

# Sky Atlas and Calendar of Events for 2026

FOR 40° NORTH LATITUDE

ENGLISH VERSION (UT)



**OBSERVATORIO ASTRONÓMICO NACIONAL**

Instituto Geográfico Nacional

O. A. Centro Nacional de Información Geográfica



# Sky Atlas and Calendar of Events for 2026

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**Title:** Sky Atlas and Calendar of Events for 2026. For 40° North Latitude

**Autorship:** © Tomás Alonso Albi, 2026. Instituto Geográfico Nacional

**Coordination:** Alba Aller Egea, Pablo Domingo Gómez, Soledad Belmar Lizarán

**Design and layout:** Carlos Ramos López de Hoyos

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Calle General Ibáñez Ibero, 3 28003 - Madrid (España)

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# Presentation

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This sky atlas is focused on amateur astronomers that don't need a basic atlas neither a too much detailed one. It is designed to be printed in long side duplex mode and A4 size, and handled in landscape orientation. The first part shows the sky for each month (for a latitude of 40.0° N), including a detailed list of the astronomical events for each month, most of them only visible with a telescope. The most relevant events like eclipses or lunar phases appear in boldface. Charts show the night sky observing towards South for 0h UT (Universal Time), so during the summer they show the main constellations visible, and during the winter those for the late night, or those visible after the sunset on the right side (West) of the meridian, since night comes earlier in winter. The chart for the next month is equivalent to the current month but two hours later, without considering the movement of Solar System bodies. Equally, the chart for the previous month is equivalent to the one for the current month but two hours before. Limiting Magnitudes are 6.5 for stars and 5.5 for deep sky objects, and planetary positions are geocentric. The second section shows the main eclipses of the year and the relative positions of the natural satellites of Jupiter and Saturn. Lunar eclipses appear the same way from any place on Earth. Predictions for the transits of the Great Red Spot in Jupiter are also provided. The third section shows the sky atlas itself, with 26 charts covering an area of about 30x20 degrees and a distribution similar to the Sky Atlas 2000 by Wil Tirion. Includes stars up to Magnitude 8.25 and deep sky objects brighter than Magnitude 11.25 (some fainter ones may appear if they are listed in Messier or Caldwell catalogs). For each chart there is a table showing the deep sky objects visible on it, sorted by Magnitude. Additional tables show the main double stars (from <https://www.stelledoppie.it>, with primary/secondary components brighter than Magnitude 7/8.5 and with a minimum separation of 10"), and the main variable stars on that chart. Variability types are P (pulsating), Er (eruptive),

Ecl (eclipsing), and R (rotating), and the tables also show the date of the maximum for long-period variables (according to the bulletins by AAVSO). The minima of the eclipsing variable stars  $\beta$  Persei,  $\beta$  Lyrae, and  $\lambda$  Tau (brighter than Magnitude 4) are shown in the list of events, calculated with the catalog available at <http://www.as.up.krakow.pl/ephem/>. Coordinates for the atlas are astrometric, referred to the Julian epoch of the first day of the year of the atlas. The trajectories of external planets and asteroids are shown during 8 weeks around the date of the opposition. For internal planets 2 or 4 weeks around the maximum elongations of Mercury and Venus. For comets 3 months around the date of the brightest Magnitude.

All charts have a legend on it or at the previous page. The information in the legend is quite simple. The line representing double stars also shows the expected direction of the secondary component. Diffuse and dark nebula are represented with darker and lighter levels of blue. The constellation lines are shown to simplify the visual navigation around their figures. The atlas shows the galaxy types (spiral, elliptical, irregular, and lenticular) in different colors. Lastly, the positions of the radiants of meteor showers are also shown, with the expected date for the maximum of the shower.

The total number of stars in the atlas is around 60 000, with 1100 deep sky objects, 438 double stars and 118 variable stars. Some events or objects may not appear in the tables when there are too much entries on them. The total number of astronomical events listed is around 2400, more than usual due to the inclusion of the mutual events of the satellites of Saturn. These events were computed with the old TASS 1.7 theory, so they could be slightly wrong.

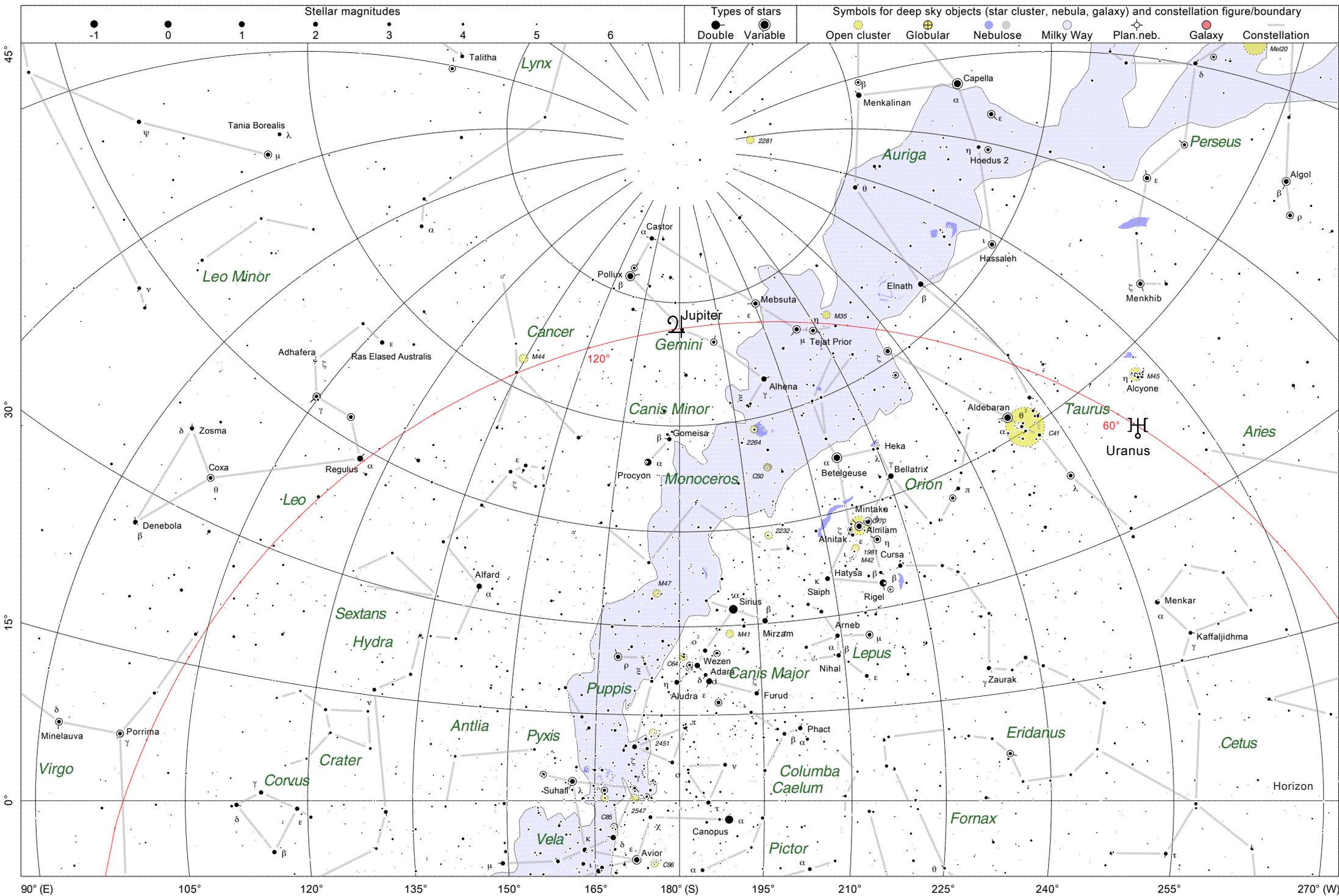
The electronic version of this atlas is free, and has been developed by Tomás Alonso, astronomer at Observatorio Astronómico Nacional. This document is distributed under the terms of the Creative Commons license.

## Monthly night sky



# Astronomical events for January

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	11:24	Minimum of eclipsing binary $\beta$ Per	11	13:02 → 16:23	Transit of Dione on top of Saturn	21	13:07	Minimum of eclipsing binary $\beta$ Per
1	13:59 → 16:21	Occultation of Mimas by Saturn	11	13:41 → 16:55	Eclipse of Rhea by Saturn	21	13:19	Minimum elongation of Mercury (2.053°)
1	14:20 → 16:38	Eclipse of Mimas by Saturn	11	14:04 → 17:06	Shadow transit of Dione on top of Saturn	21	14:26	Conjunction Venus-(4) Vesta (d = 0.8°)
1	15:33 → 18:14	Occultation of Enceladus by Saturn	11	15:51 → 18:51	Occultation of Tethys by Saturn	22	04:17 → 05:01	$\lambda$ Aqr behind Moon (d = 0.1°, maximum 2026-01-22 04:41 TT, mag = 3.75)
1	15:51 → 21:25	Occultation of Titan by Saturn	11	16:31 → 19:24	Eclipse of Tethys by Saturn	22	11:57 → 15:16	Transit of Dione on top of Saturn
1	16:03 → 18:39	Eclipse of Enceladus by Saturn	11	16:33	Minimum of eclipsing binary $\lambda$ Tau	22	12:55 → 15:55	Shadow transit of Dione on top of Saturn
2	02:46	Conjunction Moon- $\beta$ Tau (d = 0.8°, mag = 1.68)	11	23:05	Conjunction (433) Eros- $\alpha$ Tri (d = 0.6°, mag = 3.42)	22	18:45 → 21:07	Transit of Mimas on top of Saturn
2	04:52	Conjunction C/2024 E1 (Wierzchos) MPEC 2025-N86-r Sgr	12	09:59	Conjunction (3) Juno-NGC6611 (M16) (d = 0.4°)	22	19:03 → 21:21	Shadow transit of Mimas on top of Saturn
2	08:19	Moon's maximum declination (28.268°)	12	14:30 → 17:30	Transit of Tethys on top of Saturn	22	19:15 → 23:07	Transit of Rhea on top of Saturn
2	12:57 → 15:16	Eclipse of Mimas by Saturn	12	14:43 → 17:23	Occultation of Enceladus by Saturn	23	08:39	Conjunction Moon-Saturn (d = 3.0°)
3	06:00 → 06:40	NGC2266 behind Moon (d = 0.2°, maximum 2026-01-03 06:21 TT)	12	15:10 → 18:03	Shadow transit of Tethys on top of Saturn	23	11:56	Conjunction Moon-Neptune (d = 2.3°)
3	10:03	Full Moon	12	15:12 → 17:47	Eclipse of Enceladus by Saturn	23	13:09	Minimum of eclipsing binary $\lambda$ Tau
3	17:18	Minimum distance of Sun (0.983 AU)	12	22:40	Minimum of eclipsing binary $\beta$ Per	24	05:57	Conjunction (8) Flora-NGC6342 (d = 0.2°)
3	18:48	Minimum of eclipsing binary $\lambda$ Tau	13	18:10 → 22:06	Transit of Rhea on top of Saturn	24	09:56	Minimum of eclipsing binary $\beta$ Per
3	21:00	Conjunction (6455) 1992 HE- $\alpha$ Sgr (d = 0.1°, mag = 3.96)	13	19:57 → 23:10	Shadow transit of Rhea on top of Saturn	24	16:22	Conjunction Mercury-(4) Vesta (d = 0.1°)
3	21:20	<b>Maximum of Quadrantids (meteor shower, ZHR 80)</b>	13	20:06 → 22:28	Occultation of Mimas by Saturn	25	11:59	Comet C/2024 E1 (Wierzchos) MPEC 2025-N86 with maximum magnitude
3	21:57	Conjunction Moon-Jupiter (d = 3.4°)	13	20:25 → 22:44	Eclipse of Mimas by Saturn	25	14:38 → 16:59	Transit of Mimas on top of Saturn
4	02:19	Conjunction Moon- $\beta$ Gem (d = 3.3°, mag = 1.22)	13	20:48	Moon's apogee (parallax = 54' 5.001")	25	14:55 → 17:13	Shadow transit of Mimas on top of Saturn
4	04:19 → 05:21	$\kappa$ Gem behind Moon (d = 0.1°, maximum 2026-01-04 04:50 TT, mag = 3.57)	14	02:52	Conjunction (3362) Khufu- $\delta$ Cap (d = 1.0°, mag = 2.85)	25	15:20 → 18:00	Transit of Enceladus on top of Saturn
4	08:13	Minimum of eclipsing binary $\beta$ Per	14	04:17 → 05:11	$\pi$ Sco behind Moon (d = 0.2°, maximum 2026-01-14 04:45 TT, mag = 2.89)	25	15:47 → 18:21	Shadow transit of Enceladus on top of Saturn
4	10:31	Conjunction (3) Juno-(3753) Cruithne (d = 3.1°)	14	11:59	Comet C/2024 E1 (Wierzchos) MPEC 2025-N86 starts to be visible to naked eye	25	17:39 → 21:35	Transit of Titan on top of Saturn
4	13:09 → 13:22	Eclipse of Enceladus by Mimas (11.5%)	14	16:09 → 18:50	Transit of Enceladus on top of Saturn	25	19:49 → 22:48	Transit of Tethys on top of Saturn
4	14:15 → 14:30	Eclipse of Enceladus by Mimas (27.4%)	14	16:38 → 19:13	Shadow transit of Enceladus on top of Saturn	26	04:48	<b>Moon's first quarter</b>
4	16:48 → 20:10	Occultation of Dione by Saturn	14	18:43 → 21:06	Occultation of Mimas by Saturn	26	13:15 → 15:37	Transit of Mimas on top of Saturn
4	17:07 → 21:06	Transit of Rhea on top of Saturn	14	19:03 → 21:21	Eclipse of Mimas by Saturn	26	13:33 → 15:50	Shadow transit of Mimas on top of Saturn
4	17:52 → 20:56	Eclipse of Dione by Saturn	14	20:21	Conjunction Moon- $\alpha$ Sco (d = 0.8°, mag = 1.07)	26	14:39 → 17:56	Occultation of Dione by Saturn
4	18:59 → 22:16	Shadow transit of Rhea on top of Saturn	14	22:50	Conjunction Moon- $\tau$ Sco (d = 0.8°, mag = 2.83)	26	15:34 → 18:33	Eclipse of Dione by Saturn
4	20:53 → 23:17	Transit of Mimas on top of Saturn	15	15:25	Minimum of eclipsing binary $\lambda$ Tau	26	18:29 → 21:28	Occultation of Tethys by Saturn
4	21:14 → 23:34	Shadow transit of Mimas on top of Saturn	15	15:42 → 19:02	Occultation of Dione by Saturn	26	19:04 → 21:56	Eclipse of Tethys by Saturn
5	14:14	Conjunction (433) Eros-NGC598 (M33) (d = 0.2°)	15	16:43 → 19:44	Eclipse of Dione by Saturn	27	06:45	Minimum of eclipsing binary $\beta$ Per
5	18:14 → 20:55	Occultation of Enceladus by Saturn	15	17:21 → 19:43	Occultation of Mimas by Saturn	27	11:53 → 14:14	Transit of Mimas on top of Saturn
5	18:44 → 21:20	Eclipse of Enceladus by Saturn	15	17:40 → 19:58	Eclipse of Mimas by Saturn	27	12:02	Minimum of eclipsing binary $\lambda$ Tau
5	19:31 → 21:55	Transit of Mimas on top of Saturn	15	18:43 → 18:46	Occultation of Tethys by Enceladus (22.7%)	27	12:10 → 14:27	Shadow transit of Mimas on top of Saturn
5	19:51 → 22:12	Shadow transit of Mimas on top of Saturn	15	19:29	Minimum of eclipsing binary $\beta$ Per	27	14:22	Conjunction Moon-Uranus (d = 4.7°)
6	06:23	Minimum elongation of Venus (0.703°)	16	05:25	Moon's minimum declination (-28.305°)	27	16:36 → 19:15	Occultation of Enceladus by Saturn
6	10:03	Conjunction C/2024 E1 (Wierzchos) MPEC 2025-N86-(3554) Amun	16	15:58 → 18:20	Occultation of Mimas by Saturn	27	17:01 → 19:35	Eclipse of Enceladus by Saturn
6	10:10	Conjunction (3554) Amun-NGC6809 (M55) (d = 0.2°)	16	16:17 → 18:36	Eclipse of Mimas by Saturn	27	17:09 → 20:07	Transit of Tethys on top of Saturn
6	16:12 → 16:46	$\alpha$ Leo behind Moon (d = 0.2°, maximum 2026-01-06 16:30 TT, mag = 1.41)	16	17:24 → 20:05	Occultation of Enceladus by Saturn	27	17:43 → 20:36	Shadow transit of Tethys on top of Saturn
7	04:49	Conjunction Moon- $\rho$ Leo (d = 0.4°, mag = 3.85)	16	17:53 → 20:27	Eclipse of Enceladus by Saturn	27	21:06	Conjunction Moon-star #3440134 (d = 0.7°, mag = 3.71)
7	05:02	Minimum of eclipsing binary $\beta$ Per	16	21:36	Conjunction (324) Bamberga-NGC6405 (M6) (d = 0.6°)	27	21:48	Conjunction Moon-star #3450121 (d = 0.5°, mag = 3.88)
7	08:27	Conjunction (3753) Cruithne-NGC6613 (M18) (d = 0.3°)	17	01:34	Conjunction C/2024 E1 (Wierzchos) MPEC 2025-N86-(6455) 1992 HE	27	22:35	Conjunction Moon- $\eta$ Tau (d = 0.9°, mag = 2.87)
7	11:13	Conjunction (3753) Cruithne-NGC6618 (M17) (d = 0.7°)	17	05:55	Conjunction (887) Alinda-NGC6333 (M9) (d = 0.4°)	27	23:27	Conjunction Moon-star #3490031 (d = 1.0°, mag = 3.63)
7	17:40	Minimum of eclipsing binary $\lambda$ Tau	17	14:36 → 16:58	Occultation of Mimas by Saturn	29	13:59	Conjunction Mercury-Venus (d = 0.7°)
7	19:40 → 22:21	Transit of Enceladus on top of Saturn	17	14:55 → 17:13	Eclipse of Mimas by Saturn	29	14:04 → 17:53	Occultation of Rhea by Saturn
7	20:10 → 22:46	Shadow transit of Enceladus on top of Saturn	17	15:57 → 20:44	Occultation of Titan by Saturn	29	14:29 → 17:27	Transit of Tethys on top of Saturn
7	21:12 → 00:11	Occultation of Tethys by Saturn	17	18:51	Conjunction Moon- $\tau$ Sgr (d = 0.6°, mag = 3.32)	29	15:02 → 17:55	Shadow transit of Tethys on top of Saturn
7	22:10	Conjunction (6053) 1993 BW3-NGC5986 (d = 0.6°)	18	06:31	Conjunction Mercury-Mars (d = 1.0°)	29	15:38 → 18:44	Eclipse of Rhea by Saturn
8	03:13	Conjunction Venus-Mars (d = 0.2°)	18	11:09	Maximum of $\gamma$ -Ursae Minorids (meteor shower, ZHR 3)	29	17:02	Moon's maximum declination (28.363°)
8	19:18 → 22:40	Transit of Dione on top of Saturn	18	13:13 → 15:35	Occultation of Mimas by Saturn	29	18:02 → 20:42	Transit of Enceladus on top of Saturn
8	19:51 → 22:51	Transit of Tethys on top of Saturn	18	13:32 → 15:50	Eclipse of Mimas by Saturn	29	18:27 → 21:01	Shadow transit of Enceladus on top of Saturn
8	20:21 → 23:24	Shadow transit of Dione on top of Saturn	18	16:18	Minimum of eclipsing binary $\beta$ Per	29	21:53	Moon's perigee (parallax = 59' 56.022")
8	20:32 → 23:25	Shadow transit of Tethys on top of Saturn	18	18:08	Conjunction Moon-Mars (d = 2.9°)	30	03:34	Minimum of eclipsing binary $\beta$ Per
9	09:37	Conjunction of Mars (elongation 0.941°)	18	18:31	Conjunction Moon-Mercury (d = 1.9°)	30	13:09 → 16:07	Occultation of Tethys by Saturn
9	16:54 → 22:19	Transit of Titan on top of Saturn	18	19:52	<b>New Moon</b>	30	13:36 → 14:18	NGC2266 behind Moon (d = 0.1°, maximum 2026-01-30 13:58 TT)
9	18:31 → 21:31	Occultation of Tethys by Saturn	19	01:06	Conjunction (324) Bamberga-NGC6416 (d = 0.7°)	30	13:42 → 16:34	Eclipse of Tethys by Saturn
9	19:11 → 22:05	Eclipse of Tethys by Saturn	19	01:39	Conjunction Moon-Venus (d = 2.4°)	30	17:10 → 20:27	Transit of Dione on top of Saturn
9	20:55 → 23:36	Occultation of Enceladus by Saturn	19	10:08	Conjunction Jupiter- $\delta$ Gem (d = 0.5°, mag = 3.54)	30	18:02 → 21:01	Shadow transit of Dione on top of Saturn
9	22:50	Conjunction (3753) Cruithne-NGC6645 (d = 0.1°)	19	11:51 → 14:13	Occultation of Mimas by Saturn	30	19:20 → 21:42	Occultation of Mimas by Saturn
10	01:51	Minimum of eclipsing binary $\beta$ Per	19	12:09 → 14:27	Eclipse of Mimas by Saturn	30	19:37 → 21:55	Eclipse of Mimas by Saturn
10	08:42	<b>Opposition of Jupiter (elongation 179.739°)</b>	19	14:17	Minimum of eclipsing binary $\lambda$ Tau	31	05:17	Conjunction Moon-Jupiter (d = 3.1°)
10	12:11	Conjunction (3752) Camillo- $\zeta$ Cap (d = 0.6°, mag = 3.75)	20	04:28	Conjunction (18) Melpomene- $\eta$ Oph (d = 0.9°, mag = 2.43)	31	10:54	Minimum of eclipsing binary $\lambda$ Tau
10	12:38 → 15:01	Transit of Mimas on top of Saturn	20	09:11	Conjunction (324) Bamberga-NGC6425 (d = 0.1°)	31	12:55	Conjunction Moon- $\beta$ Gem (d = 3.7°, mag = 1.22)
10	12:58 → 15:18	Shadow transit of Mimas on top of Saturn	20	12:57 → 16:50	Occultation of Rhea by Saturn	31	13:01 → 13:40	$\kappa$ Gem behind Moon (d = 0.1°, maximum 2026-01-31 13:21 TT, mag = 3.57)
10	13:28 → 16:09	Transit of Enceladus on top of Saturn	20	14:39 → 17:49	Eclipse of Rhea by Saturn	31	13:11	Conjunction (3554) Amun- $\delta$ Cap (d = 0.6°, mag = 2.85)
10	13:57 → 16:33	Shadow transit of Enceladus on top of Saturn	20	17:20	Conjunction Moon- $\gamma$ Cap (d = 0.6°, mag = 3.68)	31	17:58 → 20:19	Occultation of Mimas by Saturn
10	14:38	Conjunction (1566) Icarus-(3554) Amun (d = 0.1°)	20	17:43	Conjunction (887) Alinda-NGC6356 (d = 0.3°)	31	18:15 → 20:32	Eclipse of Mimas by Saturn
10	15:48	<b>Moon's last quarter</b>	20	18:23	Minimum distance from Sun of C/2024 E1 Wierzchos MPEC 2025-N86 (0.566 AU)	31	18:56	Conjunction C/2024 E1 (Wierzchos) MPEC 2025-N86- $\delta$ , Gru
10	16:25	Conjunction (4) Vesta-NGC6864 (M75) (d = 2.9°)	20	20:06 → 22:46	Occultation of Enceladus by Saturn	31	19:17 → 21:57	Occultation of Enceladus by Saturn
10	21:51	Conjunction Moon- $\alpha$ Vir (d = 1.7°, mag = 1.06)	20	20:33 → 23:08	Eclipse of Enceladus by Saturn	31	19:19 → 22:16	Occultation of Hyperion by Saturn
11	03:28	Lunar Transient Phenomena Lunar-X	20	21:47	Conjunction (3753) Cruithne- $\rho$ , Sgr	31	19:41 → 22:15	Eclipse of Enceladus by Saturn



