	+0.1
	13°28.1	13°28.9	13°29.7	13°30.5	13°31.3	13°32.1	13°42.5	13°43.3	13°44.1	13°44.9	13°45.7	13°46.5	+0.8
do 27	180°34.1	195°34.2	210°34.3	225°34.4	240°34.5	255°34.6	90°35.8	105°35.9	120°36.0	135°36.1	150°36.2	165°36.3	+0.1
	13°47.3	13°48.1	13°48.9	13°49.7	13°50.5	13°51.3	14°01.6	14°02.4	14°03.2	14°04.0	14°04.8	14°05.5	+0.8
vr 28	180°36.4	195°36.5	210°36.6	225°36.7	240°36.8	255°36.9	90°38.0	105°38.1	120°38.2	135°38.3	150°38.4	165°38.5	+0.1
	14°06.3	14°07.1	14°07.9	14°08.7	14°09.5	14°10.3	14°20.4	14°21.2	14°22.0	14°22.8	14°23.6	14°24.3	+0.8
za 29	180°38.6	195°38.7	210°38.7	225°38.8	240°38.9	255°39.0	90°40.1	105°40.2	120°40.3	135°40.4	150°40.4	165°40.5	+0.1
	14°25.1	14°25.9	14°26.7	14°27.5	14°28.2	14°29.0	14°39.1	14°39.8	14°40.6	14°41.4	14°42.1	14°42.9	+0.8
zo 30	180°40.6	195°40.7	210°40.8	225°40.8	240°40.9	255°41.0	90°42.0	105°42.1	120°42.2	135°42.3	150°42.4	165°42.4	+0.1
	14°43.7	14°44.4	14°45.2	14°46.0	14°46.7	14°47.5	14°57.4	14°58.2	14°58.9	14°59.7	15°00.5	15°01.2	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2034

D	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
za 1	72°07.7	86°40.7	101°13.8	115°46.8	130°19.9	144°53.0	159°26.1	173°59.3	188°32.5	203°05.7	217°38.9	+33.1	15.0
	5°22.2	5°13.0	5°03.8	4°54.6	4°45.3	4°36.1	4°26.8	4°17.5	4°08.2	3°58.9	3°49.6	-9.3	54.9
zo 2	76°00.3	90°33.8	105°07.4	119°41.0	134°14.7	148°48.3	163°22.0	177°55.6	192°29.3	207°03.0	221°36.7	+33.7	14.9
	1°28.6	1°19.2	1°09.7	1°00.3	0°50.9	0°41.4	0°32.0	0°22.5	0°13.1	0°03.7	-0°05.8	-9.4	54.6
○ ma 3	80°03.5	94°37.3	109°11.2	123°45.0	138°18.9	152°52.7	167°26.6	182°00.4	196°34.3	211°08.1	225°41.9	+33.8	14.8
	-2°26.3	-2°35.6	-2°44.9	-2°54.1	-3°03.4	-3°12.6	-3°21.8	-3°31.0	-3°40.2	-3°49.3	-3°58.5	-9.2	54.3
di 4	84°09.3	98°43.1	113°16.9	127°50.6	142°24.4	156°58.1	171°31.8	186°05.6	200°39.3	215°13.0	229°46.7	+33.7	14.7
	-6°12.9	-6°21.6	-6°30.4	-6°39.1	-6°47.7	-6°56.4	-7°05.0	-7°13.5	-7°22.1	-7°30.6	-7°39.1	-8.6	54.1
wo 5	88°10.3	102°43.8	117°17.2	131°50.6	146°24.0	160°57.4	175°30.8	190°04.1	204°37.4	219°10.7	233°44.0	+33.4	14.7
	-9°41.9	-9°49.8	-9°57.6	-10°05.4	-10°13.1	-10°20.8	-10°28.5	-10°36.1	-10°43.6	-10°51.2	-10°58.6	-7.7	54.0
do 6	92°00.5	106°33.4	121°06.3	135°39.2	150°12.0	164°44.8	179°17.6	193°50.4	208°23.1	222°55.8	237°28.5	+32.8	14.7
	-12°44.7	-12°51.4	-12°58.0	-13°04.5	-13°11.0	-13°17.4	-13°23.8	-13°30.1	-13°36.4	-13°42.6	-13°48.7	-6.4	54.0
vr 7	95°35.5	110°07.7	124°39.9	139°12.1	153°44.3	168°16.4	182°48.5	197°20.6	211°52.6	226°24.6	240°56.6	+32.1	14.7
	-15°13.4	-15°18.5	-15°23.6	-15°28.6	-15°33.5	-15°38.4	-15°43.1	-15°47.9	-15°52.5	-15°57.1	-16°01.6	-4.8	54.1
za 8	98°52.8	113°24.3	127°55.8	142°27.3	156°58.7	171°30.1	186°01.5	200°32.9	215°04.2	229°35.5	244°06.7	+31.4	14.8
	-17°00.5	-17°03.9	-17°07.1	-17°10.3	-17°13.4	-17°16.4	-17°19.4	-17°22.2	-17°25.0	-17°27.7	-17°30.3	-3.0	54.3
zo 9	101°52.4	116°23.2	130°54.0	145°24.8	159°55.5	174°26.3	188°57.0	203°27.6	217°58.3	232°28.9	246°59.5	+30.7	14.9
	-17°59.9	-18°01.2	-18°02.4	-18°03.6	-18°04.6	-18°05.6	-18°06.4	-18°07.2	-18°07.9	-18°08.6	-18°09.1	-0.9	54.7
ma 10	104°35.7	119°06.0	133°36.2	148°06.4	162°36.6	177°06.7	191°36.9	206°07.0	220°37.1	235°07.1	249°37.2	+30.1	15.1
	-18°06.5	-18°05.6	-18°04.6	-18°03.6	-18°02.4	-18°01.2	-17°59.8	-17°58.4	-17°56.9	-17°55.3	-17°53.6	+1.3	55.2
◑ di 11	107°05.8	121°35.6	136°05.3	150°35.1	165°04.8	179°34.5	194°04.2	208°33.9	223°03.5	237°33.2	252°02.8	+29.7	15.3
	-17°17.1	-17°14.0	-17°10.7	-17°07.4	-17°03.9	-17°00.4	-16°56.8	-16°53.1	-16°49.3	-16°45.4	-16°41.4	+3.6	55.9
wo 12	109°25.5	123°54.9	138°24.3	152°53.6	167°23.0	181°52.3	196°21.7	210°51.0	225°20.3	239°49.6	254°18.9	+29.3	15.5
	-15°30.8	-15°25.4	-15°19.9	-15°14.3	-15°08.6	-15°02.8	-14°56.9	-14°51.0	-14°45.0	-14°38.8	-14°32.6	+5.8	56.8
do 13	111°36.5	126°05.6	140°34.6	155°03.7	169°32.7	184°01.7	198°30.7	212°59.7	227°28.6	241°57.6	256°26.5	+29.0	15.7
	-12°49.3	-12°41.7	-12°34.1	-12°26.4	-12°18.6	-12°10.7	-12°02.7	-11°54.7	-11°46.6	-11°38.4	-11°30.2	+7.9	57.8
vr 14	113°38.6	128°07.3	142°35.9	157°04.6	171°33.2	186°01.8	200°30.4	214°58.9	229°27.4	243°56.0	258°24.4	+28.6	16.0
	-9°17.5	-9°08.1	-8°58.6	-8°49.1	-8°39.5	-8°29.9	-8°20.1	-8°10.4	-8°00.5	-7°50.6	-7°40.6	+9.7	58.8
za 15	115°29.1	129°57.2	144°25.3	158°53.4	173°21.4	187°49.4	202°17.4	216°45.3	231°13.3	245°41.1	260°09.0	+28.0	16.3
	-5°04.6	-4°53.8	-4°43.0	-4°32.1	-4°21.2	-4°10.2	-3°59.2	-3°48.2	-3°37.1	-3°26.0	-3°14.9	+11.0	59.7
zo 16	117°03.2	131°30.5	145°57.8	160°25.1	174°52.3	189°19.5	203°46.7	218°13.8	232°40.9	247°08.0	261°35.0	+27.2	16.5
	-0°24.3	-0°12.8	-0°01.2	0°10.3	0°21.9	0°33.5	0°45.1	0°56.7	1°08.3	1°19.9	1°31.5	+11.6	60.5
ma 17	118°15.4	132°41.8	147°08.1	161°34.4	176°00.7	190°26.9	204°53.0	219°19.1	233°45.2	248°11.3	262°37.2	+26.2	16.7
	4°24.9	4°36.4	4°47.8	4°59.2	5°10.6	5°21.9	5°33.2	5°44.5	5°55.8	6°07.0	6°18.2	+11.3	61.1
● di 18	119°02.0	133°27.3	147°52.6	162°17.8	176°43.0	191°08.1	205°33.2	219°58.3	234°23.3	248°48.3	263°13.3	+25.1	16.7
	9°00.6	9°11.0	9°21.3	9°31.6	9°41.8	9°52.0	10°02.0	10°12.1	10°22.0	10°31.9	10°41.7	+10.1	61.3
wo 19	119°23.2	133°47.6	148°12.0	162°36.4	177°00.7	191°25.0	205°49.2	220°13.5	234°37.7	249°01.9	263°26.1	+24.3	16.7
	12°58.8	13°07.2	13°15.6	13°23.8	13°31.9	13°40.0	13°47.9	13°55.8	14°03.5	14°11.1	14°18.6	+8.0	61.2
do 20	119°26.5	133°50.5	148°14.4	162°38.4	177°02.3	191°26.2	205°50.1	220°14.1	234°38.0	249°01.9	263°25.9	+23.9	16.5
	15°58.3	16°04.0	16°09.6	16°15.1	16°20.4	16°25.7	16°30.8	16°35.8	16°40.7	16°45.4	16°50.0	+5.2	60.7
vr 21	119°26.3	133°50.5	148°14.6	162°38.9	177°03.1	191°27.4	205°51.7	220°16.1	234°40.4	249°04.8	263°29.3	+24.3	16.3
	17°44.4	17°47.0	17°49.5	17°51.9	17°54.1	17°56.2	17°58.2	18°00.1	18°01.8	18°03.4	18°04.9	+2.0	60.0
za 22	133°50.5	148°14.6	162°38.9	177°03.1	191°27.4	205°51.7	220°16.1	234°40.4	249°04.8	263°29.3	277°53.8	+24.3	16.3
	17°47.0	17°49.5	17°51.9	17°54.1	17°56.2	17°58.2	18°00.1	18°01.8	18°03.4	18°04.9	18°06.2	+1.9	59.9
zo 23	134°06.0	148°31.2	162°56.5	177°21.8	191°47.2	206°12.6	220°38.1	235°03.6	249°29.2	263°54.8	278°20.6	+25.5	16.1
	18°11.7	18°11.1	18°10.4	18°09.5	18°08.6	18°07.5	18°06.3	18°05.0	18°03.6	18°02.0	18°00.4	-1.1	59.0
ma 24	134°54.0	149°20.8	163°47.6	178°14.5	192°41.5	207°08.5	221°35.7	236°02.9	250°30.1	264°57.5	279°24.9	+27.1	15.8
	17°22.5	17°19.1	17°15.6	17°12.0	17°08.4	17°04.6	17°00.7	16°56.8	16°52.7	16°48.6	16°44.3	-3.8	58.1
◐ di 25	136°24.8	150°53.4	165°22.1	179°50.8	194°19.6	208°48.5	223°17.5	237°46.5	252°15.6	266°44.8	281°14.0	+28.9	15.6
	15°30.1	15°24.5	15°18.8	15°13.0	15°07.2	15°01.3	14°55.3	14°49.2	14°43.0	14°36.8	14°30.5	-6.0	57.2
wo 26	138°41.1	153°11.5	167°41.9	182°12.4	196°42.9	211°13.6	225°44.2	240°15.0	254°45.8	269°16.7	283°47.6	+30.7	15.4
	12°48.3	12°41.0	12°33.7	12°26.3	12°18.8	12°11.3	12°03.7	11°56.1	11°48.4	11°40.7	11°32.9	-7.5	56.3
do 27	141°38.8	156°10.7	170°42.6	185°14.5	199°46.6	214°18.6	228°50.7	243°22.9	257°55.1	272°27.4	286°59.7	+32.1	15.2
	9°30.9	9°22.5	9°14.0	9°05.4	8°56.9	8°48.3	8°39.7	8°31.0	8°22.3	8°13.6	8°04.8	-8.6	55.6
vr 28	145°09.7	159°42.7	174°15.8	188°48.8	203°21.9	217°55.0	232°28.2	247°01.4	261°34.6	276°07.9	290°41.2	+33.1	15.0
	5°50.4	5°41.2	5°32.1	5°22.9	5°13.7	5°04.5	4°55.2	4°46.0	4°36.7	4°27.5	4°18.2	-9.2	55.0
za 29	149°03.9	163°37.6	178°11.3	192°45.1	207°18.8	221°52.6	236°26.4	251°00.2	265°34.1	280°07.9	294°41.8	+33.8	14.9
	1°57.7	1°48.3	1°38.9	1°29.5	1°20.0	1°10.6	1°01.2	0°51.8	0°42.3	0°32.9	0°23.5	-9.4	54.6
zo 30	153°10.9	167°45.0	182°19.0	196°53.0	211°27.0	226°01.0	240°35.0	255°09.1	269°43.1	284°17.1	298°51.1	+34.0	14.8
	-1°57.2	-2°06.5	-2°15.8	-2°25.1	-2°34.4	-2°43.6	-2°52.9	-3°02.1	-3°11.3	-3°20.5	-3°29.7	-9.3	54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24

VM: 3 19h18 — LK: 11 22h45 — NM: 18 19h25 — EK: 25 11h34

ZON

Mei 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	180°42.5	195°42.6	210°42.7	225°42.7	240°42.8	255°42.9	90°43.8	105°43.9	120°44.0	135°44.1	150°44.1	165°44.2	+0.1
	15°02.0	15°02.7	15°03.5	15°04.2	15°05.0	15°05.8	15°15.5	15°16.3	15°17.0	15°17.8	15°18.5	15°19.3	+0.8
di 2	180°44.3	195°44.4	210°44.4	225°44.5	240°44.6	255°44.6	90°45.5	105°45.6	120°45.7	135°45.7	150°45.8	165°45.9	+0.1
	15°20.0	15°20.8	15°21.5	15°22.3	15°23.0	15°23.8	15°33.4	15°34.1	15°34.9	15°35.6	15°36.4	15°37.1	+0.7
wo 3	180°45.9	195°46.0	210°46.0	225°46.1	240°46.2	255°46.2	90°47.1	105°47.1	120°47.2	135°47.2	150°47.3	165°47.4	+0.1
	15°37.8	15°38.6	15°39.3	15°40.0	15°40.8	15°41.5	15°51.0	15°51.7	15°52.5	15°53.2	15°53.9	15°54.7	+0.7
do 4	180°47.4	195°47.5	210°47.5	225°47.6	240°47.7	255°47.7	90°48.5	105°48.5	120°48.6	135°48.6	150°48.7	165°48.7	+0.1
	15°55.4	15°56.1	15°56.8	15°57.6	15°58.3	15°59.0	16°08.4	16°09.1	16°09.8	16°10.5	16°11.2	16°11.9	+0.7
vr 5	180°48.8	195°48.8	210°48.9	225°48.9	240°49.0	255°49.1	90°49.7	105°49.8	120°49.8	135°49.9	150°49.9	165°50.0	+0.1
	16°12.7	16°13.4	16°14.1	16°14.8	16°15.5	16°16.2	16°25.4	16°26.1	16°26.9	16°27.6	16°28.3	16°29.0	+0.7
za 6	180°50.0	195°50.1	210°50.1	225°50.2	240°50.2	255°50.2	90°50.8	105°50.9	120°50.9	135°51.0	150°51.0	165°51.0	+0.0
	16°29.7	16°30.4	16°31.1	16°31.8	16°32.5	16°33.2	16°42.2	16°42.9	16°43.6	16°44.3	16°45.0	16°45.7	+0.7
zo 7	180°51.1	195°51.1	210°51.2	225°51.2	240°51.3	255°51.3	90°51.8	105°51.8	120°51.9	135°51.9	150°52.0	165°52.0	+0.0
	16°46.4	16°47.1	16°47.8	16°48.5	16°49.2	16°49.9	16°58.8	16°59.5	17°00.1	17°00.8	17°01.5	17°02.2	+0.7
ma 8	180°52.0	195°52.1	210°52.1	225°52.1	240°52.2	255°52.2	90°52.6	105°52.7	120°52.7	135°52.7	150°52.8	165°52.8	+0.0
	17°02.9	17°03.5	17°04.2	17°04.9	17°05.6	17°06.3	17°15.0	17°15.7	17°16.4	17°17.0	17°17.7	17°18.4	+0.7
di 9	180°52.8	195°52.8	210°52.9	225°52.9	240°52.9	255°53.0	90°53.3	105°53.3	120°53.4	135°53.4	150°53.4	165°53.4	+0.0
	17°19.0	17°19.7	17°20.4	17°21.0	17°21.7	17°22.4	17°31.0	17°31.6	17°32.3	17°32.9	17°33.6	17°34.3	+0.7
wo 10	180°53.5	195°53.5	210°53.5	225°53.5	240°53.6	255°53.6	90°53.8	105°53.9	120°53.9	135°53.9	150°53.9	165°53.9	+0.0
	17°34.9	17°35.6	17°36.2	17°36.9	17°37.5	17°38.2	17°46.6	17°47.3	17°47.9	17°48.6	17°49.2	17°49.9	+0.7
do 11	180°54.0	195°54.0	210°54.0	225°54.0	240°54.0	255°54.0	90°54.2	105°54.2	120°54.3	135°54.3	150°54.3	165°54.3	+0.0
	17°50.5	17°51.1	17°51.8	17°52.4	17°53.1	17°53.7	18°02.0	18°02.6	18°03.3	18°03.9	18°04.5	18°05.2	+0.6
vr 12	180°54.3	195°54.3	210°54.3	225°54.3	240°54.3	255°54.4	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	+0.0
	18°05.8	18°06.4	18°07.1	18°07.7	18°08.3	18°08.9	18°17.1	18°17.7	18°18.3	18°18.9	18°19.5	18°20.2	+0.6
za 13	180°54.5	195°54.5	210°54.5	225°54.5	240°54.5	255°54.5	90°54.6	105°54.6	120°54.6	135°54.6	150°54.6	165°54.6	+0.0
	18°20.8	18°21.4	18°22.0	18°22.6	18°23.2	18°23.9	18°31.8	18°32.4	18°33.0	18°33.6	18°34.2	18°34.9	+0.6
zo 14	180°54.6	195°54.6	210°54.6	225°54.6	240°54.6	255°54.5	90°54.5	105°54.5	120°54.5	135°54.5	150°54.5	165°54.5	-0.0
	18°35.5	18°36.1	18°36.7	18°37.3	18°37.9	18°38.5	18°46.3	18°46.9	18°47.5	18°48.0	18°48.6	18°49.2	+0.6
ma 15	180°54.5	195°54.5	210°54.4	225°54.4	240°54.4	255°54.4	90°54.3	105°54.3	120°54.3	135°54.3	150°54.2	165°54.2	-0.0
	18°49.8	18°50.4	18°51.0	18°51.6	18°52.2	18°52.8	19°00.4	19°01.0	19°01.6	19°02.1	19°02.7	19°03.3	+0.6
di 16	180°54.2	195°54.2	210°54.2	225°54.2	240°54.2	255°54.2	90°53.9	105°53.9	120°53.9	135°53.9	150°53.9	165°53.9	-0.0
	19°03.9	19°04.5	19°05.0	19°05.6	19°06.2	19°06.8	19°14.2	19°14.8	19°15.3	19°15.9	19°16.5	19°17.0	+0.6
wo 17	180°53.8	195°53.8	210°53.8	225°53.8	240°53.8	255°53.7	90°53.5	105°53.4	120°53.4	135°53.4	150°53.4	165°53.3	-0.0
	19°17.6	19°18.2	19°18.7	19°19.3	19°19.9	19°20.4	19°27.7	19°28.2	19°28.8	19°29.3	19°29.9	19°30.4	+0.6
do 18	180°53.3	195°53.3	210°53.3	225°53.2	240°53.2	255°53.2	90°52.8	105°52.8	120°52.8	135°52.7	150°52.7	165°52.7	-0.0
	19°31.0	19°31.5	19°32.1	19°32.6	19°33.2	19°33.7	19°40.8	19°41.4	19°41.9	19°42.4	19°43.0	19°43.5	+0.6
vr 19	180°52.7	195°52.6	210°52.6	225°52.6	240°52.5	255°52.5	90°52.1	105°52.0	120°52.0	135°52.0	150°51.9	165°51.9	-0.0
	19°44.1	19°44.6	19°45.1	19°45.7	19°46.2	19°46.7	19°53.6	19°54.2	19°54.7	19°55.2	19°55.7	19°56.3	+0.5
za 20	180°51.9	195°51.8	210°51.8	225°51.7	240°51.7	255°51.7	90°51.2	105°51.1	120°51.1	135°51.0	150°51.0	165°51.0	-0.0
	19°56.8	19°57.3	19°57.8	19°58.4	19°58.9	19°59.4	20°06.1	20°06.6	20°07.1	20°07.7	20°08.2	20°08.7	+0.5
zo 21	180°50.9	195°50.9	210°50.8	225°50.8	240°50.8	255°50.7	90°50.1	105°50.1	120°50.0	135°50.0	150°50.0	165°49.9	-0.0
	20°09.2	20°09.7	20°10.2	20°10.7	20°11.2	20°11.7	20°18.3	20°18.7	20°19.2	20°19.7	20°20.2	20°20.7	+0.5
ma 22	180°49.9	195°49.8	210°49.8	225°49.7	240°49.7	255°49.6	90°49.0	105°48.9	120°48.9	135°48.8	150°48.8	165°48.7	-0.0
	20°21.2	20°21.7	20°22.2	20°22.7	20°23.2	20°23.7	20°30.0	20°30.5	20°31.0	20°31.5	20°32.0	20°32.4	+0.5
di 23	180°48.7	195°48.6	210°48.6	225°48.5	240°48.5	255°48.4	90°47.7	105°47.6	120°47.6	135°47.5	150°47.5	165°47.4	-0.1
	20°32.9	20°33.4	20°33.9	20°34.4	20°34.8	20°35.3	20°41.5	20°41.9	20°42.4	20°42.9	20°43.3	20°43.8	+0.5
wo 24	180°47.4	195°47.3	210°47.2	225°47.2	240°47.1	255°47.1	90°46.3	105°46.2	120°46.2	135°46.1	150°46.1	165°46.0	-0.1
	20°44.3	20°44.7	20°45.2	20°45.7	20°46.1	20°46.6	20°52.5	20°53.0	20°53.4	20°53.9	20°54.4	20°54.8	+0.5
do 25	180°45.9	195°45.9	210°45.8	225°45.7	240°45.7	255°45.6	90°44.8	105°44.7	120°44.6	135°44.6	150°44.5	165°44.4	-0.1
	20°55.3	20°55.7	20°56.2	20°56.6	20°57.0	20°57.5	21°03.3	21°03.7	21°04.1	21°04.6	21°05.0	21°05.4	+0.5
vr 26	180°44.4	195°44.3	210°44.2	225°44.2	240°44.1	255°44.0	90°43.1	105°43.1	120°43.0	135°42.9	150°42.9	165°42.8	-0.1
	21°05.9	21°06.3	21°06.7	21°07.2	21°07.6	21°08.0	21°13.6	21°14.0	21°14.5	21°14.9	21°15.3	21°15.7	+0.4
za 27	180°42.7	195°42.6	210°42.6	225°42.5	240°42.4	255°42.3	90°41.4	105°41.3	120°41.2	135°41.2	150°41.1	165°41.0	-0.1
	21°16.1	21°16.6	21°17.0	21°17.4	21°17.8	21°18.2	21°23.6	21°24.0	21°24.4	21°24.8	21°25.2	21°25.6	+0.4
zo 28	180°40.9	195°40.9	210°40.8	225°40.7	240°40.6	255°40.5	90°39.5	105°39.4	120°39.4	135°39.3	150°39.2	165°39.1	-0.1
	21°26.0	21°26.4	21°26.8	21°27.2	21°27.6	21°28.0	21°33.2	21°33.6	21°34.0	21°34.4	21°34.8	21°35.2	+0.4
ma 29	180°39.0	195°39.0	210°38.9	225°38.8	240°38.7	255°38.6	90°37.5	105°37.5	120°37.4	135°37.3	150°37.2	165°37.1	-0.1
	21°35.5	21°35.9	21°36.3	21°36.7	21°37.1	21°37.5	21°42.4	21°42.8	21°43.2	21°43.6	21°43.9	21°44.3	+0.4
di 30	180°37.0	195°37.0	210°36.9	225°36.8	240°36.7	255°36.6	90°35.5	105°35.4	120°35.3	135°35.3	150°35.2	165°35.0	-0.1
	21°44.7	21°45.1	21°45.4	21°45.8	21°46.2	21°46.5	21°51.3	21°51.7	21°52.0	21°52.4	21°52.7	21°53.1	+0.4
wo 31	180°34.9	195°34.8	210°34.8	225°34.7	240°34.6	255°34.5	90°33.3	105°33.2	120°33.1	135°33.0	150°32.9	165°32.8	-0.1
	21°53.4	21°53.8	21°54.2	21°54.5	21°54.9	21°55.2	21°59.8	22°00.1	22°00.5	22°00.8	22°01.1	22°01.5	+0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2034

D	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	Δ'/h	SD/HP
ma 1	69°57.3	84°31.2	99°05.2	113°39.2	128°13.2	142°47.1	157°21.1	171°55.0	186°29.0	201°02.9	215°36.8	+34.0	14.7
	-4°51.6	-5°00.6	-5°09.6	-5°18.5	-5°27.4	-5°36.3	-5°45.2	-5°54.1	-6°02.9	-6°11.7	-6°20.5	-8.9	54.1
di 2	74°04.0	88°37.7	103°11.3	117°45.0	132°18.6	146°52.2	161°25.8	175°59.4	190°33.0	205°06.5	219°40.0	+33.6	14.7
	-8°28.4	-8°36.7	-8°44.9	-8°53.1	-9°01.3	-9°09.4	-9°17.5	-9°25.5	-9°33.5	-9°41.5	-9°49.4	-8.1	53.9
○ wo 3	78°00.0	92°33.1	107°06.3	121°39.3	136°12.4	150°45.4	165°18.4	179°51.4	194°24.4	208°57.3	223°30.2	+33.0	14.7
	-11°43.0	-11°50.2	-11°57.3	-12°04.4	-12°11.5	-12°18.5	-12°25.4	-12°32.3	-12°39.1	-12°45.9	-12°52.6	-7.0	53.9
do 4	81°40.3	96°12.7	110°45.2	125°17.5	139°49.9	154°22.2	168°54.5	183°26.8	197°59.0	212°31.2	227°03.4	+32.3	14.7
	-14°26.7	-14°32.5	-14°38.2	-14°43.9	-14°49.5	-14°55.0	-15°00.5	-15°05.9	-15°11.2	-15°16.5	-15°21.7	-5.5	54.0
vr 5	85°02.5	99°34.2	114°05.9	128°37.5	143°09.1	157°40.7	172°12.3	186°43.8	201°15.3	215°46.8	230°18.3	+31.6	14.8
	-16°31.5	-16°35.6	-16°39.6	-16°43.5	-16°47.4	-16°51.2	-16°54.9	-16°58.5	-17°02.1	-17°05.5	-17°08.9	-3.7	54.1
za 6	88°06.9	102°38.0	117°09.0	131°40.0	146°11.0	160°41.9	175°12.9	189°43.8	204°14.7	218°45.5	233°16.4	+30.9	14.8
	-17°50.4	-17°52.5	-17°54.5	-17°56.5	-17°58.3	-18°00.1	-18°01.8	-18°03.4	-18°04.9	-18°06.4	-18°07.7	-1.7	54.4
zo 7	90°56.6	105°27.1	119°57.7	134°28.2	148°58.7	163°29.1	177°59.6	192°30.1	207°00.5	221°30.9	236°01.3	+30.5	14.9
	-18°17.8	-18°17.7	-18°17.6	-18°17.4	-18°17.1	-18°16.7	-18°16.2	-18°15.7	-18°15.0	-18°14.3	-18°13.5	+0.4	54.8
ma 8	93°36.0	108°06.2	122°36.4	137°06.6	151°36.8	166°07.0	180°37.2	195°07.4	209°37.5	224°07.7	238°37.8	+30.2	15.1
	-17°50.3	-17°48.1	-17°45.7	-17°43.3	-17°40.7	-17°38.1	-17°35.4	-17°32.6	-17°29.7	-17°26.8	-17°23.7	+2.7	55.3
di 9	96°09.5	110°39.6	125°09.6	139°39.7	154°09.8	168°39.8	183°09.9	197°39.9	212°10.0	226°40.0	241°10.1	+30.1	15.2
	-16°27.2	-16°22.7	-16°18.1	-16°13.5	-16°08.8	-16°04.0	-15°59.1	-15°54.1	-15°49.0	-15°43.8	-15°38.6	+4.9	55.9
wo 10	98°40.2	113°10.2	127°40.2	142°10.2	156°40.2	171°10.1	185°40.1	200°10.0	214°40.0	229°09.9	243°39.9	+30.0	15.4
	-14°10.0	-14°03.5	-13°56.9	-13°50.1	-13°43.4	-13°36.5	-13°29.5	-13°22.5	-13°15.4	-13°08.2	-13°01.0	+6.9	56.6
◑ do 11	101°08.3	115°38.1	130°08.0	144°37.8	159°07.6	173°37.4	188°07.2	202°36.9	217°06.7	231°36.5	246°06.2	+29.8	15.7
	-11°03.3	-10°54.9	-10°46.4	-10°37.9	-10°29.3	-10°20.6	-10°11.8	-10°03.0	-9°54.1	-9°45.2	-9°36.2	+8.7	57.5
vr 12	103°30.6	118°00.1	132°29.5	146°59.0	161°28.4	175°57.8	190°27.2	204°56.6	219°25.9	233°55.2	248°24.5	+29.4	15.9
	-7°14.0	-7°04.1	-6°54.1	-6°44.1	-6°34.0	-6°23.8	-6°13.7	-6°03.4	-5°53.2	-5°42.8	-5°32.5	+10.2	58.4
za 13	105°40.8	120°09.6	134°38.4	149°07.2	163°36.0	178°04.7	192°33.3	207°02.0	221°30.6	235°59.1	250°27.7	+28.7	16.2
	-2°52.2	-2°41.2	-2°30.2	-2°19.2	-2°08.1	-1°57.0	-1°45.9	-1°34.8	-1°23.6	-1°12.5	-1°01.3	+11.1	59.3
zo 14	107°30.7	121°58.5	136°26.3	150°54.1	165°21.8	179°49.5	194°17.1	208°44.6	223°12.2	237°39.6	252°07.0	+27.6	16.4
	1°48.5	1°59.9	2°11.2	2°22.6	2°34.0	2°45.4	2°56.8	3°08.1	3°19.5	3°30.8	3°42.2	+11.4	60.1
ma 15	108°51.9	123°18.4	137°44.9	152°11.4	166°37.7	181°04.1	195°30.3	209°56.5	224°22.7	238°48.8	253°14.8	+26.3	16.6
	6°30.1	6°41.1	6°52.1	7°03.0	7°13.9	7°24.7	7°35.5	7°46.3	7°57.0	8°07.7	8°18.3	+10.8	60.8
di 16	109°38.5	124°03.6	138°28.7	152°53.7	167°18.7	181°43.6	196°08.4	210°33.2	224°58.0	239°22.7	253°47.3	+24.9	16.7
	10°51.2	11°00.9	11°10.5	11°20.0	11°29.5	11°38.9	11°48.2	11°57.4	12°06.6	12°15.6	12°24.6	+9.3	61.2
wo 17	109°51.0	124°14.9	138°38.8	153°02.6	167°26.4	181°50.1	196°13.8	210°37.5	225°01.1	239°24.7	253°48.3	+23.7	16.7
	14°28.4	14°35.9	14°43.2	14°50.5	14°57.6	15°04.6	15°11.5	15°18.3	15°25.0	15°31.6	15°38.1	+7.0	61.2
● do 18	109°39.0	124°02.2	138°25.5	152°48.7	167°11.9	181°35.2	195°58.4	210°21.6	224°44.8	239°08.1	253°31.3	+23.2	16.6
	17°00.7	17°05.2	17°09.6	17°13.8	17°18.0	17°22.0	17°25.8	17°29.6	17°33.2	17°36.7	17°40.0	+3.9	60.9
vr 19	109°21.2	123°44.7	138°08.3	152°31.8	166°55.4	181°19.1	195°42.7	210°06.4	224°30.2	238°54.0	253°17.8	+23.6	16.4
	18°14.3	18°15.6	18°16.7	18°17.6	18°18.5	18°19.2	18°19.7	18°20.2	18°20.5	18°20.7	18°20.7	+0.6	60.3
za 20	109°21.1	123°45.8	138°10.5	152°35.3	167°00.2	181°25.1	195°50.1	210°15.2	224°40.3	239°05.6	253°30.8	+25.0	16.2
	18°06.2	18°04.3	18°02.2	18°00.0	17°57.7	17°55.3	17°52.7	17°50.1	17°47.3	17°44.4	17°41.4	-2.5	59.4
zo 21	109°58.9	124°25.4	138°52.0	153°18.6	167°45.4	182°12.2	196°39.1	211°06.1	225°33.1	240°00.3	254°27.5	+26.9	15.9
	16°43.6	16°38.9	16°34.1	16°29.3	16°24.3	16°19.2	16°14.1	16°08.9	16°03.6	15°58.1	15°52.6	-5.1	58.5
ma 22	124°25.4	138°52.0	153°18.6	167°45.4	182°12.2	196°39.1	211°06.1	225°33.1	240°00.3	254°27.5	268°54.8	+26.9	15.9
	16°38.9	16°34.1	16°29.3	16°24.3	16°19.2	16°14.1	16°08.9	16°03.6	15°58.1	15°52.6	15°47.1	-5.2	58.4
di 23	125°54.5	140°23.1	154°51.8	169°20.6	183°49.5	198°18.5	212°47.5	227°16.7	241°45.9	256°15.2	270°44.5	+29.0	15.7
	14°13.6	14°06.8	13°59.9	13°52.9	13°45.9	13°38.8	13°31.6	13°24.4	13°17.1	13°09.8	13°02.3	-7.1	57.4
◐ wo 24	128°14.2	142°44.8	157°15.4	171°46.1	186°16.9	200°47.7	215°18.7	229°49.6	244°20.7	258°51.8	273°23.0	+30.9	15.4
	11°04.6	10°56.4	10°48.1	10°39.8	10°31.4	10°23.0	10°14.5	10°06.0	9°57.5	9°48.9	9°40.3	-8.4	56.5
do 25	131°18.2	145°50.3	160°22.5	174°54.8	189°27.1	203°59.4	218°31.8	233°04.3	247°36.8	262°09.3	276°41.9	+32.4	15.2
	7°27.2	7°18.1	7°09.0	6°59.9	6°50.7	6°41.5	6°32.3	6°23.1	6°13.9	6°04.6	5°55.3	-9.2	55.7
vr 26	134°56.0	149°29.3	164°02.6	178°35.9	193°09.2	207°42.6	222°16.0	236°49.5	251°23.0	265°56.5	280°30.0	+33.4	15.0
	3°34.4	3°24.9	3°15.4	3°05.9	2°56.4	2°46.9	2°37.4	2°27.9	2°18.4	2°08.8	1°59.3	-9.5	55.0
za 27	138°55.8	153°29.7	168°03.6	182°37.5	197°11.5	211°45.4	226°19.3	240°53.3	255°27.3	270°01.3	284°35.2	+33.9	14.9
	-0°23.3	-0°32.8	-0°42.2	-0°51.7	-1°01.1	-1°10.6	-1°20.0	-1°29.4	-1°38.8	-1°48.2	-1°57.6	-9.4	54.5
zo 28	143°05.8	157°39.8	172°13.9	186°47.9	201°22.0	215°56.0	230°30.1	245°04.1	259°38.1	274°12.1	288°46.2	+34.0	14.8
	-4°16.6	-4°25.7	-4°34.8	-4°43.9	-4°52.9	-5°02.0	-5°11.0	-5°20.0	-5°28.9	-5°37.9	-5°46.8	-9.0	54.2
ma 29	147°15.1	161°48.9	176°22.8	190°56.5	205°30.3	220°04.1	234°37.8	249°11.5	263°45.2	278°18.9	292°52.6	+33.7	14.7
	-7°57.1	-8°05.5	-8°14.0	-8°22.3	-8°30.7	-8°39.0	-8°47.2	-8°55.5	-9°03.6	-9°11.8	-9°19.9	-8.3	54.0
di 30	151°14.8	165°48.0	180°21.3	194°54.5	209°27.7	224°00.9	238°34.0	253°07.1	267°40.2	282°13.3	296°46.3	+33.2	14.7
	-11°16.7	-11°24.1	-11°31.5	-11°38.8	-11°46.1	-11°53.4	-12°00.5	-12°07.7	-12°14.8	-12°21.8	-12°28.8	-7.2	53.9
wo 31	154°58.0	169°30.5	184°03.0	198°35.5	213°07.9	227°40.3	242°12.7	256°45.0	271°17.3	285°49.6	300°21.8	+32.4	14.7
	-14°07.0	-14°13.1	-14°19.1	-14°25.1	-14°31.0	-14°36.9	-14°42.6	-14°48.4	-14°54.0	-14°59.6	-15°05.1	-5.8	54.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 3 12h15 — LK: 11 10h56 — NM: 18 03h12 — EK: 24 23h57

ZON

Juni 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	180°32.7	195°32.6	210°32.5	225°32.4	240°32.4	255°32.3	90°31.0	105°30.9	120°30.8	135°30.7	150°30.6	165°30.5	-0.1
	22°01.8	22°02.2	22°02.5	22°02.9	22°03.2	22°03.5	22°07.9	22°08.2	22°08.5	22°08.9	22°09.2	22°09.5	+0.3
vr 2	180°30.4	195°30.3	210°30.2	225°30.1	240°30.0	255°29.9	90°28.6	105°28.5	120°28.4	135°28.3	150°28.2	165°28.1	-0.1
	22°09.8	22°10.2	22°10.5	22°10.8	22°11.1	22°11.4	22°15.6	22°15.9	22°16.2	22°16.5	22°16.8	22°17.1	+0.3
za 3	180°28.0	195°27.9	210°27.8	225°27.7	240°27.6	255°27.5	90°26.2	105°26.1	120°26.0	135°25.8	150°25.7	165°25.6	-0.1
	22°17.4	22°17.7	22°18.1	22°18.4	22°18.7	22°19.0	22°22.9	22°23.2	22°23.5	22°23.8	22°24.1	22°24.4	+0.3
zo 4	180°25.5	195°25.4	210°25.3	225°25.2	240°25.1	255°25.0	90°23.6	105°23.5	120°23.4	135°23.3	150°23.2	165°23.1	-0.1
	22°24.7	22°25.0	22°25.2	22°25.5	22°25.8	22°26.1	22°29.8	22°30.1	22°30.4	22°30.7	22°30.9	22°31.2	+0.3
ma 5	180°23.0	195°22.8	210°22.7	225°22.6	240°22.5	255°22.4	90°21.0	105°20.9	120°20.7	135°20.6	150°20.5	165°20.4	-0.1
	22°31.5	22°31.8	22°32.0	22°32.3	22°32.6	22°32.9	22°36.4	22°36.6	22°36.9	22°37.1	22°37.4	22°37.7	+0.3
di 6	180°20.3	195°20.2	210°20.1	225°20.0	240°19.8	255°19.7	90°18.2	105°18.1	120°18.0	135°17.9	150°17.8	165°17.7	-0.1
	22°37.9	22°38.2	22°38.4	22°38.7	22°39.0	22°39.2	22°42.5	22°42.7	22°43.0	22°43.2	22°43.5	22°43.7	+0.3
wo 7	180°17.5	195°17.4	210°17.3	225°17.2	240°17.1	255°17.0	90°15.4	105°15.3	120°15.2	135°15.1	150°15.0	165°14.8	-0.1
	22°44.0	22°44.2	22°44.5	22°44.7	22°44.9	22°45.2	22°48.2	22°48.5	22°48.7	22°48.9	22°49.2	22°49.4	+0.2
do 8	180°14.7	195°14.6	210°14.5	225°14.4	240°14.2	255°14.1	90°12.6	105°12.4	120°12.3	135°12.2	150°12.1	165°12.0	-0.1
	22°49.6	22°49.8	22°50.1	22°50.3	22°50.5	22°50.7	22°53.6	22°53.8	22°54.0	22°54.2	22°54.4	22°54.6	+0.2
vr 9	180°11.8	195°11.7	210°11.6	225°11.5	240°11.3	255°11.2	90°09.6	105°09.5	120°09.4	135°09.2	150°09.1	165°09.0	-0.1
	22°54.8	22°55.1	22°55.3	22°55.5	22°55.7	22°55.9	22°58.5	22°58.7	22°58.9	22°59.1	22°59.3	22°59.5	+0.2
za 10	180°08.9	195°08.8	210°08.6	225°08.5	240°08.4	255°08.3	90°06.6	105°06.5	120°06.4	135°06.2	150°06.1	165°06.0	-0.1
	22°59.7	22°59.9	23°00.1	23°00.3	23°00.4	23°00.6	23°03.0	23°03.2	23°03.4	23°03.6	23°03.8	23°03.9	+0.2
zo 11	180°05.9	195°05.7	210°05.6	225°05.5	240°05.3	255°05.2	90°03.6	105°03.4	120°03.3	135°03.2	150°03.0	165°02.9	-0.1
	23°04.1	23°04.3	23°04.5	23°04.6	23°04.8	23°05.0	23°07.2	23°07.3	23°07.5	23°07.7	23°07.8	23°08.0	+0.2
ma 12	180°02.8	195°02.6	210°02.5	225°02.4	240°02.3	255°02.1	90°00.4	105°00.3	120°00.2	135°00.0	149°59.9	164°59.8	-0.1
	23°08.1	23°08.3	23°08.5	23°08.6	23°08.8	23°08.9	23°10.9	23°11.0	23°11.2	23°11.3	23°11.5	23°11.6	+0.2
di 13	179°59.6	194°59.5	209°59.4	224°59.3	239°59.1	254°59.0	89°57.3	104°57.1	119°57.0	134°56.9	149°56.7	164°56.6	-0.1
	23°11.8	23°11.9	23°12.0	23°12.2	23°12.3	23°12.5	23°14.2	23°14.3	23°14.5	23°14.6	23°14.7	23°14.8	+0.1
wo 14	179°56.5	194°56.3	209°56.2	224°56.1	239°55.9	254°55.8	89°54.1	104°53.9	119°53.8	134°53.7	149°53.5	164°53.4	-0.1
	23°15.0	23°15.1	23°15.2	23°15.3	23°15.5	23°15.6	23°17.1	23°17.2	23°17.3	23°17.4	23°17.5	23°17.7	+0.1
do 15	179°53.3	194°53.1	209°53.0	224°52.9	239°52.7	254°52.6	89°50.8	104°50.7	119°50.6	134°50.4	149°50.3	164°50.2	-0.1
	23°17.8	23°17.9	23°18.0	23°18.1	23°18.2	23°18.3	23°19.6	23°19.7	23°19.8	23°19.9	23°20.0	23°20.1	+0.1
vr 16	179°50.0	194°49.9	209°49.7	224°49.6	239°49.5	254°49.3	89°47.6	104°47.4	119°47.3	134°47.2	149°47.0	164°46.9	-0.1
	23°20.1	23°20.2	23°20.3	23°20.4	23°20.5	23°20.6	23°21.7	23°21.7	23°21.8	23°21.9	23°22.0	23°22.1	+0.1
za 17	179°46.8	194°46.6	209°46.5	224°46.3	239°46.2	254°46.1	89°44.3	104°44.2	119°44.0	134°43.9	149°43.7	164°43.6	-0.1
	23°22.1	23°22.2	23°22.3	23°22.3	23°22.4	23°22.5	23°23.3	23°23.4	23°23.5	23°23.5	23°23.6	23°23.6	+0.1
zo 18	179°43.5	194°43.3	209°43.2	224°43.1	239°42.9	254°42.8	89°41.0	104°40.9	119°40.7	134°40.6	149°40.5	164°40.3	-0.1
	23°23.7	23°23.7	23°23.8	23°23.9	23°23.9	23°24.0	23°24.6	23°24.6	23°24.7	23°24.7	23°24.8	23°24.8	+0.1
ma 19	179°40.2	194°40.0	209°39.9	224°39.8	239°39.6	254°39.5	89°37.7	104°37.6	119°37.4	134°37.3	149°37.2	164°37.0	-0.1
	23°24.8	23°24.9	23°24.9	23°25.0	23°25.0	23°25.0	23°25.4	23°25.5	23°25.5	23°25.5	23°25.5	23°25.6	+0.0
di 20	179°36.9	194°36.8	209°36.6	224°36.5	239°36.3	254°36.2	89°34.4	104°34.3	119°34.2	134°34.0	149°33.9	164°33.7	-0.1
	23°25.6	23°25.6	23°25.6	23°25.6	23°25.7	23°25.7	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	23°25.9	+0.0
wo 21	179°33.6	194°33.5	209°33.3	224°33.2	239°33.1	254°32.9	89°31.1	104°31.0	119°30.9	134°30.7	149°30.6	164°30.5	-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
do 22	179°30.3	194°30.2	209°30.1	224°29.9	239°29.8	254°29.6	89°27.9	104°27.7	119°27.6	134°27.5	149°27.3	164°27.2	-0.1
	23°25.8	23°25.8	23°25.8	23°25.8	23°25.8	23°25.7	23°25.5	23°25.5	23°25.4	23°25.4	23°25.4	23°25.3	-0.0
vr 23	179°27.1	194°26.9	209°26.8	224°26.7	239°26.5	254°26.4	89°24.6	104°24.5	119°24.4	134°24.2	149°24.1	164°24.0	-0.1
	23°25.3	23°25.3	23°25.3	23°25.2	23°25.2	23°25.2	23°24.7	23°24.6	23°24.6	23°24.5	23°24.5	23°24.4	-0.0
za 24	179°23.8	194°23.7	209°23.6	224°23.4	239°23.3	254°23.2	89°21.4	104°21.3	119°21.2	134°21.0	149°20.9	164°20.8	-0.1
	23°24.4	23°24.4	23°24.3	23°24.3	23°24.2	23°24.2	23°23.4	23°23.4	23°23.3	23°23.3	23°23.2	23°23.1	-0.0
zo 25	179°20.6	194°20.5	209°20.4	224°20.2	239°20.1	254°20.0	89°18.2	104°18.1	119°18.0	134°17.8	149°17.7	164°17.6	-0.1
	23°23.1	23°23.0	23°22.9	23°22.9	23°22.8	23°22.7	23°21.8	23°21.7	23°21.7	23°21.6	23°21.5	23°21.4	-0.1
ma 26	179°17.5	194°17.3	209°17.2	224°17.1	239°16.9	254°16.8	89°15.1	104°15.0	119°14.8	134°14.7	149°14.6	164°14.5	-0.1
	23°21.3	23°21.3	23°21.2	23°21.1	23°21.0	23°20.9	23°19.8	23°19.7	23°19.6	23°19.5	23°19.4	23°19.3	-0.1
di 27	179°14.3	194°14.2	209°14.1	224°13.9	239°13.8	254°13.7	89°12.0	104°11.9	119°11.7	134°11.6	149°11.5	164°11.4	-0.1
	23°19.2	23°19.1	23°19.0	23°18.9	23°18.8	23°18.7	23°17.3	23°17.2	23°17.1	23°17.0	23°16.9	23°16.7	-0.1
wo 28	179°11.2	194°11.1	209°11.0	224°10.9	239°10.7	254°10.6	89°09.0	104°08.8	119°08.7	134°08.6	149°08.5	164°08.3	-0.1
	23°16.6	23°16.5	23°16.4	23°16.3	23°16.2	23°16.0	23°14.4	23°14.3	23°14.2	23°14.1	23°13.9	23°13.8	-0.1
do 29	179°08.2	194°08.1	209°08.0	224°07.8	239°07.7	254°07.6	89°06.0	104°05.8	119°05.7	134°05.6	149°05.5	164°05.3	-0.1
	23°13.7	23°13.5	23°13.4	23°13.3	23°13.1	23°13.0	23°11.2	23°11.0	23°10.9	23°10.7	23°10.6	23°10.4	-0.1
vr 30	179°05.2	194°05.1	209°05.0	224°04.9	239°04.7	254°04.6	89°03.0	104°02.9	119°02.8	134°02.7	149°02.5	164°02.4	-0.1
	23°10.3	23°10.1	23°10.0	23°09.8	23°09.7	23°09.5	23°07.5	23°07.3	23°07.2	23°07.0	23°06.8	23°06.7	-0.1

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2034

D	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	SD/HP
do 1	71°10.3	85°42.2	100°14.1	114°45.9	129°17.7	143°49.5	158°21.2	172°52.9	187°24.6	201°56.2	216°27.8	+31.7	14.8
	-15°51.9	-15°56.7	-16°01.5	-16°06.2	-16°10.9	-16°15.4	-16°19.9	-16°24.3	-16°28.7	-16°33.0	-16°37.2	-4.5	54.1
○ vr 2	74°18.0	88°49.1	103°20.1	117°51.2	132°22.2	146°53.2	161°24.2	175°55.1	190°26.0	204°56.9	219°27.7	+31.0	14.8
	-17°31.1	-17°34.0	-17°36.9	-17°39.7	-17°42.4	-17°45.1	-17°47.6	-17°50.1	-17°52.5	-17°54.8	-17°57.0	-2.6	54.4
za 3	77°07.6	91°38.1	106°08.5	120°39.0	135°09.4	149°39.8	164°10.2	178°40.5	193°10.9	207°41.2	222°11.5	+30.4	14.9
	-18°20.1	-18°21.0	-18°21.8	-18°22.4	-18°23.0	-18°23.5	-18°23.9	-18°24.2	-18°24.4	-18°24.6	-18°24.6	-0.4	54.7
zo 4	79°44.6	94°14.7	108°44.8	123°14.9	137°45.0	152°15.1	166°45.2	181°15.2	195°45.3	210°15.4	224°45.4	+30.1	15.0
	-18°14.5	-18°13.1	-18°11.6	-18°10.0	-18°08.3	-18°06.6	-18°04.7	-18°02.8	-18°00.7	-17°58.6	-17°56.4	+1.8	55.1
ma 5	82°15.8	96°45.8	111°15.8	125°45.8	140°15.9	154°45.9	169°15.9	183°45.9	198°16.0	212°46.0	227°16.0	+30.0	15.1
	-17°12.3	-17°08.7	-17°04.9	-17°01.1	-16°57.2	-16°53.2	-16°49.1	-16°44.9	-16°40.6	-16°36.3	-16°31.9	+4.0	55.5
di 6	84°47.0	99°17.1	113°47.2	128°17.4	142°47.5	157°17.6	171°47.8	186°17.9	200°48.0	215°18.2	229°48.4	+30.1	15.3
	-15°15.1	-15°09.3	-15°03.5	-14°57.5	-14°51.5	-14°45.4	-14°39.2	-14°33.0	-14°26.6	-14°20.2	-14°13.7	+6.1	56.1
wo 7	87°21.4	101°51.7	116°21.9	130°52.2	145°22.4	159°52.7	174°23.0	188°53.2	203°23.5	217°53.8	232°24.1	+30.3	15.5
	-12°27.3	-12°19.7	-12°11.9	-12°04.1	-11°56.2	-11°48.3	-11°40.3	-11°32.2	-11°24.1	-11°15.9	-11°07.6	+8.0	56.7
do 8	89°58.2	104°28.5	118°58.8	133°29.0	147°59.3	162°29.5	176°59.8	191°30.0	206°00.2	220°30.5	235°00.7	+30.2	15.7
	-8°56.1	-8°46.9	-8°37.6	-8°28.3	-8°18.9	-8°09.4	-7°59.9	-7°50.4	-7°40.8	-7°31.2	-7°21.5	+9.5	57.4
◑ vr 9	92°32.6	107°02.7	121°32.7	136°02.7	150°32.6	165°02.6	179°32.5	194°02.4	208°32.3	223°02.2	237°32.0	+29.9	15.9
	-4°50.8	-4°40.4	-4°30.0	-4°19.6	-4°09.1	-3°58.6	-3°48.1	-3°37.5	-3°26.9	-3°16.3	-3°05.6	+10.5	58.1
za 10	94°56.5	109°25.9	123°55.3	138°24.6	152°53.9	167°23.2	181°52.4	196°21.6	210°50.7	225°19.8	239°48.9	+29.2	16.1
	-0°23.0	-0°12.0	-0°01.0	0°10.0	0°21.0	0°32.1	0°43.1	0°54.1	1°05.2	1°16.3	1°27.3	+11.0	58.9
zo 11	96°59.8	111°28.2	125°56.5	140°24.8	154°53.0	169°21.1	183°49.2	198°17.3	212°45.3	227°13.2	241°41.1	+28.1	16.3
	4°13.0	4°24.0	4°35.0	4°45.9	4°56.9	5°07.8	5°18.7	5°29.5	5°40.4	5°51.2	6°02.0	+10.9	59.6
ma 12	98°32.7	112°59.7	127°26.6	141°53.5	156°20.3	170°47.0	185°13.6	199°40.2	214°06.8	228°33.3	242°59.7	+26.7	16.4
	8°40.1	8°50.3	9°00.5	9°10.6	9°20.7	9°30.7	9°40.7	9°50.6	10°00.5	10°10.3	10°20.0	+10.0	60.2
di 13	99°28.5	113°53.9	128°19.3	142°44.6	157°09.9	171°35.1	186°00.2	200°25.3	214°50.3	229°15.3	243°40.2	+25.2	16.5
	12°38.2	12°46.9	12°55.4	13°03.9	13°12.2	13°20.5	13°28.7	13°36.8	13°44.9	13°52.8	14°00.6	+8.2	60.6
wo 14	99°47.4	114°11.5	128°35.5	142°59.5	157°23.5	171°47.4	186°11.3	200°35.2	214°59.0	229°22.8	243°46.5	+23.9	16.6
	15°46.4	15°52.6	15°58.7	16°04.6	16°10.5	16°16.3	16°21.9	16°27.4	16°32.8	16°38.1	16°43.3	+5.7	60.7
do 15	99°39.5	114°02.9	128°26.3	142°49.7	157°13.0	171°36.4	185°59.7	200°23.1	214°46.4	229°09.8	243°33.1	+23.4	16.5
	17°45.9	17°49.1	17°52.1	17°55.0	17°57.8	18°00.4	18°02.9	18°05.3	18°07.5	18°09.6	18°11.6	+2.6	60.6
● vr 16	99°24.9	113°48.5	128°12.1	142°35.8	156°59.5	171°23.3	185°47.0	200°10.9	214°34.7	228°58.6	243°22.6	+23.8	16.4
	18°25.4	18°25.2	18°24.9	18°24.5	18°24.0	18°23.4	18°22.6	18°21.6	18°20.6	18°19.4	18°18.1	-0.7	60.1
za 17	99°27.7	113°52.5	128°17.3	142°42.2	157°07.2	171°32.3	185°57.4	200°22.6	214°47.9	229°13.2	243°38.6	+25.1	16.2
	17°43.7	17°40.4	17°37.1	17°33.6	17°30.0	17°26.3	17°22.5	17°18.5	17°14.5	17°10.3	17°06.1	-3.8	59.4
zo 18	100°08.6	114°35.2	129°01.9	143°28.7	157°55.6	172°22.6	186°49.6	201°16.7	215°43.9	230°11.2	244°38.5	+27.0	16.0
	15°50.0	15°44.2	15°38.2	15°32.2	15°26.1	15°19.9	15°13.7	15°07.3	15°00.9	14°54.4	14°47.8	-6.2	58.6
ma 19	101°38.9	116°07.6	130°36.4	145°05.2	159°34.1	174°03.1	188°32.2	203°01.4	217°30.6	232°00.0	246°29.4	+29.0	15.7
	12°59.9	12°52.2	12°44.4	12°36.6	12°28.6	12°20.7	12°12.7	12°04.6	11°56.5	11°48.3	11°40.0	-8.0	57.6
di 20	103°59.5	118°30.1	133°00.8	147°31.5	162°02.3	176°33.2	191°04.2	205°35.2	220°06.2	234°37.4	249°08.6	+30.9	15.5
	9°30.9	9°22.0	9°13.0	9°04.0	8°55.0	8°45.9	8°36.8	8°27.7	8°18.5	8°09.4	8°00.1	-9.1	56.7
wo 21	118°30.1	133°00.8	147°31.5	162°02.3	176°33.2	191°04.2	205°35.2	220°06.2	234°37.4	249°08.6	263°39.8	+31.0	15.5
	9°22.0	9°13.0	9°04.0	8°55.0	8°45.9	8°36.8	8°27.7	8°18.5	8°09.4	8°00.1	7°50.9	-9.1	56.7
do 22	121°36.0	136°08.2	150°40.4	165°12.7	179°45.1	194°17.5	208°49.9	223°22.4	237°54.9	252°27.5	267°00.1	+32.4	15.2
	5°29.6	5°20.0	5°10.5	5°00.9	4°51.3	4°41.7	4°32.0	4°22.4	4°12.8	4°03.1	3°53.5	-9.6	55.8
◐ vr 23	125°14.3	139°47.5	154°20.8	168°54.1	183°27.4	198°00.8	212°34.2	227°07.6	241°41.0	256°14.5	270°48.0	+33.4	15.0
	1°28.2	1°18.5	1°08.8	0°59.2	0°49.5	0°39.8	0°30.2	0°20.5	0°10.9	0°01.2	-0°08.4	-9.7	55.1
za 24	129°12.7	143°46.5	158°20.3	172°54.1	187°27.9	202°01.8	216°35.6	231°09.4	245°43.3	260°17.1	274°51.0	+33.8	14.9
	-2°31.5	-2°40.9	-2°50.3	-2°59.7	-3°09.1	-3°18.4	-3°27.8	-3°37.1	-3°46.4	-3°55.6	-4°04.9	-9.3	54.6
zo 25	133°19.2	147°53.0	162°26.9	177°00.7	191°34.6	206°08.4	220°42.2	235°16.1	249°49.9	264°23.7	278°57.5	+33.8	14.8
	-6°20.7	-6°29.5	-6°38.3	-6°47.1	-6°55.8	-7°04.6	-7°13.2	-7°21.9	-7°30.5	-7°39.1	-7°47.6	-8.7	54.3
ma 26	137°22.6	151°56.1	166°29.6	181°03.1	195°36.6	210°10.0	224°43.5	239°16.9	253°50.2	268°23.6	282°56.9	+33.4	14.7
	-9°51.5	-9°59.4	-10°07.3	-10°15.2	-10°23.0	-10°30.7	-10°38.5	-10°46.1	-10°53.8	-11°01.4	-11°08.9	-7.7	54.1
di 27	141°13.7	155°46.6	170°19.5	184°52.3	199°25.1	213°57.9	228°30.6	243°03.3	257°35.9	272°08.6	286°41.2	+32.7	14.7
	-12°56.2	-13°02.9	-13°09.6	-13°16.2	-13°22.8	-13°29.3	-13°35.7	-13°42.1	-13°48.5	-13°54.7	-14°01.0	-6.5	54.1
wo 28	144°46.0	159°18.1	173°50.1	188°22.1	202°54.0	217°25.9	231°57.7	246°29.6	261°01.4	275°33.1	290°04.8	+31.9	14.8
	-15°26.9	-15°32.1	-15°37.3	-15°42.3	-15°47.3	-15°52.3	-15°57.1	-16°01.9	-16°06.7	-16°11.3	-16°15.9	-4.9	54.2
do 29	147°56.3	162°27.4	176°58.5	191°29.6	206°00.6	220°31.7	235°02.6	249°33.6	264°04.5	278°35.4	293°06.2	+31.0	14.9
	-17°15.9	-17°19.2	-17°22.5	-17°25.8	-17°28.9	-17°32.0	-17°35.0	-17°37.9	-17°40.7	-17°43.4	-17°46.1	-3.0	54.5
vr 30	150°45.1	165°15.5	179°45.8	194°16.1	208°46.4	223°16.7	237°46.9	252°17.1	266°47.3	281°17.5	295°47.6	+30.2	14.9
	-18°15.8	-18°17.0	-18°18.2	-18°19.4	-18°20.4	-18°21.3	-18°22.2	-18°22.9	-18°23.6	-18°24.1	-18°24.6	-0.9	54.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 2 03h54 — LK: 9 19h43 — NM: 16 10h25 — EK: 23 14h35