# Astronomical events for February

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	11:01 → 13:53	Eclipse of Tethys by Saturn	11	20:33	Conjunction Mercury-(3554) Amun (d = 1.1°)	19	00:03	Conjunction Moon-Mercury (d = 0.5°)
1	11:50 → 14:30	Transit of Enceladus on top of Saturn	11	23:22	Conjunction Mercury-(3554) Amun (d = 1.1°)	19	05:16	Minimum of eclipsing binary β Per
1	12:14 → 14:48	Shadow transit of Enceladus on top of Saturn	12	02:22	Conjunction Mercury-(3554) Amun (d = 1.1°)	19	11:55	Conjunction (6053) 1993 BW3-NGC6192 (d = 2.6')
1	22:01	Conjunction (324) Bamberga-NGC6558 (d = 0.9')	12	03:54	Conjunction Uranus-(433) Eros (d = 3.1°)	19	16:09	Minimum of eclipsing binary β Lyr
1	22:09	Full Moon	12	05:21	Conjunction Mercury-(3554) Amun (d = 1.1°)	19	17:40	<b>Maximum elongation of Mercury (18.123° E)</b>
2	00:22	Minimum of eclipsing binary β Per	12	07:31	Minimum of eclipsing binary λ Tau	19	18:22	Conjunction (324) Bamberga-NGC6681 (M70) (d = 0.7°)
2	02:49	Conjunction (8) Flora-(887) Alinda (d = 1.7°)	12	11:02 → 13:40	Transit of Enceladus on top of Saturn	19	22:14	Conjunction Moon-Saturn (d = 3.8°)
2	10:54 → 14:10	Transit of Dione on top of Saturn	12	11:22 → 13:56	Shadow transit of Enceladus on top of Saturn	19	22:21	Conjunction Moon-Neptune (d = 3.0°)
2	11:45 → 14:43	Shadow transit of Dione on top of Saturn	12	12:31 → 14:50	Transit of Mimas on top of Saturn	20	00:08	Conjunction (15) Eunomia-γ Crv (d = 0.3°, mag = 2.59)
2	11:52	Conjunction Mercury-γ Cap (d = 0.8°, mag = 3.68)	12	12:45 → 15:00	Shadow transit of Mimas on top of Saturn	20	05:15	Minimum of eclipsing binary λ Tau
2	15:13 → 17:34	Occultation of Mimas by Saturn	12	12:57	Moon's minimum declination (-28.407°)	20	20:07	Conjunction Saturn-Neptune (d = 0.8°)
2	15:29 → 17:46	Eclipse of Mimas by Saturn	12	16:02 → 18:56	Transit of Europa on top of Jupiter	21	01:18 → 03:38	Transit of Io on top of Jupiter
2	16:55 → 19:48	Occultation of Titan by Saturn	12	17:36 → 20:31	Shadow transit of Europa on top of Jupiter	21	02:14 → 04:35	Shadow transit of Io on top of Jupiter
2	16:59	Conjunction (8) Flora-(887) Alinda (d = 1.7°)	12	18:59 → 23:15	Shadow transit of Callisto on top of Jupiter	21	02:14 → 06:35	Eclipse of Callisto by Jupiter
3	03:59	Conjunction Moon-α Leo (d = 0.3°, mag = 1.41)	13	07:23	Conjunction (324) Bamberga-NGC6637 (M69) (d = 0.6°)	21	21:57	Conjunction (887) Alinda-NGC6494 (M23) (d = 0.7°)
3	11:26	Conjunction Mercury-δ Cap (d = 0.9°, mag = 2.85)	13	10:36 → 13:31	Shadow transit of Dione on top of Saturn	22	02:05	Minimum of eclipsing binary β Per
3	13:05 → 15:44	Occultation of Enceladus by Saturn	13	11:09 → 13:28	Transit of Mimas on top of Saturn	23	09:32	Conjunction (4) Vesta-γ Cap (d = 0.1°, mag = 3.68)
3	13:29 → 16:02	Eclipse of Enceladus by Saturn	13	11:22 → 13:38	Shadow transit of Mimas on top of Saturn	23	10:15 → 12:51	Transit of Enceladus on top of Saturn
3	13:50 → 16:12	Occultation of Mimas by Saturn	13	11:38	Minimum of eclipsing binary β Per	23	10:30 → 13:03	Shadow transit of Enceladus on top of Saturn
3	14:07 → 16:24	Eclipse of Mimas by Saturn	13	15:58	Conjunction (3752) Camillo-(6455) 1992 HE (d = 0.9°)	23	11:20 → 14:45	Transit of Rhea on top of Saturn
3	14:36	Conjunction Moon-ρ Leo (d = 0.5°, mag = 3.85)	13	17:09 → 20:06	Transit of Tethys on top of Saturn	23	12:21 → 15:13	Shadow transit of Rhea on top of Saturn
3	17:18	Conjunction (324) Bamberga-NGC6569 (d = 2.9')	13	17:35 → 20:26	Shadow transit of Tethys on top of Saturn	24	00:58	Conjunction Moon-Uranus (d = 4.9°)
4	02:28 → 06:36	Occultation of Callisto by Jupiter	13	17:57	Conjunction Moon-φ Sgr (d = 0.8°, mag = 3.17)	24	01:09	Conjunction (8) Flora-μ Sgr (d = 0.9°, mag = 3.84)
4	09:46	Minimum of eclipsing binary λ Tau	14	00:52	Conjunction Moon-τ Sgr (d = 0.5°, mag = 3.32)	24	02:11	Conjunction (433) Eros-ε Tau (d = 0.5°, mag = 3.54)
4	21:11	Minimum of eclipsing binary β Per	14	02:06	Conjunction Mercury-λ Aqr (d = 0.2°, mag = 3.75)	24	03:14 → 03:54	Star #3450121 behind Moon (d = 0.1°, maximum 2026-02-24 03:35 TT, mag = 3.88)
5	09:28	Conjunction (18) Melpomene-ξ Ser (d = 0.5°, mag = 3.54)	14	10:07 → 13:43	Transit of Rhea on top of Saturn	24	03:14	Conjunction Moon-star #3440134 (d = 0.3°, mag = 3.71)
5	11:05 → 13:26	Occultation of Mimas by Saturn	14	11:22 → 14:19	Shadow transit of Rhea on top of Saturn	24	04:01	Conjunction Moon-η Tau (d = 0.4°, mag = 2.87)
5	11:21 → 13:38	Eclipse of Mimas by Saturn	14	12:18 → 14:55	Occultation of Enceladus by Saturn	24	04:07	Minimum of eclipsing binary λ Tau
6	23:59	Comet C/2024 E1 (Wierzchos) MPEC 2025-N86 ends to be visible to naked eye	14	12:37 → 15:10	Eclipse of Enceladus by Saturn	24	04:30	Conjunction Moon-star #3490031 (d = 0.5°, mag = 3.63)
7	07:41	Conjunction Moon-α Vir (d = 2.5°, mag = 1.06)	14	15:49 → 18:46	Occultation of Tethys by Saturn	24	09:01	Lunar Transient Phenomena Lunar-X
7	15:12 → 18:54	Occultation of Rhea by Saturn	14	16:15 → 19:06	Eclipse of Tethys by Saturn	24	09:57 → 10:03	Occultation of Tethys by Enceladus (2.9%)
7	15:47 → 18:26	Occultation of Enceladus by Saturn	14	18:51 → 22:02	Occultation of Dione by Saturn	24	12:28	<b>Moon's first quarter</b>
7	16:09 → 18:43	Eclipse of Enceladus by Saturn	14	20:51	Conjunction Mars-(4) Vesta (d = 1.4°)	24	22:54	Minimum of eclipsing binary β Per
7	16:36 → 19:37	Eclipse of Rhea by Saturn	15	05:53	Conjunction Mars-(4) Vesta (d = 1.4°)	24	23:18	Moon's perigee (parallax = 59' 15.530")
7	18:00	Minimum of eclipsing binary β Per	16	06:23	Minimum of eclipsing binary λ Tau	25	01:53	Conjunction (1866) Sisyphus-γ Boo (d = 0.9°, mag = 3.04)
7	19:23 → 21:43	Transit of Mimas on top of Saturn	16	08:27	Minimum of eclipsing binary β Per	25	16:33	Conjunction Moon-β Tau (d = 0.6°, mag = 1.68)
8	08:38	Minimum of eclipsing binary λ Tau	16	13:09 → 16:06	Occultation of Tethys by Saturn	25	17:18 → 19:35	Transit of Mimas on top of Saturn
8	12:48	Conjunction (18) Melpomene-(887) Alinda (d = 3.5°)	16	13:34 → 16:25	Eclipse of Tethys by Saturn	25	17:28 → 19:42	Shadow transit of Mimas on top of Saturn
8	12:50	Maximum of α-Centaurids (meteor shower, ZHR 6)	16	13:44 → 16:22	Transit of Enceladus on top of Saturn	25	17:37 → 20:59	Occultation of Rhea by Saturn
9	03:58	Conjunction (8) Flora-NGC6440 (d = 0.3°)	16	14:03 → 16:36	Shadow transit of Enceladus on top of Saturn	25	17:51 → 20:56	Occultation of Dione by Saturn
9	12:43	<b>Moon's last quarter</b>	16	16:24 → 19:57	Occultation of Rhea by Saturn	25	18:22 → 21:15	Eclipse of Dione by Saturn
9	16:39 → 18:58	Transit of Mimas on top of Saturn	16	17:35 → 20:31	Eclipse of Rhea by Saturn	25	18:33 → 21:24	Eclipse of Rhea by Saturn
9	16:53 → 19:09	Shadow transit of Mimas on top of Saturn	16	18:35 → 20:55	Occultation of Mimas by Saturn	25	23:24	Moon's maximum declination (28.429°)
9	17:14 → 19:53	Transit of Enceladus on top of Saturn	16	18:48 → 21:05	Eclipse of Mimas by Saturn	26	19:46	Conjunction (4) Vesta-δ Cap (d = 0.2°, mag = 2.85)
9	17:17	Lunar Transient Phenomena Lunar-X	16	19:50	Conjunction Moon-Mars (d = 0.9°)	27	07:39	Conjunction Moon-Jupiter (d = 3.0°)
9	17:35 → 20:09	Shadow transit of Enceladus on top of Saturn	16	23:59	Minimum distance of C/2024 E1 Wierzchos MPEC 2025-N86 (1.011 AU)	27	12:57 → 15:33	Transit of Enceladus on top of Saturn
10	13:22	Conjunction C/2024 E1 (Wierzchos) MPEC 2025-N86-NGC55	17	00:04	Conjunction Moon-γ Cap (d = 0.7°, mag = 3.68)	27	13:10 → 15:43	Shadow transit of Enceladus on top of Saturn
10	14:49	Minimum of eclipsing binary β Per	17	02:36	Conjunction Moon-δ Cap (d = 0.7°, mag = 2.85)	27	14:34 → 16:50	Transit of Mimas on top of Saturn
10	14:55 → 15:18	π Sco behind Moon (d = 0.2°, maximum 2026-02-10 15:08 TT, mag = 2.89)	17	11:49 → 14:45	Transit of Tethys on top of Saturn	27	14:43 → 16:56	Shadow transit of Mimas on top of Saturn
10	15:16 → 17:35	Transit of Mimas on top of Saturn	17	12:01	<b>New Moon</b>	27	19:43	Minimum of eclipsing binary β Per
10	15:30 → 17:46	Shadow transit of Mimas on top of Saturn	17	12:13	<b>Solar eclipse (central, annular)</b>	27	20:14	Conjunction Moon-β Gem (d = 3.1°, mag = 1.22)
10	16:08 → 19:21	Transit of Dione on top of Saturn	17	12:13 → 15:04	Shadow transit of Tethys on top of Saturn	27	21:38	Conjunction Mercury-Venus (d = 4.5°)
10	16:52	Moon's apogee (parallax = 54' 11.903")	17	12:36 → 15:45	Occultation of Dione by Saturn	27	22:24	Conjunction Moon-κ Gem (d = 0.4°, mag = 3.57)
10	16:53 → 19:49	Shadow transit of Dione on top of Saturn	17	13:14 → 16:09	Eclipse of Dione by Saturn	28	03:00	Minimum of eclipsing binary λ Tau
11	01:53	Conjunction Moon-α Sco (d = 1.2°, mag = 1.07)	18	07:05	Conjunction Moon-Venus (d = 0.7°)	28	04:42	Conjunction (433) Eros-NGC1647 (d = 0.5°)
11	06:05 → 07:33	τ Sco behind Moon (d = 0.1°, maximum 2026-02-11 06:50 TT, mag = 2.83)	18	11:08 → 12:21	λ Aqr behind Moon (d = 0.1°, maximum 2026-02-18 11:45 TT, mag = 3.75)	28	11:36 → 14:40	Occultation of Dione by Saturn
11	14:38	Conjunction Mercury-(3554) Amun (d = 1.1°)	18	15:00 → 17:37	Occultation of Enceladus by Saturn	28	12:04 → 14:57	Eclipse of Dione by Saturn
11	17:32	Conjunction Mercury-(3554) Amun (d = 1.1°)	18	15:17 → 17:50	Eclipse of Enceladus by Saturn	28	13:11 → 15:27	Transit of Mimas on top of Saturn
11	18:30 → 21:08	Occultation of Enceladus by Saturn	18	15:50 → 18:10	Occultation of Mimas by Saturn	28	13:20 → 15:34	Shadow transit of Mimas on top of Saturn
11	18:50 → 21:23	Eclipse of Enceladus by Saturn	18	16:03 → 18:19	Eclipse of Mimas by Saturn	28	18:19	Conjunction (4954) Eric-χ Lup (d = 0.6°, mag = 3.96)



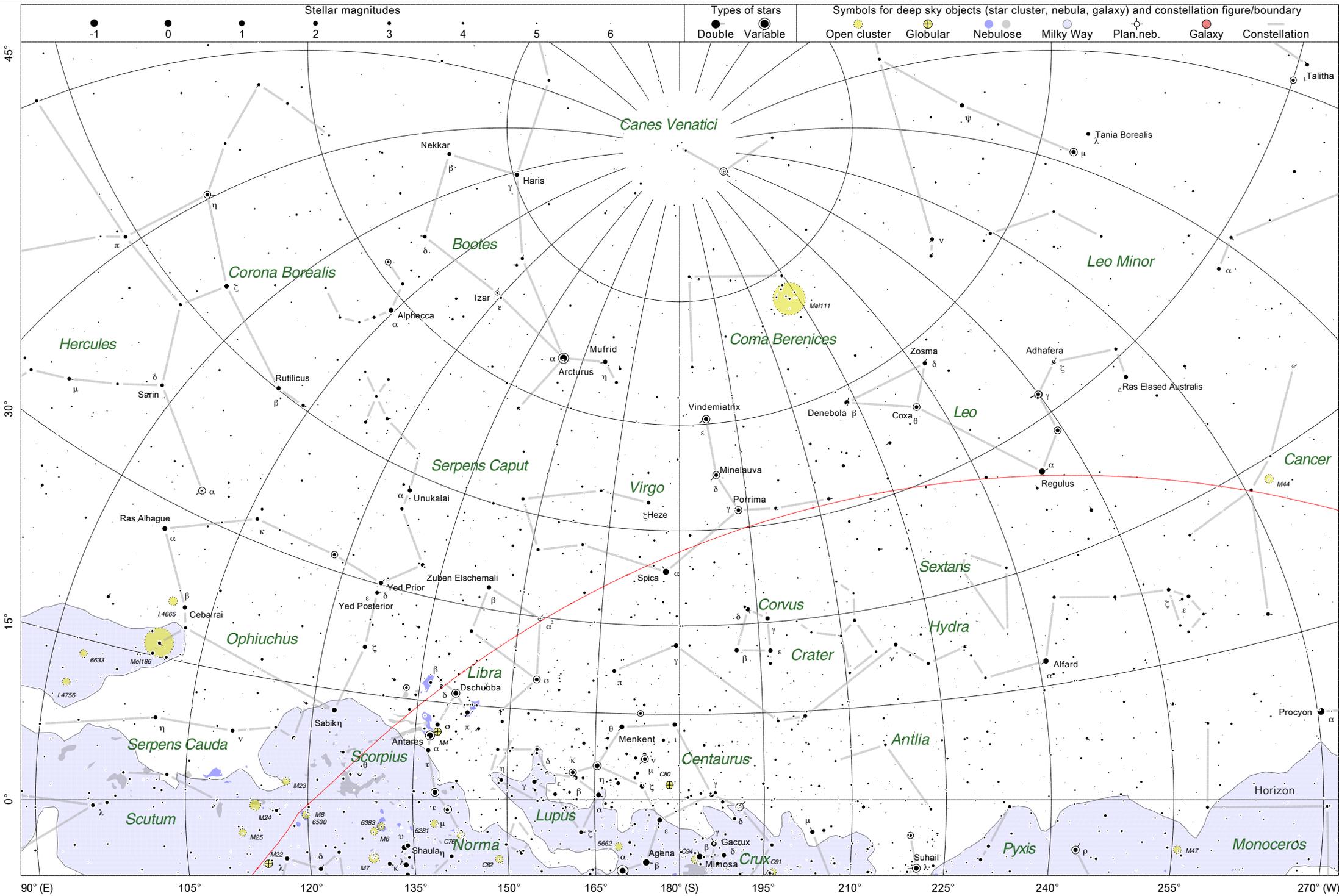
## Astronomical events for March

Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	00:27 → 02:47	Occultation of Io by Jupiter	15	19:43	Conjunction Mercury-Mars (d = 3.4°)
1	01:30 → 03:50	Eclipse of Io by Jupiter	15	22:29	Minimum of eclipsing binary λ Tau
1	15:32 → 18:58	Occultation of Ganymede by Jupiter	15	22:54 → 02:21	Occultation of Ganymede by Jupiter
1	19:49 → 23:20	Eclipse of Ganymede by Jupiter	16	01:16 → 03:36	Transit of Io on top of Jupiter
1	21:34 → 23:54	Transit of Io on top of Jupiter	16	08:27 → 09:14	γ Cap behind Moon (d = 0.2°, maximum 2026-03-16 08:51 TT, mag = 3.68)
1	22:38 → 00:59	Shadow transit of Io on top of Jupiter	16	12:59	Conjunction Moon-δ Cap (d = 0.8°, mag = 2.85)
1	22:49	Conjunction (18) Melpomene-NGC6605 (d = 0.8°)	17	00:37	Minimum of eclipsing binary β Per
2	12:17	Conjunction Moon-α Leo (d = 0.3°, mag = 1.41)	17	03:41	Conjunction (4) Vesta-(3753) Cruithne (d = 1.3°)
2	16:32	Minimum of eclipsing binary β Per	17	05:52	Conjunction (4) Vesta-(3753) Cruithne (d = 1.3°)
2	23:32	Conjunction (8) Flora-Tr33 (d = 0.4°)	17	13:27	Minimum of eclipsing binary β Lyr
3	00:03	Conjunction Moon-ρ Leo (d = 0.4°, mag = 3.85)	17	17:28	Conjunction Moon-Mercury (d = 2.0°)
3	11:34	<b>Lunar eclipse (total, mag 1.15)</b>	17	18:10	Conjunction Mars-λ Aqr (d = 0.7°, mag = 3.75)
3	11:38	Full Moon	17	19:38 → 23:46	Transit of Callisto on top of Jupiter
3	15:39 → 18:14	Transit of Enceladus on top of Saturn	17	19:44 → 22:04	Transit of Io on top of Jupiter
3	15:51 → 18:44	Occultation of Tethys by Saturn	17	20:57 → 23:18	Shadow transit of Io on top of Jupiter
3	15:51 → 18:23	Shadow transit of Enceladus on top of Saturn	17	21:33	Conjunction Moon-λ Aqr (d = 0.3°, mag = 3.75)
3	16:06 → 18:56	Eclipse of Tethys by Saturn	17	21:44	Conjunction Moon-Mars (d = 1.0°)
3	21:46	Conjunction (18) Melpomene-NGC6611 (M16) (d = 0.4°)	17	23:16	Conjunction Saturn-(6455) 1992 HE (d = 4.9°)
4	01:52	Minimum of eclipsing binary λ Tau	19	01:23	<b>New Moon</b>
4	12:35 → 15:46	Transit of Rhea on top of Saturn	19	05:58	Conjunction Moon-Neptune (d = 2.4°)
4	13:19 → 16:05	Shadow transit of Rhea on top of Saturn	19	09:03	Conjunction Moon-Saturn (d = 3.5°)
4	14:09 → 17:10	Transit of Dione on top of Saturn	19	14:12 → 16:32	Transit of Io on top of Jupiter
4	14:31 → 17:24	Transit of Tethys on top of Saturn	19	15:26 → 17:47	Shadow transit of Io on top of Jupiter
4	14:33 → 17:25	Shadow transit of Dione on top of Saturn	19	21:21	Minimum of eclipsing binary λ Tau
4	14:46 → 17:36	Shadow transit of Tethys on top of Saturn	19	21:26	Minimum of eclipsing binary β Per
4	14:48	Minimum of eclipsing binary β Lyr	20	07:43	Conjunction Moon-Venus (d = 3.2°)
5	02:47	Conjunction Neptune-(3362) Khufu (d = 2.6°)	20	10:39	Conjunction (3752) Camillo-NGC247 (d = 0.7°)
5	13:21	Minimum of eclipsing binary β Per	20	14:46	Spring equinox
5	16:55 → 19:29	Occultation of Enceladus by Saturn	20	23:59	New Persian (astronomical) year
5	17:05 → 19:37	Eclipse of Enceladus by Saturn	21	14:09	Conjunction (433) Eros-NGC2169 (d = 0.7°)
5	17:50 → 20:08	Occultation of Mimas by Saturn	22	11:16	Conjunction of Neptune (elongation 1.306°)
5	17:58 → 20:13	Eclipse of Mimas by Saturn	22	11:40	Moon's perigee (parallax = 59' 45.083")
5	21:13 → 21:40	NGC4699 behind Moon (d = 0.2°, maximum 2026-03-05 21:28 TT)	22	18:15	Minimum of eclipsing binary β Per
6	09:28 → 12:02	Transit of Enceladus on top of Saturn	23	05:29	Conjunction Moon-Uranus (d = 4.4°)
6	09:38 → 12:10	Shadow transit of Enceladus on top of Saturn	23	05:49	Conjunction (433) Eros-NGC2194 (d = 1.2°)
6	11:51 → 14:44	Transit of Tethys on top of Saturn	23	06:56 → 07:38	Star #3440134 behind Moon (d = 0.1°, maximum 2026-03-23 07:17 TT, mag = 3.71)
6	12:05 → 14:54	Shadow transit of Tethys on top of Saturn	23	07:19 → 08:01	Star #3450121 behind Moon (d = 0.1°, maximum 2026-03-23 07:42 TT, mag = 3.88)
6	16:07	Conjunction Moon-α Vir (d = 2.0°, mag = 1.06)	23	07:23	Conjunction (8) Flora-NGC6716 (d = 0.2°)
6	21:43	Conjunction (433) Eros-NGC1807 (d = 0.5°)	23	07:51 → 08:13	Mel22 (M45) behind Moon (d = 0.2°, maximum 2026-03-23 08:04 TT)
6	22:18	Conjunction (6053) 1993 BW3-NGC6249 (d = 0.5°)	23	07:55 → 08:12	η τ behind Moon (d = 0.3°, maximum 2026-03-23 08:05 TT, mag = 2.87)
6	23:45	Conjunction Saturn-(3362) Khufu (d = 1.8°)	23	08:33	Conjunction Moon-star #3490031 (d = 0.4°, mag = 3.63)
7	06:07	Conjunction (433) Eros-NGC1817 (d = 0.2°)	23	20:13	Minimum of eclipsing binary λ Tau
7	10:31 → 13:24	Occultation of Tethys by Saturn	24	05:15	Conjunction (1566) Icarus-NGC7293 (d = 0.7°)
7	10:44 → 13:34	Eclipse of Tethys by Saturn	24	15:45	Conjunction (324) Bamberg-NGC6809 (M55) (d = 0.3°)
7	11:26	Conjunction Venus-Neptune (d = 0.1°)	24	23:42	Conjunction Moon-β Tau (d = 0.9°, mag = 1.68)
7	12:22	Minimum elongation of Mercury (3.634°)	25	04:47	Moon's maximum declination (28.371°)
7	15:29	Conjunction (8) Flora-IC4725 (M25) (d = 0.9°)	25	08:55	Conjunction of Saturn (elongation 2.125°)
8	00:44	Minimum of eclipsing binary λ Tau	25	19:18	<b>Moon's first quarter</b>
8	10:10	Minimum of eclipsing binary β Per	25	23:13	Lunar Transient Phenomena Lunar-X
8	13:14	Conjunction Venus-Saturn (d = 0.9°)	26	07:27	Minimum distance from Sun of Mars (1.381 AU)
8	14:36	Conjunction (6053) 1993 BW3-NGC6259 (d = 1.0°)	26	11:13	Conjunction Moon-Jupiter (d = 3.3°)
8	23:24 → 01:45	Transit of Io on top of Jupiter	26	14:22 → 18:52	Eclipse of Callisto by Jupiter
8	23:48 → 03:20	Eclipse of Ganymede by Jupiter	26	16:05 → 18:26	Transit of Io on top of Jupiter
9	00:33 → 02:54	Shadow transit of Io on top of Jupiter	26	16:48 → 20:15	Transit of Ganymede on top of Jupiter
9	08:42	Conjunction Venus-(3362) Khufu (d = 2.8°)	26	17:22 → 19:43	Shadow transit of Io on top of Jupiter
9	14:42 → 17:37	Shadow transit of Europa on top of Jupiter	27	02:59	Conjunction Moon-β Gem (d = 3.8°, mag = 1.22)
9	20:19 → 00:44	Eclipse of Callisto by Jupiter	27	04:27	Conjunction Moon-κ Gem (d = 0.3°, mag = 3.57)
9	20:34 → 21:22	π Sco behind Moon (d = 0.5', maximum 2026-03-09 21:00 TT, mag = 2.89)	27	19:05	Minimum of eclipsing binary λ Tau
9	20:45 → 23:04	Occultation of Io by Jupiter	27	21:17	Conjunction (3362) Khufu-IC1613 (d = 0.1°)
9	21:54 → 00:14	Eclipse of Io by Jupiter	28	20:44	Conjunction Mercury-(4) Vesta (d = 3.7°)
10	13:30	Conjunction Moon-α Sco (d = 1.2°, mag = 1.07)	29	07:38	Conjunction (887) Alinda-IC4715 (M24) (d = 0.6°)
10	13:43	Moon's apogee (parallax = 54' 13.443")	29	13:46	Conjunction Mercury-λ Aqr (d = 0.5°, mag = 3.75)
10	15:54	Conjunction Moon-τ Sco (d = 0.6°, mag = 2.83)	29	18:09 → 19:17	α Leo behind Moon (d = 0.1°, maximum 2026-03-29 18:43 TT, mag = 1.41)
10	21:33	Conjunction (6053) 1993 BW3-NGC6250 (d = 0.3°)	30	08:03	Conjunction Moon-ρ Leo (d = 0.8°, mag = 3.85)
11	06:23	Lunar Transient Phenomena Lunar-X	30	12:06	Minimum of eclipsing binary β Lyr
11	06:59	Minimum of eclipsing binary β Per	30	20:58	Conjunction (433) Eros-NGC2264 (d = 1.0°)
11	09:39	<b>Moon's last quarter</b>	31	09:09	Conjunction (3362) Khufu-(6455) 1992 HE (d = 3.3°)
11	21:12	Moon's minimum declination (-28.416°)	31	14:19	Conjunction (3362) Khufu-(6455) 1992 HE (d = 3.3°)
11	23:36	Minimum of eclipsing binary λ Tau	31	14:45	Conjunction (4954) Eric-NGC5986 (d = 0.9°)
12	23:49	Conjunction Moon-φ Sgr (d = 1.0°, mag = 3.17)	31	17:58	Minimum of eclipsing binary λ Tau
13	11:18 → 11:44	τ Sgr behind Moon (d = 0.2°, maximum 2026-03-13 11:33 TT, mag = 3.32)	31	19:42	Conjunction (3362) Khufu-(6455) 1992 HE (d = 3.3°)
14	03:48	Minimum of eclipsing binary β Per			