ZON

Juli 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179°02.3	194°02.2	209°02.1	224°01.9	239°01.8	254°01.7	89°00.2	104°00.0	118°59.9	133°59.8	148°59.7	163°59.6	-0.1
	23°06.5	23°06.3	23°06.2	23°06.0	23°05.8	23°05.7	23°03.4	23°03.2	23°03.0	23°02.9	23°02.7	23°02.5	-0.2
zo 2	178°59.4	193°59.3	208°59.2	223°59.1	238°59.0	253°58.9	88°57.3	103°57.2	118°57.1	133°57.0	148°56.9	163°56.8	-0.1
	23°02.3	23°02.1	23°02.0	23°01.8	23°01.6	23°01.4	22°58.9	22°58.7	22°58.5	22°58.3	22°58.1	22°57.9	-0.2
ma 3	178°56.7	193°56.5	208°56.4	223°56.3	238°56.2	253°56.1	88°54.6	103°54.5	118°54.4	133°54.3	148°54.2	163°54.1	-0.1
	22°57.7	22°57.5	22°57.3	22°57.1	22°56.9	22°56.7	22°54.0	22°53.8	22°53.6	22°53.4	22°53.2	22°53.0	-0.2
di 4	178°53.9	193°53.8	208°53.7	223°53.6	238°53.5	253°53.4	88°52.0	103°51.9	118°51.7	133°51.6	148°51.5	163°51.4	-0.1
	22°52.7	22°52.5	22°52.3	22°52.1	22°51.9	22°51.7	22°48.7	22°48.5	22°48.3	22°48.1	22°47.8	22°47.6	-0.2
wo 5	178°51.3	193°51.2	208°51.1	223°51.0	238°50.9	253°50.8	88°49.4	103°49.3	118°49.2	133°49.1	148°49.0	163°48.9	-0.1
	22°47.4	22°47.1	22°46.9	22°46.7	22°46.4	22°46.2	22°43.1	22°42.8	22°42.6	22°42.3	22°42.1	22°41.8	-0.2
do 6	178°48.8	193°48.7	208°48.5	223°48.4	238°48.3	253°48.2	88°46.9	103°46.8	118°46.7	133°46.6	148°46.5	163°46.4	-0.1
	22°41.6	22°41.3	22°41.1	22°40.8	22°40.6	22°40.3	22°37.0	22°36.7	22°36.5	22°36.2	22°35.9	22°35.7	-0.2
vr 7	178°46.3	193°46.2	208°46.1	223°46.0	238°45.9	253°45.8	88°44.5	103°44.4	118°44.3	133°44.2	148°44.1	163°44.0	-0.1
	22°35.4	22°35.1	22°34.9	22°34.6	22°34.3	22°34.1	22°30.5	22°30.2	22°30.0	22°29.7	22°29.4	22°29.1	-0.3
za 8	178°43.9	193°43.8	208°43.7	223°43.6	238°43.5	253°43.4	88°42.2	103°42.1	118°42.0	133°41.9	148°41.8	163°41.7	-0.1
	22°28.8	22°28.5	22°28.3	22°28.0	22°27.7	22°27.4	22°23.6	22°23.4	22°23.1	22°22.8	22°22.5	22°22.2	-0.3
zo 9	178°41.6	193°41.5	208°41.4	223°41.3	238°41.3	253°41.2	88°40.0	103°39.9	118°39.8	133°39.7	148°39.6	163°39.5	-0.1
	22°21.9	22°21.6	22°21.3	22°21.0	22°20.7	22°20.4	22°16.4	22°16.1	22°15.8	22°15.5	22°15.2	22°14.8	-0.3
ma 10	178°39.4	193°39.3	208°39.3	223°39.2	238°39.1	253°39.0	88°37.9	103°37.8	118°37.7	133°37.6	148°37.5	163°37.4	-0.1
	22°14.5	22°14.2	22°13.9	22°13.6	22°13.3	22°12.9	22°08.8	22°08.4	22°08.1	22°07.8	22°07.5	22°07.1	-0.3
di 11	178°37.3	193°37.3	208°37.2	223°37.1	238°37.0	253°36.9	88°35.9	103°35.8	118°35.7	133°35.6	148°35.5	163°35.4	-0.1
	22°06.8	22°06.5	22°06.1	22°05.8	22°05.5	22°05.1	22°00.8	22°00.4	22°00.1	21°59.7	21°59.4	21°59.0	-0.3
wo 12	178°35.4	193°35.3	208°35.2	223°35.1	238°35.0	253°35.0	88°34.0	103°33.9	118°33.8	133°33.7	148°33.7	163°33.6	-0.1
	21°58.7	21°58.3	21°58.0	21°57.7	21°57.3	21°57.0	21°52.4	21°52.0	21°51.6	21°51.3	21°50.9	21°50.6	-0.3
do 13	178°33.5	193°33.4	208°33.3	223°33.3	238°33.2	253°33.1	88°32.2	103°32.1	118°32.0	133°32.0	148°31.9	163°31.8	-0.1
	21°50.2	21°49.8	21°49.5	21°49.1	21°48.8	21°48.4	21°43.6	21°43.2	21°42.9	21°42.5	21°42.1	21°41.7	-0.4
vr 14	178°31.7	193°31.7	208°31.6	223°31.5	238°31.5	253°31.4	88°30.5	103°30.4	118°30.4	133°30.3	148°30.2	163°30.2	-0.1
	21°41.3	21°41.0	21°40.6	21°40.2	21°39.8	21°39.5	21°34.5	21°34.1	21°33.7	21°33.3	21°32.9	21°32.5	-0.4
za 15	178°30.1	193°30.0	208°30.0	223°29.9	238°29.8	253°29.8	88°29.0	103°28.9	118°28.8	133°28.8	148°28.7	163°28.7	-0.1
	21°32.1	21°31.7	21°31.3	21°30.9	21°30.5	21°30.2	21°25.0	21°24.6	21°24.1	21°23.7	21°23.3	21°22.9	-0.4
zo 16	178°28.6	193°28.5	208°28.5	223°28.4	238°28.4	253°28.3	88°27.6	103°27.5	118°27.4	133°27.4	148°27.3	163°27.3	-0.1
	21°22.5	21°22.1	21°21.7	21°21.3	21°20.9	21°20.5	21°15.1	21°14.7	21°14.3	21°13.8	21°13.4	21°13.0	-0.4
ma 17	178°27.2	193°27.2	208°27.1	223°27.1	238°27.0	253°26.9	88°26.3	103°26.2	118°26.2	133°26.1	148°26.1	163°26.0	-0.1
	21°12.6	21°12.1	21°11.7	21°11.3	21°10.9	21°10.4	21°04.9	21°04.4	21°04.0	21°03.6	21°03.1	21°02.7	-0.4
di 18	178°26.0	193°25.9	208°25.9	223°25.8	238°25.8	253°25.7	88°25.1	103°25.1	118°25.0	133°25.0	148°24.9	163°24.9	-0.0
	21°02.3	21°01.8	21°01.4	21°00.9	21°00.5	21°00.1	20°54.3	20°53.8	20°53.4	20°52.9	20°52.5	20°52.0	-0.4
wo 19	178°24.9	193°24.8	208°24.8	223°24.7	238°24.7	253°24.6	88°24.1	103°24.1	118°24.0	133°24.0	148°24.0	163°23.9	-0.0
	20°51.6	20°51.1	20°50.7	20°50.2	20°49.8	20°49.3	20°43.3	20°42.9	20°42.4	20°42.0	20°41.5	20°41.0	-0.5
do 20	178°23.9	193°23.9	208°23.8	223°23.8	238°23.7	253°23.7	88°23.3	103°23.2	118°23.2	133°23.2	148°23.1	163°23.1	-0.0
	20°40.6	20°40.1	20°39.6	20°39.2	20°38.7	20°38.2	20°32.1	20°31.6	20°31.1	20°30.6	20°30.1	20°29.7	-0.5
vr 21	178°23.1	193°23.0	208°23.0	223°23.0	238°22.9	253°22.9	88°22.5	103°22.5	118°22.5	133°22.5	148°22.4	163°22.4	-0.0
	20°29.2	20°28.7	20°28.2	20°27.7	20°27.3	20°26.8	20°20.4	20°19.9	20°19.5	20°19.0	20°18.5	20°18.0	-0.5
za 22	178°22.4	193°22.4	208°22.3	223°22.3	238°22.3	253°22.3	88°22.0	103°22.0	118°21.9	133°21.9	148°21.9	163°21.9	-0.0
	20°17.5	20°17.0	20°16.5	20°16.0	20°15.5	20°15.0	20°08.5	20°08.0	20°07.5	20°06.9	20°06.4	20°05.9	-0.5
zo 23	178°21.9	193°21.8	208°21.8	223°21.8	238°21.8	253°21.8	88°21.6	103°21.5	118°21.5	133°21.5	148°21.5	163°21.5	-0.0
	20°05.4	20°04.9	20°04.4	20°03.9	20°03.4	20°02.9	19°56.2	19°55.6	19°55.1	19°54.6	19°54.1	19°53.6	-0.5
ma 24	178°21.3	193°21.5	208°21.4	223°21.4	238°21.4	253°21.4	88°21.3	103°21.3	118°21.3	133°21.3	148°21.3	163°21.2	-0.0
	19°53.0	19°52.5	19°52.0	19°51.5	19°50.9	19°50.4	19°43.5	19°43.0	19°42.5	19°41.9	19°41.4	19°40.9	-0.5
di 25	178°21.2	193°21.2	208°21.2	223°21.2	238°21.2	253°21.2	88°21.2	103°21.2	118°21.2	133°21.2	148°21.2	163°21.2	-0.0
	19°40.3	19°39.8	19°39.2	19°38.7	19°38.2	19°37.6	19°30.6	19°30.0	19°29.5	19°28.9	19°28.4	19°27.8	-0.5
wo 26	178°21.2	193°21.2	208°21.2	223°21.2	238°21.2	253°21.2	88°21.2	103°21.2	118°21.2	133°21.2	148°21.2	163°21.2	-0.0
	19°27.3	19°26.7	19°26.2	19°25.6	19°25.1	19°24.5	19°17.3	19°16.7	19°16.2	19°15.6	19°15.0	19°14.5	-0.6
do 27	178°21.2	193°21.2	208°21.2	223°21.3	238°21.3	253°21.3	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.5	+0.0
	19°13.9	19°13.3	19°12.8	19°12.2	19°11.7	19°11.1	19°03.7	19°03.1	19°02.5	19°02.0	19°01.4	19°00.8	-0.6
vr 28	178°21.5	193°21.5	208°21.5	223°21.5	238°21.5	253°21.5	88°21.7	103°21.8	118°21.8	133°21.8	148°21.8	163°21.8	+0.0
	19°00.2	18°59.7	18°59.1	18°58.5	18°57.9	18°57.3	18°49.8	18°49.2	18°48.6	18°48.0	18°47.4	18°46.8	-0.6
za 29	178°21.8	193°21.9	208°21.9	223°21.9	238°21.9	253°21.9	88°22.2	103°22.3	118°22.3	133°22.3	148°22.3	163°22.4	+0.0
	18°46.2	18°45.6	18°45.1	18°44.5	18°43.9	18°43.3	18°35.5	18°34.9	18°34.3	18°33.7	18°33.1	18°32.5	-0.6
zo 30	178°22.4	193°22.4	208°22.4	223°22.5	238°22.5	253°22.5	88°22.9	103°22.9	118°22.9	133°23.0	148°23.0	163°23.0	+0.0
	18°31.9	18°31.3	18°30.7	18°30.1	18°29.5	18°28.9	18°21.0	18°20.4	18°19.8	18°19.2	18°18.6	18°17.9	-0.6
ma 31	178°23.1	193°23.1	208°23.1	223°23.2	238°23.2	253°23.2	88°23.7	103°23.7	118°23.8	133°23.8	148°23.8	163°23.9	+0.0
	18°17.3	18°16.7	18°16.1	18°15.5	18°14.9	18°14.2	18°06.2	18°05.6	18°04.9	18°04.3	18°03.7	18°03.0	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2034

	D	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	Δ'/h	SD/HP
○	za 1	66°17.9	80°47.8	95°17.7	109°47.6	124°17.5	138°47.4	153°17.2	167°47.0	182°16.9	196°46.7	211°16.5	+29.9	15.0
		-18°24.9	-18°24.5	-18°23.9	-18°23.3	-18°22.6	-18°21.8	-18°20.9	-18°20.0	-18°18.9	-18°17.7	-18°16.4	+0.8	55.1
	zo 2	68°42.0	83°11.6	97°41.3	112°10.9	126°40.5	141°10.1	155°39.7	170°09.4	184°39.0	199°08.6	213°38.2	+29.6	15.2
		-17°46.4	-17°43.6	-17°40.8	-17°37.8	-17°34.8	-17°31.7	-17°28.5	-17°25.2	-17°21.8	-17°18.3	-17°14.7	+3.2	55.6
	ma 3	71°02.5	85°32.1	100°01.8	114°31.4	129°01.1	143°30.8	158°00.5	172°30.1	186°59.8	201°29.5	215°59.2	+29.7	15.3
		-16°10.3	-16°05.3	-16°00.3	-15°55.1	-15°49.8	-15°44.5	-15°39.1	-15°33.5	-15°27.9	-15°22.3	-15°16.5	+5.4	56.1
	di 4	73°25.9	87°55.8	102°25.6	116°55.5	131°25.4	145°55.3	160°25.2	174°55.1	189°25.0	203°55.0	218°24.9	+29.9	15.4
		-13°40.4	-13°33.3	-13°26.2	-13°19.1	-13°11.8	-13°04.5	-12°57.1	-12°49.6	-12°42.1	-12°34.5	-12°26.8	+7.4	56.6
	wo 5	75°55.3	90°25.4	104°55.5	119°25.6	133°55.7	148°25.9	162°56.0	177°26.1	191°56.3	206°26.4	220°56.6	+30.1	15.6
		-10°23.5	-10°14.8	-10°06.0	-9°57.2	-9°48.3	-9°39.3	-9°30.3	-9°21.3	-9°12.1	-9°03.0	-8°53.7	+9.0	57.2
	do 6	78°29.4	92°59.6	107°29.8	122°00.0	136°30.2	151°00.4	165°30.6	180°00.8	194°31.0	209°01.2	223°31.3	+30.2	15.7
		-6°29.5	-6°19.6	-6°09.6	-5°59.5	-5°49.4	-5°39.3	-5°29.2	-5°19.0	-5°08.7	-4°58.5	-4°48.2	+10.1	57.7
	vr 7	81°02.9	95°33.0	110°02.9	124°32.9	139°02.9	153°32.9	168°02.8	182°32.7	197°02.6	211°32.5	226°02.3	+29.9	15.9
		-2°10.4	-1°59.7	-1°49.0	-1°38.2	-1°27.5	-1°16.7	-1°05.9	-0°55.1	-0°44.3	-0°33.5	-0°22.7	+10.8	58.2
	za 8	83°27.3	97°56.8	112°26.2	126°55.6	141°24.9	155°54.2	170°23.5	184°52.8	199°22.0	213°51.1	228°20.3	+29.3	16.0
		2°20.3	2°31.2	2°42.0	2°52.9	3°03.7	3°14.5	3°25.3	3°36.1	3°46.9	3°57.7	4°08.5	+10.8	58.7
◑	zo 9	85°32.6	100°01.1	114°29.6	128°57.9	143°26.3	157°54.6	172°22.8	186°51.0	201°19.2	215°47.3	230°15.3	+28.3	16.1
		6°47.3	6°57.6	7°08.0	7°18.3	7°28.5	7°38.8	7°49.0	7°59.1	8°09.2	8°19.3	8°29.3	+10.2	59.2
	ma 10	87°09.8	101°37.0	116°04.1	130°31.2	144°58.2	159°25.2	173°52.1	188°19.0	202°45.8	217°12.6	231°39.3	+27.0	16.3
		10°53.6	11°02.8	11°11.9	11°20.9	11°29.9	11°38.8	11°47.7	11°56.4	12°05.1	12°13.8	12°22.3	+8.9	59.6
	di 11	88°13.2	102°39.1	117°04.8	131°30.6	145°56.2	160°21.8	174°47.4	189°12.9	203°38.4	218°03.8	232°29.2	+25.6	16.3
		14°21.2	14°28.4	14°35.6	14°42.6	14°49.6	14°56.5	15°03.2	15°09.9	15°16.5	15°22.9	15°29.3	+6.8	59.9
	wo 12	88°44.5	103°09.2	117°33.8	131°58.5	146°23.1	160°47.6	175°12.2	189°36.7	204°01.2	218°25.6	232°50.0	+24.6	16.3
		16°52.3	16°56.9	17°01.5	17°05.9	17°10.2	17°14.4	17°18.4	17°22.4	17°26.2	17°29.9	17°33.5	+4.1	60.0
	do 13	88°54.1	103°18.3	117°42.5	132°06.6	146°30.8	160°55.0	175°19.1	189°43.3	204°07.5	218°31.7	232°55.9	+24.2	16.3
		18°12.6	18°14.2	18°15.6	18°17.0	18°18.2	18°19.3	18°20.3	18°21.1	18°21.8	18°22.4	18°22.9	+1.0	59.8
	vr 14	89°00.6	103°25.1	117°49.7	132°14.2	146°38.8	161°03.5	175°28.1	189°52.8	204°17.6	218°42.4	233°07.2	+24.7	16.2
		18°14.6	18°13.0	18°11.3	18°09.5	18°07.6	18°05.6	18°03.4	18°01.1	17°58.7	17°56.2	17°53.5	-2.1	59.5
●	za 15	89°25.4	103°51.0	118°16.7	132°42.5	147°08.3	161°34.2	176°00.1	190°26.1	204°52.2	219°18.3	233°44.5	+25.9	16.1
		17°00.1	16°55.6	16°51.1	16°46.4	16°41.7	16°36.8	16°31.8	16°26.8	16°21.6	16°16.3	16°11.0	-4.9	59.0
	zo 16	90°25.8	104°53.1	119°20.5	133°47.9	148°15.5	162°43.1	177°10.8	191°38.5	206°06.3	220°34.2	235°02.2	+27.6	15.9
		14°39.5	14°32.7	14°25.8	14°18.9	14°11.8	14°04.7	13°57.6	13°50.3	13°43.0	13°35.6	13°28.1	-7.1	58.3
	ma 17	92°10.7	106°39.9	121°09.1	135°38.4	150°07.8	164°37.2	179°06.7	193°36.3	208°06.0	222°35.7	237°05.5	+29.5	15.7
		11°28.5	11°20.0	11°11.5	11°03.0	10°54.4	10°45.7	10°37.1	10°28.3	10°19.5	10°10.7	10°01.8	-8.7	57.5
	di 18	94°40.5	109°11.3	123°42.2	138°13.2	152°44.2	167°15.3	181°46.4	196°17.7	210°48.9	225°20.2	239°51.6	+31.1	15.5
		7°44.3	7°34.9	7°25.5	7°16.0	7°06.5	6°57.0	6°47.4	6°37.9	6°28.3	6°18.7	6°09.1	-9.5	56.7
	wo 19	97°48.6	112°20.8	126°53.1	141°25.3	155°57.7	170°30.0	185°02.5	199°34.9	214°07.4	228°39.9	243°12.5	+32.4	15.2
		3°43.0	3°33.2	3°23.4	3°13.6	3°03.8	2°53.9	2°44.1	2°34.3	2°24.4	2°14.6	2°04.8	-9.8	55.9
	do 20	101°25.3	115°58.4	130°31.6	145°04.7	159°37.9	174°11.1	188°44.3	203°17.6	217°50.9	232°24.2	246°57.5	+33.2	15.1
		-0°22.1	-0°31.9	-0°41.6	-0°51.3	-1°01.0	-1°10.7	-1°20.3	-1°30.0	-1°39.6	-1°49.2	-1°58.8	-9.7	55.2
	vr 21	115°58.4	130°31.6	145°04.7	159°37.9	174°11.1	188°44.3	203°17.6	217°50.9	232°24.2	246°57.5	261°30.8	+33.2	15.1
		-0°31.9	-0°41.6	-0°51.3	-1°01.0	-1°10.7	-1°20.3	-1°30.0	-1°39.6	-1°49.2	-1°58.8	-2°08.4	-9.7	55.2
	za 22	119°52.8	134°26.3	148°59.9	163°33.5	178°07.1	192°40.7	207°14.2	221°47.8	236°21.4	250°55.1	265°28.7	+33.6	14.9
		-4°29.7	-4°38.9	-4°48.1	-4°57.3	-5°06.5	-5°15.6	-5°24.7	-5°33.8	-5°42.8	-5°51.8	-6°00.8	-9.1	54.7
◐	zo 23	123°52.6	138°26.2	152°59.7	167°33.3	182°06.8	196°40.3	211°13.8	225°47.3	240°20.8	254°54.3	269°27.7	+33.5	14.8
		-8°11.5	-8°20.0	-8°28.3	-8°36.7	-8°45.0	-8°53.3	-9°01.5	-9°09.7	-9°17.9	-9°26.0	-9°34.0	-8.3	54.3
	ma 24	127°47.7	142°20.8	156°54.0	171°27.1	186°00.2	200°33.3	215°06.4	229°39.4	244°12.4	258°45.4	273°18.3	+33.1	14.8
		-11°29.6	-11°37.0	-11°44.3	-11°51.5	-11°58.7	-12°05.8	-12°12.9	-12°19.9	-12°26.8	-12°33.8	-12°40.6	-7.1	54.2
	di 25	131°29.4	146°01.9	160°34.3	175°06.7	189°39.1	204°11.5	218°43.8	233°16.1	247°48.4	262°20.6	276°52.8	+32.3	14.8
		-14°16.8	-14°22.7	-14°28.6	-14°34.4	-14°40.1	-14°45.8	-14°51.5	-14°57.0	-15°02.5	-15°07.9	-15°13.3	-5.7	54.2
	wo 26	134°51.7	149°23.3	163°54.9	178°26.5	192°58.0	207°29.5	222°00.9	236°32.4	251°03.7	265°35.1	280°06.4	+31.5	14.8
		-16°25.6	-16°29.9	-16°34.0	-16°38.2	-16°42.2	-16°46.1	-16°50.0	-16°53.8	-16°57.6	-17°01.2	-17°04.8	-3.9	54.4
	do 27	137°51.8	152°22.6	166°53.3	181°23.9	195°54.6	210°25.2	224°55.8	239°26.3	253°56.8	268°27.3	282°57.8	+30.6	14.9
		-17°49.0	-17°51.3	-17°53.5	-17°55.6	-17°57.6	-17°59.6	-18°01.5	-18°03.2	-18°04.9	-18°06.5	-18°08.1	-1.9	54.7
	vr 28	140°30.8	155°00.8	169°30.8	184°00.7	198°30.6	213°00.5	227°30.3	242°00.1	256°29.9	270°59.7	285°29.5	+29.9	15.1
		-18°20.3	-18°20.4	-18°20.4	-18°20.4	-18°20.2	-18°19.9	-18°19.6	-18°19.1	-18°18.6	-18°17.9	-18°17.2	+0.3	55.2
	za 29	142°53.4	157°22.9	171°52.3	186°21.7	200°51.1	215°20.5	229°49.9	244°19.3	258°48.7	273°18.0	287°47.3	+29.4	15.2
		-17°54.9	-17°52.7	-17°50.4	-17°48.0	-17°45.4	-17°42.8	-17°40.1	-17°37.3	-17°34.4	-17°31.4	-17°28.4	+2.7	55.8
	zo 30	145°06.5	159°35.7	174°05.0	188°34.2	203°03.4	217°32.6	232°01.9	246°31.1	261°00.3	275°29.5	289°58.7	+29.2	15.4
		-16°30.9	-16°26.4	-16°21.7	-16°17.0	-16°12.1	-16°07.2	-16°02.2	-15°57.1	-15°51.9	-15°46.6	-15°41.2	+5.0	56.3
○	ma 31	147°17.4	161°46.6	176°15.9	190°45.2	205°14.5	219°43.8	234°13.1	248°42.4	263°11.7	277°41.0	292°10.4	+29.3	15.5
		-14°10.3	-14°03.5	-13°56.7	-13°49.8	-13°42.9	-13°35.8	-13°28.7	-13°21.5	-13°14.2	-13°06.8	-12°59.4	+7.1	56.9

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
VM: 1 17h44 — LK: 9 01h59 — NM: 15 18h15 — EK: 23 07h05 — VM: 31 05h54

ZON

Augustus 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	178°23.9	193°24.0	208°24.0	223°24.0	238°24.1	253°24.1	88°24.6	103°24.7	118°24.7	133°24.8	148°24.8	163°24.9	+0.0
	18°02.4	18°01.8	18°01.2	18°00.5	17°59.9	17°59.3	17°51.1	17°50.4	17°49.8	17°49.1	17°48.5	17°47.9	-0.6
wo 2	178°24.9	193°25.0	208°25.0	223°25.0	238°25.1	253°25.1	88°25.7	103°25.8	118°25.8	133°25.9	148°25.9	163°26.0	+0.0
	17°47.2	17°46.6	17°45.9	17°45.3	17°44.7	17°44.0	17°35.6	17°35.0	17°34.3	17°33.7	17°33.0	17°32.4	-0.6
do 3	178°26.0	193°26.1	208°26.2	223°26.2	238°26.3	253°26.3	88°27.0	103°27.1	118°27.1	133°27.2	148°27.2	163°27.3	+0.1
	17°31.7	17°31.1	17°30.4	17°29.8	17°29.1	17°28.5	17°19.9	17°19.3	17°18.6	17°17.9	17°17.3	17°16.6	-0.7
vr 4	178°27.3	193°27.4	208°27.5	223°27.5	238°27.6	253°27.6	88°28.4	103°28.5	118°28.5	133°28.6	148°28.7	163°28.7	+0.1
	17°16.0	17°15.3	17°14.6	17°14.0	17°13.3	17°12.6	17°03.9	17°03.3	17°02.6	17°01.9	17°01.3	17°00.6	-0.7
za 5	178°28.8	193°28.8	208°28.9	223°29.0	238°29.0	253°29.1	88°30.0	103°30.0	118°30.1	133°30.2	148°30.2	163°30.3	+0.1
	16°59.9	16°59.2	16°58.6	16°57.9	16°57.2	16°56.5	16°47.7	16°47.0	16°46.3	16°45.6	16°44.9	16°44.3	-0.7
zo 6	178°30.4	193°30.4	208°30.5	223°30.6	238°30.6	253°30.7	88°31.6	103°31.7	118°31.8	133°31.9	148°31.9	163°32.0	+0.1
	16°43.6	16°42.9	16°42.2	16°41.5	16°40.8	16°40.1	16°31.1	16°30.5	16°29.8	16°29.1	16°28.4	16°27.7	-0.7
ma 7	178°32.1	193°32.2	208°32.2	223°32.3	238°32.4	253°32.5	88°33.5	103°33.6	118°33.6	133°33.7	148°33.8	163°33.9	+0.1
	16°27.0	16°26.3	16°25.6	16°24.9	16°24.2	16°23.5	16°14.3	16°13.6	16°12.9	16°12.2	16°11.5	16°10.8	-0.7
di 8	178°34.0	193°34.0	208°34.1	223°34.2	238°34.3	253°34.4	88°35.5	103°35.5	118°35.6	133°35.7	148°35.8	163°35.9	+0.1
	16°10.1	16°09.4	16°08.7	16°08.0	16°07.3	16°06.6	15°57.3	15°56.6	15°55.9	15°55.1	15°54.4	15°53.7	-0.7
wo 9	178°36.0	193°36.1	208°36.1	223°36.2	238°36.3	253°36.4	88°37.6	103°37.7	118°37.8	133°37.9	148°37.9	163°38.0	+0.1
	15°53.0	15°52.3	15°51.5	15°50.8	15°50.1	15°49.4	15°40.0	15°39.2	15°38.5	15°37.8	15°37.1	15°36.3	-0.7
do 10	178°38.1	193°38.2	208°38.3	223°38.4	238°38.5	253°38.6	88°39.8	103°39.9	118°40.0	133°40.1	148°40.2	163°40.3	+0.1
	15°35.6	15°34.9	15°34.1	15°33.4	15°32.7	15°31.9	15°22.4	15°21.7	15°20.9	15°20.2	15°19.4	15°18.7	-0.7
vr 11	178°40.4	193°40.5	208°40.6	223°40.7	238°40.8	253°40.9	88°42.2	103°42.3	118°42.4	133°42.5	148°42.6	163°42.7	+0.1
	15°18.0	15°17.2	15°16.5	15°15.7	15°15.0	15°14.3	15°04.6	15°03.8	15°03.1	15°02.3	15°01.6	15°00.8	-0.7
za 12	178°42.8	193°43.0	208°43.1	223°43.2	238°43.3	253°43.4	88°44.8	103°44.9	118°45.0	133°45.1	148°45.2	163°45.3	+0.1
	15°00.1	14°59.3	14°58.6	14°57.8	14°57.1	14°56.3	14°46.5	14°45.8	14°45.0	14°44.2	14°43.5	14°42.7	-0.7
zo 13	178°45.4	193°45.5	208°45.6	223°45.7	238°45.9	253°46.0	88°47.4	103°47.5	118°47.7	133°47.8	148°47.9	163°48.0	+0.1
	14°42.0	14°41.2	14°40.4	14°39.7	14°38.9	14°38.2	14°28.2	14°27.5	14°26.7	14°25.9	14°25.2	14°24.4	-0.8
ma 14	178°48.1	193°48.2	208°48.4	223°48.5	238°48.6	253°48.7	88°50.2	103°50.4	118°50.5	133°50.6	148°50.7	163°50.8	+0.1
	14°23.6	14°22.8	14°22.1	14°21.3	14°20.5	14°19.8	14°09.7	14°08.9	14°08.1	14°07.4	14°06.6	14°05.8	-0.8
di 15	178°51.0	193°51.1	208°51.2	223°51.3	238°51.5	253°51.6	88°53.2	103°53.3	118°53.4	133°53.6	148°53.7	163°53.8	+0.1
	14°05.0	14°04.3	14°03.5	14°02.7	14°01.9	14°01.1	13°51.0	13°50.2	13°49.4	13°48.6	13°47.8	13°47.0	-0.8
wo 16	178°53.9	193°54.1	208°54.2	223°54.3	238°54.4	253°54.6	88°56.3	103°56.4	118°56.5	133°56.7	148°56.8	163°56.9	+0.1
	13°46.2	13°45.4	13°44.7	13°43.9	13°43.1	13°42.3	13°32.0	13°31.2	13°30.4	13°29.6	13°28.8	13°28.0	-0.8
do 17	178°57.0	193°57.2	208°57.3	223°57.4	238°57.6	253°57.7	88°59.5	103°59.6	118°59.7	133°59.9	149°00.0	164°00.1	+0.1
	13°27.2	13°26.4	13°25.6	13°24.8	13°24.0	13°23.2	13°12.8	13°12.0	13°11.2	13°10.4	13°09.6	13°08.8	-0.8
vr 18	179°00.3	194°00.4	209°00.6	224°00.7	239°00.8	254°01.0	89°02.8	104°02.9	119°03.1	134°03.2	149°03.4	164°03.5	+0.1
	13°08.0	13°07.2	13°06.4	13°05.6	13°04.7	13°03.9	12°53.4	12°52.6	12°51.8	12°51.0	12°50.2	12°49.3	-0.8
za 19	179°03.7	194°03.8	209°03.9	224°04.1	239°04.2	254°04.4	89°06.3	104°06.4	119°06.6	134°06.7	149°06.9	164°07.0	+0.1
	12°48.5	12°47.7	12°46.9	12°46.1	12°45.3	12°44.5	12°33.8	12°33.0	12°32.2	12°31.4	12°30.5	12°29.7	-0.8
zo 20	179°07.1	194°07.3	209°07.4	224°07.6	239°07.7	254°07.9	89°09.8	104°10.0	119°10.2	134°10.3	149°10.5	164°10.6	+0.1
	12°28.9	12°28.1	12°27.2	12°26.4	12°25.6	12°24.8	12°14.0	12°13.2	12°12.4	12°11.5	12°10.7	12°09.9	-0.8
ma 21	179°10.8	194°10.9	209°11.1	224°11.2	239°11.4	254°11.5	89°13.6	104°13.7	119°13.9	134°14.0	149°14.2	164°14.3	+0.2
	12°09.1	12°08.2	12°07.4	12°06.6	12°05.7	12°04.9	11°54.0	11°53.2	11°52.4	11°51.5	11°50.7	11°49.9	-0.8
di 22	179°14.5	194°14.7	209°14.8	224°15.0	239°15.1	254°15.3	89°17.4	104°17.5	119°17.7	134°17.9	149°18.0	164°18.2	+0.2
	11°49.0	11°48.2	11°47.3	11°46.5	11°45.7	11°44.8	11°33.9	11°33.0	11°32.2	11°31.3	11°30.5	11°29.7	-0.8
wo 23	179°18.4	194°18.5	209°18.7	224°18.8	239°19.0	254°19.2	89°21.3	104°21.5	119°21.7	134°21.8	149°22.0	164°22.2	+0.2
	11°28.8	11°28.0	11°27.1	11°26.3	11°25.4	11°24.6	11°13.5	11°12.7	11°11.8	11°11.0	11°10.1	11°09.3	-0.8
do 24	179°22.3	194°22.5	209°22.7	224°22.8	239°23.0	254°23.2	89°25.4	104°25.5	119°25.7	134°25.9	149°26.1	164°26.2	+0.2
	11°08.4	11°07.6	11°06.7	11°05.8	11°05.0	11°04.1	10°53.0	10°52.1	10°51.3	10°50.4	10°49.6	10°48.7	-0.9
vr 25	179°26.4	194°26.6	209°26.8	224°26.9	239°27.1	254°27.3	89°29.5	104°29.7	119°29.9	134°30.1	149°30.2	164°30.4	+0.2
	10°47.8	10°47.0	10°46.1	10°45.3	10°44.4	10°43.5	10°32.3	10°31.4	10°30.6	10°29.7	10°28.8	10°28.0	-0.9
za 26	179°30.6	194°30.8	209°30.9	224°31.1	239°31.3	254°31.5	89°33.8	104°34.0	119°34.2	134°34.3	149°34.5	164°34.7	+0.2
	10°27.1	10°26.2	10°25.4	10°24.5	10°23.6	10°22.8	10°11.4	10°10.6	10°09.7	10°08.8	10°07.9	10°07.1	-0.9
zo 27	179°34.9	194°35.1	209°35.2	224°35.4	239°35.6	254°35.8	89°38.2	104°38.3	119°38.5	134°38.7	149°38.9	164°39.1	+0.2
	10°06.2	10°05.3	10°04.4	10°03.6	10°02.7	10°01.8	9°50.4	9°49.5	9°48.6	9°47.8	9°46.9	9°46.0	-0.9
ma 28	179°39.3	194°39.5	209°39.6	224°39.8	239°40.0	254°40.2	89°42.6	104°42.8	119°43.0	134°43.2	149°43.4	164°43.6	+0.2
	9°45.1	9°44.2	9°43.4	9°42.5	9°41.6	9°40.7	9°29.2	9°28.3	9°27.5	9°26.6	9°25.7	9°24.8	-0.9
di 29	179°43.7	194°43.9	209°44.1	224°44.3	239°44.5	254°44.7	89°47.2	104°47.4	119°47.5	134°47.7	149°47.9	164°48.1	+0.2
	9°23.9	9°23.0	9°22.1	9°21.2	9°20.4	9°19.5	9°07.9	9°07.0	9°06.1	9°05.2	9°04.3	9°03.4	-0.9
wo 30	179°48.3	194°48.5	209°48.7	224°48.9	239°49.1	254°49.3	89°51.8	104°52.0	119°52.2	134°52.4	149°52.6	164°52.8	+0.2
	9°02.5	9°01.6	9°00.8	8°59.9	8°59.0	8°58.1	8°46.4	8°45.5	8°44.6	8°43.7	8°42.8	8°41.9	-0.9
do 31	179°53.0	194°53.2	209°53.4	224°53.6	239°53.7	254°53.9	89°56.5	104°56.7	119°56.9	134°57.1	149°57.3	164°57.5	+0.2
	8°41.0	8°40.1	8°39.2	8°38.3	8°37.4	8°36.5	8°24.8	8°23.9	8°23.0	8°22.1	8°21.2	8°20.3	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2034

D	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	Δ'/h	SD/HP
di 1	62°34.6	77°04.1	91°33.5	106°02.9	120°32.3	135°01.8	149°31.2	164°00.6	178°30.1	192°59.6	207°29.1	+29.4	15.6
	-11°49.2	-11°41.0	-11°32.8	-11°24.5	-11°16.1	-11°07.7	-10°59.2	-10°50.6	-10°42.0	-10°33.3	-10°24.5	+8.5	57.4
wo 2	64°52.0	79°21.6	93°51.2	108°20.8	122°50.4	137°20.0	151°49.6	166°19.2	180°48.8	195°18.5	209°48.1	+29.6	15.8
	-8°06.2	-7°56.5	-7°46.8	-7°37.1	-7°27.3	-7°17.4	-7°07.6	-6°57.6	-6°47.6	-6°37.6	-6°27.6	+9.9	57.9
do 3	67°12.5	81°42.1	96°11.8	110°41.4	125°11.0	139°40.6	154°10.2	168°39.8	183°09.4	197°39.0	212°08.5	+29.6	15.9
	-3°52.3	-3°41.7	-3°31.1	-3°20.5	-3°09.8	-2°59.1	-2°48.4	-2°37.7	-2°26.9	-2°16.2	-2°05.4	+10.7	58.3
vr 4	69°31.0	84°00.4	98°29.8	112°59.1	127°28.5	141°57.8	156°27.1	170°56.4	185°25.7	199°54.9	214°24.2	+29.3	16.0
	0°37.8	0°48.7	0°59.6	1°10.5	1°21.4	1°32.4	1°43.3	1°54.2	2°05.1	2°15.9	2°26.8	+10.9	58.7
za 5	71°40.0	86°08.8	100°37.6	115°06.4	129°35.2	144°03.9	158°32.6	173°01.3	187°29.9	201°58.5	216°27.1	+28.7	16.1
	5°08.1	5°18.7	5°29.3	5°39.8	5°50.3	6°00.8	6°11.2	6°21.6	6°32.0	6°42.3	6°52.6	+10.5	59.0
zo 6	73°31.5	87°59.5	102°27.4	116°55.4	131°23.2	145°51.1	160°18.9	174°46.6	189°14.4	203°42.0	218°09.7	+27.8	16.1
	9°22.0	9°31.6	9°41.1	9°50.6	10°00.0	10°09.3	10°18.6	10°27.8	10°37.0	10°46.1	10°55.1	+9.3	59.2
◑ ma 7	74°59.3	89°26.2	103°53.2	118°20.1	132°46.9	147°13.7	161°40.5	176°07.2	190°33.9	205°00.5	219°27.1	+26.8	16.2
	13°02.4	13°10.3	13°18.1	13°25.9	13°33.5	13°41.1	13°48.5	13°55.9	14°03.2	14°10.4	14°17.6	+7.5	59.3
di 8	76°01.4	90°27.4	104°53.3	119°19.3	133°45.1	148°11.0	162°36.8	177°02.6	191°28.4	205°54.1	220°19.8	+25.8	16.2
	15°53.3	15°58.9	16°04.4	16°09.8	16°15.1	16°20.3	16°25.4	16°30.4	16°35.2	16°40.0	16°44.7	+5.1	59.3
wo 9	76°42.3	91°07.7	105°33.0	119°58.3	134°23.6	148°48.9	163°14.2	177°39.4	192°04.7	206°29.9	220°55.2	+25.3	16.1
	17°41.1	17°44.0	17°46.7	17°49.3	17°51.8	17°54.2	17°56.5	17°58.6	18°00.7	18°02.6	18°04.4	+2.3	59.2
do 10	77°13.5	91°38.8	106°04.1	120°29.4	134°54.7	149°20.0	163°45.3	178°10.7	192°36.0	207°01.4	221°26.8	+25.3	16.1
	18°16.9	18°16.8	18°16.6	18°16.2	18°15.7	18°15.1	18°14.4	18°13.5	18°12.6	18°11.5	18°10.3	-0.7	59.0
vr 11	77°50.9	92°16.8	106°42.7	121°08.6	135°34.6	150°00.6	164°26.7	178°52.8	193°18.9	207°45.1	222°11.3	+26.0	16.0
	17°38.5	17°35.5	17°32.3	17°29.1	17°25.7	17°22.3	17°18.7	17°15.0	17°11.2	17°07.3	17°03.3	-3.5	58.7
za 12	78°50.5	93°17.5	107°44.6	122°11.7	136°38.9	151°06.1	165°33.4	180°00.8	194°28.2	208°55.7	223°23.2	+27.3	15.9
	15°51.2	15°45.6	15°39.9	15°34.1	15°28.3	15°22.3	15°16.3	15°10.2	15°04.0	14°57.7	14°51.3	-6.0	58.2
zo 13	80°23.5	94°52.0	109°20.5	123°49.2	138°17.9	152°46.6	167°15.4	181°44.3	196°13.2	210°42.2	225°11.3	+28.8	15.7
	13°06.3	12°58.7	12°51.1	12°43.4	12°35.6	12°27.8	12°19.9	12°11.9	12°03.9	11°55.8	11°47.6	-7.9	57.6
● ma 14	82°34.6	97°04.6	111°34.7	126°04.8	140°35.1	155°05.3	169°35.6	184°06.0	198°36.4	213°06.9	227°37.5	+30.3	15.5
	9°39.1	9°30.2	9°21.2	9°12.1	9°03.1	8°54.0	8°44.8	8°35.7	8°26.5	8°17.2	8°07.9	-9.1	57.0
di 15	85°22.1	99°53.4	114°24.9	128°56.3	143°27.9	157°59.4	172°31.0	187°02.7	201°34.4	216°06.1	230°37.9	+31.6	15.4
	5°45.4	5°35.7	5°26.0	5°16.3	5°06.6	4°56.9	4°47.1	4°37.3	4°27.5	4°17.7	4°07.9	-9.8	56.3
wo 16	88°39.7	103°12.1	117°44.5	132°17.0	146°49.5	161°22.1	175°54.6	190°27.2	204°59.9	219°32.5	234°05.2	+32.6	15.2
	1°40.2	1°30.3	1°20.4	1°10.6	1°00.7	0°50.9	0°41.0	0°31.2	0°21.4	0°11.6	0°01.7	-9.8	55.7
do 17	92°18.7	106°51.8	121°24.9	135°58.0	150°31.1	165°04.2	179°37.4	194°10.6	208°43.7	223°16.9	237°50.2	+33.1	15.0
	-2°23.9	-2°33.5	-2°43.1	-2°52.6	-3°02.1	-3°11.6	-3°21.1	-3°30.6	-3°40.0	-3°49.4	-3°58.8	-9.5	55.1
vr 18	96°09.5	110°42.9	125°16.2	139°49.6	154°22.9	168°56.3	183°29.6	198°03.0	212°36.3	227°09.7	241°43.0	+33.4	14.9
	-6°16.2	-6°25.2	-6°34.0	-6°42.9	-6°51.7	-7°00.5	-7°09.2	-7°17.9	-7°26.6	-7°35.2	-7°43.8	-8.8	54.6
za 19	100°02.8	114°36.0	129°09.2	143°42.5	158°15.7	172°48.9	187°22.1	201°55.3	216°28.4	231°01.6	245°34.7	+33.2	14.8
	-9°47.9	-9°55.9	-10°03.7	-10°11.6	-10°19.4	-10°27.1	-10°34.8	-10°42.4	-10°50.0	-10°57.6	-11°05.1	-7.7	54.3
zo 20	114°36.0	129°09.2	143°42.5	158°15.7	172°48.9	187°22.1	201°55.3	216°28.4	231°01.6	245°34.7	260°07.9	+33.2	14.8
	-9°55.9	-10°03.7	-10°11.6	-10°19.4	-10°27.1	-10°34.8	-10°42.4	-10°50.0	-10°57.6	-11°05.1	-11°12.5	-7.7	54.3
ma 21	118°22.6	132°55.5	147°28.3	162°01.0	176°33.8	191°06.5	205°39.2	220°11.9	234°44.6	249°17.2	263°49.8	+32.7	14.8
	-12°58.0	-13°04.6	-13°11.1	-13°17.6	-13°24.0	-13°30.4	-13°36.7	-13°42.9	-13°49.1	-13°55.2	-14°01.3	-6.3	54.2
◐ di 22	121°55.8	136°28.0	151°00.2	165°32.3	180°04.4	194°36.4	209°08.4	223°40.4	238°12.4	252°44.3	267°16.2	+32.0	14.8
	-15°24.6	-15°29.7	-15°34.6	-15°39.5	-15°44.3	-15°49.1	-15°53.8	-15°58.4	-16°03.0	-16°07.4	-16°11.8	-4.7	54.2
wo 23	125°11.0	139°42.3	154°13.7	168°45.0	183°16.3	197°47.6	212°18.8	226°50.0	241°21.2	255°52.3	270°23.4	+31.2	14.9
	-17°09.1	-17°12.3	-17°15.4	-17°18.5	-17°21.5	-17°24.4	-17°27.2	-17°29.9	-17°32.6	-17°35.2	-17°37.7	-2.9	54.5
do 24	128°06.0	142°36.6	157°07.2	171°37.7	186°08.2	200°38.7	215°09.2	229°39.6	244°10.0	258°40.3	273°10.6	+30.5	15.0
	-18°05.2	-18°06.3	-18°07.4	-18°08.4	-18°09.3	-18°10.1	-18°10.8	-18°11.5	-18°12.0	-18°12.5	-18°12.8	-0.8	54.9
vr 25	130°42.2	145°12.1	159°42.0	174°11.9	188°41.7	203°11.5	217°41.3	232°11.0	246°40.8	261°10.5	275°40.2	+29.8	15.1
	-18°07.6	-18°06.5	-18°05.3	-18°04.0	-18°02.7	-18°01.2	-17°59.7	-17°58.0	-17°56.3	-17°54.5	-17°52.6	+1.5	55.4
za 26	133°03.3	147°32.7	162°02.0	176°31.4	191°00.8	205°30.1	219°59.4	234°28.7	248°58.0	263°27.3	277°56.6	+29.3	15.3
	-17°12.7	-17°09.2	-17°05.7	-17°02.1	-16°58.5	-16°54.7	-16°50.8	-16°46.8	-16°42.8	-16°38.6	-16°34.4	+3.8	56.1
zo 27	135°14.4	149°43.5	164°12.6	178°41.7	193°10.8	207°39.9	222°09.0	236°38.1	251°07.1	265°36.2	280°05.3	+29.1	15.5
	-15°19.7	-15°14.0	-15°08.2	-15°02.4	-14°56.4	-14°50.3	-14°44.2	-14°38.0	-14°31.7	-14°25.3	-14°18.8	+6.1	56.9
ma 28	137°20.7	151°49.7	166°18.7	180°47.7	195°16.7	209°45.7	224°14.7	238°43.7	253°12.7	267°41.7	282°10.6	+29.0	15.7
	-12°31.7	-12°23.9	-12°16.1	-12°08.1	-12°00.1	-11°52.1	-11°43.9	-11°35.7	-11°27.4	-11°19.0	-11°10.6	+8.1	57.6
○ di 29	139°25.3	153°54.3	168°23.2	182°52.2	197°21.1	211°50.1	226°19.0	240°48.0	255°16.9	269°45.9	284°14.8	+29.0	15.9
	-8°55.9	-8°46.4	-8°36.9	-8°27.3	-8°17.6	-8°07.9	-7°58.2	-7°48.4	-7°38.5	-7°28.6	-7°18.6	+9.7	58.3
wo 30	141°28.5	155°57.4	170°26.2	184°55.1	199°23.9	213°52.8	228°21.6	242°50.4	257°19.2	271°48.0	286°16.8	+28.8	16.1
	-4°43.7	-4°33.1	-4°22.4	-4°11.7	-4°01.0	-3°50.2	-3°39.4	-3°28.6	-3°17.8	-3°06.9	-2°56.0	+10.8	58.9
do 31	143°27.5	157°56.2	172°24.8	186°53.3	201°21.9	215°50.5	230°19.0	244°47.5	259°16.0	273°44.5	288°13.0	+28.5	16.2
	-0°10.4	0°00.7	0°11.8	0°23.0	0°34.1	0°45.3	0°56.4	1°07.5	1°18.7	1°29.8	1°40.9	+11.1	59.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 7 06h50 — NM: 14 03h53 — EK: 22 00h43 — VM: 29 16h49

ZON

September 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	179°57.7	194°57.9	209°58.1	224°58.3	239°58.5	254°58.7	90°01.3	105°01.5	120°01.7	135°01.9	150°02.1	165°02.3	+0.2
	8°19.4	8°18.5	8°17.6	8°16.7	8°15.8	8°14.8	8°03.1	8°02.1	8°01.2	8°00.3	7°59.4	7°58.5	-0.9
za 2	180°02.5	195°02.7	210°02.9	225°03.1	240°03.3	255°03.5	90°06.1	105°06.3	120°06.6	135°06.8	150°07.0	165°07.2	+0.2
	7°57.6	7°56.7	7°55.8	7°54.9	7°53.9	7°53.0	7°41.2	7°40.3	7°39.3	7°38.4	7°37.5	7°36.6	-0.9
zo 3	180°07.4	195°07.6	210°07.8	225°08.0	240°08.2	255°08.4	90°11.1	105°11.3	120°11.5	135°11.7	150°11.9	165°12.1	+0.2
	7°35.7	7°34.8	7°33.8	7°32.9	7°32.0	7°31.1	7°19.2	7°18.2	7°17.3	7°16.4	7°15.5	7°14.6	-0.9
ma 4	180°12.3	195°12.5	210°12.7	225°12.9	240°13.1	255°13.3	90°16.0	105°16.2	120°16.5	135°16.7	150°16.9	165°17.1	+0.2
	7°13.6	7°12.7	7°11.8	7°10.9	7°10.0	7°09.0	6°57.0	6°56.1	6°55.2	6°54.3	6°53.3	6°52.4	-0.9
di 5	180°17.3	195°17.5	210°17.7	225°17.9	240°18.1	255°18.3	90°21.1	105°21.3	120°21.5	135°21.7	150°21.9	165°22.1	+0.2
	6°51.5	6°50.6	6°49.6	6°48.7	6°47.8	6°46.8	6°34.8	6°33.9	6°32.9	6°32.0	6°31.1	6°30.1	-0.9
wo 6	180°22.3	195°22.5	210°22.8	225°23.0	240°23.2	255°23.4	90°26.1	105°26.4	120°26.6	135°26.8	150°27.0	165°27.2	+0.2
	6°29.2	6°28.3	6°27.3	6°26.4	6°25.5	6°24.6	6°12.4	6°11.5	6°10.6	6°09.6	6°08.7	6°07.8	-0.9
do 7	180°27.4	195°27.6	210°27.8	225°28.1	240°28.3	255°28.5	90°31.3	105°31.5	120°31.7	135°31.9	150°32.1	165°32.3	+0.2
	6°06.8	6°05.9	6°05.0	6°04.0	6°03.1	6°02.2	5°50.0	5°49.0	5°48.1	5°47.2	5°46.2	5°45.3	-0.9
vr 8	180°32.6	195°32.8	210°33.0	225°33.2	240°33.4	255°33.6	90°36.4	105°36.6	120°36.9	135°37.1	150°37.3	165°37.5	+0.2
	5°44.3	5°43.4	5°42.5	5°41.5	5°40.6	5°39.7	5°27.4	5°26.5	5°25.5	5°24.6	5°23.7	5°22.7	-0.9
za 9	180°37.7	195°37.9	210°38.2	225°38.4	240°38.6	255°38.8	90°41.6	105°41.8	120°42.1	135°42.3	150°42.5	165°42.7	+0.2
	5°21.8	5°20.8	5°19.9	5°18.9	5°18.0	5°17.1	5°04.8	5°03.8	5°02.9	5°01.9	5°01.0	5°00.0	-0.9
zo 10	180°42.9	195°43.2	210°43.4	225°43.6	240°43.8	255°44.0	90°46.9	105°47.1	120°47.3	135°47.5	150°47.7	165°48.0	+0.2
	4°59.1	4°58.2	4°57.2	4°56.3	4°55.3	4°54.4	4°42.0	4°41.1	4°40.1	4°39.2	4°38.2	4°37.3	-0.9
ma 11	180°48.2	195°48.4	210°48.6	225°48.8	240°49.1	255°49.3	90°52.1	105°52.3	120°52.6	135°52.8	150°53.0	165°53.2	+0.2
	4°36.3	4°35.4	4°34.4	4°33.5	4°32.5	4°31.6	4°19.2	4°18.3	4°17.3	4°16.4	4°15.4	4°14.5	-0.9
di 12	180°53.4	195°53.7	210°53.9	225°54.1	240°54.3	255°54.5	90°57.4	105°57.6	120°57.9	135°58.1	150°58.3	165°58.5	+0.2
	4°13.5	4°12.6	4°11.6	4°10.7	4°09.7	4°08.7	3°56.3	3°55.4	3°54.4	3°53.5	3°52.5	3°51.6	-1.0
wo 13	180°58.7	195°59.0	210°59.2	225°59.4	240°59.6	255°59.8	91°02.7	106°02.9	121°03.2	136°03.4	151°03.6	166°03.8	+0.2
	3°50.6	3°49.6	3°48.7	3°47.7	3°46.8	3°45.8	3°33.4	3°32.4	3°31.5	3°30.5	3°29.5	3°28.6	-1.0
do 14	181°04.1	196°04.3	211°04.5	226°04.7	241°04.9	256°05.2	91°08.1	106°08.3	121°08.5	136°08.7	151°08.9	166°09.2	+0.2
	3°27.6	3°26.7	3°25.7	3°24.7	3°23.8	3°22.8	3°10.4	3°09.4	3°08.4	3°07.5	3°06.5	3°05.5	-1.0
vr 15	181°09.4	196°09.6	211°09.8	226°10.1	241°10.3	256°10.5	91°13.4	106°13.6	121°13.8	136°14.1	151°14.3	166°14.5	+0.2
	3°04.6	3°03.6	3°02.7	3°01.7	3°00.7	2°59.8	2°47.3	2°46.3	2°45.3	2°44.4	2°43.4	2°42.5	-1.0
za 16	181°14.7	196°15.0	211°15.2	226°15.4	241°15.6	256°15.8	91°18.7	106°19.0	121°19.2	136°19.4	151°19.6	166°19.9	+0.2
	2°41.5	2°40.5	2°39.6	2°38.6	2°37.6	2°36.7	2°24.1	2°23.2	2°22.2	2°21.2	2°20.3	2°19.3	-1.0
zo 17	181°20.1	196°20.3	211°20.5	226°20.7	241°21.0	256°21.2	91°24.1	106°24.3	121°24.5	136°24.8	151°25.0	166°25.2	+0.2
	2°18.3	2°17.4	2°16.4	2°15.4	2°14.5	2°13.5	2°01.0	2°00.0	1°59.0	1°58.1	1°57.1	1°56.1	-1.0
ma 18	181°25.4	196°25.7	211°25.9	226°26.1	241°26.3	256°26.5	91°29.4	106°29.7	121°29.9	136°30.1	151°30.3	166°30.6	+0.2
	1°55.2	1°54.2	1°53.2	1°52.2	1°51.3	1°50.3	1°37.7	1°36.8	1°35.8	1°34.8	1°33.9	1°32.9	-1.0
di 19	181°30.8	196°31.0	211°31.2	226°31.5	241°31.7	256°31.9	91°34.8	106°35.0	121°35.2	136°35.5	151°35.7	166°35.9	+0.2
	1°31.9	1°30.9	1°30.0	1°29.0	1°28.0	1°27.1	1°14.5	1°13.5	1°12.5	1°11.6	1°10.6	1°09.6	-1.0
wo 20	181°36.1	196°36.4	211°36.6	226°36.8	241°37.0	256°37.2	91°40.1	106°40.4	121°40.6	136°40.8	151°41.0	166°41.2	+0.2
	1°08.7	1°07.7	1°06.7	1°05.7	1°04.8	1°03.8	0°51.2	0°50.2	0°49.2	0°48.3	0°47.3	0°46.3	-1.0
do 21	181°41.5	196°41.7	211°41.9	226°42.1	241°42.4	256°42.6	91°45.5	106°45.7	121°45.9	136°46.1	151°46.3	166°46.6	+0.2
	0°45.4	0°44.4	0°43.4	0°42.4	0°41.5	0°40.5	0°27.9	0°26.9	0°25.9	0°25.0	0°24.0	0°23.0	-1.0
vr 22	181°46.8	196°47.0	211°47.2	226°47.5	241°47.7	256°47.9	91°50.8	106°51.0	121°51.2	136°51.4	151°51.6	166°51.9	+0.2
	0°22.0	0°21.1	0°20.1	0°19.1	0°18.2	0°17.2	0°04.5	0°03.6	0°02.6	0°01.6	0°00.6	-0°00.3	-1.0
za 23	181°52.1	196°52.3	211°52.5	226°52.7	241°53.0	256°53.2	91°56.0	106°56.3	121°56.5	136°56.7	151°56.9	166°57.1	+0.2
	-0°01.3	-0°02.3	-0°03.2	-0°04.2	-0°05.2	-0°06.2	-0°18.8	-0°19.8	-0°20.7	-0°21.7	-0°22.7	-0°23.7	-1.0
zo 24	181°57.4	196°57.6	211°57.8	226°58.0	241°58.2	256°58.5	92°01.3	107°01.5	122°01.7	137°02.0	152°02.2	167°02.4	+0.2
	-0°24.6	-0°25.6	-0°26.6	-0°27.6	-0°28.5	-0°29.5	-0°42.2	-0°43.1	-0°44.1	-0°45.1	-0°46.0	-0°47.0	-1.0
ma 25	182°02.6	197°02.8	212°03.0	227°03.3	242°03.5	257°03.7	92°06.5	107°06.7	122°06.9	137°07.2	152°07.4	167°07.6	+0.2
	-0°48.0	-0°49.0	-0°49.9	-0°50.9	-0°51.9	-0°52.9	-1°05.5	-1°06.5	-1°07.5	-1°08.4	-1°09.4	-1°10.4	-1.0
di 26	182°07.8	197°08.0	212°08.2	227°08.5	242°08.7	257°08.9	92°11.7	107°11.9	122°12.1	137°12.3	152°12.5	167°12.8	+0.2
	-1°11.3	-1°12.3	-1°13.3	-1°14.3	-1°15.2	-1°16.2	-1°28.9	-1°29.8	-1°30.8	-1°31.8	-1°32.7	-1°33.7	-1.0
wo 27	182°13.0	197°13.2	212°13.4	227°13.6	242°13.8	257°14.0	92°16.8	107°17.0	122°17.2	137°17.4	152°17.7	167°17.9	+0.2
	-1°34.7	-1°35.7	-1°36.6	-1°37.6	-1°38.6	-1°39.6	-1°52.2	-1°53.2	-1°54.1	-1°55.1	-1°56.1	-1°57.1	-1.0
do 28	182°18.1	197°18.3	212°18.5	227°18.7	242°18.9	257°19.1	92°21.9	107°22.1	122°22.3	137°22.5	152°22.7	167°22.9	+0.2
	-1°58.0	-1°59.0	-2°00.0	-2°00.9	-2°01.9	-2°02.9	-2°15.5	-2°16.5	-2°17.5	-2°18.4	-2°19.4	-2°20.4	-1.0
vr 29	182°23.1	197°23.3	212°23.6	227°23.8	242°24.0	257°24.2	92°26.9	107°27.1	122°27.3	137°27.5	152°27.7	167°27.9	+0.2
	-2°21.3	-2°22.3	-2°23.3	-2°24.3	-2°25.2	-2°26.2	-2°38.8	-2°39.8	-2°40.8	-2°41.7	-2°42.7	-2°43.7	-1.0
za 30	182°28.1	197°28.3	212°28.5	227°28.8	242°29.0	257°29.2	92°31.8	107°32.0	122°32.2	137°32.4	152°32.6	167°32.9	+0.2
	-2°44.6	-2°45.6	-2°46.6	-2°47.6	-2°48.5	-2°49.5	-3°02.1	-3°03.1	-3°04.0	-3°05.0	-3°06.0	-3°06.9	-1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2034

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
vr 1	72°56.6	87°24.9	101°53.1	116°21.3	130°49.5	145°17.6	159°45.8	174°13.9	188°42.0	203°10.1	217°38.1	+28.2	16.2
	3°31.7	3°42.7	3°53.6	4°04.6	4°15.5	4°26.4	4°37.3	4°48.2	4°59.0	5°09.8	5°20.6	+10.9	59.5
za 2	74°35.7	89°03.3	103°30.9	117°58.4	132°25.9	146°53.4	161°20.9	175°48.4	190°15.8	204°43.1	219°10.5	+27.5	16.2
	7°57.8	8°07.9	8°18.0	8°28.0	8°38.0	8°48.0	8°57.8	9°07.7	9°17.4	9°27.1	9°36.8	+9.9	59.6
zo 3	75°57.1	90°24.0	104°50.8	119°17.6	133°44.4	148°11.1	162°37.8	177°04.5	191°31.2	205°57.8	220°24.4	+26.7	16.2
	11°53.7	12°02.2	12°10.7	12°19.1	12°27.4	12°35.7	12°43.8	12°51.9	12°59.9	13°07.8	13°15.7	+8.2	59.5
ma 4	76°59.9	91°26.1	105°52.3	120°18.4	134°44.5	149°10.5	163°36.6	178°02.6	192°28.6	206°54.6	221°20.6	+26.1	16.2
	15°02.3	15°08.7	15°14.9	15°21.1	15°27.1	15°33.1	15°38.9	15°44.7	15°50.3	15°55.9	16°01.3	+5.9	59.3
◑ di 5	77°48.1	92°13.8	106°39.5	121°05.2	135°31.0	149°56.7	164°22.4	178°48.0	193°13.7	207°39.4	222°05.1	+25.7	16.1
	17°10.0	17°13.7	17°17.3	17°20.8	17°24.1	17°27.4	17°30.5	17°33.5	17°36.4	17°39.2	17°41.9	+3.2	59.1
wo 6	78°30.6	92°56.4	107°22.2	121°47.9	136°13.7	150°39.6	165°05.4	179°31.2	193°57.1	208°23.0	222°48.9	+25.8	16.0
	18°08.1	18°08.9	18°09.7	18°10.2	18°10.7	18°11.1	18°11.3	18°11.4	18°11.4	18°11.3	18°11.1	+0.3	58.7
do 7	79°20.2	93°46.5	108°12.9	122°39.3	137°05.7	151°32.2	165°58.6	180°25.2	194°51.7	209°18.3	223°45.0	+26.5	15.9
	17°54.1	17°52.0	17°49.9	17°47.6	17°45.3	17°42.8	17°40.2	17°37.5	17°34.8	17°31.9	17°28.9	-2.5	58.3
vr 8	80°29.6	94°56.9	109°24.3	123°51.7	138°19.2	152°46.7	167°14.3	181°41.9	196°09.6	210°37.3	225°05.1	+27.6	15.8
	16°31.5	16°26.9	16°22.2	16°17.4	16°12.5	16°07.6	16°02.5	15°57.3	15°52.1	15°46.7	15°41.3	-5.0	57.8
za 9	82°08.1	96°36.7	111°05.4	125°34.1	140°02.9	154°31.8	169°00.7	183°29.6	197°58.6	212°27.7	226°56.8	+28.9	15.6
	14°09.7	14°03.0	13°56.1	13°49.3	13°42.3	13°35.3	13°28.2	13°21.0	13°13.8	13°06.5	12°59.1	-7.1	57.4
zo 10	84°20.0	98°49.9	113°20.0	127°50.1	142°20.2	156°50.4	171°20.6	185°50.9	200°21.2	214°51.6	229°22.0	+30.2	15.5
	11°01.1	10°52.8	10°44.4	10°36.0	10°27.5	10°19.0	10°10.4	10°01.8	9°53.2	9°44.5	9°35.7	-8.5	56.8
ma 11	87°04.3	101°35.5	116°06.8	130°38.0	145°09.4	159°40.7	174°12.1	188°43.6	203°15.1	217°46.6	232°18.2	+31.4	15.4
	7°20.0	7°10.6	7°01.3	6°51.9	6°42.5	6°33.1	6°23.6	6°14.2	6°04.7	5°55.1	5°45.6	-9.4	56.3
● di 12	90°16.4	104°48.5	119°20.7	133°53.0	148°25.2	162°57.5	177°29.8	192°02.2	206°34.6	221°07.0	235°39.4	+32.3	15.2
	3°20.5	3°10.7	3°00.9	2°51.1	2°41.3	2°31.5	2°21.7	2°11.9	2°02.1	1°52.3	1°42.5	-9.8	55.8
wo 13	93°49.1	108°21.9	122°54.7	137°27.6	152°00.5	166°33.4	181°06.3	195°39.2	210°12.2	224°45.1	239°18.1	+32.9	15.1
	-0°44.2	-0°54.0	-1°03.7	-1°13.4	-1°23.1	-1°32.7	-1°42.4	-1°52.0	-2°01.7	-2°11.3	-2°20.9	-9.7	55.3
do 14	97°34.4	112°07.6	126°40.7	141°13.9	155°47.1	170°20.3	184°53.5	199°26.7	213°59.9	228°33.1	243°06.3	+33.2	14.9
	-4°42.4	-4°51.6	-5°00.8	-5°10.0	-5°19.2	-5°28.3	-5°37.4	-5°46.5	-5°55.5	-6°04.5	-6°13.5	-9.1	54.8
vr 15	101°24.5	115°57.7	130°30.9	145°04.0	159°37.2	174°10.4	188°43.6	203°16.7	217°49.9	232°23.0	246°56.2	+33.2	14.8
	-8°23.8	-8°32.2	-8°40.6	-8°48.9	-8°57.1	-9°05.3	-9°13.5	-9°21.6	-9°29.7	-9°37.7	-9°45.7	-8.2	54.4
za 16	105°12.0	119°45.0	134°17.9	148°50.8	163°23.8	177°56.7	192°29.5	207°02.4	221°35.3	236°08.1	250°40.9	+32.9	14.8
	-11°39.8	-11°47.0	-11°54.2	-12°01.3	-12°08.3	-12°15.3	-12°22.2	-12°29.1	-12°35.9	-12°42.7	-12°49.4	-7.0	54.2
zo 17	108°51.0	123°23.5	137°56.0	152°28.4	167°00.9	181°33.3	196°05.7	210°38.1	225°10.5	239°42.8	254°15.1	+32.4	14.7
	-14°22.8	-14°28.6	-14°34.2	-14°39.8	-14°45.4	-14°50.9	-14°56.3	-15°01.6	-15°06.9	-15°12.1	-15°17.2	-5.4	54.1
ma 18	123°23.5	137°56.0	152°28.4	167°00.9	181°33.3	196°05.7	210°38.1	225°10.5	239°42.8	254°15.1	268°47.4	+32.4	14.7
	-14°28.6	-14°34.2	-14°39.8	-14°45.4	-14°50.9	-14°56.3	-15°01.6	-15°06.9	-15°12.1	-15°17.2	-15°22.3	-5.4	54.1
di 19	126°48.9	141°20.8	155°52.7	170°24.5	184°56.3	199°28.1	213°59.9	228°31.7	243°03.4	257°35.1	272°06.8	+31.8	14.8
	-16°30.1	-16°34.1	-16°37.9	-16°41.7	-16°45.5	-16°49.1	-16°52.7	-16°56.2	-16°59.6	-17°02.9	-17°06.2	-3.6	54.2
◐ wo 20	129°58.8	144°30.1	159°01.3	173°32.5	188°03.7	202°34.9	217°06.0	231°37.1	246°08.2	260°39.3	275°10.3	+31.2	14.8
	-17°45.9	-17°47.9	-17°49.8	-17°51.6	-17°53.4	-17°55.1	-17°56.7	-17°58.2	-17°59.6	-18°00.9	-18°02.2	-1.6	54.4
do 21	132°53.0	147°23.6	161°54.3	176°24.9	190°55.5	205°26.0	219°56.6	234°27.1	248°57.6	263°28.1	277°58.5	+30.6	15.0
	-18°10.9	-18°10.8	-18°10.6	-18°10.3	-18°09.9	-18°09.5	-18°08.9	-18°08.3	-18°07.6	-18°06.7	-18°05.8	+0.5	54.9
vr 22	135°32.8	150°03.0	164°33.1	179°03.2	193°33.3	208°03.3	222°33.4	237°03.4	251°33.4	266°03.4	280°33.4	+30.1	15.1
	-17°41.6	-17°39.2	-17°36.8	-17°34.3	-17°31.7	-17°29.0	-17°26.2	-17°23.3	-17°20.3	-17°17.3	-17°14.1	+2.7	55.5
za 23	138°01.0	152°30.7	167°00.4	181°30.1	195°59.8	210°29.5	224°59.1	239°28.8	253°58.4	268°28.0	282°57.6	+29.7	15.3
	-16°16.0	-16°11.4	-16°06.7	-16°01.9	-15°57.1	-15°52.1	-15°47.1	-15°42.0	-15°36.7	-15°31.4	-15°26.1	+5.0	56.2
zo 24	140°20.1	154°49.5	169°18.9	183°48.3	198°17.6	212°47.0	227°16.3	241°45.7	256°15.0	270°44.3	285°13.6	+29.3	15.6
	-13°54.8	-13°48.1	-13°41.2	-13°34.3	-13°27.3	-13°20.2	-13°13.1	-13°05.8	-12°58.5	-12°51.1	-12°43.6	+7.1	57.1
ma 25	142°31.6	157°00.7	171°29.8	185°58.9	200°28.0	214°57.0	229°26.1	243°55.1	258°24.1	272°53.1	287°22.1	+29.0	15.8
	-10°42.1	-10°33.4	-10°24.6	-10°15.8	-10°06.9	-9°57.9	-9°48.9	-9°39.8	-9°30.6	-9°21.4	-9°12.1	+9.0	58.0
di 26	144°35.2	159°03.9	173°32.7	188°01.4	202°30.1	216°58.8	231°27.4	245°56.1	260°24.7	274°53.3	289°21.9	+28.7	16.1
	-6°45.6	-6°35.4	-6°25.1	-6°14.8	-6°04.4	-5°54.0	-5°43.6	-5°33.1	-5°22.5	-5°12.0	-5°01.3	+10.4	58.9
wo 27	146°28.3	160°56.5	175°24.7	189°52.9	204°21.1	218°49.3	233°17.4	247°45.5	262°13.6	276°41.6	291°09.6	+28.1	16.3
	-2°17.6	-2°06.5	-1°55.3	-1°44.1	-1°32.9	-1°21.7	-1°10.4	-0°59.2	-0°47.9	-0°36.6	-0°25.3	+11.2	59.6
○ do 28	148°06.7	162°34.3	177°01.8	191°29.3	205°56.8	220°24.2	234°51.6	249°19.0	263°46.4	278°13.7	292°40.9	+27.4	16.4
	2°25.1	2°36.5	2°47.8	2°59.1	3°10.4	3°21.7	3°33.0	3°44.3	3°55.5	4°06.8	4°18.0	+11.3	60.1
vr 29	149°26.1	163°52.9	178°19.6	192°46.3	207°12.9	221°39.5	236°06.1	250°32.6	264°59.1	279°25.5	293°52.0	+26.6	16.5
	7°02.7	7°13.4	7°24.0	7°34.7	7°45.2	7°55.7	8°06.2	8°16.6	8°26.9	8°37.2	8°47.5	+10.5	60.4
za 30	150°24.2	164°50.0	179°15.9	193°41.7	208°07.5	222°33.2	236°59.0	251°24.6	265°50.3	280°15.9	294°41.5	+25.7	16.5
	11°13.6	11°22.8	11°31.9	11°40.9	11°49.9	11°58.8	12°07.5	12°16.3	12°24.9	12°33.4	12°41.9	+8.8	60.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 5 11h41 — NM: 12 16h13 — EK: 20 18h39 — VM: 28 02h56

ZON

Oktober 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	182° 33.1	197° 33.3	212° 33.5	227° 33.7	242° 33.9	257° 34.1	92° 36.7	107° 36.9	122° 37.1	137° 37.3	152° 37.5	167° 37.7	+0.2
	-3° 07.9	-3° 08.9	-3° 09.8	-3° 10.8	-3° 11.8	-3° 12.8	-3° 25.3	-3° 26.3	-3° 27.3	-3° 28.2	-3° 29.2	-3° 30.2	-1.0
ma 2	182° 37.9	197° 38.1	212° 38.3	227° 38.5	242° 38.7	257° 38.9	92° 41.5	107° 41.7	122° 41.9	137° 42.1	152° 42.3	167° 42.5	+0.2
	-3° 31.1	-3° 32.1	-3° 33.1	-3° 34.1	-3° 35.0	-3° 36.0	-3° 48.6	-3° 49.5	-3° 50.5	-3° 51.5	-3° 52.4	-3° 53.4	-1.0
di 3	182° 42.7	197° 42.9	212° 43.1	227° 43.3	242° 43.5	257° 43.7	92° 46.2	107° 46.4	122° 46.6	137° 46.8	152° 47.0	167° 47.2	+0.2
	-3° 54.4	-3° 55.3	-3° 56.3	-3° 57.2	-3° 58.2	-3° 59.2	-4° 11.7	-4° 12.7	-4° 13.7	-4° 14.6	-4° 15.6	-4° 16.5	-1.0
wo 4	182° 47.4	197° 47.6	212° 47.8	227° 47.9	242° 48.1	257° 48.3	92° 50.8	107° 51.0	122° 51.2	137° 51.4	152° 51.6	167° 51.8	+0.2
	-4° 17.5	-4° 18.5	-4° 19.4	-4° 20.4	-4° 21.4	-4° 22.3	-4° 34.8	-4° 35.8	-4° 36.8	-4° 37.7	-4° 38.7	-4° 39.7	-1.0
do 5	182° 52.0	197° 52.1	212° 52.3	227° 52.5	242° 52.7	257° 52.9	92° 55.3	107° 55.5	122° 55.7	137° 55.9	152° 56.1	167° 56.3	+0.2
	-4° 40.6	-4° 41.6	-4° 42.5	-4° 43.5	-4° 44.5	-4° 45.4	-4° 57.9	-4° 58.9	-4° 59.8	-5° 00.8	-5° 01.7	-5° 02.7	-1.0
vr 6	182° 56.5	197° 56.6	212° 56.8	227° 57.0	242° 57.2	257° 57.4	92° 59.8	107° 59.9	123° 00.1	138° 00.3	153° 00.5	168° 00.7	+0.2
	-5° 03.7	-5° 04.6	-5° 05.6	-5° 06.5	-5° 07.5	-5° 08.5	-5° 20.9	-5° 21.9	-5° 22.8	-5° 23.8	-5° 24.7	-5° 25.7	-1.0
za 7	183° 00.9	198° 01.0	213° 01.2	228° 01.4	243° 01.6	258° 01.8	93° 04.1	108° 04.3	123° 04.4	138° 04.6	153° 04.8	168° 05.0	+0.2
	-5° 26.7	-5° 27.6	-5° 28.6	-5° 29.5	-5° 30.5	-5° 31.4	-5° 43.9	-5° 44.8	-5° 45.8	-5° 46.7	-5° 47.7	-5° 48.6	-1.0
zo 8	183° 05.1	198° 05.3	213° 05.5	228° 05.7	243° 05.8	258° 06.0	93° 08.3	108° 08.5	123° 08.6	138° 08.8	153° 09.0	168° 09.2	+0.2
	-5° 49.6	-5° 50.5	-5° 51.5	-5° 52.4	-5° 53.4	-5° 54.3	-6° 06.7	-6° 07.7	-6° 08.6	-6° 09.6	-6° 10.5	-6° 11.5	-1.0
ma 9	183° 09.3	198° 09.5	213° 09.7	228° 09.8	243° 10.0	258° 10.2	93° 12.4	108° 12.6	123° 12.7	138° 12.9	153° 13.1	168° 13.2	+0.2
	-6° 12.4	-6° 13.4	-6° 14.3	-6° 15.3	-6° 16.2	-6° 17.2	-6° 29.5	-6° 30.5	-6° 31.4	-6° 32.3	-6° 33.3	-6° 34.2	-1.0
di 10	183° 13.4	198° 13.6	213° 13.7	228° 13.9	243° 14.1	258° 14.2	93° 16.4	108° 16.5	123° 16.7	138° 16.9	153° 17.0	168° 17.2	+0.2
	-6° 35.2	-6° 36.1	-6° 37.1	-6° 38.0	-6° 39.0	-6° 39.9	-6° 52.2	-6° 53.2	-6° 54.1	-6° 55.0	-6° 56.0	-6° 56.9	-0.9
wo 11	183° 17.3	198° 17.5	213° 17.7	228° 17.8	243° 18.0	258° 18.2	93° 20.2	108° 20.4	123° 20.5	138° 20.7	153° 20.9	168° 21.0	+0.2
	-6° 57.9	-6° 58.8	-6° 59.8	-7° 00.7	-7° 01.6	-7° 02.6	-7° 14.8	-7° 15.8	-7° 16.7	-7° 17.6	-7° 18.6	-7° 19.5	-0.9
do 12	183° 21.2	198° 21.3	213° 21.5	228° 21.6	243° 21.8	258° 22.0	93° 24.0	108° 24.1	123° 24.3	138° 24.4	153° 24.6	168° 24.7	+0.2
	-7° 20.5	-7° 21.4	-7° 22.3	-7° 23.3	-7° 24.2	-7° 25.1	-7° 37.3	-7° 38.3	-7° 39.2	-7° 40.1	-7° 41.1	-7° 42.0	-0.9
vr 13	183° 24.9	198° 25.0	213° 25.2	228° 25.3	243° 25.5	258° 25.6	93° 27.6	108° 27.7	123° 27.9	138° 28.0	153° 28.2	168° 28.3	+0.2
	-7° 42.9	-7° 43.9	-7° 44.8	-7° 45.7	-7° 46.7	-7° 47.6	-7° 59.7	-8° 00.7	-8° 01.6	-8° 02.5	-8° 03.5	-8° 04.4	-0.9
za 14	183° 28.5	198° 28.6	213° 28.7	228° 28.9	243° 29.0	258° 29.2	93° 31.0	108° 31.2	123° 31.3	138° 31.5	153° 31.6	168° 31.8	+0.1
	-8° 05.3	-8° 06.2	-8° 07.2	-8° 08.1	-8° 09.0	-8° 10.0	-8° 22.0	-8° 23.0	-8° 23.9	-8° 24.8	-8° 25.7	-8° 26.7	-0.9
zo 15	183° 31.9	198° 32.0	213° 32.2	228° 32.3	243° 32.5	258° 32.6	93° 34.4	108° 34.5	123° 34.7	138° 34.8	153° 34.9	168° 35.1	+0.1
	-8° 27.6	-8° 28.5	-8° 29.4	-8° 30.4	-8° 31.3	-8° 32.2	-8° 44.2	-8° 45.1	-8° 46.1	-8° 47.0	-8° 47.9	-8° 48.8	-0.9
ma 16	183° 35.2	198° 35.3	213° 35.5	228° 35.6	243° 35.7	258° 35.9	93° 37.6	108° 37.7	123° 37.8	138° 38.0	153° 38.1	168° 38.2	+0.1
	-8° 49.7	-8° 50.7	-8° 51.6	-8° 52.5	-8° 53.4	-8° 54.3	-9° 06.3	-9° 07.2	-9° 08.1	-9° 09.0	-9° 09.9	-9° 10.8	-0.9
di 17	183° 38.4	198° 38.5	213° 38.6	228° 38.7	243° 38.9	258° 39.0	93° 40.6	108° 40.8	123° 40.9	138° 41.0	153° 41.1	168° 41.3	+0.1
	-9° 11.8	-9° 12.7	-9° 13.6	-9° 14.5	-9° 15.4	-9° 16.3	-9° 28.2	-9° 29.1	-9° 30.0	-9° 30.9	-9° 31.8	-9° 32.7	-0.9
wo 18	183° 41.4	198° 41.5	213° 41.6	228° 41.7	243° 41.9	258° 42.0	93° 43.5	108° 43.7	123° 43.8	138° 43.9	153° 44.0	168° 44.1	+0.1
	-9° 33.6	-9° 34.6	-9° 35.5	-9° 36.4	-9° 37.3	-9° 38.2	-9° 50.0	-9° 50.9	-9° 51.8	-9° 52.7	-9° 53.6	-9° 54.5	-0.9
do 19	183° 44.3	198° 44.4	213° 44.5	228° 44.6	243° 44.7	258° 44.8	93° 46.3	108° 46.4	123° 46.5	138° 46.6	153° 46.8	168° 46.9	+0.1
	-9° 55.4	-9° 56.3	-9° 57.2	-9° 58.1	-9° 59.0	-9° 59.9	-10° 11.6	-10° 12.5	-10° 13.4	-10° 14.3	-10° 15.2	-10° 16.1	-0.9
vr 20	183° 47.0	198° 47.1	213° 47.2	228° 47.3	243° 47.4	258° 47.5	93° 48.9	108° 49.0	123° 49.1	138° 49.2	153° 49.3	168° 49.4	+0.1
	-10° 17.0	-10° 17.9	-10° 18.8	-10° 19.7	-10° 20.6	-10° 21.5	-10° 33.1	-10° 34.0	-10° 34.9	-10° 35.8	-10° 36.7	-10° 37.6	-0.9
za 21	183° 49.5	198° 49.6	213° 49.7	228° 49.8	243° 49.9	258° 50.0	93° 51.4	108° 51.5	123° 51.6	138° 51.6	153° 51.7	168° 51.8	+0.1
	-10° 38.5	-10° 39.3	-10° 40.2	-10° 41.1	-10° 42.0	-10° 42.9	-10° 54.4	-10° 55.3	-10° 56.2	-10° 57.1	-10° 58.0	-10° 58.9	-0.9
zo 22	183° 51.9	198° 52.0	213° 52.1	228° 52.2	243° 52.3	258° 52.4	93° 53.6	108° 53.7	123° 53.8	138° 53.9	153° 54.0	168° 54.1	+0.1
	-10° 59.7	-11° 00.6	-11° 01.5	-11° 02.4	-11° 03.3	-11° 04.2	-11° 15.6	-11° 16.5	-11° 17.4	-11° 18.2	-11° 19.1	-11° 20.0	-0.9
ma 23	183° 54.2	198° 54.3	213° 54.4	228° 54.5	243° 54.5	258° 54.6	93° 55.8	108° 55.8	123° 55.9	138° 56.0	153° 56.1	168° 56.2	+0.1
	-11° 20.9	-11° 21.8	-11° 22.6	-11° 23.5	-11° 24.4	-11° 25.3	-11° 36.6	-11° 37.5	-11° 38.3	-11° 39.2	-11° 40.1	-11° 41.0	-0.9
di 24	183° 56.3	198° 56.3	213° 56.4	228° 56.5	243° 56.6	258° 56.7	93° 57.7	108° 57.8	123° 57.9	138° 57.9	153° 58.0	168° 58.1	+0.1
	-11° 41.8	-11° 42.7	-11° 43.6	-11° 44.4	-11° 45.3	-11° 46.2	-11° 57.4	-11° 58.3	-11° 59.2	-12° 00.0	-12° 00.9	-12° 01.7	-0.9
wo 25	183° 58.2	198° 58.2	213° 58.3	228° 58.4	243° 58.5	258° 58.5	93° 59.5	108° 59.5	123° 59.6	138° 59.7	153° 59.7	168° 59.8	+0.1
	-12° 02.6	-12° 03.5	-12° 04.3	-12° 05.2	-12° 06.1	-12° 06.9	-12° 18.1	-12° 18.9	-12° 19.8	-12° 20.6	-12° 21.5	-12° 22.3	-0.9
do 26	183° 59.9	199° 00.0	214° 00.0	229° 00.1	244° 00.2	259° 00.2	94° 01.1	109° 01.1	124° 01.2	139° 01.2	154° 01.3	169° 01.4	+0.1
	-12° 23.2	-12° 24.1	-12° 24.9	-12° 25.8	-12° 26.6	-12° 27.5	-12° 38.5	-12° 39.4	-12° 40.2	-12° 41.1	-12° 41.9	-12° 42.8	-0.9
vr 27	184° 01.4	199° 01.5	214° 01.6	229° 01.6	244° 01.7	259° 01.7	94° 02.5	109° 02.5	124° 02.6	139° 02.6	154° 02.7	169° 02.7	+0.1
	-12° 43.6	-12° 44.4	-12° 45.3	-12° 46.1	-12° 47.0	-12° 47.8	-12° 58.8	-12° 59.6	-13° 00.4	-13° 01.3	-13° 02.1	-13° 03.0	-0.8
za 28	184° 02.8	199° 02.8	214° 02.9	229° 03.0	244° 03.0	259° 03.1	94° 03.7	109° 03.7	124° 03.8	139° 03.8	154° 03.9	169° 03.9	+0.1
	-13° 03.8	-13° 04.6	-13° 05.5	-13° 06.3	-13° 07.2	-13° 08.0	-13° 18.8	-13° 19.7	-13° 20.5	-13° 21.3	-13° 22.1	-13° 23.0	-0.8
zo 29	184° 04.0	199° 04.0	214° 04.1	229° 04.1	244° 04.1	259° 04.2	94° 04.7	109° 04.8	124° 04.8	139° 04.8	154° 04.9	169° 04.9	+0.0
	-13° 23.8	-13° 24.6	-13° 25.5	-13° 26.3	-13° 27.1	-13° 27.9	-13° 38.7	-13° 39.5	-13° 40.3	-13° 41.1	-13° 42.0	-13° 42.8	-0.8
ma 30	184° 04.9	199° 05.0	214° 05.0	229° 05.1	244° 05.1	259° 05.1	94° 05.6	109° 05.6	124° 05.6	139° 05.6	154° 05.7	169° 05.7	+0.0
	-13° 43.6	-13° 44.4	-13° 45.2	-13° 46.1	-13° 46.9	-13° 47.7	-13° 58.3	-13° 59.1	-13° 59.9	-14° 00.7	-14° 01.5	-14° 02.4	-0.8
di 31	184° 05.7	199° 05.8	214° 05.8	229° 05.8	244° 05.8	259° 05.9	94° 06.2	109° 06.2	124° 06.2	139° 06.3	154° 06.3	169° 06.3	+0.0
	-14° 03.2	-14° 04.0	-14° 04.8	-14° 05.6	-14° 06.4	-14° 07.2	-14° 17.7	-14° 18.5	-14° 19.3	-14° 20.1	-14° 20.9	-14° 21.7	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2034

D	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	Δ'/h	SD/HP
zo 1	64°30.7	78°56.0	93°21.3	107°46.6	122°11.8	136°37.1	151°02.3	165°27.5	179°52.7	194°17.8	208°43.0	+25.2	16.4
	13°53.8	14°01.4	14°08.8	14°16.1	14°23.4	14°30.5	14°37.5	14°44.5	14°51.3	14°58.0	15°04.6	+7.1	60.2
ma 2	64°58.2	79°23.1	93°48.1	108°13.0	122°37.9	137°02.8	151°27.7	165°52.6	180°17.6	194°42.5	209°07.4	+24.9	16.3
	16°30.9	16°35.7	16°40.4	16°45.1	16°49.6	16°53.9	16°58.2	17°02.4	17°06.4	17°10.3	17°14.1	+4.3	59.8
di 3	65°22.0	79°47.1	94°12.2	108°37.3	123°02.5	137°27.6	151°52.8	166°18.0	180°43.2	195°08.5	209°33.8	+25.2	16.2
	17°56.7	17°58.6	18°00.3	18°02.0	18°03.5	18°04.9	18°06.1	18°07.3	18°08.3	18°09.2	18°10.0	+1.3	59.3
◑ wo 4	65°56.7	80°22.5	94°48.3	109°14.2	123°40.2	138°06.1	152°32.2	166°58.2	181°24.4	195°50.5	210°16.7	+26.0	16.0
	18°07.7	18°06.6	18°05.4	18°04.1	18°02.7	18°01.1	17°59.5	17°57.7	17°55.8	17°53.8	17°51.7	-1.6	58.7
do 5	66°55.8	81°22.8	95°49.9	110°17.0	124°44.2	139°11.5	153°38.8	168°06.1	182°33.5	197°01.0	211°28.6	+27.3	15.8
	17°07.5	17°03.7	16°59.8	16°55.8	16°51.8	16°47.6	16°43.3	16°39.0	16°34.5	16°30.0	16°25.3	-4.2	58.0
vr 6	68°28.7	82°57.2	97°25.7	111°54.3	126°23.0	140°51.7	155°20.5	169°49.3	184°18.2	198°47.2	213°16.2	+28.8	15.6
	15°05.1	14°59.1	14°53.0	14°46.9	14°40.6	14°34.3	14°27.9	14°21.4	14°14.9	14°08.3	14°01.6	-6.4	57.4
za 7	70°38.6	85°08.6	99°38.6	114°08.7	128°38.8	143°09.0	157°39.2	172°09.5	186°39.8	201°10.2	215°40.7	+30.2	15.5
	12°13.1	12°05.4	11°57.6	11°49.8	11°41.9	11°34.0	11°26.0	11°17.9	11°09.8	11°01.6	10°53.4	-8.0	56.7
zo 8	73°23.5	87°54.8	102°26.1	116°57.4	131°28.8	146°00.2	160°31.7	175°03.2	189°34.8	204°06.4	218°38.0	+31.5	15.3
	8°44.9	8°36.0	8°27.1	8°18.1	8°09.1	8°00.1	7°51.0	7°41.9	7°32.8	7°23.7	7°14.5	-9.0	56.2
ma 9	76°37.4	91°09.7	105°41.9	120°14.3	134°46.6	149°19.0	163°51.4	178°23.8	192°56.3	207°28.8	222°01.3	+32.4	15.2
	4°53.7	4°44.2	4°34.6	4°25.0	4°15.4	4°05.8	3°56.2	3°46.6	3°37.0	3°27.3	3°17.6	-9.6	55.7
di 10	80°12.4	94°45.3	109°18.2	123°51.2	138°24.2	152°57.2	167°30.2	182°03.2	196°36.3	211°09.3	225°42.4	+33.0	15.1
	0°52.0	0°42.3	0°32.6	0°22.9	0°13.2	0°03.5	-0°06.2	-0°15.9	-0°25.6	-0°35.3	-0°44.9	-9.7	55.2
wo 11	84°00.0	98°33.3	113°06.6	127°39.8	142°13.1	156°46.4	171°19.7	185°52.9	200°26.2	214°59.5	229°32.8	+33.3	14.9
	-3°08.6	-3°18.0	-3°27.5	-3°36.9	-3°46.3	-3°55.7	-4°05.0	-4°14.3	-4°23.6	-4°32.9	-4°42.2	-9.4	54.8
● do 12	87°52.4	102°25.7	116°58.9	131°32.2	146°05.5	160°38.8	175°12.0	189°45.3	204°18.5	218°51.8	233°25.0	+33.3	14.8
	-6°57.7	-7°06.5	-7°15.2	-7°23.9	-7°32.6	-7°41.3	-7°49.9	-7°58.4	-8°07.0	-8°15.4	-8°23.9	-8.6	54.4
vr 13	91°42.4	106°15.5	120°48.6	135°21.6	149°54.7	164°27.7	179°00.7	193°33.7	208°06.7	222°39.6	237°12.6	+33.0	14.8
	-10°25.6	-10°33.4	-10°41.1	-10°48.8	-10°56.4	-11°03.9	-11°11.4	-11°18.9	-11°26.3	-11°33.7	-11°41.0	-7.5	54.2
za 14	95°24.9	109°57.6	124°30.2	139°02.9	153°35.5	168°08.1	182°40.7	197°13.3	211°45.8	226°18.3	240°50.9	+32.6	14.7
	-13°23.9	-13°30.3	-13°36.7	-13°42.9	-13°49.2	-13°55.3	-14°01.4	-14°07.4	-14°13.4	-14°19.3	-14°25.2	-6.1	54.0
zo 15	98°56.2	113°28.4	128°00.6	142°32.7	157°04.8	171°37.0	186°09.0	200°41.1	215°13.2	229°45.2	244°17.2	+32.1	14.7
	-15°44.9	-15°49.7	-15°54.4	-15°59.0	-16°03.6	-16°08.1	-16°12.5	-16°16.8	-16°21.1	-16°25.3	-16°29.4	-4.5	53.9
ma 16	102°14.9	116°46.6	131°18.3	145°49.9	160°21.6	174°53.2	189°24.8	203°56.3	218°27.9	232°59.4	247°30.9	+31.6	14.7
	-17°22.3	-17°25.3	-17°28.1	-17°30.9	-17°33.5	-17°36.1	-17°38.6	-17°41.1	-17°43.4	-17°45.7	-17°47.9	-2.6	54.0
di 17	105°21.5	119°52.8	134°24.0	148°55.2	163°26.4	177°57.5	192°28.7	206°59.8	221°30.9	236°02.0	250°33.1	+31.2	14.8
	-18°11.1	-18°12.0	-18°12.8	-18°13.5	-18°14.2	-18°14.7	-18°15.2	-18°15.6	-18°15.9	-18°16.1	-18°16.2	-0.5	54.3
wo 18	119°52.8	134°24.0	148°55.2	163°26.4	177°57.5	192°28.7	206°59.8	221°30.9	236°02.0	250°33.1	265°04.2	+31.1	14.8
	-18°12.0	-18°12.8	-18°13.5	-18°14.2	-18°14.7	-18°15.2	-18°15.6	-18°15.9	-18°16.1	-18°16.2	-18°16.2	-0.4	54.3
do 19	122°48.6	137°19.5	151°50.3	166°21.2	180°52.0	195°22.8	209°53.6	224°24.4	238°55.2	253°25.9	267°56.7	+30.8	14.9
	-18°06.5	-18°05.2	-18°03.8	-18°02.3	-18°00.7	-17°59.0	-17°57.2	-17°55.4	-17°53.4	-17°51.4	-17°49.3	+1.7	54.7
◐ vr 20	125°36.6	140°07.2	154°37.8	169°08.3	183°38.9	198°09.4	212°40.0	227°10.5	241°41.0	256°11.5	270°42.0	+30.5	15.1
	-17°07.1	-17°03.6	-17°00.0	-16°56.3	-16°52.6	-16°48.7	-16°44.8	-16°40.8	-16°36.7	-16°32.5	-16°28.2	+3.9	55.3
za 21	128°18.4	142°48.7	157°19.1	171°49.4	186°19.7	200°50.0	215°20.3	229°50.6	244°20.9	258°51.2	273°21.4	+30.3	15.3
	-15°13.9	-15°08.3	-15°02.6	-14°56.8	-14°50.9	-14°45.0	-14°38.9	-14°32.8	-14°26.6	-14°20.3	-14°14.0	+6.0	56.1
zo 22	130°54.0	145°24.1	159°54.1	174°24.2	188°54.2	203°24.3	217°54.3	232°24.3	246°54.2	261°24.2	275°54.2	+30.0	15.5
	-12°29.2	-12°21.6	-12°14.0	-12°06.2	-11°58.4	-11°50.5	-11°42.6	-11°34.5	-11°26.4	-11°18.2	-11°10.0	+7.9	57.0
ma 23	133°21.4	147°51.1	162°20.7	176°50.4	191°20.0	205°49.6	220°19.1	234°48.7	249°18.2	263°47.7	278°17.2	+29.6	15.8
	-8°58.1	-8°48.8	-8°39.4	-8°30.0	-8°20.5	-8°10.9	-8°01.3	-7°51.6	-7°41.9	-7°32.1	-7°22.3	+9.6	57.9
di 24	135°36.2	150°05.2	164°34.2	179°03.2	193°32.2	208°01.1	222°30.0	236°58.8	251°27.6	265°56.4	280°25.2	+28.9	16.1
	-4°48.6	-4°38.0	-4°27.3	-4°16.6	-4°05.9	-3°55.1	-3°44.3	-3°33.4	-3°22.5	-3°11.6	-3°00.6	+10.8	58.9
wo 25	137°32.0	152°00.1	166°28.2	180°56.2	195°24.2	209°52.2	224°20.1	238°48.0	253°15.9	267°43.6	282°11.4	+27.9	16.3
	-0°13.0	-0°01.6	0°09.7	0°21.1	0°32.5	0°43.9	0°55.3	1°06.7	1°18.1	1°29.6	1°41.0	+11.4	59.9
do 26	139°01.9	153°28.8	167°55.7	182°22.6	196°49.4	211°16.2	225°42.9	240°09.6	254°36.2	269°02.7	283°29.2	+26.7	16.5
	4°32.0	4°43.3	4°54.6	5°05.9	5°17.2	5°28.4	5°39.6	5°50.7	6°01.9	6°13.0	6°24.1	+11.2	60.6
○ vr 27	140°00.5	154°26.1	168°51.7	183°17.3	197°42.8	212°08.3	226°33.6	240°59.0	255°24.3	269°49.5	284°14.7	+25.4	16.6
	9°05.4	9°15.8	9°26.1	9°36.3	9°46.5	9°56.6	10°06.7	10°16.7	10°26.6	10°36.4	10°46.2	+10.1	61.0
za 28	140°26.9	154°51.3	169°15.7	183°40.1	198°04.4	212°28.7	226°52.9	241°17.1	255°41.3	270°05.4	284°29.5	+24.3	16.7
	13°03.7	13°12.2	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	+8.0	61.2
zo 29	140°27.3	154°51.0	169°14.6	183°38.3	198°01.9	212°25.5	226°49.1	241°12.6	255°36.2	269°59.8	284°23.3	+23.6	16.6
	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	60.9
ma 30	140°16.5	154°40.1	169°03.8	183°27.4	197°51.1	212°14.8	226°38.5	241°02.2	255°25.9	269°49.7	284°13.5	+23.7	16.5
	17°52.2	17°54.8	17°57.3	17°59.7	18°01.9	18°04.0	18°06.0	18°07.8	18°09.5	18°11.1	18°12.6	+2.0	60.4
di 31	140°14.6	154°39.0	169°03.4	183°27.9	197°52.5	212°17.1	226°41.7	241°06.4	255°31.2	269°56.0	284°20.9	+24.6	16.3
	18°19.0	18°18.4	18°17.7	18°16.8	18°15.8	18°14.8	18°13.6	18°12.2	18°10.8	18°09.2	18°07.5	-1.1	59.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 4 18h04 — NM: 12 07h32 — EK: 20 12h03 — VM: 27 12h42

ZON

November 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	184°06.3 -14°22.5	199°06.3 -14°23.3	214°06.4 -14°24.1	229°06.4 -14°24.9	244°06.4 -14°25.7	259°06.4 -14°26.5	94°06.6 -14°36.9	109°06.6 -14°37.7	124°06.6 -14°38.5	139°06.7 -14°39.3	154°06.7 -14°40.1	169°06.7 -14°40.8	+0.0 -0.8
do 2	184°06.7 -14°41.6	199°06.7 -14°42.4	214°06.7 -14°43.2	229°06.7 -14°44.0	244°06.7 -14°44.8	259°06.7 -14°45.6	94°06.8 -14°55.8	109°06.8 -14°56.6	124°06.9 -14°57.4	139°06.9 -14°58.2	154°06.9 -14°59.0	169°06.9 -14°59.7	+0.0 -0.8
vr 3	184°06.9 -15°00.5	199°06.9 -15°01.3	214°06.9 -15°02.1	229°06.9 -15°02.9	244°06.9 -15°03.6	259°06.9 -15°04.4	94°06.9 -15°14.5	109°06.9 -15°15.3	124°06.8 -15°16.1	139°06.8 -15°16.8	154°06.8 -15°17.6	169°06.8 -15°18.4	+0.0 -0.8
za 4	184°06.8 -15°19.2	199°06.8 -15°19.9	214°06.8 -15°20.7	229°06.8 -15°21.5	244°06.8 -15°22.2	259°06.8 -15°23.0	94°06.7 -15°33.0	109°06.7 -15°33.7	124°06.6 -15°34.5	139°06.6 -15°35.3	154°06.6 -15°36.0	169°06.6 -15°36.8	-0.0 -0.8
zo 5	184°06.6 -15°37.6	199°06.6 -15°38.3	214°06.6 -15°39.1	229°06.5 -15°39.8	244°06.5 -15°40.6	259°06.5 -15°41.4	94°06.3 -15°51.2	109°06.2 -15°51.9	124°06.2 -15°52.7	139°06.2 -15°53.4	154°06.2 -15°54.2	169°06.1 -15°54.9	-0.0 -0.8
ma 6	184°06.1 -15°55.7	199°06.1 -15°56.4	214°06.1 -15°57.2	229°06.1 -15°57.9	244°06.0 -15°58.7	259°06.0 -15°59.4	94°05.6 -16°09.1	109°05.6 -16°09.9	124°05.6 -16°10.6	139°05.6 -16°11.3	154°05.5 -16°12.1	169°05.5 -16°12.8	-0.0 -0.8
di 7	184°05.5 -16°13.6	199°05.4 -16°14.3	214°05.4 -16°15.0	229°05.4 -16°15.8	244°05.3 -16°16.5	259°05.3 -16°17.3	94°04.8 -16°26.8	109°04.8 -16°27.5	124°04.7 -16°28.3	139°04.7 -16°29.0	154°04.7 -16°29.7	169°04.6 -16°30.4	-0.0 -0.7
wo 8	184°04.6 -16°31.2	199°04.5 -16°31.9	214°04.5 -16°32.6	229°04.4 -16°33.3	244°04.4 -16°34.1	259°04.4 -16°34.8	94°03.8 -16°44.2	109°03.7 -16°44.9	124°03.7 -16°45.6	139°03.6 -16°46.3	154°03.6 -16°47.1	169°03.5 -16°47.8	-0.0 -0.7
do 9	184°03.5 -16°48.5	199°03.4 -16°49.2	214°03.4 -16°49.9	229°03.3 -16°50.6	244°03.3 -16°51.3	259°03.2 -16°52.1	94°02.5 -17°01.3	109°02.5 -17°02.0	124°02.4 -17°02.7	139°02.3 -17°03.4	154°02.3 -17°04.1	169°02.2 -17°04.8	-0.1 -0.7
vr 10	184°02.2 -17°05.5	199°02.1 -17°06.2	214°02.0 -17°06.9	229°02.0 -17°07.6	244°01.9 -17°08.3	259°01.9 -17°09.0	94°01.0 -17°18.1	109°01.0 -17°18.8	124°00.9 -17°19.5	139°00.8 -17°20.2	154°00.8 -17°20.9	169°00.7 -17°21.6	-0.1 -0.7
za 11	184°00.6 -17°22.3	199°00.6 -17°23.0	214°00.5 -17°23.7	229°00.4 -17°24.3	244°00.4 -17°25.0	259°00.3 -17°25.7	93°59.4 -17°34.6	108°59.3 -17°35.3	123°59.2 -17°36.0	138°59.1 -17°36.7	153°59.1 -17°37.4	168°59.0 -17°38.0	-0.1 -0.7
zo 12	183°58.9 -17°38.7	198°58.8 -17°39.4	213°58.8 -17°40.1	228°58.7 -17°40.8	243°58.6 -17°41.4	258°58.5 -17°42.1	93°57.5 -17°50.9	108°57.4 -17°51.5	123°57.3 -17°52.2	138°57.2 -17°52.9	153°57.1 -17°53.5	168°57.1 -17°54.2	-0.1 -0.7
ma 13	183°57.0 -17°54.9	198°56.9 -17°55.5	213°56.8 -17°56.2	228°56.7 -17°56.9	243°56.6 -17°57.5	258°56.5 -17°58.2	93°55.4 -18°06.8	108°55.3 -18°07.4	123°55.2 -18°08.1	138°55.1 -18°08.7	153°55.0 -18°09.4	168°54.9 -18°10.1	-0.1 -0.7
di 14	183°54.8 -18°10.7	198°54.7 -18°11.4	213°54.6 -18°12.0	228°54.5 -18°12.7	243°54.4 -18°13.3	258°54.3 -18°14.0	93°53.1 -18°22.4	108°53.0 -18°23.0	123°52.9 -18°23.7	138°52.8 -18°24.3	153°52.6 -18°24.9	168°52.5 -18°25.6	-0.1 -0.7
wo 15	183°52.4 -18°26.2	198°52.3 -18°26.9	213°52.2 -18°27.5	228°52.1 -18°28.1	243°52.0 -18°28.8	258°51.9 -18°29.4	93°50.5 -18°37.7	108°50.4 -18°38.3	123°50.3 -18°38.9	138°50.2 -18°39.5	153°50.1 -18°40.2	168°50.0 -18°40.8	-0.1 -0.6
do 16	183°49.9 -18°41.4	198°49.8 -18°42.0	213°49.6 -18°42.7	228°49.5 -18°43.3	243°49.4 -18°43.9	258°49.3 -18°44.5	93°47.8 -18°52.6	108°47.7 -18°53.2	123°47.6 -18°53.8	138°47.4 -18°54.4	153°47.3 -18°55.1	168°47.2 -18°55.7	-0.1 -0.6
vr 17	183°47.1 -18°56.3	198°47.0 -18°56.9	213°46.8 -18°57.5	228°46.7 -18°58.1	243°46.6 -18°58.7	258°46.5 -18°59.3	93°44.9 -19°07.2	108°44.7 -19°07.8	123°44.6 -19°08.4	138°44.5 -19°09.0	153°44.4 -19°09.6	168°44.2 -19°10.2	-0.1 -0.6
za 18	183°44.1 -19°10.8	198°44.0 -19°11.4	213°43.8 -19°12.0	228°43.7 -19°12.6	243°43.6 -19°13.2	258°43.5 -19°13.8	93°41.7 -19°21.5	108°41.6 -19°22.1	123°41.5 -19°22.6	138°41.3 -19°23.2	153°41.2 -19°23.8	168°41.1 -19°24.4	-0.1 -0.6
zo 19	183°40.9 -19°25.0	198°40.8 -19°25.6	213°40.6 -19°26.1	228°40.5 -19°26.7	243°40.4 -19°27.3	258°40.2 -19°27.9	93°38.4 -19°35.4	108°38.3 -19°36.0	123°38.1 -19°36.5	138°38.0 -19°37.1	153°37.8 -19°37.7	168°37.7 -19°38.2	-0.1 -0.6
ma 20	183°37.5 -19°38.8	198°37.4 -19°39.4	213°37.2 -19°39.9	228°37.1 -19°40.5	243°36.9 -19°41.1	258°36.8 -19°41.6	93°34.9 -19°49.0	108°34.7 -19°49.5	123°34.6 -19°50.1	138°34.4 -19°50.6	153°34.2 -19°51.2	168°34.1 -19°51.7	-0.1 -0.6
di 21	183°33.9 -19°52.3	198°33.8 -19°52.8	213°33.6 -19°53.4	228°33.5 -19°53.9	243°33.3 -19°54.5	258°33.2 -19°55.0	93°31.1 -20°02.2	108°31.0 -20°02.7	123°30.8 -20°03.2	138°30.6 -20°03.8	153°30.5 -20°04.3	168°30.3 -20°04.9	-0.2 -0.6
wo 22	183°30.2 -20°05.4	198°30.0 -20°05.9	213°29.8 -20°06.5	228°29.7 -20°07.0	243°29.5 -20°07.5	258°29.3 -20°08.1	93°27.2 -20°15.0	108°27.0 -20°15.5	123°26.9 -20°16.0	138°26.7 -20°16.6	153°26.5 -20°17.1	168°26.4 -20°17.6	-0.2 -0.5
do 23	183°26.2 -20°18.1	198°26.0 -20°18.7	213°25.8 -20°19.2	228°25.7 -20°19.7	243°25.5 -20°20.2	258°25.3 -20°20.7	93°23.1 -20°27.4	108°22.9 -20°28.0	123°22.7 -20°28.5	138°22.5 -20°29.0	153°22.4 -20°29.5	168°22.2 -20°30.0	-0.2 -0.5
vr 24	183°22.0 -20°30.5	198°21.8 -20°31.0	213°21.7 -20°31.5	228°21.5 -20°32.0	243°21.3 -20°32.5	258°21.1 -20°33.0	93°18.8 -20°39.5	108°18.6 -20°40.0	123°18.4 -20°40.5	138°18.2 -20°41.0	153°18.0 -20°41.5	168°17.8 -20°42.0	-0.2 -0.5
za 25	183°17.7 -20°42.5	198°17.5 -20°43.0	213°17.3 -20°43.5	228°17.1 -20°44.0	243°16.9 -20°44.4	258°16.7 -20°44.9	93°14.3 -20°51.2	108°14.1 -20°51.7	123°13.9 -20°52.2	138°13.7 -20°52.7	153°13.5 -20°53.1	168°13.3 -20°53.6	-0.2 -0.5
zo 26	183°13.1 -20°54.1	198°12.9 -20°54.6	213°12.7 -20°55.0	228°12.5 -20°55.5	243°12.3 -20°56.0	258°12.1 -20°56.5	93°09.6 -21°02.5	108°09.4 -21°03.0	123°09.2 -21°03.5	138°09.0 -21°03.9	153°08.8 -21°04.4	168°08.6 -21°04.8	-0.2 -0.5
ma 27	183°08.4 -21°05.3	198°08.2 -21°05.8	213°08.0 -21°06.2	228°07.8 -21°06.7	243°07.6 -21°07.1	258°07.4 -21°07.6	93°04.7 -21°13.4	108°04.5 -21°13.9	123°04.3 -21°14.3	138°04.1 -21°14.8	153°03.9 -21°15.2	168°03.7 -21°15.7	-0.2 -0.5
di 28	183°03.5 -21°16.1	198°03.2 -21°16.6	213°03.0 -21°17.0	228°02.8 -21°17.4	243°02.6 -21°17.9	258°02.4 -21°18.3	92°59.7 -21°24.0	107°59.4 -21°24.4	122°59.2 -21°24.8	137°59.0 -21°25.3	152°58.8 -21°25.7	167°58.6 -21°26.1	-0.2 -0.4
wo 29	182°58.4 -21°26.5	197°58.1 -21°27.0	212°57.9 -21°27.4	227°57.7 -21°27.8	242°57.5 -21°28.2	257°57.3 -21°28.6	92°54.4 -21°34.1	107°54.2 -21°34.5	122°54.0 -21°34.9	137°53.8 -21°35.3	152°53.5 -21°35.7	167°53.3 -21°36.1	-0.2 -0.4
do 30	182°53.1 -21°36.5	197°52.9 -21°36.9	212°52.6 -21°37.4	227°52.4 -21°37.8	242°52.2 -21°38.2	257°52.0 -21°38.6	92°49.0 -21°43.8	107°48.8 -21°44.2	122°48.6 -21°44.6	137°48.3 -21°45.0	152°48.1 -21°45.4	167°47.9 -21°45.7	-0.2 -0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2034

D	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
wo 1	68°32.8	82°58.3	97°24.0	111°49.6	126°15.4	140°41.2	155°07.0	169°33.0	183°59.0	198°25.1	212°51.2	+25.8	16.1
	17°44.1	17°41.2	17°38.1	17°34.9	17°31.6	17°28.2	17°24.7	17°21.1	17°17.4	17°13.6	17°09.6	-3.5	59.0
do 2	69°32.3	83°59.6	98°27.0	112°54.5	127°22.0	141°49.7	156°17.4	170°45.2	185°13.0	199°41.0	214°09.0	+27.7	15.8
	15°58.9	15°53.4	15°47.9	15°42.2	15°36.5	15°30.7	15°24.8	15°18.9	15°12.8	15°06.7	15°00.5	-5.8	58.1
◑ vr 3	71°18.0	85°47.2	100°16.5	114°45.8	129°15.2	143°44.7	158°14.3	172°43.9	187°13.6	201°43.3	216°13.1	+29.5	15.6
	13°18.4	13°11.0	13°03.6	12°56.2	12°48.6	12°41.0	12°33.4	12°25.6	12°17.9	12°10.0	12°02.2	-7.6	57.2
za 4	73°48.4	88°19.2	102°50.1	117°21.1	131°52.1	146°23.2	160°54.3	175°25.5	189°56.8	204°28.1	218°59.5	+31.1	15.4
	9°57.9	9°49.3	9°40.6	9°31.8	9°23.1	9°14.3	9°05.4	8°56.6	8°47.7	8°38.7	8°29.7	-8.8	56.5
zo 5	76°56.0	91°28.2	106°00.4	120°32.6	135°04.9	149°37.2	164°09.5	178°41.9	193°14.4	207°46.8	222°19.4	+32.3	15.2
	6°11.6	6°02.2	5°52.8	5°43.4	5°33.9	5°24.4	5°14.9	5°05.4	4°55.9	4°46.4	4°36.8	-9.5	55.8
ma 6	80°31.1	95°04.1	109°37.1	124°10.2	138°43.3	153°16.4	167°49.6	182°22.7	196°55.9	211°29.1	226°02.4	+33.1	15.1
	2°12.2	2°02.5	1°52.8	1°43.1	1°33.4	1°23.7	1°14.0	1°04.3	0°54.6	0°44.9	0°35.2	-9.7	55.2
di 7	84°22.9	98°56.4	113°29.9	128°03.4	142°36.9	157°10.4	171°43.9	186°17.4	200°51.0	215°24.5	229°58.0	+33.5	14.9
	-1°49.4	-1°58.9	-2°08.5	-2°18.0	-2°27.5	-2°37.0	-2°46.5	-2°56.0	-3°05.5	-3°14.9	-3°24.3	-9.5	54.8
wo 8	88°21.5	102°55.1	117°28.6	132°02.2	146°35.7	161°09.2	175°42.8	190°16.3	204°49.8	219°23.3	233°56.8	+33.5	14.8
	-5°43.1	-5°52.1	-6°01.2	-6°10.2	-6°19.1	-6°28.1	-6°37.0	-6°45.8	-6°54.7	-7°03.5	-7°12.3	-8.9	54.4
do 9	92°18.3	106°51.6	121°24.9	135°58.2	150°31.5	165°04.8	179°38.0	194°11.3	208°44.5	223°17.7	237°50.9	+33.3	14.8
	-9°19.6	-9°27.8	-9°36.0	-9°44.0	-9°52.1	-10°00.1	-10°08.1	-10°16.0	-10°23.9	-10°31.7	-10°39.5	-8.0	54.1
vr 10	96°06.7	110°39.6	125°12.4	139°45.3	154°18.1	168°50.9	183°23.7	197°56.5	212°29.2	227°02.0	241°34.7	+32.8	14.7
	-12°30.2	-12°37.2	-12°44.1	-12°51.0	-12°57.7	-13°04.5	-13°11.2	-13°17.8	-13°24.4	-13°30.9	-13°37.3	-6.7	54.0
● za 11	99°42.6	114°14.9	128°47.2	143°19.5	157°51.8	172°24.1	186°56.3	201°28.5	216°00.7	230°32.9	245°05.0	+32.2	14.7
	-15°06.6	-15°12.1	-15°17.4	-15°22.7	-15°28.0	-15°33.1	-15°38.2	-15°43.3	-15°48.2	-15°53.1	-15°57.9	-5.1	53.9
zo 12	103°04.6	117°36.5	132°08.2	146°40.0	161°11.8	175°43.5	190°15.2	204°46.9	219°18.6	233°50.2	248°21.8	+31.7	14.7
	-17°01.6	-17°05.2	-17°08.8	-17°12.3	-17°15.7	-17°19.0	-17°22.3	-17°25.5	-17°28.6	-17°31.6	-17°34.5	-3.3	53.9
ma 13	106°14.3	120°45.6	135°17.0	149°48.3	164°19.7	178°51.0	193°22.3	207°53.6	222°24.8	236°56.1	251°27.4	+31.3	14.7
	-18°09.1	-18°10.7	-18°12.3	-18°13.8	-18°15.2	-18°16.5	-18°17.7	-18°18.9	-18°20.0	-18°20.9	-18°21.8	-1.3	54.0
di 14	109°14.8	123°45.9	138°17.0	152°48.1	167°19.2	181°50.2	196°21.3	210°52.4	225°23.4	239°54.4	254°25.5	+31.1	14.8
	-18°25.2	-18°24.7	-18°24.2	-18°23.5	-18°22.8	-18°22.0	-18°21.1	-18°20.1	-18°19.1	-18°17.9	-18°16.7	+0.8	54.2
wo 15	112°10.6	126°41.6	141°12.5	155°43.5	170°14.5	184°45.5	199°16.5	213°47.4	228°18.4	242°49.4	257°20.4	+31.0	14.9
	-17°47.9	-17°45.3	-17°42.6	-17°39.9	-17°37.0	-17°34.1	-17°31.0	-17°27.9	-17°24.7	-17°21.5	-17°18.1	+3.0	54.6
do 16	126°41.6	141°12.5	155°43.5	170°14.5	184°45.5	199°16.5	213°47.4	228°18.4	242°49.4	257°20.4	271°51.3	+31.0	14.9
	-17°45.3	-17°42.6	-17°39.9	-17°37.0	-17°34.1	-17°31.0	-17°27.9	-17°24.7	-17°21.5	-17°18.1	-17°14.7	+3.1	54.6
vr 17	129°36.0	144°07.0	158°38.0	173°09.0	187°39.9	202°10.9	216°41.9	231°12.9	245°43.9	260°14.9	274°45.9	+31.0	15.0
	-16°13.0	-16°08.3	-16°03.4	-15°58.5	-15°53.5	-15°48.4	-15°43.3	-15°38.0	-15°32.7	-15°27.3	-15°21.8	+5.1	55.2
za 18	132°30.6	147°01.6	161°32.6	176°03.6	190°34.5	205°05.5	219°36.5	234°07.4	248°38.4	263°09.3	277°40.3	+31.0	15.2
	-13°50.4	-13°43.7	-13°37.0	-13°30.1	-13°23.2	-13°16.2	-13°09.2	-13°02.0	-12°54.8	-12°47.6	-12°40.2	+7.0	55.9
◐ zo 19	135°23.8	149°54.6	164°25.5	178°56.3	193°27.1	207°57.9	222°28.7	236°59.4	251°30.2	266°00.9	280°31.7	+30.8	15.5
	-10°41.9	-10°33.5	-10°25.1	-10°16.5	-10°07.9	-9°59.3	-9°50.6	-9°41.8	-9°32.9	-9°24.0	-9°15.1	+8.7	56.7
ma 20	138°10.6	152°41.1	167°11.5	181°41.9	196°12.3	210°42.6	225°12.9	239°43.2	254°13.5	268°43.7	283°13.9	+30.3	15.7
	-6°54.1	-6°44.2	-6°34.4	-6°24.5	-6°14.5	-6°04.5	-5°54.4	-5°44.3	-5°34.2	-5°24.0	-5°13.8	+10.0	57.6
di 21	140°43.4	155°13.1	169°42.7	184°12.3	198°41.9	213°11.4	227°40.9	242°10.3	256°39.7	271°09.1	285°38.4	+29.5	16.0
	-2°35.7	-2°24.9	-2°14.0	-2°03.2	-1°52.3	-1°41.4	-1°30.4	-1°19.4	-1°08.5	-0°57.4	-0°46.4	+10.9	58.6
wo 22	142°52.4	157°20.9	171°49.3	186°17.8	200°46.1	215°14.4	229°42.6	244°10.8	258°38.9	273°07.0	287°35.0	+28.3	16.3
	2°01.0	2°23.1	2°23.5	2°34.7	2°46.0	2°57.2	3°08.5	3°19.7	3°30.9	3°42.1	3°53.4	+11.2	59.6
do 23	144°27.6	158°54.6	173°21.5	187°48.3	202°15.1	216°41.8	231°08.5	245°35.1	260°01.6	274°28.0	288°54.4	+26.7	16.5
	6°39.8	6°50.7	7°01.6	7°12.5	7°23.3	7°34.1	7°44.8	7°55.5	8°06.2	8°16.8	8°27.4	+10.8	60.5
vr 24	145°21.6	159°46.8	174°12.0	188°37.1	203°02.2	217°27.2	231°52.1	246°16.9	260°41.7	275°06.4	289°31.0	+24.9	16.7
	11°00.0	11°09.7	11°19.4	11°28.9	11°38.4	11°47.8	11°57.1	12°06.4	12°15.6	12°24.7	12°33.7	+9.4	61.1
○ za 25	145°33.1	159°56.8	174°20.4	188°43.9	203°07.4	217°30.9	231°54.3	246°17.6	260°41.0	275°04.2	289°27.4	+23.4	16.8
	14°38.2	14°45.7	14°53.1	15°00.4	15°07.6	15°14.7	15°21.7	15°28.5	15°35.3	15°41.9	15°48.4	+7.0	61.4
zo 26	145°11.1	159°33.7	173°56.4	188°19.0	202°41.6	217°04.2	231°26.8	245°49.4	260°11.9	274°34.5	288°57.0	+22.6	16.7
	17°11.6	17°16.2	17°20.6	17°24.8	17°29.0	17°33.0	17°36.9	17°40.6	17°44.2	17°47.7	17°51.0	+3.9	61.4
ma 27	144°35.3	158°58.0	173°20.7	187°43.4	202°06.1	216°28.9	230°51.6	245°14.4	259°37.3	274°00.2	288°23.1	+22.8	16.6
	18°24.4	18°25.5	18°26.5	18°27.3	18°28.0	18°28.6	18°29.0	18°29.3	18°29.5	18°29.5	18°29.4	+0.5	60.9
di 28	144°12.3	158°36.0	172°59.7	187°23.6	201°47.5	216°11.4	230°35.4	244°59.5	259°23.7	273°47.9	288°12.2	+24.0	16.4
	18°11.5	18°09.3	18°06.9	18°04.4	18°01.8	17°59.1	17°56.2	17°53.3	17°50.2	17°47.0	17°43.6	-2.8	60.2
wo 29	144°25.8	158°51.3	173°16.9	187°42.7	202°08.5	216°34.3	231°00.3	245°26.4	259°52.5	274°18.7	288°45.0	+25.9	16.2
	16°40.0	16°34.9	16°29.7	16°24.4	16°19.0	16°13.5	16°07.9	16°02.2	15°56.4	15°50.5	15°44.6	-5.5	59.3
do 30	145°30.2	159°57.9	174°25.7	188°53.5	203°21.5	217°49.6	232°17.7	246°45.9	261°14.3	275°42.6	290°11.1	+28.1	15.9
	14°04.9	13°57.7	13°50.3	13°42.9	13°35.4	13°27.9	13°20.3	13°12.6	13°04.9	12°57.1	12°49.2	-7.6	58.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 3 03h27 — NM: 11 01h16 — EK: 19 04h01 — VM: 25 22h32