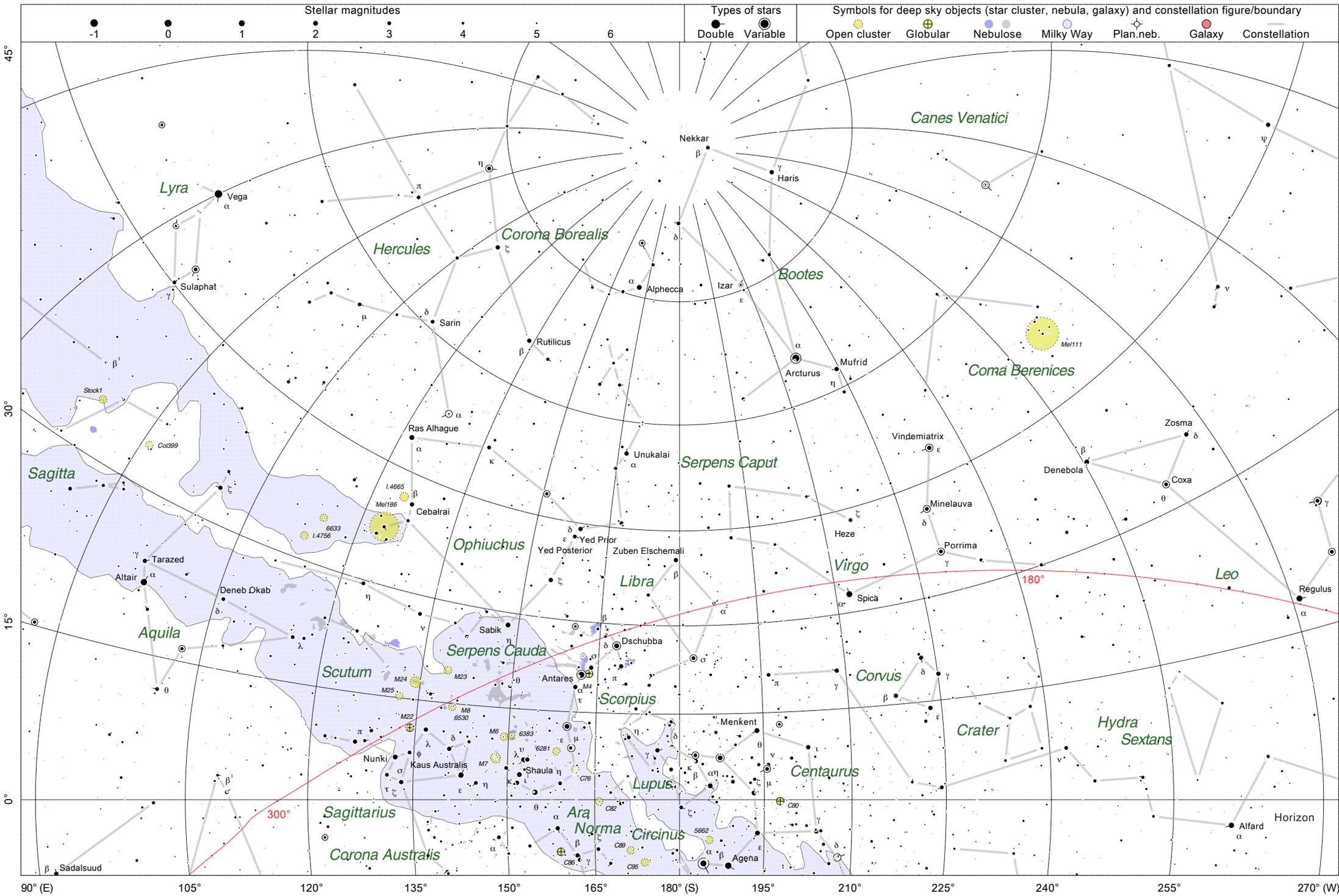
## Astronomical events for April

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	07:05	Conjunction Mercury-(3753) Cruithne (d = 2.4°)	15	19:26 → 22:22	Occultation of Europa by Jupiter	24	06:12 → 08:51	Eclipse of Dione by Saturn
1	12:24	Conjunction (6455) 1992 HE-IC1613 (d = 0.6°)	15	20:05	Conjunction Moon-Neptune (d = 3.1°)	24	06:54 → 08:59	Occultation of Dione by Saturn
2	02:12	Full Moon	15	22:02 → 01:00	Eclipse of Europa by Jupiter	24	12:21	Lunar Transient Phenomena Lunar-X
2	17:59 → 20:20	Transit of Io on top of Jupiter	15	22:51	Conjunction Moon-Mars (d = 2.7°)	24	13:53 → 17:29	Shadow transit of Ganymede on top of Jupiter
2	19:17 → 21:38	Shadow transit of Io on top of Jupiter	16	02:11	Conjunction Moon-Saturn (d = 3.8°)	24	14:17 → 17:02	Shadow transit of Tethys on top of Saturn
2	20:43 → 00:10	Transit of Ganymede on top of Jupiter	16	04:53	Conjunction (887) Alinda-IC4715 (M24) (d = 0.9°)	24	14:40 → 17:14	Transit of Tethys on top of Saturn
2	22:35	Conjunction Moon-α Vir (d = 2.2°, mag = 1.06)	16	11:56 → 14:10	Eclipse of Rhea by Saturn	24	17:06 → 20:00	Transit of Europa on top of Jupiter
3	13:05 → 17:16	Transit of Callisto on top of Jupiter	16	12:19 → 14:48	Shadow transit of Enceladus on top of Saturn	24	19:33 → 22:28	Shadow transit of Europa on top of Jupiter
3	15:19 → 17:39	Occultation of Io by Jupiter	16	12:31 → 14:55	Transit of Enceladus on top of Saturn	24	21:07 → 23:27	Occultation of Io by Jupiter
3	16:36 → 18:57	Eclipse of Io by Jupiter	17	01:36	Conjunction Mercury-Neptune (d = 1.3°)	24	22:21 → 00:42	Eclipse of Io by Jupiter
3	<b>22:32</b>	<b>Maximum elongation of Mercury (27.819° W)</b>	17	11:01	Conjunction (887) Alinda-IC4715 (M24) (d = 0.9°)	25	09:24	Minimum of eclipsing binary β Lyr
4	16:50	Minimum of eclipsing binary λ Tau	<b>17 11:52</b>	<b>New Moon</b>		25	12:56 → 15:01	Eclipse of Rhea by Saturn
4	23:59	Easter date	17	14:27 → 17:21	Transit of Europa on top of Jupiter	25	12:56 → 15:42	Eclipse of Tethys by Saturn
6	07:10	Conjunction Moon-π Sco (d = 0.5°, mag = 2.89)	17	16:58 → 19:53	Shadow transit of Europa on top of Jupiter	25	13:20 → 15:54	Occultation of Tethys by Saturn
6	17:10	Conjunction Venus-(1) Ceres (d = 4.3°)	17	19:10 → 21:30	Occultation of Io by Jupiter	25	14:59 → 17:36	Shadow transit of Dione on top of Saturn
6	18:45	Conjunction Moon-α Sco (d = 0.8°, mag = 1.07)	17	20:26 → 22:47	Eclipse of Io by Jupiter	25	15:21 → 17:36	Eclipse of Mimas by Saturn
6	21:59	Conjunction Moon-τ Sco (d = 0.6°, mag = 2.83)	18	13:34 → 16:03	Eclipse of Enceladus by Saturn	26	02:07	Conjunction Moon-α Leo (d = 0.7°, mag = 1.41)
7	08:32	Moon's apogee (parallax = 54' 8.713")	18	13:41 → 15:52	Shadow transit of Mimas on top of Saturn	26	04:22	Conjunction (887) Alinda-IC4715 (M24) (d = 0.9°)
7	16:53 → 17:26	NGC6316 behind Moon (d = 0.2°, maximum 2026-04-07 17:11 TT)	18	13:48 → 16:10	Occultation of Enceladus by Saturn	26	06:10	Conjunction (4954) Eric-δ Lup (d = 1.0°, mag = 3.22)
8	05:01	Moon's minimum declination (-28.291°)	18	13:50 → 15:57	Transit of Mimas on top of Saturn	26	11:28 → 14:25	Occultation of Europa by Jupiter
9	11:12	Conjunction Moon-φ Sgr (d = 0.9°, mag = 3.17)	19	05:33	Conjunction Moon-Venus (d = 3.7°)	26	11:36 → 14:21	Shadow transit of Tethys on top of Saturn
9	18:33	Conjunction Moon-τ Sgr (d = 0.7°, mag = 3.32)	19	06:57	Moon's perigee (parallax = 1° 0' 38.479")	26	12:00 → 14:33	Transit of Tethys on top of Saturn
9	18:42	Lunar Transient Phenomena Lunar-X	19	13:39 → 15:59	Occultation of Io by Jupiter	26	12:03	Conjunction Moon-ρ Leo (d = 0.4°, mag = 3.85)
10	<b>04:52</b>	<b>Moon's last quarter</b>	19	14:55 → 17:15	Eclipse of Io by Jupiter	26	13:58 → 16:13	Eclipse of Mimas by Saturn
10	14:22 → 17:17	Shadow transit of Europa on top of Jupiter	19	16:53	Conjunction Moon-star #3440134 (d = 0.6°, mag = 3.71)	26	13:59 → 16:58	Eclipse of Europa by Jupiter
10	17:14 → 19:34	Occultation of Io by Jupiter	19	17:27	Conjunction Moon-star #3450121 (d = 0.4°, mag = 3.88)	26	14:10 → 16:20	Occultation of Mimas by Saturn
10	18:31 → 20:52	Eclipse of Io by Jupiter	19	18:10	Conjunction Moon-η Tau (d = 0.7°, mag = 2.87)	26	15:36 → 17:56	Occultation of Io by Jupiter
12	04:28	Conjunction (433) Eros-β CMi (d = 0.7°, mag = 2.89)	19	18:54	Conjunction Moon-star #3490031 (d = 0.8°, mag = 3.63)	26	16:50 → 19:10	Eclipse of Io by Jupiter
12	07:44 → 10:31	Eclipse of Tethys by Saturn	19	21:42	Conjunction Mars-Saturn (d = 1.2°)	27	10:15 → 13:00	Eclipse of Tethys by Saturn
12	07:58 → 10:38	Occultation of Tethys by Saturn	20	11:31	Conjunction Mercury-Saturn (d = 0.5°)	27	10:41 → 13:13	Occultation of Tethys by Saturn
12	09:39 → 12:09	Shadow transit of Enceladus on top of Saturn	20	12:06 → 14:27	Shadow transit of Io on top of Jupiter	27	11:26 → 13:54	Shadow transit of Enceladus on top of Saturn
12	09:49 → 12:14	Transit of Enceladus on top of Saturn	20	18:41 → 22:11	Occultation of Ganymede by Jupiter	27	11:44 → 14:03	Transit of Enceladus on top of Saturn
12	10:42 → 12:57	Eclipse of Mimas by Saturn	20	19:11 → 23:45	Shadow transit of Callisto on top of Jupiter	27	12:35 → 14:50	Eclipse of Mimas by Saturn
12	10:45	Minimum of eclipsing binary β Lyr	20	22:47	Conjunction Mercury-Mars (d = 1.7°)	27	12:48 → 14:57	Occultation of Mimas by Saturn
12	10:49 → 13:01	Occultation of Mimas by Saturn	21	07:21 → 09:49	Eclipse of Enceladus by Saturn	28	08:41 → 11:18	Shadow transit of Dione on top of Saturn
12	13:00 → 15:20	Eclipse of Io by Jupiter	21	07:36 → 09:57	Occultation of Enceladus by Saturn	28	08:54 → 11:40	Shadow transit of Tethys on top of Saturn
12	19:05	Conjunction Moon-γ Cap (d = 0.9°, mag = 3.68)	21	09:33 → 11:44	Shadow transit of Mimas on top of Saturn	28	09:21 → 11:52	Transit of Tethys on top of Saturn
12	21:38	Conjunction Moon-δ Cap (d = 0.9°, mag = 2.85)	21	09:43 → 11:50	Transit of Mimas on top of Saturn	28	09:29 → 11:26	Transit of Dione on top of Saturn
13	05:25	Conjunction Mars-Neptune (d = 0.3°)	21	11:12	Moon's maximum declination (28.211°)	28	11:12 → 13:27	Eclipse of Mimas by Saturn
13	06:38 → 09:17	Transit of Tethys on top of Saturn	22	19:36	Maximum of Lyrids (meteor shower, ZHR 18)	28	11:19 → 13:39	Eclipse of Io by Jupiter
13	07:23 → 10:04	Eclipse of Dione by Saturn	22	22:07 → 01:04	Occultation of Europa by Jupiter	28	11:25 → 13:34	Occultation of Mimas by Saturn
13	07:49 → 10:10	Occultation of Dione by Saturn	23	00:40	Conjunction Moon-Jupiter (d = 2.7°)	29	07:34 → 10:19	Eclipse of Tethys by Saturn
13	09:19 → 11:34	Eclipse of Mimas by Saturn	23	06:43 → 08:50	Shadow transit of Rhea on top of Saturn	29	08:01 → 10:32	Occultation of Tethys by Saturn
13	09:27 → 11:38	Occultation of Mimas by Saturn	23	06:48 → 08:59	Shadow transit of Mimas on top of Saturn	29	09:49 → 12:04	Eclipse of Mimas by Saturn
13	23:59	New Hindu solar year	23	06:58 → 09:04	Transit of Mimas on top of Saturn	29	10:02 → 12:11	Occultation of Mimas by Saturn
14	05:34 → 06:33	λ Aqr behind Moon (d = 0.1°, maximum 2026-04-14 06:04 TT, mag = 3.75)	23	08:01	Conjunction Moon-β Gem (d = 3.9°, mag = 1.22)	29	12:43 → 12:55	NGC4699 behind Moon (d = 0.2°, maximum 2026-04-29 12:50 TT)
14	07:08 → 07:29	Transit of Rhea on top of Saturn	23	08:22 → 08:26	κ Gem behind Moon (d = 0.3°, maximum 2026-04-23 08:25 TT, mag = 3.57)	30	05:32 → 07:50	Transit of Enceladus on top of Saturn
14	07:56 → 10:11	Eclipse of Mimas by Saturn	23	08:46 → 11:14	Shadow transit of Enceladus on top of Saturn	30	06:13 → 08:58	Shadow transit of Tethys on top of Saturn
14	08:04 → 10:15	Occultation of Mimas by Saturn	23	09:02 → 11:23	Transit of Enceladus on top of Saturn	30	06:41 → 09:12	Transit of Tethys on top of Saturn
15	06:33 → 08:48	Eclipse of Mimas by Saturn	23	19:36	Conjunction (887) Alinda-NGC6613 (M18) (d = 0.6°)	30	08:26 → 10:41	Eclipse of Mimas by Saturn
15	06:42 → 08:53	Occultation of Mimas by Saturn	24	00:39	Maximum of π-Puppids (meteor shower, ZHR Var)	30	08:31	Conjunction Moon-α Vir (d = 2.3°, mag = 1.06)
15	10:26	Conjunction (6) Hebe-o Tau (d = 0.7°, mag = 3.61)	24	01:24	Conjunction Venus-Uranus (d = 0.8°)	30	08:40 → 10:49	Occultation of Mimas by Saturn
15	16:09	Conjunction Moon-Mercury (d = 4.4°)	<b>24 02:32</b>	<b>Moon's first quarter</b>		30	19:15	Conjunction Jupiter-δ Gem (d = 0.6°, mag = 3.54)



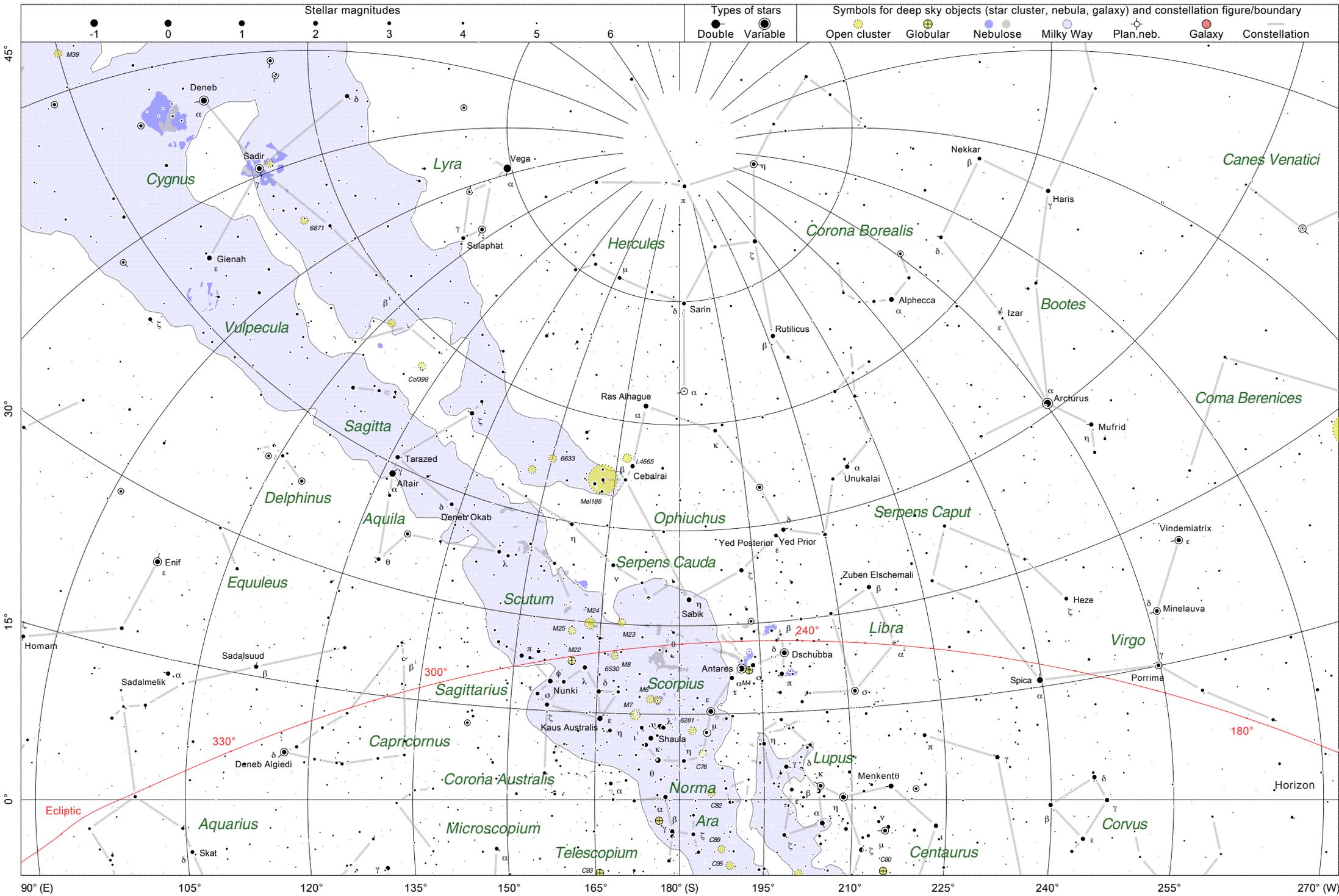
# Astronomical events for May

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	07:03 → 09:18	Eclipse of Mimas by Saturn	12	14:02 → 16:22	Occultation of Io by Jupiter	20	16:24 → 17:33	κ Gem behind Moon (d = 0.1°, maximum 2026-05-20 17:00 TT, mag = 3.57)
1	07:17 → 09:26	Occultation of Mimas by Saturn	12	15:08 → 17:29	Eclipse of Io by Jupiter	21	06:42	Minimum of eclipsing binary β Lyr
1	17:23	Full Moon	13	04:52	Conjunction Moon-Neptune (d = 2.8°)	21	10:31 → 12:51	Occultation of Io by Jupiter
1	17:54 → 21:30	Shadow transit of Ganymede on top of Jupiter	13	10:08 → 12:41	Eclipse of Dione by Saturn	21	10:54 → 13:20	Eclipse of Enceladus by Saturn
1	19:46 → 22:40	Transit of Europa on top of Jupiter	13	11:20 → 12:49	Occultation of Dione by Saturn	21	11:12 → 14:11	Eclipse of Europa by Jupiter
1	20:12	Conjunction (3752) Camillo-ε Eri (d = 0.9°, mag = 3.73)	13	11:25 → 14:08	Shadow transit of Tethys on top of Saturn	21	11:24 → 13:34	Occultation of Enceladus by Saturn
1	22:08 → 01:03	Shadow transit of Europa on top of Jupiter	13	12:02 → 14:26	Transit of Tethys on top of Saturn	21	11:32 → 13:52	Eclipse of Io by Jupiter
2	05:40 → 07:55	Eclipse of Mimas by Saturn	13	13:04 → 15:19	Eclipse of Mimas by Saturn	21	13:25 → 15:37	Shadow transit of Mimas on top of Saturn
2	05:54 → 08:03	Occultation of Mimas by Saturn	13	13:22 → 15:29	Occultation of Mimas by Saturn	21	13:45 → 15:49	Transit of Mimas on top of Saturn
2	06:28 → 08:55	Eclipse of Enceladus by Saturn	13	19:35	Conjunction Moon-Saturn (d = 4.6°)	21	16:39 → 17:26	Occultation of Europa by Io (5.2%)
2	06:48 → 09:05	Occultation of Enceladus by Saturn	14	10:04 → 12:48	Eclipse of Tethys by Saturn	21	21:35 → 21:49	Eclipse of Europa by Io (40.1%)
2	07:42 → 09:40	Shadow transit of Rhea on top of Saturn	14	10:42 → 13:06	Occultation of Tethys by Saturn	21	21:51	Conjunction Neptune-(4) Vesta (d = 3.9°)
3	13:04 → 13:19	π Sco behind Moon (d = 0.2°, maximum 2026-05-03 13:13 TT, mag = 2.89)	14	11:41 → 13:56	Eclipse of Mimas by Saturn	22	14:28	Conjunction of Uranus (elongation 0.161°)
3	14:12 → 17:09	Occultation of Europa by Jupiter	14	11:59 → 14:07	Occultation of Mimas by Saturn	23	06:45	Conjunction Moon-α Leo (d = 0.7°, mag = 1.41)
3	16:38 → 19:36	Eclipse of Europa by Jupiter	14	13:19 → 13:59	Eclipse of Europa by Io (71.7%)	23	10:40 → 12:52	Shadow transit of Mimas on top of Saturn
3	17:34 → 19:54	Occultation of Io by Jupiter	14	13:36	Conjunction Mercury-(1) Ceres (d = 3.6°)	23	10:59 → 13:03	Transit of Mimas on top of Saturn
3	18:45 → 21:05	Eclipse of Io by Jupiter	14	14:34	Conjunction Mercury-(1) Ceres (d = 3.6°)	<b>23 11:11</b>		<b>Moon's first quarter</b>
3	22:17	Conjunction (3752) Camillo-δ Eri (d = 0.1°, mag = 3.53)	14	17:55 → 18:27	Eclipse of Europa by Io (80.6%)	23	12:18 → 14:44	Shadow transit of Enceladus on top of Saturn
4	03:06	Conjunction Moon-α Sco (d = 1.3°, mag = 1.07)	14	22:24	Conjunction Moon-Mars (d = 4.0°)	23	12:49 → 14:59	Transit of Enceladus on top of Saturn
4	07:23	Conjunction Moon-τ Sco (d = 0.5°, mag = 2.83)	15	06:58 → 09:25	Shadow transit of Enceladus on top of Saturn	23	18:19	Conjunction Moon-ρ Leo (d = 0.8°, mag = 3.85)
4	13:55 → 15:51	Eclipse of Rhea by Saturn	15	07:26 → 09:39	Transit of Enceladus on top of Saturn	23	23:59	Pentecost date
4	14:15 → 16:26	Shadow transit of Mimas on top of Saturn	15	08:44 → 11:27	Shadow transit of Tethys on top of Saturn	24	00:19	Lunar Transient Phenomena Lunar-X
4	14:29 → 16:34	Transit of Mimas on top of Saturn	15	09:22 → 11:45	Transit of Tethys on top of Saturn	24	08:57 → 11:26	Eclipse of Dione by Saturn
4	22:31	Moon's apogee (parallax = 54' 1.758")	15	10:18 → 12:33	Eclipse of Mimas by Saturn	24	09:17 → 11:29	Shadow transit of Mimas on top of Saturn
5	11:25 → 14:21	Shadow transit of Europa on top of Jupiter	15	10:37 → 12:44	Occultation of Mimas by Saturn	24	09:37 → 11:41	Transit of Mimas on top of Saturn
5	11:35	Moon's minimum declination (-28.110°)	15	20:32 → 01:15	Eclipse of Callisto by Jupiter	24	10:28 → 11:29	Occultation of Dione by Saturn
5	12:03 → 14:24	Occultation of Io by Jupiter	15	21:34 → 01:06	Transit of Ganymede on top of Jupiter	24	13:21	Conjunction (1566) Icarus-θ Cet (d = 0.5°, mag = 3.61)
5	13:13 → 15:34	Eclipse of Io by Jupiter	15	22:28 → 23:09	(6455) 1992 HE behind Moon (d = 1.8', maximum 2026-05-15 22:49 TT)	25	11:06 → 11:17	Eclipse of Europa by Io (27.4%)
6	09:08 → 11:35	Eclipse of Enceladus by Saturn	16	07:23 → 10:06	Eclipse of Tethys by Saturn	26	06:04 → 08:30	Shadow transit of Enceladus on top of Saturn
6	09:11	Maximum of η-Aquariids (meteor shower, ZHR 50)	16	08:02 → 10:25	Occultation of Tethys by Saturn	26	06:32 → 08:43	Shadow transit of Mimas on top of Saturn
6	09:30 → 11:46	Occultation of Enceladus by Saturn	16	08:55 → 11:10	Eclipse of Mimas by Saturn	26	06:37 → 08:46	Transit of Enceladus on top of Saturn
6	11:30 → 13:41	Shadow transit of Mimas on top of Saturn	16	09:14 → 11:21	Occultation of Mimas by Saturn	26	06:52 → 08:56	Transit of Mimas on top of Saturn
6	11:44 → 13:49	Transit of Mimas on top of Saturn	16	19:34	Conjunction (1866) Sisyphus-NGC4736 (M94) (d = 0.3°)	26	11:32	Conjunction (3554) Amun-θ Gem (d = 0.5°, mag = 3.61)
6	13:48 → 16:22	Shadow transit of Dione on top of Saturn	<b>16 20:01</b>		<b>New Moon</b>	26	15:52 → 19:27	Occultation of Ganymede by Jupiter
6	16:23	Conjunction Moon-φ Sgr (d = 0.4°, mag = 3.17)	17	01:17	Conjunction Moon-Mercury (d = 3.5°)	26	17:17 → 20:11	Transit of Europa on top of Jupiter
6	20:40	Conjunction Mercury-(6455) 1992 HE (d = 3.6°)	17	01:35 → 02:10	Star #3440134 behind Moon (d = 0.2°, maximum 2026-05-17 01:53 TT, mag = 3.71)	26	18:00 → 20:21	Occultation of Io by Jupiter
7	00:58	Conjunction Moon-τ Sgr (d = 0.4°, mag = 3.32)	17	02:12	Conjunction Moon-star #3450121 (d = 0.3°, mag = 3.88)	26	18:58 → 21:18	Eclipse of Io by Jupiter
8	08:03	Minimum of eclipsing binary β Lyr	17	02:13 → 02:55	MeI22 (M45) behind Moon (d = 0.1°, maximum 2026-05-17 02:37 TT)	26	19:10 → 22:06	Shadow transit of Europa on top of Jupiter
8	08:44 → 10:55	Shadow transit of Mimas on top of Saturn	17	02:15 → 02:57	η τ behind Moon (d = 0.1°, maximum 2026-05-17 02:38 TT, mag = 2.87)	26	19:45 → 23:24	Eclipse of Ganymede by Jupiter
8	09:00 → 11:04	Transit of Mimas on top of Saturn	17	02:44 → 03:20	Star #3490031 behind Moon (d = 0.1°, maximum 2026-05-17 03:03 TT, mag = 3.63)	27	00:11	Conjunction Jupiter-NGC2420 (d = 0.3°)
8	10:32 → 12:59	Shadow transit of Enceladus on top of Saturn	17	03:26	Conjunction Moon-Uranus (d = 4.2°)	27	04:16 → 05:08	Occultation of Dione by Saturn
8	10:56 → 13:11	Transit of Enceladus on top of Saturn	17	06:02 → 08:46	Shadow transit of Tethys on top of Saturn	27	04:26 → 05:52	Eclipse of Rhea by Saturn
8	13:20	Conjunction (3554) Amun-NGC1907 (d = 0.6°)	17	06:42 → 09:04	Transit of Tethys on top of Saturn	27	05:09 → 07:21	Shadow transit of Mimas on top of Saturn
8	16:00	Conjunction (3554) Amun-NGC1912 (M38) (d = 0.1°)	17	07:32 → 09:47	Eclipse of Mimas by Saturn	27	05:29 → 07:33	Transit of Mimas on top of Saturn
8	21:54 → 01:31	Shadow transit of Ganymede on top of Jupiter	17	07:51 → 09:58	Occultation of Mimas by Saturn	27	12:13	Conjunction Moon-α Vir (d = 2.0°, mag = 1.06)
8	22:28 → 01:22	Transit of Europa on top of Jupiter	17	08:14 → 10:40	Eclipse of Enceladus by Saturn	27	16:52	Conjunction Venus-ε Gem (d = 0.2°, mag = 3.01)
9	06:28	Lunar Transient Phenomena Lunar-X	17	08:42 → 10:54	Occultation of Enceladus by Saturn	28	11:29 → 11:55	Eclipse of Europa by Io (95.3%)
9	07:21 → 09:33	Shadow transit of Mimas on top of Saturn	17	13:48	Moon's perigee (parallax = 1° 1' 15.075")	28	11:55 → 14:53	Occultation of Europa by Jupiter
9	07:30 → 10:04	Shadow transit of Dione on top of Saturn	17	19:43 → 22:41	Occultation of Europa by Jupiter	28	11:59 → 12:09	Eclipse of Europa by Io (46.9%)
9	07:37 → 09:42	Transit of Mimas on top of Saturn	17	19:59 → 20:47	Neomenia (Moon age 23.3 - 24.0 hr)	28	12:30 → 14:51	Occultation of Io by Jupiter
9	08:35 → 10:12	Transit of Dione on top of Saturn	17	21:31 → 23:51	Occultation of Io by Jupiter	28	13:26 → 15:47	Eclipse of Io by Jupiter
9	16:56	Conjunction Mercury-(3362) Khufu (d = 4.7°)	17	21:53 → 00:52	Eclipse of Europa by Jupiter	28	13:50 → 16:49	Eclipse of Europa by Jupiter
<b>9 21:11</b>		<b>Moon's last quarter</b>	17	23:24	Conjunction Mercury-Uranus (d = 0.9°)	28	14:53 → 14:57	Occultation of Europa by Io (12.6%)
9	22:41	Conjunction Neptune-(2) Pallas (d = 2.7°)	18	04:42 → 07:25	Eclipse of Tethys by Saturn	28	21:58	Conjunction (3752) Camillo-δ Ori (d = 0.2°, mag = 2.23)
10	01:54	Conjunction Moon-γ Cap (d = 0.5°, mag = 3.68)	18	05:22 → 07:44	Occultation of Tethys by Saturn	29	12:34 → 15:16	Eclipse of Tethys by Saturn
10	05:54	Conjunction Moon-δ Cap (d = 0.8°, mag = 2.85)	18	06:09 → 08:24	Eclipse of Mimas by Saturn	29	13:22 → 15:37	Occultation of Tethys by Saturn
10	16:57 → 19:55	Occultation of Europa by Jupiter	18	06:28 → 08:35	Occultation of Mimas by Saturn	30	08:44 → 11:10	Shadow transit of Enceladus on top of Saturn
10	19:15 → 22:14	Eclipse of Europa by Jupiter	18	14:44	Conjunction Moon-β Tau (d = 0.8°, mag = 1.68)	30	09:18 → 11:26	Transit of Enceladus on top of Saturn
10	19:32 → 21:52	Occultation of Io by Jupiter	18	19:37	Moon's maximum declination (28.053°)	30	09:42	Conjunction (3671) Dionysus-μ Leo (d = 1.0°, mag = 3.88)
10	20:39 → 23:00	Eclipse of Io by Jupiter	19	00:22	Conjunction Mercury-(3200) Phaethon (d = 4.2°)	30	09:52 → 13:31	Shadow transit of Ganymede on top of Jupiter
11	00:50	Maximum of η-Lyrids (meteor shower, ZHR 3)	19	02:06	Conjunction Moon-Venus (d = 2.0°)	30	11:14 → 13:55	Shadow transit of Tethys on top of Saturn
11	02:56	Conjunction (6053) 1993 BW3-NGC6208 (d = 0.8°)	19	04:46 → 07:01	Eclipse of Mimas by Saturn	30	12:02 → 14:17	Transit of Tethys on top of Saturn
11	04:52 → 06:57	Transit of Mimas on top of Saturn	19	05:06 → 07:13	Occultation of Mimas by Saturn	30	12:09 → 14:25	Eclipse of Mimas by Saturn
11	14:06 → 16:50	Shadow transit of Tethys on top of Saturn	19	11:33 → 15:06	Occultation of Ganymede by Jupiter	30	12:32 → 14:39	Occultation of Mimas by Saturn
11	17:01	Conjunction Moon-λ Aqr (d = 0.7°, mag = 3.75)	19	14:32 → 17:27	Transit of Europa on top of Jupiter	30	17:26 → 18:20	π Sco behind Moon (d = 0.1°, maximum 2026-05-30 17:55 TT, mag = 2.89)
11	09:33	Conjunction (3200) Phaethon-star #3450121 (d = 1.0°, mag = 3.88)	19	15:45 → 19:24	Eclipse of Ganymede by Jupiter	31	08:45	Full Moon
12	11:45 → 15:24	Eclipse of Ganymede by Jupiter	19	16:01 → 18:21	Occultation of Io by Jupiter	31	09:53 → 12:35	Eclipse of Tethys by Saturn
12	11:49 → 14:43	Transit of Europa on top of Jupiter	19	16:35 → 19:31	Shadow transit of Europa on top of Jupiter	31	10:00	Conjunction Moon-α Sco (d = 0.7°, mag = 1.07)
12	12:46 → 15:29	Eclipse of Tethys by Saturn	19	17:03 → 19:24	Eclipse of Io by Jupiter	31	10:42 → 12:56	Occultation of Tethys by Saturn
12	13:12 → 15:39	Shadow transit of Enceladus on top of Saturn	19	18:31 → 18:59	NGC2266 behind Moon (d = 0.2°, maximum 2026-05-19 18:46 TT)	31	10:46 → 13:02	Eclipse of Mimas by Saturn
12	13:22 → 15:47	Occultation of Tethys by Saturn	20	12:08	Conjunction Moon-Jupiter (d = 2.8°)	31	11:09 → 13:16	Occultation of Mimas by Saturn
12	13:38 → 15:52	Transit of Enceladus on top of Saturn	20	13:02	Conjunction (6053) 1993 BW3-NGC6152 (d = 0.7°)	31	12:25	Conjunction Moon-τ Sco (d = 1.0°, mag = 2.83)
12	14:01 → 16:56	Shadow transit of Europa on top of Jupiter	20	14:56	Conjunction Moon-β Gem (d = 3.6°, mag = 1.22)			



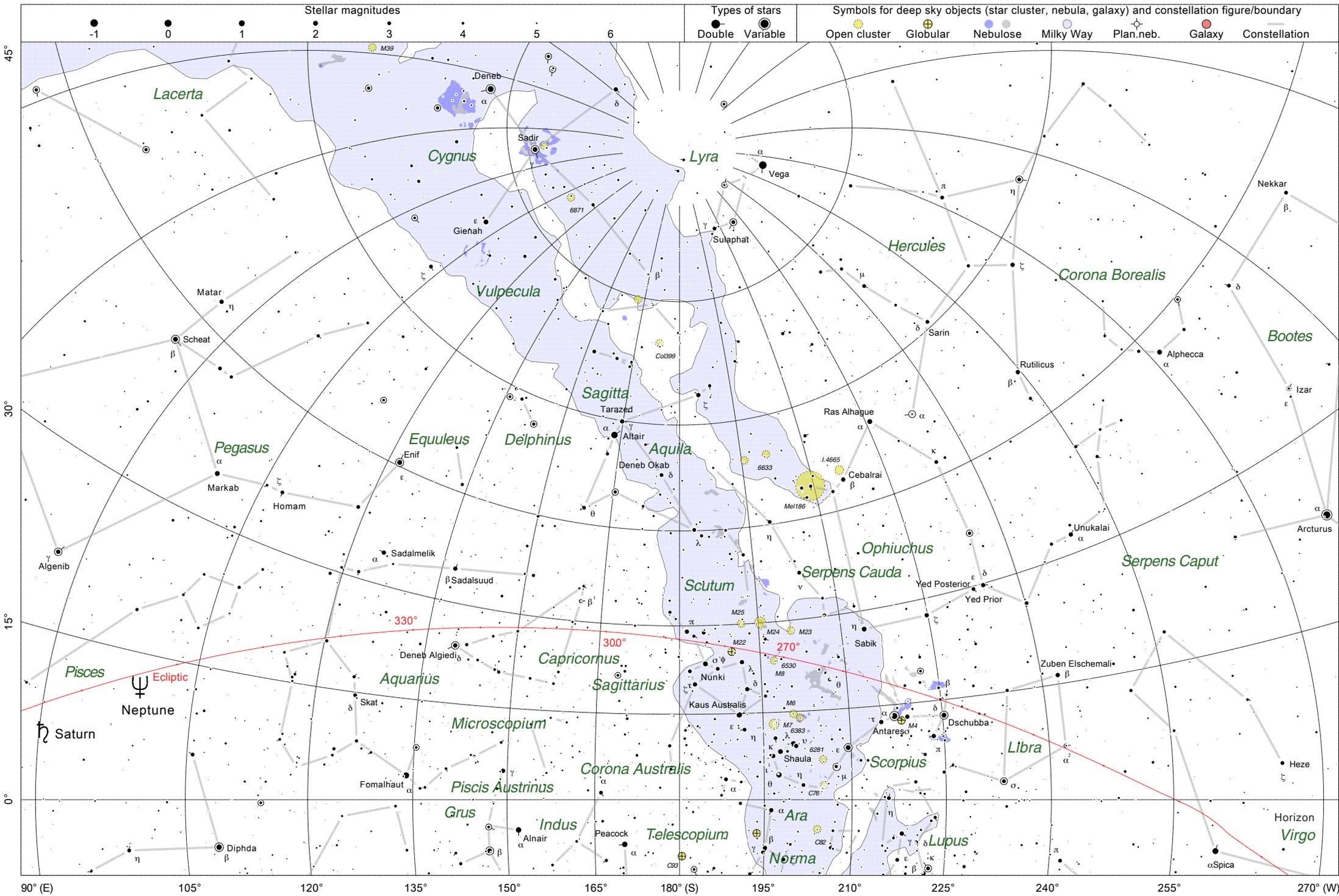
## Astronomical events for June

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	04:32	Moon's apogee (parallax = 53' 57.558")	10	08:26 → 10:39	Shadow transit of Mimas on top of Saturn	19	09:03 → 11:23	Shadow transit of Dione on top of Saturn
1	07:40 → 08:21	NGC6316 behind Moon (d = 0.2°, maximum 2026-06-01 08:02 TT)	10	08:28 → 10:32	Transit of Enceladus on top of Saturn	19	13:39	Conjunction Moon-α Leo (d = 0.6°, mag = 1.41)
1	08:33 → 11:14	Shadow transit of Tethys on top of Saturn	10	08:50 → 10:53	Transit of Mimas on top of Saturn	19	14:18	Conjunction (1) Ceres-ε Tau (d = 0.9', mag = 3.54)
1	09:22 → 11:35	Transit of Tethys on top of Saturn	11	05:33	Conjunction (3362) Khufu-γ Tau (d = 2.1', mag = 3.65)	19	15:33	Minimum of eclipsing binary β Per
1	09:23 → 11:39	Eclipse of Mimas by Saturn	11	16:31 → 18:51	Occultation of Io by Jupiter	20	05:40 → 08:19	Shadow transit of Tethys on top of Saturn
1	09:46 → 11:53	Occultation of Mimas by Saturn	11	17:15 → 19:36	Eclipse of Io by Jupiter	20	05:43 → 07:59	Eclipse of Mimas by Saturn
1	10:00 → 12:25	Eclipse of Enceladus by Saturn	11	17:33 → 20:32	Occultation of Europa by Jupiter	20	06:09 → 08:15	Occultation of Mimas by Saturn
1	10:35 → 12:41	Occultation of Enceladus by Saturn	11	19:05 → 22:04	Eclipse of Europa by Jupiter	20	06:37 → 08:43	Transit of Tethys on top of Saturn
1	13:54 → 14:01	Eclipse of Europa by Io (11.2%)	12	01:06	Conjunction (3752) Camillo-NGC2244 (d = 0.4°)	20	13:01 → 15:22	Occultation of Io by Jupiter
1	16:59	Moon's minimum declination (-27.991°)	12	02:31	Conjunction (3752) Camillo-NGC2239 (d = 0.5°)	20	13:38 → 15:59	Eclipse of Io by Jupiter
2	07:12 → 09:53	Eclipse of Tethys by Saturn	12	13:27	Conjunction Saturn-(2) Pallas (d = 0.9°)	20	14:58 → 17:53	Transit of Europa on top of Jupiter
2	08:00 → 10:16	Eclipse of Mimas by Saturn	12	20:15	Conjunction Moon-Mars (d = 4.7°)	20	16:12 → 19:07	Shadow transit of Europa on top of Jupiter
2	08:02 → 10:15	Occultation of Tethys by Saturn	12	21:31	Conjunction (3752) Camillo-NGC2252 (d = 0.3°)	21	04:19 → 06:58	Eclipse of Tethys by Saturn
2	08:24 → 10:30	Occultation of Mimas by Saturn	13	04:18 → 06:31	Shadow transit of Mimas on top of Saturn	21	04:20 → 06:36	Eclipse of Mimas by Saturn
2	20:00 → 22:21	Occultation of Io by Jupiter	13	04:42 → 06:45	Transit of Mimas on top of Saturn	21	04:46 → 06:52	Occultation of Mimas by Saturn
2	20:02 → 22:57	Transit of Europa on top of Jupiter	13	11:01 → 13:21	Occultation of Io by Jupiter	21	05:17 → 07:22	Occultation of Tethys by Saturn
2	20:13 → 23:49	Occultation of Ganymede by Jupiter	13	11:44 → 14:05	Eclipse of Io by Jupiter	21	06:55 → 09:19	Shadow transit of Enceladus on top of Saturn
2	20:52 → 23:13	Eclipse of Io by Jupiter	13	12:11 → 15:06	Transit of Europa on top of Jupiter	21	07:37 → 09:38	Transit of Enceladus on top of Saturn
2	21:15	Conjunction Moon-φ Sgr (d = 0.7°, mag = 3.17)	13	13:37 → 16:33	Shadow transit of Europa on top of Jupiter	21	08:25	Summer solstice
3	05:21	Minimum of eclipsing binary β Lyr	13	13:52	Conjunction Moon-star #3440134 (d = 0.6°, mag = 3.71)	21	09:06	Conjunction (6053) 1993 BW3-NGC5946 (d = 0.3°)
3	05:51 → 08:32	Shadow transit of Tethys on top of Saturn	13	14:23	Conjunction Moon-star #3450121 (d = 0.4°, mag = 3.88)	21	09:06	Conjunction (6053) 1993 BW3-IC4550 (d = 0.3°)
3	06:37 → 08:53	Eclipse of Mimas by Saturn	13	14:58 → 18:34	Transit of Ganymede on top of Jupiter	21	21:55	<b>Moon's first quarter</b>
3	06:41 → 08:54	Transit of Tethys on top of Saturn	13	15:03	Conjunction Moon-η Tau (d = 0.7°, mag = 2.87)	22	01:04	Maximum of June Bootids (meteor shower, ZHR Var)
3	07:01 → 09:07	Occultation of Mimas by Saturn	13	15:45	Conjunction Moon-star #3490031 (d = 0.8°, mag = 3.63)	22	02:46 → 05:04	Shadow transit of Dione on top of Saturn
3	22:33	Conjunction Uranus-(1) Ceres (d = 2.8°)	13	16:32	Conjunction (3362) Khufu-Mel25 (d = 0.1°)	22	02:56 → 05:13	Eclipse of Mimas by Saturn
4	03:46 → 06:11	Eclipse of Enceladus by Saturn	13	17:52 → 21:32	Shadow transit of Ganymede on top of Jupiter	22	02:59 → 05:37	Shadow transit of Tethys on top of Saturn
4	04:22 → 06:28	Occultation of Enceladus by Saturn	13	19:33	Conjunction Moon-Uranus (d = 4.5°)	22	03:23 → 05:29	Occultation of Mimas by Saturn
4	04:31 → 07:12	Eclipse of Tethys by Saturn	14	04:39	Conjunction (3362) Khufu-θ, Tau	22	03:57 → 06:01	Transit of Tethys on top of Saturn
4	05:14 → 07:30	Eclipse of Mimas by Saturn	14	04:52	Conjunction (3362) Khufu-θ, Tau	22	09:49 → 12:48	Occultation of Europa by Jupiter
4	05:21 → 07:34	Occultation of Tethys by Saturn	14	21:56	Conjunction Saturn-(4) Vesta (d = 3.9°)	22	11:02 → 14:01	Eclipse of Europa by Jupiter
4	05:38 → 07:44	Occultation of Mimas by Saturn	14	23:18	Moon's perigee (parallax = 1° 1' 22.045")	22	11:18	Lunar Transient Phenomena Lunar-X
4	13:24 → 13:58	Occultation of Europa by Io (89.5%)	15	02:52 → 05:16	Eclipse of Enceladus by Saturn	22	12:22	Minimum of eclipsing binary β Per
4	14:30 → 16:51	Occultation of Io by Jupiter	15	02:54	<b>New Moon</b>	23	02:36 → 04:41	Occultation of Tethys by Saturn
4	14:43 → 17:42	Occultation of Europa by Jupiter	15	03:32 → 05:34	Occultation of Enceladus by Saturn	23	11:42 → 14:00	Eclipse of Dione by Saturn
4	15:21 → 17:41	Eclipse of Io by Jupiter	15	05:29	Moon's maximum declination (27.992°)	23	16:46	Conjunction Moon-α Vir (d = 2.5°, mag = 1.06)
4	16:28 → 19:27	Eclipse of Europa by Jupiter	15	12:23 → 15:03	Eclipse of Tethys by Saturn	25	09:11	Minimum of eclipsing binary β Per
5	03:51 → 06:07	Eclipse of Mimas by Saturn	15	19:58	<b>Maximum elongation of Mercury (24.517° E)</b>	25	09:35 → 11:58	Shadow transit of Enceladus on top of Saturn
5	04:01 → 06:13	Transit of Tethys on top of Saturn	16	04:00	Minimum of eclipsing binary β Lyr	25	09:46	Conjunction Mercury-Jupiter (d = 3.7°)
5	04:15 → 06:21	Occultation of Mimas by Saturn	16	07:13	Conjunction (3671) Dionysus-ζ Leo (d = 0.2°, mag = 3.44)	25	10:17 → 12:17	Transit of Enceladus on top of Saturn
5	05:28 → 06:38	Eclipse of Rhea by Saturn	16	11:02 → 13:42	Shadow transit of Tethys on top of Saturn	25	10:21 → 12:34	Shadow transit of Mimas on top of Saturn
5	10:12	Conjunction (3554) Amun-α Gem (d = 0.9°, mag = 1.58)	16	11:15 → 13:31	Eclipse of Mimas by Saturn	25	10:46 → 12:50	Transit of Mimas on top of Saturn
5	10:13	Conjunction (3554) Amun-α Gem (d = 0.9°, mag = 2.88)	16	11:40 → 13:47	Occultation of Mimas by Saturn	26	14:23 → 19:05	Transit of Callisto on top of Jupiter
5	12:40 → 15:04	Eclipse of Enceladus by Saturn	16	11:46 → 14:09	Eclipse of Enceladus by Saturn	26	17:49 → 20:11	Transit of Io on top of Jupiter
6	03:41	Conjunction (3122) Florence-NGC3923 (d = 0.2°)	16	11:59 → 14:05	Transit of Tethys on top of Saturn	26	18:21 → 20:43	Shadow transit of Io on top of Jupiter
6	09:25 → 12:20	Transit of Europa on top of Jupiter	16	16:40	Conjunction (3362) Khufu-α Tau (d = 0.2°, mag = 0.99)	26	19:20 → 00:09	Shadow transit of Callisto on top of Jupiter
6	09:49 → 12:10	Eclipse of Io by Jupiter	16	21:37	Conjunction Moon-Mercury (d = 1.7°)	27	02:30	Conjunction Moon-π Sco (d = 0.3°, mag = 2.89)
6	10:34 → 14:09	Transit of Ganymede on top of Jupiter	16	23:59	New Islamic (observational) year	27	13:52	Conjunction Moon-α Sco (d = 0.7°, mag = 1.07)
6	11:02 → 13:58	Shadow transit of Europa on top of Jupiter	17	01:28	Conjunction Moon-β Gem (d = 4.4°, mag = 1.22)	27	15:02 → 17:23	Occultation of Io by Jupiter
6	13:52 → 17:32	Shadow transit of Ganymede on top of Jupiter	17	02:11	Conjunction Moon-κ Gem (d = 0.9°, mag = 3.57)	27	15:33 → 17:54	Eclipse of Io by Jupiter
7	11:47 → 12:50	Shadow transit of Rhea on top of Saturn	17	06:13	Conjunction Moon-Jupiter (d = 1.9°)	27	17:02	Conjunction (3362) Khufu-NGC1807 (d = 0.7°)
7	12:35 → 14:47	Shadow transit of Mimas on top of Saturn	17	09:42 → 12:21	Eclipse of Tethys by Saturn	27	17:17	Conjunction Moon-τ Sco (d = 0.7°, mag = 2.83)
7	17:04	Conjunction (1) Ceres-(3362) Khufu (d = 2.8°)	17	09:52 → 12:08	Eclipse of Mimas by Saturn	27	17:45 → 20:41	Transit of Europa on top of Jupiter
7	17:45	Lunar Transient Phenomena Lunar-X	17	10:17 → 12:24	Occultation of Mimas by Saturn	27	18:46 → 21:42	Shadow transit of Europa on top of Jupiter
7	19:32	Maximum of Dayt. Arietids (meteor shower, ZHR 30)	17	10:38 → 12:45	Occultation of Tethys by Saturn	28	05:49	Conjunction (3362) Khufu-NGC1817 (d = 0.6°)
7	22:39	Conjunction Moon-A Aqr (d = 0.4°, mag = 3.75)	17	21:20	Conjunction Moon-Venus (d = 0.6°)	28	06:00	Minimum of eclipsing binary β Per
7	23:10	Conjunction Venus-β Gem (d = 4.7°, mag = 1.22)	18	00:43 → 01:22	NGC2632 (M44) behind Moon (d = 0.1°, maximum 2026-06-18 01:05 TT)	28	07:11	Moon's apogee (parallax = 53' 58.372")
8	00:33	Conjunction (1) Ceres-(3362) Khufu (d = 2.8°)	18	08:21 → 11:00	Shadow transit of Tethys on top of Saturn	28	11:55 → 12:36	NGC6316 behind Moon (d = 0.1°, maximum 2026-06-28 12:17 TT)
8	04:56	Conjunction Mercury-ε Gem (d = 0.1°, mag = 3.01)	18	08:29 → 10:45	Eclipse of Mimas by Saturn	28	22:06	Moon's minimum declination (-27.991°)
8	10:01	<b>Moon's last quarter</b>	18	08:55 → 11:01	Occultation of Mimas by Saturn	29	02:39	Minimum of eclipsing binary β Lyr
8	10:14 → 12:38	Shadow transit of Dione on top of Saturn	18	09:18 → 11:24	Transit of Tethys on top of Saturn	29	07:31	Conjunction (1) Ceres-NGC1647 (d = 0.9°)
8	11:12 → 13:25	Shadow transit of Mimas on top of Saturn	18	18:31 → 20:52	Occultation of Io by Jupiter	29	09:55 → 10:30	NGC6520 behind Moon (d = 0.2°, maximum 2026-06-29 10:13 TT)
8	11:35 → 13:39	Transit of Mimas on top of Saturn	18	19:10 → 21:31	Eclipse of Io by Jupiter	29	11:01 → 11:13	NGC6540 behind Moon (d = 0.2°, maximum 2026-06-29 11:08 TT)
8	16:33 → 16:36	Eclipse of Europa by Io (2.6%)	18	21:01	Conjunction (1866) Sisyphus-NGC4631 (d = 0.8°)	29	23:57	Full Moon
9	17:23	Conjunction Moon-Neptune (d = 3.6°)	19	05:32 → 07:56	Eclipse of Enceladus by Saturn	30	03:26 → 05:40	Shadow transit of Mimas on top of Saturn
9	18:03 → 22:38	Transit of Callisto on top of Jupiter	19	06:12 → 08:14	Occultation of Enceladus by Saturn	30	03:52 → 05:56	Transit of Mimas on top of Saturn
9	19:35	Conjunction Venus-Jupiter (d = 1.6°)	19	07:01 → 09:40	Eclipse of Tethys by Saturn	30	04:38 → 07:00	Eclipse of Enceladus by Saturn
10	04:59	Conjunction Moon-Saturn (d = 4.9°)	19	07:06 → 09:22	Eclipse of Mimas by Saturn	30	05:20 → 07:19	Occultation of Enceladus by Saturn
10	06:43	Conjunction (1566) Icarus-NGC1068 (M77) (d = 0.1°)	19	07:32 → 09:38	Occultation of Mimas by Saturn	30	06:15	Conjunction Moon-φ Sgr (d = 0.4°, mag = 3.17)
10	07:50 → 10:14	Shadow transit of Enceladus on top of Saturn	19	07:58 → 10:04	Occultation of Tethys by Saturn	30	10:04	Conjunction Moon-σ Sgr (d = 0.6°, mag = 2.07)



## Astronomical events for July

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	02:49	Minimum of eclipsing binary $\beta$ Per	10	22:40 → 23:13	$\eta$ $\uparrow$ behind Moon (d = 0.2°, maximum 2026-07-10 22:57 TT, mag = 2.87)	22	07:58 → 10:33	Shadow transit of Tethys on top of Saturn
1	15:37	Conjunction (6455) 1992 HE- $\zeta$ Per (d = 0.6°, mag = 2.88)	10	23:24	Conjunction Moon-star #3490031 (d = 0.3°, mag = 3.63)	22	08:57 → 10:56	Transit of Tethys on top of Saturn
3	01:35 → 03:48	Shadow transit of Dione on top of Saturn	11	01:07 → 03:06	Transit of Tethys on top of Saturn	23	01:40	Conjunction (1566) Icarus-NGC2903 (d = 0.3°)
3	10:20 → 12:37	Eclipse of Mimas by Saturn	11	03:26	Conjunction Moon-Uranus (d = 4.7°)	23	05:18 → 07:34	Eclipse of Mimas by Saturn
3	10:47 → 12:54	Occultation of Mimas by Saturn	11	14:51	Conjunction (887) Alinda-NGC6333 (M9) (d = 0.3°)	23	05:43 → 07:50	Occultation of Mimas by Saturn
3	10:51 → 13:28	Shadow transit of Tethys on top of Saturn	11	16:03	Conjunction Moon-Mars (d = 4.8°)	23	06:38 → 09:12	Eclipse of Tethys by Saturn
3	11:22	Conjunction (1566) Icarus-(3362) Khufu (d = 1.3°)	12	01:17	Minimum of eclipsing binary $\beta$ Lyr	23	07:37 → 09:35	Occultation of Tethys by Saturn
3	23:38	Minimum of eclipsing binary $\beta$ Per	12	11:56	Conjunction Moon- $\beta$ Tau (d = 0.9°, mag = 1.68)	24	01:20	Minimum of eclipsing binary $\beta$ Per
4	06:12	Conjunction Mars-Uranus (d = 0.1°)	12	12:36	Minimum of eclipsing binary $\lambda$ Tau	24	02:10	Conjunction Mercury-(6) Hebe (d = 3.0°)
4	07:18 → 09:40	Eclipse of Enceladus by Saturn	12	13:25	Conjunction (6) Hebe- $\gamma$ Gem (d = 0.5°, mag = 2.02)	24	03:55 → 06:11	Eclipse of Mimas by Saturn
4	08:00 → 09:59	Occultation of Enceladus by Saturn	12	14:05	Minimum of eclipsing binary $\beta$ Per	24	04:12 → 06:33	Shadow transit of Enceladus on top of Saturn
4	08:54	Conjunction (3753) Cruithne-NGC1068 (M77) (d = 0.3°)	12	15:17	Moon's maximum declination (28.036°)	24	04:20 → 06:28	Occultation of Mimas by Saturn
4	08:57 → 11:14	Eclipse of Mimas by Saturn	12	18:04	Conjunction (1566) Icarus- $\delta$ Gem (d = 0.9°, mag = 3.54)	24	04:54 → 06:52	Transit of Enceladus on top of Saturn
4	09:24 → 11:31	Occultation of Mimas by Saturn	12	18:33	Conjunction (3200) Phaethon-NGC2168 (M35) (d = 0.9°)	24	05:17 → 07:51	Shadow transit of Tethys on top of Saturn
4	09:31 → 12:08	Eclipse of Tethys by Saturn	13	05:29	Conjunction (8) Flora- $\pi$ Sgr (d = 1.0°, mag = 2.90)	24	06:04	Conjunction (3671) Dionysus-NGC3628 (d = 0.9°)
4	10:31 → 12:32	Occultation of Tethys by Saturn	13	07:50	Moon's perigee (parallax = 1° 1' 4.227")	24	06:16 → 08:14	Transit of Tethys on top of Saturn
4	10:31 → 12:44	Eclipse of Dione by Saturn	<b>14 09:44</b>	<b>New Moon</b>	24	07:27 → 08:10	$\pi$ Sco behind Moon (d = 0.1°, maximum 2026-07-24 07:49 TT, mag = 2.89)	
5	05:51	Conjunction Moon-A Aqr (d = 0.9°, mag = 3.75)	14	11:05	Conjunction Moon- $\beta$ Gem (d = 3.8°, mag = 1.22)	24	09:13	Minimum of eclipsing binary $\lambda$ Tau
5	07:34 → 09:51	Eclipse of Mimas by Saturn	14	12:16	Conjunction (1566) Icarus- $\kappa$ Gem (d = 0.8°, mag = 3.57)	24	21:50	Conjunction Moon- $\alpha$ Sco (d = 1.4°, mag = 1.07)
5	08:01 → 10:08	Occultation of Mimas by Saturn	14	12:57	Conjunction Moon- $\kappa$ Gem (d = 0.3°, mag = 3.57)	24	23:56	Minimum of eclipsing binary $\beta$ Lyr
5	08:10 → 10:47	Shadow transit of Tethys on top of Saturn	14	14:17	Conjunction (6053) 1993 BW3-NGC5882 (d = 0.2°)	25	02:04	Conjunction Moon- $\tau$ Sco (d = 0.4°, mag = 2.83)
5	09:10 → 11:11	Transit of Tethys on top of Saturn	14	14:17	Conjunction (6053) 1993 BW3-IC1108 (d = 0.2°)	25	02:32 → 04:48	Eclipse of Mimas by Saturn
5	20:02	Conjunction (887) Alinda-NGC6356 (d = 0.3°)	14	17:40	Conjunction (2) Pallas-(4) Vesta (d = 3.0°)	25	02:57 → 05:05	Occultation of Mimas by Saturn
5	20:06	Conjunction (15) Eunomia-(433) Eros (d = 0.7°)	15	02:53	Conjunction Moon-Jupiter (d = 1.2°)	25	03:57 → 06:31	Eclipse of Tethys by Saturn
6	06:11 → 08:28	Eclipse of Mimas by Saturn	15	05:20 → 07:35	Shadow transit of Mimas on top of Saturn	25	04:55 → 06:54	Occultation of Tethys by Saturn
6	06:38 → 08:45	Occultation of Mimas by Saturn	15	05:40	Conjunction (1866) Sisyphus-NGC4725 (d = 0.8°)	25	16:45	Moon's apogee (parallax = 54' 4.108")
6	06:49 → 09:26	Eclipse of Tethys by Saturn	15	05:45 → 07:51	Transit of Mimas on top of Saturn	26	01:09 → 03:25	Eclipse of Mimas by Saturn
6	07:50 → 09:50	Occultation of Tethys by Saturn	15	06:24 → 08:45	Eclipse of Enceladus by Saturn	26	01:33 → 03:41	Occultation of Mimas by Saturn
6	08:41 → 11:03	Shadow transit of Enceladus on top of Saturn	15	07:06 → 09:03	Occultation of Enceladus by Saturn	26	02:36 → 05:10	Shadow transit of Tethys on top of Saturn
6	09:24 → 11:22	Transit of Enceladus on top of Saturn	15	09:07	Conjunction (2) Pallas-(4) Vesta (d = 3.0°)	26	03:34 → 05:33	Transit of Tethys on top of Saturn
6	17:33	Maximum distance of Sun (1.017 AU)	15	10:54	Minimum of eclipsing binary $\beta$ Per	26	03:56	Moon's minimum declination (-28.070°)
6	20:27	Minimum of eclipsing binary $\beta$ Per	15	13:40	Conjunction Mercury- $\lambda$ Gem (d = 0.7°, mag = 3.58)	26	05:30 → 07:50	Eclipse of Enceladus by Saturn
6	22:14	Conjunction Moon-Neptune (d = 3.4°)	15	21:11	Conjunction Venus- $\rho$ Leo (d = 1.0°, mag = 3.85)	26	06:10 → 08:08	Occultation of Enceladus by Saturn
7	04:13 → 06:25	Eclipse of Dione by Saturn	16	11:29	Minimum of eclipsing binary $\lambda$ Tau	26	22:09	Minimum of eclipsing binary $\beta$ Per
7	04:48 → 07:05	Eclipse of Mimas by Saturn	17	00:36	Conjunction Moon- $\alpha$ Leo (d = 1.3°, mag = 1.41)	27	00:10 → 02:18	Occultation of Mimas by Saturn
7	05:04	Lunar Transient Phenomena Lunar-X	17	07:16	Conjunction Jupiter-(1566) Icarus (d = 3.8°)	27	01:15 → 03:49	Eclipse of Tethys by Saturn
7	05:15 → 07:22	Occultation of Mimas by Saturn	17	10:01	Conjunction Moon- $\rho$ Leo (d = 1.0°, mag = 3.85)	27	02:13 → 04:12	Occultation of Tethys by Saturn
7	05:29 → 08:05	Shadow transit of Tethys on top of Saturn	17	13:01	Conjunction Moon-Venus (d = 2.1°)	27	10:48 → 11:06	$\phi$ Sgr behind Moon (d = 0.2°, maximum 2026-07-27 10:58 TT, mag = 3.17)
7	06:29 → 08:29	Transit of Tethys on top of Saturn	18	00:52 → 02:49	Occultation of Enceladus by Saturn	27	13:58	Conjunction (8) Flora-NGC6717 (d = 0.4°)
7	08:47	Conjunction (7) Iris-NGC3521 (d = 0.6°)	18	01:11 → 03:26	Shadow transit of Mimas on top of Saturn	27	14:17	Conjunction Moon- $\sigma$ Sgr (d = 0.8°, mag = 2.07)
<b>7 19:29</b>	<b>Moon's last quarter</b>		18	01:36 → 03:42	Transit of Mimas on top of Saturn	27	19:28	Conjunction Moon- $\tau$ Sgr (d = 0.6°, mag = 3.32)
8	03:25 → 05:42	Eclipse of Mimas by Saturn	18	03:02 → 05:10	Eclipse of Dione by Saturn	28	00:52 → 02:51	Transit of Tethys on top of Saturn
8	03:52 → 05:59	Occultation of Mimas by Saturn	18	03:41	Conjunction (8) Flora- $\circ$ Sgr (d = 0.7°, mag = 3.77)	28	07:30	Conjunction (1866) Sisyphus-NGC4826 (M64) (d = 0.2°)
8	04:08 → 06:45	Eclipse of Tethys by Saturn	18	07:43	Minimum of eclipsing binary $\beta$ Per	28	08:05	Minimum of eclipsing binary $\lambda$ Tau
8	05:08 → 07:09	Occultation of Tethys by Saturn	19	09:03 → 11:24	Eclipse of Enceladus by Saturn	28	13:14	Maximum of July $\gamma$ -Draconids (meteor shower, ZHR 5)
8	09:09	Conjunction (6) Hebe-(1566) Icarus (d = 4.4°)	19	09:45 → 11:42	Occultation of Enceladus by Saturn	28	23:56 → 01:54	Occultation of Enceladus by Saturn
8	13:44	Minimum of eclipsing binary $\lambda$ Tau	20	05:47	Conjunction (3671) Dionysus- $\theta$ Leo (d = 0.1°, mag = 3.33)	29	00:12	Conjunction (1) Ceres-NGC1952 (M1) (d = 0.3°)
9	02:02 → 04:19	Eclipse of Mimas by Saturn	20	09:27 → 11:43	Eclipse of Mimas by Saturn	29	01:52 → 03:54	Eclipse of Dione by Saturn
9	02:27 → 04:49	Shadow transit of Enceladus on top of Saturn	20	09:52 → 12:00	Occultation of Mimas by Saturn	29	12:15	Conjunction of Jupiter (elongation 0.474°)
9	02:29 → 04:36	Occultation of Mimas by Saturn	20	10:21	Minimum of eclipsing binary $\lambda$ Tau	29	14:36	Full Moon
9	02:47 → 05:24	Shadow transit of Tethys on top of Saturn	20	23:59	New Armenian year	29	18:58	Minimum of eclipsing binary $\beta$ Per
9	03:10 → 05:08	Transit of Enceladus on top of Saturn	21	03:15	Conjunction Moon- $\alpha$ Vir (d = 2.8°, mag = 1.06)	30	03:35	Conjunction (3122) Florence-NGC4590 (M68) (d = 0.7°)
9	03:48 → 05:48	Transit of Tethys on top of Saturn	21	04:32	Minimum of eclipsing binary $\beta$ Per	30	07:12 → 09:28	Shadow transit of Mimas on top of Saturn
9	17:16	Minimum of eclipsing binary $\beta$ Per	21	08:04 → 10:20	Eclipse of Mimas by Saturn	30	07:36 → 09:44	Transit of Mimas on top of Saturn
9	22:32	Conjunction Venus- $\alpha$ Leo (d = 1.0°, mag = 1.41)	21	08:29 → 10:37	Occultation of Mimas by Saturn	30	08:10 → 10:29	Eclipse of Enceladus by Saturn
10	01:27 → 04:03	Eclipse of Tethys by Saturn	21	09:19 → 11:54	Eclipse of Tethys by Saturn	30	08:49 → 10:47	Occultation of Enceladus by Saturn
10	02:27 → 04:27	Occultation of Tethys by Saturn	<b>21 11:06</b>	<b>Moon's first quarter</b>	30	14:02	Conjunction Mercury-(3362) Khufu (d = 2.8°)	
10	14:34	Maximum of July Pegasids (meteor shower, ZHR 3)	21	21:42	Lunar Transient Phenomena Lunar-X	30	15:04	Conjunction (1) Ceres- $\zeta$ Tau (d = 0.7°, mag = 3.00)
10	21:52 → 22:32	Star #3440134 behind Moon (d = 2.5°, maximum 2026-07-10 22:13 TT, mag = 3.71)	22	05:31 → 07:36	Shadow transit of Dione on top of Saturn	31	13:18	Maximum of S. $\delta$ -Aquirids (meteor shower, ZHR 25)
10	22:16 → 22:49	Star #3450121 behind Moon (d = 0.2°, maximum 2026-07-10 22:33 TT, mag = 3.88)	22	06:41 → 08:57	Eclipse of Mimas by Saturn	31	13:18	Maximum of $\alpha$ -Capricornids (meteor shower, ZHR 5)
10	22:37 → 23:12	Mel22 (M45) behind Moon (d = 0.2°, maximum 2026-07-10 22:56 TT)	22	07:06 → 09:14	Occultation of Mimas by Saturn			