ZON

December 2034

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	182°47.6	197°47.4	212°47.2	227°47.0	242°46.7	257°46.5	92°43.5	107°43.2	122°43.0	137°42.7	152°42.5	167°42.3	-0.2
	-21°46.1	-21°46.5	-21°46.9	-21°47.3	-21°47.7	-21°48.1	-21°53.1	-21°53.4	-21°53.8	-21°54.2	-21°54.6	-21°54.9	-0.4
za 2	182°42.0	197°41.8	212°41.6	227°41.3	242°41.1	257°40.8	92°37.7	107°37.5	122°37.2	137°37.0	152°36.7	167°36.5	-0.2
	-21°55.3	-21°55.7	-21°56.1	-21°56.4	-21°56.8	-21°57.2	-22°01.9	-22°02.3	-22°02.7	-22°03.0	-22°03.4	-22°03.7	-0.4
zo 3	182°36.3	197°36.0	212°35.8	227°35.5	242°35.3	257°35.0	92°31.8	107°31.6	122°31.3	137°31.1	152°30.8	167°30.6	-0.2
	-22°04.1	-22°04.4	-22°04.8	-22°05.2	-22°05.5	-22°05.9	-22°10.4	-22°10.7	-22°11.1	-22°11.4	-22°11.7	-22°12.1	-0.4
ma 4	182°30.3	197°30.1	212°29.8	227°29.6	242°29.3	257°29.1	92°25.8	107°25.5	122°25.3	137°25.0	152°24.8	167°24.5	-0.3
	-22°12.4	-22°12.8	-22°13.1	-22°13.4	-22°13.8	-22°14.1	-22°18.4	-22°18.7	-22°19.0	-22°19.4	-22°19.7	-22°20.0	-0.3
di 5	182°24.2	197°24.0	212°23.7	227°23.5	242°23.2	257°23.0	92°19.6	107°19.3	122°19.1	137°18.8	152°18.5	167°18.3	-0.3
	-22°20.3	-22°20.7	-22°21.0	-22°21.3	-22°21.6	-22°21.9	-22°26.0	-22°26.3	-22°26.6	-22°26.9	-22°27.2	-22°27.5	-0.3
wo 6	182°18.0	197°17.8	212°17.5	227°17.2	242°17.0	257°16.7	92°13.3	107°13.0	122°12.7	137°12.5	152°12.2	167°11.9	-0.3
	-22°27.8	-22°28.1	-22°28.4	-22°28.7	-22°29.0	-22°29.3	-22°33.1	-22°33.4	-22°33.7	-22°34.0	-22°34.3	-22°34.6	-0.3
do 7	182°11.7	197°11.4	212°11.1	227°10.8	242°10.6	257°10.3	92°06.8	107°06.5	122°06.3	137°06.0	152°05.7	167°05.4	-0.3
	-22°34.8	-22°35.1	-22°35.4	-22°35.7	-22°36.0	-22°36.3	-22°39.8	-22°40.1	-22°40.4	-22°40.6	-22°40.9	-22°41.2	-0.3
vr 8	182°05.2	197°04.9	212°04.6	227°04.3	242°04.1	257°03.8	92°00.2	106°59.9	121°59.7	136°59.4	151°59.1	166°58.8	-0.3
	-22°41.4	-22°41.7	-22°42.0	-22°42.2	-22°42.5	-22°42.8	-22°46.1	-22°46.4	-22°46.6	-22°46.9	-22°47.1	-22°47.4	-0.3
za 9	181°58.5	196°58.3	211°58.0	226°57.7	241°57.4	256°57.2	91°53.5	106°53.2	121°52.9	136°52.7	151°52.4	166°52.1	-0.3
	-22°47.6	-22°47.8	-22°48.1	-22°48.3	-22°48.6	-22°48.8	-22°51.9	-22°52.2	-22°52.4	-22°52.6	-22°52.8	-22°53.1	-0.2
zo 10	181°51.8	196°51.5	211°51.3	226°51.0	241°50.7	256°50.4	91°46.7	106°46.4	121°46.1	136°45.8	151°45.6	166°45.3	-0.3
	-22°53.3	-22°53.5	-22°53.8	-22°54.0	-22°54.2	-22°54.4	-22°57.3	-22°57.5	-22°57.7	-22°57.9	-22°58.1	-22°58.3	-0.2
ma 11	181°45.0	196°44.7	211°44.4	226°44.1	241°43.8	256°43.5	91°39.8	106°39.5	121°39.2	136°38.9	151°38.6	166°38.3	-0.3
	-22°58.6	-22°58.8	-22°59.0	-22°59.2	-22°59.4	-22°59.6	-23°02.2	-23°02.4	-23°02.6	-23°02.8	-23°03.0	-23°03.2	-0.2
di 12	181°38.1	196°37.8	211°37.5	226°37.2	241°36.9	256°36.6	91°32.8	106°32.5	121°32.2	136°31.9	151°31.6	166°31.3	-0.3
	-23°03.4	-23°03.6	-23°03.7	-23°03.9	-23°04.1	-23°04.3	-23°06.7	-23°06.8	-23°07.0	-23°07.2	-23°07.4	-23°07.5	-0.2
wo 13	181°31.0	196°30.7	211°30.4	226°30.1	241°29.9	256°29.6	91°25.7	106°25.4	121°25.1	136°24.8	151°24.5	166°24.2	-0.3
	-23°07.7	-23°07.9	-23°08.0	-23°08.2	-23°08.4	-23°08.6	-23°10.7	-23°10.8	-23°11.0	-23°11.1	-23°11.3	-23°11.4	-0.2
do 14	181°23.9	196°23.6	211°23.3	226°23.0	241°22.7	256°22.4	91°18.6	106°18.3	121°18.0	136°17.7	151°17.4	166°17.1	-0.3
	-23°11.6	-23°11.7	-23°11.9	-23°12.0	-23°12.2	-23°12.3	-23°14.2	-23°14.3	-23°14.5	-23°14.6	-23°14.7	-23°14.9	-0.2
vr 15	181°16.8	196°16.5	211°16.2	226°15.9	241°15.5	256°15.2	91°11.3	106°11.0	121°10.7	136°10.4	151°10.1	166°09.8	-0.3
	-23°15.0	-23°15.1	-23°15.3	-23°15.4	-23°15.5	-23°15.7	-23°17.3	-23°17.4	-23°17.5	-23°17.6	-23°17.7	-23°17.9	-0.1
za 16	181°09.5	196°09.2	211°08.9	226°08.6	241°08.3	256°08.0	91°04.1	106°03.7	121°03.4	136°03.1	151°02.8	166°02.5	-0.3
	-23°18.0	-23°18.1	-23°18.2	-23°18.3	-23°18.4	-23°18.5	-23°19.9	-23°20.0	-23°20.1	-23°20.2	-23°20.3	-23°20.4	-0.1
zo 17	181°02.2	196°01.9	211°01.6	226°01.3	241°01.0	256°00.7	90°56.7	105°56.4	120°56.1	135°55.8	150°55.5	165°55.2	-0.3
	-23°20.5	-23°20.6	-23°20.7	-23°20.7	-23°20.8	-23°20.9	-23°22.0	-23°22.1	-23°22.2	-23°22.3	-23°22.3	-23°22.4	-0.1
ma 18	180°54.9	195°54.6	210°54.3	225°54.0	240°53.7	255°53.4	90°49.4	105°49.1	120°48.7	135°48.4	150°48.1	165°47.8	-0.3
	-23°22.5	-23°22.6	-23°22.6	-23°22.7	-23°22.8	-23°22.9	-23°23.7	-23°23.8	-23°23.8	-23°23.9	-23°23.9	-23°24.0	-0.1
di 19	180°47.5	195°47.2	210°46.9	225°46.6	240°46.3	255°46.0	90°42.0	105°41.7	120°41.3	135°41.0	150°40.7	165°40.4	-0.3
	-23°24.1	-23°24.1	-23°24.2	-23°24.2	-23°24.3	-23°24.3	-23°24.9	-23°25.0	-23°25.0	-23°25.0	-23°25.1	-23°25.1	-0.1
wo 20	180°40.1	195°39.8	210°39.5	225°39.2	240°38.9	255°38.6	90°34.6	105°34.2	120°33.9	135°33.6	150°33.3	165°33.0	-0.3
	-23°25.1	-23°25.2	-23°25.2	-23°25.3	-23°25.3	-23°25.3	-23°25.7	-23°25.7	-23°25.7	-23°25.7	-23°25.7	-23°25.8	-0.0
do 21	180°32.7	195°32.4	210°32.1	225°31.8	240°31.5	255°31.1	90°27.1	105°26.8	120°26.5	135°26.2	150°25.9	165°25.6	-0.3
	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°25.8	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-0.0
vr 22	180°25.3	195°25.0	210°24.6	225°24.3	240°24.0	255°23.7	90°19.7	105°19.4	120°19.1	135°18.8	150°18.5	165°18.1	-0.3
	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.9	-23°25.7	-23°25.7	-23°25.7	-23°25.7	-23°25.6	-23°25.6	+0.0
za 23	180°17.8	195°17.5	210°17.2	225°16.9	240°16.6	255°16.3	90°12.3	105°12.0	120°11.6	135°11.3	150°11.0	165°10.7	-0.3
	-23°25.6	-23°25.6	-23°25.5	-23°25.5	-23°25.5	-23°25.5	-23°25.0	-23°25.0	-23°25.0	-23°24.9	-23°24.9	-23°24.8	+0.0
zo 24	180°10.4	195°10.1	210°09.8	225°09.5	240°09.2	255°08.9	90°04.8	105°04.5	120°04.2	135°03.9	150°03.6	165°03.3	-0.3
	-23°24.8	-23°24.8	-23°24.7	-23°24.7	-23°24.6	-23°24.6	-23°23.9	-23°23.8	-23°23.8	-23°23.7	-23°23.7	-23°23.6	+0.0
ma 25	180°03.0	195°02.7	210°02.4	225°02.1	240°01.8	255°01.4	89°57.4	104°57.1	119°56.8	134°56.5	149°56.2	164°55.9	-0.3
	-23°23.5	-23°23.5	-23°23.4	-23°23.3	-23°23.3	-23°23.2	-23°22.3	-23°22.2	-23°22.1	-23°22.0	-23°22.0	-23°21.9	+0.1
di 26	179°55.6	194°55.3	209°55.0	224°54.7	239°54.4	254°54.0	89°50.1	104°49.7	119°49.4	134°49.1	149°48.8	164°48.5	-0.3
	-23°21.8	-23°21.7	-23°21.6	-23°21.6	-23°21.5	-23°21.4	-23°20.2	-23°20.1	-23°20.0	-23°19.9	-23°19.8	-23°19.7	+0.1
wo 27	179°48.2	194°47.9	209°47.6	224°47.3	239°47.0	254°46.7	89°42.7	104°42.4	119°42.1	134°41.8	149°41.5	164°41.2	-0.3
	-23°19.6	-23°19.5	-23°19.4	-23°19.3	-23°19.2	-23°19.1	-23°17.6	-23°17.5	-23°17.4	-23°17.3	-23°17.2	-23°17.1	+0.1
do 28	179°40.9	194°40.6	209°40.3	224°40.0	239°39.7	254°39.3	89°35.4	104°35.1	119°34.8	134°34.5	149°34.2	164°33.9	-0.3
	-23°16.9	-23°16.8	-23°16.7	-23°16.6	-23°16.4	-23°16.3	-23°14.6	-23°14.5	-23°14.4	-23°14.2	-23°14.1	-23°13.9	+0.1
vr 29	179°33.6	194°33.3	209°33.0	224°32.7	239°32.4	254°32.1	89°28.1	104°27.8	119°27.5	134°27.2	149°26.9	164°26.6	-0.3
	-23°13.8	-23°13.7	-23°13.5	-23°13.4	-23°13.2	-23°13.1	-23°11.1	-23°11.0	-23°10.8	-23°10.7	-23°10.5	-23°10.4	+0.1
za 30	179°26.3	194°26.0	209°25.7	224°25.4	239°25.1	254°24.8	89°20.9	104°20.6	119°20.3	134°20.0	149°19.7	164°19.4	-0.3
	-23°10.2	-23°10.0	-23°09.9	-23°09.7	-23°09.5	-23°09.4	-23°07.2	-23°07.0	-23°06.8	-23°06.7	-23°06.5	-23°06.3	+0.2
zo 31	179°19.1	194°18.8	209°18.5	224°18.2	239°17.9	254°17.6	89°13.8	104°13.5	119°13.2	134°12.9	149°12.6	164°12.3	-0.3
	-23°06.1	-23°05.9	-23°05.8	-23°05.6	-23°05.4	-23°05.2	-23°02.8	-23°02.6	-23°02.4	-23°02.2	-23°02.0	-23°01.8	+0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2034

D	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	Δ'/h	SD/HP
vr 1	60°31.2 11°35.8	75°00.5 11°27.4	89°29.9 11°18.9	103°59.4 11°10.4	118°28.9 11°01.8	132°58.5 10°53.2	147°28.2 10°44.5	161°58.0 10°35.8	176°27.9 10°27.0	190°57.8 10°18.2	205°27.8 10°09.4	+29.7 -8.6	15.7 57.5
◑ za 2	63°06.4 7°52.4	77°37.5 7°43.1	92°08.7 7°33.7	106°39.9 7°24.2	121°11.2 7°14.8	135°42.6 7°05.3	150°14.0 6°55.8	164°45.5 6°46.3	179°17.1 6°36.7	193°48.6 6°27.2	208°20.3 6°17.6	+31.4 -9.5	15.4 56.6
zo 3	66°21.4 3°52.1	80°53.9 3°42.3	95°26.4 3°32.5	109°58.9 3°22.7	124°31.5 3°12.9	139°04.1 3°03.1	153°36.8 2°53.3	168°09.5 2°43.5	182°42.2 2°33.7	197°15.0 2°23.8	211°47.8 2°14.0	+32.6 -9.8	15.2 55.8
ma 4	70°03.9 -0°12.9	84°37.2 -0°22.7	99°10.5 -0°32.4	113°43.9 -0°42.2	128°17.2 -0°51.9	142°50.6 -1°01.6	157°24.0 -1°11.3	171°57.4 -1°21.0	186°30.9 -1°30.6	201°04.3 -1°40.3	215°37.8 -1°49.9	+33.4 -9.7	15.0 55.1
di 5	74°01.5 -4°12.4	88°35.2 -4°21.8	103°08.9 -4°31.1	117°42.5 -4°40.4	132°16.2 -4°49.6	146°49.9 -4°58.9	161°23.5 -5°08.1	175°57.2 -5°17.3	190°30.9 -5°26.4	205°04.6 -5°35.6	219°38.3 -5°44.7	+33.7 -9.2	14.9 54.6
wo 6	78°03.1 -7°57.6	92°36.7 -8°06.1	107°10.3 -8°14.7	121°43.9 -8°23.2	136°17.4 -8°31.7	150°51.0 -8°40.1	165°24.5 -8°48.5	179°58.1 -8°56.9	194°31.6 -9°05.2	209°05.1 -9°13.5	223°38.6 -9°21.7	+33.6 -8.4	14.8 54.2
do 7	81°59.2 -11°20.1	96°32.4 -11°27.6	111°05.6 -11°35.0	125°38.8 -11°42.5	140°12.0 -11°49.8	154°45.1 -11°57.1	169°18.3 -12°04.4	183°51.4 -12°11.6	198°24.5 -12°18.8	212°57.5 -12°25.9	227°30.5 -12°32.9	+33.1 -7.3	14.7 54.0
vr 8	85°43.2 -14°12.0	100°15.9 -14°18.1	114°48.5 -14°24.2	129°21.1 -14°30.2	143°53.6 -14°36.1	158°26.2 -14°42.0	172°58.7 -14°47.8	187°31.2 -14°53.6	202°03.6 -14°59.3	216°36.1 -15°04.9	231°08.5 -15°10.4	+32.5 -5.8	14.7 53.9
za 9	89°11.5 -16°25.6	103°43.5 -16°30.1	118°15.4 -16°34.5	132°47.4 -16°38.8	147°19.3 -16°43.0	161°51.2 -16°47.2	176°23.0 -16°51.2	190°54.9 -16°55.2	205°26.7 -16°59.2	219°58.5 -17°03.0	234°30.2 -17°06.8	+31.9 -4.1	14.7 53.9
● zo 10	92°23.9 -17°54.2	106°55.3 -17°56.7	121°26.7 -17°59.1	135°58.1 -18°01.5	150°29.4 -18°03.8	165°00.7 -18°06.0	179°32.0 -18°08.1	194°03.3 -18°10.1	208°34.6 -18°12.1	223°05.8 -18°13.9	237°37.1 -18°15.7	+31.3 -2.2	14.7 54.0
ma 11	95°23.7 -18°32.2	109°54.7 -18°32.7	124°25.7 -18°33.0	138°56.7 -18°33.2	153°27.6 -18°33.4	167°58.6 -18°33.5	182°29.6 -18°33.5	197°00.5 -18°33.4	211°31.4 -18°33.2	226°02.4 -18°32.9	240°33.3 -18°32.5	+31.0 -0.0	14.8 54.2
di 12	98°16.4 -18°16.7	112°47.2 -18°14.9	127°18.1 -18°13.1	141°48.9 -18°11.2	156°19.7 -18°09.1	170°50.6 -18°07.0	185°21.4 -18°04.9	199°52.3 -18°02.6	214°23.1 -18°00.2	228°54.0 -17°57.8	243°24.8 -17°55.3	+30.8 +2.1	14.8 54.4
wo 13	101°08.0 -17°07.1	115°38.9 -17°03.2	130°09.8 -16°59.3	144°40.8 -16°55.2	159°11.7 -16°51.1	173°42.6 -16°46.9	188°13.6 -16°42.6	202°44.5 -16°38.2	217°15.5 -16°33.8	231°46.5 -16°29.2	246°17.5 -16°24.6	+30.9 +4.3	14.9 54.8
do 14	104°03.2 -15°05.9	118°34.3 -15°00.0	133°05.4 -14°54.1	147°36.6 -14°48.1	162°07.7 -14°42.0	176°38.9 -14°35.9	191°10.0 -14°29.6	205°41.2 -14°23.3	220°12.4 -14°16.9	234°43.6 -14°10.5	249°14.8 -14°04.0	+31.2 +6.2	15.1 55.2
vr 15	107°03.6 -12°17.8	121°34.9 -12°10.2	136°06.2 -12°02.6	150°37.6 -11°54.8	165°08.9 -11°47.0	179°40.2 -11°39.2	194°11.5 -11°31.3	208°42.9 -11°23.3	223°14.2 -11°15.2	237°45.6 -11°07.1	252°16.9 -10°58.9	+31.3 +7.9	15.2 55.8
za 16	121°34.9 -12°10.2	136°06.2 -12°02.6	150°37.6 -11°54.8	165°08.9 -11°47.0	179°40.2 -11°39.2	194°11.5 -11°31.3	208°42.9 -11°23.3	223°14.2 -11°15.2	237°45.6 -11°07.1	252°16.9 -10°58.9	266°48.2 -10°50.7	+31.3 +8.0	15.2 55.8
zo 17	124°38.4 -8°40.6	139°09.7 -8°31.5	153°41.0 -8°22.3	168°12.4 -8°13.1	182°43.7 -8°03.9	197°15.0 -7°54.6	211°46.2 -7°45.2	226°17.5 -7°35.8	240°48.8 -7°26.4	255°20.1 -7°16.9	269°51.3 -7°07.4	+31.3 +9.3	15.4 56.5
◐ ma 18	127°38.6 -4°39.4	142°09.6 -4°29.2	156°40.6 -4°19.0	171°11.6 -4°08.8	185°42.5 -3°58.5	200°13.4 -3°48.2	214°44.4 -3°37.9	229°15.2 -3°27.6	243°46.1 -3°17.2	258°16.9 -3°06.8	272°47.7 -2°56.3	+30.9 +10.3	15.6 57.3
di 19	130°26.2 -0°16.9	144°56.5 -0°06.1	159°26.7 0°04.7	173°56.9 0°15.5	188°27.1 0°26.3	202°57.2 0°37.1	217°27.3 0°48.0	231°57.4 0°58.8	246°27.4 1°09.7	260°57.3 1°20.5	275°27.2 1°31.4	+30.1 +10.8	15.9 58.2
wo 20	132°50.0 4°14.5	147°19.1 4°25.3	161°48.1 4°36.1	176°17.1 4°47.0	190°46.0 4°57.7	205°14.8 5°08.5	219°43.6 5°19.3	234°12.4 5°30.0	248°41.0 5°40.8	263°09.6 5°51.5	277°38.2 6°02.1	+28.8 +10.8	16.1 59.0
do 21	134°38.5 8°39.1	149°05.9 8°49.3	163°33.3 8°59.5	178°00.6 9°09.6	192°27.9 9°19.6	206°55.1 9°29.6	221°22.2 9°39.6	235°49.2 9°49.5	250°16.1 9°59.3	264°43.0 10°09.2	279°09.8 10°18.9	+27.1 +10.0	16.3 59.9
vr 22	135°42.8 12°37.9	150°08.4 12°46.6	164°34.0 12°55.3	178°59.4 13°03.8	193°24.8 13°12.3	207°50.1 13°20.7	222°15.3 13°29.0	236°40.4 13°37.2	251°05.5 13°45.4	265°30.5 13°53.4	279°55.4 14°01.4	+25.3 +8.4	16.5 60.6
za 23	136°01.0 15°49.3	150°24.8 15°55.7	164°48.6 16°01.9	179°12.4 16°08.0	193°36.0 16°14.1	207°59.6 16°20.0	222°23.2 16°25.8	236°46.7 16°31.5	251°10.1 16°37.0	265°33.5 16°42.5	279°56.8 16°47.8	+23.6 +5.9	16.6 61.0
zo 24	135°41.6 17°52.6	150°04.3 17°55.9	164°27.0 17°59.0	178°49.6 18°02.1	193°12.2 18°04.9	207°34.8 18°07.7	221°57.4 18°10.3	236°20.0 18°12.7	250°42.5 18°15.1	265°05.1 18°17.3	279°27.6 18°19.3	+22.6 +2.7	16.7 61.2
○ ma 25	135°05.2 18°33.4	149°27.7 18°33.3	163°50.3 18°33.0	178°12.9 18°32.5	192°35.6 18°31.9	206°58.2 18°31.2	221°20.9 18°30.3	235°43.6 18°29.3	250°06.4 18°28.2	264°29.2 18°26.9	278°52.0 18°25.5	+22.7 -0.8	16.6 61.0
di 26	134°39.3 17°48.3	149°02.9 17°44.8	163°26.5 17°41.2	177°50.2 17°37.4	192°13.9 17°33.6	206°37.8 17°29.6	221°01.6 17°25.4	235°25.6 17°21.2	249°49.6 17°16.9	264°13.7 17°12.4	278°37.9 17°07.8	+23.9 -4.1	16.5 60.4
wo 27	134°49.2 15°45.9	149°14.6 15°39.6	163°40.1 15°33.2	178°05.7 15°26.7	192°31.3 15°20.2	206°57.1 15°13.5	221°22.9 15°06.8	235°48.8 14°59.9	250°14.8 14°53.0	264°40.9 14°46.0	279°07.0 14°38.9	+25.8 -6.7	16.3 59.6
do 28	135°50.0 12°43.2	150°17.6 12°34.9	164°45.2 12°26.6	179°13.0 12°18.2	193°40.8 12°09.7	208°08.7 12°01.2	222°36.7 11°52.6	237°04.8 11°44.0	251°33.0 11°35.3	266°01.3 11°26.5	280°29.6 11°17.7	+28.0 -8.6	16.0 58.7
vr 29	137°44.7 9°00.2	152°14.3 8°50.7	166°44.1 8°41.2	181°13.9 8°31.7	195°43.7 8°22.1	210°13.7 8°12.5	224°43.7 8°02.8	239°13.8 7°53.2	253°44.0 7°43.5	268°14.2 7°33.8	282°44.5 7°24.0	+30.0 -9.6	15.7 57.7
za 30	140°27.2 4°55.5	154°58.5 4°45.5	169°29.9 4°35.5	184°01.4 4°25.4	198°32.9 4°15.4	213°04.5 4°05.3	227°36.1 3°55.3	242°07.8 3°45.2	256°39.5 3°35.2	271°11.3 3°25.1	285°43.2 3°15.0	+31.6 -10.0	15.5 56.7
zo 31	143°46.4 0°44.2	158°19.0 0°34.2	172°51.6 0°24.2	187°24.2 0°14.2	201°56.9 0°04.2	216°29.6 -0°05.7	231°02.3 -0°15.7	245°35.1 -0°25.6	260°07.9 -0°35.5	274°40.7 -0°45.5	289°13.6 -0°55.4	+32.7 -10.0	15.2 55.8

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 2 16h46 — NM: 10 20h14 — EK: 18 17h44 — VM: 25 08h54

ZON

Januari 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	179°12.0	194°11.7	209°11.4	224°11.1	239°10.8	254°10.5	89°06.7	104°06.4	119°06.1	134°05.8	149°05.5	164°05.2	-0.3
	-23°01.6	-23°01.4	-23°01.2	-23°01.0	-23°00.8	-23°00.6	-22°57.9	-22°57.7	-22°57.5	-22°57.3	-22°57.0	-22°56.8	+0.2
di 2	179°04.9	194°04.6	209°04.3	224°04.0	239°03.7	254°03.5	88°59.7	103°59.4	118°59.1	133°58.8	148°58.5	163°58.2	-0.3
	-22°56.6	-22°56.4	-22°56.2	-22°56.0	-22°55.7	-22°55.5	-22°52.6	-22°52.3	-22°52.1	-22°51.9	-22°51.6	-22°51.4	+0.2
wo 3	178°57.9	193°57.6	208°57.4	223°57.1	238°56.8	253°56.5	88°52.7	103°52.5	118°52.2	133°51.9	148°51.6	163°51.3	-0.3
	-22°51.2	-22°50.9	-22°50.7	-22°50.4	-22°50.2	-22°50.0	-22°46.8	-22°46.5	-22°46.3	-22°46.0	-22°45.8	-22°45.5	+0.2
do 4	178°51.0	193°50.7	208°50.5	223°50.2	238°49.9	253°49.6	88°45.9	103°45.6	118°45.4	133°45.1	148°44.8	163°44.5	-0.3
	-22°45.3	-22°45.0	-22°44.7	-22°44.5	-22°44.2	-22°44.0	-22°40.5	-22°40.3	-22°40.0	-22°39.7	-22°39.5	-22°39.2	+0.3
vr 5	178°44.2	193°43.9	208°43.7	223°43.4	238°43.1	253°42.8	88°39.2	103°38.9	118°38.6	133°38.4	148°38.1	163°37.8	-0.3
	-22°38.9	-22°38.6	-22°38.4	-22°38.1	-22°37.8	-22°37.5	-22°33.8	-22°33.6	-22°33.3	-22°33.0	-22°32.7	-22°32.4	+0.3
za 6	178°37.5	193°37.2	208°37.0	223°36.7	238°36.4	253°36.1	88°32.6	103°32.3	118°32.0	133°31.7	148°31.5	163°31.2	-0.3
	-22°32.1	-22°31.8	-22°31.5	-22°31.2	-22°30.9	-22°30.6	-22°26.7	-22°26.4	-22°26.1	-22°25.8	-22°25.5	-22°25.2	+0.3
zo 7	178°30.9	193°30.7	208°30.4	223°30.1	238°29.8	253°29.6	88°26.1	103°25.8	118°25.5	133°25.3	148°25.0	163°24.7	-0.3
	-22°24.9	-22°24.5	-22°24.2	-22°23.9	-22°23.6	-22°23.3	-22°19.1	-22°18.8	-22°18.5	-22°18.2	-22°17.8	-22°17.5	+0.3
ma 8	178°24.5	193°24.2	208°23.9	223°23.7	238°23.4	253°23.1	88°19.7	103°19.4	118°19.2	133°18.9	148°18.6	163°18.4	-0.3
	-22°17.2	-22°16.8	-22°16.5	-22°16.2	-22°15.8	-22°15.5	-22°11.1	-22°10.8	-22°10.4	-22°10.1	-22°09.7	-22°09.4	+0.3
di 9	178°18.1	193°17.8	208°17.6	223°17.3	238°17.1	253°16.8	88°13.4	103°13.2	118°12.9	133°12.7	148°12.4	163°12.1	-0.3
	-22°09.0	-22°08.7	-22°08.3	-22°08.0	-22°07.6	-22°07.3	-22°02.7	-22°02.3	-22°01.9	-22°01.6	-22°01.2	-22°00.8	+0.3
wo 10	178°11.9	193°11.6	208°11.4	223°11.1	238°10.9	253°10.6	88°07.3	103°07.1	118°06.8	133°06.6	148°06.3	163°06.0	-0.3
	-22°00.5	-22°00.1	-21°59.7	-21°59.4	-21°59.0	-21°58.6	-21°53.8	-21°53.4	-21°53.0	-21°52.6	-21°52.3	-21°51.9	+0.4
do 11	178°05.8	193°05.5	208°05.3	223°05.0	238°04.8	253°04.5	88°01.3	103°01.1	118°00.8	133°00.6	148°00.4	163°00.1	-0.3
	-21°51.5	-21°51.1	-21°50.7	-21°50.3	-21°49.9	-21°49.6	-21°44.5	-21°44.1	-21°43.7	-21°43.3	-21°42.9	-21°42.5	+0.4
vr 12	177°59.9	192°59.6	207°59.4	222°59.1	237°58.9	252°58.6	87°55.5	102°55.3	117°55.0	132°54.8	147°54.6	162°54.3	-0.2
	-21°42.1	-21°41.7	-21°41.3	-21°40.9	-21°40.5	-21°40.1	-21°34.7	-21°34.3	-21°33.9	-21°33.5	-21°33.1	-21°32.7	+0.4
za 13	177°54.1	192°53.8	207°53.6	222°53.4	237°53.1	252°52.9	87°49.8	102°49.6	117°49.4	132°49.1	147°48.9	162°48.7	-0.2
	-21°32.2	-21°31.8	-21°31.4	-21°31.0	-21°30.6	-21°30.1	-21°24.6	-21°24.2	-21°23.7	-21°23.3	-21°22.9	-21°22.4	+0.4
zo 14	177°48.5	192°48.2	207°48.0	222°47.8	237°47.5	252°47.3	87°44.3	102°44.1	117°43.9	132°43.7	147°43.4	162°43.2	-0.2
	-21°22.0	-21°21.5	-21°21.1	-21°20.7	-21°20.2	-21°19.8	-21°14.0	-21°13.6	-21°13.1	-21°12.7	-21°12.2	-21°11.8	+0.4
ma 15	177°43.0	192°42.8	207°42.5	222°42.3	237°42.1	252°41.9	87°39.0	102°38.8	117°38.6	132°38.4	147°38.1	162°37.9	-0.2
	-21°11.3	-21°10.9	-21°10.4	-21°10.0	-21°09.5	-21°09.0	-21°03.1	-21°02.6	-21°02.1	-21°01.7	-21°01.2	-21°00.7	+0.5
di 16	177°37.7	192°37.5	207°37.3	222°37.1	237°36.8	252°36.6	87°33.9	102°33.6	117°33.4	132°33.2	147°33.0	162°32.8	-0.2
	-21°00.2	-20°59.8	-20°59.3	-20°58.8	-20°58.4	-20°57.9	-20°51.7	-20°51.2	-20°50.7	-20°50.2	-20°49.7	-20°49.3	+0.5
wo 17	177°32.6	192°32.4	207°32.2	222°32.0	237°31.8	252°31.5	87°28.9	102°28.7	117°28.5	132°28.3	147°28.1	162°27.9	-0.2
	-20°48.8	-20°48.3	-20°47.8	-20°47.3	-20°46.8	-20°46.3	-20°39.9	-20°39.4	-20°38.9	-20°38.4	-20°37.9	-20°37.4	+0.5
do 18	177°27.7	192°27.5	207°27.3	222°27.0	237°26.8	252°26.6	87°24.1	102°23.9	117°23.7	132°23.5	147°23.3	162°23.1	-0.2
	-20°36.9	-20°36.4	-20°35.9	-20°35.4	-20°34.9	-20°34.4	-20°27.7	-20°27.2	-20°26.7	-20°26.2	-20°25.7	-20°25.2	+0.5
vr 19	177°22.9	192°22.7	207°22.5	222°22.3	237°22.1	252°21.9	87°19.5	102°19.3	117°19.1	132°18.9	147°18.7	162°18.5	-0.2
	-20°24.6	-20°24.1	-20°23.6	-20°23.1	-20°22.6	-20°22.0	-20°15.2	-20°14.7	-20°14.1	-20°13.6	-20°13.1	-20°12.5	+0.5
za 20	177°18.3	192°18.2	207°18.0	222°17.8	237°17.6	252°17.4	87°15.0	102°14.9	117°14.7	132°14.5	147°14.3	162°14.1	-0.2
	-20°12.0	-20°11.5	-20°10.9	-20°10.4	-20°09.9	-20°09.3	-20°02.3	-20°01.7	-20°01.2	-20°00.6	-20°00.1	-19°59.5	+0.5
zo 21	177°14.0	192°13.8	207°13.6	222°13.4	237°13.3	252°13.1	87°10.8	102°10.6	117°10.5	132°10.3	147°10.1	162°09.9	-0.2
	-19°59.0	-19°58.4	-19°57.9	-19°57.3	-19°56.8	-19°56.2	-19°49.0	-19°48.4	-19°47.8	-19°47.3	-19°46.7	-19°46.2	+0.6
ma 22	177°09.8	192°09.6	207°09.4	222°09.3	237°09.1	252°08.9	87°06.8	102°06.6	117°06.4	132°06.3	147°06.1	162°05.9	-0.2
	-19°45.6	-19°45.0	-19°44.5	-19°43.9	-19°43.3	-19°42.8	-19°35.3	-19°34.7	-19°34.1	-19°33.6	-19°33.0	-19°32.4	+0.6
di 23	177°05.8	192°05.6	207°05.5	222°05.3	237°05.1	252°05.0	87°02.9	102°02.8	117°02.6	132°02.5	147°02.3	162°02.1	-0.2
	-19°31.8	-19°31.2	-19°30.7	-19°30.1	-19°29.5	-19°28.9	-19°21.3	-19°20.7	-19°20.1	-19°19.5	-19°18.9	-19°18.3	+0.6
wo 24	177°02.0	192°01.8	207°01.7	222°01.5	237°01.4	252°01.2	86°59.3	101°59.1	116°59.0	131°58.8	146°58.7	161°58.5	-0.2
	-19°17.7	-19°17.1	-19°16.5	-19°15.9	-19°15.3	-19°14.7	-19°06.9	-19°06.3	-19°05.7	-19°05.1	-19°04.4	-19°03.8	+0.6
do 25	176°58.4	191°58.2	206°58.1	221°58.0	236°57.8	251°57.7	86°55.8	101°55.7	116°55.5	131°55.4	146°55.3	161°55.1	-0.1
	-19°03.2	-19°02.6	-19°02.0	-19°01.4	-19°00.8	-19°00.2	-18°52.1	-18°51.5	-18°50.9	-18°50.3	-18°49.6	-18°49.0	+0.6
vr 26	176°55.0	191°54.8	206°54.7	221°54.6	236°54.4	251°54.3	86°52.6	101°52.4	116°52.3	131°52.2	146°52.0	161°51.9	-0.1
	-18°48.4	-18°47.8	-18°47.1	-18°46.5	-18°45.9	-18°45.3	-18°37.1	-18°36.4	-18°35.8	-18°35.1	-18°34.5	-18°33.9	+0.6
za 27	176°51.8	191°51.6	206°51.5	221°51.4	236°51.3	251°51.1	86°49.5	101°49.4	116°49.3	131°49.1	146°49.0	161°48.9	-0.1
	-18°33.2	-18°32.6	-18°31.9	-18°31.3	-18°30.7	-18°30.0	-18°21.6	-18°21.0	-18°20.3	-18°19.7	-18°19.0	-18°18.4	+0.6
zo 28	176°48.8	191°48.6	206°48.5	221°48.4	236°48.3	251°48.2	86°46.6	101°46.5	116°46.4	131°46.3	146°46.2	161°46.1	-0.1
	-18°17.7	-18°17.1	-18°16.4	-18°15.8	-18°15.1	-18°14.4	-18°05.9	-18°05.2	-18°04.5	-18°03.9	-18°03.2	-18°02.5	+0.7
ma 29	176°46.0	191°45.8	206°45.7	221°45.6	236°45.5	251°45.4	86°44.0	101°43.9	116°43.8	131°43.7	146°43.6	161°43.4	-0.1
	-18°01.9	-18°01.2	-18°00.5	-17°59.9	-17°59.2	-17°58.5	-17°49.8	-17°49.1	-17°48.4	-17°47.7	-17°47.1	-17°46.4	+0.7
di 30	176°43.3	191°43.2	206°43.1	221°43.0	236°42.9	251°42.8	86°41.5	101°41.4	116°41.3	131°41.2	146°41.1	161°41.0	-0.1
	-17°45.7	-17°45.0	-17°44.3	-17°43.7	-17°43.0	-17°42.3	-17°33.4	-17°32.7	-17°32.0	-17°31.3	-17°30.6	-17°29.9	+0.7
wo 31	176°40.9	191°40.8	206°40.7	221°40.6	236°40.5	251°40.5	86°39.2	101°39.2	116°39.1	131°39.0	146°38.9	161°38.8	-0.1
	-17°29.2	-17°28.5	-17°27.8	-17°27.1	-17°26.5	-17°25.8	-17°16.7	-17°16.0	-17°15.3	-17°14.5	-17°13.8	-17°13.1	+0.7

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.3'

MAAN

Januari 2035

	D	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
◑	ma 1	60°10.6	74°43.7	89°16.9	103°50.0	118°23.2	132°56.4	147°29.7	162°02.9	176°36.2	191°09.5	205°42.8	+33.2	15.1
		-2°23.7	-2°33.4	-2°43.1	-2°52.8	-3°02.5	-3°12.1	-3°21.7	-3°31.3	-3°40.9	-3°50.4	-3°59.9	-9.6	55.3
	di 2	64°03.7	78°37.2	93°10.6	107°44.1	122°17.6	136°51.1	151°24.5	165°58.0	180°31.5	195°04.9	209°38.4	+33.5	14.9
		-6°19.3	-6°28.3	-6°37.3	-6°46.3	-6°55.2	-7°04.1	-7°13.0	-7°21.8	-7°30.6	-7°39.4	-7°48.1	-8.9	54.7
	wo 3	67°59.9	82°33.3	97°06.6	111°40.0	126°13.3	140°46.6	155°19.9	169°53.2	184°26.5	198°59.7	213°33.0	+33.3	14.8
		-9°54.0	-10°02.1	-10°10.1	-10°18.0	-10°26.0	-10°33.8	-10°41.6	-10°49.4	-10°57.1	-11°04.8	-11°12.4	-7.8	54.3
	do 4	71°49.6	86°22.6	100°55.5	115°28.4	130°01.3	144°34.1	159°07.0	173°39.8	188°12.6	202°45.3	217°18.1	+32.8	14.7
		-13°00.6	-13°07.3	-13°14.1	-13°20.7	-13°27.3	-13°33.9	-13°40.3	-13°46.8	-13°53.1	-13°59.4	-14°05.7	-6.5	54.0
	vr 5	75°26.1	89°58.4	104°30.7	119°03.0	133°35.3	148°07.5	162°39.7	177°11.8	191°44.0	206°16.1	220°48.1	+32.2	14.7
		-15°31.8	-15°37.0	-15°42.1	-15°47.2	-15°52.2	-15°57.2	-16°02.0	-16°06.8	-16°11.6	-16°16.2	-16°20.8	-4.9	54.0
	za 6	78°46.0	93°17.7	107°49.3	122°20.9	136°52.4	151°24.0	165°55.5	180°26.9	194°58.4	209°29.8	224°01.3	+31.5	14.7
		-17°20.9	-17°24.2	-17°27.6	-17°30.8	-17°34.0	-17°37.1	-17°40.1	-17°43.0	-17°45.8	-17°48.6	-17°51.3	-3.0	54.0
	zo 7	81°49.6	96°20.6	110°51.6	125°22.6	139°53.6	154°24.6	168°55.5	183°26.5	197°57.4	212°28.3	226°59.1	+31.0	14.8
		-18°21.7	-18°23.0	-18°24.3	-18°25.5	-18°26.6	-18°27.6	-18°28.5	-18°29.4	-18°30.1	-18°30.8	-18°31.4	-1.0	54.2
	ma 8	84°40.5	99°11.2	113°41.8	128°12.5	142°43.1	157°13.7	171°44.4	186°15.0	200°45.6	215°16.2	229°46.7	+30.6	14.9
		-18°29.7	-18°28.8	-18°27.9	-18°26.9	-18°25.8	-18°24.7	-18°23.4	-18°22.1	-18°20.6	-18°19.1	-18°17.5	+1.2	54.5
●	di 9	87°25.1	101°55.6	116°26.2	130°56.7	145°27.3	159°57.8	174°28.4	188°58.9	203°29.5	218°00.1	232°30.6	+30.6	15.0
		-17°42.6	-17°39.6	-17°36.5	-17°33.3	-17°30.0	-17°26.6	-17°23.2	-17°19.6	-17°16.0	-17°12.3	-17°08.5	+3.4	54.8
	wo 10	90°09.8	104°40.5	119°11.2	133°41.8	148°12.5	162°43.3	177°14.0	191°44.7	206°15.4	220°46.2	235°16.9	+30.7	15.1
		-16°01.4	-15°56.3	-15°51.1	-15°45.8	-15°40.5	-15°35.0	-15°29.5	-15°23.9	-15°18.2	-15°12.4	-15°06.6	+5.5	55.2
	do 11	92°59.6	107°30.6	122°01.5	136°32.5	151°03.4	165°34.4	180°05.4	194°36.4	209°07.4	223°38.4	238°09.5	+31.0	15.2
		-13°30.1	-13°23.1	-13°16.0	-13°08.9	-13°01.7	-12°54.4	-12°47.1	-12°39.7	-12°32.2	-12°24.6	-12°17.0	+7.3	55.7
	vr 12	95°56.2	110°27.4	124°58.5	139°29.7	154°00.9	168°32.2	183°03.4	197°34.6	212°05.8	226°37.1	241°08.3	+31.2	15.3
		-10°15.5	-10°06.9	-9°58.3	-9°49.7	-9°40.9	-9°32.1	-9°23.3	-9°14.4	-9°05.5	-8°56.5	-8°47.5	+8.8	56.2
	za 13	98°57.1	113°28.4	127°59.6	142°30.9	157°02.1	171°33.4	186°04.6	200°35.8	215°07.1	229°38.3	244°09.5	+31.2	15.5
		-6°26.5	-6°16.8	-6°07.0	-5°57.2	-5°47.4	-5°37.5	-5°27.6	-5°17.7	-5°07.7	-4°57.7	-4°47.6	+9.9	56.7
	zo 14	101°56.4	116°27.4	130°58.4	145°29.4	160°00.4	174°31.3	189°02.2	203°33.1	218°04.0	232°34.9	247°05.7	+30.9	15.6
		-2°13.8	-2°03.3	-1°52.9	-1°42.4	-1°31.9	-1°21.4	-1°10.9	-1°00.4	-0°49.8	-0°39.2	-0°28.7	+10.5	57.3
	ma 15	116°27.4	130°58.4	145°29.4	160°00.4	174°31.3	189°02.2	203°33.1	218°04.0	232°34.9	247°05.7	261°36.5	+30.9	15.6
		-2°03.3	-1°52.9	-1°42.4	-1°31.9	-1°21.4	-1°10.9	-1°00.4	-0°49.8	-0°39.2	-0°28.7	-0°18.1	+10.5	57.4
	di 16	119°15.3	133°45.7	148°16.0	162°46.2	177°16.5	191°46.6	206°16.8	220°46.9	235°17.0	249°47.0	264°17.0	+30.2	15.8
		2°21.4	2°32.0	2°42.7	2°53.3	3°03.9	3°14.5	3°25.1	3°35.7	3°46.3	3°56.9	4°07.5	+10.6	58.0
◐	wo 17	121°41.3	136°10.6	150°39.8	165°08.9	179°37.9	194°07.0	208°35.9	223°04.8	237°33.7	252°02.5	266°31.2	+29.0	16.0
		6°43.8	6°54.0	7°04.2	7°14.4	7°24.5	7°34.6	7°44.7	7°54.7	8°04.7	8°14.7	8°24.6	+10.1	58.6
	do 18	123°34.9	138°02.7	152°30.4	166°58.0	181°25.5	195°53.0	210°20.4	224°47.8	239°15.1	253°42.3	268°09.5	+27.5	16.2
		10°48.2	10°57.4	11°06.5	11°15.5	11°24.5	11°33.4	11°42.3	11°51.1	11°59.8	12°08.5	12°17.1	+8.9	59.2
	vr 19	124°48.6	139°14.7	153°40.7	168°06.7	182°32.5	196°58.3	211°24.1	225°49.8	240°15.4	254°40.9	269°06.4	+25.8	16.3
		14°17.2	14°24.5	14°31.8	14°39.0	14°46.1	14°53.1	15°00.0	15°06.8	15°13.6	15°20.2	15°26.7	+7.0	59.8
	za 20	125°21.4	139°46.0	154°10.5	168°34.9	182°59.3	197°23.7	211°47.9	226°12.2	240°36.4	255°00.6	269°24.7	+24.3	16.4
		16°52.4	16°57.2	17°01.9	17°06.5	17°11.0	17°15.4	17°19.7	17°23.8	17°27.9	17°31.8	17°35.5	+4.3	60.2
	zo 21	125°22.0	139°45.5	154°09.1	168°32.6	182°56.2	197°19.7	211°43.2	226°06.7	240°30.1	254°53.6	269°17.0	+23.5	16.5
		18°17.3	18°19.1	18°20.7	18°22.2	18°23.6	18°24.8	18°26.0	18°26.9	18°27.8	18°28.5	18°29.1	+1.2	60.4
	ma 22	125°08.7	139°32.3	153°55.8	168°19.3	182°42.9	197°06.5	211°30.1	225°53.8	240°17.5	254°41.2	269°04.9	+23.6	16.4
		18°21.8	18°20.2	18°18.5	18°16.7	18°14.8	18°12.7	18°10.5	18°08.2	18°05.7	18°03.2	18°00.5	-2.1	60.3
○	di 23	125°05.5	139°29.9	153°54.4	168°18.9	182°43.5	197°08.1	211°32.8	225°57.5	240°22.3	254°47.2	269°12.1	+24.7	16.4
		17°04.9	17°00.3	16°55.5	16°50.6	16°45.6	16°40.5	16°35.3	16°29.9	16°24.5	16°18.9	16°13.3	-5.2	60.0
	wo 24	125°33.7	139°59.7	154°25.8	168°51.9	183°18.1	197°44.4	212°10.8	226°37.2	241°03.7	255°30.3	269°57.0	+26.3	16.2
		14°36.4	14°29.2	14°21.9	14°14.5	14°07.1	13°59.5	13°51.9	13°44.2	13°36.4	13°28.5	13°20.6	-7.6	59.4
	do 25	126°46.0	141°13.9	155°41.9	170°09.9	184°38.0	199°06.2	213°34.4	228°02.8	242°31.2	256°59.7	271°28.2	+28.2	16.0
		11°13.2	11°04.2	10°55.1	10°46.0	10°36.9	10°27.7	10°18.4	10°09.1	9°59.8	9°50.4	9°41.0	-9.2	58.6
	vr 26	128°45.2	143°14.9	157°44.6	172°14.4	186°44.3	201°14.3	215°44.3	230°14.4	244°44.5	259°14.7	273°45.0	+30.0	15.8
		7°14.9	7°04.9	6°54.9	6°44.9	6°34.8	6°24.7	6°14.6	6°04.5	5°54.4	5°44.2	5°34.1	-10.1	57.8
	za 27	131°26.0	145°57.2	160°28.4	174°59.7	189°31.0	204°02.4	218°33.8	233°05.3	247°36.8	262°08.4	276°40.0	+31.4	15.5
		3°00.2	2°49.9	2°39.6	2°29.3	2°19.0	2°08.8	1°58.5	1°48.2	1°37.9	1°27.6	1°17.4	-10.3	56.9
	zo 28	134°39.1	149°11.3	163°43.6	178°15.9	192°48.2	207°20.6	221°53.0	236°25.4	250°57.9	265°30.3	280°02.9	+32.4	15.3
		-1°15.3	-1°25.4	-1°35.4	-1°45.4	-1°55.4	-2°05.4	-2°15.3	-2°25.3	-2°35.2	-2°45.1	-2°54.9	-10.0	56.0
	ma 29	138°13.2	152°46.1	167°18.9	181°51.8	196°24.7	210°57.6	225°30.5	240°03.4	254°36.4	269°09.3	283°42.3	+32.9	15.1
		-5°19.5	-5°28.9	-5°38.3	-5°47.6	-5°56.9	-6°06.1	-6°15.3	-6°24.5	-6°33.7	-6°42.8	-6°51.8	-9.2	55.3
	di 30	141°57.4	156°30.4	171°03.5	185°36.5	200°09.5	214°42.6	229°15.6	243°48.6	258°21.6	272°54.6	287°27.6	+33.0	14.9
		-9°02.9	-9°11.3	-9°19.7	-9°27.9	-9°36.2	-9°44.4	-9°52.6	-10°00.7	-10°08.7	-10°16.7	-10°24.7	-8.2	54.7
◑	wo 31	145°41.8	160°14.6	174°47.5	189°20.3	203°53.1	218°25.9	232°58.7	247°31.5	262°04.3	276°37.0	291°09.7	+32.8	14.8
		-12°17.8	-12°24.9	-12°32.0	-12°38.9	-12°45.9	-12°52.8	-12°59.6	-13°06.3	-13°13.0	-13°19.7	-13°26.3	-6.8	54.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 1 10h01 — NM: 9 15h03 — EK: 17 04h45 — VM: 23 20h16 — LK: 31 06h02

ZON

Februari 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	176°38.7	191°38.6	206°38.5	221°38.5	236°38.4	251°38.3	86°37.2	101°37.1	116°37.0	131°36.9	146°36.9	161°36.8	-0.1
	-17°12.4	-17°11.7	-17°11.0	-17°10.3	-17°09.6	-17°08.9	-16°59.6	-16°58.9	-16°58.2	-16°57.5	-16°56.8	-16°56.1	+0.7
vr 2	176°36.7	191°36.6	206°36.5	221°36.5	236°36.4	251°36.3	86°35.3	101°35.2	116°35.2	131°35.1	146°35.0	161°35.0	-0.1
	-16°55.3	-16°54.6	-16°53.9	-16°53.2	-16°52.5	-16°51.7	-16°42.3	-16°41.6	-16°40.9	-16°40.1	-16°39.4	-16°38.7	+0.7
za 3	176°34.9	191°34.8	206°34.7	221°34.7	236°34.6	251°34.5	86°33.6	101°33.6	116°33.5	131°33.5	146°33.4	161°33.3	-0.1
	-16°37.9	-16°37.2	-16°36.5	-16°35.7	-16°35.0	-16°34.3	-16°24.7	-16°24.0	-16°23.2	-16°22.5	-16°21.7	-16°21.0	+0.7
zo 4	176°33.3	191°33.2	206°33.1	221°33.1	236°33.0	251°33.0	86°32.2	101°32.1	116°32.1	131°32.0	146°32.0	161°31.9	-0.1
	-16°20.2	-16°19.5	-16°18.8	-16°18.0	-16°17.3	-16°16.5	-16°06.8	-16°06.0	-16°05.3	-16°04.5	-16°03.8	-16°03.0	+0.7
ma 5	176°31.8	191°31.8	206°31.7	221°31.7	236°31.6	251°31.6	86°30.9	101°30.9	116°30.8	131°30.8	146°30.7	161°30.7	-0.1
	-16°02.3	-16°01.5	-16°00.8	-16°00.0	-15°59.3	-15°58.5	-15°48.6	-15°47.9	-15°47.1	-15°46.3	-15°45.6	-15°44.8	+0.8
di 6	176°30.6	191°30.6	206°30.5	221°30.5	236°30.4	251°30.4	86°29.8	101°29.8	116°29.8	131°29.7	146°29.7	161°29.6	-0.0
	-15°44.0	-15°43.3	-15°42.5	-15°41.7	-15°41.0	-15°40.2	-15°30.2	-15°29.4	-15°28.6	-15°27.8	-15°27.1	-15°26.3	+0.8
wo 7	176°29.6	191°29.6	206°29.5	221°29.5	236°29.5	251°29.4	86°29.0	101°28.9	116°28.9	131°28.9	146°28.8	161°28.8	-0.0
	-15°25.5	-15°24.7	-15°24.0	-15°23.2	-15°22.4	-15°21.6	-15°11.4	-15°10.7	-15°09.9	-15°09.1	-15°08.3	-15°07.5	+0.8
do 8	176°28.8	191°28.8	206°28.7	221°28.7	236°28.7	251°28.6	86°28.3	101°28.3	116°28.2	131°28.2	146°28.2	161°28.2	-0.0
	-15°06.7	-15°05.9	-15°05.2	-15°04.4	-15°03.6	-15°02.8	-14°52.5	-14°51.7	-14°50.9	-14°50.1	-14°49.3	-14°48.5	+0.8
vr 9	176°28.2	191°28.1	206°28.1	221°28.1	236°28.1	251°28.1	86°27.8	101°27.8	116°27.8	131°27.8	146°27.8	161°27.7	-0.0
	-14°47.7	-14°46.9	-14°46.1	-14°45.3	-14°44.5	-14°43.7	-14°33.2	-14°32.4	-14°31.6	-14°30.8	-14°30.0	-14°29.2	+0.8
za 10	176°27.7	191°27.7	206°27.7	221°27.7	236°27.7	251°27.7	86°27.5	101°27.5	116°27.5	131°27.5	146°27.5	161°27.5	-0.0
	-14°28.4	-14°27.6	-14°26.8	-14°26.0	-14°25.2	-14°24.4	-14°13.8	-14°13.0	-14°12.1	-14°11.3	-14°10.5	-14°09.7	+0.8
zo 11	176°27.5	191°27.5	206°27.5	221°27.5	236°27.5	251°27.5	86°27.5	101°27.5	116°27.5	131°27.5	146°27.5	161°27.5	-0.0
	-14°08.9	-14°08.1	-14°07.2	-14°06.4	-14°05.6	-14°04.8	-13°54.1	-13°53.3	-13°52.4	-13°51.6	-13°50.8	-13°49.9	+0.8
ma 12	176°27.5	191°27.5	206°27.5	221°27.5	236°27.5	251°27.5	86°27.6	101°27.6	116°27.6	131°27.6	146°27.6	161°27.6	+0.0
	-13°49.1	-13°48.3	-13°47.5	-13°46.6	-13°45.8	-13°45.0	-13°34.1	-13°33.3	-13°32.5	-13°31.6	-13°30.8	-13°30.0	+0.8
di 13	176°27.6	191°27.6	206°27.6	221°27.7	236°27.7	251°27.7	86°27.9	101°27.9	116°27.9	131°27.9	146°27.9	161°27.9	+0.0
	-13°29.1	-13°28.3	-13°27.5	-13°26.6	-13°25.8	-13°24.9	-13°14.0	-13°13.1	-13°12.3	-13°11.5	-13°10.6	-13°09.8	+0.8
wo 14	176°28.0	191°28.0	206°28.0	221°28.0	236°28.0	251°28.1	86°28.4	101°28.4	116°28.4	131°28.4	146°28.5	161°28.5	+0.0
	-13°08.9	-13°08.1	-13°07.2	-13°06.4	-13°05.5	-13°04.7	-12°53.6	-12°52.8	-12°51.9	-12°51.1	-12°50.2	-12°49.3	+0.8
do 15	176°28.5	191°28.5	206°28.6	221°28.6	236°28.6	251°28.6	86°29.0	101°29.1	116°29.1	131°29.1	146°29.2	161°29.2	+0.0
	-12°48.5	-12°47.6	-12°46.8	-12°45.9	-12°45.1	-12°44.2	-12°33.0	-12°32.2	-12°31.3	-12°30.5	-12°29.6	-12°28.7	+0.9
vr 16	176°29.2	191°29.3	206°29.3	221°29.3	236°29.4	251°29.4	86°29.9	101°29.9	116°30.0	131°30.0	146°30.1	161°30.1	+0.0
	-12°27.9	-12°27.0	-12°26.1	-12°25.3	-12°24.4	-12°23.5	-12°12.3	-12°11.4	-12°10.5	-12°09.7	-12°08.8	-12°07.9	+0.9
za 17	176°30.1	191°30.2	206°30.2	221°30.3	236°30.3	251°30.3	86°30.9	101°31.0	116°31.0	131°31.1	146°31.1	161°31.2	+0.0
	-12°07.0	-12°06.2	-12°05.3	-12°04.4	-12°03.5	-12°02.7	-11°51.3	-11°50.4	-11°49.5	-11°48.7	-11°47.8	-11°46.9	+0.9
zo 18	176°31.2	191°31.3	206°31.3	221°31.4	236°31.4	251°31.5	86°32.2	101°32.2	116°32.3	131°32.3	146°32.4	161°32.4	+0.0
	-11°46.0	-11°45.1	-11°44.3	-11°43.4	-11°42.5	-11°41.6	-11°30.1	-11°29.2	-11°28.4	-11°27.5	-11°26.6	-11°25.7	+0.9
ma 19	176°32.5	191°32.5	206°32.6	221°32.7	236°32.7	251°32.8	86°33.6	101°33.6	116°33.7	131°33.7	146°33.8	161°33.9	+0.1
	-11°24.8	-11°23.9	-11°23.0	-11°22.1	-11°21.3	-11°20.4	-11°08.8	-11°07.9	-11°07.0	-11°06.1	-11°05.2	-11°04.3	+0.9
di 20	176°33.9	191°34.0	206°34.1	221°34.1	236°34.2	251°34.3	86°35.1	101°35.2	116°35.3	131°35.3	146°35.4	161°35.5	+0.1
	-11°03.4	-11°02.5	-11°01.6	-11°00.7	-10°59.8	-10°59.0	-10°47.3	-10°46.4	-10°45.5	-10°44.6	-10°43.7	-10°42.8	+0.9
wo 21	176°35.5	191°35.6	206°35.7	221°35.7	236°35.8	251°35.9	86°36.8	101°36.9	116°37.0	131°37.1	146°37.2	161°37.2	+0.1
	-10°41.9	-10°41.0	-10°40.1	-10°39.2	-10°38.3	-10°37.4	-10°25.6	-10°24.7	-10°23.8	-10°22.9	-10°22.0	-10°21.1	+0.9
do 22	176°37.3	191°37.4	206°37.5	221°37.5	236°37.6	251°37.7	86°38.7	101°38.8	116°38.9	131°39.0	146°39.1	161°39.2	+0.1
	-10°20.2	-10°19.2	-10°18.3	-10°17.4	-10°16.5	-10°15.6	-10°03.8	-10°02.8	-10°01.9	-10°01.0	-10°00.1	-9°59.2	+0.9
vr 23	176°39.2	191°39.3	206°39.4	221°39.5	236°39.6	251°39.7	86°40.8	101°40.9	116°41.0	131°41.0	146°41.1	161°41.2	+0.1
	-9°58.3	-9°57.4	-9°56.4	-9°55.5	-9°54.6	-9°53.7	-9°41.8	-9°40.8	-9°39.9	-9°39.0	-9°38.1	-9°37.2	+0.9
za 24	176°41.3	191°41.4	206°41.5	221°41.6	236°41.7	251°41.8	86°43.0	101°43.1	116°43.2	131°43.3	146°43.4	161°43.4	+0.1
	-9°36.2	-9°35.3	-9°34.4	-9°33.5	-9°32.6	-9°31.6	-9°19.6	-9°18.7	-9°17.8	-9°16.8	-9°15.9	-9°15.0	+0.9
zo 25	176°43.5	191°43.6	206°43.7	221°43.8	236°43.9	251°44.0	86°45.3	101°45.4	116°45.5	131°45.6	146°45.7	161°45.8	+0.1
	-9°14.1	-9°13.1	-9°12.2	-9°11.3	-9°10.4	-9°09.4	-8°57.3	-8°56.4	-8°55.5	-8°54.5	-8°53.6	-8°52.7	+0.9
ma 26	176°45.9	191°46.0	206°46.1	221°46.2	236°46.3	251°46.4	86°47.8	101°47.9	116°48.0	131°48.1	146°48.2	161°48.3	+0.1
	-8°51.8	-8°50.8	-8°49.9	-8°49.0	-8°48.0	-8°47.1	-8°34.9	-8°34.0	-8°33.1	-8°32.1	-8°31.2	-8°30.2	+0.9
di 27	176°48.4	191°48.5	206°48.6	221°48.8	236°48.9	251°49.0	86°50.4	101°50.5	116°50.6	131°50.7	146°50.8	161°51.0	+0.1
	-8°29.3	-8°28.4	-8°27.4	-8°26.5	-8°25.5	-8°24.6	-8°12.4	-8°11.4	-8°10.5	-8°09.6	-8°08.6	-8°07.7	+0.9
wo 28	176°51.1	191°51.2	206°51.3	221°51.4	236°51.5	251°51.6	86°53.1	101°53.3	116°53.4	131°53.5	146°53.6	161°53.7	+0.1
	-8°06.7	-8°05.8	-8°04.8	-8°03.9	-8°02.9	-8°02.0	-7°49.7	-7°48.8	-7°47.8	-7°46.9	-7°45.9	-7°45.0	+0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

Februari 2035

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
do 1	76°36.0	91°08.6	105°41.1	120°13.6	134°46.0	149°18.5	163°50.9	178°23.3	192°55.7	207°28.0	222°00.4	+32.4	14.8
	-14°28.7	-14°34.6	-14°40.4	-14°46.1	-14°51.8	-14°57.5	-15°03.0	-15°08.5	-15°14.0	-15°19.3	-15°24.6	-5.6	54.1
vr 2	80°02.6	94°34.6	109°06.5	123°38.4	138°10.3	152°42.2	167°14.0	181°45.8	196°17.6	210°49.4	225°21.1	+31.8	14.7
	-16°35.7	-16°39.9	-16°43.9	-16°48.0	-16°51.9	-16°55.8	-16°59.6	-17°03.3	-17°06.9	-17°10.5	-17°13.9	-3.8	54.1
za 3	83°14.2	97°45.6	112°16.9	126°48.2	141°19.5	155°50.7	170°22.0	184°53.2	199°24.4	213°55.5	228°26.7	+31.2	14.8
	-17°56.8	-17°59.0	-18°01.1	-18°03.2	-18°05.2	-18°07.0	-18°08.8	-18°10.6	-18°12.2	-18°13.8	-18°15.2	-1.8	54.2
zo 4	86°11.3	100°42.1	115°12.9	129°43.7	144°14.5	158°45.2	173°15.9	187°46.6	202°17.3	216°48.0	231°18.7	+30.7	14.9
	-18°27.0	-18°27.1	-18°27.1	-18°27.0	-18°26.9	-18°26.6	-18°26.3	-18°25.9	-18°25.3	-18°24.7	-18°24.0	+0.3	54.5
ma 5	88°57.1	103°27.6	117°58.1	132°28.5	146°59.0	161°29.4	175°59.8	190°30.3	205°00.7	219°31.1	234°01.5	+30.4	15.0
	-18°03.0	-18°00.9	-17°58.7	-17°56.4	-17°54.0	-17°51.5	-17°49.0	-17°46.3	-17°43.6	-17°40.8	-17°37.8	+2.5	54.9
di 6	91°37.0	106°07.3	120°37.7	135°08.0	149°38.4	164°08.7	178°39.1	193°09.4	207°39.8	222°10.1	236°40.5	+30.3	15.1
	-16°43.6	-16°39.3	-16°34.9	-16°30.4	-16°25.9	-16°21.2	-16°16.5	-16°11.7	-16°06.8	-16°01.8	-15°56.7	+4.7	55.3
wo 7	94°16.2	108°46.6	123°17.0	137°47.4	152°17.9	166°48.3	181°18.7	195°49.2	210°19.6	224°50.1	239°20.6	+30.4	15.2
	-14°30.9	-14°24.6	-14°18.2	-14°11.7	-14°05.1	-13°58.4	-13°51.7	-13°44.9	-13°38.0	-13°31.0	-13°24.0	+6.7	55.9
● do 8	96°58.3	111°28.9	125°59.5	140°30.1	155°00.7	169°31.3	184°01.9	198°32.5	213°03.1	227°33.7	242°04.3	+30.6	15.4
	-11°30.2	-11°22.1	-11°13.9	-11°05.7	-10°57.4	-10°49.0	-10°40.6	-10°32.1	-10°23.6	-10°15.0	-10°06.3	+8.4	56.4
vr 9	99°44.2	114°14.9	128°45.6	143°16.3	157°47.0	172°17.7	186°48.4	201°19.1	215°49.8	230°20.5	244°51.2	+30.7	15.5
	-7°49.9	-7°40.4	-7°30.9	-7°21.3	-7°11.7	-7°02.0	-6°52.3	-6°42.6	-6°32.8	-6°23.0	-6°13.1	+9.7	56.9
za 10	102°31.2	117°01.8	131°32.5	146°03.1	160°33.7	175°04.3	189°34.9	204°05.4	218°36.0	233°06.5	247°37.1	+30.6	15.7
	-3°41.0	-3°30.6	-3°20.2	-3°09.8	-2°59.4	-2°48.9	-2°38.4	-2°27.9	-2°17.4	-2°06.9	-1°56.3	+10.5	57.4
zo 11	105°13.5	119°43.8	134°14.1	148°44.3	163°14.5	177°44.8	192°14.9	206°45.1	221°15.2	235°45.3	250°15.4	+30.2	15.8
	0°43.4	0°54.1	1°04.8	1°15.5	1°26.2	1°36.9	1°47.6	1°58.3	2°09.0	2°19.7	2°30.4	+10.7	57.9
ma 12	107°43.3	122°12.9	136°42.5	151°12.1	165°41.6	180°11.0	194°40.5	209°09.9	223°39.2	238°08.6	252°37.8	+29.5	15.9
	5°08.9	5°19.4	5°29.8	5°40.1	5°50.5	6°00.8	6°11.1	6°21.4	6°31.6	6°41.8	6°52.0	+10.3	58.3
di 13	122°12.9	136°42.5	151°12.1	165°41.6	180°11.0	194°40.5	209°09.9	223°39.2	238°08.6	252°37.8	267°07.1	+29.4	15.9
	5°19.4	5°29.8	5°40.1	5°50.5	6°00.8	6°11.1	6°21.4	6°31.6	6°41.8	6°52.0	7°02.1	+10.3	58.3
wo 14	124°20.8	138°49.3	153°17.8	167°46.3	182°14.7	196°43.1	211°11.4	225°39.7	240°07.9	254°36.1	269°04.2	+28.3	16.0
	9°29.5	9°38.9	9°48.3	9°57.7	10°07.0	10°16.2	10°25.4	10°34.6	10°43.6	10°52.6	11°01.6	+9.2	58.7
◐ do 15	126°00.2	140°27.5	154°54.8	169°22.0	183°49.2	198°16.3	212°43.4	227°10.4	241°37.4	256°04.3	270°31.1	+27.1	16.1
	13°08.1	13°16.0	13°23.8	13°31.5	13°39.1	13°46.6	13°54.1	14°01.5	14°08.8	14°16.0	14°23.1	+7.5	59.0
vr 16	127°08.1	141°34.2	156°00.2	170°26.2	184°52.2	199°18.1	213°43.9	228°09.7	242°35.5	257°01.2	271°26.9	+25.9	16.2
	15°59.2	16°04.8	16°10.4	16°15.8	16°21.2	16°26.4	16°31.5	16°36.5	16°41.4	16°46.3	16°51.0	+5.2	59.3
za 17	127°47.7	142°12.8	156°37.9	171°03.0	185°28.0	199°53.0	214°18.0	228°43.0	243°07.9	257°32.9	271°57.8	+25.0	16.2
	17°48.2	17°51.1	17°53.8	17°56.5	17°59.0	18°01.5	18°03.8	18°05.9	18°08.0	18°10.0	18°11.8	+2.4	59.4
zo 18	128°09.6	142°34.3	156°59.1	171°23.8	185°48.5	200°13.3	214°38.0	229°02.7	243°27.5	257°52.2	272°17.0	+24.7	16.2
	18°24.4	18°24.2	18°24.0	18°23.6	18°23.0	18°22.4	18°21.6	18°20.7	18°19.7	18°18.6	18°17.3	-0.7	59.5
ma 19	128°30.2	142°55.3	157°20.3	171°45.4	186°10.6	200°35.7	215°00.9	229°26.2	243°51.4	258°16.7	272°42.1	+25.2	16.2
	17°43.8	17°40.6	17°37.3	17°33.8	17°30.3	17°26.6	17°22.9	17°19.0	17°15.0	17°10.8	17°06.6	-3.7	59.4
di 20	129°07.0	143°33.1	157°59.1	172°25.3	186°51.4	201°17.7	215°44.0	230°10.3	244°36.7	259°03.1	273°29.6	+26.3	16.1
	15°50.2	15°44.3	15°38.3	15°32.2	15°26.0	15°19.7	15°13.3	15°06.8	15°00.2	14°53.5	14°46.7	-6.4	59.1
wo 21	130°13.8	144°41.2	159°08.7	173°36.2	188°03.8	202°31.4	216°59.1	231°26.9	245°54.7	260°22.6	274°50.6	+27.7	16.0
	12°55.1	12°47.0	12°38.9	12°30.7	12°22.4	12°14.0	12°05.6	11°57.1	11°48.6	11°40.0	11°31.3	-8.4	58.7
○ do 22	131°57.1	146°26.0	160°55.0	175°24.0	189°53.1	204°22.2	218°51.4	233°20.7	247°50.0	262°19.4	276°48.8	+29.2	15.8
	9°14.5	9°05.0	8°55.5	8°45.9	8°36.2	8°26.5	8°16.8	8°07.1	7°57.3	7°47.5	7°37.6	-9.7	58.1
vr 23	134°16.8	148°47.1	163°17.4	177°47.8	192°18.2	206°48.7	221°19.2	235°49.8	250°20.4	264°51.0	279°21.8	+30.5	15.6
	5°06.5	4°56.2	4°46.0	4°35.7	4°25.4	4°15.1	4°04.8	3°54.5	3°44.2	3°33.8	3°23.5	-10.3	57.4
za 24	137°07.5	151°38.9	166°10.3	180°41.7	195°13.2	209°44.7	224°16.3	238°47.8	253°19.5	267°51.1	282°22.8	+31.5	15.4
	0°48.1	0°37.8	0°27.5	0°17.2	0°06.9	-0°03.4	-0°13.7	-0°24.0	-0°34.2	-0°44.5	-0°54.7	-10.3	56.7
zo 25	140°21.4	154°53.5	169°25.6	183°57.8	198°29.9	213°02.1	227°34.3	242°06.6	256°38.8	271°11.1	285°43.4	+32.2	15.3
	-3°25.7	-3°35.6	-3°45.5	-3°55.3	-4°05.1	-4°14.9	-4°24.6	-4°34.3	-4°44.0	-4°53.6	-5°03.2	-9.8	55.9
ma 26	143°49.4	158°21.9	172°54.4	187°26.9	201°59.5	216°32.0	231°04.5	245°37.1	260°09.6	274°42.1	289°14.7	+32.5	15.1
	-7°23.0	-7°32.0	-7°41.0	-7°49.9	-7°58.8	-8°07.6	-8°16.4	-8°25.1	-8°33.8	-8°42.5	-8°51.1	-8.8	55.3
di 27	147°23.2	161°55.8	176°28.3	191°00.9	205°33.4	220°06.0	234°38.5	249°11.1	263°43.6	278°16.1	292°48.6	+32.5	14.9
	-10°54.1	-11°01.9	-11°09.6	-11°17.3	-11°24.9	-11°32.5	-11°40.0	-11°47.4	-11°54.8	-12°02.1	-12°09.4	-7.5	54.8
wo 28	150°55.4	165°27.8	180°00.2	194°32.5	209°04.8	223°37.2	238°09.5	252°41.8	267°14.0	281°46.3	296°18.6	+32.3	14.8
	-13°51.2	-13°57.5	-14°03.8	-14°09.9	-14°16.0	-14°22.0	-14°28.0	-14°33.9	-14°39.7	-14°45.5	-14°51.2	-6.0	54.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 8 08h22 — EK: 15 13h17 — VM: 22 08h53