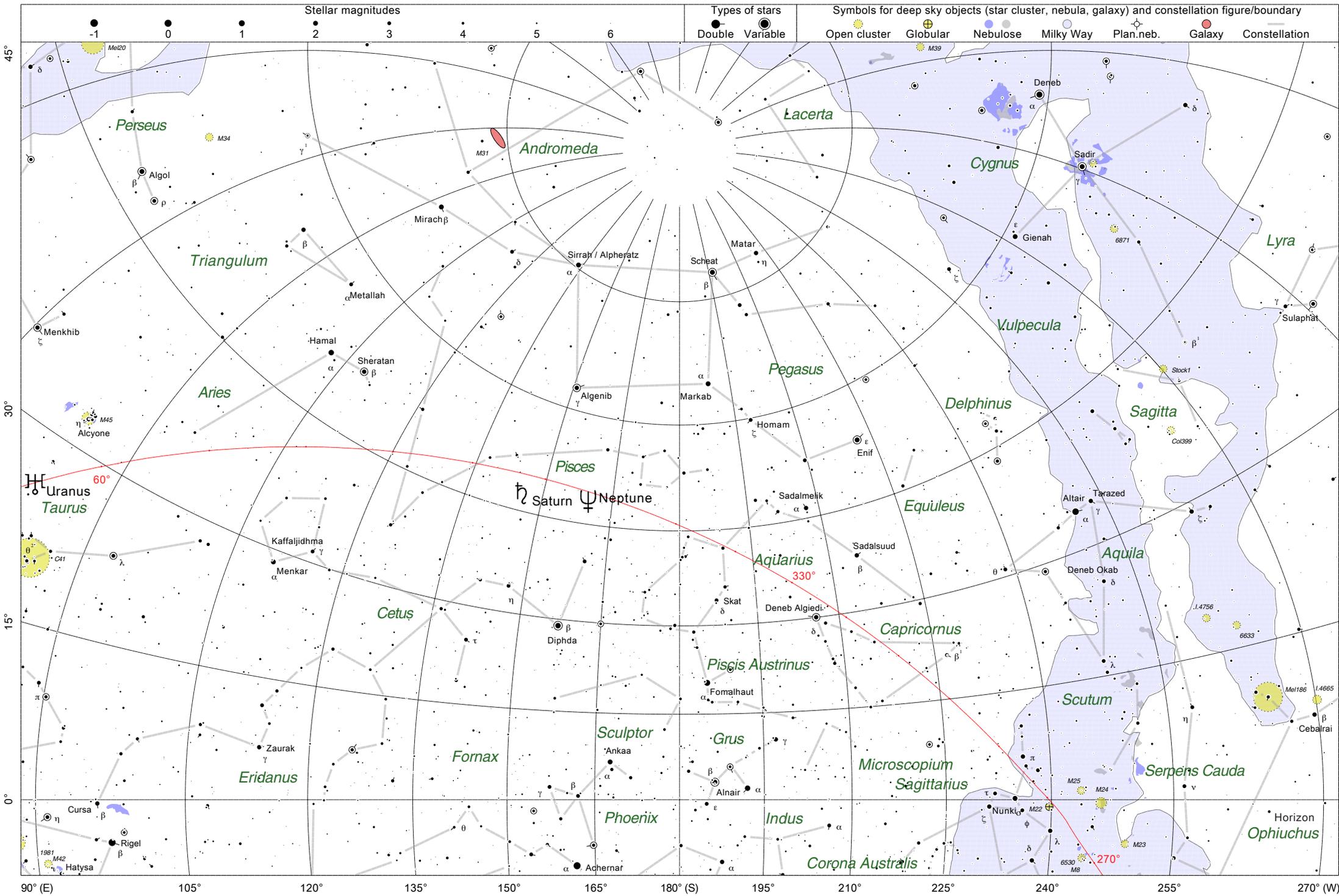
## Astronomical events for August

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	01:25	Conjunction (3200) Phaethon-δ Gem (d = 0.1°, mag = 3.54)	10	07:51 → 09:50	Occultation of Enceladus by Saturn	20	13:29	Conjunction Moon-π Sco (d = 0.3°, mag = 2.89)
1	01:53	Conjunction (6) Hebe-λ Gem (d = 1.0°, mag = 3.58)	10	11:18	Moon's perigee (parallax = 1° 0' 22.148")	21	01:19	Minimum of eclipsing binary λ Tau
1	06:58	Minimum of eclipsing binary λ Tau	10	12:29	Conjunction (6053) 1993 BW3-δ Lup (d = 0.1°, mag = 3.22)	21	05:26	Conjunction Moon-α Sco (d = 0.9°, mag = 1.07)
1	15:47	Minimum of eclipsing binary β Per	10	15:14	Conjunction Jupiter-δ Cnc (d = 0.4°, mag = 3.93)	21	06:22 → 08:39	Eclipse of Enceladus by Saturn
1	19:22	Conjunction (3362) Khufu-λ Gem (d = 0.9°, mag = 3.58)	10	21:56	Conjunction Moon-β Gem (d = 4.5°, mag = 1.22)	21	06:52 → 08:54	Occultation of Enceladus by Saturn
2	01:56 → 04:15	Eclipse of Enceladus by Saturn	10	22:39	Conjunction Moon-κ Gem (d = 0.9°, mag = 3.57)	21	07:51	Conjunction Moon-π Sco (d = 0.8°, mag = 2.83)
2	02:35 → 04:33	Occultation of Enceladus by Saturn	10	23:44 → 02:03	Shadow transit of Enceladus on top of Saturn	21	17:30	Minimum of eclipsing binary β Per
2	03:04 → 05:20	Shadow transit of Mimas on top of Saturn	11	00:20 → 02:20	Transit of Enceladus on top of Saturn	21	22:20 → 00:31	Transit of Mimas on top of Saturn
2	03:27 → 05:35	Transit of Mimas on top of Saturn	11	01:39 → 03:55	Eclipse of Mimas by Saturn	21	22:51 → 01:08	Shadow transit of Enceladus on top of Saturn
2	04:20 → 06:20	Shadow transit of Dione on top of Saturn	11	02:00 → 04:09	Occultation of Mimas by Saturn	21	23:21 → 01:23	Transit of Enceladus on top of Saturn
2	08:03	<b>Maximum elongation of Mercury (19.468° W)</b>	11	03:46 → 06:17	Eclipse of Tethys by Saturn	22	03:31 → 03:40	NGC6316 behind Moon (d = 0.2°, maximum 2026-08-22 03:36 TT)
2	14:13	Conjunction (6) Hebe-(3362) Khufu (d = 1.8°)	11	04:36 → 06:38	Occultation of Tethys by Saturn	22	05:48 → 05:50	Occultation of Europa by Io (10.3%)
3	02:21	Conjunction Moon-Neptune (d = 3.8°)	11	15:26	Conjunction Moon-Mercury (d = 1.3°)	22	08:20	Moon's apogee (parallax = 54' 11.367")
3	05:48	Conjunction (3200) Phaethon-NGC2392 (d = 0.6°)	11	18:04	Conjunction (3200) Phaethon-(3362) Khufu (d = 3.4°)	22	10:59	Moon's minimum declination (-28.124°)
3	05:55	Conjunction (3554) Amun-ρ Leo (d = 0.2°, mag = 3.85)	11	21:18 → 21:45	NGC2632 (M44) behind Moon (d = 0.2°, maximum 2026-08-11 21:33 TT)	22	21:52	Conjunction Jupiter-(3362) Khufu (d = 3.8°)
4	02:07	Conjunction (1566) Icarus-ι Leo (d = 2.3°, mag = 3.96)	11	23:17	Conjunction Moon-δ Cnc (d = 1.0°, mag = 3.93)	23	03:31	Conjunction (1) Ceres-η Gem (d = 0.1°, mag = 3.30)
4	10:37	Conjunction Jupiter-NGC2632 (M44) (d = 0.8°)	11	23:39	Conjunction Moon-Jupiter (d = 0.5°)	23	07:42 → 09:57	Eclipse of Mimas by Saturn
4	12:36	Minimum of eclipsing binary β Per	12	00:16 → 02:32	Eclipse of Mimas by Saturn	23	07:44 → 10:01	Shadow transit of Enceladus on top of Saturn
4	22:36	Conjunction (3200) Phaethon-NGC2420 (d = 0.6°)	12	00:37 → 02:46	Occultation of Mimas by Saturn	23	17:05	Conjunction Moon-φ Sgr (d = 0.8°, mag = 3.17)
5	01:27	Conjunction Venus-(7) Iris (d = 3.8°)	12	02:25 → 04:56	Shadow transit of Tethys on top of Saturn	24	00:09 → 02:26	Eclipse of Enceladus by Saturn
5	05:01	Conjunction Venus-(7) Iris (d = 3.8°)	12	03:15 → 05:17	Transit of Tethys on top of Saturn	24	00:37 → 02:40	Occultation of Enceladus by Saturn
5	05:50	Minimum of eclipsing binary λ Tau	12	07:56	Conjunction (3752) Camillo-γ <sub>1</sub> Leo	24	02:00 → 03:49	Shadow transit of Dione on top of Saturn
5	16:39	Lunar Transient Phenomena Lunar-X	12	07:58	Conjunction (3752) Camillo-γ <sub>2</sub> Leo	24	08:43 → 13:42	Eclipse of Callisto by Jupiter
5	19:53	Conjunction (1036) Ganymed-NGC3115 (d = 0.3°)	12	<b>17:37</b>	<b>New Moon</b>	24	09:42 → 13:26	Shadow transit of Ganymede on top of Jupiter
6	00:50	Conjunction Mercury-(3200) Phaethon (d = 0.5°)	12	<b>17:46</b>	<b>Solar eclipse (central, total)</b>	24	11:25 → 15:10	Transit of Ganymede on top of Jupiter
6	<b>02:22</b>	<b>Moon's last quarter</b>	12	23:14 → 01:23	Occultation of Mimas by Saturn	24	12:47 → 17:49	Occultation of Callisto by Jupiter
6	04:36 → 06:54	Eclipse of Enceladus by Saturn	13	01:02 → 03:20	Eclipse of Enceladus by Saturn	24	14:19	Minimum of eclipsing binary β Per
6	05:13 → 07:11	Occultation of Enceladus by Saturn	13	01:05 → 03:36	Eclipse of Tethys by Saturn	25	00:11	Minimum of eclipsing binary λ Tau
6	06:59 → 08:57	Eclipse of Dione by Saturn	13	01:37 → 03:36	Occultation of Enceladus by Saturn	25	01:01	Conjunction (3200) Phaethon-ο Leo
6	08:34 → 10:50	Eclipse of Mimas by Saturn	13	<b>01:51</b>	<b>Maximum of Perseids (meteor shower, ZHR 100)</b>	25	07:37 → 10:06	Shadow transit of Tethys on top of Saturn
6	08:56 → 11:05	Occultation of Mimas by Saturn	13	01:54 → 03:56	Occultation of Tethys by Saturn	25	13:40	Conjunction Mercury-α Leo (d = 1.3°, mag = 1.41)
6	16:50	Conjunction (1566) Icarus-(3671) Dionysus (d = 2.8°)	13	03:03	Minimum of eclipsing binary β Per	26	01:30 → 03:47	Shadow transit of Enceladus on top of Saturn
6	22:35	Minimum of eclipsing binary β Lyr	13	03:10 → 05:05	Shadow transit of Dione on top of Saturn	26	01:58 → 04:01	Transit of Enceladus on top of Saturn
7	05:05	Conjunction Moon-star #3440134 (d = 0.7°, mag = 3.71)	13	03:34	Minimum of eclipsing binary λ Tau	26	03:33 → 05:48	Eclipse of Mimas by Saturn
7	05:48	Conjunction Moon-star #3450121 (d = 0.6°, mag = 3.88)	13	09:10	Conjunction Moon-α Leo (d = 0.7°, mag = 1.41)	26	03:49 → 06:00	Occultation of Mimas by Saturn
7	06:28	Conjunction Moon-η Tau (d = 0.9°, mag = 2.87)	13	23:44 → 02:15	Shadow transit of Tethys on top of Saturn	27	11:08	Minimum of eclipsing binary β Per
7	07:11 → 09:27	Eclipse of Mimas by Saturn	14	00:32 → 02:35	Transit of Tethys on top of Saturn	28	00:48 → 03:02	Eclipse of Mimas by Saturn
7	07:33 → 09:42	Occultation of Mimas by Saturn	14	13:20	Conjunction (1) Ceres-NGC2129 (d = 1.0°)	28	01:03 → 03:14	Occultation of Mimas by Saturn
7	09:25	Minimum of eclipsing binary β Per	14	18:55	Conjunction (6455) 1992 HE-ζ Aur (d = 0.2°, mag = 3.76)	28	02:49 → 05:05	Eclipse of Enceladus by Saturn
7	16:48	Conjunction Moon-Uranus (d = 4.7°)	14	21:00	Conjunction Mercury-δ Cnc (d = 0.9°, mag = 3.93)	28	03:15 → 05:18	Occultation of Enceladus by Saturn
7	20:47	Maximum of η-Eridanids (meteor shower, ZHR 3)	14	23:11 → 01:14	Occultation of Tethys by Saturn	28	03:35 → 06:04	Eclipse of Tethys by Saturn
8	05:48 → 08:04	Eclipse of Mimas by Saturn	15	<b>06:02</b>	<b>Maximum elongation of Venus (45.892° E)</b>	28	04:13 → 06:20	Occultation of Tethys by Saturn
8	05:58 → 08:17	Shadow transit of Enceladus on top of Saturn	15	10:43	Conjunction Mercury-Jupiter (d = 0.6°)	28	<b>04:13</b>	<b>Lunar eclipse (partial, mag 0.92)</b>
8	06:10 → 08:19	Occultation of Mimas by Saturn	15	23:52	Minimum of eclipsing binary β Per	28	04:18	Full Moon
8	06:35 → 08:34	Transit of Enceladus on top of Saturn	16	05:55	Conjunction Moon-Venus (d = 2.1°)	28	04:39 → 06:26	Eclipse of Dione by Saturn
8	07:48 → 10:19	Shadow transit of Tethys on top of Saturn	16	21:02	Conjunction (6455) 1992 HE-η Aur (d = 0.2°, mag = 3.17)	28	05:22	Conjunction (3752) Camillo-δ Leo (d = 0.7°, mag = 2.56)
8	08:40 → 10:40	Transit of Tethys on top of Saturn	17	02:27	Minimum of eclipsing binary λ Tau	28	10:48	Conjunction (1) Ceres-μ Gem (d = 0.2°, mag = 2.90)
8	23:42	Moon's maximum declination (28.109°)	17	03:42 → 06:00	Eclipse of Enceladus by Saturn	28	16:49	Conjunction Moon-λ Aqr (d = 0.7°, mag = 3.75)
9	00:42 → 02:39	Eclipse of Dione by Saturn	17	04:15 → 06:15	Occultation of Enceladus by Saturn	28	23:03	Minimum of eclipsing binary λ Tau
9	03:22	Conjunction Moon-Mars (d = 4.0°)	17	04:56 → 07:13	Shadow transit of Mimas on top of Saturn	29	07:27 → 07:30	Eclipse of Europa by Io (18.8%)
9	04:25 → 06:41	Eclipse of Mimas by Saturn	17	05:16 → 07:26	Transit of Mimas on top of Saturn	29	08:12 → 08:16	Occultation of Europa by Io (35.4%)
9	04:42	Minimum of eclipsing binary λ Tau	17	05:44	Maximum of κ-Cygnids (meteor shower, ZHR 3)	29	13:00	Conjunction (3671) Dionysus-NGC4636 (d = 2.3')
9	04:46 → 06:55	Occultation of Mimas by Saturn	17	05:49 → 07:42	Eclipse of Dione by Saturn	30	07:57	Minimum of eclipsing binary β Per
9	06:27 → 08:59	Eclipse of Tethys by Saturn	17	08:49	Conjunction Moon-α Vir (d = 2.4°, mag = 1.06)	30	10:52	Conjunction Moon-Neptune (d = 4.0°)
9	07:18 → 09:19	Occultation of Tethys by Saturn	17	14:39	Conjunction Jupiter-(3200) Phaethon (d = 3.0°)	30	14:56 → 15:00	Occultation of Io by Europa (22.3%)
10	01:57	Conjunction Mars-(1) Ceres (d = 1.4°)	18	20:41	Minimum of eclipsing binary β Per	30	19:06	Conjunction (3753) Cruithne-η Ori (d = 0.6°, mag = 3.39)
10	03:02 → 05:18	Eclipse of Mimas by Saturn	19	21:14	Minimum of eclipsing binary β Lyr	30	22:22 → 00:07	Eclipse of Dione by Saturn
10	03:23 → 05:32	Occultation of Mimas by Saturn	19	23:32 → 01:23	Eclipse of Dione by Saturn	30	23:34 → 02:02	Shadow transit of Tethys on top of Saturn
10	05:06 → 07:38	Shadow transit of Tethys on top of Saturn	20	00:47 → 03:04	Shadow transit of Mimas on top of Saturn	31	00:09 → 02:17	Transit of Tethys on top of Saturn
10	05:57 → 07:58	Transit of Tethys on top of Saturn	20	01:06 → 03:17	Transit of Mimas on top of Saturn	31	20:17	Conjunction (3122) Florence-NGC5236 (M83) (d = 0.2°)
10	06:14	Minimum of eclipsing binary β Per	20	<b>02:46</b>	<b>Moon's first quarter</b>			
10	07:16 → 09:34	Eclipse of Enceladus by Saturn	20	08:06	Lunar Transient Phenomena Lunar-X			



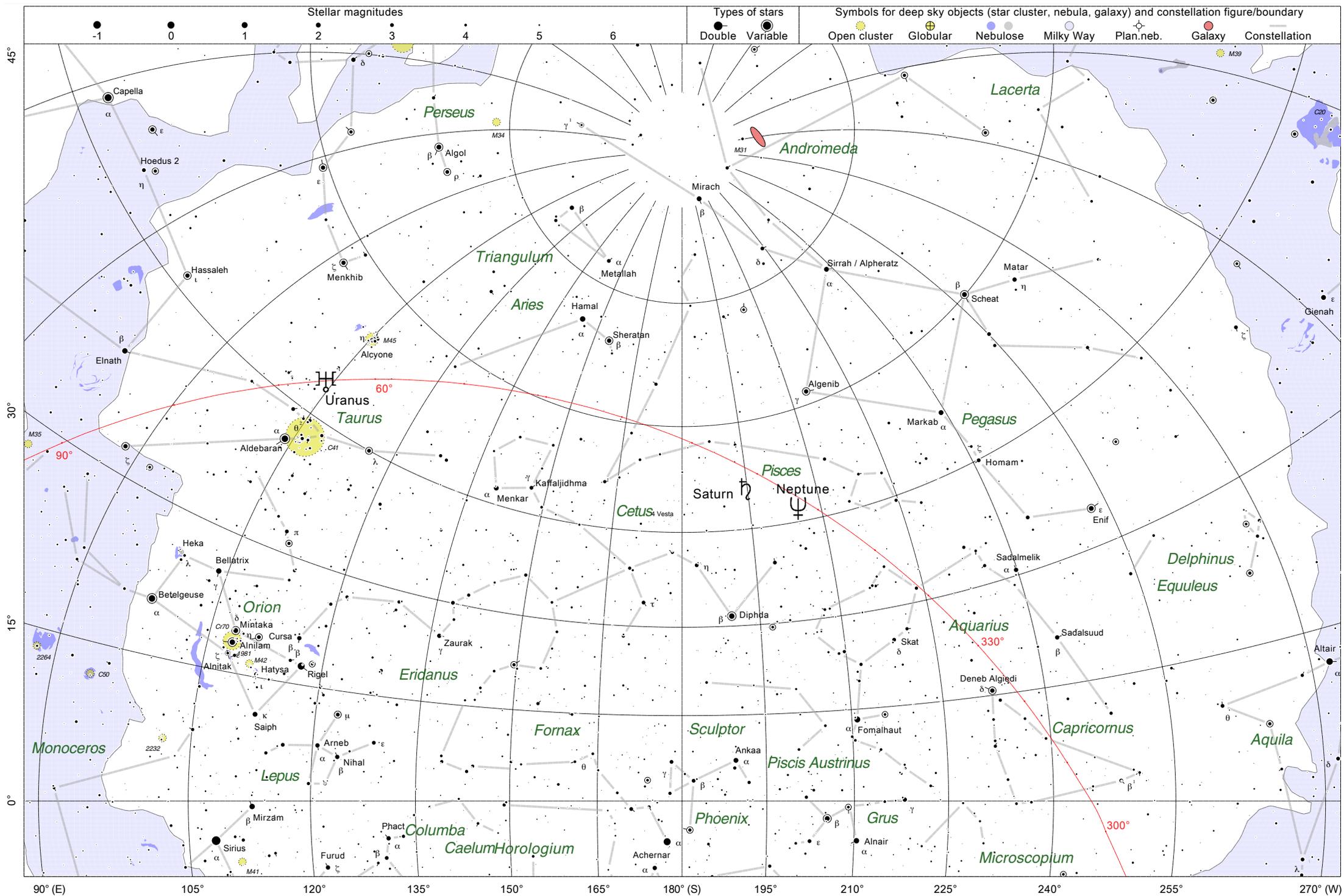
# Astronomical events for September

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	05:29 → 07:45	Eclipse of Enceladus by Saturn	10	23:59	New Ethiopic year	20	06:50	Conjunction Mercury-(7) Iris (d = 3.2°)
1	05:52 → 07:57	Occultation of Enceladus by Saturn	11	03:27	<b>New Moon</b>	20	06:55	Conjunction Moon-σ Sgr (d = 0.6°, mag = 2.07)
1	06:48 → 09:05	Shadow transit of Mimas on top of Saturn	11	23:59	New Hebrew year	20	07:44	Conjunction (7) Iris-NGC4699 (d = 0.4°)
1	07:03 → 09:16	Transit of Mimas on top of Saturn	12	02:43 → 04:57	Eclipse of Mimas by Saturn	20	13:29	Conjunction (3200) Phaethon-NGC4565 (d = 0.8°)
1	07:08 → 08:52	Shadow transit of Dione on top of Saturn	12	02:53 → 05:04	Occultation of Mimas by Saturn	20	22:50	Conjunction (6) Hebe-NGC2682 (M67) (d = 0.6°)
1	09:09	Maximum of Aurigids (meteor shower, ZHR 6)	12	03:17	Conjunction Moon-Mercury (d = 3.7°)	21	01:46 → 04:03	Shadow transit of Mimas on top of Saturn
1	19:53	Minimum of eclipsing binary β Lyr	12	04:36 → 06:50	Eclipse of Enceladus by Saturn	21	01:53 → 04:08	Transit of Mimas on top of Saturn
1	21:56	Minimum of eclipsing binary λ Tau	12	04:52 → 06:59	Occultation of Enceladus by Saturn	21	02:23 → 04:38	Shadow transit of Enceladus on top of Saturn
1	21:57 → 00:13	Shadow transit of Enceladus on top of Saturn	12	06:00 → 07:36	Shadow transit of Dione on top of Saturn	21	02:33 → 04:44	Transit of Enceladus on top of Saturn
1	22:21 → 00:25	Transit of Enceladus on top of Saturn	12	06:07 → 08:32	Eclipse of Tethys by Saturn	21	16:17	Minimum of eclipsing binary λ Tau
2	04:19	Conjunction (18) Melpomene-NGC6645 (d = 0.9°)	12	06:30 → 08:44	Occultation of Tethys by Saturn	21	20:31 → 21:40	Occultation of Dione by Saturn
2	04:46	Minimum of eclipsing binary β Per	12	11:55 → 11:58	Eclipse of Europa by Io (43.8%)	22	06:29	Minimum of eclipsing binary β Per
2	19:35	Conjunction (3753) Cruithne-ε Ori	12	12:58 → 13:02	Occultation of Europa by Io (100.0%)	22	11:46	Conjunction (3753) Cruithne-NGC2311 (d = 0.9°)
3	05:41	Conjunction (6053) 1993 BW3-NGC5986 (d = 0.4°)	13	03:04	Maximum of Sep. Lyncids (meteor shower, ZHR 3)	22	16:14	Conjunction (3554) Amun-NGC4594 (M104) (d = 0.4°)
3	12:56	Conjunction Moon-star #3440134 (d = 0.5°, mag = 3.71)	13	16:02	Minimum of eclipsing binary β Per	23	00:05	Autumn equinox
3	13:18	Conjunction Moon-star #3450121 (d = 0.3°, mag = 3.88)	13	18:26	Conjunction Mercury-η Vir (d = 1.0°, mag = 3.89)	23	03:43 → 05:56	Eclipse of Enceladus by Saturn
3	13:48	Conjunction Moon-η Tau (d = 0.6°, mag = 2.87)	13	18:32	Minimum of eclipsing binary λ Tau	23	03:51 → 06:02	Occultation of Enceladus by Saturn
3	14:20	Conjunction Moon-star #3490031 (d = 0.7°, mag = 3.63)	13	21:01	Conjunction Moon-α Vir (d = 3.0°, mag = 1.06)	23	04:30 → 04:33	Occultation of Europa by Io (53.4%)
3	17:13	Conjunction (3753) Cruithne-σ Ori (d = 0.3°, mag = 3.80)	14	03:26 → 05:51	Eclipse of Tethys by Saturn	23	04:51 → 06:20	Shadow transit of Dione on top of Saturn
3	20:31	Conjunction Moon-Uranus (d = 4.5°)	14	03:47 → 06:02	Occultation of Tethys by Saturn	23	05:14 → 06:25	Transit of Dione on top of Saturn
3	23:15 → 01:31	Eclipse of Enceladus by Saturn	14	04:25	Conjunction (4954) Eric-NGC5824 (d = 2.6°)	23	19:42	Conjunction (8) Flora-σ Sgr (d = 1.0°, mag = 2.07)
3	23:37 → 01:42	Occultation of Enceladus by Saturn	14	04:25	Conjunction (4954) Eric-NGC5834 (d = 2.6°)	23	20:10 → 22:24	Shadow transit of Enceladus on top of Saturn
4	00:51 → 02:33	Shadow transit of Dione on top of Saturn	14	05:57 → 08:11	Shadow transit of Enceladus on top of Saturn	23	20:18 → 22:29	Transit of Enceladus on top of Saturn
4	03:23	Conjunction (3753) Cruithne-ζ Ori (d = 0.4°, mag = 1.74)	14	06:12 → 08:20	Transit of Enceladus on top of Saturn	23	21:37 → 23:54	Shadow transit of Mimas on top of Saturn
4	04:49	Lunar Transient Phenomena Lunar-X	14	09:28 → 10:23	Venus behind Moon (d = 0.1°, maximum 2026-09-14 09:56 TT)	23	21:42 → 23:58	Transit of Mimas on top of Saturn
4	07:51	<b>Moon's last quarter</b>	14	18:32	Minimum of eclipsing binary β Lyr	24	01:03	Conjunction (3362) Khufu-β Vir (d = 0.4°, mag = 3.60)
5	01:35	Minimum of eclipsing binary β Per	14	22:22 → 00:37	Eclipse of Enceladus by Saturn	24	09:58 → 10:02	Eclipse of Io by Europa (51.8%)
5	05:36	Conjunction Mercury-(3200) Phaethon (d = 1.8°)	14	22:34 → 00:48	Eclipse of Mimas by Saturn	24	10:23	Conjunction (7) Iris-(3554) Amun (d = 3.2°)
5	06:13	Moon's maximum declination (28.110°)	14	22:37 → 00:45	Occultation of Enceladus by Saturn	24	11:18 → 11:22	Occultation of Io by Europa (24.3%)
5	09:41 → 09:44	Eclipse of Europa by Io (30.3%)	14	22:43 → 00:55	Occultation of Mimas by Saturn	24	16:07	Conjunction (7) Iris-(3554) Amun (d = 3.2°)
5	10:35 → 10:39	Occultation of Europa by Io (70.1%)	14	23:42 → 01:17	Shadow transit of Dione on top of Saturn	25	03:18	Minimum of eclipsing binary β Per
5	20:48	Minimum of eclipsing binary λ Tau	15	00:28 → 01:17	Transit of Dione on top of Saturn	25	06:36 → 06:41	Occultation of Ganymede by Europa (7.8%)
5	23:53 → 02:10	Shadow transit of Mimas on top of Saturn	15	03:12	Conjunction (3753) Cruithne-NGC2219 (d = 0.6°)	25	15:09	Minimum of eclipsing binary λ Tau
6	00:06 → 02:20	Transit of Mimas on top of Saturn	15	12:46 → 12:50	Occultation of Europa by Ganymede (11.0%)	25	21:30 → 23:43	Eclipse of Enceladus by Saturn
6	00:37 → 02:52	Shadow transit of Enceladus on top of Saturn	15	22:35	Conjunction (3753) Cruithne-NGC2232 (d = 0.5°)	25	21:36 → 23:47	Occultation of Enceladus by Saturn
6	00:58 → 03:03	Transit of Enceladus on top of Saturn	16	12:51	Minimum of eclipsing binary β Per	25	22:34 → 00:01	Shadow transit of Dione on top of Saturn
6	06:21 → 07:37	NGC2266 behind Moon (d = 0.1°, maximum 2026-09-06 07:00 TT)	16	23:24 → 01:49	Shadow transit of Tethys on top of Saturn	25	22:50 → 00:07	Transit of Dione on top of Saturn
6	19:26	Conjunction Moon-Mars (d = 2.0°)	16	23:42 → 01:59	Transit of Tethys on top of Saturn	26	01:32	Opposition of Neptune (elongation 178.580°)
6	20:26	Moon's perigee (parallax = 59' 31.418")	16	23:43 → 01:58	Shadow transit of Enceladus on top of Saturn	26	08:06	Conjunction Mercury-α Vir (d = 0.9°, mag = 1.06)
7	04:57	Conjunction Moon-β Gem (d = 3.8°, mag = 1.22)	16	23:56 → 02:06	Transit of Enceladus on top of Saturn	26	15:16	Conjunction Moon-Neptune (d = 3.5°)
7	05:26 → 06:08	κ Gem behind Moon (d = 0.2°, maximum 2026-09-07 05:48 TT, mag = 3.57)	17	00:16 → 00:29	π Sco behind Moon (d = 0.2°, maximum 2026-09-17 00:24 TT, mag = 2.89)	26	16:49	Full Moon
7	22:24	Minimum of eclipsing binary β Per	17	07:13	Conjunction (3200) Phaethon-(3752) Camillo	27	04:39 → 06:52	Eclipse of Mimas by Saturn
8	01:55 → 04:10	Eclipse of Enceladus by Saturn	17	07:44 → 07:48	Eclipse of Io by Europa (34.0%)	27	04:42 → 06:55	Occultation of Mimas by Saturn
8	02:15 → 04:21	Occultation of Enceladus by Saturn	17	08:54 → 08:59	Occultation of Io by Europa (56.2%)	27	17:11	Minimum of eclipsing binary β Lyr
8	03:30 → 05:10	Eclipse of Dione by Saturn	17	11:02	Conjunction Moon-α Sco (d = 1.0°, mag = 1.07)	28	00:07	Minimum of eclipsing binary β Per
8	04:39 → 05:01	Occultation of Dione by Saturn	17	11:03	Conjunction (3753) Cruithne-NGC2250 (d = 0.6°)	28	16:44	Conjunction (3362) Khufu-η Vir (d = 0.5°, mag = 3.89)
8	18:47 → 19:27	Jupiter behind Moon (d = 0.1°, maximum 2026-09-08 19:09 TT)	17	15:21 → 15:46	τ Sco behind Moon (d = 0.2°, maximum 2026-09-17 15:35 TT, mag = 2.83)	29	05:34 → 09:20	Shadow transit of Ganymede on top of Jupiter
9	05:47	Conjunction Mercury-β Vir (d = 0.2°, mag = 3.60)	17	17:25	Minimum of eclipsing binary λ Tau	29	09:20 → 13:07	Transit of Ganymede on top of Jupiter
9	17:28	Conjunction Mars-δ Gem (d = 0.8°, mag = 3.54)	17	17:35	Conjunction (324) Bamberg-NGC6864 (M75) (d = 0.8°)	29	10:42 → 13:04	Eclipse of Io by Jupiter
9	17:39	<b>Maximum of Sep. ε-Perseids (meteor shower, ZHR 8)</b>	18	08:34	Conjunction (324) Bamberg-NGC6864 (M75) (d = 0.8°)	29	11:39 → 14:01	Occultation of Io by Jupiter
9	19:40	Minimum of eclipsing binary λ Tau	18	08:47 → 09:31	NGC6316 behind Moon (d = 0.1°, maximum 2026-09-18 09:10 TT)	29	14:01	Minimum of eclipsing binary λ Tau
9	20:14	Conjunction Moon-α Leo (d = 1.4°, mag = 1.41)	18	11:25 → 15:11	Eclipse of Ganymede by Jupiter	30	00:10 → 02:22	Eclipse of Enceladus by Saturn
10	03:17 → 05:32	Shadow transit of Enceladus on top of Saturn	18	13:22 → 18:21	Shadow transit of Callisto on top of Jupiter	30	00:13 → 02:26	Occultation of Enceladus by Saturn
10	03:35 → 05:42	Transit of Enceladus on top of Saturn	18	14:39 → 18:27	Occultation of Ganymede by Jupiter	30	00:31 → 02:43	Eclipse of Mimas by Saturn
10	04:19 → 05:09	(3362) Khufu behind Moon (d = 0.1°, maximum 2026-09-10 04:45 TT)	18	18:54	Moon's minimum declination (-28.065°)	30	00:33 → 02:46	Occultation of Mimas by Saturn
10	05:28 → 07:42	Eclipse of Mimas by Saturn	18	19:07	Lunar Transient Phenomena Lunar-X	30	01:14 → 02:38	Eclipse of Dione by Saturn
10	05:30 → 05:34	Eclipse of Io by Europa (17.9%)	18	20:44	Moon's first quarter	30	01:20 → 02:46	Occultation of Dione by Saturn
10	05:39 → 07:50	Occultation of Mimas by Saturn	19	01:03 → 03:16	Eclipse of Enceladus by Saturn	30	05:27 → 05:31	Eclipse of Europa by Io (86.1%)
10	06:31 → 06:35	Occultation of Io by Europa (71.9%)	19	01:14 → 03:23	Occultation of Enceladus by Saturn	30	06:50 → 06:52	Occultation of Europa by Io (15.1%)
10	09:14 → 14:18	Occultation of Callisto by Jupiter	19	02:22 → 03:54	Eclipse of Dione by Saturn	30	16:35 → 17:16	Star #3440134 behind Moon (d = 0.1°, maximum 2026-09-30 16:56 TT, mag = 3.71)
10	09:50 → 12:48	Shadow transit of Europa on top of Jupiter	19	02:55 → 03:58	Occultation of Dione by Saturn	30	16:58 → 17:34	Star #3450121 behind Moon (d = 0.1°, maximum 2026-09-30 17:18 TT, mag = 3.88)
10	11:12 → 14:10	Transit of Europa on top of Jupiter	19	03:01	Moon's apogee (parallax = 54' 14.795")	30	17:24 → 17:55	Mel22 (M45) behind Moon (d = 0.2°, maximum 2026-09-30 17:41 TT)
10	13:38	Conjunction (1566) Icarus-α <sub>2</sub> Lib	19	06:21 → 06:27	Occultation of Europa by Callisto (88.8%)	30	17:26 → 17:55	η τ behind Moon (d = 0.2°, maximum 2026-09-30 17:42 TT, mag = 2.87)
10	19:13	Minimum of eclipsing binary β Per	19	06:48 → 07:13	NGC6520 behind Moon (d = 0.2°, maximum 2026-09-19 07:40 TT)	30	18:09	Conjunction Moon-star #3490031 (d = 0.3°, mag = 3.63)
10	21:13 → 22:51	Eclipse of Dione by Saturn	19	09:40	Minimum of eclipsing binary β Per	30	20:56	Minimum of eclipsing binary β Per
10	22:11 → 22:47	Occultation of Dione by Saturn	19	14:08 → 14:12	Eclipse of Europa by Io (58.9%)			
10	23:59	New Coptic year	20	03:31	Conjunction Moon-φ Sgr (d = 0.2°, mag = 3.17)			



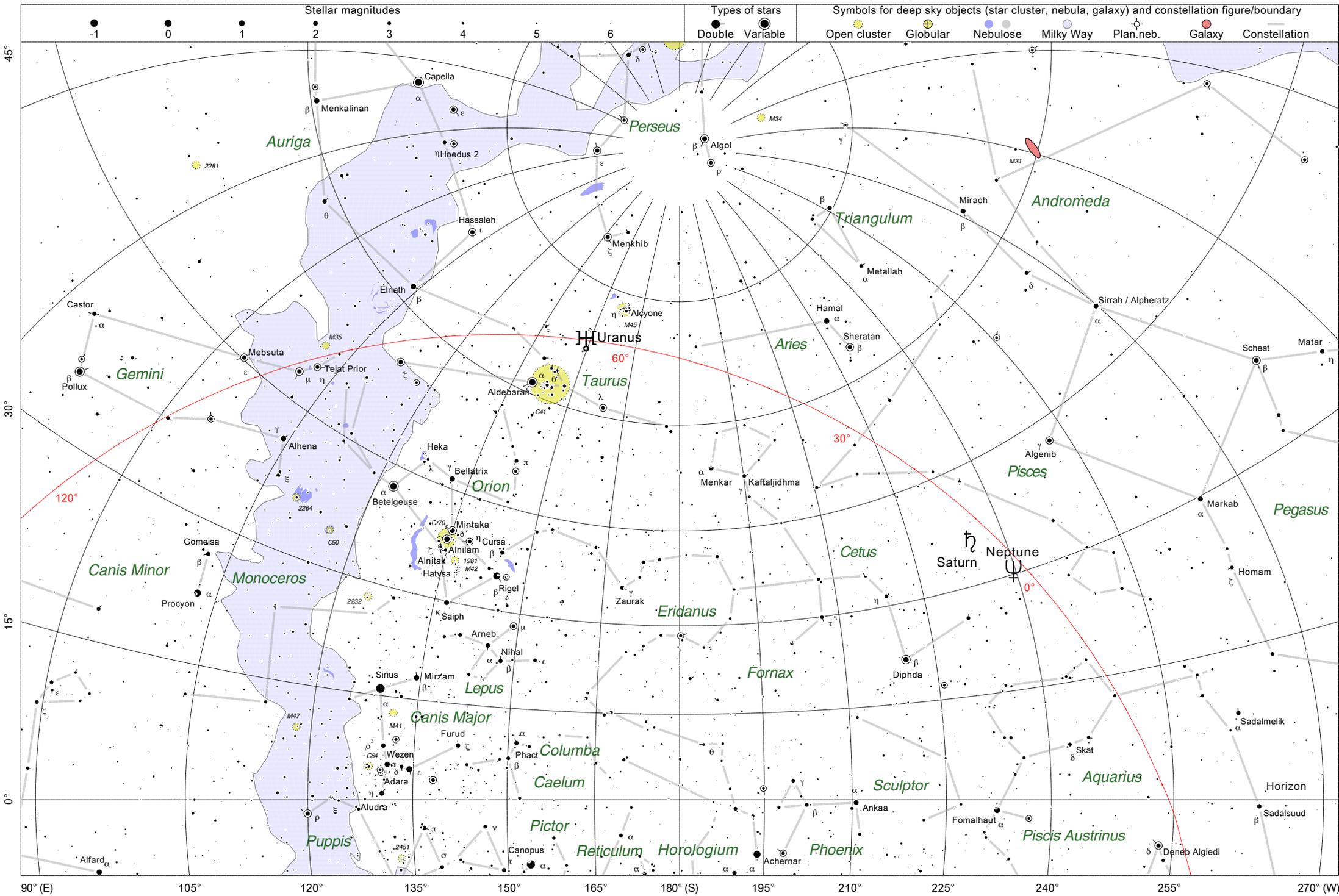
## Astronomical events for October

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	00:29	Conjunction Moon-Uranus (d = 4.9°)	6	23:01	Conjunction (3122) Florence-NGC5824 (d = 0.7°)	16	02:53	Conjunction Mercury-(3671) Dionysus (d = 4.7°)	23	23:46 → 24, 01:56	Shadow transit of Enceladus on top of Saturn
1	12:13 → 12:17	Eclipse of Io by Europa (69.3%)	6	23:01	Conjunction (3122) Florence-NGC5834 (d = 0.7°)	16	22:56	Moon's apogee (parallax = 54' 11.401")	24	01:15 → 03:33	Transit of Mimas on top of Saturn
1	12:47	Maximum of Dayt, Sextantis (meteor shower, ZHR 5)	7	01:44	Conjunction Moon-α Leo (d = 0.9°, mag = 1.41)	17	03:08 → 05:26	Transit of Enceladus on top of Saturn	24	01:25 → 03:38	Shadow transit of Mimas on top of Saturn
1	13:42 → 13:44	Occultation of Io by Europa (2.6%)	7	07:39 → 07:43	Eclipse of Europa by Io (99.6%)	17	03:18 → 07:05	Eclipse of Ganymede by Jupiter	24	05:20 → 07:42	Eclipse of Io by Jupiter
1	20:41	Moon's perigee (parallax = 59' 22.970")	7	11:46	Minimum of eclipsing binary λ Tau	17	03:18 → 05:29	Shadow transit of Enceladus on top of Saturn	24	06:31 → 08:53	Occultation of Io by Jupiter
1	21:30	Conjunction (3362) Khufu-y Vir (d = 0.5°, mag = 3.50)	8	17:59	Asteroid (4) Vesta becomes visible to eye	17	03:26 → 05:48	Eclipse of Io by Jupiter	24	07:17 → 11:04	Eclipse of Ganymede by Jupiter
1	21:30	Conjunction (3362) Khufu-y Vir (d = 0.5°, mag = 3.48)	8	21:54 → 9, 00:10	Transit of Enceladus on top of Saturn	17	04:34 → 06:56	Occultation of Io by Jupiter	24	14:15	Minimum elongation of Venus (6.477°)
2	01:31 → 03:43	Shadow transit of Enceladus on top of Saturn	8	21:58 → 9, 00:09	Shadow transit of Enceladus on top of Saturn	17	05:59	Asteroid (4) Vesta becomes invisible to eye	24	18:29	Maximum of Leonis Minorids (meteor shower, ZHR 2)
2	01:32 → 03:46	Transit of Enceladus on top of Saturn	8	23:28 → 9, 01:45	Transit of Mimas on top of Saturn	17	07:04	Conjunction (433) Eros-NGC6144 (d = 2.1°)	24	22:43 → 22:50	Occultation of Ganymede by Io (44.7%)
2	01:56 → 04:18	Shadow transit of Tethys on top of Saturn	8	23:31 → 9, 01:46	Shadow transit of Mimas on top of Saturn	17	07:04	Conjunction (433) Eros-IC4606 (d = 2.1°)	25	01:49	Minimum distance of Venus (0.273 AU)
2	01:58 → 04:21	Transit of Tethys on top of Saturn	9	01:01	Maximum of Draconids (meteor shower, ZHR 5)	17	09:11	Conjunction Moon-φ Sgr (d = 0.2°, mag = 3.17)	25	22:29 → 26, 00:47	Transit of Mimas on top of Saturn
2	10:10 → 10:18	Occultation of Ganymede by Europa (24.8%)	9	11:23	Minimum of eclipsing binary β Per	17	13:39	Conjunction Moon-σ Sgr (d = 1.0°, mag = 2.07)	25	22:39 → 26, 00:52	Shadow transit of Mimas on top of Saturn
2	11:36	Moon's maximum declination (27.989°)	9	13:46 → 13:55	Occultation of Ganymede by Europa (35.4%)	17	13:40	Conjunction Venus-(3554) Amun (d = 1.7°)	26	00:39 → 02:40	Transit of Dione on top of Saturn
2	14:12 → 14:17	Occultation of Ganymede by Io (2.0%)	9	18:33 → 18:53	Occultation of Ganymede by Io (19.5%)	17	19:35 → 21:52	Occultation of Enceladus by Saturn	26	00:50 → 03:09	Occultation of Enceladus by Saturn
2	19:16	Conjunction (1566) Icarus-δ Sco (d = 0.8°, mag = 2.30)	10	00:25 → 00:52	Occultation of Ganymede by Io (28.6%)	17	19:35 → 19:43	Occultation of Ganymede by Io (48.5%)	26	01:06 → 03:15	Eclipse of Enceladus by Saturn
2	20:23 → 22:35	Eclipse of Mimas by Saturn	10	03:37 → 07:25	Occultation of Ganymede by Jupiter	17	19:45 → 21:55	Eclipse of Enceladus by Saturn	26	01:32 → 02:30	Shadow transit of Dione on top of Saturn
2	20:24 → 22:36	Occultation of Mimas by Saturn	10	15:50	Minimum of eclipsing binary β Lyr	17	19:45 → 21:37	Transit of Dione on top of Saturn	26	04:12	Full Moon
3	12:18 → 12:31	Occultation of Ganymede by Io (24.4%)	10	15:50	<b>New Moon</b>	17	20:21 → 21:29	Shadow transit of Dione on top of Saturn	26	08:09 → 08:14	Eclipse of Io by Europa (38.9%)
3	12:54	Minimum of eclipsing binary λ Tau	10	16:12 → 16:22	Occultation of Ganymede by Io (40.9%)	17	20:22	Conjunction Moon-τ Sgr (d = 1.0°, mag = 3.32)	26	16:16	Minimum of eclipsing binary β Per
3	13:25	<b>Moon's last quarter</b>	10	23:12 → 11, 01:28	Occultation of Enceladus by Saturn	18	01:49	Minimum of eclipsing binary β Per	27	06:07	Minimum of eclipsing binary λ Tau
3	14:31	Conjunction Moon-ε Gem (d = 1.0°, mag = 3.01)	10	23:18 → 11, 01:29	Eclipse of Enceladus by Saturn	18	03:23	Conjunction (433) Eros-α Sco (d = 0.4°, mag = 1.07)	27	07:25	Conjunction Venus-(7) Iris (d = 2.7°)
3	17:42	Lunar Transient Phenomena Lunar-X	10	23:47 → 11, 01:31	Occultation of Dione by Saturn	18	07:11	Lunar Transient Phenomena Lunar-X	27	10:35	Conjunction (1566) Icarus-NGC6273 (M19) (d = 0.8°)
3	17:45	Minimum of eclipsing binary β Per	11	00:07 → 01:22	Eclipse of Dione by Saturn	18	16:13	<b>Moon's first quarter</b>	28	00:15	Conjunction Moon-star #3440134 (d = 0.5°, mag = 3.71)
4	02:50 → 05:04	Occultation of Enceladus by Saturn	11	03:18	Conjunction Moon-α Vir (d = 2.4°, mag = 1.06)	18	17:39	Maximum of ε-Geminids (meteor shower, ZHR 3)	28	00:57	Conjunction Moon-star #3450121 (d = 0.3°, mag = 3.88)
4	02:50 → 05:02	Eclipse of Enceladus by Saturn	11	06:36	Conjunction (1566) Icarus-α Sco (d = 0.7°, mag = 2.91)	18	19:52	Conjunction (3200) Phaethon-ι Cyg	28	01:37	Conjunction Moon-η Tau (d = 0.7°, mag = 2.87)
4	03:39 → 05:12	Transit of Dione on top of Saturn	11	07:56	Conjunction (6053) 1993 BW3-ε Sco	18	22:22	Conjunction (15) Eunomia-(3554) Amun (d = 0.6°)	28	02:33	Conjunction Moon-star #3490031 (d = 0.9°, mag = 3.63)
4	03:44 → 05:04	Shadow transit of Dione on top of Saturn	11	10:38	Minimum of eclipsing binary λ Tau	19	05:52 → 05:57	Eclipse of Io by Europa (53.6%)	28	02:58	Conjunction (3200) Phaethon-ν Cyg (d = 0.1°, mag = 3.94)
4	10:46 → 11:00	Eclipse of Europa by Callisto (68.0%)	12	03:30	Conjunction Moon-Venus (d = 2.6°)	19	08:23	Minimum of eclipsing binary λ Tau	28	05:50 → 05:55	Eclipse of Europa by Ganymede (55.0%)
4	11:06	Conjunction Moon-β Gem (d = 4.3°, mag = 1.22)	12	03:36 → 03:41	Eclipse of Io by Europa (67.7%)	19	19:29 → 21:42	Occultation of Mimas by Saturn	28	09:57	Conjunction (3362) Khufu-y Vir (d = 0.5°, mag = 3.92)
4	12:28	<b>Opposition of Saturn (elongation 177.286°)</b>	12	08:12	Minimum of eclipsing binary β Per	19	19:35 → 21:46	Eclipse of Mimas by Saturn	28	10:54	Conjunction Moon-Uranus (d = 4.5°)
4	13:30	Conjunction Moon-k Gem (d = 0.9°, mag = 3.57)	12	10:01	<b>Maximum elongation of Mercury (25.161° E)</b>	19	20:53 → 23:12	Transit of Enceladus on top of Saturn	28	18:01	Moon's perigee (parallax = 1° 0' 10.770")
5	05:13 → 05:21	Occultation of Io by Callisto (27.0%)	12	20:38	Conjunction Moon-Mercury (d = 2.7°)	19	21:05 → 23:16	Shadow transit of Enceladus on top of Saturn	28	18:17 → 20:20	Transit of Dione on top of Saturn
5	05:13	Conjunction Moon-Mars (d = 0.9°)	12	23:59	Asteroid (4) Vesta with maximum magnitude (6.47, elongation 168.09°)	19	23:13	Conjunction (3200) Phaethon-NGC6826 (d = 0.4°)	28	18:19 → 20:37	Transit of Mimas on top of Saturn
5	06:53 → 09:51	Shadow transit of Europa on top of Jupiter	13	03:13 → 03:21	Eclipse of Callisto by Io (17.4%)	20	09:39	Conjunction Jupiter-(6) Hebe (d = 4.7°)	28	18:30 → 20:43	Shadow transit of Mimas on top of Saturn
5	07:21 → 12:20	Shadow transit of Callisto on top of Jupiter	13	13:30 → 17:16	Shadow transit of Ganymede on top of Jupiter	20	21:28	Conjunction Jupiter-(6) Hebe (d = 4.7°)	28	18:36 → 20:55	Occultation of Enceladus by Saturn
5	08:55 → 11:53	Transit of Europa on top of Jupiter	13	15:20	Conjunction (1566) Icarus-NGC6144 (d = 0.7°)	20	22:38	Minimum of eclipsing binary β Per	28	18:53 → 21:02	Eclipse of Enceladus by Saturn
5	12:41 → 13:29	NGC2632 (M44) behind Moon	13	15:20	Conjunction (1566) Icarus-IC4606 (d = 0.7°)	21	02:39 → 02:42	Eclipse of Europa by Ganymede (20.9%)	28	19:16 → 20:11	Shadow transit of Dione on top of Saturn
5	15:33	Conjunction Moon-δ Cnc (d = 0.8°, mag = 3.93)	14	04:33 → 07:30	Eclipse of Europa by Jupiter	21	12:03 → 12:07	Eclipse of Europa by Io (79.0%)	29	02:46 → 02:59	Eclipse of Callisto by Ganymede (94.5%)
6	03:39 → 05:55	Transit of Mimas on top of Saturn	14	06:01 → 06:36	π Sco behind Moon	21	18:07	Maximum of Orionids (meteor shower, ZHR 20)	29	13:05	Minimum of eclipsing binary β Per
6	03:39 → 05:55	Shadow transit of Mimas on top of Saturn	14	06:44 → 09:40	Occultation of Europa by Jupiter	21	21:28 → 23:59	Occultation of Tethys by Saturn	29	17:40	Moon's maximum declination (27.796°)
6	04:09 → 06:24	Transit of Enceladus on top of Saturn	14	09:51 → 09:55	Eclipse of Europa by Io (97.1%)	21	21:47 → 22, 00:04	Eclipse of Tethys by Saturn	30	03:56 → 06:54	Shadow transit of Europa on top of Jupiter
6	04:11 → 06:23	Shadow transit of Enceladus on top of Saturn	14	10:40 → 10:44	Occultation of Callisto by Io (15.8%)	21	22:12 → 22, 00:31	Occultation of Enceladus by Saturn	30	06:24 → 09:22	Transit of Europa on top of Jupiter
6	04:26	Maximum of Oct. Camelopard, (meteor shower, ZHR 5)	14	13:57	Conjunction (4954) Eric-χ Lup (d = 0.6°, mag = 3.96)	21	22:17 → 22, 00:14	Occultation of Dione by Saturn	30	07:32 → 07:38	Eclipse of Callisto by Europa (26.8%)
6	07:39 → 07:47	Occultation of Io by Callisto (100.0%)	14	22:31	Conjunction Moon-α Sco (d = 0.9°, mag = 1.07)	21	22:26 → 22, 00:35	Eclipse of Enceladus by Saturn	30	08:42 → 13:45	Eclipse of Callisto by Jupiter
6	09:32 → 13:18	Shadow transit of Ganymede on top of Jupiter	15	00:00	Conjunction (433) Eros-σ Sco (d = 0.3°, mag = 2.91)	21	23:01 → 22, 00:05	Eclipse of Dione by Saturn	30	10:05 → 12:26	Shadow transit of Io on top of Jupiter
6	10:28	Conjunction Moon-Jupiter (d = 0.4°)	15	00:55	Conjunction Moon-τ Sco (d = 0.9°, mag = 2.83)	22	08:27	Conjunction (1036) Ganymed-δ Cr1 (d = 0.8°, mag = 3.57)	30	11:17 → 13:38	Transit of Io on top of Jupiter
6	12:36 → 14:58	Eclipse of Io by Jupiter	15	01:50 → 04:07	Occultation of Enceladus by Saturn	22	10:52 → 13:14	Eclipse of Io by Jupiter	30	13:11	Conjunction (433) Eros-NGC6273 (M19) (d = 2.2°)
6	13:37 → 15:59	Occultation of Io by Jupiter	15	01:58 → 04:09	Eclipse of Enceladus by Saturn	22	10:58	Conjunction Moon-λ Aqr (d = 1.0°, mag = 3.75)	30	16:24	Conjunction (1566) Icarus-NGC6293 (d = 0.8°)
6	13:37 → 17:25	Transit of Ganymede on top of Jupiter	15	02:08 → 03:56	Transit of Dione on top of Saturn	22	12:02 → 14:24	Occultation of Io by Jupiter	30	18:24	Conjunction Moon-ε Gem (d = 0.8°, mag = 3.01)
6	14:34	Minimum of eclipsing binary β Per	15	02:24 → 04:37	Occultation of Mimas by Saturn	22	12:14 → 17:13	Transit of Callisto on top of Jupiter	31	04:59	Minimum of eclipsing binary λ Tau
6	18:41	Conjunction (433) Eros-π Sco (d = 0.6°, mag = 2.89)	15	02:28 → 04:39	Eclipse of Mimas by Saturn	22	18:38	Conjunction (3200) Phaethon-star #20130155	31	05:34	Conjunction (3200) Phaethon-τ Cyg (d = 0.3°, mag = 3.74)
6	19:11 → 21:36	Occultation of Tethys by Saturn	15	02:37 → 03:48	Shadow transit of Dione on top of Saturn	23	07:15	Minimum of eclipsing binary λ Tau	31	07:21	Conjunction (433) Eros-(1566) Icarus (d = 1.8°)
6	19:14 → 21:34	Eclipse of Tethys by Saturn	15	05:01	Minimum of eclipsing binary β Per	23	14:29	Minimum of eclipsing binary β Lyr	31	17:06	Conjunction Moon-β Gem (d = 4.8°, mag = 1.22)
6	20:35 → 22:50	Occultation of Enceladus by Saturn	15	09:30	Minimum of eclipsing binary λ Tau	23	15:56	Conjunction (6) Hebe-o Leo (d = 0.1°, mag = 3.53)	31	18:29	Conjunction (6053) 1993 BW3-NGC6374 (d = 0.6°)
6	20:37 → 22:49	Eclipse of Enceladus by Saturn	15	23:42	Conjunction (433) Eros-NGC6121 (M4) (d = 0.6°)	23	19:27	Minimum of eclipsing binary β Per	31	18:29	Conjunction (6053) 1993 BW3-NGC6383 (d = 0.6°)
6	21:16 → 22:53	Transit of Dione on top of Saturn	16	01:50	Conjunction (3752) Camillo-η Boo (d = 0.2°, mag = 2.68)	23	22:28	Conjunction Moon-Neptune (d = 3.9°)			
6	21:27 → 22:45	Shadow transit of Dione on top of Saturn	16	02:45	Moon's minimum declination (-27.891°)	23	23:31 → 24, 01:50	Transit of Enceladus on top of Saturn			