ZON

Maart 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	176°53.8 -7°44.0	191°54.0 -7°43.1	206°54.1 -7°42.1	221°54.2 -7°41.2	236°54.3 -7°40.2	251°54.4 -7°39.3	86°56.0 -7°26.9	101°56.1 -7°26.0	116°56.3 -7°25.0	131°56.4 -7°24.1	146°56.5 -7°23.1	161°56.6 -7°22.2	+0.1 +0.9
vr 2	176°56.7 -7°21.2	191°56.9 -7°20.3	206°57.0 -7°19.3	221°57.1 -7°18.4	236°57.2 -7°17.4	251°57.4 -7°16.5	86°59.0 -7°04.0	101°59.1 -7°03.1	116°59.2 -7°02.1	131°59.4 -7°01.2	146°59.5 -7°00.2	161°59.6 -6°59.3	+0.1 +1.0
za 3	176°59.8 -6°58.3	191°59.9 -6°57.3	207°00.0 -6°56.4	222°00.1 -6°55.4	237°00.3 -6°54.5	252°00.4 -6°53.5	87°02.1 -6°41.0	102°02.2 -6°40.1	117°02.4 -6°39.1	132°02.5 -6°38.2	147°02.6 -6°37.2	162°02.8 -6°36.2	+0.1 +1.0
zo 4	177°02.9 -6°35.3	192°03.0 -6°34.3	207°03.2 -6°33.4	222°03.3 -6°32.4	237°03.4 -6°31.4	252°03.6 -6°30.5	87°05.3 -6°18.0	102°05.5 -6°17.0	117°05.6 -6°16.0	132°05.7 -6°15.1	147°05.9 -6°14.1	162°06.0 -6°13.1	+0.1 +1.0
ma 5	177°06.1 -6°12.2	192°06.3 -6°11.2	207°06.4 -6°10.2	222°06.5 -6°09.3	237°06.7 -6°08.3	252°06.8 -6°07.4	87°08.6 -5°54.8	102°08.8 -5°53.8	117°08.9 -5°52.9	132°09.1 -5°51.9	147°09.2 -5°50.9	162°09.3 -5°49.9	+0.1 +1.0
di 6	177°09.5 -5°49.0	192°09.6 -5°48.0	207°09.8 -5°47.0	222°09.9 -5°46.1	237°10.1 -5°45.1	252°10.2 -5°44.1	87°12.1 -5°31.5	102°12.2 -5°30.6	117°12.4 -5°29.6	132°12.5 -5°28.6	147°12.6 -5°27.6	162°12.8 -5°26.7	+0.1 +1.0
wo 7	177°12.9 -5°25.7	192°13.1 -5°24.7	207°13.2 -5°23.8	222°13.4 -5°22.8	237°13.5 -5°21.8	252°13.7 -5°20.8	87°15.6 -5°08.2	102°15.7 -5°07.2	117°15.9 -5°06.3	132°16.0 -5°05.3	147°16.2 -5°04.3	162°16.3 -5°03.3	+0.1 +1.0
do 8	177°16.5 -5°02.4	192°16.6 -5°01.4	207°16.8 -5°00.4	222°16.9 -4°59.4	237°17.1 -4°58.5	252°17.2 -4°57.5	87°19.2 -4°44.8	102°19.4 -4°43.8	117°19.5 -4°42.8	132°19.7 -4°41.9	147°19.8 -4°40.9	162°20.0 -4°39.9	+0.1 +1.0
vr 9	177°20.1 -4°38.9	192°20.3 -4°38.0	207°20.4 -4°37.0	222°20.6 -4°36.0	237°20.7 -4°35.0	252°20.9 -4°34.1	87°22.9 -4°21.3	102°23.1 -4°20.4	117°23.2 -4°19.4	132°23.4 -4°18.4	147°23.5 -4°17.4	162°23.7 -4°16.4	+0.2 +1.0
za 10	177°23.9 -4°15.5	192°24.0 -4°14.5	207°24.2 -4°13.5	222°24.3 -4°12.5	237°24.5 -4°11.5	252°24.6 -4°10.6	87°26.7 -3°57.8	102°26.9 -3°56.8	117°27.0 -3°55.9	132°27.2 -3°54.9	147°27.4 -3°53.9	162°27.5 -3°52.9	+0.2 +1.0
zo 11	177°27.7 -3°51.9	192°27.8 -3°50.9	207°28.0 -3°50.0	222°28.2 -3°49.0	237°28.3 -3°48.0	252°28.5 -3°47.0	87°30.6 -3°34.3	102°30.8 -3°33.3	117°30.9 -3°32.3	132°31.1 -3°31.3	147°31.2 -3°30.3	162°31.4 -3°29.3	+0.2 +1.0
ma 12	177°31.6 -3°28.4	192°31.7 -3°27.4	207°31.9 -3°26.4	222°32.1 -3°25.4	237°32.2 -3°24.4	252°32.4 -3°23.4	87°34.5 -3°10.6	102°34.7 -3°09.7	117°34.9 -3°08.7	132°35.0 -3°07.7	147°35.2 -3°06.7	162°35.4 -3°05.7	+0.2 +1.0
di 13	177°35.6 -3°04.7	192°35.7 -3°03.7	207°35.9 -3°02.8	222°36.1 -3°01.8	237°36.2 -3°00.8	252°36.4 -2°59.8	87°38.6 -2°47.0	102°38.8 -2°46.0	117°38.9 -2°45.0	132°39.1 -2°44.0	147°39.3 -2°43.1	162°39.4 -2°42.1	+0.2 +1.0
wo 14	177°39.6 -2°41.1	192°39.8 -2°40.1	207°39.9 -2°39.1	222°40.1 -2°38.1	237°40.3 -2°37.1	252°40.5 -2°36.2	87°42.7 -2°23.3	102°42.9 -2°22.3	117°43.0 -2°21.4	132°43.2 -2°20.4	147°43.4 -2°19.4	162°43.5 -2°18.4	+0.2 +1.0
do 15	177°43.7 -2°17.4	192°43.9 -2°16.4	207°44.1 -2°15.4	222°44.2 -2°14.4	237°44.4 -2°13.5	252°44.6 -2°12.5	87°46.9 -1°59.6	102°47.0 -1°58.6	117°47.2 -1°57.7	132°47.4 -1°56.7	147°47.6 -1°55.7	162°47.7 -1°54.7	+0.2 +1.0
vr 16	177°47.9 -1°53.7	192°48.1 -1°52.7	207°48.3 -1°51.7	222°48.4 -1°50.7	237°48.6 -1°49.8	252°48.8 -1°48.8	87°51.1 -1°35.9	102°51.3 -1°34.9	117°51.4 -1°33.9	132°51.6 -1°33.0	147°51.8 -1°32.0	162°52.0 -1°31.0	+0.2 +1.0
za 17	177°52.1 -1°30.0	192°52.3 -1°29.0	207°52.5 -1°28.0	222°52.7 -1°27.0	237°52.9 -1°26.0	252°53.0 -1°25.0	87°55.4 -1°12.2	102°55.5 -1°11.2	117°55.7 -1°10.2	132°55.9 -1°09.2	147°56.1 -1°08.2	162°56.3 -1°07.3	+0.2 +1.0
zo 18	177°56.4 -1°06.3	192°56.6 -1°05.3	207°56.8 -1°04.3	222°57.0 -1°03.3	237°57.2 -1°02.3	252°57.4 -1°01.3	87°59.7 -0°48.5	102°59.9 -0°47.5	118°00.1 -0°46.5	133°00.3 -0°45.5	148°00.4 -0°44.5	163°00.6 -0°43.5	+0.2 +1.0
ma 19	178°00.8 -0°42.5	193°01.0 -0°41.5	208°01.2 -0°40.6	223°01.3 -0°39.6	238°01.5 -0°38.6	253°01.7 -0°37.6	88°04.1 -0°24.7	103°04.3 -0°23.8	118°04.5 -0°22.8	133°04.6 -0°21.8	148°04.8 -0°20.8	163°05.0 -0°19.8	+0.2 +1.0
di 20	178°05.2 -0°18.8	193°05.4 -0°17.8	208°05.6 -0°16.8	223°05.7 -0°15.9	238°05.9 -0°14.9	253°06.1 -0°13.9	88°08.5 -0°01.0	103°08.7 -0°00.0	118°08.9 0°00.9	133°09.1 0°01.9	148°09.3 0°02.9	163°09.4 0°03.9	+0.2 +1.0
wo 21	178°09.6 0°04.9	193°09.8 0°05.9	208°10.0 0°06.9	223°10.2 0°07.9	238°10.4 0°08.8	253°10.6 0°09.8	88°13.0 0°22.7	103°13.2 0°23.7	118°13.3 0°24.6	133°13.5 0°25.6	148°13.7 0°26.6	163°13.9 0°27.6	+0.2 +1.0
do 22	178°14.1 0°28.6	193°14.3 0°29.6	208°14.5 0°30.6	223°14.6 0°31.6	238°14.8 0°32.5	253°15.0 0°33.5	88°17.5 0°46.3	103°17.6 0°47.3	118°17.8 0°48.3	133°18.0 0°49.3	148°18.2 0°50.3	163°18.4 0°51.3	+0.2 +1.0
vr 23	178°18.6 0°52.3	193°18.8 0°53.3	208°19.0 0°54.2	223°19.1 0°55.2	238°19.3 0°56.2	253°19.5 0°57.2	88°22.0 1°10.0	103°22.1 1°11.0	118°22.3 1°12.0	133°22.5 1°13.0	148°22.7 1°13.9	163°22.9 1°14.9	+0.2 +1.0
za 24	178°23.1 1°15.9	193°23.3 1°16.9	208°23.5 1°17.9	223°23.7 1°18.9	238°23.8 1°19.9	253°24.0 1°20.8	88°26.5 1°33.6	103°26.7 1°34.6	118°26.9 1°35.6	133°27.0 1°36.6	148°27.2 1°37.6	163°27.4 1°38.5	+0.2 +1.0
zo 25	178°27.6 1°39.5	193°27.8 1°40.5	208°28.0 1°41.5	223°28.2 1°42.5	238°28.4 1°43.5	253°28.6 1°44.4	88°31.0 1°57.2	103°31.2 1°58.2	118°31.4 1°59.2	133°31.6 2°00.2	148°31.8 2°01.1	163°32.0 2°02.1	+0.2 +1.0
ma 26	178°32.1 2°03.1	193°32.3 2°04.1	208°32.5 2°05.1	223°32.7 2°06.0	238°32.9 2°07.0	253°33.1 2°08.0	88°35.5 2°20.8	103°35.7 2°21.7	118°35.9 2°22.7	133°36.1 2°23.7	148°36.3 2°24.7	163°36.5 2°25.7	+0.2 +1.0
di 27	178°36.7 2°26.6	193°36.9 2°27.6	208°37.1 2°28.6	223°37.2 2°29.6	238°37.4 2°30.6	253°37.6 2°31.5	88°40.1 2°44.3	103°40.3 2°45.2	118°40.5 2°46.2	133°40.6 2°47.2	148°40.8 2°48.2	163°41.0 2°49.1	+0.2 +1.0
wo 28	178°41.2 2°50.1	193°41.4 2°51.1	208°41.6 2°52.1	223°41.8 2°53.1	238°42.0 2°54.0	253°42.2 2°55.0	88°44.6 3°07.7	103°44.8 3°08.7	118°45.0 3°09.6	133°45.2 3°10.6	148°45.4 3°11.6	163°45.6 3°12.6	+0.2 +1.0
do 29	178°45.7 3°13.5	193°45.9 3°14.5	208°46.1 3°15.5	223°46.3 3°16.5	238°46.5 3°17.4	253°46.7 3°18.4	88°49.1 3°31.1	103°49.3 3°32.1	118°49.5 3°33.0	133°49.7 3°34.0	148°49.9 3°35.0	163°50.1 3°35.9	+0.2 +1.0
vr 30	178°50.2 3°36.9	193°50.4 3°37.9	208°50.6 3°38.9	223°50.8 3°39.8	238°51.0 3°40.8	253°51.2 3°41.8	88°53.6 3°54.4	103°53.8 3°55.4	118°54.0 3°56.3	133°54.2 3°57.3	148°54.4 3°58.3	163°54.6 3°59.2	+0.2 +1.0
za 31	178°54.7 4°00.2	193°54.9 4°01.2	208°55.1 4°02.2	223°55.3 4°03.1	238°55.5 4°04.1	253°55.7 4°05.1	88°58.1 4°17.6	103°58.3 4°18.6	118°58.5 4°19.6	133°58.6 4°20.5	148°58.8 4°21.5	163°59.0 4°22.5	+0.2 +1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.1'

MAAN

Maart 2035

	D	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	Δ'/h	SD/HP
	do 1	67°08.2	81°40.3	96°12.4	110°44.4	125°16.5	139°48.5	154°20.5	168°52.5	183°24.5	197°56.5	212°28.4	+32.0	14.8
		-15°39.3	-15°44.3	-15°49.2	-15°54.0	-15°58.8	-16°03.5	-16°08.2	-16°12.7	-16°17.2	-16°21.6	-16°26.0	-4.7	54.2
◑	vr 2	70°25.5	84°57.2	99°28.8	114°00.5	128°32.1	143°03.7	157°35.2	172°06.8	186°38.3	201°09.8	215°41.3	+31.6	14.8
		-17°22.0	-17°25.1	-17°28.2	-17°31.1	-17°34.0	-17°36.8	-17°39.5	-17°42.2	-17°44.7	-17°47.2	-17°49.6	-2.8	54.2
	za 3	73°31.5	88°02.7	102°33.9	117°05.1	131°36.2	146°07.4	160°38.5	175°09.6	189°40.7	204°11.7	218°42.8	+31.1	14.8
		-18°15.8	-18°16.8	-18°17.8	-18°18.7	-18°19.6	-18°20.3	-18°20.9	-18°21.5	-18°22.0	-18°22.4	-18°22.7	-0.7	54.3
	zo 4	76°26.8	90°57.6	105°28.4	119°59.2	134°30.0	149°00.8	163°31.5	178°02.3	192°33.0	207°03.7	221°34.4	+30.8	14.9
		-18°17.0	-18°16.0	-18°14.8	-18°13.6	-18°12.2	-18°10.8	-18°09.3	-18°07.7	-18°06.0	-18°04.2	-18°02.4	+1.5	54.6
	ma 5	79°13.8	93°44.4	108°14.9	122°45.5	137°16.0	151°46.5	166°17.0	180°47.5	195°18.1	209°48.5	224°19.0	+30.5	15.0
		-17°23.9	-17°20.6	-17°17.3	-17°13.8	-17°10.3	-17°06.7	-17°03.0	-16°59.2	-16°55.3	-16°51.4	-16°47.3	+3.7	55.1
	di 6	81°55.7	96°26.2	110°56.6	125°27.0	139°57.4	154°27.8	168°58.2	183°28.6	197°58.9	212°29.3	226°59.7	+30.4	15.2
		-15°36.5	-15°31.1	-15°25.6	-15°20.0	-15°14.4	-15°08.7	-15°02.9	-14°57.0	-14°51.0	-14°45.0	-14°38.8	+5.8	55.7
	wo 7	84°35.2	99°05.5	113°35.9	128°06.2	142°36.6	157°06.9	171°37.2	186°07.6	200°37.9	215°08.2	229°38.5	+30.3	15.4
		-12°57.6	-12°50.3	-12°42.8	-12°35.3	-12°27.8	-12°20.1	-12°12.4	-12°04.6	-11°56.8	-11°48.9	-11°40.9	+7.7	56.4
	do 8	87°13.1	101°43.4	116°13.6	130°43.9	145°14.2	159°44.4	174°14.7	188°44.9	203°15.2	217°45.4	232°15.6	+30.3	15.6
		-9°33.2	-9°24.2	-9°15.2	-9°06.1	-8°56.9	-8°47.7	-8°38.4	-8°29.1	-8°19.7	-8°10.2	-8°00.7	+9.3	57.1
●	vr 9	89°48.1	104°18.2	118°48.3	133°18.4	147°48.5	162°18.5	176°48.6	191°18.6	205°48.6	220°18.6	234°48.6	+30.0	15.7
		-5°32.6	-5°22.4	-5°12.2	-5°01.9	-4°51.6	-4°41.2	-4°30.8	-4°20.4	-4°09.9	-3°59.5	-3°48.9	+10.4	57.7
	za 10	92°16.6	106°46.3	121°16.0	135°45.7	150°15.4	164°45.0	179°14.6	193°44.2	208°13.8	222°43.4	237°12.9	+29.6	15.9
		-1°08.2	-0°57.4	-0°46.5	-0°35.6	-0°24.7	-0°13.8	-0°02.9	0°08.0	0°19.0	0°29.9	0°40.8	+10.9	58.3
	zo 11	94°32.9	109°02.0	123°31.1	138°00.2	152°29.2	166°58.2	181°27.1	195°56.1	210°25.0	224°53.8	239°22.6	+29.0	16.0
		3°24.7	3°35.6	3°46.4	3°57.3	4°08.1	4°18.9	4°29.6	4°40.4	4°51.1	5°01.8	5°12.5	+10.8	58.8
	ma 12	96°31.0	110°59.2	125°27.4	139°55.6	154°23.8	168°51.9	183°20.0	197°48.0	212°16.0	226°43.9	241°11.8	+28.1	16.1
		7°49.1	7°59.2	8°09.3	8°19.4	8°29.4	8°39.3	8°49.3	8°59.1	9°08.9	9°18.7	9°28.4	+9.9	59.1
	di 13	98°05.7	112°32.9	127°00.2	141°27.3	155°54.5	170°21.6	184°48.6	199°15.7	213°42.6	228°09.6	242°36.5	+27.1	16.2
		11°46.8	11°55.5	12°04.1	12°12.6	12°21.1	12°29.5	12°37.9	12°46.1	12°54.3	13°02.4	13°10.4	+8.4	59.2
	wo 14	99°15.2	113°41.5	128°07.8	142°34.0	157°00.2	171°26.3	185°52.4	200°18.5	214°44.5	229°10.6	243°36.5	+26.1	16.2
		15°00.3	15°06.9	15°13.4	15°19.8	15°26.1	15°32.3	15°38.4	15°44.4	15°50.3	15°56.1	16°01.8	+6.2	59.3
	do 15	113°41.5	128°07.8	142°34.0	157°00.2	171°26.3	185°52.4	200°18.5	214°44.5	229°10.6	243°36.5	258°02.5	+26.1	16.2
		15°06.9	15°13.4	15°19.8	15°26.1	15°32.3	15°38.4	15°44.4	15°50.3	15°56.1	16°01.8	16°07.4	+6.1	59.3
◐	vr 16	114°28.4	128°53.9	143°19.4	157°44.9	172°10.4	186°35.9	201°01.3	215°26.8	229°52.2	244°17.6	258°43.0	+25.5	16.1
		17°18.5	17°22.3	17°26.1	17°29.7	17°33.2	17°36.6	17°39.9	17°43.1	17°46.1	17°49.1	17°51.9	+3.3	59.2
	za 17	115°02.8	129°28.1	143°53.4	158°18.7	172°44.0	187°09.3	201°34.6	216°00.0	230°25.3	244°50.6	259°16.0	+25.3	16.1
		18°19.9	18°20.8	18°21.6	18°22.3	18°22.8	18°23.3	18°23.6	18°23.8	18°23.8	18°23.8	18°23.6	+0.4	59.1
	zo 18	115°38.2	130°03.8	144°29.5	158°55.2	173°20.9	187°46.7	202°12.4	216°38.3	231°04.1	245°30.0	259°55.9	+25.8	16.0
		18°06.8	18°04.7	18°02.5	18°00.3	17°57.8	17°55.3	17°52.7	17°49.9	17°47.1	17°44.1	17°41.0	-2.6	58.8
	ma 19	116°28.8	130°55.3	145°21.9	159°48.5	174°15.1	188°41.8	203°08.6	217°35.4	232°02.2	246°29.1	260°56.0	+26.7	16.0
		16°41.7	16°36.9	16°32.0	16°27.0	16°21.9	16°16.7	16°11.4	16°06.0	16°00.5	15°54.9	15°49.2	-5.2	58.6
	di 20	117°45.8	132°13.5	146°41.3	161°09.1	175°37.0	190°04.9	204°32.9	219°00.9	233°29.0	247°57.2	262°25.4	+28.0	15.9
		14°13.2	14°06.2	13°59.0	13°51.8	13°44.4	13°37.0	13°29.6	13°22.0	13°14.4	13°06.7	12°59.0	-7.4	58.2
	wo 21	119°34.6	134°03.6	148°32.7	163°01.9	177°31.0	192°00.3	206°29.6	220°58.9	235°28.3	249°57.7	264°27.2	+29.3	15.7
		10°54.6	10°45.8	10°37.0	10°28.1	10°19.2	10°10.2	10°01.1	9°52.0	9°42.9	9°33.7	9°24.5	-9.0	57.8
	do 22	121°55.2	136°25.5	150°55.8	165°26.1	179°56.4	194°26.9	208°57.3	223°27.8	237°58.3	252°28.9	266°59.5	+30.4	15.6
		7°01.1	6°51.3	6°41.4	6°31.5	6°21.6	6°11.7	6°01.7	5°51.7	5°41.7	5°31.6	5°21.6	-10.0	57.3
○	vr 23	124°43.3	139°14.5	153°45.7	168°17.0	182°48.3	197°19.6	211°51.0	226°22.4	240°53.8	255°25.3	269°56.8	+31.3	15.5
		2°48.7	2°38.4	2°28.1	2°17.8	2°07.5	1°57.2	1°47.0	1°36.7	1°26.4	1°16.1	1°05.8	-10.3	56.7
	za 24	127°52.1	142°23.9	156°55.8	171°27.7	185°59.7	200°31.6	215°03.6	229°35.6	244°07.6	258°39.6	273°11.7	+32.0	15.3
		-1°27.8	-1°37.9	-1°48.1	-1°58.2	-2°08.3	-2°18.4	-2°28.4	-2°38.5	-2°48.5	-2°58.5	-3°08.5	-10.1	56.1
	zo 25	131°13.9	145°46.2	160°18.4	174°50.7	189°22.9	203°55.2	218°27.5	232°59.8	247°32.1	262°04.4	276°36.7	+32.3	15.2
		-5°34.9	-5°44.4	-5°53.9	-6°03.4	-6°12.8	-6°22.2	-6°31.5	-6°40.8	-6°50.1	-6°59.3	-7°08.5	-9.4	55.6
	ma 26	134°41.7	149°14.0	163°46.3	178°18.7	192°51.0	207°23.3	221°55.7	236°28.0	251°00.3	265°32.7	280°05.0	+32.3	15.0
		-9°21.1	-9°29.6	-9°38.0	-9°46.4	-9°54.7	-10°03.0	-10°11.2	-10°19.4	-10°27.5	-10°35.6	-10°43.6	-8.2	55.1
	di 27	138°09.2	152°41.4	167°13.7	181°45.9	196°18.1	210°50.3	225°22.5	239°54.6	254°26.8	268°59.0	283°31.1	+32.2	14.9
		-12°36.9	-12°44.0	-12°51.0	-12°58.0	-13°04.9	-13°11.7	-13°18.5	-13°25.2	-13°31.8	-13°38.4	-13°44.9	-6.8	54.6
	wo 28	141°32.2	156°04.1	170°36.1	185°08.1	199°40.0	214°11.9	228°43.9	243°15.8	257°47.7	272°19.6	286°51.4	+31.9	14.8
		-15°14.5	-15°20.0	-15°25.3	-15°30.6	-15°35.8	-15°40.9	-15°46.0	-15°51.0	-15°55.9	-16°00.7	-16°05.5	-5.1	54.3
	do 29	144°48.0	159°19.7	173°51.3	188°23.0	202°54.6	217°26.2	231°57.8	246°29.4	261°01.0	275°32.6	290°04.2	+31.6	14.8
		-17°07.9	-17°11.4	-17°14.9	-17°18.3	-17°21.6	-17°24.8	-17°27.9	-17°31.0	-17°34.0	-17°36.9	-17°39.7	-3.2	54.2
	vr 30	147°56.1	162°27.5	176°58.8	191°30.2	206°01.5	220°32.9	235°04.2	249°35.5	264°06.8	278°38.1	293°09.4	+31.3	14.8
		-18°12.3	-18°13.9	-18°15.3	-18°16.6	-18°17.9	-18°19.1	-18°20.2	-18°21.2	-18°22.1	-18°23.0	-18°23.7	-1.1	54.2
◑	za 31	150°57.4	165°28.5	179°59.7	194°30.8	209°01.9	223°33.0	238°04.1	252°35.2	267°06.2	281°37.3	296°08.4	+31.1	14.8
		-18°24.9	-18°24.3	-18°23.6	-18°22.8	-18°22.0	-18°21.0	-18°20.0	-18°18.9	-18°17.7	-18°16.4	-18°15.0	+1.0	54.4

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
LK: 2 03h01 — NM: 9 23h09 — EK: 16 20h15 — VM: 23 22h42 — LK: 31 23h06

ZON

April 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	178°59.2	193°59.4	208°59.6	223°59.8	238°59.9	254°00.1	89°02.5	104°02.7	119°02.9	134°03.1	149°03.3	164°03.5	+0.2
	4°23.4	4°24.4	4°25.4	4°26.3	4°27.3	4°28.3	4°40.8	4°41.8	4°42.7	4°43.7	4°44.7	4°45.6	+1.0
ma 2	179°03.6	194°03.8	209°04.0	224°04.2	239°04.4	254°04.6	89°06.9	104°07.1	119°07.3	134°07.5	149°07.7	164°07.9	+0.2
	4°46.6	4°47.6	4°48.5	4°49.5	4°50.4	4°51.4	5°03.9	5°04.9	5°05.8	5°06.8	5°07.7	5°08.7	+1.0
di 3	179°08.0	194°08.2	209°08.4	224°08.6	239°08.8	254°09.0	89°11.3	104°11.5	119°11.7	134°11.9	149°12.0	164°12.2	+0.2
	5°09.7	5°10.6	5°11.6	5°12.5	5°13.5	5°14.4	5°26.9	5°27.8	5°28.8	5°29.8	5°30.7	5°31.7	+1.0
wo 4	179°12.4	194°12.6	209°12.8	224°12.9	239°13.1	254°13.3	89°15.6	104°15.8	119°16.0	134°16.2	149°16.4	164°16.5	+0.2
	5°32.6	5°33.6	5°34.5	5°35.5	5°36.4	5°37.4	5°49.8	5°50.7	5°51.7	5°52.7	5°53.6	5°54.6	+1.0
do 5	179°16.7	194°16.9	209°17.1	224°17.3	239°17.4	254°17.6	89°19.9	104°20.1	119°20.3	134°20.5	149°20.6	164°20.8	+0.2
	5°55.5	5°56.5	5°57.4	5°58.4	5°59.3	6°00.3	6°12.6	6°13.5	6°14.5	6°15.4	6°16.4	6°17.3	+1.0
vr 6	179°21.0	194°21.2	209°21.4	224°21.5	239°21.7	254°21.9	89°24.2	104°24.3	119°24.5	134°24.7	149°24.9	164°25.0	+0.2
	6°18.3	6°19.2	6°20.2	6°21.1	6°22.1	6°23.0	6°35.3	6°36.2	6°37.2	6°38.1	6°39.1	6°40.0	+0.9
za 7	179°25.2	194°25.4	209°25.6	224°25.7	239°25.9	254°26.1	89°28.3	104°28.5	119°28.7	134°28.9	149°29.0	164°29.2	+0.2
	6°41.0	6°41.9	6°42.8	6°43.8	6°44.7	6°45.7	6°57.9	6°58.8	6°59.8	7°00.7	7°01.6	7°02.6	+0.9
zo 8	179°29.4	194°29.6	209°29.7	224°29.9	239°30.1	254°30.2	89°32.5	104°32.6	119°32.8	134°33.0	149°33.2	164°33.3	+0.2
	7°03.5	7°04.4	7°05.4	7°06.3	7°07.3	7°08.2	7°20.3	7°21.3	7°22.2	7°23.1	7°24.1	7°25.0	+0.9
ma 9	179°33.5	194°33.7	209°33.8	224°34.0	239°34.2	254°34.3	89°36.5	104°36.7	119°36.9	134°37.0	149°37.2	164°37.4	+0.2
	7°25.9	7°26.9	7°27.8	7°28.7	7°29.7	7°30.6	7°42.7	7°43.6	7°44.5	7°45.5	7°46.4	7°47.3	+0.9
di 10	179°37.5	194°37.7	209°37.9	224°38.0	239°38.2	254°38.4	89°40.5	104°40.7	119°40.9	134°41.0	149°41.2	164°41.4	+0.2
	7°48.3	7°49.2	7°50.1	7°51.0	7°52.0	7°52.9	8°04.9	8°05.8	8°06.7	8°07.7	8°08.6	8°09.5	+0.9
wo 11	179°41.5	194°41.7	209°41.9	224°42.0	239°42.2	254°42.3	89°44.5	104°44.6	119°44.8	134°45.0	149°45.1	164°45.3	+0.2
	8°10.4	8°11.4	8°12.3	8°13.2	8°14.1	8°15.0	8°27.0	8°27.9	8°28.8	8°29.7	8°30.6	8°31.6	+0.9
do 12	179°45.4	194°45.6	209°45.8	224°45.9	239°46.1	254°46.2	89°48.3	104°48.5	119°48.6	134°48.8	149°49.0	164°49.1	+0.2
	8°32.5	8°33.4	8°34.3	8°35.2	8°36.1	8°37.0	8°48.9	8°49.8	8°50.7	8°51.6	8°52.5	8°53.5	+0.9
vr 13	179°49.3	194°49.4	209°49.6	224°49.8	239°49.9	254°50.1	89°52.1	104°52.3	119°52.4	134°52.6	149°52.7	164°52.9	+0.2
	8°54.4	8°55.3	8°56.2	8°57.1	8°58.0	8°58.9	9°10.7	9°11.6	9°12.5	9°13.4	9°14.3	9°15.2	+0.9
za 14	179°53.1	194°53.2	209°53.4	224°53.5	239°53.7	254°53.8	89°55.8	104°56.0	119°56.1	134°56.3	149°56.4	164°56.6	+0.2
	9°16.1	9°17.0	9°17.9	9°18.8	9°19.7	9°20.6	9°32.3	9°33.2	9°34.1	9°35.0	9°35.9	9°36.8	+0.9
zo 15	179°56.7	194°56.9	209°57.1	224°57.2	239°57.4	254°57.5	89°59.5	104°59.6	119°59.8	134°59.9	150°00.1	165°00.2	+0.2
	9°37.7	9°38.6	9°39.5	9°40.4	9°41.3	9°42.2	9°53.8	9°54.7	9°55.6	9°56.5	9°57.4	9°58.2	+0.9
ma 16	180°00.4	195°00.5	210°00.7	225°00.8	240°01.0	255°01.1	90°03.0	105°03.2	120°03.3	135°03.4	150°03.6	165°03.7	+0.1
	9°59.1	10°00.0	10°00.9	10°01.8	10°02.7	10°03.6	10°15.1	10°16.0	10°16.9	10°17.8	10°18.6	10°19.5	+0.9
di 17	180°03.9	195°04.0	210°04.2	225°04.3	240°04.5	255°04.6	90°06.5	105°06.6	120°06.8	135°06.9	150°07.0	165°07.2	+0.1
	10°20.4	10°21.3	10°22.2	10°23.0	10°23.9	10°24.8	10°36.2	10°37.1	10°38.0	10°38.9	10°39.7	10°40.6	+0.9
wo 18	180°07.3	195°07.5	210°07.6	225°07.7	240°07.9	255°08.0	90°09.8	105°10.0	120°10.1	135°10.3	150°10.4	165°10.5	+0.1
	10°41.5	10°42.4	10°43.2	10°44.1	10°45.0	10°45.9	10°57.2	10°58.1	10°58.9	10°59.8	11°00.7	11°01.5	+0.9
do 19	180°10.7	195°10.8	210°10.9	225°11.1	240°11.2	255°11.3	90°13.1	105°13.2	120°13.4	135°13.5	150°13.6	165°13.8	+0.1
	11°02.4	11°03.3	11°04.1	11°05.0	11°05.9	11°06.7	11°18.0	11°18.8	11°19.7	11°20.6	11°21.4	11°22.3	+0.9
vr 20	180°13.9	195°14.0	210°14.2	225°14.3	240°14.4	255°14.6	90°16.3	105°16.4	120°16.5	135°16.7	150°16.8	165°16.9	+0.1
	11°23.1	11°24.0	11°24.9	11°25.7	11°26.6	11°27.4	11°38.6	11°39.4	11°40.3	11°41.1	11°42.0	11°42.8	+0.9
za 21	180°17.1	195°17.2	210°17.3	225°17.4	240°17.6	255°17.7	90°19.3	105°19.5	120°19.6	135°19.7	150°19.8	165°20.0	+0.1
	11°43.7	11°44.5	11°45.4	11°46.2	11°47.1	11°47.9	11°59.0	11°59.8	12°00.6	12°01.5	12°02.3	12°03.2	+0.9
zo 22	180°20.1	195°20.2	210°20.3	225°20.5	240°20.6	255°20.7	90°22.3	105°22.4	120°22.5	135°22.7	150°22.8	165°22.9	+0.1
	12°04.0	12°04.9	12°05.7	12°06.5	12°07.4	12°08.2	12°19.1	12°20.0	12°20.8	12°21.7	12°22.5	12°23.3	+0.8
ma 23	180°23.0	195°23.1	210°23.3	225°23.4	240°23.5	255°23.6	90°25.1	105°25.2	120°25.4	135°25.5	150°25.6	165°25.7	+0.1
	12°24.2	12°25.0	12°25.8	12°26.7	12°27.5	12°28.3	12°39.1	12°40.0	12°40.8	12°41.6	12°42.5	12°43.3	+0.8
di 24	180°25.8	195°25.9	210°26.1	225°26.2	240°26.3	255°26.4	90°27.9	105°28.0	120°28.1	135°28.2	150°28.3	165°28.4	+0.1
	12°44.1	12°44.9	12°45.8	12°46.6	12°47.4	12°48.2	12°58.9	12°59.8	13°00.6	13°01.4	13°02.2	13°03.0	+0.8
wo 25	180°28.5	195°28.6	210°28.7	225°28.8	240°29.0	255°29.1	90°30.5	105°30.6	120°30.7	135°30.8	150°30.9	165°31.0	+0.1
	13°03.8	13°04.7	13°05.5	13°06.3	13°07.1	13°07.9	13°18.5	13°19.3	13°20.1	13°20.9	13°21.7	13°22.6	+0.8
do 26	180°31.1	195°31.2	210°31.3	225°31.4	240°31.5	255°31.6	90°32.9	105°33.0	120°33.1	135°33.2	150°33.3	165°33.4	+0.1
	13°23.4	13°24.2	13°25.0	13°25.8	13°26.6	13°27.4	13°37.9	13°38.7	13°39.5	13°40.3	13°41.1	13°41.9	+0.8
vr 27	180°33.5	195°33.6	210°33.7	225°33.8	240°33.9	255°34.0	90°35.3	105°35.4	120°35.5	135°35.6	150°35.7	165°35.8	+0.1
	13°42.7	13°43.5	13°44.3	13°45.1	13°45.9	13°46.7	13°57.0	13°57.8	13°58.6	13°59.4	14°00.2	14°00.9	+0.8
za 28	180°35.8	195°35.9	210°36.0	225°36.1	240°36.2	255°36.3	90°37.5	105°37.6	120°37.7	135°37.8	150°37.9	165°37.9	+0.1
	14°01.7	14°02.5	14°03.3	14°04.1	14°04.9	14°05.7	14°15.9	14°16.7	14°17.5	14°18.2	14°19.0	14°19.8	+0.8
zo 29	180°38.0	195°38.1	210°38.2	225°38.3	240°38.4	255°38.5	90°39.6	105°39.7	120°39.8	135°39.8	150°39.9	165°40.0	+0.1
	14°20.6	14°21.4	14°22.1	14°22.9	14°23.7	14°24.5	14°34.6	14°35.3	14°36.1	14°36.9	14°37.6	14°38.4	+0.8
ma 30	180°40.1	195°40.2	210°40.3	225°40.3	240°40.4	255°40.5	90°41.5	105°41.6	120°41.7	135°41.8	150°41.9	165°41.9	+0.1
	14°39.2	14°40.0	14°40.7	14°41.5	14°42.3	14°43.0	14°53.0	14°53.8	14°54.5	14°55.3	14°56.0	14°56.8	+0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h $= v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), Δ'/h $= d$: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

April 2035

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
zo 1	66°47.7	81°18.7	95°49.7	110°20.7	124°51.7	139°22.6	153°53.6	168°24.6	182°55.6	197°26.5	211°57.5	+31.0	14.9
	-17°58.7	-17°56.5	-17°54.1	-17°51.7	-17°49.2	-17°46.7	-17°44.0	-17°41.2	-17°38.4	-17°35.5	-17°32.5	+2.6	54.7
ma 2	69°41.2	84°12.1	98°43.0	113°13.9	127°44.8	142°15.6	156°46.5	171°17.4	185°48.2	200°19.1	214°49.9	+30.9	15.0
	-16°37.2	-16°32.8	-16°28.4	-16°23.9	-16°19.2	-16°14.6	-16°09.8	-16°04.9	-16°00.0	-15°55.0	-15°49.9	+4.7	55.2
di 3	72°32.1	87°02.9	101°33.7	116°04.5	130°35.2	145°06.0	159°36.7	174°07.5	188°38.2	203°09.0	217°39.7	+30.8	15.2
	-14°23.7	-14°17.4	-14°10.9	-14°04.4	-13°57.8	-13°51.1	-13°44.4	-13°37.5	-13°30.6	-13°23.6	-13°16.6	+6.7	55.8
wo 4	75°19.8	89°50.4	104°21.0	118°51.6	133°22.2	147°52.8	162°23.3	176°53.9	191°24.4	205°54.9	220°25.5	+30.6	15.4
	-11°22.1	-11°14.0	-11°05.7	-10°57.4	-10°49.0	-10°40.5	-10°32.0	-10°23.5	-10°14.8	-10°06.1	-9°57.3	+8.5	56.6
do 5	78°01.7	92°32.0	107°02.3	121°32.5	136°02.8	150°33.0	165°03.2	179°33.4	194°03.6	208°33.7	223°03.8	+30.2	15.7
	-7°38.8	-7°29.1	-7°19.3	-7°09.6	-6°59.7	-6°49.8	-6°39.9	-6°29.9	-6°19.9	-6°09.8	-5°59.7	+9.9	57.5
vr 6	80°33.2	95°02.9	109°32.7	124°02.4	138°32.0	153°01.7	167°31.3	182°00.9	196°30.5	211°00.0	225°29.5	+29.6	15.9
	-3°23.1	-3°12.4	-3°01.6	-2°50.9	-2°40.1	-2°29.2	-2°18.4	-2°07.5	-1°56.5	-1°45.6	-1°34.6	+10.9	58.3
za 7	82°48.1	97°17.1	111°46.0	126°14.9	140°43.7	155°12.5	169°41.3	184°10.0	198°38.7	213°07.4	227°36.0	+28.8	16.1
	1°11.7	1°22.8	1°34.0	1°45.2	1°56.3	2°07.5	2°18.7	2°29.9	2°41.0	2°52.2	3°03.3	+11.2	59.0
● zo 8	84°40.0	99°07.9	113°35.8	128°03.6	142°31.4	156°59.1	171°26.8	185°54.4	200°22.0	214°49.5	229°17.0	+27.7	16.3
	5°48.9	5°59.8	6°10.6	6°21.4	6°32.2	6°43.0	6°53.7	7°04.4	7°15.0	7°25.6	7°36.2	+10.7	59.6
ma 9	86°03.6	100°30.3	114°57.0	129°23.6	143°50.2	158°16.7	172°43.2	187°09.6	201°36.0	216°02.3	230°28.6	+26.5	16.4
	10°09.0	10°18.8	10°28.5	10°38.1	10°47.7	10°57.2	11°06.6	11°15.9	11°25.2	11°34.4	11°43.6	+9.5	60.0
di 10	86°57.4	101°23.0	115°48.5	130°14.0	144°39.5	159°04.9	173°30.3	187°55.6	202°20.9	216°46.2	231°11.4	+25.4	16.4
	13°51.2	13°59.1	14°06.8	14°14.4	14°22.0	14°29.4	14°36.7	14°44.0	14°51.1	14°58.2	15°05.1	+7.4	60.1
wo 11	87°26.0	101°50.7	116°15.4	130°40.2	145°04.8	159°29.5	173°54.2	188°18.8	202°43.4	217°08.0	231°32.6	+24.7	16.4
	16°36.6	16°41.8	16°46.9	16°51.8	16°56.7	17°01.4	17°06.1	17°10.6	17°14.9	17°19.2	17°23.4	+4.7	60.0
do 12	87°40.5	102°05.0	116°29.6	130°54.1	145°18.6	159°43.2	174°07.7	188°32.3	202°56.8	217°21.4	231°46.0	+24.5	16.3
	18°10.9	18°13.1	18°15.1	18°17.0	18°18.8	18°20.5	18°22.0	18°23.5	18°24.8	18°25.9	18°27.0	+1.6	59.7
vr 13	87°57.5	102°22.4	116°47.4	131°12.5	145°37.6	160°02.7	174°27.8	188°53.0	203°18.2	217°43.5	232°08.8	+25.1	16.2
	18°27.6	18°26.7	18°25.6	18°24.4	18°23.1	18°21.7	18°20.2	18°18.5	18°16.7	18°14.8	18°12.8	-1.5	59.3
za 14	102°22.4	116°47.4	131°12.5	145°37.6	160°02.7	174°27.8	188°53.0	203°18.2	217°43.5	232°08.8	246°34.1	+25.2	16.2
	18°26.7	18°25.6	18°24.4	18°23.1	18°21.7	18°20.2	18°18.5	18°16.7	18°14.8	18°12.8	18°10.6	-1.6	59.2
◐ zo 15	102°59.6	117°25.7	131°51.9	146°18.1	160°44.3	175°10.7	189°37.0	204°03.5	218°29.9	232°56.5	247°23.1	+26.3	16.0
	17°24.8	17°20.8	17°16.8	17°12.6	17°08.4	17°04.0	16°59.5	16°55.0	16°50.3	16°45.5	16°40.7	-4.4	58.7
ma 16	104°09.0	118°36.5	133°04.1	147°31.8	161°59.5	176°27.3	190°55.1	205°23.1	219°51.0	234°19.1	248°47.1	+27.8	15.9
	15°16.2	15°09.9	15°03.4	14°56.9	14°50.3	14°43.6	14°36.9	14°30.0	14°23.1	14°16.1	14°09.0	-6.7	58.2
di 17	105°55.8	120°24.8	134°53.9	149°23.1	163°52.3	178°21.6	192°51.0	207°20.4	221°49.8	236°19.3	250°48.9	+29.3	15.7
	12°14.2	12°06.1	11°57.8	11°49.5	11°41.2	11°32.7	11°24.3	11°15.7	11°07.1	10°58.5	10°49.8	-8.4	57.6
wo 18	108°18.8	122°49.2	137°19.6	151°50.1	166°20.7	180°51.2	195°21.9	209°52.6	224°23.3	238°54.1	253°24.9	+30.6	15.6
	8°33.7	8°24.3	8°14.9	8°05.4	7°55.9	7°46.3	7°36.7	7°27.1	7°17.4	7°07.8	6°58.1	-9.6	57.0
do 19	111°12.0	125°43.5	140°14.9	154°46.4	169°18.0	183°49.6	198°21.2	212°52.8	227°24.5	241°56.2	256°27.9	+31.6	15.4
	4°29.5	4°19.4	4°09.4	3°59.3	3°49.2	3°39.1	3°28.9	3°18.8	3°08.7	2°58.5	2°48.3	-10.1	56.5
vr 20	114°27.2	128°59.3	143°31.5	158°03.6	172°35.8	187°08.0	201°40.3	216°12.5	230°44.8	245°17.1	259°49.4	+32.2	15.3
	0°15.6	0°05.4	-0°04.8	-0°14.9	-0°25.1	-0°35.2	-0°45.4	-0°55.5	-1°05.6	-1°15.7	-1°25.8	-10.1	56.0
za 21	117°55.4	132°27.9	147°00.4	161°32.8	176°05.3	190°37.9	205°10.4	219°42.9	234°15.4	248°47.9	263°20.5	+32.5	15.1
	-3°55.2	-4°05.0	-4°14.8	-4°24.6	-4°34.3	-4°44.0	-4°53.6	-5°03.3	-5°12.9	-5°22.5	-5°32.0	-9.7	55.5
○ zo 22	121°28.5	136°01.0	150°33.6	165°06.1	179°38.6	194°11.1	208°43.6	223°16.1	237°48.6	252°21.1	266°53.6	+32.5	15.0
	-7°51.2	-8°00.2	-8°09.2	-8°18.1	-8°26.9	-8°35.7	-8°44.5	-8°53.2	-9°01.9	-9°10.5	-9°19.1	-8.8	55.1
ma 23	124°59.9	139°32.3	154°04.6	168°37.0	183°09.3	197°41.6	212°13.9	226°46.2	241°18.4	255°50.7	270°23.0	+32.3	14.9
	-11°22.0	-11°29.8	-11°37.5	-11°45.2	-11°52.8	-12°00.3	-12°07.8	-12°15.3	-12°22.6	-12°29.9	-12°37.2	-7.5	54.7
di 24	128°25.2	142°57.3	157°29.3	172°01.3	186°33.3	201°05.3	215°37.3	230°09.3	244°41.2	259°13.2	273°45.1	+32.0	14.8
	-14°18.5	-14°24.7	-14°30.9	-14°37.0	-14°43.0	-14°49.0	-14°54.9	-15°00.7	-15°06.5	-15°12.1	-15°17.8	-5.9	54.4
wo 25	131°42.4	146°14.1	160°45.8	175°17.5	189°49.2	204°20.8	218°52.5	233°24.1	247°55.7	262°27.4	276°59.0	+31.7	14.8
	-16°33.2	-16°37.6	-16°42.0	-16°46.2	-16°50.4	-16°54.5	-16°58.6	-17°02.6	-17°06.4	-17°10.2	-17°14.0	-4.1	54.1
do 26	134°51.7	149°23.2	163°54.6	178°26.0	192°57.5	207°28.9	222°00.3	236°31.7	251°03.0	265°34.4	280°05.8	+31.4	14.7
	-18°00.3	-18°02.7	-18°05.0	-18°07.3	-18°09.5	-18°11.6	-18°13.6	-18°15.6	-18°17.4	-18°19.2	-18°20.9	-2.1	54.0
vr 27	137°55.6	152°26.9	166°58.1	181°29.4	196°00.7	210°32.0	225°03.2	239°34.5	254°05.7	268°37.0	283°08.3	+31.3	14.7
	-18°36.0	-18°36.3	-18°36.6	-18°36.7	-18°36.8	-18°36.8	-18°36.7	-18°36.5	-18°36.2	-18°35.9	-18°35.4	+0.1	54.1
za 28	140°57.0	155°28.2	169°59.5	184°30.7	199°02.0	213°33.2	228°04.5	242°35.8	257°07.0	271°38.3	286°09.5	+31.3	14.8
	-18°18.6	-18°16.8	-18°14.9	-18°12.9	-18°10.9	-18°08.7	-18°06.5	-18°04.2	-18°01.8	-17°59.3	-17°56.7	+2.2	54.3
zo 29	143°58.7	158°30.0	173°01.3	187°32.6	202°03.9	216°35.2	231°06.6	245°37.9	260°09.2	274°40.5	289°11.8	+31.3	14.9
	-17°08.3	-17°04.4	-17°00.4	-16°56.3	-16°52.2	-16°48.0	-16°43.7	-16°39.3	-16°34.8	-16°30.3	-16°25.7	+4.3	54.7
◑ ma 30	147°02.0	161°33.3	176°04.7	190°36.0	205°07.4	219°38.7	234°10.1	248°41.5	263°12.8	277°44.2	292°15.5	+31.4	15.1
	-15°06.9	-15°01.1	-14°55.1	-14°49.1	-14°43.0	-14°36.8	-14°30.6	-14°24.3	-14°17.9	-14°11.4	-14°04.9	+6.2	55.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 8 10h57 — EK: 15 02h54 — VM: 22 13h20 — LK: 30 16h53

ZON

Mei 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
di 1	180°42.0	195°42.1	210°42.2	225°42.2	240°42.3	255°42.4	90°43.4	105°43.4	120°43.5	135°43.6	150°43.6	165°43.7	+0.1
	14°57.6	14°58.3	14°59.1	14°59.8	15°00.6	15°01.4	15°11.2	15°11.9	15°12.7	15°13.4	15°14.2	15°14.9	+0.8
wo 2	180°43.8	195°43.9	210°43.9	225°44.0	240°44.1	255°44.1	90°45.0	105°45.1	120°45.2	135°45.2	150°45.3	165°45.4	+0.1
	15°15.7	15°16.4	15°17.2	15°17.9	15°18.7	15°19.4	15°29.1	15°29.8	15°30.6	15°31.3	15°32.1	15°32.8	+0.7
do 3	180°45.4	195°45.5	210°45.6	225°45.6	240°45.7	255°45.8	90°46.6	105°46.6	120°46.7	135°46.7	150°46.8	165°46.9	+0.1
	15°33.6	15°34.3	15°35.0	15°35.8	15°36.5	15°37.2	15°46.8	15°47.5	15°48.2	15°49.0	15°49.7	15°50.4	+0.7
vr 4	180°46.9	195°47.0	210°47.0	225°47.1	240°47.2	255°47.2	90°48.0	105°48.0	120°48.1	135°48.1	150°48.2	165°48.2	+0.1
	15°51.2	15°51.9	15°52.6	15°53.3	15°54.1	15°54.8	16°04.2	16°04.9	16°05.6	16°06.4	16°07.1	16°07.8	+0.7
za 5	180°48.3	195°48.3	210°48.4	225°48.4	240°48.5	255°48.5	90°49.2	105°49.3	120°49.3	135°49.4	150°49.4	165°49.4	+0.1
	16°08.5	16°09.2	16°09.9	16°10.7	16°11.4	16°12.1	16°21.4	16°22.1	16°22.8	16°23.5	16°24.2	16°24.9	+0.7
zo 6	180°49.5	195°49.5	210°49.6	225°49.6	240°49.7	255°49.7	90°50.3	105°50.4	120°50.4	135°50.4	150°50.5	165°50.5	+0.0
	16°25.6	16°26.3	16°27.0	16°27.7	16°28.4	16°29.1	16°38.2	16°38.9	16°39.6	16°40.3	16°41.0	16°41.7	+0.7
ma 7	180°50.6	195°50.6	210°50.7	225°50.7	240°50.7	255°50.8	90°51.3	105°51.3	120°51.4	135°51.4	150°51.4	165°51.5	+0.0
	16°42.4	16°43.1	16°43.8	16°44.5	16°45.2	16°45.9	16°54.8	16°55.5	16°56.2	16°56.9	16°57.6	16°58.3	+0.7
di 8	180°51.5	195°51.5	210°51.6	225°51.6	240°51.6	255°51.7	90°52.1	105°52.1	120°52.2	135°52.2	150°52.2	165°52.3	+0.0
	16°58.9	16°59.6	17°00.3	17°01.0	17°01.7	17°02.3	17°11.2	17°11.8	17°12.5	17°13.2	17°13.8	17°14.5	+0.7
wo 9	180°52.3	195°52.3	210°52.3	225°52.4	240°52.4	255°52.4	90°52.8	105°52.8	120°52.8	135°52.9	150°52.9	165°52.9	+0.0
	17°15.2	17°15.9	17°16.5	17°17.2	17°17.9	17°18.5	17°27.2	17°27.9	17°28.5	17°29.2	17°29.8	17°30.5	+0.7
do 10	180°52.9	195°53.0	210°53.0	225°53.0	240°53.0	255°53.1	90°53.3	105°53.3	120°53.4	135°53.4	150°53.4	165°53.4	+0.0
	17°31.2	17°31.8	17°32.5	17°33.1	17°33.8	17°34.4	17°42.9	17°43.6	17°44.2	17°44.9	17°45.5	17°46.2	+0.7
vr 11	180°53.4	195°53.5	210°53.5	225°53.5	240°53.5	255°53.5	90°53.7	105°53.7	120°53.8	135°53.8	150°53.8	165°53.8	+0.0
	17°46.8	17°47.5	17°48.1	17°48.8	17°49.4	17°50.0	17°58.4	17°59.0	17°59.6	18°00.3	18°00.9	18°01.6	+0.6
za 12	180°53.8	195°53.8	210°53.8	225°53.8	240°53.9	255°53.9	90°54.0	105°54.0	120°54.0	135°54.0	150°54.0	165°54.0	+0.0
	18°02.2	18°02.8	18°03.5	18°04.1	18°04.7	18°05.4	18°13.5	18°14.1	18°14.8	18°15.4	18°16.0	18°16.6	+0.6
zo 13	180°54.0	195°54.0	210°54.1	225°54.1	240°54.1	255°54.1	90°54.1	105°54.1	120°54.1	135°54.1	150°54.1	165°54.1	+0.0
	18°17.3	18°17.9	18°18.5	18°19.1	18°19.7	18°20.4	18°28.3	18°29.0	18°29.6	18°30.2	18°30.8	18°31.4	+0.6
ma 14	180°54.1	195°54.1	210°54.1	225°54.1	240°54.1	255°54.1	90°54.1	105°54.1	120°54.1	135°54.1	150°54.1	165°54.1	+0.0
	18°32.0	18°32.6	18°33.2	18°33.8	18°34.4	18°35.0	18°42.9	18°43.5	18°44.1	18°44.7	18°45.3	18°45.9	+0.6
di 15	180°54.1	195°54.1	210°54.1	225°54.1	240°54.1	255°54.1	90°54.0	105°54.0	120°53.9	135°53.9	150°53.9	165°53.9	-0.0
	18°46.5	18°47.0	18°47.6	18°48.2	18°48.8	18°49.4	18°57.1	18°57.7	18°58.2	18°58.8	18°59.4	19°00.0	+0.6
wo 16	180°53.9	195°53.9	210°53.9	225°53.9	240°53.9	255°53.9	90°53.7	105°53.7	120°53.7	135°53.6	150°53.6	165°53.6	-0.0
	19°00.6	19°01.2	19°01.7	19°02.3	19°02.9	19°03.5	19°11.0	19°11.5	19°12.1	19°12.7	19°13.2	19°13.8	+0.6
do 17	180°53.6	195°53.6	210°53.6	225°53.5	240°53.5	255°53.5	90°53.3	105°53.2	120°53.2	135°53.2	150°53.2	165°53.2	-0.0
	19°14.4	19°14.9	19°15.5	19°16.1	19°16.6	19°17.2	19°24.5	19°25.1	19°25.6	19°26.2	19°26.7	19°27.3	+0.6
vr 18	180°53.1	195°53.1	210°53.1	225°53.1	240°53.0	255°53.0	90°52.7	105°52.7	120°52.7	135°52.6	150°52.6	165°52.6	-0.0
	19°27.8	19°28.4	19°29.0	19°29.5	19°30.1	19°30.6	19°37.7	19°38.3	19°38.8	19°39.4	19°39.9	19°40.4	+0.6
za 19	180°52.5	195°52.5	210°52.5	225°52.5	240°52.4	255°52.4	90°52.0	105°52.0	120°52.0	135°51.9	150°51.9	165°51.9	-0.0
	19°41.0	19°41.5	19°42.1	19°42.6	19°43.1	19°43.7	19°50.6	19°51.1	19°51.7	19°52.2	19°52.7	19°53.3	+0.5
zo 20	180°51.8	195°51.8	210°51.8	225°51.7	240°51.7	255°51.7	90°51.2	105°51.2	120°51.1	135°51.1	150°51.0	165°51.0	-0.0
	19°53.8	19°54.3	19°54.8	19°55.4	19°55.9	19°56.4	20°03.2	20°03.7	20°04.2	20°04.7	20°05.2	20°05.7	+0.5
ma 21	180°51.0	195°50.9	210°50.9	225°50.9	240°50.8	255°50.8	90°50.2	105°50.2	120°50.2	135°50.1	150°50.1	165°50.0	-0.0
	20°06.3	20°06.8	20°07.3	20°07.8	20°08.3	20°08.8	20°15.4	20°15.9	20°16.4	20°16.9	20°17.4	20°17.9	+0.5
di 22	180°50.0	195°49.9	210°49.9	225°49.8	240°49.8	255°49.8	90°49.2	105°49.1	120°49.1	135°49.0	150°49.0	165°48.9	-0.0
	20°18.4	20°18.9	20°19.4	20°19.9	20°20.4	20°20.9	20°27.2	20°27.7	20°28.2	20°28.7	20°29.2	20°29.7	+0.5
wo 23	180°48.9	195°48.8	210°48.8	225°48.7	240°48.7	255°48.6	90°47.9	105°47.9	120°47.8	135°47.8	150°47.7	165°47.7	-0.0
	20°30.1	20°30.6	20°31.1	20°31.6	20°32.1	20°32.6	20°38.7	20°39.2	20°39.7	20°40.2	20°40.6	20°41.1	+0.5
do 24	180°47.6	195°47.6	210°47.5	225°47.4	240°47.4	255°47.3	90°46.6	105°46.5	120°46.5	135°46.4	150°46.4	165°46.3	-0.1
	20°41.6	20°42.0	20°42.5	20°43.0	20°43.4	20°43.9	20°49.9	20°50.4	20°50.8	20°51.3	20°51.7	20°52.2	+0.5
vr 25	180°46.2	195°46.2	210°46.1	225°46.0	240°46.0	255°45.9	90°45.1	105°45.0	120°45.0	135°44.9	150°44.9	165°44.8	-0.1
	20°52.6	20°53.1	20°53.5	20°54.0	20°54.4	20°54.9	21°00.7	21°01.1	21°01.6	21°02.0	21°02.5	21°02.9	+0.5
za 26	180°44.7	195°44.7	210°44.6	225°44.5	240°44.5	255°44.4	90°43.5	105°43.4	120°43.4	135°43.3	150°43.2	165°43.2	-0.1
	21°03.3	21°03.8	21°04.2	21°04.6	21°05.1	21°05.5	21°11.1	21°11.6	21°12.0	21°12.4	21°12.8	21°13.3	+0.4
zo 27	180°43.1	195°43.0	210°43.0	225°42.9	240°42.8	255°42.7	90°41.8	105°41.7	120°41.6	135°41.6	150°41.5	165°41.4	-0.1
	21°13.7	21°14.1	21°14.5	21°14.9	21°15.4	21°15.8	21°21.2	21°21.6	21°22.0	21°22.4	21°22.8	21°23.2	+0.4
ma 28	180°41.3	195°41.3	210°41.2	225°41.1	240°41.0	255°41.0	90°40.0	105°39.9	120°39.8	135°39.7	150°39.6	165°39.6	-0.1
	21°23.7	21°24.1	21°24.5	21°24.9	21°25.3	21°25.7	21°30.9	21°31.3	21°31.7	21°32.1	21°32.5	21°32.9	+0.4
di 29	180°39.5	195°39.4	210°39.3	225°39.2	240°39.2	255°39.1	90°38.0	105°37.9	120°37.8	135°37.7	150°37.7	165°37.6	-0.1
	21°33.3	21°33.7	21°34.0	21°34.4	21°34.8	21°35.2	21°40.2	21°40.6	21°41.0	21°41.4	21°41.7	21°42.1	+0.4
wo 30	180°37.5	195°37.4	210°37.3	225°37.2	240°37.1	255°37.1	90°35.9	105°35.8	120°35.7	135°35.7	150°35.6	165°35.5	-0.1
	21°42.5	21°42.9	21°43.2	21°43.6	21°44.0	21°44.4	21°49.2	21°49.5	21°49.9	21°50.3	21°50.6	21°51.0	+0.4
do 31	180°35.4	195°35.3	210°35.2	225°35.1	240°35.0	255°34.9	90°33.7	105°33.6	120°33.6	135°33.5	150°33.4	165°33.3	-0.1
	21°51.3	21°51.7	21°52.1	21°52.4	21°52.8	21°53.1	21°57.7	21°58.1	21°58.4	21°58.8	21°59.1	21°59.5	+0.4