# Astronomical events for November

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	01:42 → 01:48	Occultation of Ganymede by Io (22.5%)	8	18:14 → 18:52	Shadow transit of Dione on top of Saturn	16	05:29 → 07:51	Eclipse of Io by Jupiter	24	03:35 → 06:32	Transit of Europa on top of Jupiter
1	03:20 → 03:24	Eclipse of Europa by Io (49.3%)	8	19:44 → 22:20	Transit of Tethys on top of Saturn	16	06:45 → 09:07	Occultation of Io by Jupiter	24	03:39	Conjunction (3671) Dionysus-NGC6520 (d = 0.4°)
1	09:54	Minimum of eclipsing binary β Per	8	20:20 → 22:32	Shadow transit of Tethys on top of Saturn	16	07:51 → 08:06	Eclipse of Callisto by Io (44.6%)	24	04:40 → 07:02	Shadow transit of Io on top of Jupiter
1	19:12	Conjunction Moon-δ Cnc (d = 0.8°, mag = 3.93)	9	05:41	Conjunction Venus-α Vir (d = 1.2°, mag = 1.06)	16	20:32	Lunar Transient Phenomena Lunar-X	24	05:55 → 08:16	Transit of Io on top of Jupiter
1	<b>20:28</b>	<b>Moon's last quarter</b>	9	<b>07:02</b>	<b>New Moon</b>	16	21:50 → 00:06	Transit of Dione on top of Saturn	24	07:39	Conjunction (433) Eros-(3671) Dionysus (d = 2.9°)
1	20:50 → 22:57	Occultation of Dione by Saturn	9	16:29	Conjunction (887) Alinda-NGC6469 (d = 0.6°)	16	22:54 → 01:17	Occultation of Enceladus by Saturn	24	08:26	Minimum of eclipsing binary β Per
1	21:14 → 23:34	Occultation of Enceladus by Saturn	9	16:39	Conjunction Venus-α Vir (d = 1.2°, mag = 1.06)	16	23:23 → 01:30	Eclipse of Enceladus by Saturn	24	10:58 → 11:38	Star #3440134 behind Moon
1	21:34 → 23:42	Eclipse of Enceladus by Saturn	10	00:18 → 02:36	Transit of Mimas on top of Saturn	16	23:32 → 23:48	Shadow transit of Dione on top of Saturn	24	11:37	Conjunction Moon-star #3450121 (d = 0.3°, mag = 3.88)
1	21:57 → 22:48	Eclipse of Dione by Saturn	10	00:21	Minimum of eclipsing binary β Per	17	01:00 → 03:58	Transit of Europa on top of Jupiter	24	11:40 → 12:20	Mel22 (M45) behind Moon
1	23:46	Conjunction (3671) Dionysus-NGC6093 (M80) (d = 0.1°)	10	00:34 → 02:45	Shadow transit of Mimas on top of Saturn	17	02:47 → 05:08	Shadow transit of Io on top of Jupiter	24	11:41 → 12:21	η T behind Moon
2	02:08	Conjunction (3200) Phaethon-NGC7063 (d = 0.2°)	10	00:55	Conjunction Venus-α Vir (d = 1.2°, mag = 1.06)	17	04:02 → 06:24	Transit of Io on top of Jupiter	24	12:10 → 12:46	Star #3490031 behind Moon
2	07:14	Lunar Transient Phenomena Lunar-X	10	01:46 → 03:59	Occultation of Dione by Saturn	17	<b>11:48</b>	<b>Moon's first quarter</b>	24	14:54	Full Moon
2	09:07	Conjunction (433) Eros-NGC6293 (d = 0.4°)	10	02:09 → 04:30	Transit of Io on top of Jupiter	17	23:30	Maximum of Leonids (meteor shower, ZHR 15)	24	15:56	Conjunction Moon-Uranus (d = 4.2°)
2	10:27 → 10:32	Eclipse of Io by Europa (25.1%)	10	06:15	Conjunction (3122) Florence-ε Sco	18	08:07 → 08:09	Occultation of Io by Ganymede (0.6%)	24	16:06	Conjunction (1566) Icarus-(3671) Dionysus (d = 0.5°)
2	14:14	Conjunction Moon-Mars (d = 1.9°)	10	13:35	Conjunction Mercury-(7) Iris (d = 4.8°)	18	11:47	Minimum of eclipsing binary β Lyr	24	16:10	Conjunction (3671) Dionysus-NGC6540 (d = 0.6°)
2	18:45	Conjunction (3122) Florence-(4954) Eric (d = 0.2°)	10	15:06	Conjunction (3) Juno-β, Cap (d = 0.5°, mag = 3.09)	18	14:48	Minimum of eclipsing binary β Per	24	16:34	Conjunction (433) Eros-NGC6553 (d = 0.4°)
2	21:05	Conjunction (1566) Icarus-NGC6316 (d = 0.5°)	10	15:47	Conjunction Moon-π Sco (d = 0.3°, mag = 2.89)	18	23:16 → 01:29	Occultation of Mimas by Saturn	25	01:02 → 05:55	Transit of Callisto on top of Jupiter
2	21:43	Conjunction Moon-Jupiter (d = 1.0°)	10	17:02 → 19:38	Transit of Tethys on top of Saturn	18	23:34 → 01:40	Eclipse of Mimas by Saturn	25	01:51 → 04:13	Eclipse of Io by Jupiter
3	05:31	Conjunction (6053) 1993 BW3-NGC6405 (M6) (d = 0.5°)	10	17:39 → 19:51	Shadow transit of Tethys on top of Saturn	19	00:12 → 02:36	Transit of Enceladus on top of Saturn	25	03:06 → 05:29	Occultation of Io by Jupiter
3	08:02	Conjunction Moon-α Leo (d = 1.3°, mag = 1.41)	10	18:55 → 21:18	Transit of Enceladus on top of Saturn	19	00:43 → 02:49	Shadow transit of Enceladus on top of Saturn	25	07:56 → 07:58	Eclipse of Io by Ganymede (2.8%)
3	21:21 → 23:35	Occultation of Mimas by Saturn	10	19:22 → 21:29	Shadow transit of Enceladus on top of Saturn	19	03:32	Conjunction (3362) Khufu-NGC6440 (d = 0.6°)	25	09:25 → 09:31	Eclipse of Europa by Callisto (34.0%)
3	21:34 → 23:43	Eclipse of Mimas by Saturn	11	01:37 → 02:03	NGC6121 (M4) behind Moon	19	16:40 → 19:03	Occultation of Enceladus by Saturn	25	19:26 → 22:04	Transit of Tethys on top of Saturn
3	22:31 → 00:53	Transit of Enceladus on top of Saturn	11	03:44	Conjunction Moon-α Sco (d = 0.5°, mag = 1.07)	19	17:11 → 19:16	Eclipse of Enceladus by Saturn	25	20:14 → 22:22	Shadow transit of Tethys on top of Saturn
3	22:54 → 01:02	Shadow transit of Enceladus on top of Saturn	11	05:15 → 05:18	Occultation of Io by Ganymede (18.0%)	19	23:21	Minimum of eclipsing binary λ Tau	25	20:37 → 23:01	Transit of Enceladus on top of Saturn
4	02:24 → 02:29	Occultation of Io by Ganymede (51.9%)	11	06:44	Conjunction Moon-τ Sco (d = 1.0°, mag = 2.83)	20	01:25	Conjunction (6053) 1993 BW3-5 Sgr (d = 0.3°, mag = 2.70)	25	20:58	Moon's perigee (parallax = 1' 1" 0.027")
4	03:52	Minimum of eclipsing binary λ Tau	11	23:17	Conjunction (3671) Dionysus-NGC6273 (M19) (d = 0.4°)	20	04:18 → 04:21	Eclipse of Io by Europa (1.8%)	25	21:11 → 23:16	Shadow transit of Enceladus on top of Saturn
4	06:43	Minimum of eclipsing binary β Per	12	01:36	Minimum of eclipsing binary λ Tau	20	05:57	Conjunction Venus-(3753) Cruithne (d = 1.3°)	25	<b>22:42</b>	<b>Opposition of Uranus (elongation 179.852°)</b>
4	08:01	Conjunction (1036) Ganymed-(3753) Cruithne	12	09:40	Moon's minimum declination (-27.699°)	20	06:01	Conjunction (3753) Cruithne-α Vir (d = 0.5°, mag = 1.06)	26	02:01	Moon's maximum declination (27.648°)
4	09:02 → 09:07	Eclipse of Europa by Ganymede (91.2%)	12	09:50 → 11:01	(1566) Icarus behind Moon	20	09:28	Conjunction Moon-Neptune (d = 3.8°)	26	04:34	Conjunction Mars-α Leo (d = 1.7°, mag = 1.41)
4	12:14 → 15:10	Eclipse of Europa by Jupiter	12	17:55	Maximum of N. Taurids (meteor shower, ZHR 5)	20	10:01	Conjunction (887) Alinda-NGC6531 (M21) (d = 0.6°)	26	17:58	Conjunction (433) Eros-(887) Alinda (d = 3.5°)
4	19:02	Conjunction (6053) 1993 BW3-NGC6416 (d = 0.8°)	12	19:26 → 21:40	Occultation of Dione by Saturn	20	13:04	Conjunction (3752) Camillo-β Ser (d = 0.1°, mag = 3.66)	27	05:15	Minimum of eclipsing binary β Per
5	13:08	Minimum of eclipsing binary β Lyr	12	20:08 → 22:26	Transit of Mimas on top of Saturn	20	18:56	Conjunction (6053) 1993 BW3-NGC6624 (d = 0.9°)	27	20:30 → 22:49	Transit of Dione on top of Saturn
5	18:41	Maximum of S. Taurids (meteor shower, ZHR 7)	12	20:16 → 22:38	Occultation of Enceladus by Saturn	20	<b>23:30</b>	<b>Maximum elongation of Mercury (19.622° W)</b>	27	21:05	Minimum of eclipsing binary λ Tau
5	23:13 → 01:22	Transit of Dione on top of Saturn	12	20:26 → 22:36	Shadow transit of Mimas on top of Saturn	21	00:25 → 02:42	Occultation of Dione by Saturn	27	21:20	Conjunction (3122) Florence-NGC6475 (M7) (d = 0.7°)
5	23:48 → 02:23	Occultation of Tethys by Saturn	12	20:43 → 22:49	Eclipse of Enceladus by Saturn	21	01:33 → 03:56	Occultation of Enceladus by Saturn	27	21:58 → 00:22	Occultation of Enceladus by Saturn
5	23:52 → 02:13	Occultation of Enceladus by Saturn	12	20:56 → 21:27	Eclipse of Dione by Saturn	21	07:01 → 07:09	Eclipse of Ganymede by Europa (11.1%)	27	21:59 → 00:17	Transit of Mimas on top of Saturn
6	00:15 → 02:22	Eclipse of Enceladus by Saturn	12	21:10	Minimum of eclipsing binary β Per	21	11:32 → 11:44	Occultation of Ganymede by Europa (24.3%)	27	22:22 → 00:29	Shadow transit of Mimas on top of Saturn
6	00:21 → 02:34	Eclipse of Tethys by Saturn	12	23:23 → 00:05	NGC6520 behind Moon	21	11:37	Minimum of eclipsing binary β Per	27	22:32 → 00:37	Eclipse of Enceladus by Saturn
6	00:29 → 01:12	Shadow transit of Dione on top of Saturn	13	00:20 → 01:05	NGC6540 behind Moon	21	17:58 → 20:22	Transit of Enceladus on top of Saturn	27	23:42	Conjunction Moon-κ Gem (d = 4.4°, mag = 1.22)
6	05:39	Conjunction (6053) 1993 BW3-NGC6425 (d = 0.1°)	13	01:56 → 02:00	Eclipse of Io by Europa (8.7%)	21	18:30 → 20:36	Shadow transit of Enceladus on top of Saturn	28	00:33	Conjunction Moon-κ Gem (d = 0.8°, mag = 3.57)
6	06:31 → 09:30	Shadow transit of Europa on top of Jupiter	13	09:07 → 12:05	Shadow transit of Europa on top of Jupiter	21	19:07 → 21:21	Occultation of Mimas by Saturn	28	01:18	Conjunction (887) Alinda-NGC6568 (d = 0.4°)
6	09:03 → 12:01	Transit of Europa on top of Jupiter	13	09:24	Conjunction (6053) 1993 BW3-NGC6522 (d = 0.5°)	21	19:26 → 21:32	Eclipse of Mimas by Saturn	28	10:38 → 10:47	Eclipse of Ganymede by Europa (12.9%)
6	11:58 → 14:19	Shadow transit of Io on top of Jupiter	13	11:41 → 14:39	Transit of Europa on top of Jupiter	21	23:50	Maximum of α-Monocerotids (meteor shower, ZHR Var)	28	14:26	Maximum of Nov. Orionids (meteor shower, ZHR 3)
6	17:13 → 19:26	Occultation of Mimas by Saturn	13	12:15	Conjunction (324) Bamberga-NGC7009 (d = 0.7°)	22	04:15 → 08:03	Occultation of Ganymede by Jupiter	28	16:13 → 18:20	Eclipse of Tethys by Saturn
6	17:26 → 19:35	Eclipse of Mimas by Saturn	13	12:33	Conjunction (3671) Dionysus-NGC6293 (d = 0.4°)	22	06:23	Conjunction (433) Eros-(3362) Khufu (d = 4.5°)	28	22:21 → 23:05	NGC2632 (M44) behind Moon
7	03:32	Minimum of eclipsing binary β Per	13	17:50	Moon's apogee (parallax = 54' 3.545")	22	06:37 → 09:33	Eclipse of Europa by Jupiter	28	22:34	Conjunction (887) Alinda-μ Sgr (d = 0.9°, mag = 3.84)
7	04:13 → 04:23	Occultation of Ganymede by Europa (27.3%)	13	18:50 → 19:36	φ Sgr behind Moon	22	07:15 → 07:18	Eclipse of Ganymede by Io (4.6%)	29	01:37	Conjunction Moon-δ Cnc (d = 1.0°, mag = 3.93)
7	06:00	Conjunction (324) Bamberga-NGC6981 (M72) (d = 0.8°)	13	20:44	Conjunction (3753) Cruithne-NGC4594 (M104)	22	07:26	Conjunction (887) Alinda-(3362) Khufu (d = 0.7°)	29	08:09 → 11:57	Occultation of Ganymede by Jupiter
7	09:05	Conjunction Moon-Venus (d = 1.5°)	13	21:00	Conjunction (6053) 1993 BW3-NGC6528 (d = 0.4°)	22	09:07 → 12:02	Occultation of Europa by Jupiter	29	09:10 → 12:06	Eclipse of Europa by Jupiter
7	09:22	Conjunction Moon-α Vir (d = 2.8°, mag = 1.06)	13	23:29 → 23:53	σ Sgr behind Moon	22	10:12 → 12:33	Shadow transit of Io on top of Jupiter	29	10:00 → 10:04	Eclipse of Ganymede by Io (12.1%)
7	13:40	Conjunction (433) Eros-NGC6355 (d = 0.2°)	14	01:59	Conjunction (6053) 1993 BW3-γ <sub>2</sub> Sgr	22	11:27 → 13:48	Transit of Io on top of Jupiter	29	10:36	Conjunction (3554) Amun-ε Sco (d = 0.4°, mag = 2.29)
8	01:10 → 03:32	Transit of Enceladus on top of Saturn	14	03:14	Conjunction (1) Ceres-κ Gem (d = 0.4°, mag = 3.57)	23	06:28 → 06:30	Eclipse of Ganymede by Callisto (0.1%)	29	18:06	Conjunction (3200) Phaethon-λ Peg (d = 0.9°, mag = 3.96)
8	01:31 → 04:27	Eclipse of Europa by Jupiter	14	03:30 → 03:37	Eclipse of Ganymede by Europa (8.1%)	23	10:14	Conjunction (3362) Khufu-NGC6568 (d = 0.3°)	29	19:11	Conjunction (15) Eunomia-α Lib (d = 0.7°, mag = 3.28)
8	01:35 → 03:42	Shadow transit of Enceladus on top of Saturn	14	07:51 → 08:02	Occultation of Ganymede by Europa (24.4%)	23	12:34	Conjunction (3122) Florence-NGC6396 (d = 0.5°)	30	02:04	Minimum of eclipsing binary β Per
8	02:44	Minimum of eclipsing binary λ Tau	14	09:11	Conjunction (3362) Khufu-NGC6342 (d = 0.7°)	23	13:33	Conjunction (1566) Icarus-NGC6520 (d = 0.9°)	30	06:24	Conjunction (6053) 1993 BW3-φ Sgr (d = 1.0°, mag = 3.17)
8	03:59 → 06:55	Occultation of Europa by Jupiter	15	04:04 → 07:00	Eclipse of Europa by Jupiter	23	14:13	Conjunction (3362) Khufu-μ Sgr (d = 0.3°, mag = 3.84)	30	08:16	Conjunction Moon
8	04:35 → 04:38	Occultation of Ganymede by Io (3.7%)	15	06:34 → 09:29	Occultation of Europa by Jupiter	23	16:22 → 18:35	Occultation of Mimas by Saturn	30	14:52	Conjunction Moon-α Leo (d = 1.9°, mag = 1.41)
8	05:31 → 05:34	Eclipse of Europa by Io (29.0%)	15	07:42 → 07:44	Eclipse of Europa by Io (11.8%)	23	16:41 → 18:47	Eclipse of Mimas by Saturn	30	15:45 → 18:08	Occultation of Enceladus by Saturn
8	06:17	Conjunction (6053) 1993 BW3-NGC6451 (d = 1.0°)	15	08:19 → 10:40	Shadow transit of Io on top of Jupiter	23	18:05 → 20:23	Occultation of Dione by Saturn	30	16:20 → 18:24	Eclipse of Enceladus by Saturn
8	06:26 → 08:47	Shadow transit of Io on top of Jupiter	15	09:34 → 11:55	Transit of Io on top of Jupiter	23	19:19 → 21:42	Occultation of Enceladus by Saturn	30	16:24	Conjunction (433) Eros-NGC6626 (M28) (d = 0.2°)
8	07:02 → 11:58	Transit of Callisto on top of Jupiter	15	17:59	Minimum of eclipsing binary β Per	23	19:51 → 21:57	Eclipse of Enceladus by Saturn	30	16:40 → 16:56	Transit of Rhea on top of Saturn
8	07:40 → 10:02	Transit of Io on top of Jupiter	16	00:28	Minimum of eclipsing binary λ Tau	23	20:23	Conjunction (3752) Camillo-γ Ser (d = 0.6°, mag = 3.85)	30	17:15	Conjunction Moon-Mars (d = 3.7°)
8	16:59 → 19:03	Transit of Dione on top of Saturn	16	02:41 → 07:44	Eclipse of Callisto by Jupiter	23	22:13	Minimum of eclipsing binary λ Tau	30	17:51 → 20:08	Transit of Mimas on top of Saturn
8	17:37 → 19:59	Occultation of Enceladus by Saturn	16	04:46	Conjunction (3671) Dionysus-NGC6355 (d = 0.5°)	24	01:01 → 03:59	Shadow transit of Europa on top of Jupiter	30	18:14 → 20:21	Shadow transit of Mimas on top of Saturn
8	18:02 → 20:09	Eclipse of Enceladus by Saturn	16	04:59	Conjunction Mars-Jupiter (d = 1.2°)	24	02:48	Conjunction (433) Eros-NGC6544 (d = 0.5°)			