Rij 1: GHA (uurhoek van Greenwich), $\Delta'/\mathrm{h} = v$: verandering van de GHA $- 15°$
Rij 2: dec (declinatie, $-$ = zuid), $\Delta'/\mathrm{h} = d$: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Mei 2035

D	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	Δ'/h	SD/HP
di 1	62°57.7	77°29.0	92°00.3	106°31.7	121°03.0	135°34.3	150°05.6	164°36.9	179°08.2	193°39.5	208°10.8	+31.3	15.2
	-13°02.8	-12°55.5	-12°48.2	-12°40.8	-12°33.3	-12°25.8	-12°18.2	-12°10.6	-12°02.8	-11°55.0	-11°47.2	+7.6	55.8
wo 2	65°59.2	80°30.3	95°01.4	109°32.5	124°03.6	138°34.7	153°05.8	167°36.8	182°07.9	196°38.9	211°09.9	+31.1	15.4
	-9°41.5	-9°32.7	-9°23.8	-9°14.8	-9°05.7	-8°56.6	-8°47.5	-8°38.3	-8°29.0	-8°19.7	-8°10.3	+9.1	56.6
do 3	68°52.5	83°23.2	97°53.8	112°24.4	126°55.0	141°25.6	155°56.1	170°26.6	184°57.0	199°27.5	213°57.9	+30.5	15.7
	-5°43.8	-5°33.6	-5°23.4	-5°13.2	-5°02.9	-4°52.6	-4°42.2	-4°31.9	-4°21.4	-4°11.0	-4°00.5	+10.3	57.5
vr 4	71°29.8	85°59.6	100°29.4	114°59.1	129°28.8	143°58.5	158°28.1	172°57.7	187°27.2	201°56.7	216°26.1	+29.6	15.9
	-1°19.0	-1°08.1	-0°57.1	-0°46.0	-0°35.0	-0°23.9	-0°12.9	-0°01.8	0°09.3	0°20.5	0°31.6	+11.1	58.5
za 5	73°41.8	88°10.4	102°38.9	117°07.5	131°35.9	146°04.3	160°32.7	175°00.9	189°29.2	203°57.3	218°25.4	+28.4	16.2
	3°19.5	3°30.7	3°41.9	3°53.1	4°04.2	4°15.4	4°26.6	4°37.7	4°48.8	4°59.9	5°11.0	+11.2	59.4
zo 6	75°19.7	89°46.8	104°13.9	118°40.9	133°07.8	147°34.6	162°01.4	176°28.1	190°54.8	205°21.4	219°47.9	+26.8	16.4
	7°54.6	8°05.2	8°15.8	8°26.4	8°36.9	8°47.4	8°57.8	9°08.2	9°18.5	9°28.8	9°39.0	+10.5	60.1
● ma 7	76°18.0	90°43.5	105°08.9	119°34.3	133°59.6	148°24.8	162°50.0	177°15.1	191°40.1	206°05.1	220°30.1	+25.2	16.5
	12°05.2	12°14.4	12°23.6	12°32.6	12°41.6	12°50.4	12°59.2	13°08.0	13°16.6	13°25.1	13°33.6	+8.8	60.7
di 8	76°37.4	91°01.5	105°25.5	119°49.5	134°13.4	148°37.3	163°01.2	177°25.0	191°48.7	206°12.5	220°36.2	+23.9	16.6
	15°28.8	15°35.7	15°42.4	15°49.1	15°55.6	16°02.0	16°08.3	16°14.5	16°20.5	16°26.5	16°32.3	+6.4	60.9
wo 9	76°28.0	90°51.2	105°14.5	119°37.7	134°01.0	148°24.2	162°47.4	177°10.6	191°33.8	205°57.0	220°20.2	+23.2	16.6
	17°45.0	17°48.8	17°52.5	17°56.0	17°59.5	18°02.8	18°05.9	18°09.0	18°11.9	18°14.6	18°17.2	+3.2	60.8
do 10	76°09.0	90°32.3	104°55.7	119°19.2	133°42.6	148°06.1	162°29.6	176°53.1	191°16.7	205°40.3	220°04.0	+23.5	16.5
	18°40.4	18°40.9	18°41.2	18°41.4	18°41.5	18°41.4	18°41.2	18°40.9	18°40.4	18°39.8	18°39.0	-0.1	60.4
vr 11	76°03.8	90°28.2	104°52.6	119°17.2	133°41.7	148°06.3	162°31.0	176°55.8	191°20.6	205°45.5	220°10.4	+24.7	16.3
	18°12.4	18°09.7	18°06.8	18°03.7	18°00.6	17°57.3	17°54.0	17°50.5	17°46.9	17°43.1	17°39.3	-3.3	59.8
za 12	76°32.7	90°58.7	105°24.9	119°51.1	134°17.3	148°43.7	163°10.1	177°36.6	192°03.2	206°29.9	220°56.6	+26.4	16.1
	16°28.5	16°22.9	16°17.3	16°11.5	16°05.7	15°59.7	15°53.7	15°47.6	15°41.4	15°35.1	15°28.7	-6.0	59.0
zo 13	77°46.8	92°14.8	106°42.8	121°10.9	135°39.1	150°07.4	164°35.7	179°04.1	193°32.6	208°01.1	222°29.8	+28.3	15.9
	13°42.8	13°35.1	13°27.4	13°19.6	13°11.7	13°03.8	12°55.8	12°47.7	12°39.5	12°31.3	12°23.1	-8.0	58.2
◐ ma 14	92°14.8	106°42.8	121°10.9	135°39.1	150°07.4	164°35.7	179°04.1	193°32.6	208°01.1	222°29.8	236°58.5	+28.4	15.9
	13°35.1	13°27.4	13°19.6	13°11.7	13°03.8	12°55.8	12°47.7	12°39.5	12°31.3	12°23.1	12°14.7	-8.0	58.2
di 15	94°17.4	108°47.2	123°17.1	137°47.0	152°17.0	166°47.1	181°17.2	195°47.4	210°17.6	224°47.9	239°18.3	+30.1	15.7
	10°03.3	9°54.2	9°45.0	9°35.8	9°26.5	9°17.2	9°07.8	8°58.4	8°49.0	8°39.5	8°30.0	-9.3	57.4
wo 16	97°00.4	111°31.7	126°02.9	140°34.3	155°05.6	169°37.0	184°08.5	198°40.0	213°11.6	227°43.1	242°14.8	+31.4	15.5
	6°03.9	5°54.0	5°44.0	5°34.0	5°24.0	5°14.0	5°04.0	4°54.0	4°43.9	4°33.8	4°23.7	-10.0	56.7
do 17	100°13.9	114°46.1	129°18.3	143°50.6	158°22.9	172°55.2	187°27.6	201°59.9	216°32.3	231°04.8	245°37.2	+32.3	15.3
	1°51.4	1°41.2	1°31.1	1°20.9	1°10.7	1°00.5	0°50.3	0°40.2	0°30.0	0°19.8	0°09.7	-10.2	56.0
vr 18	103°46.5	118°19.2	132°52.0	147°24.8	161°57.6	176°30.4	191°03.2	205°36.0	220°08.8	234°41.7	249°14.5	+32.8	15.1
	-2°21.5	-2°31.5	-2°41.4	-2°51.3	-3°01.3	-3°11.1	-3°21.0	-3°30.9	-3°40.7	-3°50.5	-4°00.3	-9.9	55.5
za 19	107°27.7	122°00.6	136°33.5	151°06.4	165°39.3	180°12.2	194°45.1	209°18.0	223°50.8	238°23.7	252°56.6	+32.9	15.0
	-6°23.8	-6°33.1	-6°42.4	-6°51.7	-7°00.9	-7°10.1	-7°19.2	-7°28.3	-7°37.4	-7°46.4	-7°55.4	-9.2	55.0
zo 20	111°08.7	125°41.4	140°14.1	154°46.8	169°19.5	183°52.2	198°24.9	212°57.5	227°30.2	242°02.8	256°35.4	+32.7	14.9
	-10°05.4	-10°13.7	-10°21.9	-10°30.1	-10°38.3	-10°46.4	-10°54.4	-11°02.4	-11°10.4	-11°18.3	-11°26.1	-8.1	54.6
ma 21	114°42.8	129°15.2	143°47.5	158°19.9	172°52.2	187°24.5	201°56.8	216°29.0	231°01.3	245°33.5	260°05.7	+32.3	14.8
	-13°17.1	-13°24.0	-13°30.9	-13°37.7	-13°44.4	-13°51.1	-13°57.7	-14°04.3	-14°10.7	-14°17.2	-14°23.5	-6.6	54.3
○ di 22	118°06.6	132°38.5	147°10.4	161°42.3	176°14.2	190°46.0	205°17.9	219°49.7	234°21.5	248°53.3	263°25.0	+31.8	14.8
	-15°50.7	-15°55.9	-16°01.1	-16°06.2	-16°11.2	-16°16.2	-16°21.0	-16°25.8	-16°30.6	-16°35.2	-16°39.8	-4.9	54.1
wo 23	121°19.7	135°51.2	150°22.7	164°54.2	179°25.7	193°57.2	208°28.7	223°00.1	237°31.6	252°03.0	266°34.4	+31.5	14.7
	-17°39.2	-17°42.5	-17°45.7	-17°48.9	-17°52.0	-17°55.0	-17°57.9	-18°00.7	-18°03.5	-18°06.1	-18°08.7	-3.0	54.0
do 24	124°24.6	138°55.9	153°27.1	167°58.4	182°29.7	197°01.0	211°32.2	226°03.5	240°34.7	255°06.0	269°37.2	+31.3	14.7
	-18°37.5	-18°38.7	-18°39.8	-18°40.9	-18°41.9	-18°42.8	-18°43.6	-18°44.3	-18°45.0	-18°45.5	-18°46.0	-0.9	53.9
vr 25	127°25.8	141°57.0	156°28.3	170°59.5	185°30.8	200°02.0	214°33.3	229°04.6	243°35.8	258°07.1	272°38.4	+31.3	14.7
	-18°42.7	-18°41.8	-18°40.8	-18°39.7	-18°38.5	-18°37.3	-18°35.9	-18°34.5	-18°33.0	-18°31.4	-18°29.7	+1.3	54.0
za 26	130°28.2	144°59.6	159°31.0	174°02.4	188°33.8	203°05.2	217°36.6	232°08.1	246°39.5	261°10.9	275°42.4	+31.4	14.8
	-17°54.4	-17°51.4	-17°48.3	-17°45.1	-17°41.8	-17°38.5	-17°35.0	-17°31.5	-17°27.9	-17°24.3	-17°20.5	+3.4	54.2
zo 27	133°35.5	148°07.1	162°38.7	177°10.3	191°42.0	206°13.6	220°45.3	235°17.0	249°48.6	264°20.3	278°52.0	+31.7	14.9
	-16°14.5	-16°09.5	-16°04.4	-15°59.2	-15°54.0	-15°48.7	-15°43.3	-15°37.8	-15°32.2	-15°26.6	-15°20.9	+5.4	54.6
ma 28	136°48.5	151°20.3	165°52.2	180°24.0	194°55.8	209°27.7	223°59.5	238°31.4	253°03.2	267°35.1	282°06.9	+31.8	15.0
	-13°46.8	-13°40.0	-13°33.1	-13°26.1	-13°19.1	-13°12.0	-13°04.8	-12°57.5	-12°50.2	-12°42.9	-12°35.4	+7.1	55.1
di 29	140°05.0	154°36.9	169°08.7	183°40.6	198°12.4	212°44.3	227°16.1	241°48.0	256°19.8	270°51.6	285°23.4	+31.8	15.2
	-10°36.5	-10°28.1	-10°19.6	-10°11.1	-10°02.5	-9°53.9	-9°45.2	-9°36.4	-9°27.6	-9°18.8	-9°09.9	+8.7	55.8
◑ wo 30	143°19.3	157°50.9	172°22.5	186°54.0	201°25.6	215°57.1	230°28.6	245°00.1	259°31.6	274°03.0	288°34.5	+31.5	15.4
	-6°50.2	-6°40.5	-6°30.8	-6°21.0	-6°11.2	-6°01.3	-5°51.4	-5°41.5	-5°31.5	-5°21.4	-5°11.4	+9.9	56.6
do 31	146°22.6	160°53.5	175°24.4	189°55.3	204°26.2	218°57.0	233°27.8	247°58.5	262°29.2	276°59.8	291°30.5	+30.8	15.7
	-2°36.2	-2°25.6	-2°15.0	-2°04.3	-1°53.6	-1°42.9	-1°32.2	-1°21.5	-1°10.7	-0°59.9	-0°49.1	+10.7	57.6

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 7 20h03 — EK: 14 10h28 — VM: 22 04h25 — LK: 30 07h30

ZON

Juni 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
vr 1	180°33.2	195°33.1	210°33.0	225°32.9	240°32.8	255°32.7	90°31.4	105°31.4	120°31.3	135°31.2	150°31.1	165°31.0	-0.1
	21°59.8	22°00.2	22°00.5	22°00.9	22°01.2	22°01.5	22°05.9	22°06.3	22°06.6	22°06.9	22°07.3	22°07.6	+0.3
za 2	180°30.9	195°30.8	210°30.7	225°30.6	240°30.5	255°30.4	90°29.1	105°29.0	120°28.9	135°28.8	150°28.7	165°28.5	-0.1
	22°07.9	22°08.2	22°08.6	22°08.9	22°09.2	22°09.6	22°13.7	22°14.1	22°14.4	22°14.7	22°15.0	22°15.3	+0.3
zo 3	180°28.4	195°28.3	210°28.2	225°28.1	240°28.0	255°27.9	90°26.6	105°26.5	120°26.4	135°26.3	150°26.1	165°26.0	-0.1
	22°15.6	22°15.9	22°16.2	22°16.6	22°16.9	22°17.2	22°21.2	22°21.5	22°21.8	22°22.1	22°22.3	22°22.6	+0.3
ma 4	180°25.9	195°25.8	210°25.7	225°25.6	240°25.5	255°25.4	90°24.0	105°23.9	120°23.8	135°23.7	150°23.6	165°23.4	-0.1
	22°22.9	22°23.2	22°23.5	22°23.8	22°24.1	22°24.4	22°28.2	22°28.5	22°28.7	22°29.0	22°29.3	22°29.6	+0.3
di 5	180°23.3	195°23.2	210°23.1	225°23.0	240°22.9	255°22.8	90°21.3	105°21.2	120°21.1	135°21.0	150°20.9	165°20.8	-0.1
	22°29.9	22°30.2	22°30.4	22°30.7	22°31.0	22°31.3	22°34.8	22°35.1	22°35.3	22°35.6	22°35.9	22°36.1	+0.3
wo 6	180°20.6	195°20.5	210°20.4	225°20.3	240°20.2	255°20.1	90°18.6	105°18.5	120°18.3	135°18.2	150°18.1	165°18.0	-0.1
	22°36.4	22°36.7	22°36.9	22°37.2	22°37.5	22°37.7	22°41.0	22°41.3	22°41.5	22°41.8	22°42.0	22°42.3	+0.3
do 7	180°17.9	195°17.8	210°17.6	225°17.5	240°17.4	255°17.3	90°15.8	105°15.6	120°15.5	135°15.4	150°15.3	165°15.2	-0.1
	22°42.5	22°42.8	22°43.0	22°43.3	22°43.5	22°43.8	22°46.9	22°47.1	22°47.4	22°47.6	22°47.8	22°48.1	+0.2
vr 8	180°15.0	195°14.9	210°14.8	225°14.7	240°14.6	255°14.4	90°12.9	105°12.7	120°12.6	135°12.5	150°12.4	165°12.3	-0.1
	22°48.3	22°48.5	22°48.7	22°49.0	22°49.2	22°49.4	22°52.3	22°52.5	22°52.8	22°53.0	22°53.2	22°53.4	+0.2
za 9	180°12.1	195°12.0	210°11.9	225°11.8	240°11.6	255°11.5	90°09.9	105°09.8	120°09.7	135°09.5	150°09.4	165°09.3	-0.1
	22°53.6	22°53.8	22°54.1	22°54.3	22°54.5	22°54.7	22°57.4	22°57.6	22°57.8	22°58.0	22°58.2	22°58.4	+0.2
zo 10	180°09.2	195°09.0	210°08.9	225°08.8	240°08.7	255°08.5	90°06.9	105°06.8	120°06.7	135°06.5	150°06.4	165°06.3	-0.1
	22°58.6	22°58.8	22°59.0	22°59.2	22°59.3	22°59.5	23°02.0	23°02.2	23°02.4	23°02.6	23°02.7	23°02.9	+0.2
ma 11	180°06.2	195°06.0	210°05.9	225°05.8	240°05.7	255°05.5	90°03.9	105°03.7	120°03.6	135°03.5	150°03.4	165°03.2	-0.1
	23°03.1	23°03.3	23°03.5	23°03.6	23°03.8	23°04.0	23°06.2	23°06.4	23°06.6	23°06.7	23°06.9	23°07.1	+0.2
di 12	180°03.1	195°03.0	210°02.8	225°02.7	240°02.6	255°02.5	90°00.8	105°00.6	120°00.5	135°00.4	150°00.3	165°00.1	-0.1
	23°07.2	23°07.4	23°07.5	23°07.7	23°07.9	23°08.0	23°10.0	23°10.2	23°10.3	23°10.5	23°10.6	23°10.8	+0.2
wo 13	180°00.0	194°59.9	209°59.7	224°59.6	239°59.5	254°59.3	89°57.6	104°57.5	119°57.4	134°57.2	149°57.1	164°57.0	-0.1
	23°10.9	23°11.1	23°11.2	23°11.4	23°11.5	23°11.7	23°13.5	23°13.6	23°13.7	23°13.9	23°14.0	23°14.1	+0.1
do 14	179°56.9	194°56.7	209°56.6	224°56.5	239°56.3	254°56.2	89°54.5	104°54.3	119°54.2	134°54.1	149°53.9	164°53.8	-0.1
	23°14.2	23°14.4	23°14.5	23°14.6	23°14.8	23°14.9	23°16.5	23°16.6	23°16.7	23°16.8	23°16.9	23°17.0	+0.1
vr 15	179°53.7	194°53.5	209°53.4	224°53.3	239°53.1	254°53.0	89°51.3	104°51.2	119°51.0	134°50.9	149°50.8	164°50.6	-0.1
	23°17.1	23°17.3	23°17.4	23°17.5	23°17.6	23°17.7	23°19.0	23°19.1	23°19.2	23°19.3	23°19.4	23°19.5	+0.1
za 16	179°50.5	194°50.3	209°50.2	224°50.1	239°49.9	254°49.8	89°48.1	104°47.9	119°47.8	134°47.7	149°47.5	164°47.4	-0.1
	23°19.6	23°19.7	23°19.8	23°19.9	23°20.0	23°20.1	23°21.2	23°21.3	23°21.4	23°21.5	23°21.5	23°21.6	+0.1
zo 17	179°47.3	194°47.1	209°47.0	224°46.9	239°46.7	254°46.6	89°44.8	104°44.7	119°44.6	134°44.4	149°44.3	164°44.2	-0.1
	23°21.7	23°21.8	23°21.9	23°21.9	23°22.0	23°22.1	23°23.0	23°23.1	23°23.1	23°23.2	23°23.2	23°23.3	+0.1
ma 18	179°44.0	194°43.9	209°43.8	224°43.6	239°43.5	254°43.4	89°41.6	104°41.5	119°41.3	134°41.2	149°41.1	164°40.9	-0.1
	23°23.4	23°23.4	23°23.5	23°23.5	23°23.6	23°23.7	23°24.3	23°24.4	23°24.4	23°24.5	23°24.5	23°24.6	+0.1
di 19	179°40.8	194°40.7	209°40.5	224°40.4	239°40.3	254°40.1	89°38.4	104°38.2	119°38.1	134°37.9	149°37.8	164°37.7	-0.1
	23°24.6	23°24.7	23°24.7	23°24.7	23°24.8	23°24.8	23°25.3	23°25.3	23°25.3	23°25.4	23°25.4	23°25.4	+0.0
wo 20	179°37.5	194°37.4	209°37.3	224°37.1	239°37.0	254°36.9	89°35.1	104°35.0	119°34.8	134°34.7	149°34.6	164°34.4	-0.1
	23°25.5	23°25.5	23°25.5	23°25.5	23°25.5	23°25.6	23°25.8	23°25.8	23°25.8	23°25.8	23°25.9	23°25.9	+0.0
do 21	179°34.3	194°34.2	209°34.0	224°33.9	239°33.8	254°33.6	89°31.9	104°31.7	119°31.6	134°31.5	149°31.3	164°31.2	-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
vr 22	179°31.1	194°30.9	209°30.8	224°30.6	239°30.5	254°30.4	89°28.6	104°28.5	119°28.4	134°28.2	149°28.1	164°28.0	-0.1
	23°25.9	23°25.9	23°25.9	23°25.9	23°25.8	23°25.8	23°25.6	23°25.6	23°25.6	23°25.5	23°25.5	23°25.5	-0.0
za 23	179°27.8	194°27.7	209°27.6	224°27.4	239°27.3	254°27.1	89°25.4	104°25.3	119°25.1	134°25.0	149°24.9	164°24.7	-0.1
	23°25.5	23°25.5	23°25.4	23°25.4	23°25.4	23°25.3	23°24.9	23°24.9	23°24.8	23°24.8	23°24.7	23°24.7	-0.0
zo 24	179°24.6	194°24.5	209°24.3	224°24.2	239°24.1	254°23.9	89°22.2	104°22.1	119°21.9	134°21.8	149°21.7	164°21.5	-0.1
	23°24.7	23°24.6	23°24.6	23°24.5	23°24.5	23°24.4	23°23.8	23°23.7	23°23.7	23°23.6	23°23.5	23°23.5	-0.0
ma 25	179°21.4	194°21.3	209°21.1	224°21.0	239°20.9	254°20.7	89°19.0	104°18.9	119°18.8	134°18.6	149°18.5	164°18.4	-0.1
	23°23.4	23°23.4	23°23.3	23°23.2	23°23.2	23°23.1	23°22.2	23°22.2	23°22.1	23°22.0	23°21.9	23°21.9	-0.1
di 26	179°18.2	194°18.1	209°18.0	224°17.8	239°17.7	254°17.6	89°15.9	104°15.7	119°15.6	134°15.5	149°15.4	164°15.2	-0.1
	23°21.8	23°21.7	23°21.6	23°21.6	23°21.5	23°21.4	23°20.3	23°20.2	23°20.1	23°20.0	23°19.9	23°19.8	-0.1
wo 27	179°15.1	194°15.0	209°14.8	224°14.7	239°14.6	254°14.4	89°12.8	104°12.6	119°12.5	134°12.4	149°12.2	164°12.1	-0.1
	23°19.7	23°19.6	23°19.5	23°19.4	23°19.4	23°19.3	23°17.9	23°17.8	23°17.7	23°17.6	23°17.5	23°17.4	-0.1
do 28	179°12.0	194°11.9	209°11.7	224°11.6	239°11.5	254°11.3	89°09.7	104°09.6	119°09.4	134°09.3	149°09.2	164°09.1	-0.1
	23°17.3	23°17.2	23°17.0	23°16.9	23°16.8	23°16.7	23°15.2	23°15.0	23°14.9	23°14.8	23°14.7	23°14.5	-0.1
vr 29	179°08.9	194°08.8	209°08.7	224°08.5	239°08.4	254°08.3	89°06.7	104°06.5	119°06.4	134°06.3	149°06.2	164°06.0	-0.1
	23°14.4	23°14.3	23°14.1	23°14.0	23°13.9	23°13.8	23°12.0	23°11.8	23°11.7	23°11.6	23°11.4	23°11.3	-0.1
za 30	179°05.9	194°05.8	209°05.7	224°05.5	239°05.4	254°05.3	89°03.7	104°03.6	119°03.4	134°03.3	149°03.2	164°03.1	-0.1
	23°11.1	23°11.0	23°10.8	23°10.7	23°10.5	23°10.4	23°08.4	23°08.2	23°08.1	23°07.9	23°07.8	23°07.6	-0.1

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juni 2035

D	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	Δ'/h	SD/HP
vr 1	62°04.0	76°34.1	91°04.2	105°34.3	120°04.3	134°34.2	149°04.1	163°34.0	178°03.8	192°33.5	207°03.2	+29.9	15.9
	0°49.0	1°00.0	1°10.9	1°21.9	1°32.9	1°43.9	1°54.9	2°06.0	2°17.0	2°28.0	2°39.0	+11.0	58.3
za 2	64°21.2	78°49.9	93°18.6	107°47.1	122°15.6	136°44.0	151°12.4	165°40.7	180°08.9	194°37.0	209°05.1	+28.4	16.2
	5°24.0	5°34.9	5°45.8	5°56.7	6°07.6	6°18.4	6°29.2	6°40.0	6°50.8	7°01.6	7°12.3	+10.8	59.3
zo 3	65°57.1	80°24.0	94°50.8	109°17.5	123°44.1	138°10.6	152°37.1	167°03.5	181°29.8	195°56.0	210°22.2	+26.5	16.4
	9°48.9	9°59.0	10°09.0	10°19.0	10°29.0	10°38.8	10°48.7	10°58.4	11°08.1	11°17.8	11°27.4	+9.9	60.2
ma 4	66°44.9	81°09.8	95°34.6	109°59.4	124°24.0	138°48.6	153°13.1	167°37.6	182°02.0	196°26.3	210°50.5	+24.6	16.6
	13°42.6	13°51.0	13°59.3	14°07.4	14°15.6	14°23.6	14°31.5	14°39.3	14°47.0	14°54.7	15°02.2	+8.0	60.9
di 5	66°46.1	81°09.3	95°32.5	109°55.6	124°18.7	138°41.7	153°04.7	167°27.6	181°50.5	196°13.3	210°36.1	+23.0	16.7
	16°42.2	16°47.9	16°53.6	16°59.1	17°04.4	17°09.7	17°14.8	17°19.8	17°24.7	17°29.5	17°34.1	+5.2	61.2
● wo 6	66°14.1	80°36.5	94°58.8	109°21.1	123°43.4	138°05.7	152°28.0	166°50.3	181°12.6	195°34.9	209°57.2	+22.3	16.7
	18°27.2	18°29.7	18°31.9	18°34.1	18°36.1	18°38.0	18°39.7	18°41.3	18°42.8	18°44.1	18°45.2	+1.8	61.3
do 7	65°33.3	79°55.9	94°18.5	108°41.2	123°03.9	137°26.6	151°49.4	166°12.3	180°35.1	194°58.0	209°21.0	+22.8	16.6
	18°45.6	18°44.5	18°43.2	18°41.8	18°40.3	18°38.7	18°36.9	18°34.9	18°32.8	18°30.6	18°28.3	-1.7	60.9
vr 8	65°12.0	79°36.0	93°59.9	108°24.0	122°48.1	137°12.3	151°36.6	166°00.9	180°25.3	194°49.8	209°14.4	+24.2	16.4
	17°37.5	17°33.2	17°28.6	17°24.0	17°19.3	17°14.4	17°09.5	17°04.4	16°59.2	16°53.9	16°48.5	-4.9	60.3
za 9	65°32.7	79°58.6	94°24.6	108°50.6	123°16.8	137°43.0	152°09.4	166°35.8	181°02.3	195°28.8	209°55.5	+26.3	16.2
	15°14.8	15°07.8	15°00.7	14°53.5	14°46.2	14°38.9	14°31.4	14°23.9	14°16.3	14°08.6	14°00.8	-7.4	59.5
zo 10	66°45.9	81°14.0	95°42.1	110°10.3	124°38.6	139°06.9	153°35.4	168°03.9	182°32.5	197°01.2	211°30.0	+28.4	16.0
	11°55.9	11°47.0	11°38.1	11°29.2	11°20.1	11°11.1	11°02.0	10°52.8	10°43.6	10°34.3	10°25.0	-9.1	58.6
ma 11	68°50.7	83°20.7	97°50.7	112°20.8	126°51.0	141°21.2	155°51.5	170°21.9	184°52.3	199°22.8	213°53.3	+30.3	15.7
	8°00.5	7°50.6	7°40.7	7°30.7	7°20.7	7°10.7	7°00.7	6°50.6	6°40.5	6°30.4	6°20.3	-10.0	57.6
◐ di 12	71°38.6	86°10.0	100°41.5	115°13.1	129°44.7	144°16.3	158°48.0	173°19.7	187°51.5	202°23.3	216°55.2	+31.7	15.5
	3°46.6	3°36.3	3°25.9	3°15.6	3°05.3	2°54.9	2°44.6	2°34.2	2°23.9	2°13.5	2°03.2	-10.3	56.7
wo 13	86°10.0	100°41.5	115°13.1	129°44.7	144°16.3	158°48.0	173°19.7	187°51.5	202°23.3	216°55.2	231°27.1	+31.7	15.5
	3°36.3	3°25.9	3°15.6	3°05.3	2°54.9	2°44.6	2°34.2	2°23.9	2°13.5	2°03.2	1°52.9	-10.3	56.7
do 14	89°30.0	104°02.4	118°34.9	133°07.4	147°39.9	162°12.5	176°45.1	191°17.7	205°50.3	220°23.0	234°55.6	+32.6	15.2
	-0°41.5	-0°51.7	-1°01.9	-1°12.1	-1°22.3	-1°32.4	-1°42.6	-1°52.7	-2°02.8	-2°12.9	-2°22.9	-10.1	55.9
vr 15	93°07.8	107°40.7	122°13.7	136°46.6	151°19.6	165°52.5	180°25.5	194°58.4	209°31.4	224°04.4	238°37.4	+33.0	15.1
	-4°51.0	-5°00.7	-5°10.3	-5°19.9	-5°29.5	-5°39.1	-5°48.6	-5°58.1	-6°07.5	-6°16.9	-6°26.3	-9.5	55.3
za 16	96°52.2	111°25.2	125°58.2	140°31.1	155°04.1	169°37.0	184°10.0	198°42.9	213°15.8	227°48.7	242°21.6	+32.9	14.9
	-8°42.4	-8°51.2	-8°59.9	-9°08.6	-9°17.2	-9°25.8	-9°34.3	-9°42.8	-9°51.2	-9°59.6	-10°07.9	-8.6	54.7
zo 17	100°33.9	115°06.6	129°39.3	144°12.0	158°44.6	173°17.3	187°49.9	202°22.5	216°55.1	231°27.7	246°00.2	+32.6	14.8
	-12°07.0	-12°14.5	-12°22.0	-12°29.4	-12°36.7	-12°44.0	-12°51.2	-12°58.4	-13°05.5	-13°12.5	-13°19.5	-7.3	54.4
ma 18	104°06.4	118°38.6	133°10.9	147°43.1	162°15.3	176°47.5	191°19.6	205°51.8	220°23.9	234°56.0	249°28.0	+32.2	14.8
	-14°56.8	-15°02.7	-15°08.6	-15°14.4	-15°20.2	-15°25.9	-15°31.5	-15°37.0	-15°42.5	-15°47.9	-15°53.3	-5.7	54.1
di 19	107°26.8	121°58.5	136°30.3	151°02.0	165°33.7	180°05.4	194°37.1	209°08.7	223°40.4	238°12.0	252°43.6	+31.7	14.7
	-17°04.5	-17°08.7	-17°12.7	-17°16.7	-17°20.6	-17°24.5	-17°28.2	-17°31.9	-17°35.5	-17°39.0	-17°42.4	-3.8	53.9
○ wo 20	110°35.7	125°07.1	139°38.4	154°09.8	168°41.1	183°12.4	197°43.7	212°15.0	226°46.3	241°17.6	255°48.8	+31.3	14.7
	-18°24.2	-18°26.4	-18°28.4	-18°30.3	-18°32.2	-18°34.0	-18°35.7	-18°37.3	-18°38.9	-18°40.3	-18°41.7	-1.7	53.9
do 21	113°37.0	128°08.1	142°39.3	157°10.5	171°41.6	186°12.8	200°43.9	215°15.1	229°46.2	244°17.4	258°48.6	+31.2	14.7
	-18°51.7	-18°51.7	-18°51.6	-18°51.4	-18°51.1	-18°50.8	-18°50.3	-18°49.8	-18°49.2	-18°48.4	-18°47.6	+0.4	53.9
vr 22	116°36.2	131°07.4	145°38.7	160°09.9	174°41.1	189°12.4	203°43.6	218°14.9	232°46.2	247°17.4	261°48.7	+31.2	14.7
	-18°25.3	-18°23.1	-18°20.8	-18°18.5	-18°16.0	-18°13.5	-18°10.9	-18°08.2	-18°05.5	-18°02.6	-17°59.7	+2.6	54.1
za 23	119°39.3	134°10.7	148°42.2	163°13.7	177°45.2	192°16.7	206°48.3	221°19.8	235°51.4	250°22.9	264°54.5	+31.5	14.8
	-17°05.7	-17°01.5	-16°57.1	-16°52.7	-16°48.3	-16°43.7	-16°39.1	-16°34.4	-16°29.6	-16°24.7	-16°19.7	+4.6	54.3
zo 24	122°50.0	137°21.8	151°53.6	166°25.4	180°57.3	195°29.1	210°01.0	224°32.9	239°04.8	253°36.7	268°08.6	+31.9	14.9
	-14°56.6	-14°50.4	-14°44.2	-14°38.0	-14°31.6	-14°25.2	-14°18.7	-14°12.2	-14°05.6	-13°58.9	-13°52.2	+6.4	54.7
ma 25	126°08.9	140°41.0	155°13.1	169°45.3	184°17.4	198°49.5	213°21.7	227°53.8	242°26.0	256°58.1	271°30.3	+32.1	15.0
	-12°03.2	-11°55.5	-11°47.7	-11°39.8	-11°31.9	-11°23.9	-11°15.8	-11°07.7	-10°59.5	-10°51.3	-10°43.1	+8.0	55.2
di 26	129°33.1	144°05.3	158°37.5	173°09.7	187°41.9	202°14.1	216°46.3	231°18.4	245°50.6	260°22.8	274°54.9	+32.2	15.2
	-8°32.7	-8°23.6	-8°14.5	-8°05.3	-7°56.1	-7°46.8	-7°37.5	-7°28.2	-7°18.8	-7°09.3	-6°59.8	+9.3	55.8
wo 27	132°55.9	147°27.9	161°59.8	176°31.7	191°03.6	205°35.5	220°07.3	234°39.2	249°11.0	263°42.7	278°14.5	+31.9	15.4
	-4°33.1	-4°23.0	-4°12.9	-4°02.8	-3°52.6	-3°42.4	-3°32.2	-3°22.0	-3°11.7	-3°01.4	-2°51.1	+10.2	56.5
◑ do 28	136°07.5	150°38.8	165°10.0	179°41.2	194°12.4	208°43.5	223°14.6	237°45.6	252°16.6	266°47.6	281°18.5	+31.1	15.6
	-0°13.7	-0°03.1	0°07.5	0°18.2	0°28.9	0°39.5	0°50.2	1°00.9	1°11.6	1°22.4	1°33.1	+10.7	57.3
vr 29	138°56.3	153°26.4	167°56.4	182°26.4	196°56.3	211°26.2	225°56.0	240°25.7	254°55.4	269°25.0	283°54.6	+29.8	15.9
	4°14.0	4°24.7	4°35.4	4°46.1	4°56.7	5°07.4	5°18.0	5°28.6	5°39.3	5°49.8	6°00.4	+10.6	58.2
za 30	141°09.8	155°38.2	170°06.6	184°34.9	199°03.1	213°31.3	227°59.3	242°27.3	256°55.2	271°23.1	285°50.8	+28.1	16.1
	8°36.1	8°46.3	8°56.4	9°06.4	9°16.4	9°26.4	9°36.3	9°46.2	9°56.1	10°05.9	10°15.6	+10.0	59.1

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 6 03h20 — EK: 12 19h50 — VM: 20 19h37 — LK: 28 18h42

ZON

Juli 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
zo 1	179°02.9	194°02.8	209°02.7	224°02.6	239°02.5	254°02.3	89°00.8	104°00.6	119°00.5	134°00.4	149°00.3	164°00.2	-0.1
	23°07.4	23°07.3	23°07.1	23°06.9	23°06.8	23°06.6	23°04.4	23°04.2	23°04.1	23°03.9	23°03.7	23°03.5	-0.2
ma 2	179°00.0	193°59.9	208°59.8	223°59.7	238°59.6	253°59.4	88°57.9	103°57.8	118°57.7	133°57.5	148°57.4	163°57.3	-0.1
	23°03.3	23°03.2	23°03.0	23°02.8	23°02.6	23°02.4	23°00.0	22°59.8	22°59.6	22°59.4	22°59.2	22°59.0	-0.2
di 3	178°57.2	193°57.1	208°57.0	223°56.8	238°56.7	253°56.6	88°55.1	103°55.0	118°54.9	133°54.8	148°54.6	163°54.5	-0.1
	22°58.9	22°58.7	22°58.5	22°58.3	22°58.1	22°57.9	22°55.2	22°55.0	22°54.8	22°54.6	22°54.4	22°54.2	-0.2
wo 4	178°54.4	193°54.3	208°54.2	223°54.1	238°54.0	253°53.9	88°52.4	103°52.3	118°52.2	133°52.1	148°51.9	163°51.8	-0.1
	22°54.0	22°53.7	22°53.5	22°53.3	22°53.1	22°52.9	22°50.0	22°49.8	22°49.6	22°49.3	22°49.1	22°48.9	-0.2
do 5	178°51.7	193°51.6	208°51.5	223°51.4	238°51.3	253°51.2	88°49.8	103°49.6	118°49.5	133°49.4	148°49.3	163°49.2	-0.1
	22°48.7	22°48.4	22°48.2	22°48.0	22°47.7	22°47.5	22°44.4	22°44.2	22°44.0	22°43.7	22°43.5	22°43.2	-0.2
vr 6	178°49.1	193°49.0	208°48.9	223°48.8	238°48.7	253°48.6	88°47.2	103°47.1	118°47.0	133°46.9	148°46.8	163°46.7	-0.1
	22°43.0	22°42.7	22°42.5	22°42.2	22°42.0	22°41.7	22°38.5	22°38.2	22°37.9	22°37.7	22°37.4	22°37.2	-0.2
za 7	178°46.6	193°46.5	208°46.4	223°46.3	238°46.2	253°46.1	88°44.7	103°44.6	118°44.5	133°44.4	148°44.3	163°44.2	-0.1
	22°36.9	22°36.6	22°36.4	22°36.1	22°35.8	22°35.6	22°32.1	22°31.8	22°31.5	22°31.3	22°31.0	22°30.7	-0.3
zo 8	178°44.1	193°44.1	208°44.0	223°43.9	238°43.8	253°43.7	88°42.4	103°42.3	118°42.2	133°42.1	148°42.0	163°41.9	-0.1
	22°30.4	22°30.1	22°29.9	22°29.6	22°29.3	22°29.0	22°25.3	22°25.0	22°24.7	22°24.4	22°24.1	22°23.9	-0.3
ma 9	178°41.8	193°41.7	208°41.6	223°41.5	238°41.4	253°41.3	88°40.1	103°40.1	118°40.0	133°39.9	148°39.8	163°39.7	-0.1
	22°23.6	22°23.3	22°23.0	22°22.7	22°22.4	22°22.1	22°18.2	22°17.9	22°17.5	22°17.2	22°16.9	22°16.6	-0.3
di 10	178°39.6	193°39.5	208°39.4	223°39.3	238°39.2	253°39.1	88°38.0	103°37.9	118°37.8	133°37.7	148°37.7	163°37.6	-0.1
	22°16.3	22°16.0	22°15.7	22°15.4	22°15.1	22°14.8	22°10.6	22°10.3	22°10.0	22°09.7	22°09.3	22°09.0	-0.3
wo 11	178°37.5	193°37.4	208°37.3	223°37.2	238°37.1	253°37.1	88°36.0	103°35.9	118°35.8	133°35.7	148°35.7	163°35.6	-0.1
	22°08.7	22°08.4	22°08.0	22°07.7	22°07.4	22°07.0	22°02.7	22°02.4	22°02.0	22°01.7	22°01.3	22°01.0	-0.3
do 12	178°35.5	193°35.4	208°35.3	223°35.2	238°35.2	253°35.1	88°34.1	103°34.0	118°33.9	133°33.8	148°33.8	163°33.7	-0.1
	22°00.7	22°00.3	22°00.0	21°59.6	21°59.3	21°58.9	21°54.4	21°54.1	21°53.7	21°53.3	21°53.0	21°52.6	-0.3
vr 13	178°33.6	193°33.5	208°33.5	223°33.4	238°33.3	253°33.2	88°32.3	103°32.2	118°32.1	133°32.1	148°32.0	163°31.9	-0.1
	21°52.3	21°51.9	21°51.6	21°51.2	21°50.8	21°50.5	21°45.7	21°45.4	21°45.0	21°44.6	21°44.3	21°43.9	-0.4
za 14	178°31.9	193°31.8	208°31.7	223°31.6	238°31.6	253°31.5	88°30.6	103°30.6	118°30.5	133°30.4	148°30.4	163°30.3	-0.1
	21°43.5	21°43.1	21°42.8	21°42.4	21°42.0	21°41.6	21°36.7	21°36.3	21°35.9	21°35.5	21°35.2	21°34.8	-0.4
zo 15	178°30.2	193°30.2	208°30.1	223°30.0	238°30.0	253°29.9	88°29.1	103°29.0	118°29.0	133°28.9	148°28.9	163°28.8	-0.1
	21°34.4	21°34.0	21°33.6	21°33.2	21°32.8	21°32.4	21°27.3	21°26.9	21°26.5	21°26.1	21°25.7	21°25.3	-0.4
ma 16	178°28.7	193°28.7	208°28.6	223°28.6	238°28.5	253°28.4	88°27.7	103°27.6	118°27.6	133°27.5	148°27.5	163°27.4	-0.1
	21°24.9	21°24.5	21°24.1	21°23.7	21°23.3	21°22.8	21°17.5	21°17.1	21°16.7	21°16.3	21°15.8	21°15.4	-0.4
di 17	178°27.4	193°27.3	208°27.3	223°27.2	238°27.2	253°27.1	88°26.4	103°26.4	118°26.3	133°26.3	148°26.2	163°26.2	-0.1
	21°15.0	21°14.6	21°14.2	21°13.8	21°13.3	21°12.9	21°07.4	21°06.9	21°06.5	21°06.1	21°05.7	21°05.2	-0.4
wo 18	178°26.1	193°26.1	208°26.0	223°26.0	238°25.9	253°25.9	88°25.3	103°25.3	118°25.2	133°25.2	148°25.1	163°25.1	-0.0
	21°04.8	21°04.4	21°03.9	21°03.5	21°03.0	21°02.6	20°56.9	20°56.4	20°56.0	20°55.5	20°55.1	20°54.7	-0.4
do 19	178°25.0	193°25.0	208°24.9	223°24.9	238°24.9	253°24.8	88°24.3	103°24.3	118°24.2	133°24.2	148°24.1	163°24.1	-0.0
	20°54.2	20°53.8	20°53.3	20°52.9	20°52.4	20°52.0	20°46.0	20°45.6	20°45.1	20°44.7	20°44.2	20°43.7	-0.4
vr 20	178°24.1	193°24.0	208°24.0	223°24.0	238°23.9	253°23.9	88°23.4	103°23.4	118°23.4	133°23.3	148°23.3	163°23.3	-0.0
	20°43.3	20°42.8	20°42.3	20°41.9	20°41.4	20°40.9	20°34.8	20°34.4	20°33.9	20°33.4	20°32.9	20°32.5	-0.5
za 21	178°23.3	193°23.2	208°23.2	223°23.2	238°23.1	253°23.1	88°22.7	103°22.7	118°22.7	133°22.6	148°22.6	163°22.6	-0.0
	20°32.0	20°31.5	20°31.0	20°30.6	20°30.1	20°29.6	20°23.3	20°22.8	20°22.3	20°21.8	20°21.3	20°20.9	-0.5
zo 22	178°22.6	193°22.5	208°22.5	223°22.5	238°22.5	253°22.4	88°22.2	103°22.1	118°22.1	133°22.1	148°22.1	163°22.1	-0.0
	20°20.4	20°19.9	20°19.4	20°18.9	20°18.4	20°17.9	20°11.4	20°10.9	20°10.4	20°09.9	20°09.4	20°08.9	-0.5
ma 23	178°22.0	193°22.0	208°22.0	223°22.0	238°22.0	253°21.9	88°21.7	103°21.7	118°21.7	133°21.7	148°21.7	163°21.7	-0.0
	20°08.4	20°07.9	20°07.4	20°06.9	20°06.4	20°05.9	19°59.2	19°58.7	19°58.2	19°57.6	19°57.1	19°56.6	-0.5
di 24	178°21.6	193°21.6	208°21.6	223°21.6	238°21.6	253°21.6	88°21.4	103°21.4	118°21.4	133°21.4	148°21.4	163°21.4	-0.0
	19°56.1	19°55.6	19°55.0	19°54.5	19°54.0	19°53.5	19°46.6	19°46.1	19°45.6	19°45.1	19°44.5	19°44.0	-0.5
wo 25	178°21.4	193°21.4	208°21.4	223°21.4	238°21.4	253°21.4	88°21.3	103°21.3	118°21.3	133°21.3	148°21.3	163°21.3	-0.0
	19°43.5	19°42.9	19°42.4	19°41.9	19°41.3	19°40.8	19°33.8	19°33.2	19°32.7	19°32.1	19°31.6	19°31.0	-0.5
do 26	178°21.3	193°21.3	208°21.3	223°21.3	238°21.3	253°21.3	88°21.3	103°21.3	118°21.3	133°21.3	148°21.3	163°21.3	-0.0
	19°30.5	19°29.9	19°29.4	19°28.8	19°28.3	19°27.7	19°20.6	19°20.0	19°19.4	19°18.9	19°18.3	19°17.8	-0.5
vr 27	178°21.3	193°21.3	208°21.3	223°21.3	238°21.3	253°21.3	88°21.4	103°21.4	118°21.5	133°21.5	148°21.5	163°21.5	+0.0
	19°17.2	19°16.6	19°16.1	19°15.5	19°15.0	19°14.4	19°07.0	19°06.5	19°05.9	19°05.3	19°04.7	19°04.2	-0.6
za 28	178°21.5	193°21.5	208°21.5	223°21.5	238°21.5	253°21.6	88°21.7	103°21.7	118°21.8	133°21.8	148°21.8	163°21.8	+0.0
	19°03.6	19°03.0	19°02.4	19°01.9	19°01.3	19°00.7	18°53.2	18°52.6	18°52.0	18°51.4	18°50.8	18°50.3	-0.6
zo 29	178°21.8	193°21.8	208°21.9	223°21.9	238°21.9	253°21.9	88°22.2	103°22.2	118°22.2	133°22.2	148°22.3	163°22.3	+0.0
	18°49.7	18°49.1	18°48.5	18°47.9	18°47.3	18°46.7	18°39.0	18°38.4	18°37.8	18°37.2	18°36.6	18°36.0	-0.6
ma 30	178°22.3	193°22.3	208°22.3	223°22.4	238°22.4	253°22.4	88°22.7	103°22.8	118°22.8	133°22.8	148°22.9	163°22.9	+0.0
	18°35.4	18°34.8	18°34.2	18°33.6	18°33.0	18°32.4	18°24.6	18°24.0	18°23.3	18°22.7	18°22.1	18°21.5	-0.6
di 31	178°22.9	193°22.9	208°23.0	223°23.0	238°23.0	253°23.1	88°23.5	103°23.5	118°23.5	133°23.6	148°23.6	163°23.6	+0.0
	18°20.9	18°20.3	18°19.7	18°19.1	18°18.4	18°17.8	18°09.8	18°09.2	18°08.6	18°07.9	18°07.3	18°06.7	-0.6

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.7'

MAAN

Juli 2035

D	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	Δ'/h	SD/HP
zo 1	70°23.9	84°50.8	99°17.6	113°44.3	128°10.9	142°37.4	157°03.9	171°30.2	185°56.5	200°22.7	214°48.8	+26.5	16.3
	11°50.2	11°59.3	12°08.4	12°17.4	12°26.3	12°35.2	12°44.0	12°52.7	13°01.4	13°10.0	13°18.5	+8.8	59.8
ma 2	71°10.7	85°35.5	100°00.3	114°24.9	128°49.5	143°14.0	157°38.4	172°02.8	186°27.1	200°51.3	215°15.4	+24.5	16.5
	15°16.1	15°23.2	15°30.2	15°37.2	15°44.0	15°50.7	15°57.3	16°03.8	16°10.2	16°16.5	16°22.7	+6.7	60.6
di 3	71°09.4	85°32.5	99°55.6	114°18.6	128°41.5	143°04.4	157°27.3	171°50.1	186°12.9	200°35.6	214°58.3	+22.9	16.6
	17°41.4	17°45.7	17°49.8	17°53.8	17°57.7	18°01.5	18°05.1	18°08.6	18°11.9	18°15.2	18°18.2	+3.7	61.1
wo 4	70°34.9	84°57.2	99°19.5	113°41.7	128°04.0	142°26.2	156°48.4	171°10.7	185°32.9	199°55.2	214°17.4	+22.2	16.7
	18°47.9	18°48.7	18°49.4	18°50.0	18°50.4	18°50.7	18°50.8	18°50.8	18°50.6	18°50.3	18°49.9	+0.2	61.2
● do 5	69°53.2	84°15.8	98°38.4	113°01.1	127°23.8	141°46.5	156°09.3	170°32.2	184°55.1	199°18.0	213°41.0	+22.8	16.6
	18°26.2	18°23.5	18°20.7	18°17.7	18°14.6	18°11.3	18°08.0	18°04.5	18°00.8	17°57.0	17°53.1	-3.3	61.1
vr 6	69°32.9	83°56.9	98°20.9	112°45.0	127°09.2	141°33.5	155°57.9	170°22.3	184°46.8	199°11.4	213°36.0	+24.3	16.5
	16°39.6	16°33.7	16°27.8	16°21.7	16°15.5	16°09.2	16°02.8	15°56.3	15°49.7	15°43.0	15°36.2	-6.3	60.5
za 7	69°55.7	84°21.7	98°47.8	113°13.9	127°40.2	142°06.5	156°32.9	170°59.4	185°26.0	199°52.7	214°19.4	+26.4	16.3
	13°42.6	13°34.4	13°26.0	13°17.6	13°09.1	13°00.6	12°51.9	12°43.2	12°34.5	12°25.6	12°16.7	-8.6	59.8
zo 8	71°11.0	85°39.1	100°07.3	114°35.6	129°03.9	143°32.3	158°00.8	172°29.4	186°58.1	201°26.8	215°55.6	+28.5	16.0
	9°56.1	9°46.3	9°36.4	9°26.6	9°16.7	9°06.7	8°56.7	8°46.7	8°36.6	8°26.5	8°16.4	-10.0	58.8
ma 9	73°16.7	87°46.6	102°16.7	116°46.8	131°16.9	145°47.1	160°17.4	174°47.8	189°18.2	203°48.6	218°19.2	+30.3	15.8
	5°41.2	5°30.7	5°20.2	5°09.7	4°59.1	4°48.5	4°38.0	4°27.4	4°16.8	4°06.2	3°55.6	-10.6	57.8
di 10	76°03.7	90°35.0	105°06.4	119°37.9	134°09.4	148°41.0	163°12.6	177°44.2	192°15.9	206°47.6	221°19.3	+31.6	15.5
	1°16.6	1°06.0	0°55.5	0°44.9	0°34.4	0°23.8	0°13.3	0°02.8	-0°07.7	-0°18.1	-0°28.6	-10.5	56.9
wo 11	79°19.8	93°52.1	108°24.4	122°56.7	137°29.0	152°01.4	166°33.8	181°06.2	195°38.6	210°11.1	224°43.6	+32.4	15.3
	-3°03.2	-3°13.3	-3°23.4	-3°33.5	-3°43.5	-3°53.5	-4°03.5	-4°13.4	-4°23.4	-4°33.2	-4°43.1	-10.0	56.0
◐ do 12	93°52.1	108°24.4	122°56.7	137°29.0	152°01.4	166°33.8	181°06.2	195°38.6	210°11.1	224°43.6	239°16.1	+32.4	15.3
	-3°13.3	-3°23.4	-3°33.5	-3°43.5	-3°53.5	-4°03.5	-4°13.4	-4°23.4	-4°33.2	-4°43.1	-4°52.9	-10.0	56.0
vr 13	97°25.3	111°58.0	126°30.7	141°03.5	155°36.2	170°08.9	184°41.6	199°14.4	213°47.1	228°19.9	242°52.6	+32.7	15.1
	-7°16.0	-7°25.3	-7°34.4	-7°43.6	-7°52.7	-8°01.8	-8°10.8	-8°19.7	-8°28.7	-8°37.6	-8°46.4	-9.0	55.3
za 14	101°03.8	115°36.5	130°09.2	144°41.9	159°14.6	173°47.3	188°20.0	202°52.6	217°25.3	231°57.9	246°30.6	+32.7	14.9
	-10°53.1	-11°01.2	-11°09.2	-11°17.1	-11°25.0	-11°32.8	-11°40.6	-11°48.3	-11°55.9	-12°03.5	-12°11.1	-7.8	54.7
zo 15	104°38.7	119°11.2	133°43.6	148°16.0	162°48.4	177°20.7	191°53.1	206°25.4	220°57.7	235°30.0	250°02.3	+32.4	14.8
	-13°57.0	-14°03.6	-14°10.1	-14°16.5	-14°22.9	-14°29.2	-14°35.5	-14°41.6	-14°47.7	-14°53.8	-14°59.7	-6.3	54.3
ma 16	108°04.4	122°36.4	137°08.4	151°40.3	166°12.3	180°44.2	195°16.1	209°48.0	224°19.8	238°51.7	253°23.5	+31.9	14.7
	-16°20.9	-16°25.7	-16°30.5	-16°35.2	-16°39.8	-16°44.3	-16°48.8	-16°53.2	-16°57.5	-17°01.7	-17°05.9	-4.5	54.1
di 17	111°18.7	125°50.2	140°21.7	154°53.2	169°24.7	183°56.2	198°27.6	212°59.1	227°30.5	242°01.9	256°33.3	+31.5	14.7
	-17°58.8	-18°01.7	-18°04.5	-18°07.2	-18°09.9	-18°12.4	-18°14.9	-18°17.3	-18°19.6	-18°21.8	-18°24.0	-2.5	53.9
wo 18	114°22.7	128°53.9	143°25.1	157°56.3	172°27.5	186°58.7	201°29.8	216°01.0	230°32.1	245°03.3	259°34.4	+31.2	14.7
	-18°46.0	-18°46.7	-18°47.4	-18°48.0	-18°48.6	-18°49.0	-18°49.3	-18°49.6	-18°49.8	-18°49.9	-18°49.9	-0.4	54.0
do 19	117°20.8	131°51.9	146°23.0	160°54.1	175°25.2	189°56.2	204°27.3	218°58.4	233°29.5	248°00.6	262°31.7	+31.1	14.8
	-18°39.5	-18°38.1	-18°36.6	-18°35.0	-18°33.4	-18°31.6	-18°29.8	-18°27.9	-18°25.9	-18°23.8	-18°21.6	+1.8	54.1
○ vr 20	120°18.7	134°49.9	149°21.1	163°52.3	178°23.5	192°54.7	207°26.0	221°57.2	236°28.5	250°59.7	265°31.0	+31.2	14.8
	-17°38.9	-17°35.3	-17°31.7	-17°28.0	-17°24.3	-17°20.4	-17°16.5	-17°12.4	-17°08.3	-17°04.2	-16°59.9	+3.9	54.3
za 21	123°21.6	137°53.1	152°24.6	166°56.1	181°27.6	195°59.1	210°30.7	225°02.3	239°33.8	254°05.4	268°37.0	+31.5	14.9
	-15°46.4	-15°40.9	-15°35.3	-15°29.7	-15°23.9	-15°18.1	-15°12.3	-15°06.3	-15°00.3	-14°54.2	-14°48.0	+5.8	54.6
zo 22	126°32.8	141°04.6	155°36.5	170°08.3	184°40.2	199°12.1	213°44.0	228°15.9	242°47.8	257°19.7	271°51.7	+31.9	15.0
	-13°07.1	-12°59.9	-12°52.6	-12°45.2	-12°37.7	-12°30.2	-12°22.7	-12°15.0	-12°07.3	-11°59.6	-11°51.8	+7.5	55.0
ma 23	129°52.1	144°24.2	158°56.3	173°28.4	188°00.5	202°32.7	217°04.8	231°36.9	246°09.1	260°41.2	275°13.4	+32.1	15.1
	-9°47.9	-9°39.3	-9°30.5	-9°21.7	-9°12.9	-9°04.0	-8°55.1	-8°46.2	-8°37.1	-8°28.1	-8°19.0	+8.9	55.5
di 24	133°15.8	147°47.9	162°20.0	176°52.2	191°24.3	205°56.4	220°28.6	235°00.7	249°32.8	264°04.9	278°37.0	+32.1	15.3
	-5°57.5	-5°47.8	-5°38.0	-5°28.2	-5°18.4	-5°08.5	-4°58.6	-4°48.7	-4°38.7	-4°28.7	-4°18.7	+9.9	56.0
wo 25	136°36.7	151°08.6	165°40.4	180°12.2	194°44.0	209°15.8	223°47.5	238°19.2	252°50.9	267°22.6	281°54.2	+31.8	15.4
	-1°45.6	-1°35.3	-1°24.9	-1°14.5	-1°04.1	-0°53.6	-0°43.2	-0°32.7	-0°22.3	-0°11.8	-0°01.3	+10.4	56.6
do 26	139°45.3	154°16.4	168°47.5	183°18.6	197°49.6	212°20.5	226°51.5	241°22.4	255°53.2	270°24.0	284°54.8	+30.9	15.6
	2°36.6	2°47.1	2°57.7	3°08.2	3°18.7	3°29.2	3°39.7	3°50.2	4°00.7	4°11.2	4°21.6	+10.5	57.3
vr 27	142°30.2	157°00.2	171°30.1	185°59.9	200°29.7	214°59.4	229°29.0	243°58.6	258°28.1	272°57.6	287°27.0	+29.7	15.8
	6°56.6	7°06.7	7°16.9	7°27.0	7°37.0	7°47.1	7°57.1	8°07.1	8°17.0	8°26.9	8°36.8	+10.0	58.0
◑ za 28	144°40.3	159°08.6	173°36.9	188°05.1	202°33.2	217°01.3	231°29.3	245°57.2	260°25.0	274°52.8	289°20.4	+28.0	16.0
	10°59.7	11°08.9	11°18.0	11°27.0	11°36.0	11°44.9	11°53.7	12°02.5	12°11.3	12°19.9	12°28.6	+8.9	58.8
zo 29	146°06.7	160°33.2	174°59.6	189°26.0	203°52.2	218°18.4	232°44.5	247°10.5	261°36.5	276°02.4	290°28.2	+26.1	16.2
	14°29.1	14°36.5	14°43.9	14°51.1	14°58.2	15°05.3	15°12.3	15°19.2	15°26.0	15°32.7	15°39.3	+7.0	59.5
ma 30	146°46.8	161°11.5	175°36.2	190°00.7	204°25.2	218°49.7	233°14.1	247°38.4	262°02.7	276°26.9	290°51.0	+24.4	16.4
	17°06.3	17°11.2	17°16.0	17°20.8	17°25.4	17°29.8	17°34.2	17°38.5	17°42.6	17°46.6	17°50.5	+4.4	60.1
di 31	146°47.4	161°10.8	175°34.2	189°57.5	204°20.9	218°44.1	233°07.4	247°30.6	261°53.8	276°17.0	290°40.2	+23.3	16.5
	18°33.7	18°35.6	18°37.3	18°38.9	18°40.3	18°41.7	18°42.8	18°43.9	18°44.8	18°45.6	18°46.2	+1.2	60.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 5 09h59 — EK: 12 07h32 — VM: 20 10h36 — LK: 28 02h55

ZON

Augustus 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
wo 1	178°23.7	193°23.7	208°23.8	223°23.8	238°23.8	253°23.9	88°24.4	103°24.4	118°24.4	133°24.5	148°24.5	163°24.6	+0.0
	18°06.1	18°05.4	18°04.8	18°04.2	18°03.6	18°02.9	17°54.7	17°54.1	17°53.5	17°52.8	17°52.2	17°51.6	-0.6
do 2	178°24.6	193°24.6	208°24.7	223°24.7	238°24.8	253°24.8	88°25.4	103°25.4	118°25.5	133°25.5	148°25.6	163°25.6	+0.0
	17°50.9	17°50.3	17°49.6	17°49.0	17°48.4	17°47.7	17°39.4	17°38.7	17°38.1	17°37.4	17°36.8	17°36.1	-0.6
vr 3	178°25.7	193°25.7	208°25.8	223°25.8	238°25.9	253°25.9	88°26.6	103°26.6	118°26.7	133°26.7	148°26.8	163°26.8	+0.0
	17°35.5	17°34.8	17°34.2	17°33.5	17°32.9	17°32.2	17°23.7	17°23.1	17°22.4	17°21.8	17°21.1	17°20.4	-0.6
za 4	178°26.9	193°26.9	208°27.0	223°27.0	238°27.1	253°27.2	88°27.9	103°28.0	118°28.0	133°28.1	148°28.1	163°28.2	+0.1
	17°19.8	17°19.1	17°18.5	17°17.8	17°17.1	17°16.5	17°07.8	17°07.1	17°06.5	17°05.8	17°05.1	17°04.5	-0.7
zo 5	178°28.2	193°28.3	208°28.4	223°28.4	238°28.5	253°28.6	88°29.4	103°29.4	118°29.5	133°29.6	148°29.6	163°29.7	+0.1
	17°03.8	17°03.1	17°02.4	17°01.8	17°01.1	17°00.4	16°51.6	16°50.9	16°50.3	16°49.6	16°48.9	16°48.2	-0.7
ma 6	178°29.8	193°29.8	208°29.9	223°30.0	238°30.0	253°30.1	88°31.0	103°31.1	118°31.2	133°31.2	148°31.3	163°31.4	+0.1
	16°47.5	16°46.8	16°46.2	16°45.5	16°44.8	16°44.1	16°35.1	16°34.5	16°33.8	16°33.1	16°32.4	16°31.7	-0.7
di 7	178°31.4	193°31.5	208°31.6	223°31.7	238°31.7	253°31.8	88°32.8	103°32.9	118°33.0	133°33.0	148°33.1	163°33.2	+0.1
	16°31.0	16°30.3	16°29.6	16°28.9	16°28.2	16°27.5	16°18.4	16°17.7	16°17.0	16°16.3	16°15.6	16°14.9	-0.7
wo 8	178°33.3	193°33.3	208°33.4	223°33.5	238°33.6	253°33.7	88°34.7	103°34.8	118°34.9	133°35.0	148°35.1	163°35.2	+0.1
	16°14.2	16°13.5	16°12.8	16°12.1	16°11.4	16°10.6	16°01.4	16°00.7	16°00.0	15°59.3	15°58.6	15°57.8	-0.7
do 9	178°35.2	193°35.3	208°35.4	223°35.5	238°35.6	253°35.7	88°36.8	103°36.9	118°37.0	133°37.1	148°37.2	163°37.3	+0.1
	15°57.1	15°56.4	15°55.7	15°55.0	15°54.3	15°53.5	15°44.2	15°43.4	15°42.7	15°42.0	15°41.3	15°40.5	-0.7
vr 10	178°37.4	193°37.5	208°37.6	223°37.6	238°37.7	253°37.8	88°39.1	103°39.2	118°39.3	133°39.4	148°39.4	163°39.5	+0.1
	15°39.8	15°39.1	15°38.3	15°37.6	15°36.9	15°36.2	15°26.6	15°25.9	15°25.2	15°24.4	15°23.7	15°23.0	-0.7
za 11	178°39.6	193°39.7	208°39.8	223°39.9	238°40.0	253°40.1	88°41.4	103°41.5	118°41.7	133°41.8	148°41.9	163°42.0	+0.1
	15°22.2	15°21.5	15°20.8	15°20.0	15°19.3	15°18.5	15°08.9	15°08.2	15°07.4	15°06.7	15°05.9	15°05.2	-0.7
zo 12	178°42.1	193°42.2	208°42.3	223°42.4	238°42.5	253°42.6	88°44.0	103°44.1	118°44.2	133°44.3	148°44.4	163°44.5	+0.1
	15°04.4	15°03.7	15°02.9	15°02.2	15°01.4	15°00.7	14°50.9	14°50.1	14°49.4	14°48.6	14°47.9	14°47.1	-0.7
ma 13	178°44.6	193°44.7	208°44.9	223°45.0	238°45.1	253°45.2	88°46.6	103°46.8	118°46.9	133°47.0	148°47.1	163°47.2	+0.1
	14°46.4	14°45.6	14°44.9	14°44.1	14°43.3	14°42.6	14°32.7	14°31.9	14°31.1	14°30.4	14°29.6	14°28.8	-0.8
di 14	178°47.3	193°47.5	208°47.6	223°47.7	238°47.8	253°47.9	88°49.5	103°49.6	118°49.7	133°49.8	148°49.9	163°50.1	+0.1
	14°28.1	14°27.3	14°26.5	14°25.8	14°25.0	14°24.2	14°14.2	14°13.4	14°12.7	14°11.9	14°11.1	14°10.3	-0.8
wo 15	178°50.2	193°50.3	208°50.4	223°50.6	238°50.7	253°50.8	88°52.4	103°52.5	118°52.7	133°52.8	148°52.9	163°53.0	+0.1
	14°09.6	14°08.8	14°08.0	14°07.2	14°06.5	14°05.7	13°55.5	13°54.7	13°54.0	13°53.2	13°52.4	13°51.6	-0.8
do 16	178°53.2	193°53.3	208°53.4	223°53.6	238°53.7	253°53.8	88°55.5	103°55.6	118°55.8	133°55.9	148°56.0	163°56.2	+0.1
	13°50.8	13°50.0	13°49.3	13°48.5	13°47.7	13°46.9	13°36.6	13°35.8	13°35.0	13°34.2	13°33.5	13°32.7	-0.8
vr 17	178°56.3	193°56.4	208°56.6	223°56.7	238°56.8	253°57.0	88°58.7	103°58.9	118°59.0	133°59.1	148°59.3	163°59.4	+0.1
	13°31.9	13°31.1	13°30.3	13°29.5	13°28.7	13°27.9	13°17.5	13°16.7	13°15.9	13°15.1	13°14.3	13°13.5	-0.8
za 18	178°59.5	193°59.7	208°59.8	224°00.0	239°00.1	254°00.2	89°02.1	104°02.2	119°02.3	134°02.5	149°02.6	164°02.8	+0.1
	13°12.7	13°11.9	13°11.1	13°10.3	13°09.5	13°08.7	12°58.2	12°57.4	12°56.6	12°55.7	12°54.9	12°54.1	-0.8
zo 19	179°02.9	194°03.1	209°03.2	224°03.4	239°03.5	254°03.6	89°05.5	104°05.7	119°05.8	134°06.0	149°06.1	164°06.3	+0.1
	12°53.3	12°52.5	12°51.7	12°50.9	12°50.1	12°49.3	12°38.6	12°37.8	12°37.0	12°36.2	12°35.4	12°34.5	-0.8
ma 20	179°06.4	194°06.6	209°06.7	224°06.9	239°07.0	254°07.2	89°09.1	104°09.3	119°09.4	134°09.6	149°09.7	164°09.9	+0.1
	12°33.7	12°32.9	12°32.1	12°31.3	12°30.4	12°29.6	12°18.9	12°18.1	12°17.3	12°16.4	12°15.6	12°14.8	-0.8
di 21	179°10.0	194°10.2	209°10.3	224°10.5	239°10.7	254°10.8	89°12.8	104°13.0	119°13.1	134°13.3	149°13.5	164°13.6	+0.2
	12°13.9	12°13.1	12°12.3	12°11.5	12°10.6	12°09.8	11°59.0	11°58.1	11°57.3	11°56.5	11°55.6	11°54.8	-0.8
wo 22	179°13.8	194°13.9	209°14.1	224°14.3	239°14.4	254°14.6	89°16.6	104°16.8	119°17.0	134°17.1	149°17.3	164°17.5	+0.2
	11°54.0	11°53.1	11°52.3	11°51.5	11°50.6	11°49.8	11°38.9	11°38.0	11°37.2	11°36.3	11°35.5	11°34.6	-0.8
do 23	179°17.6	194°17.8	209°17.9	224°18.1	239°18.3	254°18.4	89°20.6	104°20.7	119°20.9	134°21.1	149°21.2	164°21.4	+0.2
	11°33.8	11°33.0	11°32.1	11°31.3	11°30.4	11°29.6	11°18.6	11°17.7	11°16.9	11°16.0	11°15.2	11°14.3	-0.8
vr 24	179°21.6	194°21.7	209°21.9	224°22.1	239°22.2	254°22.4	89°24.6	104°24.8	119°24.9	134°25.1	149°25.3	164°25.5	+0.2
	11°13.5	11°12.6	11°11.8	11°10.9	11°10.0	11°09.2	10°58.1	10°57.2	10°56.4	10°55.5	10°54.6	10°53.8	-0.9
za 25	179°25.6	194°25.8	209°26.0	224°26.1	239°26.3	254°26.5	89°28.7	104°28.9	119°29.1	134°29.3	149°29.4	164°29.6	+0.2
	10°52.9	10°52.1	10°51.2	10°50.3	10°49.5	10°48.6	10°37.4	10°36.6	10°35.7	10°34.8	10°34.0	10°33.1	-0.9
zo 26	179°29.8	194°30.0	209°30.1	224°30.3	239°30.5	254°30.7	89°33.0	104°33.1	119°33.3	134°33.5	149°33.7	164°33.9	+0.2
	10°32.2	10°31.4	10°30.5	10°29.6	10°28.8	10°27.9	10°16.6	10°15.7	10°14.8	10°14.0	10°13.1	10°12.2	-0.9
ma 27	179°34.0	194°34.2	209°34.4	224°34.6	239°34.8	254°34.9	89°37.3	104°37.5	119°37.6	134°37.8	149°38.0	164°38.2	+0.2
	10°11.4	10°10.5	10°09.6	10°08.7	10°07.9	10°07.0	9°55.6	9°54.7	9°53.8	9°53.0	9°52.1	9°51.2	-0.9
di 28	179°38.4	194°38.6	209°38.7	224°38.9	239°39.1	254°39.3	89°41.7	104°41.9	119°42.1	134°42.2	149°42.4	164°42.6	+0.2
	9°50.3	9°49.4	9°48.6	9°47.7	9°46.8	9°45.9	9°34.4	9°33.6	9°32.7	9°31.8	9°30.9	9°30.0	-0.9
wo 29	179°42.8	194°43.0	209°43.2	224°43.4	239°43.6	254°43.7	89°46.2	104°46.4	119°46.6	134°46.7	149°46.9	164°47.1	+0.2
	9°29.1	9°28.2	9°27.4	9°26.5	9°25.6	9°24.7	9°13.1	9°12.3	9°11.4	9°10.5	9°09.6	9°08.7	-0.9
do 30	179°47.3	194°47.5	209°47.7	224°47.9	239°48.1	254°48.3	89°50.8	104°50.9	119°51.1	134°51.3	149°51.5	164°51.7	+0.2
	9°07.8	9°06.9	9°06.0	9°05.1	9°04.2	9°03.3	8°51.7	8°50.8	8°49.9	8°49.0	8°48.1	8°47.2	-0.9
vr 31	179°51.9	194°52.1	209°52.3	224°52.5	239°52.7	254°52.9	89°55.4	104°55.6	119°55.8	134°56.0	149°56.2	164°56.4	+0.2
	8°46.3	8°45.4	8°44.5	8°43.6	8°42.7	8°41.8	8°30.1	8°29.2	8°28.3	8°27.4	8°26.5	8°25.6	-0.9

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.8'

MAAN

Augustus 2035

D	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	Δ'/h	SD/HP
wo 1	74°30.9	88°54.0	103°17.0	117°40.0	132°03.0	146°26.0	160°49.1	175°12.1	189°35.2	203°58.2	218°21.3	+23.0	16.6
	18°45.0	18°44.1	18°43.1	18°41.9	18°40.7	18°39.2	18°37.7	18°36.0	18°34.1	18°32.2	18°30.0	-1.5	60.7
do 2	74°09.7	88°33.1	102°56.6	117°20.2	131°43.7	146°07.4	160°31.0	174°54.7	189°18.5	203°42.3	218°06.1	+23.6	16.5
	17°42.3	17°38.1	17°33.8	17°29.3	17°24.7	17°20.0	17°15.1	17°10.1	17°05.0	16°59.8	16°54.5	-4.8	60.7
● vr 3	74°10.4	88°35.2	103°00.0	117°24.9	131°49.9	146°14.9	160°40.0	175°05.2	189°30.4	203°55.7	218°21.1	+25.1	16.4
	15°20.8	15°13.7	15°06.5	14°59.2	14°51.9	14°44.4	14°36.8	14°29.1	14°21.3	14°13.5	14°05.5	-7.5	60.3
za 4	74°50.4	89°17.0	103°43.6	118°10.3	132°37.1	147°03.9	161°30.8	175°57.8	190°24.9	204°52.0	219°19.3	+26.9	16.3
	11°56.4	11°47.2	11°37.9	11°28.6	11°19.2	11°09.8	11°00.3	10°50.7	10°41.1	10°31.4	10°21.6	-9.5	59.7
zo 5	76°16.4	90°44.8	105°13.2	119°41.8	134°10.4	148°39.0	163°07.7	177°36.5	192°05.4	206°34.3	221°03.3	+28.7	16.1
	7°50.0	7°39.5	7°29.1	7°18.6	7°08.1	6°57.5	6°47.0	6°36.4	6°25.8	6°15.1	6°04.5	-10.6	58.9
ma 6	78°25.8	92°55.8	107°25.8	121°55.9	136°26.0	150°56.2	165°26.4	179°56.7	194°27.1	208°57.5	223°27.9	+30.2	15.8
	3°22.8	3°11.9	3°01.1	2°50.2	2°39.4	2°28.5	2°17.7	2°06.8	1°56.0	1°45.2	1°34.3	-10.8	57.9
di 7	81°10.3	95°41.4	110°12.6	124°43.9	139°15.1	153°46.4	168°17.8	182°49.2	197°20.6	211°52.0	226°23.5	+31.3	15.5
	-1°06.8	-1°17.4	-1°28.0	-1°38.5	-1°49.1	-1°59.6	-2°10.1	-2°20.6	-2°31.0	-2°41.4	-2°51.8	-10.5	57.0
wo 8	84°19.2	98°51.1	113°23.0	127°55.0	142°26.9	156°58.9	171°30.9	186°02.9	200°35.0	215°07.0	229°39.1	+32.0	15.3
	-5°24.0	-5°33.8	-5°43.7	-5°53.4	-6°03.2	-6°12.9	-6°22.6	-6°32.2	-6°41.8	-6°51.3	-7°00.8	-9.7	56.1
do 9	87°41.8	102°14.0	116°46.3	131°18.5	145°50.8	160°23.1	174°55.3	189°27.6	203°59.9	218°32.2	233°04.5	+32.3	15.1
	-9°17.7	-9°26.4	-9°35.1	-9°43.7	-9°52.3	-10°00.8	-10°09.3	-10°17.7	-10°26.1	-10°34.4	-10°42.6	-8.5	55.4
◐ vr 10	102°14.0	116°46.3	131°18.5	145°50.8	160°23.1	174°55.3	189°27.6	203°59.9	218°32.2	233°04.5	247°36.7	+32.3	15.1
	-9°26.4	-9°35.1	-9°43.7	-9°52.3	-10°00.8	-10°09.3	-10°17.7	-10°26.1	-10°34.4	-10°42.6	-10°50.8	-8.4	55.4
za 11	105°40.9	120°13.1	134°45.4	149°17.6	163°49.8	178°22.1	192°54.3	207°26.5	221°58.7	236°30.9	251°03.1	+32.2	14.9
	-12°46.6	-12°53.9	-13°01.0	-13°08.1	-13°15.2	-13°22.2	-13°29.1	-13°35.9	-13°42.7	-13°49.4	-13°56.1	-6.9	54.8
zo 12	109°04.6	123°36.6	138°08.6	152°40.6	167°12.6	181°44.5	196°16.5	210°48.4	225°20.3	239°52.2	254°24.1	+32.0	14.8
	-15°27.6	-15°33.1	-15°38.6	-15°44.0	-15°49.3	-15°54.6	-15°59.7	-16°04.8	-16°09.9	-16°14.8	-16°19.7	-5.2	54.4
ma 13	112°20.8	126°52.4	141°24.1	155°55.7	170°27.3	184°58.9	199°30.5	214°02.1	228°33.7	243°05.2	257°36.7	+31.6	14.8
	-17°23.7	-17°27.3	-17°30.9	-17°34.3	-17°37.7	-17°41.1	-17°44.3	-17°47.5	-17°50.5	-17°53.5	-17°56.4	-3.3	54.1
di 14	115°28.1	129°59.5	144°30.8	159°02.1	173°33.4	188°04.7	202°35.9	217°07.2	231°38.5	246°09.7	260°40.9	+31.3	14.7
	-18°30.2	-18°31.8	-18°33.3	-18°34.7	-18°36.0	-18°37.3	-18°38.4	-18°39.5	-18°40.5	-18°41.4	-18°42.2	-1.2	54.1
wo 15	118°28.4	132°59.5	147°30.6	162°01.7	176°32.8	191°03.9	205°34.9	220°06.0	234°37.1	249°08.2	263°39.3	+31.1	14.8
	-18°44.0	-18°43.4	-18°42.8	-18°42.0	-18°41.2	-18°40.3	-18°39.3	-18°38.2	-18°37.0	-18°35.7	-18°34.4	+1.0	54.2
do 16	121°25.2	135°56.2	150°27.3	164°58.4	179°29.4	194°00.5	208°31.6	223°02.7	237°33.8	252°04.9	266°35.9	+31.1	14.8
	-18°03.6	-18°00.9	-17°58.0	-17°55.1	-17°52.1	-17°49.0	-17°45.9	-17°42.6	-17°39.3	-17°35.9	-17°32.4	+3.1	54.4
vr 17	124°23.0	138°54.2	153°25.4	167°56.6	182°27.9	196°59.1	211°30.3	226°01.6	240°32.8	255°04.1	269°35.3	+31.2	14.9
	-16°29.9	-16°25.0	-16°20.1	-16°15.2	-16°10.1	-16°05.0	-15°59.8	-15°54.5	-15°49.1	-15°43.6	-15°38.1	+5.2	54.7
za 18	127°25.6	141°57.0	156°28.5	170°59.9	185°31.4	200°02.9	214°34.4	229°05.8	243°37.4	258°08.9	272°40.4	+31.5	15.0
	-14°06.3	-13°59.6	-13°52.8	-13°45.9	-13°39.0	-13°32.0	-13°25.0	-13°17.9	-13°10.7	-13°03.4	-12°56.1	+7.0	55.1
○ zo 19	130°34.4	145°06.1	159°37.8	174°09.4	188°41.1	203°12.8	217°44.6	232°16.3	246°48.0	261°19.7	275°51.5	+31.7	15.2
	-10°58.8	-10°50.5	-10°42.2	-10°33.8	-10°25.3	-10°16.8	-10°08.2	-9°59.6	-9°50.9	-9°42.2	-9°33.4	+8.5	55.6
ma 20	133°48.0	148°19.8	162°51.6	177°23.4	191°55.2	206°26.9	220°58.7	235°30.5	250°02.3	264°34.1	279°05.9	+31.8	15.3
	-7°15.9	-7°06.4	-6°56.8	-6°47.2	-6°37.6	-6°27.9	-6°18.2	-6°08.5	-5°58.7	-5°48.9	-5°39.0	+9.7	56.1
di 21	137°01.9	151°33.6	166°05.3	180°36.9	195°08.5	209°40.2	224°11.8	238°43.4	253°15.0	267°46.5	282°18.1	+31.6	15.4
	-3°07.7	-2°57.4	-2°47.1	-2°36.8	-2°26.4	-2°16.0	-2°05.6	-1°55.2	-1°44.8	-1°34.4	-1°23.9	+10.4	56.6
wo 22	140°09.1	154°40.3	169°11.6	183°42.7	198°13.9	212°45.0	227°16.1	241°47.2	256°18.2	270°49.2	285°20.2	+31.1	15.6
	1°14.1	1°24.6	1°35.2	1°45.8	1°56.4	2°06.9	2°17.5	2°28.0	2°38.6	2°49.1	2°59.7	+10.6	57.1
do 23	143°00.8	157°31.2	172°01.5	186°31.9	201°02.2	215°32.4	230°02.6	244°32.7	259°02.9	273°32.9	288°02.9	+30.2	15.7
	5°36.3	5°46.6	5°56.8	6°07.1	6°17.3	6°27.5	6°37.7	6°47.8	6°57.9	7°08.0	7°18.1	+10.2	57.6
vr 24	145°27.5	159°56.7	174°25.9	188°55.0	203°24.0	217°53.1	232°22.0	246°50.9	261°19.7	275°48.5	290°17.3	+29.0	15.9
	9°44.5	9°53.9	10°03.2	10°12.6	10°21.8	10°31.1	10°40.2	10°49.3	10°58.4	11°07.4	11°16.4	+9.2	58.2
za 25	147°21.1	161°48.9	176°16.6	190°44.2	205°11.8	219°39.4	234°06.8	248°34.3	263°01.6	277°28.9	291°56.1	+27.5	16.0
	13°23.1	13°31.0	13°38.8	13°46.5	13°54.2	14°01.8	14°09.3	14°16.7	14°24.1	14°31.4	14°38.6	+7.6	58.7
◑ zo 26	148°37.2	163°03.5	177°29.7	191°55.9	206°21.9	220°48.0	235°14.0	249°39.9	264°05.8	278°31.6	292°57.4	+26.0	16.1
	16°15.8	16°21.5	16°27.2	16°32.7	16°38.1	16°43.4	16°48.7	16°53.8	16°58.8	17°03.7	17°08.5	+5.3	59.1
ma 27	149°17.8	163°42.8	178°07.8	192°32.7	206°57.6	221°22.4	235°47.2	250°12.0	264°36.7	279°01.4	293°26.1	+24.8	16.2
	18°07.1	18°10.1	18°12.9	18°15.7	18°18.3	18°20.8	18°23.2	18°25.4	18°27.6	18°29.6	18°31.5	+2.4	59.5
di 28	149°32.9	163°57.2	178°21.5	192°45.8	207°10.1	221°34.3	235°58.6	250°22.8	264°47.0	279°11.3	293°35.5	+24.3	16.3
	18°44.6	18°44.5	18°44.2	18°43.8	18°43.3	18°42.6	18°41.8	18°40.9	18°39.8	18°38.6	18°37.3	-0.7	59.8
wo 29	149°39.6	164°03.9	178°28.3	192°52.7	207°17.1	221°41.6	236°06.1	250°30.6	264°55.1	279°19.7	293°44.2	+24.5	16.3
	18°02.3	17°59.0	17°55.5	17°51.9	17°48.2	17°44.3	17°40.4	17°36.3	17°32.1	17°27.7	17°23.3	-3.9	59.9
do 30	149°57.1	164°22.2	178°47.5	193°12.7	207°38.0	222°03.4	236°28.8	250°54.2	265°19.7	279°45.3	294°10.9	+25.4	16.3
	16°02.7	15°56.4	15°50.1	15°43.6	15°37.0	15°30.3	15°23.6	15°16.7	15°09.7	15°02.6	14°55.5	-6.7	59.8
vr 31	150°41.3	165°07.8	179°34.4	194°00.9	208°27.6	222°54.3	237°21.1	251°47.9	266°14.8	280°41.7	295°08.7	+26.7	16.2
	12°56.9	12°48.3	12°39.7	12°30.9	12°22.1	12°13.3	12°04.3	11°55.3	11°46.2	11°37.0	11°27.8	-8.9	59.5

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 3 17h11 — EK: 10 21h52 — VM: 19 01h00 — LK: 26 09h08

ZON

September 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	179° 56.6 8° 24.7	194° 56.8 8° 23.8	209° 57.0 8° 22.9	224° 57.2 8° 22.0	239° 57.4 8° 21.1	254° 57.6 8° 20.2	90° 00.1 8° 08.4	105° 00.3 8° 07.5	120° 00.5 8° 06.5	135° 00.7 8° 05.6	150° 00.9 8° 04.7	165° 01.1 8° 03.8	+0.2 -0.9
zo 2	180° 01.3 8° 02.9	195° 01.5 8° 02.0	210° 01.7 8° 01.1	225° 01.9 8° 00.2	240° 02.1 7° 59.3	255° 02.3 7° 58.4	90° 04.9 7° 46.5	105° 05.1 7° 45.6	120° 05.3 7° 44.7	135° 05.5 7° 43.8	150° 05.7 7° 42.8	165° 05.9 7° 41.9	+0.2 -0.9
ma 3	180° 06.1 7° 41.0	195° 06.4 7° 40.1	210° 06.6 7° 39.2	225° 06.8 7° 38.3	240° 07.0 7° 37.4	255° 07.2 7° 36.4	90° 09.8 7° 24.5	105° 10.0 7° 23.6	120° 10.2 7° 22.7	135° 10.4 7° 21.8	150° 10.6 7° 20.8	165° 10.8 7° 19.9	+0.2 -0.9
di 4	180° 11.0 7° 19.0	195° 11.2 7° 18.1	210° 11.4 7° 17.2	225° 11.7 7° 16.2	240° 11.9 7° 15.3	255° 12.1 7° 14.4	90° 14.7 7° 02.4	105° 15.0 7° 01.5	120° 15.2 7° 00.6	135° 15.4 6° 59.6	150° 15.6 6° 58.7	165° 15.8 6° 57.8	+0.2 -0.9
wo 5	180° 16.0 6° 56.9	195° 16.2 6° 55.9	210° 16.4 6° 55.0	225° 16.6 6° 54.1	240° 16.8 6° 53.2	255° 17.0 6° 52.2	90° 19.7 6° 40.2	105° 20.0 6° 39.3	120° 20.2 6° 38.3	135° 20.4 6° 37.4	150° 20.6 6° 36.5	165° 20.8 6° 35.5	+0.2 -0.9
do 6	180° 21.0 6° 34.6	195° 21.2 6° 33.7	210° 21.4 6° 32.8	225° 21.6 6° 31.8	240° 21.8 6° 30.9	255° 22.1 6° 30.0	90° 24.8 6° 17.9	105° 25.0 6° 16.9	120° 25.2 6° 16.0	135° 25.4 6° 15.1	150° 25.7 6° 14.1	165° 25.9 6° 13.2	+0.2 -0.9
vr 7	180° 26.1 6° 12.3	195° 26.3 6° 11.3	210° 26.5 6° 10.4	225° 26.7 6° 09.5	240° 26.9 6° 08.5	255° 27.1 6° 07.6	90° 29.9 5° 55.4	105° 30.1 5° 54.5	120° 30.3 5° 53.6	135° 30.6 5° 52.6	150° 30.8 5° 51.7	165° 31.0 5° 50.7	+0.2 -0.9
za 8	180° 31.2 5° 49.8	195° 31.4 5° 48.9	210° 31.6 5° 47.9	225° 31.8 5° 47.0	240° 32.1 5° 46.1	255° 32.3 5° 45.1	90° 35.1 5° 32.9	105° 35.3 5° 32.0	120° 35.5 5° 31.0	135° 35.7 5° 30.1	150° 35.9 5° 29.1	165° 36.2 5° 28.2	+0.2 -0.9
zo 9	180° 36.4 5° 27.3	195° 36.6 5° 26.3	210° 36.8 5° 25.4	225° 37.0 5° 24.4	240° 37.2 5° 23.5	255° 37.5 5° 22.5	90° 40.3 5° 10.3	105° 40.5 5° 09.3	120° 40.7 5° 08.4	135° 40.9 5° 07.5	150° 41.2 5° 06.5	165° 41.4 5° 05.6	+0.2 -0.9
ma 10	180° 41.6 5° 04.6	195° 41.8 5° 03.7	210° 42.0 5° 02.7	225° 42.3 5° 01.8	240° 42.5 5° 00.8	255° 42.7 4° 59.9	90° 45.5 4° 47.6	105° 45.8 4° 46.6	120° 46.0 4° 45.7	135° 46.2 4° 44.7	150° 46.4 4° 43.8	165° 46.6 4° 42.8	+0.2 -0.9
di 11	180° 46.9 4° 41.9	195° 47.1 4° 40.9	210° 47.3 4° 40.0	225° 47.5 4° 39.0	240° 47.7 4° 38.1	255° 48.0 4° 37.1	90° 50.8 4° 24.8	105° 51.0 4° 23.8	120° 51.3 4° 22.9	135° 51.5 4° 21.9	150° 51.7 4° 21.0	165° 51.9 4° 20.0	+0.2 -0.9
wo 12	180° 52.1 4° 19.1	195° 52.4 4° 18.1	210° 52.6 4° 17.2	225° 52.8 4° 16.2	240° 53.0 4° 15.3	255° 53.3 4° 14.3	90° 56.1 4° 01.9	105° 56.4 4° 01.0	120° 56.6 4° 00.0	135° 56.8 3° 59.1	150° 57.0 3° 58.1	165° 57.3 3° 57.2	+0.2 -1.0
do 13	180° 57.5 3° 56.2	195° 57.7 3° 55.2	210° 57.9 3° 54.3	225° 58.1 3° 53.3	240° 58.4 3° 52.4	255° 58.6 3° 51.4	91° 01.5 3° 39.0	106° 01.7 3° 38.0	121° 01.9 3° 37.1	136° 02.2 3° 36.1	151° 02.4 3° 35.2	166° 02.6 3° 34.2	+0.2 -1.0
vr 14	181° 02.8 3° 33.3	196° 03.0 3° 32.3	211° 03.3 3° 31.3	226° 03.5 3° 30.4	241° 03.7 3° 29.4	256° 03.9 3° 28.5	91° 06.8 3° 16.0	106° 07.1 3° 15.0	121° 07.3 3° 14.1	136° 07.5 3° 13.1	151° 07.7 3° 12.2	166° 08.0 3° 11.2	+0.2 -1.0
za 15	181° 08.2 3° 10.2	196° 08.4 3° 09.3	211° 08.6 3° 08.3	226° 08.9 3° 07.4	241° 09.1 3° 06.4	256° 09.3 3° 05.4	91° 12.2 2° 52.9	106° 12.4 2° 52.0	121° 12.7 2° 51.0	136° 12.9 2° 50.1	151° 13.1 2° 49.1	166° 13.3 2° 48.1	+0.2 -1.0
zo 16	181° 13.6 2° 47.2	196° 13.8 2° 46.2	211° 14.0 2° 45.2	226° 14.2 2° 44.3	241° 14.5 2° 43.3	256° 14.7 2° 42.4	91° 17.6 2° 29.8	106° 17.8 2° 28.9	121° 18.1 2° 27.9	136° 18.3 2° 26.9	151° 18.5 2° 26.0	166° 18.7 2° 25.0	+0.2 -1.0
ma 17	181° 19.0 2° 24.0	196° 19.2 2° 23.1	211° 19.4 2° 22.1	226° 19.6 2° 21.2	241° 19.9 2° 20.2	256° 20.1 2° 19.2	91° 23.0 2° 06.7	106° 23.2 2° 05.7	121° 23.5 2° 04.7	136° 23.7 2° 03.8	151° 23.9 2° 02.8	166° 24.1 2° 01.8	+0.2 -1.0
di 18	181° 24.4 2° 00.9	196° 24.6 1° 59.9	211° 24.8 1° 58.9	226° 25.0 1° 58.0	241° 25.2 1° 57.0	256° 25.5 1° 56.0	91° 28.4 1° 43.5	106° 28.6 1° 42.5	121° 28.8 1° 41.5	136° 29.1 1° 40.6	151° 29.3 1° 39.6	166° 29.5 1° 38.6	+0.2 -1.0
wo 19	181° 29.7 1° 37.7	196° 30.0 1° 36.7	211° 30.2 1° 35.7	226° 30.4 1° 34.8	241° 30.6 1° 33.8	256° 30.9 1° 32.8	91° 33.8 1° 20.2	106° 34.0 1° 19.3	121° 34.2 1° 18.3	136° 34.4 1° 17.3	151° 34.7 1° 16.4	166° 34.9 1° 15.4	+0.2 -1.0
do 20	181° 35.1 1° 14.4	196° 35.3 1° 13.5	211° 35.6 1° 12.5	226° 35.8 1° 11.5	241° 36.0 1° 10.5	256° 36.2 1° 09.6	91° 39.1 0° 57.0	106° 39.4 0° 56.0	121° 39.6 0° 55.0	136° 39.8 0° 54.1	151° 40.0 0° 53.1	166° 40.3 0° 52.1	+0.2 -1.0
vr 21	181° 40.5 0° 51.1	196° 40.7 0° 50.2	211° 40.9 0° 49.2	226° 41.1 0° 48.2	241° 41.4 0° 47.3	256° 41.6 0° 46.3	91° 44.5 0° 33.7	106° 44.7 0° 32.7	121° 44.9 0° 31.7	136° 45.1 0° 30.7	151° 45.4 0° 29.8	166° 45.6 0° 28.8	+0.2 -1.0
za 22	181° 45.8 0° 27.8	196° 46.0 0° 26.9	211° 46.3 0° 25.9	226° 46.5 0° 24.9	241° 46.7 0° 23.9	256° 46.9 0° 23.0	91° 49.8 0° 10.3	106° 50.0 0° 09.4	121° 50.2 0° 08.4	136° 50.5 0° 07.4	151° 50.7 0° 06.5	166° 50.9 0° 05.5	+0.2 -1.0
zo 23	181° 51.1 0° 04.5	196° 51.3 0° 03.5	211° 51.6 0° 02.6	226° 51.8 0° 01.6	241° 52.0 0° 00.6	256° 52.2 -0° 00.4	91° 55.1 -0° 13.0	106° 55.3 -0° 14.0	121° 55.5 -0° 14.9	136° 55.7 -0° 15.9	151° 56.0 -0° 16.9	166° 56.2 -0° 17.9	+0.2 -1.0
ma 24	181° 56.4 -0° 18.8	196° 56.6 -0° 19.8	211° 56.8 -0° 20.8	226° 57.1 -0° 21.8	241° 57.3 -0° 22.7	256° 57.5 -0° 23.7	92° 00.3 -0° 36.4	107° 00.5 -0° 37.3	122° 00.8 -0° 38.3	137° 01.0 -0° 39.3	152° 01.2 -0° 40.2	167° 01.4 -0° 41.2	+0.2 -1.0
di 25	182° 01.6 -0° 42.2	197° 01.9 -0° 43.2	212° 02.1 -0° 44.1	227° 02.3 -0° 45.1	242° 02.5 -0° 46.1	257° 02.7 -0° 47.1	92° 05.5 -0° 59.7	107° 05.8 -1° 00.7	122° 06.0 -1° 01.7	137° 06.2 -1° 02.6	152° 06.4 -1° 03.6	167° 06.6 -1° 04.6	+0.2 -1.0
wo 26	182° 06.8 -1° 05.5	197° 07.0 -1° 06.5	212° 07.3 -1° 07.5	227° 07.5 -1° 08.5	242° 07.7 -1° 09.4	257° 07.9 -1° 10.4	92° 10.7 -1° 23.1	107° 10.9 -1° 24.0	122° 11.1 -1° 25.0	137° 11.3 -1° 26.0	152° 11.5 -1° 27.0	167° 11.8 -1° 27.9	+0.2 -1.0
do 27	182° 12.0 -1° 28.9	197° 12.2 -1° 29.9	212° 12.4 -1° 30.9	227° 12.6 -1° 31.8	242° 12.8 -1° 32.8	257° 13.0 -1° 33.8	92° 15.8 -1° 46.4	107° 16.0 -1° 47.4	122° 16.2 -1° 48.4	137° 16.4 -1° 49.3	152° 16.6 -1° 50.3	167° 16.9 -1° 51.3	+0.2 -1.0
vr 28	182° 17.1 -1° 52.3	197° 17.3 -1° 53.2	212° 17.5 -1° 54.2	227° 17.7 -1° 55.2	242° 17.9 -1° 56.1	257° 18.1 -1° 57.1	92° 20.8 -2° 09.8	107° 21.1 -2° 10.7	122° 21.3 -2° 11.7	137° 21.5 -2° 12.7	152° 21.7 -2° 13.6	167° 21.9 -2° 14.6	+0.2 -1.0
za 29	182° 22.1 -2° 15.6	197° 22.3 -2° 16.6	212° 22.5 -2° 17.5	227° 22.7 -2° 18.5	242° 22.9 -2° 19.5	257° 23.1 -2° 20.4	92° 25.8 -2° 33.1	107° 26.0 -2° 34.0	122° 26.2 -2° 35.0	137° 26.4 -2° 36.0	152° 26.7 -2° 37.0	167° 26.9 -2° 37.9	+0.2 -1.0
zo 30	182° 27.1 -2° 38.9	197° 27.3 -2° 39.9	212° 27.5 -2° 40.8	227° 27.7 -2° 41.8	242° 27.9 -2° 42.8	257° 28.1 -2° 43.8	92° 30.8 -2° 56.4	107° 31.0 -2° 57.3	122° 31.2 -2° 58.3	137° 31.4 -2° 59.3	152° 31.6 -3° 00.3	167° 31.8 -3° 01.2	+0.2 -1.0

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 15.9'

MAAN

September 2035

D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
za 1	65°14.4	79°42.0	94°09.7	108°37.4	123°05.2	137°33.0	152°00.9	166°28.9	180°56.9	195°25.0	209°53.1	+27.9	16.1
	10°02.0	9°52.1	9°42.3	9°32.3	9°22.4	9°12.3	9°02.2	8°52.1	8°42.0	8°31.7	8°21.5	-10.1	59.2
● zo 2	67°01.8	81°30.8	95°59.9	110°29.0	124°58.2	139°27.4	153°56.7	168°26.0	182°55.4	197°24.8	211°54.3	+29.3	16.0
	5°43.5	5°32.7	5°22.0	5°11.2	5°00.4	4°49.5	4°38.7	4°27.8	4°16.9	4°06.0	3°55.1	-10.8	58.5
ma 3	69°22.0	83°52.2	98°22.5	112°52.8	127°23.1	141°53.4	156°23.8	170°54.3	185°24.7	199°55.2	214°25.8	+30.4	15.7
	1°11.0	1°00.1	0°49.2	0°38.3	0°27.4	0°16.5	0°05.6	-0°05.3	-0°16.1	-0°27.0	-0°37.8	-10.9	57.8
di 4	72°07.9	86°39.0	101°10.0	115°41.1	130°12.3	144°43.4	159°14.6	173°45.8	188°17.0	202°48.3	217°19.5	+31.2	15.5
	-3°17.8	-3°28.3	-3°38.7	-3°49.1	-3°59.5	-4°09.8	-4°20.1	-4°30.4	-4°40.6	-4°50.9	-5°01.0	-10.3	56.9
wo 5	75°10.9	89°42.5	104°14.0	118°45.6	133°17.2	147°48.8	162°20.4	176°52.1	191°23.7	205°55.4	220°27.0	+31.6	15.3
	-7°28.7	-7°38.2	-7°47.6	-7°57.0	-8°06.4	-8°15.7	-8°24.9	-8°34.1	-8°43.2	-8°52.3	-9°01.4	-9.3	56.1
do 6	78°22.9	92°54.6	107°26.4	121°58.2	136°29.9	151°01.7	165°33.5	180°05.3	194°37.0	209°08.8	223°40.6	+31.8	15.1
	-11°10.3	-11°18.5	-11°26.5	-11°34.5	-11°42.5	-11°50.4	-11°58.2	-12°05.9	-12°13.6	-12°21.3	-12°28.8	-7.9	55.4
vr 7	81°37.1	96°08.9	110°40.6	125°12.3	139°44.1	154°15.8	168°47.5	183°19.2	197°50.9	212°22.6	226°54.3	+31.7	15.0
	-14°14.3	-14°20.7	-14°27.1	-14°33.5	-14°39.7	-14°45.9	-14°52.0	-14°58.1	-15°04.1	-15°10.0	-15°15.8	-6.2	54.9
za 8	84°49.0	99°20.6	113°52.1	128°23.7	142°55.3	157°26.8	171°58.4	186°29.9	201°01.4	215°32.9	230°04.4	+31.5	14.8
	-16°34.1	-16°38.7	-16°43.2	-16°47.7	-16°52.0	-16°56.3	-17°00.5	-17°04.6	-17°08.7	-17°12.7	-17°16.5	-4.2	54.4
◐ zo 9	99°20.6	113°52.1	128°23.7	142°55.3	157°26.8	171°58.4	186°29.9	201°01.4	215°32.9	230°04.4	244°35.9	+31.5	14.8
	-16°38.7	-16°43.2	-16°47.7	-16°52.0	-16°56.3	-17°00.5	-17°04.6	-17°08.7	-17°12.7	-17°16.5	-17°20.4	-4.2	54.4
ma 10	102°27.5	116°58.9	131°30.2	146°01.6	160°33.0	175°04.3	189°35.6	204°07.0	218°38.3	233°09.6	247°40.9	+31.3	14.8
	-18°07.6	-18°10.1	-18°12.5	-18°14.8	-18°17.1	-18°19.2	-18°21.3	-18°23.3	-18°25.2	-18°27.0	-18°28.7	-2.1	54.2
di 11	105°29.8	120°01.0	134°32.2	149°03.4	163°34.6	178°05.8	192°37.0	207°08.2	221°39.3	236°10.5	250°41.7	+31.2	14.8
	-18°44.4	-18°44.7	-18°45.0	-18°45.2	-18°45.3	-18°45.3	-18°45.2	-18°45.1	-18°44.8	-18°44.5	-18°44.0	+0.0	54.2
wo 12	108°29.1	123°00.3	137°31.4	152°02.6	166°33.7	181°04.9	195°36.0	210°07.2	224°38.3	239°09.5	253°40.6	+31.2	14.8
	-18°27.3	-18°25.5	-18°23.6	-18°21.6	-18°19.5	-18°17.4	-18°15.1	-18°12.8	-18°10.4	-18°07.9	-18°05.3	+2.2	54.3
do 13	111°28.2	125°59.4	140°30.6	155°01.8	169°33.0	184°04.2	198°35.4	213°06.6	227°37.8	242°09.1	256°40.3	+31.2	14.9
	-17°16.4	-17°12.4	-17°08.4	-17°04.3	-17°00.1	-16°55.9	-16°51.5	-16°47.1	-16°42.6	-16°38.0	-16°33.3	+4.3	54.6
vr 14	114°29.3	129°00.6	143°32.0	158°03.3	172°34.6	187°05.9	201°37.3	216°08.6	230°40.0	245°11.3	259°42.7	+31.3	15.0
	-15°13.8	-15°07.8	-15°01.8	-14°55.8	-14°49.6	-14°43.4	-14°37.1	-14°30.7	-14°24.2	-14°17.7	-14°11.1	+6.3	55.0
za 15	117°33.6	132°05.0	146°36.5	161°07.9	175°39.3	190°10.8	204°42.2	219°13.7	233°45.1	248°16.6	262°48.0	+31.4	15.2
	-12°23.7	-12°16.0	-12°08.3	-12°00.4	-11°52.6	-11°44.6	-11°36.6	-11°28.5	-11°20.3	-11°12.1	-11°03.9	+8.0	55.6
zo 16	120°39.9	135°11.4	149°42.8	164°14.3	178°45.7	193°17.2	207°48.6	222°20.1	236°51.5	251°22.9	265°54.4	+31.4	15.3
	-8°53.0	-8°43.8	-8°34.6	-8°25.4	-8°16.1	-8°06.7	-7°57.3	-7°47.9	-7°38.4	-7°28.8	-7°19.2	+9.4	56.2
○ ma 17	123°44.9	138°16.2	152°47.5	167°18.8	181°50.0	196°21.3	210°52.5	225°23.8	239°55.0	254°26.2	268°57.3	+31.2	15.5
	-4°50.6	-4°40.4	-4°30.2	-4°19.9	-4°09.6	-3°59.3	-3°48.9	-3°38.6	-3°28.2	-3°17.7	-3°07.3	+10.3	56.8
di 18	126°43.0	141°13.9	155°44.7	170°15.6	184°46.4	199°17.2	213°47.9	228°18.7	242°49.4	257°20.1	271°50.7	+30.8	15.6
	-0°28.0	-0°17.3	-0°06.5	0°04.2	0°15.0	0°25.7	0°36.5	0°47.3	0°58.1	1°08.9	1°19.7	+10.8	57.3
wo 19	129°27.1	143°57.3	158°27.4	172°57.5	187°27.6	201°57.6	216°27.6	230°57.6	245°27.5	259°57.3	274°27.2	+30.0	15.8
	4°01.0	4°11.7	4°22.4	4°33.0	4°43.7	4°54.3	5°04.9	5°15.5	5°26.0	5°36.5	5°47.0	+10.6	57.9
do 20	131°49.8	146°19.0	160°48.1	175°17.2	189°46.2	204°15.2	218°44.1	233°13.0	247°41.8	262°10.6	276°39.4	+29.0	15.9
	8°21.1	8°31.0	8°41.0	8°50.9	9°00.7	9°10.5	9°20.3	9°30.0	9°39.7	9°49.3	9°58.8	+9.8	58.3
vr 21	133°44.6	148°12.6	162°40.5	177°08.3	191°36.1	206°03.9	220°31.6	234°59.2	249°26.8	263°54.4	278°21.9	+27.7	16.0
	12°15.4	12°24.0	12°32.5	12°40.9	12°49.3	12°57.6	13°05.9	13°14.0	13°22.1	13°30.1	13°38.1	+8.3	58.7
za 22	135°08.3	149°35.0	164°01.7	178°28.3	192°54.9	207°21.4	221°47.8	236°14.3	250°40.7	265°07.0	279°33.3	+26.5	16.1
	15°27.0	15°33.5	15°40.0	15°46.4	15°52.6	15°58.8	16°04.9	16°10.8	16°16.7	16°22.5	16°28.1	+6.1	58.9
zo 23	136°02.8	150°28.5	164°54.1	179°19.7	193°45.3	208°10.9	222°36.4	237°01.9	251°27.3	265°52.7	280°18.1	+25.5	16.1
	17°40.5	17°44.4	17°48.3	17°52.0	17°55.6	17°59.1	18°02.4	18°05.7	18°08.8	18°11.8	18°14.7	+3.4	59.1
◑ ma 24	136°36.5	151°01.6	165°26.7	179°51.8	194°16.9	208°41.9	223°07.0	237°32.0	251°57.1	266°22.1	280°47.2	+25.1	16.1
	18°43.8	18°44.8	18°45.6	18°46.3	18°46.9	18°47.4	18°47.7	18°47.9	18°48.0	18°48.0	18°47.9	+0.4	59.2
di 25	137°03.2	151°28.3	165°53.5	180°18.7	194°43.8	209°09.1	223°34.3	237°59.5	252°24.8	266°50.1	281°15.4	+25.2	16.2
	18°30.7	18°28.5	18°26.3	18°23.9	18°21.4	18°18.8	18°16.0	18°13.2	18°10.2	18°07.1	18°03.9	-2.7	59.2
wo 26	137°38.5	152°04.3	166°30.1	180°56.0	195°21.9	209°47.8	224°13.8	238°39.8	253°05.9	267°32.0	281°58.1	+26.0	16.1
	17°01.8	16°56.7	16°51.6	16°46.3	16°41.0	16°35.5	16°29.9	16°24.2	16°18.5	16°12.6	16°06.6	-5.5	59.2
do 27	138°35.6	153°02.5	167°29.4	181°56.4	196°23.4	210°50.4	225°17.6	239°44.7	254°11.9	268°39.2	283°06.5	+27.1	16.1
	14°25.0	14°17.5	14°10.0	14°02.3	13°54.5	13°46.7	13°38.7	13°30.7	13°22.7	13°14.5	13°06.2	-7.9	59.0
vr 28	140°02.1	154°30.3	168°58.4	183°26.6	197°54.9	212°23.2	226°51.5	241°20.0	255°48.4	270°16.9	284°45.5	+28.3	16.0
	10°53.9	10°44.6	10°35.2	10°25.7	10°16.2	10°06.6	9°57.0	9°47.3	9°37.6	9°27.8	9°18.0	-9.6	58.7
za 29	141°59.3	156°28.6	170°57.9	185°27.3	199°56.7	214°26.2	228°55.7	243°25.2	257°54.8	272°24.4	286°54.1	+29.5	15.9
	6°45.2	6°34.8	6°24.3	6°13.7	6°03.2	5°52.6	5°41.9	5°31.3	5°20.6	5°09.9	4°59.2	-10.6	58.2
zo 30	144°23.5	158°53.7	173°24.0	187°54.3	202°24.6	216°55.0	231°25.4	245°55.8	260°26.3	274°56.8	289°27.3	+30.4	15.7
	2°16.8	2°05.9	1°55.0	1°44.1	1°33.2	1°22.2	1°11.3	1°00.4	0°49.5	0°38.6	0°27.7	-10.9	57.7

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 2 01h59 — EK: 9 14h47 — VM: 17 14h23 — LK: 24 14h39

ZON

Oktober 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
ma 1	182° 32.0	197° 32.2	212° 32.4	227° 32.6	242° 32.8	257° 33.0	92° 35.6	107° 35.8	122° 36.0	137° 36.2	152° 36.4	167° 36.6	+0.2
	-3° 02.2	-3° 03.2	-3° 04.1	-3° 05.1	-3° 06.1	-3° 07.0	-3° 19.6	-3° 20.6	-3° 21.6	-3° 22.5	-3° 23.5	-3° 24.5	-1.0
di 2	182° 36.8	197° 37.0	212° 37.2	227° 37.4	242° 37.6	257° 37.8	92° 40.4	107° 40.6	122° 40.8	137° 41.0	152° 41.2	167° 41.4	+0.2
	-3° 25.5	-3° 26.4	-3° 27.4	-3° 28.4	-3° 29.3	-3° 30.3	-3° 42.9	-3° 43.8	-3° 44.8	-3° 45.8	-3° 46.7	-3° 47.7	-1.0
wo 3	182° 41.6	197° 41.8	212° 42.0	227° 42.2	242° 42.3	257° 42.5	92° 45.1	107° 45.3	122° 45.5	137° 45.7	152° 45.9	167° 46.0	+0.2
	-3° 48.7	-3° 49.6	-3° 50.6	-3° 51.6	-3° 52.5	-3° 53.5	-4° 06.1	-4° 07.0	-4° 08.0	-4° 09.0	-4° 09.9	-4° 10.9	-1.0
do 4	182° 46.2	197° 46.4	212° 46.6	227° 46.8	242° 47.0	257° 47.2	92° 49.7	107° 49.9	122° 50.1	137° 50.3	152° 50.5	167° 50.6	+0.2
	-4° 11.9	-4° 12.8	-4° 13.8	-4° 14.7	-4° 15.7	-4° 16.7	-4° 29.2	-4° 30.2	-4° 31.1	-4° 32.1	-4° 33.1	-4° 34.0	-1.0
vr 5	182° 50.8	197° 51.0	212° 51.2	227° 51.4	242° 51.6	257° 51.8	92° 54.2	107° 54.4	122° 54.6	137° 54.8	152° 55.0	167° 55.2	+0.2
	-4° 35.0	-4° 35.9	-4° 36.9	-4° 37.9	-4° 38.8	-4° 39.8	-4° 52.3	-4° 53.2	-4° 54.2	-4° 55.2	-4° 56.1	-4° 57.1	-1.0
za 6	182° 55.3	197° 55.5	212° 55.7	227° 55.9	242° 56.1	257° 56.3	92° 58.7	107° 58.9	122° 59.0	137° 59.2	152° 59.4	167° 59.6	+0.2
	-4° 58.0	-4° 59.0	-5° 00.0	-5° 00.9	-5° 01.9	-5° 02.8	-5° 15.3	-5° 16.3	-5° 17.2	-5° 18.2	-5° 19.1	-5° 20.1	-1.0
zo 7	182° 59.8	197° 59.9	213° 00.1	228° 00.3	243° 00.5	258° 00.7	93° 03.0	108° 03.2	123° 03.4	138° 03.6	153° 03.7	168° 03.9	+0.2
	-5° 21.1	-5° 22.0	-5° 23.0	-5° 23.9	-5° 24.9	-5° 25.8	-5° 38.3	-5° 39.2	-5° 40.2	-5° 41.1	-5° 42.1	-5° 43.0	-1.0
ma 8	183° 04.1	198° 04.3	213° 04.4	228° 04.6	243° 04.8	258° 05.0	93° 07.3	108° 07.4	123° 07.6	138° 07.8	153° 08.0	168° 08.1	+0.2
	-5° 44.0	-5° 45.0	-5° 45.9	-5° 46.9	-5° 47.8	-5° 48.8	-6° 01.2	-6° 02.1	-6° 03.1	-6° 04.0	-6° 05.0	-6° 05.9	-1.0
di 9	183° 08.3	198° 08.5	213° 08.7	228° 08.8	243° 09.0	258° 09.2	93° 11.4	108° 11.6	123° 11.7	138° 11.9	153° 12.1	168° 12.3	+0.2
	-6° 06.9	-6° 07.8	-6° 08.8	-6° 09.7	-6° 10.7	-6° 11.6	-6° 24.0	-6° 24.9	-6° 25.9	-6° 26.8	-6° 27.7	-6° 28.7	-1.0
wo 10	183° 12.4	198° 12.6	213° 12.8	228° 12.9	243° 13.1	258° 13.3	93° 15.4	108° 15.6	123° 15.8	138° 15.9	153° 16.1	168° 16.3	+0.2
	-6° 29.6	-6° 30.6	-6° 31.5	-6° 32.5	-6° 33.4	-6° 34.4	-6° 46.7	-6° 47.6	-6° 48.6	-6° 49.5	-6° 50.5	-6° 51.4	-0.9
do 11	183° 16.4	198° 16.6	213° 16.8	228° 16.9	243° 17.1	258° 17.2	93° 19.4	108° 19.5	123° 19.7	138° 19.8	153° 20.0	168° 20.2	+0.2
	-6° 52.3	-6° 53.3	-6° 54.2	-6° 55.2	-6° 56.1	-6° 57.1	-7° 09.3	-7° 10.2	-7° 11.2	-7° 12.1	-7° 13.1	-7° 14.0	-0.9
vr 12	183° 20.3	198° 20.5	213° 20.6	228° 20.8	243° 21.0	258° 21.1	93° 23.2	108° 23.3	123° 23.5	138° 23.6	153° 23.8	168° 23.9	+0.2
	-7° 14.9	-7° 15.9	-7° 16.8	-7° 17.8	-7° 18.7	-7° 19.6	-7° 31.8	-7° 32.8	-7° 33.7	-7° 34.6	-7° 35.6	-7° 36.5	-0.9
za 13	183° 24.1	198° 24.2	213° 24.4	228° 24.5	243° 24.7	258° 24.9	93° 26.8	108° 27.0	123° 27.1	138° 27.3	153° 27.4	168° 27.6	+0.2
	-7° 37.4	-7° 38.4	-7° 39.3	-7° 40.2	-7° 41.2	-7° 42.1	-7° 54.3	-7° 55.2	-7° 56.1	-7° 57.0	-7° 58.0	-7° 58.9	-0.9
zo 14	183° 27.7	198° 27.9	213° 28.0	228° 28.2	243° 28.3	258° 28.5	93° 30.4	108° 30.5	123° 30.7	138° 30.8	153° 31.0	168° 31.1	+0.1
	-7° 59.8	-8° 00.8	-8° 01.7	-8° 02.6	-8° 03.6	-8° 04.5	-8° 16.6	-8° 17.5	-8° 18.4	-8° 19.3	-8° 20.3	-8° 21.2	-0.9
ma 15	183° 31.2	198° 31.4	213° 31.5	228° 31.7	243° 31.8	258° 32.0	93° 33.8	108° 33.9	123° 34.1	138° 34.2	153° 34.3	168° 34.5	+0.1
	-8° 22.1	-8° 23.0	-8° 24.0	-8° 24.9	-8° 25.8	-8° 26.8	-8° 38.8	-8° 39.7	-8° 40.6	-8° 41.5	-8° 42.4	-8° 43.4	-0.9
di 16	183° 34.6	198° 34.8	213° 34.9	228° 35.0	243° 35.2	258° 35.3	93° 37.1	108° 37.2	123° 37.3	138° 37.5	153° 37.6	168° 37.7	+0.1
	-8° 44.3	-8° 45.2	-8° 46.1	-8° 47.0	-8° 48.0	-8° 48.9	-9° 00.8	-9° 01.7	-9° 02.7	-9° 03.6	-9° 04.5	-9° 05.4	-0.9
wo 17	183° 37.9	198° 38.0	213° 38.1	228° 38.3	243° 38.4	258° 38.5	93° 40.2	108° 40.3	123° 40.4	138° 40.6	153° 40.7	168° 40.8	+0.1
	-9° 06.3	-9° 07.2	-9° 08.2	-9° 09.1	-9° 10.0	-9° 10.9	-9° 22.8	-9° 23.7	-9° 24.6	-9° 25.5	-9° 26.4	-9° 27.3	-0.9
do 18	183° 40.9	198° 41.1	213° 41.2	228° 41.3	243° 41.4	258° 41.6	93° 43.2	108° 43.3	123° 43.4	138° 43.5	153° 43.6	168° 43.8	+0.1
	-9° 28.2	-9° 29.1	-9° 30.1	-9° 31.0	-9° 31.9	-9° 32.8	-9° 44.6	-9° 45.5	-9° 46.4	-9° 47.3	-9° 48.2	-9° 49.1	-0.9
vr 19	183° 43.9	198° 44.0	213° 44.1	228° 44.2	243° 44.4	258° 44.5	93° 46.0	108° 46.1	123° 46.2	138° 46.3	153° 46.4	168° 46.6	+0.1
	-9° 50.0	-9° 50.9	-9° 51.8	-9° 52.7	-9° 53.6	-9° 54.5	-10° 06.3	-10° 07.2	-10° 08.0	-10° 08.9	-10° 09.8	-10° 10.7	-0.9
za 20	183° 46.7	198° 46.8	213° 46.9	228° 47.0	243° 47.1	258° 47.2	93° 48.6	108° 48.8	123° 48.9	138° 49.0	153° 49.1	168° 49.2	+0.1
	-10° 11.6	-10° 12.5	-10° 13.4	-10° 14.3	-10° 15.2	-10° 16.1	-10° 27.8	-10° 28.7	-10° 29.6	-10° 30.5	-10° 31.3	-10° 32.2	-0.9
zo 21	183° 49.3	198° 49.4	213° 49.5	228° 49.6	243° 49.7	258° 49.8	93° 51.1	108° 51.2	123° 51.3	138° 51.4	153° 51.5	168° 51.6	+0.1
	-10° 33.1	-10° 34.0	-10° 34.9	-10° 35.8	-10° 36.7	-10° 37.6	-10° 49.1	-10° 50.0	-10° 50.9	-10° 51.8	-10° 52.7	-10° 53.6	-0.9
ma 22	183° 51.7	198° 51.8	213° 51.9	228° 52.0	243° 52.1	258° 52.2	93° 53.5	108° 53.6	123° 53.6	138° 53.7	153° 53.8	168° 53.9	+0.1
	-10° 54.5	-10° 55.3	-10° 56.2	-10° 57.1	-10° 58.0	-10° 58.9	-11° 10.3	-11° 11.2	-11° 12.1	-11° 13.0	-11° 13.9	-11° 14.7	-0.9
di 23	183° 54.0	198° 54.1	213° 54.2	228° 54.3	243° 54.4	258° 54.5	93° 55.6	108° 55.7	123° 55.8	138° 55.9	153° 56.0	168° 56.0	+0.1
	-11° 15.6	-11° 16.5	-11° 17.4	-11° 18.3	-11° 19.1	-11° 20.0	-11° 31.4	-11° 32.3	-11° 33.1	-11° 34.0	-11° 34.9	-11° 35.8	-0.9
wo 24	183° 56.1	198° 56.2	213° 56.3	228° 56.4	243° 56.5	258° 56.5	93° 57.6	108° 57.7	123° 57.7	138° 57.8	153° 57.9	168° 58.0	+0.1
	-11° 36.6	-11° 37.5	-11° 38.4	-11° 39.2	-11° 40.1	-11° 41.0	-11° 52.3	-11° 53.1	-11° 54.0	-11° 54.9	-11° 55.7	-11° 56.6	-0.9
do 25	183° 58.0	198° 58.1	213° 58.2	228° 58.3	243° 58.3	258° 58.4	93° 59.4	108° 59.4	123° 59.5	138° 59.6	153° 59.6	168° 59.7	+0.1
	-11° 57.5	-11° 58.3	-11° 59.2	-12° 00.0	-12° 00.9	-12° 01.8	-12° 13.0	-12° 13.8	-12° 14.7	-12° 15.5	-12° 16.4	-12° 17.2	-0.9
vr 26	183° 59.8	198° 59.9	213° 59.9	229° 00.0	244° 00.1	259° 00.1	94° 01.0	109° 01.0	124° 01.1	139° 01.2	154° 01.2	169° 01.3	+0.1
	-12° 18.1	-12° 19.0	-12° 19.8	-12° 20.7	-12° 21.5	-12° 22.4	-12° 33.5	-12° 34.3	-12° 35.2	-12° 36.0	-12° 36.9	-12° 37.7	-0.9
za 27	184° 01.3	199° 01.4	214° 01.5	229° 01.5	244° 01.6	259° 01.6	94° 02.4	109° 02.4	124° 02.5	139° 02.5	154° 02.6	169° 02.7	+0.1
	-12° 38.6	-12° 39.4	-12° 40.3	-12° 41.1	-12° 41.9	-12° 42.8	-12° 53.8	-12° 54.6	-12° 55.5	-12° 56.3	-12° 57.1	-12° 58.0	-0.8
zo 28	184° 02.7	199° 02.8	214° 02.8	229° 02.9	244° 02.9	259° 03.0	94° 03.6	109° 03.7	124° 03.7	139° 03.7	154° 03.8	169° 03.8	+0.1
	-12° 58.8	-12° 59.7	-13° 00.5	-13° 01.3	-13° 02.2	-13° 03.0	-13° 13.9	-13° 14.7	-13° 15.6	-13° 16.4	-13° 17.2	-13° 18.1	-0.8
ma 29	184° 03.9	199° 03.9	214° 04.0	229° 04.0	244° 04.1	259° 04.1	94° 04.6	109° 04.7	124° 04.7	139° 04.8	154° 04.8	169° 04.8	+0.0
	-13° 18.9	-13° 19.7	-13° 20.5	-13° 21.4	-13° 22.2	-13° 23.0	-13° 33.8	-13° 34.6	-13° 35.4	-13° 36.3	-13° 37.1	-13° 37.9	-0.8
di 30	184° 04.9	199° 04.9	214° 04.9	229° 05.0	244° 05.0	259° 05.0	94° 05.5	109° 05.5	124° 05.5	139° 05.6	154° 05.6	169° 05.6	+0.0
	-13° 38.7	-13° 39.6	-13° 40.4	-13° 41.2	-13° 42.0	-13° 42.8	-13° 53.5	-13° 54.3	-13° 55.1	-13° 55.9	-13° 56.7	-13° 57.6	-0.8
wo 31	184° 05.7	199° 05.7	214° 05.7	229° 05.7	244° 05.8	259° 05.8	94° 06.1	109° 06.1	124° 06.2	139° 06.2	154° 06.2	169° 06.2	+0.0
	-13° 58.4	-13° 59.2	-14° 00.0	-14° 00.8	-14° 01.6	-14° 02.4	-14° 13.0	-14° 13.8	-14° 14.6	-14° 15.4	-14° 16.2	-14° 17.0	-0.8

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.0'

MAAN

Oktober 2035

	D	15h	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	Δ'/h	SD/HP
●	ma 1	60°03.1	74°33.9	89°04.7	103°35.5	118°06.4	132°37.2	147°08.1	161°39.0	176°10.0	190°40.9	205°11.9	+30.9	15.6
		-1°09.9	-1°20.6	-1°31.4	-1°42.2	-1°52.9	-2°03.6	-2°14.3	-2°25.0	-2°35.6	-2°46.2	-2°56.8	-10.7	57.2
	di 2	62°58.5	77°29.7	92°00.9	106°32.2	121°03.4	135°34.7	150°06.0	164°37.3	179°08.6	193°39.9	208°11.2	+31.3	15.4
		-5°32.5	-5°42.6	-5°52.7	-6°02.7	-6°12.7	-6°22.7	-6°32.6	-6°42.5	-6°52.3	-7°02.1	-7°11.8	-9.9	56.6
	wo 3	66°01.8	80°33.2	95°04.6	109°36.0	124°07.5	138°38.9	153°10.3	167°41.7	182°13.2	196°44.6	211°16.0	+31.4	15.2
		-9°32.3	-9°41.3	-9°50.2	-9°59.0	-10°07.8	-10°16.5	-10°25.2	-10°33.8	-10°42.4	-10°50.8	-10°59.3	-8.7	55.9
	do 4	69°07.5	83°38.9	98°10.4	112°41.8	127°13.2	141°44.6	156°16.0	170°47.4	185°18.8	199°50.2	214°21.6	+31.4	15.1
		-12°58.3	-13°05.7	-13°13.0	-13°20.3	-13°27.5	-13°34.6	-13°41.7	-13°48.7	-13°55.6	-14°02.4	-14°09.2	-7.1	55.3
	vr 5	72°12.1	86°43.4	101°14.7	115°46.1	130°17.4	144°48.7	159°20.0	173°51.3	188°22.6	202°53.9	217°25.2	+31.3	14.9
		-15°41.9	-15°47.5	-15°53.0	-15°58.4	-16°03.8	-16°09.0	-16°14.2	-16°19.3	-16°24.3	-16°29.3	-16°34.1	-5.2	54.8
	za 6	75°14.1	89°45.3	104°16.5	118°47.8	133°19.0	147°50.2	162°21.4	176°52.6	191°23.8	205°55.0	220°26.2	+31.2	14.8
		-17°37.3	-17°40.8	-17°44.3	-17°47.7	-17°51.0	-17°54.2	-17°57.3	-18°00.3	-18°03.3	-18°06.2	-18°09.0	-3.2	54.4
	zo 7	78°14.1	92°45.2	107°16.4	121°47.6	136°18.8	150°50.0	165°21.2	179°52.3	194°23.5	208°54.7	223°25.9	+31.2	14.8
		-18°40.5	-18°41.9	-18°43.2	-18°44.4	-18°45.6	-18°46.6	-18°47.6	-18°48.5	-18°49.3	-18°50.0	-18°50.7	-1.0	54.2
	ma 8	81°13.9	95°45.2	110°16.4	124°47.6	139°18.9	153°50.1	168°21.3	182°52.6	197°23.9	211°55.1	226°26.4	+31.2	14.8
		-18°49.6	-18°48.9	-18°48.0	-18°47.1	-18°46.1	-18°44.9	-18°43.8	-18°42.5	-18°41.1	-18°39.6	-18°38.1	+1.2	54.2
◐	di 9	95°45.2	110°16.4	124°47.6	139°18.9	153°50.1	168°21.3	182°52.6	197°23.9	211°55.1	226°26.4	240°57.6	+31.2	14.8
		-18°48.9	-18°48.0	-18°47.1	-18°46.1	-18°44.9	-18°43.8	-18°42.5	-18°41.1	-18°39.6	-18°38.1	-18°36.5	+1.2	54.2
	wo 10	98°47.3	113°18.7	127°50.0	142°21.4	156°52.8	171°24.2	185°55.6	200°27.0	214°58.4	229°29.8	244°01.2	+31.4	14.8
		-18°01.8	-17°58.9	-17°55.8	-17°52.6	-17°49.4	-17°46.1	-17°42.7	-17°39.2	-17°35.6	-17°32.0	-17°28.2	+3.4	54.4
	do 11	101°53.3	116°24.8	130°56.3	145°27.8	159°59.4	174°30.9	189°02.5	203°34.0	218°05.6	232°37.2	247°08.8	+31.6	14.9
		-16°22.5	-16°17.5	-16°12.4	-16°07.2	-16°01.9	-15°56.6	-15°51.2	-15°45.7	-15°40.1	-15°34.5	-15°28.8	+5.4	54.7
	vr 12	105°03.0	119°34.6	134°06.3	148°37.9	163°09.6	177°41.2	192°12.9	206°44.5	221°16.2	235°47.8	250°19.5	+31.7	15.1
		-13°54.1	-13°47.2	-13°40.2	-13°33.2	-13°26.1	-13°18.9	-13°11.7	-13°04.4	-12°57.0	-12°49.6	-12°42.1	+7.2	55.2
	za 13	108°14.3	122°46.0	137°17.6	151°49.2	166°20.8	180°52.5	195°24.1	209°55.7	224°27.3	238°58.9	253°30.5	+31.6	15.2
		-10°41.7	-10°33.1	-10°24.6	-10°15.9	-10°07.2	-9°58.5	-9°49.7	-9°40.8	-9°31.9	-9°22.9	-9°13.8	+8.8	55.9
	zo 14	111°23.1	125°54.5	140°25.9	154°57.3	169°28.6	184°00.0	198°31.3	213°02.6	227°33.9	242°05.2	256°36.5	+31.3	15.4
		-6°52.2	-6°42.3	-6°32.5	-6°22.5	-6°12.6	-6°02.6	-5°52.5	-5°42.5	-5°32.3	-5°22.2	-5°12.0	+10.0	56.6
	ma 15	114°22.9	128°53.8	143°24.7	157°55.5	172°26.4	186°57.1	201°27.9	215°58.6	230°29.3	245°00.0	259°30.7	+30.8	15.6
		-2°34.9	-2°24.2	-2°13.5	-2°02.7	-1°51.9	-1°41.1	-1°30.3	-1°19.5	-1°08.6	-0°57.8	-0°46.9	+10.8	57.4
	di 16	117°06.2	131°36.3	146°06.3	160°36.3	175°06.3	189°36.2	204°06.1	218°35.9	233°05.7	247°35.4	262°05.1	+29.9	15.8
		1°57.9	2°08.9	2°20.0	2°31.0	2°42.0	2°53.0	3°04.1	3°15.1	3°26.1	3°37.1	3°48.1	+11.0	58.1
○	wo 17	119°25.1	133°54.0	148°22.9	162°51.7	177°20.5	191°49.3	206°17.9	220°46.6	235°15.2	249°43.7	264°12.2	+28.7	16.0
		6°31.0	6°41.7	6°52.4	7°03.0	7°13.6	7°24.1	7°34.7	7°45.2	7°55.6	8°06.0	8°16.4	+10.5	58.7
	do 18	121°12.8	135°40.4	150°07.9	164°35.4	179°02.9	193°30.3	207°57.6	222°24.8	236°52.1	251°19.2	265°46.3	+27.4	16.1
		10°46.5	10°56.1	11°05.6	11°15.1	11°24.5	11°33.8	11°43.1	11°52.2	12°01.4	12°10.4	12°19.4	+9.3	59.2
	vr 19	122°26.4	136°52.6	151°18.8	165°44.9	180°11.0	194°37.1	209°03.1	223°29.0	237°54.9	252°20.8	266°46.6	+26.0	16.2
		14°25.0	14°32.6	14°40.3	14°47.8	14°55.2	15°02.5	15°09.7	15°16.9	15°23.9	15°30.9	15°37.7	+7.3	59.5
	za 20	123°08.6	137°33.7	151°58.9	166°24.0	180°49.0	195°14.0	209°39.0	224°04.0	238°28.9	252°53.9	267°18.7	+25.0	16.3
		17°07.7	17°12.9	17°17.9	17°22.8	17°27.6	17°32.2	17°36.8	17°41.2	17°45.5	17°49.7	17°53.8	+4.6	59.6
	zo 21	123°29.6	137°54.2	152°18.8	166°43.4	181°08.0	195°32.6	209°57.2	224°21.8	238°46.4	253°11.0	267°35.6	+24.6	16.2
		18°40.1	18°42.2	18°44.2	18°46.0	18°47.7	18°49.3	18°50.8	18°52.1	18°53.3	18°54.4	18°55.3	+1.5	59.6
	ma 22	123°45.6	138°10.3	152°35.2	167°00.0	181°24.8	195°49.7	210°14.6	224°39.6	239°04.5	253°29.5	267°54.5	+24.9	16.2
		18°54.1	18°53.0	18°51.8	18°50.5	18°49.0	18°47.4	18°45.7	18°43.8	18°41.8	18°39.8	18°37.5	-1.7	59.4
◑	di 23	124°14.2	138°39.8	153°05.5	167°31.2	181°56.9	196°22.8	210°48.6	225°14.5	239°40.5	254°06.5	268°32.5	+25.8	16.1
		17°49.9	17°45.8	17°41.6	17°37.3	17°32.8	17°28.3	17°23.6	17°18.8	17°14.0	17°09.0	17°03.9	-4.6	59.1
	wo 24	125°09.7	139°36.6	154°03.5	168°30.5	182°57.6	197°24.8	211°51.9	226°19.2	240°46.5	255°13.8	269°41.3	+27.2	16.0
		15°35.3	15°28.6	15°21.8	15°15.0	15°08.0	15°01.0	14°53.9	14°46.7	14°39.4	14°32.0	14°24.5	-7.1	58.7
	do 25	126°39.3	141°07.6	155°36.0	170°04.4	184°32.9	199°01.5	213°30.0	227°58.7	242°27.4	256°56.1	271°25.0	+28.6	15.9
		12°23.3	12°14.6	12°05.9	11°57.1	11°48.2	11°39.3	11°30.4	11°21.3	11°12.2	11°03.1	10°53.9	-8.9	58.3
	vr 26	128°43.2	143°12.8	157°42.4	172°12.1	186°41.9	201°11.7	215°41.5	230°11.4	244°41.3	259°11.3	273°41.3	+29.8	15.8
		8°29.5	8°19.5	8°09.5	7°59.4	7°49.3	7°39.2	7°29.0	7°18.8	7°08.5	6°58.3	6°48.0	-10.2	57.9
	za 27	131°16.0	145°46.6	160°17.3	174°48.0	189°18.7	203°49.4	218°20.2	232°51.0	247°21.8	261°52.6	276°23.5	+30.8	15.6
		4°10.3	3°59.6	3°48.9	3°38.2	3°27.5	3°16.8	3°06.0	2°55.3	2°44.5	2°33.8	2°23.0	-10.7	57.4
	zo 28	134°09.8	148°41.0	163°12.3	177°43.6	192°14.9	206°46.3	221°17.6	235°49.0	250°20.3	264°51.7	279°23.1	+31.3	15.5
		-0°18.7	-0°29.4	-0°40.1	-0°50.9	-1°01.6	-1°12.3	-1°23.0	-1°33.7	-1°44.3	-1°55.0	-2°05.6	-10.7	56.9
	ma 29	137°15.6	151°47.2	166°18.8	180°50.4	195°22.0	209°53.6	224°25.1	238°56.7	253°28.4	268°00.0	282°31.6	+31.6	15.4
		-4°42.6	-4°52.9	-5°03.1	-5°13.3	-5°23.5	-5°33.6	-5°43.7	-5°53.8	-6°03.8	-6°13.8	-6°23.8	-10.1	56.4
	di 30	140°25.8	154°57.4	169°29.0	184°00.6	198°32.2	213°03.8	227°35.4	242°06.9	256°38.5	271°10.1	285°41.6	+31.6	15.2
		-8°48.2	-8°57.5	-9°06.7	-9°15.9	-9°25.0	-9°34.1	-9°43.1	-9°52.1	-10°01.0	-10°09.8	-10°18.7	-9.0	55.8
●	wo 31	143°34.3	158°05.8	172°37.2	187°08.7	201°40.1	216°11.5	230°42.9	245°14.3	259°45.7	274°17.1	288°48.5	+31.4	15.1
		-12°23.8	-12°31.6	-12°39.4	-12°47.1	-12°54.8	-13°02.4	-13°09.9	-13°17.4	-13°24.8	-13°32.1	-13°39.3	-7.6	55.3

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
NM: 1 13h06 — EK: 9 09h49 — VM: 17 02h35 — LK: 23 20h56 — NM: 31 02h58

ZON

November 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
do 1	184°06.2 -14°17.8	199°06.3 -14°18.6	214°06.3 -14°19.4	229°06.3 -14°20.2	244°06.3 -14°21.0	259°06.3 -14°21.8	94°06.6 -14°32.2	109°06.6 -14°33.0	124°06.6 -14°33.8	139°06.6 -14°34.6	154°06.6 -14°35.4	169°06.6 -14°36.2	+0.0 -0.8
vr 2	184°06.6 -14°37.0	199°06.7 -14°37.8	214°06.7 -14°38.6	229°06.7 -14°39.4	244°06.7 -14°40.2	259°06.7 -14°41.0	94°06.8 -14°51.2	109°06.8 -14°52.0	124°06.8 -14°52.8	139°06.8 -14°53.6	154°06.8 -14°54.4	169°06.8 -14°55.2	+0.0 -0.8
za 3	184°06.8 -14°55.9	199°06.8 -14°56.7	214°06.8 -14°57.5	229°06.9 -14°58.3	244°06.9 -14°59.1	259°06.9 -14°59.9	94°06.9 -15°10.0	109°06.9 -15°10.8	124°06.9 -15°11.5	139°06.8 -15°12.3	154°06.8 -15°13.1	169°06.8 -15°13.9	+0.0 -0.8
zo 4	184°06.8 -15°14.6	199°06.8 -15°15.4	214°06.8 -15°16.2	229°06.8 -15°17.0	244°06.8 -15°17.7	259°06.8 -15°18.5	94°06.7 -15°28.5	109°06.7 -15°29.3	124°06.7 -15°30.0	139°06.7 -15°30.8	154°06.7 -15°31.6	169°06.6 -15°32.3	-0.0 -0.8
ma 5	184°06.6 -15°33.1	199°06.6 -15°33.9	214°06.6 -15°34.6	229°06.6 -15°35.4	244°06.6 -15°36.2	259°06.6 -15°36.9	94°06.3 -15°46.8	109°06.3 -15°47.5	124°06.3 -15°48.3	139°06.3 -15°49.0	154°06.3 -15°49.8	169°06.2 -15°50.6	-0.0 -0.8
di 6	184°06.2 -15°51.3	199°06.2 -15°52.1	214°06.2 -15°52.8	229°06.2 -15°53.6	244°06.1 -15°54.3	259°06.1 -15°55.1	94°05.8 -16°04.8	109°05.8 -16°05.5	124°05.7 -16°06.3	139°05.7 -16°07.0	154°05.7 -16°07.8	169°05.6 -16°08.5	-0.0 -0.8
wo 7	184°05.6 -16°09.2	199°05.6 -16°10.0	214°05.5 -16°10.7	229°05.5 -16°11.5	244°05.5 -16°12.2	259°05.5 -16°13.0	94°05.0 -16°22.5	109°05.0 -16°23.3	124°04.9 -16°24.0	139°04.9 -16°24.7	154°04.9 -16°25.5	169°04.8 -16°26.2	-0.0 -0.7
do 8	184°04.8 -16°26.9	199°04.8 -16°27.6	214°04.7 -16°28.4	229°04.7 -16°29.1	244°04.6 -16°29.8	259°04.6 -16°30.6	94°04.0 -16°40.0	109°04.0 -16°40.7	124°04.0 -16°41.4	139°03.9 -16°42.1	154°03.9 -16°42.9	169°03.8 -16°43.6	-0.0 -0.7
vr 9	184°03.8 -16°44.3	199°03.7 -16°45.0	214°03.7 -16°45.7	229°03.6 -16°46.5	244°03.6 -16°47.2	259°03.5 -16°47.9	94°02.9 -16°57.2	109°02.8 -16°57.9	124°02.8 -16°58.6	139°02.7 -16°59.3	154°02.6 -17°00.0	169°02.6 -17°00.7	-0.0 -0.7
za 10	184°02.5 -17°01.4	199°02.5 -17°02.1	214°02.4 -17°02.8	229°02.4 -17°03.5	244°02.3 -17°04.2	259°02.3 -17°04.9	94°01.5 -17°14.1	109°01.4 -17°14.8	124°01.4 -17°15.4	139°01.3 -17°16.1	154°01.2 -17°16.8	169°01.2 -17°17.5	-0.1 -0.7
zo 11	184°01.1 -17°18.2	199°01.0 -17°18.9	214°01.0 -17°19.6	229°00.9 -17°20.3	244°00.8 -17°21.0	259°00.8 -17°21.7	93°59.9 -17°30.6	108°59.8 -17°31.3	123°59.7 -17°32.0	138°59.7 -17°32.7	153°59.6 -17°33.4	168°59.5 -17°34.1	-0.1 -0.7
ma 12	183°59.5 -17°34.7	198°59.4 -17°35.4	213°59.3 -17°36.1	228°59.2 -17°36.8	243°59.2 -17°37.5	258°59.1 -17°38.2	93°58.1 -17°46.9	108°58.0 -17°47.6	123°57.9 -17°48.3	138°57.8 -17°49.0	153°57.8 -17°49.6	168°57.7 -17°50.3	-0.1 -0.7
di 13	183°57.6 -17°51.0	198°57.5 -17°51.6	213°57.4 -17°52.3	228°57.3 -17°53.0	243°57.3 -17°53.6	258°57.2 -17°54.3	93°56.1 -18°02.9	108°56.0 -18°03.6	123°55.9 -18°04.2	138°55.8 -18°04.9	153°55.7 -18°05.6	168°55.6 -18°06.2	-0.1 -0.7
wo 14	183°55.5 -18°06.9	198°55.4 -18°07.5	213°55.4 -18°08.2	228°55.3 -18°08.8	243°55.2 -18°09.5	258°55.1 -18°10.1	93°53.8 -18°18.6	108°53.7 -18°19.2	123°53.7 -18°19.9	138°53.6 -18°20.5	153°53.5 -18°21.2	168°53.4 -18°21.8	-0.1 -0.7
do 15	183°53.3 -18°22.4	198°53.2 -18°23.1	213°53.1 -18°23.7	228°53.0 -18°24.4	243°52.9 -18°25.0	258°52.8 -18°25.7	93°51.4 -18°33.9	108°51.3 -18°34.6	123°51.2 -18°35.2	138°51.1 -18°35.8	153°51.0 -18°36.5	168°50.9 -18°37.1	-0.1 -0.6
vr 16	183°50.8 -18°37.7	198°50.7 -18°38.3	213°50.6 -18°39.0	228°50.4 -18°39.6	243°50.3 -18°40.2	258°50.2 -18°40.9	93°48.8 -18°48.9	108°48.7 -18°49.6	123°48.5 -18°50.2	138°48.4 -18°50.8	153°48.3 -18°51.4	168°48.2 -18°52.0	-0.1 -0.6
za 17	183°48.1 -18°52.6	198°48.0 -18°53.3	213°47.8 -18°53.9	228°47.7 -18°54.5	243°47.6 -18°55.1	258°47.5 -18°55.7	93°45.9 -19°03.6	108°45.8 -19°04.2	123°45.7 -19°04.8	138°45.5 -19°05.4	153°45.4 -19°06.0	168°45.3 -19°06.6	-0.1 -0.6
zo 18	183°45.2 -19°07.2	198°45.0 -19°07.8	213°44.9 -19°08.4	228°44.8 -19°09.0	243°44.7 -19°09.6	258°44.5 -19°10.2	93°42.8 -19°18.0	108°42.7 -19°18.6	123°42.6 -19°19.2	138°42.5 -19°19.7	153°42.3 -19°20.3	168°42.2 -19°20.9	-0.1 -0.6
ma 19	183°42.1 -19°21.5	198°41.9 -19°22.1	213°41.8 -19°22.7	228°41.6 -19°23.3	243°41.5 -19°23.8	258°41.4 -19°24.4	93°39.6 -19°32.0	108°39.4 -19°32.5	123°39.3 -19°33.1	138°39.1 -19°33.7	153°39.0 -19°34.3	168°38.9 -19°34.8	-0.1 -0.6
di 20	183°38.7 -19°35.4	198°38.6 -19°36.0	213°38.4 -19°36.6	228°38.3 -19°37.1	243°38.1 -19°37.7	258°38.0 -19°38.3	93°36.1 -19°45.6	108°35.9 -19°46.2	123°35.8 -19°46.7	138°35.6 -19°47.3	153°35.5 -19°47.9	168°35.3 -19°48.4	-0.1 -0.6
wo 21	183°35.2 -19°49.0	198°35.0 -19°49.5	213°34.9 -19°50.1	228°34.7 -19°50.6	243°34.6 -19°51.2	258°34.4 -19°51.8	93°32.4 -19°58.9	108°32.2 -19°59.5	123°32.1 -20°00.0	138°31.9 -20°00.5	153°31.8 -20°01.1	168°31.6 -20°01.6	-0.2 -0.6
do 22	183°31.4 -20°02.2	198°31.3 -20°02.7	213°31.1 -20°03.3	228°31.0 -20°03.8	243°30.8 -20°04.3	258°30.6 -20°04.9	93°28.5 -20°11.8	108°28.3 -20°12.4	123°28.2 -20°12.9	138°28.0 -20°13.4	153°27.8 -20°14.0	168°27.7 -20°14.5	-0.2 -0.5
vr 23	183°27.5 -20°15.0	198°27.3 -20°15.5	213°27.2 -20°16.1	228°27.0 -20°16.6	243°26.8 -20°17.1	258°26.6 -20°17.6	93°24.4 -20°24.4	108°24.2 -20°24.9	123°24.0 -20°25.4	138°23.9 -20°25.9	153°23.7 -20°26.4	168°23.5 -20°27.0	-0.2 -0.5
za 24	183°23.3 -20°27.5	198°23.2 -20°28.0	213°23.0 -20°28.5	228°22.8 -20°29.0	243°22.6 -20°29.5	258°22.4 -20°30.0	93°20.1 -20°36.6	108°19.9 -20°37.1	123°19.7 -20°37.6	138°19.5 -20°38.1	153°19.4 -20°38.6	168°19.2 -20°39.1	-0.2 -0.5
zo 25	183°19.0 -20°39.6	198°18.8 -20°40.1	213°18.6 -20°40.5	228°18.4 -20°41.0	243°18.2 -20°41.5	258°18.1 -20°42.0	93°15.6 -20°48.4	108°15.4 -20°48.9	123°15.2 -20°49.3	138°15.0 -20°49.8	153°14.8 -20°50.3	168°14.6 -20°50.8	-0.2 -0.5
ma 26	183°14.4 -20°51.3	198°14.3 -20°51.7	213°14.1 -20°52.2	228°13.9 -20°52.7	243°13.7 -20°53.2	258°13.5 -20°53.6	93°10.9 -20°59.8	108°10.7 -21°00.2	123°10.5 -21°00.7	138°10.3 -21°01.2	153°10.1 -21°01.6	168°09.9 -21°02.1	-0.2 -0.5
di 27	183°09.7 -21°02.6	198°09.5 -21°03.0	213°09.3 -21°03.5	228°09.1 -21°04.0	243°08.9 -21°04.4	258°08.7 -21°04.9	93°06.0 -21°10.8	108°05.8 -21°11.2	123°05.6 -21°11.7	138°05.4 -21°12.1	153°05.2 -21°12.6	168°05.0 -21°13.0	-0.2 -0.5
wo 28	183°04.8 -21°13.5	198°04.6 -21°13.9	213°04.4 -21°14.4	228°04.2 -21°14.8	243°04.0 -21°15.3	258°03.7 -21°15.7	93°01.0 -21°21.4	108°00.8 -21°21.9	123°00.6 -21°22.3	138°00.3 -21°22.7	153°00.1 -21°23.2	167°59.9 -21°23.6	-0.2 -0.4
do 29	182°59.7 -21°24.0	197°59.5 -21°24.4	212°59.3 -21°24.9	227°59.0 -21°25.3	242°58.8 -21°25.7	257°58.6 -21°26.2	92°55.8 -21°31.6	107°55.5 -21°32.1	122°55.3 -21°32.5	137°55.1 -21°32.9	152°54.9 -21°33.3	167°54.6 -21°33.7	-0.2 -0.4
vr 30	182°54.4 -21°34.1	197°54.2 -21°34.5	212°54.0 -21°35.0	227°53.7 -21°35.4	242°53.5 -21°35.8	257°53.3 -21°36.2	92°50.4 -21°41.4	107°50.1 -21°41.8	122°49.9 -21°42.2	137°49.7 -21°42.6	152°49.4 -21°43.0	167°49.2 -21°43.4	-0.2 -0.4

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

November 2035

D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
do 1	59°30.5 -14°41.4	74°01.8 -14°47.9	88°33.1 -14°54.4	103°04.4 -15°00.8	117°35.6 -15°07.1	132°06.9 -15°13.3	146°38.1 -15°19.5	161°09.4 -15°25.6	175°40.6 -15°31.6	190°11.8 -15°37.5	204°43.0 -15°43.3	+31.3 -6.2	15.0 55.0
vr 2	62°30.3 -17°01.6	77°01.4 -17°06.2	91°32.5 -17°10.7	106°03.6 -17°15.1	120°34.7 -17°19.4	135°05.8 -17°23.6	149°36.8 -17°27.8	164°07.9 -17°31.8	178°39.0 -17°35.8	193°10.0 -17°39.7	207°41.1 -17°43.5	+31.1 -4.2	14.9 54.6
za 3	65°26.6 -18°30.4	79°57.6 -18°32.8	94°28.6 -18°35.2	108°59.7 -18°37.4	123°30.7 -18°39.6	138°01.7 -18°41.7	152°32.7 -18°43.7	167°03.8 -18°45.6	181°34.8 -18°47.4	196°05.8 -18°49.1	210°36.9 -18°50.8	+31.0 -2.0	14.8 54.3
zo 4	68°22.9 -19°04.8	82°54.0 -19°05.0	97°25.1 -19°05.1	111°56.3 -19°05.2	126°27.4 -19°05.2	140°58.5 -19°05.0	155°29.7 -19°04.8	170°00.9 -19°04.5	184°32.0 -19°04.1	199°03.2 -19°03.7	213°34.4 -19°03.1	+31.1 +0.2	14.8 54.1
ma 5	71°23.4 -18°44.2	85°54.7 -18°42.3	100°26.1 -18°40.3	114°57.5 -18°38.1	129°28.9 -18°35.9	144°00.3 -18°33.6	158°31.7 -18°31.3	173°03.1 -18°28.8	187°34.6 -18°26.3	202°06.0 -18°23.7	216°37.5 -18°21.0	+31.4 +2.3	14.7 54.1
di 6	74°31.2 -17°30.4	89°02.9 -17°26.4	103°34.6 -17°22.3	118°06.3 -17°18.1	132°38.0 -17°13.9	147°09.8 -17°09.5	161°41.5 -17°05.1	176°13.3 -17°00.6	190°45.1 -16°56.1	205°16.9 -16°51.4	219°48.7 -16°46.7	+31.7 +4.4	14.8 54.3
wo 7	77°47.3 -15°26.7	92°19.3 -15°20.7	106°51.3 -15°14.7	121°23.3 -15°08.7	135°55.4 -15°02.5	150°27.4 -14°56.3	164°59.5 -14°50.0	179°31.5 -14°43.6	194°03.6 -14°37.2	208°35.7 -14°30.7	223°07.8 -14°24.1	+32.0 +6.3	14.9 54.6
◐ do 8	92°19.3 -15°20.7	106°51.3 -15°14.7	121°23.3 -15°08.7	135°55.4 -15°02.5	150°27.4 -14°56.3	164°59.5 -14°50.0	179°31.5 -14°43.6	194°03.6 -14°37.2	208°35.7 -14°30.7	223°07.8 -14°24.1	237°39.9 -14°17.5	+32.1 +6.3	14.9 54.6
vr 9	95°42.1 -12°29.9	110°14.3 -12°22.2	124°46.5 -12°14.4	139°18.7 -12°06.6	153°50.9 -11°58.7	168°23.0 -11°50.7	182°55.2 -11°42.7	197°27.4 -11°34.7	211°59.6 -11°26.5	226°31.8 -11°18.4	241°04.0 -11°10.1	+32.2 +8.0	15.0 55.2
za 10	99°06.4 -8°59.6	113°38.6 -8°50.4	128°10.7 -8°41.2	142°42.7 -8°32.0	157°14.8 -8°22.7	171°46.9 -8°13.4	186°18.9 -8°04.0	200°51.0 -7°54.5	215°23.0 -7°45.0	229°55.0 -7°35.5	244°27.0 -7°25.9	+32.1 +9.4	15.2 55.9
zo 11	102°24.9 -4°57.0	116°56.6 -4°46.7	131°28.3 -4°36.4	145°59.9 -4°26.1	160°31.5 -4°15.7	175°03.1 -4°05.3	189°34.7 -3°54.9	204°06.2 -3°44.4	218°37.7 -3°34.0	233°09.2 -3°23.4	247°40.6 -3°12.9	+31.6 +10.4	15.5 56.7
ma 12	105°28.2 -0°31.3	119°59.0 -0°20.4	134°29.8 -0°09.4	149°00.6 0°01.6	163°31.4 0°12.5	178°02.1 0°23.6	192°32.7 0°34.6	207°03.3 0°45.6	221°33.9 0°56.7	236°04.4 1°07.7	250°34.8 1°18.8	+30.7 +11.0	15.7 57.6
di 13	108°05.7 4°05.2	122°35.3 4°16.2	137°04.9 4°27.3	151°34.4 4°38.4	166°03.8 4°49.4	180°33.2 5°00.4	195°02.5 5°11.5	209°31.8 5°22.5	224°01.0 5°33.5	238°30.1 5°44.4	252°59.2 5°55.4	+29.4 +11.0	16.0 58.5
wo 14	110°07.5 8°36.6	124°35.5 8°47.1	139°03.4 8°57.6	153°31.3 9°08.0	167°59.1 9°18.3	182°26.8 9°28.7	196°54.5 9°38.9	211°22.1 9°49.2	225°49.6 9°59.3	240°17.0 10°09.5	254°44.4 10°19.5	+27.7 +10.3	16.2 59.4
○ do 15	111°26.4 12°43.5	125°52.6 12°52.5	140°18.8 13°01.5	154°44.8 13°10.4	169°10.9 13°19.2	183°36.8 13°28.0	198°02.7 13°36.6	212°28.5 13°45.2	226°54.2 13°53.7	241°19.9 14°02.1	255°45.5 14°10.4	+25.9 +8.7	16.4 60.0
vr 16	112°01.5 16°03.9	126°26.1 16°10.7	140°50.6 16°17.3	155°15.1 16°23.8	169°39.5 16°30.3	184°03.9 16°36.6	198°28.2 16°42.8	212°52.4 16°48.8	227°16.6 16°54.8	241°40.8 17°00.7	256°04.9 17°06.4	+24.3 +6.3	16.5 60.4
za 17	112°01.4 18°17.5	126°24.9 18°21.3	140°48.4 18°24.9	155°11.8 18°28.3	169°35.3 18°31.6	183°58.7 18°34.8	198°22.0 18°37.9	212°45.4 18°40.8	227°08.7 18°43.6	241°32.1 18°46.3	255°55.4 18°48.8	+23.4 +3.1	16.5 60.5
zo 18	111°44.6 19°10.1	126°07.9 19°10.4	140°31.2 19°10.5	154°54.5 19°10.6	169°17.9 19°10.5	183°41.3 19°10.3	198°04.7 19°09.9	212°28.1 19°09.4	226°51.5 19°08.7	241°15.0 19°07.9	255°38.5 19°07.0	+23.4 -0.3	16.5 60.4
ma 19	111°35.0 18°37.2	125°59.1 18°34.2	140°23.3 18°31.0	154°47.5 18°27.7	169°11.7 18°24.3	183°36.0 18°20.8	198°00.4 18°17.1	212°24.8 18°13.3	226°49.3 18°09.4	241°13.8 18°05.4	255°38.4 18°01.3	+24.3 -3.6	16.4 60.0
di 20	111°54.7 16°45.3	126°20.3 16°39.4	140°46.0 16°33.4	155°11.7 16°27.2	169°37.6 16°21.0	184°03.5 16°14.7	198°29.4 16°08.2	212°55.5 16°01.7	227°21.6 15°55.1	241°47.8 15°48.3	256°14.0 15°41.5	+25.9 -6.4	16.2 59.4
wo 21	112°56.7 13°48.7	127°24.1 13°40.6	141°51.6 13°32.3	156°19.2 13°24.0	170°46.9 13°15.6	185°14.6 13°07.2	199°42.4 12°58.7	214°10.2 12°50.1	228°38.2 12°41.4	243°06.2 12°32.7	257°34.3 12°23.9	+27.8 -8.5	16.0 58.8
◑ do 22	114°43.7 10°05.0	129°12.9 9°55.3	143°42.1 9°45.6	158°11.4 9°35.9	172°40.8 9°26.1	187°10.2 9°16.2	201°39.7 9°06.3	216°09.2 8°56.4	230°38.8 8°46.4	245°08.4 8°36.4	259°38.1 8°26.3	+29.4 -9.9	15.8 58.1
vr 23	117°10.4 5°51.9	131°41.0 5°41.3	146°11.6 5°30.8	160°42.2 5°20.3	175°12.9 5°09.7	189°43.7 4°59.1	204°14.5 4°48.5	218°45.3 4°37.9	233°16.2 4°27.3	247°47.1 4°16.7	262°18.0 4°06.0	+30.8 -10.6	15.7 57.4
za 24	120°06.8 1°25.3	134°38.3 1°14.5	149°09.9 1°03.8	163°41.4 0°53.1	178°13.0 0°42.3	192°44.6 0°31.6	207°16.3 0°20.9	221°48.0 0°10.2	236°19.7 -0°00.5	250°51.4 -0°11.2	265°23.1 -0°21.9	+31.6 -10.7	15.5 56.8
zo 25	123°21.5 -3°00.6	137°53.6 -3°11.1	152°25.6 -3°21.5	166°57.6 -3°31.9	181°29.7 -3°42.2	196°01.7 -3°52.6	210°33.8 -4°02.9	225°05.9 -4°13.2	239°37.9 -4°23.5	254°10.0 -4°33.7	268°42.1 -4°43.9	+32.1 -10.3	15.3 56.2
ma 26	126°43.9 -7°13.3	141°16.0 -7°23.0	155°48.2 -7°32.6	170°20.3 -7°42.2	184°52.4 -7°51.8	199°24.5 -8°01.3	213°56.6 -8°10.7	228°28.7 -8°20.2	243°00.8 -8°29.5	257°32.9 -8°38.9	272°05.0 -8°48.2	+32.1 -9.5	15.2 55.7
di 27	130°05.2 -11°01.6	144°37.1 -11°10.1	159°09.1 -11°18.5	173°41.0 -11°26.9	188°12.9 -11°35.2	202°44.8 -11°43.4	217°16.6 -11°51.6	231°48.5 -11°59.8	246°20.4 -12°07.8	260°52.2 -12°15.8	275°24.0 -12°23.8	+31.9 -8.2	15.1 55.2
wo 28	133°19.6 -14°15.4	147°51.2 -14°22.3	162°22.8 -14°29.1	176°54.4 -14°35.9	191°25.9 -14°42.6	205°57.4 -14°49.2	220°28.9 -14°55.8	235°00.4 -15°02.2	249°31.9 -15°08.6	264°03.4 -15°15.0	278°34.9 -15°21.2	+31.5 -6.6	15.0 54.8
● do 29	136°25.0 -16°45.9	150°56.2 -16°51.0	165°27.4 -16°55.9	179°58.7 -17°00.7	194°29.8 -17°05.5	209°01.0 -17°10.2	223°32.2 -17°14.8	238°03.4 -17°19.4	252°34.5 -17°23.8	267°05.7 -17°28.2	281°36.8 -17°32.5	+31.2 -4.7	14.9 54.5
vr 30	139°22.7 -18°26.5	153°53.7 -18°29.4	168°24.7 -18°32.3	182°55.7 -18°35.0	197°26.7 -18°37.6	211°57.7 -18°40.2	226°28.7 -18°42.7	240°59.7 -18°45.1	255°30.7 -18°47.4	270°01.7 -18°49.6	284°32.6 -18°51.7	+31.0 -2.5	14.8 54.2

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 8 05h50 — VM: 15 13h48 — LK: 22 05h16 — NM: 29 19h37

ZON

December 2035

D	0h	1h	2h	3h	4h	5h	18h	19h	20h	21h	22h	23h	Δ'/h
za 1	182°49.0 -21°43.8	197°48.7 -21°44.2	212°48.5 -21°44.6	227°48.3 -21°45.0	242°48.1 -21°45.4	257°47.8 -21°45.8	92°44.8 -21°50.8	107°44.6 -21°51.2	122°44.3 -21°51.6	137°44.1 -21°52.0	152°43.8 -21°52.4	167°43.6 -21°52.7	-0.2 -0.4
zo 2	182°43.4 -21°53.1	197°43.1 -21°53.5	212°42.9 -21°53.9	227°42.7 -21°54.3	242°42.4 -21°54.6	257°42.2 -21°55.0	92°39.1 -21°59.8	107°38.8 -22°00.2	122°38.6 -22°00.6	137°38.3 -22°00.9	152°38.1 -22°01.3	167°37.9 -22°01.6	-0.2 -0.4
ma 3	182°37.6 -22°02.0	197°37.4 -22°02.4	212°37.1 -22°02.7	227°36.9 -22°03.1	242°36.6 -22°03.4	257°36.4 -22°03.8	92°33.2 -22°08.4	107°32.9 -22°08.7	122°32.7 -22°09.1	137°32.4 -22°09.4	152°32.2 -22°09.8	167°31.9 -22°10.1	-0.2 -0.4
di 4	182°31.7 -22°10.4	197°31.4 -22°10.8	212°31.2 -22°11.1	227°30.9 -22°11.5	242°30.7 -22°11.8	257°30.4 -22°12.2	92°27.2 -22°16.5	107°26.9 -22°16.8	122°26.7 -22°17.2	137°26.4 -22°17.5	152°26.1 -22°17.8	167°25.9 -22°18.1	-0.2 -0.3
wo 5	182°25.6 -22°18.5	197°25.4 -22°18.8	212°25.1 -22°19.1	227°24.9 -22°19.4	242°24.6 -22°19.8	257°24.4 -22°20.1	92°21.0 -22°24.2	107°20.7 -22°24.5	122°20.5 -22°24.8	137°20.2 -22°25.1	152°20.0 -22°25.4	167°19.7 -22°25.7	-0.3 -0.3
do 6	182°19.4 -22°26.1	197°19.2 -22°26.4	212°18.9 -22°26.7	227°18.7 -22°27.0	242°18.4 -22°27.3	257°18.1 -22°27.6	92°14.7 -22°31.5	107°14.4 -22°31.7	122°14.2 -22°32.0	137°13.9 -22°32.3	152°13.7 -22°32.6	167°13.4 -22°32.9	-0.3 -0.3
vr 7	182°13.1 -22°33.2	197°12.9 -22°33.5	212°12.6 -22°33.8	227°12.3 -22°34.1	242°12.1 -22°34.4	257°11.8 -22°34.6	92°08.3 -22°38.3	107°08.0 -22°38.5	122°07.8 -22°38.8	137°07.5 -22°39.1	152°07.2 -22°39.4	167°06.9 -22°39.6	-0.3 -0.3
za 8	182°06.7 -22°39.9	197°06.4 -22°40.2	212°06.1 -22°40.4	227°05.9 -22°40.7	242°05.6 -22°41.0	257°05.3 -22°41.3	92°01.8 -22°44.6	107°01.5 -22°44.9	122°01.2 -22°45.2	137°00.9 -22°45.4	152°00.7 -22°45.7	167°00.4 -22°45.9	-0.3 -0.3
zo 9	182°00.1 -22°46.2	196°59.8 -22°46.4	211°59.6 -22°46.7	226°59.3 -22°46.9	241°59.0 -22°47.2	256°58.7 -22°47.4	91°55.1 -22°50.6	106°54.8 -22°50.8	121°54.6 -22°51.1	136°54.3 -22°51.3	151°54.0 -22°51.5	166°53.7 -22°51.8	-0.3 -0.3
ma 10	181°53.4 -22°52.0	196°53.2 -22°52.2	211°52.9 -22°52.5	226°52.6 -22°52.7	241°52.3 -22°52.9	256°52.0 -22°53.1	91°48.4 -22°56.1	106°48.1 -22°56.3	121°47.8 -22°56.5	136°47.5 -22°56.7	151°47.2 -22°56.9	166°46.9 -22°57.1	-0.3 -0.2
di 11	181°46.7 -22°57.4	196°46.4 -22°57.6	211°46.1 -22°57.8	226°45.8 -22°58.0	241°45.5 -22°58.2	256°45.2 -22°58.4	91°41.5 -23°01.1	106°41.2 -23°01.3	121°40.9 -23°01.5	136°40.7 -23°01.7	151°40.4 -23°01.9	166°40.1 -23°02.1	-0.3 -0.2
wo 12	181°39.8 -23°02.3	196°39.5 -23°02.5	211°39.2 -23°02.6	226°38.9 -23°02.8	241°38.6 -23°03.0	256°38.4 -23°03.2	91°34.6 -23°05.6	106°34.3 -23°05.8	121°34.0 -23°06.0	136°33.7 -23°06.2	151°33.4 -23°06.4	166°33.1 -23°06.5	-0.3 -0.2
do 13	181°32.8 -23°06.7	196°32.5 -23°06.9	211°32.3 -23°07.1	226°32.0 -23°07.2	241°31.7 -23°07.4	256°31.4 -23°07.6	91°27.6 -23°09.8	106°27.3 -23°09.9	121°27.0 -23°10.1	136°26.7 -23°10.2	151°26.4 -23°10.4	166°26.1 -23°10.5	-0.3 -0.2
vr 14	181°25.8 -23°10.7	196°25.5 -23°10.9	211°25.2 -23°11.0	226°24.9 -23°11.2	241°24.6 -23°11.3	256°24.3 -23°11.5	91°20.5 -23°13.4	106°20.2 -23°13.5	121°19.9 -23°13.7	136°19.6 -23°13.8	151°19.3 -23°14.0	166°19.0 -23°14.1	-0.3 -0.2
za 15	181°18.7 -23°14.2	196°18.4 -23°14.4	211°18.1 -23°14.5	226°17.8 -23°14.6	241°17.5 -23°14.8	256°17.2 -23°14.9	91°13.3 -23°16.6	106°13.0 -23°16.7	121°12.7 -23°16.8	136°12.4 -23°17.0	151°12.1 -23°17.1	166°11.8 -23°17.2	-0.3 -0.1
zo 16	181°11.5 -23°17.3	196°11.2 -23°17.4	211°10.9 -23°17.5	226°10.6 -23°17.7	241°10.3 -23°17.8	256°10.0 -23°17.9	91°06.1 -23°19.3	106°05.8 -23°19.4	121°05.5 -23°19.5	136°05.2 -23°19.6	151°04.9 -23°19.7	166°04.6 -23°19.8	-0.3 -0.1
ma 17	181°04.3 -23°19.9	196°04.0 -23°20.0	211°03.6 -23°20.1	226°03.3 -23°20.2	241°03.0 -23°20.3	256°02.7 -23°20.4	90°58.8 -23°21.6	105°58.5 -23°21.6	120°58.2 -23°21.7	135°57.9 -23°21.8	150°57.6 -23°21.9	165°57.3 -23°22.0	-0.3 -0.1
di 18	180°57.0 -23°22.1	195°56.7 -23°22.1	210°56.3 -23°22.2	225°56.0 -23°22.3	240°55.7 -23°22.4	255°55.4 -23°22.4	90°51.5 -23°23.4	105°51.1 -23°23.4	120°50.8 -23°23.5	135°50.5 -23°23.5	150°50.2 -23°23.6	165°49.9 -23°23.7	-0.3 -0.1
wo 19	180°49.6 -23°23.7	195°49.3 -23°23.8	210°49.0 -23°23.8	225°48.7 -23°23.9	240°48.4 -23°24.0	255°48.1 -23°24.0	90°44.1 -23°24.7	105°43.8 -23°24.7	120°43.5 -23°24.8	135°43.1 -23°24.8	150°42.8 -23°24.8	165°42.5 -23°24.9	-0.3 -0.1
do 20	180°42.2 -23°24.9	195°41.9 -23°25.0	210°41.6 -23°25.0	225°41.3 -23°25.0	240°41.0 -23°25.1	255°40.7 -23°25.1	90°36.7 -23°25.5	105°36.4 -23°25.5	120°36.0 -23°25.6	135°35.7 -23°25.6	150°35.4 -23°25.6	165°35.1 -23°25.6	-0.3 -0.0
vr 21	180°34.8 -23°25.7	195°34.5 -23°25.7	210°34.2 -23°25.7	225°33.9 -23°25.7	240°33.6 -23°25.7	255°33.3 -23°25.8	90°29.2 -23°25.9	105°28.9 -23°25.9	120°28.6 -23°25.9	135°28.3 -23°25.9	150°28.0 -23°25.9	165°27.7 -23°25.9	-0.3 -0.0
za 22	180°27.4 -23°25.9	195°27.1 -23°25.9	210°26.7 -23°25.9	225°26.4 -23°25.9	240°26.1 -23°25.9	255°25.8 -23°25.9	90°21.8 -23°25.8	105°21.5 -23°25.8	120°21.1 -23°25.8	135°20.8 -23°25.8	150°20.5 -23°25.8	165°20.2 -23°25.7	-0.3 -0.0
zo 23	180°19.9 -23°25.7	195°19.6 -23°25.7	210°19.3 -23°25.7	225°19.0 -23°25.7	240°18.7 -23°25.6	255°18.4 -23°25.6	90°14.3 -23°25.3	105°14.0 -23°25.2	120°13.7 -23°25.2	135°13.4 -23°25.2	150°13.1 -23°25.1	165°12.8 -23°25.1	-0.3 +0.0
ma 24	180°12.4 -23°25.0	195°12.1 -23°25.0	210°11.8 -23°25.0	225°11.5 -23°24.9	240°11.2 -23°24.9	255°10.9 -23°24.8	90°06.8 -23°24.2	105°06.5 -23°24.2	120°06.2 -23°24.1	135°05.9 -23°24.1	150°05.6 -23°24.0	165°05.3 -23°23.9	-0.3 +0.0
di 25	180°05.0 -23°23.9	195°04.7 -23°23.8	210°04.4 -23°23.8	225°04.0 -23°23.7	240°03.7 -23°23.7	255°03.4 -23°23.6	89°59.4 -23°22.7	104°59.1 -23°22.6	119°58.8 -23°22.6	134°58.5 -23°22.5	149°58.2 -23°22.4	164°57.8 -23°22.3	-0.3 +0.1
wo 26	179°57.5 -23°22.3	194°57.2 -23°22.2	209°56.9 -23°22.1	224°56.6 -23°22.0	239°56.3 -23°22.0	254°56.0 -23°21.9	89°52.0 -23°20.7	104°51.6 -23°20.7	119°51.3 -23°20.6	134°51.0 -23°20.5	149°50.7 -23°20.4	164°50.4 -23°20.3	-0.3 +0.1
do 27	179°50.1 -23°20.2	194°49.8 -23°20.0	209°49.5 -23°20.0	224°49.2 -23°19.9	239°48.9 -23°19.8	254°48.6 -23°19.7	89°44.6 -23°18.3	104°44.2 -23°18.2	119°43.9 -23°18.1	134°43.6 -23°18.0	149°43.3 -23°17.9	164°43.0 -23°17.7	-0.3 +0.1
vr 28	179°42.7 -23°17.6	194°42.4 -23°17.5	209°42.1 -23°17.4	224°41.8 -23°17.3	239°41.5 -23°17.2	254°41.2 -23°17.0	89°37.2 -23°15.4	104°36.9 -23°15.3	119°36.6 -23°15.1	134°36.3 -23°15.0	149°36.0 -23°14.9	164°35.7 -23°14.7	-0.3 +0.1
za 29	179°35.4 -23°14.6	194°35.0 -23°14.5	209°34.7 -23°14.3	224°34.4 -23°14.2	239°34.1 -23°14.1	254°33.8 -23°13.9	89°29.9 -23°12.0	104°29.6 -23°11.9	119°29.3 -23°11.7	134°29.0 -23°11.6	149°28.7 -23°11.4	164°28.3 -23°11.3	-0.3 +0.1
zo 30	179°28.0 -23°11.1	194°27.7 -23°11.0	209°27.4 -23°10.8	224°27.1 -23°10.6	239°26.8 -23°10.5	254°26.5 -23°10.3	89°22.6 -23°08.2	104°22.3 -23°08.0	119°22.0 -23°07.9	134°21.7 -23°07.7	149°21.4 -23°07.5	164°21.1 -23°07.3	-0.3 +0.2
ma 31	179°20.8 -23°07.2	194°20.5 -23°07.0	209°20.2 -23°06.8	224°19.9 -23°06.6	239°19.6 -23°06.5	254°19.3 -23°06.3	89°15.4 -23°03.9	104°15.1 -23°03.7	119°14.8 -23°03.5	134°14.5 -23°03.3	149°14.2 -23°03.1	164°13.9 -23°02.9	-0.3 +0.2

Rij 1: GHA (uurhoek van Greenwich), Δ'/h = v: verandering van de GHA − 15°
Rij 2: dec (declinatie, − = zuid), Δ'/h = d: verandering van de dec
Halve middellijn SD: 16.2'

MAAN

December 2035

D	16h	17h	18h	19h	20h	21h	22h	23h	0h	1h	2h	Δ'/h	SD/HP
za 1	55°11.4	69°42.4	84°13.4	98°44.4	113°15.4	127°46.4	142°17.4	156°48.4	171°19.4	185°50.4	200°21.4	+31.0	14.7
	-19°06.8	-19°08.1	-19°09.2	-19°10.3	-19°11.2	-19°12.1	-19°12.9	-19°13.6	-19°14.2	-19°14.7	-19°15.2	-0.8	54.1
zo 2	58°07.7	72°38.9	87°10.1	101°41.3	116°12.5	130°43.7	145°14.9	159°46.2	174°17.4	188°48.7	203°20.0	+31.2	14.7
	-19°11.0	-19°10.0	-19°08.9	-19°07.7	-19°06.5	-19°05.1	-19°03.7	-19°02.2	-19°00.6	-18°58.9	-18°57.2	+1.4	53.9
ma 3	61°11.3	75°42.8	90°14.4	104°46.0	119°17.6	133°49.3	148°20.9	162°52.6	177°24.3	191°56.0	206°27.7	+31.6	14.7
	-18°20.4	-18°17.2	-18°14.0	-18°10.8	-18°07.4	-18°03.9	-18°00.4	-17°56.8	-17°53.1	-17°49.3	-17°45.5	+3.5	54.0
di 4	64°26.1	78°58.2	93°30.3	108°02.3	122°34.5	137°06.6	151°38.7	166°10.9	180°43.1	195°15.3	209°47.5	+32.1	14.8
	-16°38.3	-16°33.2	-16°28.0	-16°22.8	-16°17.4	-16°12.1	-16°06.6	-16°01.1	-15°55.5	-15°49.8	-15°44.0	+5.4	54.1
wo 5	67°53.1	82°25.6	96°58.1	111°30.6	126°03.2	140°35.7	155°08.3	169°40.9	184°13.5	198°46.1	213°18.7	+32.6	14.9
	-14°09.5	-14°02.7	-13°55.8	-13°48.8	-13°41.8	-13°34.7	-13°27.6	-13°20.3	-13°13.1	-13°05.7	-12°58.3	+7.1	54.5
do 6	71°29.2	86°02.0	100°34.8	115°07.5	129°40.3	144°13.1	158°45.9	173°18.6	187°51.4	202°24.2	216°57.0	+32.8	15.0
	-11°00.2	-10°51.8	-10°43.5	-10°35.0	-10°26.5	-10°18.0	-10°09.4	-10°00.8	-9°52.1	-9°43.3	-9°34.5	+8.6	55.0
vr 7	75°08.3	89°41.0	104°13.7	118°46.3	133°19.0	147°51.7	162°24.3	176°56.9	191°29.5	206°02.1	220°34.7	+32.6	15.2
	-7°16.9	-7°07.4	-6°57.8	-6°48.2	-6°38.5	-6°28.8	-6°19.1	-6°09.3	-5°59.5	-5°49.6	-5°39.7	+9.7	55.6
◐ za 8	89°41.0	104°13.7	118°46.3	133°19.0	147°51.7	162°24.3	176°56.9	191°29.5	206°02.1	220°34.7	235°07.3	+32.6	15.2
	-7°07.4	-6°57.8	-6°48.2	-6°38.5	-6°28.8	-6°19.1	-6°09.3	-5°59.5	-5°49.6	-5°39.7	-5°29.8	+9.8	55.7
zo 9	93°13.1	107°45.3	122°17.4	136°49.5	151°21.6	165°53.7	180°25.7	194°57.7	209°29.7	224°01.6	238°33.5	+32.0	15.4
	-2°56.9	-2°46.4	-2°36.0	-2°25.5	-2°15.0	-2°04.4	-1°53.9	-1°43.3	-1°32.7	-1°22.1	-1°11.4	+10.6	56.5
ma 10	96°26.7	110°57.9	125°29.0	140°00.1	154°31.1	169°02.1	183°33.0	198°03.9	212°34.7	227°05.4	241°36.1	+30.9	15.7
	1°30.4	1°41.2	1°52.1	2°03.0	2°13.9	2°24.8	2°35.7	2°46.7	2°57.6	3°08.5	3°19.4	+10.9	57.5
di 11	99°09.1	113°38.7	128°08.3	142°37.9	157°07.3	171°36.7	186°06.0	200°35.2	215°04.4	229°33.4	244°02.4	+29.3	15.9
	6°02.5	6°13.3	6°24.0	6°34.8	6°45.5	6°56.2	7°06.9	7°17.6	7°28.2	7°38.8	7°49.4	+10.7	58.5
wo 12	101°07.9	115°35.6	130°03.3	144°30.8	158°58.2	173°25.6	187°52.9	202°20.1	216°47.2	231°14.2	245°41.1	+27.3	16.2
	10°24.0	10°33.9	10°43.9	10°53.7	11°03.5	11°13.3	11°23.0	11°32.7	11°42.3	11°51.8	12°01.3	+9.7	59.5
do 13	102°14.6	116°40.2	131°05.6	145°31.0	159°56.2	174°21.4	188°46.6	203°11.6	217°36.5	232°01.4	246°26.2	+25.2	16.4
	14°15.0	14°23.3	14°31.5	14°39.7	14°47.7	14°55.6	15°03.5	15°11.2	15°18.9	15°26.5	15°33.9	+7.9	60.3
vr 14	102°28.4	116°52.0	131°15.5	145°38.9	160°02.3	174°25.6	188°48.8	203°12.0	217°35.2	231°58.2	246°21.2	+23.3	16.6
	17°13.2	17°18.9	17°24.5	17°30.0	17°35.3	17°40.5	17°45.6	17°50.6	17°55.4	18°00.1	18°04.7	+5.2	60.9
○ za 15	102°00.8	116°23.1	130°45.4	145°07.7	159°30.0	173°52.2	188°14.4	202°36.6	216°58.8	231°21.0	245°43.2	+22.2	16.7
	18°57.2	18°59.6	19°01.8	19°03.9	19°05.8	19°07.6	19°09.3	19°10.8	19°12.2	19°13.4	19°14.5	+1.7	61.2
zo 16	101°15.7	115°37.9	130°00.2	144°22.5	158°44.8	173°07.2	187°29.6	201°52.0	216°14.4	230°36.9	244°59.5	+22.4	16.7
	19°13.0	19°11.7	19°10.3	19°08.8	19°07.1	19°05.2	19°03.2	19°01.1	18°58.8	18°56.4	18°53.8	-1.9	61.1
ma 17	100°43.0	115°06.4	129°29.8	143°53.3	158°16.8	172°40.4	187°04.1	201°27.8	215°51.6	230°15.5	244°39.5	+23.6	16.6
	17°59.0	17°54.3	17°49.5	17°44.5	17°39.4	17°34.2	17°28.9	17°23.5	17°17.9	17°12.2	17°06.4	-5.3	60.7
di 18	100°48.2	115°13.4	129°38.7	144°04.1	158°29.6	172°55.2	187°20.8	201°46.5	216°12.4	230°38.3	245°04.3	+25.6	16.4
	15°26.2	15°18.7	15°11.1	15°03.5	14°55.7	14°47.8	14°39.9	14°31.8	14°23.7	14°15.5	14°07.2	-7.9	60.1
wo 19	101°44.4	116°11.7	130°39.2	145°06.7	159°34.3	174°02.0	188°29.7	202°57.6	217°25.5	231°53.5	246°21.6	+27.7	16.2
	11°53.8	11°44.4	11°34.9	11°25.3	11°15.7	11°06.1	10°56.3	10°46.6	10°36.7	10°26.9	10°17.0	-9.7	59.3
do 20	103°32.1	118°01.4	132°30.8	147°00.2	161°29.7	175°59.2	190°28.9	204°58.6	219°28.3	233°58.1	248°28.0	+29.6	15.9
	7°43.2	7°32.7	7°22.1	7°11.5	7°00.9	6°50.3	6°39.6	6°28.9	6°18.2	6°07.5	5°56.8	-10.6	58.4
◑ vr 21	106°03.3	120°34.1	135°04.9	149°35.8	164°06.7	178°37.7	193°08.7	207°39.8	222°10.9	236°42.1	251°13.3	+31.0	15.7
	3°14.1	3°03.2	2°52.3	2°41.3	2°30.4	2°19.5	2°08.6	1°57.7	1°46.8	1°35.9	1°25.0	-10.9	57.5
za 22	109°05.7	123°37.5	138°09.3	152°41.1	167°12.9	181°44.8	196°16.7	210°48.6	225°20.6	239°52.5	254°24.5	+31.9	15.4
	-1°17.3	-1°38.7	-1°38.7	-1°49.3	-2°00.0	-2°10.6	-2°21.2	-2°31.8	-2°42.4	-2°52.9	-3°03.4	-10.6	56.6
zo 23	112°26.4	126°58.7	141°30.9	156°03.2	170°35.4	185°07.7	199°40.0	214°12.3	228°44.6	243°16.9	257°49.2	+32.3	15.2
	-5°37.7	-5°47.8	-5°57.8	-6°07.7	-6°17.6	-6°27.5	-6°37.4	-6°47.2	-6°57.0	-7°06.7	-7°16.4	-9.9	55.9
ma 24	115°53.8	130°26.1	144°58.4	159°30.7	174°03.0	188°35.2	203°07.5	217°39.7	232°12.0	246°44.2	261°16.5	+32.3	15.1
	-9°36.4	-9°45.4	-9°54.3	-10°03.2	-10°12.0	-10°20.7	-10°29.4	-10°38.1	-10°46.7	-10°55.2	-11°03.7	-8.7	55.3
di 25	119°18.7	133°50.8	148°22.8	162°54.8	177°26.8	191°58.8	206°30.8	221°02.8	235°34.7	250°06.7	264°38.6	+32.0	15.0
	-13°04.0	-13°11.5	-13°19.0	-13°26.4	-13°33.8	-13°41.0	-13°48.2	-13°55.4	-14°02.5	-14°09.5	-14°16.4	-7.2	54.8
wo 26	122°35.4	137°07.1	151°38.7	166°10.4	180°42.0	195°13.6	209°45.2	224°16.7	238°48.3	253°19.8	267°51.3	+31.6	14.8
	-15°52.1	-15°57.9	-16°03.6	-16°09.3	-16°14.9	-16°20.4	-16°25.8	-16°31.1	-16°36.4	-16°41.6	-16°46.7	-5.5	54.4
do 27	125°42.2	140°13.5	154°44.8	169°16.0	183°47.3	198°18.5	212°49.7	227°20.9	241°52.1	256°23.3	270°54.5	+31.2	14.8
	-17°53.7	-17°57.5	-18°01.2	-18°04.8	-18°08.4	-18°11.9	-18°15.3	-18°18.6	-18°21.8	-18°24.9	-18°28.0	-3.4	54.2
vr 28	128°41.2	143°12.3	157°43.3	172°14.4	186°45.4	201°16.5	215°47.5	230°18.6	244°49.6	259°20.7	273°51.7	+31.1	14.7
	-19°03.2	-19°04.9	-19°06.4	-19°07.9	-19°09.3	-19°10.6	-19°11.8	-19°12.9	-19°13.9	-19°14.9	-19°15.7	-1.2	54.0
● za 29	131°37.7	146°08.8	160°39.9	175°11.0	189°42.2	204°13.3	218°44.5	233°15.6	247°46.8	262°18.0	276°49.1	+31.1	14.7
	-19°17.8	-19°17.2	-19°16.5	-19°15.8	-19°14.9	-19°14.0	-19°13.0	-19°11.9	-19°10.7	-19°09.4	-19°08.0	+1.0	53.9
zo 30	134°38.5	149°09.9	163°41.3	178°12.8	192°44.2	207°15.7	221°47.2	236°18.7	250°50.3	265°21.8	279°53.4	+31.5	14.7
	-18°37.0	-18°34.3	-18°31.4	-18°28.5	-18°25.5	-18°22.4	-18°19.3	-18°16.0	-18°12.7	-18°09.3	-18°05.8	+3.1	53.9
ma 31	137°49.5	152°21.4	166°53.3	181°25.3	195°57.2	210°29.2	225°01.3	239°33.3	254°05.4	268°37.5	283°09.6	+32.0	14.7
	-17°03.7	-16°58.9	-16°54.1	-16°49.1	-16°44.1	-16°39.1	-16°33.9	-16°28.7	-16°23.4	-16°18.1	-16°12.6	+5.1	54.0

Rij 1: GHA, Δ'/h = v: verandering van de GHA − 14°, SD/HP = halve middellijn SD
Rij 2: dec (− = zuid), Δ'/h = d: verandering van de dec, SD/HP = horizontale parallax HP
Kolom = (UTC-uur − dag) mod 24
EK: 8 01h05 — VM: 15 00h33 — LK: 21 16h28 — NM: 29 14h30