# Astronomical events for December

Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description	Day	Time (UT)	Event description
1	03:36 → 06:35	Shadow transit of Europa on top of Jupiter	9	00:53	Conjunction Mercury-w, Sco (d = 0.4°, mag = 3.95)	15	15:34 → 17:53	Occultation of Dione by Saturn	23	22:51 → 24, 01:14	Occultation of Enceladus by Saturn
1	06:08 → 09:05	Transit of Europa on top of Jupiter	9	02:16	Conjunction (3122) Florence-NGC6652 (d = 0.7°)	15	16:07 → 18:09	Eclipse of Tethys by Saturn	24	01:28	Full Moon (supermoon)
<b>1</b>	<b>06:09</b>	<b>Moon's last quarter</b>	9	06:39 → 07:40	NGC6316 behind Moon	15	17:31 → 19:54	Occultation of Enceladus by Saturn	24	04:08 → 04:30	Occultation of Io by Ganymede (6.6%)
1	06:33 → 08:54	Shadow transit of Io on top of Jupiter	9	10:41	Maximum of Monocerotids (meteor shower, ZHR 3)	15	18:10 → 20:12	Eclipse of Enceladus by Saturn	24	05:07 → 08:54	Shadow transit of Ganymede on top of Jupiter
1	07:46 → 10:07	Transit of Io on top of Jupiter	9	10:41	Maximum of $\sigma$ -Hydrids (meteor shower, ZHR 7)	15	19:45 → 22:00	Transit of Mimas on top of Saturn	24	06:06 → 09:01	Eclipse of Europa by Jupiter
1	19:57	Minimum of eclipsing binary $\lambda$ Tau	9	15:27	Moon's minimum declination (-27.605°)	15	20:11 → 22:14	Shadow transit of Mimas on top of Saturn	24	06:41 → 09:02	Shadow transit of Io on top of Jupiter
1	20:35	Conjunction (433) Eros-A Sgr (d = 0.4°, mag = 2.83)	9	16:55 → 19:08	Occultation of Mimas by Saturn	16	16:39	Conjunction (3554) Amun- $\epsilon$ Sgr (d = 0.8°, mag = 1.81)	24	07:41 → 10:02	Transit of Io on top of Jupiter
1	21:15	Conjunction (3362) Khufu- $\xi$ Sgr (d = 0.3°, mag = 3.53)	9	17:19 → 19:21	Eclipse of Mimas by Saturn	16	17:23	Conjunction (3122) Florence- $\zeta$ Sgr (d = 0.8°, mag = 2.61)	24	08:06 → 11:00	Occultation of Europa by Jupiter
1	21:16	Lunar Transient Phenomena Lunar-X	9	17:28 → 17:48	Transit of Rhea on top of Saturn	17	01:09 → 04:55	Shadow transit of Ganymede on top of Jupiter	24	08:30	Moon's perigee (parallax = 1° 1' 29.876")
1	22:49	Conjunction (1566) Icarus- $\delta$ Sgr (d = 0.8°, mag = 2.70)	9	17:42	Minimum of eclipsing binary $\lambda$ Tau	17	03:33 → 06:28	Eclipse of Europa by Jupiter	24	09:06 → 09:30	Eclipse of Io by Ganymede (98.9%)
1	23:07 → 2, 01:27	Occultation of Dione by Saturn	9	18:00	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	17	04:48 → 07:09	Shadow transit of Io on top of Jupiter	24	09:13 → 12:58	Transit of Ganymede on top of Jupiter
2	00:38 → 03:01	Occultation of Enceladus by Saturn	10	00:56 → 01:00	Eclipse of Europa by Ganymede (25.8%)	17	05:35 → 09:21	Transit of Ganymede on top of Jupiter	24	13:45	Conjunction Moon- $\epsilon$ Gem (d = 0.4°, mag = 3.01)
2	01:21	Maximum of Phoenicids (meteor shower, ZHR Var)	10	01:03 → 03:55	Eclipse of Europa by Jupiter	<b>17</b>	<b>05:43</b>	<b>Moon's first quarter</b>	24	21:21	Conjunction (3753) Cruithne- $\eta$ Oph (d = 0.4°, mag = 2.43)
2	10:46 → 10:51	Eclipse of Io by Ganymede (18.9%)	10	01:54 → 05:40	Transit of Ganymede on top of Jupiter	17	05:44 → 08:38	Occultation of Europa by Jupiter	25	13:11	Minimum of eclipsing binary $\lambda$ Tau
2	15:28 → 17:35	Shadow transit of Mimas on top of Saturn	10	02:55 → 05:16	Shadow transit of Io on top of Jupiter	17	05:53 → 08:14	Transit of Io on top of Jupiter	25	21:25	Minimum of eclipsing binary $\beta$ Per
2	17:02 → 19:27	Transit of Enceladus on top of Saturn	10	03:19 → 06:13	Occultation of Europa by Jupiter	17	06:16 → 06:29	Occultation of Io by Ganymede (14.0%)	25	22:03	Conjunction (18) Melpomene- $\delta$ Cap (d = 0.2°, mag = 2.85)
2	17:39 → 19:43	Shadow transit of Enceladus on top of Saturn	10	04:04 → 06:25	Transit of Io on top of Jupiter	17	06:58	Minimum of eclipsing binary $\beta$ Per	25	22:36	Conjunction (1566) Icarus-(3554) Amun (d = 2.6°)
2	22:53	Minimum of eclipsing binary $\beta$ Per	10	04:06 → 04:42	NGC6520 behind Moon	17	15:26	Minimum of eclipsing binary $\lambda$ Tau	26	00:42 → 03:40	Shadow transit of Europa on top of Jupiter
2	23:06	Conjunction (433) Eros-NGC6638 (d = 0.6°)	10	05:00 → 05:50	NGC6540 behind Moon	17	15:31	Conjunction Moon-Neptune (d = 3.9°)	26	01:09 → 03:30	Shadow transit of Io on top of Jupiter
3	00:52 → 03:46	Occultation of Europa by Jupiter	10	07:43 → 07:58	Occultation of Io by Ganymede (10.4%)	17	16:59 → 19:14	Transit of Mimas on top of Saturn	26	02:08 → 04:29	Transit of Io on top of Jupiter
3	01:02 → 03:23	Shadow transit of Io on top of Jupiter	10	08:09	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	17	17:25 → 19:28	Shadow transit of Mimas on top of Saturn	26	02:44 → 05:41	Transit of Europa on top of Jupiter
3	02:14 → 04:35	Transit of Io on top of Jupiter	10	11:47	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	17	18:48 → 21:12	Transit of Enceladus on top of Saturn	26	11:52 → 12:32	$\delta$ Cnc behind Moon
3	05:48	Conjunction (3362) Khufu- $\sigma$ Sgr (d = 0.3°, mag = 3.77)	10	16:07	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	17	19:29 → 21:30	Shadow transit of Enceladus on top of Saturn	26	14:23 → 16:39	Occultation of Dione by Saturn
3	22:55	Conjunction (6053) 1993 BW3- $\sigma$ Sgr (d = 1.0°, mag = 2.07)	10	21:53 → 11, 00:31	Transit of Tethys on top of Saturn	18	04:57	Conjunction (3554) Amun-NGC6637 (M69) (d = 1.0°)	26	16:08 → 18:20	Occultation of Mimas by Saturn
4	06:39	Conjunction (3362) Khufu- $\pi$ Sgr (d = 0.3°, mag = 2.90)	10	22:21 → 11, 00:46	Transit of Enceladus on top of Saturn	18	21:18	Conjunction (3554) Amun-NGC6652 (d = 0.2°)	26	16:34 → 18:34	Eclipse of Mimas by Saturn
4	16:48 → 19:08	Occultation of Dione by Saturn	10	22:49 → 11, 00:52	Shadow transit of Tethys on top of Saturn	18	23:16 → 19, 01:37	Shadow transit of Io on top of Jupiter	26	16:38 → 19:01	Occultation of Enceladus by Saturn
4	18:24 → 20:48	Occultation of Enceladus by Saturn	10	23:00 → 11, 01:03	Shadow transit of Enceladus on top of Saturn	19	00:19 → 03:16	Transit of Europa on top of Jupiter	26	17:19 → 19:19	Eclipse of Enceladus by Saturn
4	18:25	Conjunction Moon- $\alpha$ Vir (d = 2.9°, mag = 1.06)	11	00:51	Conjunction Moon- $\phi$ Sgr (d = 0.4°, mag = 3.17)	19	00:20 → 02:41	Transit of Io on top of Jupiter	27	02:48 → 03:02	Eclipse of Ganymede by Europa (4.0%)
4	19:01 → 21:04	Eclipse of Enceladus by Saturn	11	01:10	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	19	18:01 → 20:19	Transit of Dione on top of Saturn	27	16:09	Conjunction Moon-Jupiter (d = 2.1°)
5	09:55	Conjunction (433) Eros-NGC6656 (M22) (d = 0.8°)	11	03:46	Conjunction (3122) Florence-NGC6681 (M70) (d = 0.4°)	19	20:11 → 22:34	Occultation of Enceladus by Saturn	27	21:01	Conjunction Moon- $\alpha$ Leo (d = 1.5°, mag = 1.41)
5	18:00	Conjunction (3671) Dionysus- $\zeta$ Sgr (d = 0.9°, mag = 2.61)	11	03:54 → 04:35	$\sigma$ Sgr behind Moon	19	20:51 → 22:52	Eclipse of Enceladus by Saturn	27	21:44 → 28, 00:20	Transit of Tethys on top of Saturn
5	18:50	Minimum of eclipsing binary $\lambda$ Tau	11	06:46	Moon's apogee (parallax = 53' 57.144")	20	02:11 → 02:22	Eclipse of Callisto by Io (2.8%)	27	22:44 → 28, 00:42	Shadow transit of Tethys on top of Saturn
5	19:42	Minimum of eclipsing binary $\beta$ Per	11	07:23	Conjunction (3554) Amun-NGC6475 (M7) (d = 0.6°)	20	03:46 → 04:21	Occultation of Ganymede by Europa (35.3%)	27	22:55 → 28, 02:42	Occultation of Ganymede by Jupiter
6	12:43 → 12:48	Eclipse of Ganymede by Io (21.9%)	11	13:20	Minimum of eclipsing binary $\beta$ Per	20	03:47	Minimum of eclipsing binary $\beta$ Per	28	01:12 → 06:10	Shadow transit of Callisto on top of Jupiter
6	19:42 → 22:06	Transit of Enceladus on top of Saturn	11	13:50	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	20	06:43	Conjunction (3554) Amun-NGC6681 (M70) (d = 0.6°)	28	04:18	Conjunction (3752) Camillo- $\alpha$ Oph (d = 0.4°, mag = 2.09)
6	20:20 → 22:23	Shadow transit of Enceladus on top of Saturn	11	14:51 → 17:14	Occultation of Enceladus by Saturn	20	07:32 → 07:47	Eclipse of Callisto by Io (12.1%)	28	17:56 → 20:19	Transit of Enceladus on top of Saturn
6	21:03 → 23:17	Occultation of Mimas by Saturn	11	15:29 → 17:31	Eclipse of Enceladus by Saturn	20	14:49	Conjunction Mars-(6) Hebe (d = 3.9°)	28	18:14	Minimum of eclipsing binary $\beta$ Per
6	21:26 → 23:29	Eclipse of Mimas by Saturn	11	15:46 → 16:40	(6053) 1993 BW3 behind Moon	21	04:23	Conjunction Mars-(6) Hebe (d = 3.9°)	28	18:38 → 20:38	Shadow transit of Enceladus on top of Saturn
7	04:55 → 05:53	Occultation of Ganymede by Europa (20.3%)	11	18:15	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	21	09:03 → 09:45	Eclipse of Ganymede by Europa (25.8%)	28	19:56	Conjunction (6053) 1993 BW3-NGC6864 (M75) (d = 0.6°)
7	11:26	Maximum of Puppilid-Velids (meteor shower, ZHR 10)	11	22:30	Conjunction (1866) Sisyphus-(3753) Cruithne	21	14:19	Minimum of eclipsing binary $\lambda$ Tau	28	20:24 → 22:59	Occultation of Tethys by Saturn
7	21:56	Conjunction Moon- $\pi$ Sco (d = 0.3°, mag = 2.89)	12	04:11	Conjunction Jupiter- $\alpha$ Leo (d = 3.2°, mag = 1.41)	21	18:20	Conjunction (1566) Icarus- $\zeta$ Sgr (d = 0.9°, mag = 2.61)	28	21:24 → 23:21	Eclipse of Tethys by Saturn
8	02:15	Conjunction (3554) Amun-(4954) Eric (d = 1.6°)	12	11:11	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	21	19:56	Conjunction (15) Europa-U Lib (d = 0.1°, mag = 3.60)	29	12:03	Minimum of eclipsing binary $\lambda$ Tau
8	04:15	Conjunction (3122) Florence-NGC6637 (M69) (d = 0.2°)	12	19:12 → 21:50	Transit of Tethys on top of Saturn	21	20:50	Winter solstice	29	17:02	Conjunction (3753) Cruithne- $\xi$ Ser (d = 0.7°, mag = 3.54)
8	06:12 → 09:11	Shadow transit of Europa on top of Jupiter	12	20:08 → 22:11	Shadow transit of Tethys on top of Saturn	21	21:28 → 23:52	Transit of Enceladus on top of Saturn	30	00:11	Conjunction Mercury- $\lambda$ Sgr (d = 0.6°, mag = 2.83)
8	08:26 → 10:47	Shadow transit of Io on top of Jupiter	12	21:52 → 13, 00:12	Occultation of Dione by Saturn	21	22:09 → 22, 00:10	Shadow transit of Enceladus on top of Saturn	30	05:45	Conjunction (7) Iris-NGC5897 (d = 0.3°)
8	08:38 → 11:35	Transit of Europa on top of Jupiter	12	21:54	Conjunction Jupiter- $\alpha$ Leo (d = 3.2°, mag = 1.41)	21	22:13	Conjunction Moon-star #3440134 (d = 0.6°, mag = 3.71)	30	16:52 → 19:06	Transit of Dione on top of Saturn
8	08:48	Conjunction (3554) Amun-NGC6396 (d = 0.7°)	12	23:44 → 13, 02:07	Occultation of Enceladus by Saturn	21	22:55	Conjunction Moon-star #3450121 (d = 0.4°, mag = 3.88)	30	17:43 → 20:18	Occultation of Tethys by Saturn
8	09:37 → 11:58	Transit of Io on top of Jupiter	12	23:53 → 13, 02:09	Transit of Mimas on top of Saturn	21	23:01 → 22, 01:13	Occultation of Mimas by Saturn	30	18:43 → 20:40	Eclipse of Tethys by Saturn
8	10:16	Conjunction Moon- $\alpha$ Sco (d = 1.0°, mag = 1.07)	13	05:57	Conjunction Mercury- $\alpha$ Sco (d = 4.7°, mag = 1.07)	21	23:27 → 22, 01:27	Eclipse of Mimas by Saturn	<b>30</b>	<b>19:00</b>	<b>Moon's last quarter</b>
8	15:20	Conjunction Moon- $\tau$ Sco (d = 0.6°, mag = 2.83)	13	15:20	Conjunction (1566) Icarus-(3122) Florence (d = 2.7°)	21	23:41	Conjunction Moon- $\eta$ Tau (d = 0.8°, mag = 2.87)	30	19:19 → 21:41	Occultation of Enceladus by Saturn
8	16:27	Conjunction Mercury- $\beta$ , Sco (d = 0.4°, mag = 2.62)	13	15:25 → 15:30	Eclipse of Ganymede by Io (33.2%)	22	00:36	Conjunction Moon-star #3490031 (d = 0.9°, mag = 3.63)	30	20:00 → 22:00	Eclipse of Enceladus by Saturn
8	16:31	Minimum of eclipsing binary $\beta$ Per	13	16:08 → 18:32	Transit of Enceladus on top of Saturn	22	05:14	Conjunction Moon-Uranus (d = 4.7°)	30	21:42 → 23:54	Transit of Mimas on top of Saturn
8	18:18 → 20:31	Occultation of Mimas by Saturn	13	16:34	Minimum of eclipsing binary $\lambda$ Tau	22	14:38 → 16:39	Eclipse of Enceladus by Saturn	30	22:09 → 31, 00:08	Shadow transit of Mimas on top of Saturn
8	18:41 → 20:44	Eclipse of Mimas by Saturn	13	16:48 → 18:50	Shadow transit of Enceladus on top of Saturn	22	20:55	Conjunction (18) Melpomene- $\gamma$ Cap (d = 0.3°, mag = 3.68)	30	23:53 → 31, 00:11	Eclipse of Io by Ganymede (95.5%)
8	18:57	Conjunction (4954) Eric-NGC6396 (d = 0.9°)	13	17:51 → 20:29	Occultation of Tethys by Saturn	22	21:53	Maximum of Ursids (meteor shower, ZHR 10)	31	07:23 → 07:48	Eclipse of Io by Ganymede (99.1%)
8	19:14 → 21:34	Transit of Dione on top of Saturn	13	18:48 → 20:50	Eclipse of Tethys by Saturn	23	00:36	Minimum of eclipsing binary $\beta$ Per	31	08:34 → 10:55	Shadow transit of Io on top of Jupiter
8	20:54	Conjunction (8) Flora-(18) Melpomene (d = 2.9°)	14	10:09	Minimum of eclipsing binary $\beta$ Per	23	04:57	Maximum of Comae Berenic. (meteor shower, ZHR 3)	31	08:39 → 11:34	Eclipse of Europa by Jupiter
8	21:04 → 23:27	Occultation of Enceladus by Saturn	<b>14</b>	<b>13:25</b>	<b>Maximum of Geminids (meteor shower, ZHR 150)</b>	23	12:32	Moon's maximum declination (27.623°)	31	11:26	Lunar Transient Phenomena Lunar-X
8	21:42 → 23:45	Eclipse of Enceladus by Saturn	14	15:59	Conjunction (3122) Florence-NGC6715 (M54) (d = 0.7°)	23	20:16 → 22:28	Occultation of Mimas by Saturn	31	15:03	Minimum of eclipsing binary $\beta$ Per
9	00:50	Conjunction (3) Juno-(18) Melpomene (d = 4.7°)	15	08:48 → 11:47	Shadow transit of Europa on top of Jupiter	23	20:41 → 22:58	Occultation of Dione by Saturn	31	21:59	Conjunction Moon- $\alpha$ Vir (d = 2.8°, mag = 1.06)
<b>9</b>	<b>00:52</b>	<b>New Moon</b>	15	15:10 → 17:48	Occultation of Tethys by Saturn	23	20:42 → 22:42	Eclipse of Mimas by Saturn			



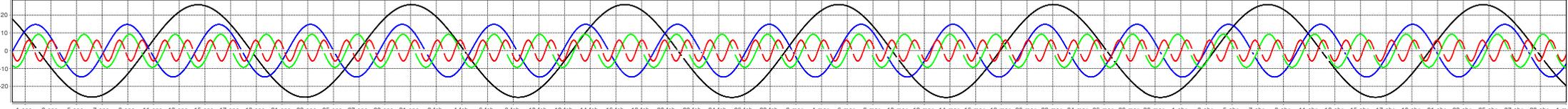


## **Planetary satellites**

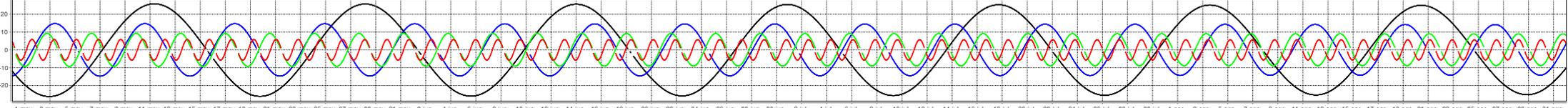


# Jupiter and Saturn satellites

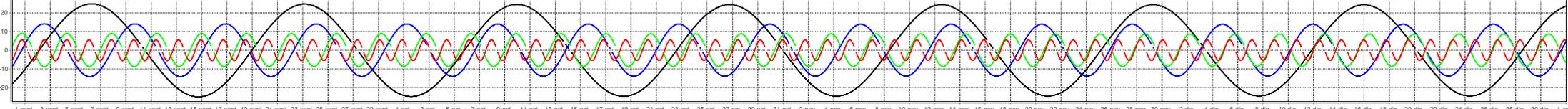
Projected separation (radii) of the satellites of Jupiter (negative values for East direction): **Io, Europa, Ganymede, Callisto**



Projected separation (radii) of the satellites of Jupiter (negative values for East direction): **Io, Europa, Ganymede, Callisto**

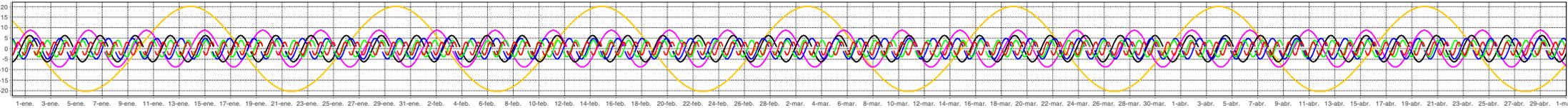


Projected separation (radii) of the satellites of Jupiter (negative values for East direction): **Io, Europa, Ganymede, Callisto**

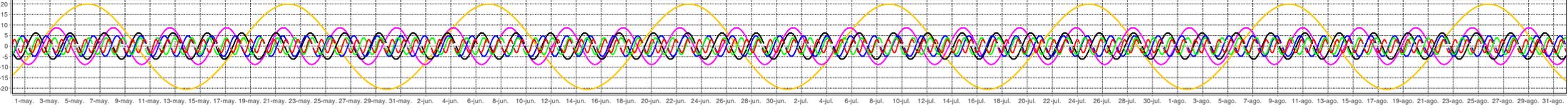


GRS night transits (UT):  
 January: 01 00:04, 03 01:42, 05 03:20, 05 23:12, 07 04:59, 08 00:50, 10 02:28, 10 22:19, 12 04:06, 12 23:57, 15 01:36, 17 03:14, 17 23:05, 19 04:52, 20 00:43, 22 02:21, 22 22:13, 24 04:00, 24 23:51, 27 01:29, 29 03:08, 29 22:59, 31 04:46; February: 01 00:37, 03 02:16, 03 22:07, 05 03:54, 05 23:45, 08 01:24, 10 03:02, 10 22:54, 12 04:41, 13 00:32, 15 02:11, 15 22:02, 17 03:49, 17 23:41, 20 01:19, 22 02:58, 22 22:49, 24 04:36, 25 00:28, 27 02:07  
 March: 01 03:45, 01 23:37, 04 01:16, 06 02:54, 06 22:46, 08 04:33, 09 00:25, 11 02:04, 13 03:42, 13 23:34, 16 01:13, 18 02:52, 18 22:43, 20 04:31, 21 00:22, 23 02:01, 25 03:40, 25 23:32, 28 01:11, 30 02:50, 30 22:42; April: 01 04:29, 02 00:21, 04 02:00, 06 03:39, 06 23:31, 09 01:10, 11 02:49, 11 22:41, 13 04:28, 14 00:20, 16 01:59, 18 03:39, 18 23:30, 21 01:10, 23 02:49, 23 22:41, 25 04:28, 26 00:20, 28 01:59, 30 03:39, 30 23:30  
 May: 03 01:10, 05 02:49, 05 22:41, 07 04:28, 08 00:20, 10 02:00, 12 03:39, 12 23:31, 15 01:10, 17 02:50, 17 22:41, 19 04:29, 20 00:21, 22 02:00, 24 03:40, 24 23:31, 27 01:11, 29 02:50, 29 22:42, 31 04:30; June: 01 00:22, 03 02:01, 05 03:40, 05 23:32, 08 01:12, 10 02:51, 10 22:43, 12 04:31, 13 00:22, 15 02:02, 17 03:41, 17 23:33, 20 01:13, 22 02:52, 22 22:44, 24 04:31, 25 00:23, 27 02:03, 29 03:42, 29 23:34  
 July: 02 01:13, 04 02:53, 04 22:45, 06 04:32, 07 00:24, 09 02:03, 11 03:43, 11 23:35, 14 01:14, 16 02:53, 16 22:45, 18 04:33, 19 00:25, 21 02:04, 23 03:43, 23 23:35, 26 01:15, 28 02:54, 28 22:46, 30 04:33, 31 00:25; August: 02 02:04, 04 03:44, 04 23:36, 07 01:15, 09 02:54, 09 22:46, 11 04:34, 12 00:25, 14 02:05, 16 03:44, 16 23:36, 19 01:15, 21 02:54, 21 22:46, 23 04:33, 24 00:25, 26 02:04, 28 03:44, 28 23:35, 31 01:15  
 September: 02 02:54, 02 22:46, 04 04:33, 05 00:25, 07 02:04, 09 03:43, 09 23:35, 12 01:14, 14 02:53, 14 22:45, 16 04:32, 17 00:24, 19 02:03, 21 03:42, 21 23:34, 24 01:13, 26 02:52, 26 22:43, 28 04:31, 29 00:23; October: 01 02:02, 03 03:41, 03 23:32, 06 01:11, 08 02:50, 08 22:42, 10 04:29, 11 00:21, 13 02:00, 15 03:39, 15 23:30, 18 01:09, 20 02:48, 20 22:39, 22 04:27, 23 00:18, 25 01:57, 27 03:36, 27 23:27, 30 01:06  
 November: 01 02:45, 01 22:37, 03 04:24, 04 00:15, 06 01:54, 08 03:33, 08 23:24, 11 01:03, 13 02:42, 13 22:33, 15 04:20, 16 00:12, 18 01:50, 20 03:29, 20 23:20, 23 00:59, 25 02:37, 25 22:29, 27 04:16, 28 00:07, 30 01:46; December: 02 03:24, 02 23:16, 05 00:54, 07 02:33, 07 22:24, 09 04:11, 10 00:02, 12 01:41, 14 03:19, 14 23:10, 16 04:57, 17 00:49, 19 02:27, 19 22:18, 21 04:05, 21 23:57, 24 01:35, 26 03:13, 26 23:05, 28 04:51, 29 00:43, 31 02:21, 31 22:12

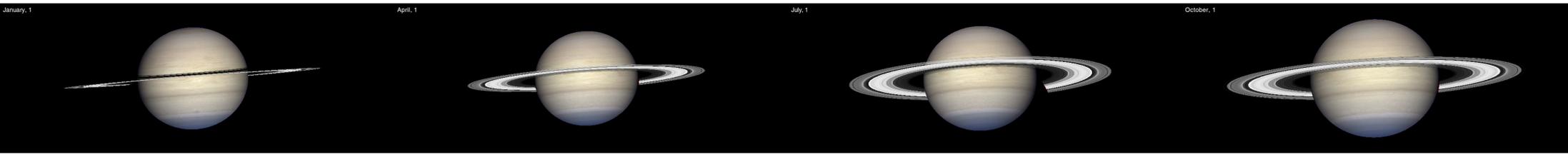
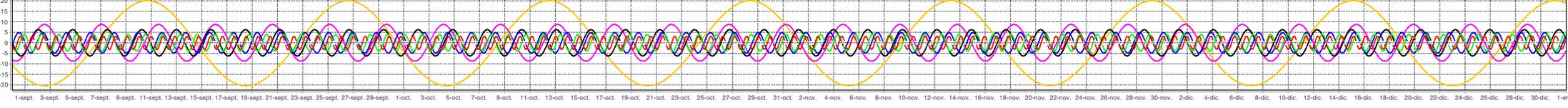
Projected separation (radii) of the satellites of Saturn (negative values for East direction): **Mimas, Enceladus, Tethys, Dione, Rhea, Titan**



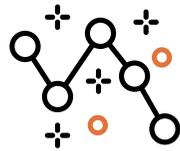
Projected separation (radii) of the satellites of Saturn (negative values for East direction): **Mimas, Enceladus, Tethys, Dione, Rhea, Titan**



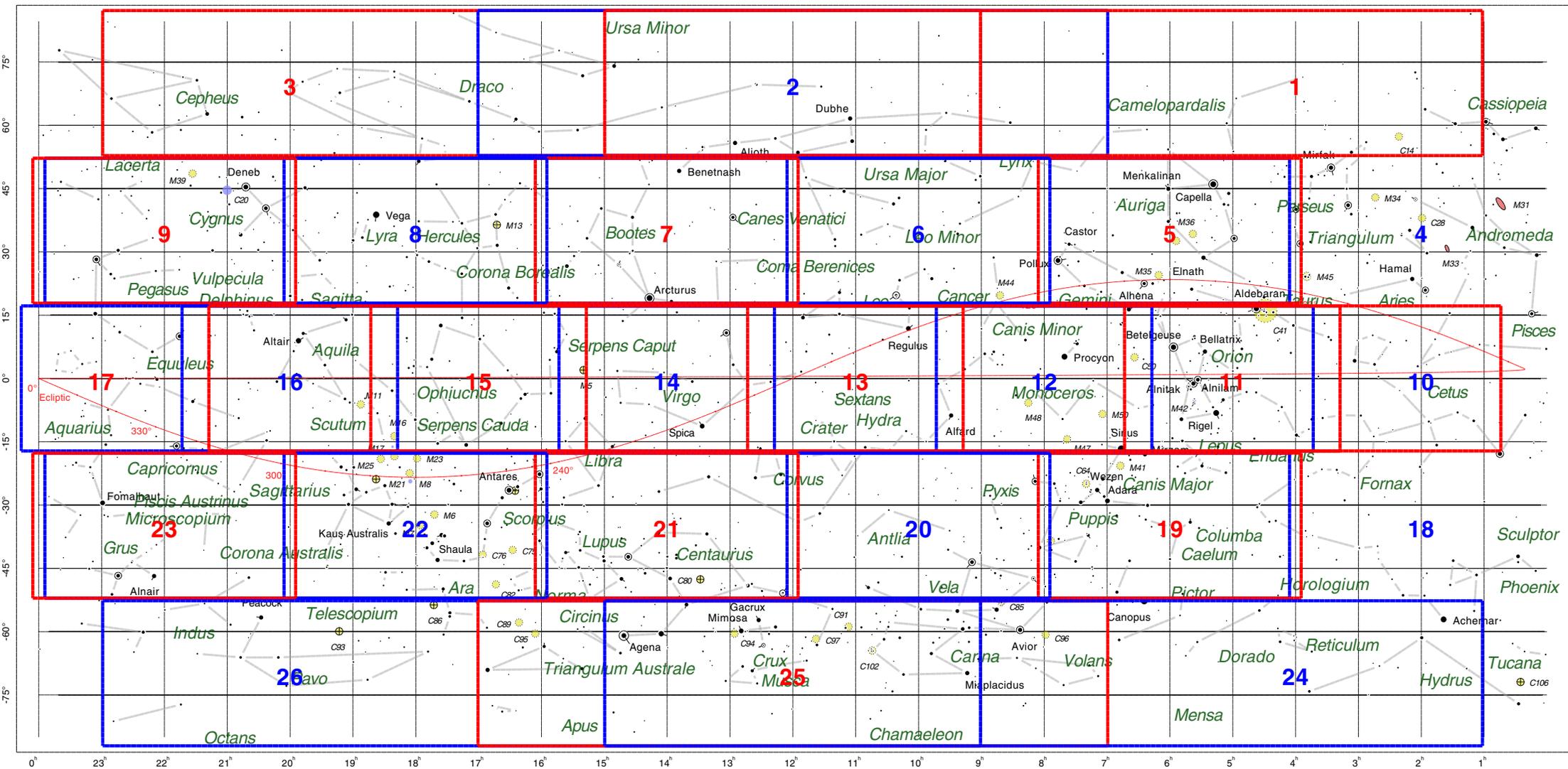
Projected separation (radii) of the satellites of Saturn (negative values for East direction): **Mimas, Enceladus, Tethys, Dione, Rhea, Titan**



**Sky Atlas**  
J2026 epoch



<b>Chart</b>	<b>Central right ascension (h)</b>	<b>Central declination (°)</b>	<b>Constellations</b>
1	4	70	Camelopardalis, Cassiopeia, Cepheus, Ursa Major, Ursa Minor
2	12	70	Draco, Ursa Major, Ursa Minor, Camelopardalis, Cepheus
3	20	70	Draco, Cepheus, Cygnus, Cassiopeia, Ursa Minor
4	2	35	Triangulum, Andromeda, Perseus, Pisces, Aries
5	6	35	Auriga, Gemini, Taurus, Orion, Lynx
6	10	35	Leo Minor, Ursa Major, Lynx, Cancer, Canes Venatici
7	14	35	Canes Venatici, Bootes, Ursa Major, Coma Berenices, Corona Borealis
8	18	35	Hercules, Lyra, Cygnus, Draco, Corona Borealis
9	22	35	Pegasus, Lacerta, Cygnus, Vulpecula, Andromeda
10	2	0	Cetus, Pisces, Aries, Taurus, Fornax
11	5	0	Orion, Eridanus, Taurus, Lepus, Monoceros
12	8	0	Canis Minor, Hydra, Monoceros, Cancer, Puppis
13	11	0	Leo, Sextans, Virgo, Crater, Coma Berenices
14	14	0	Virgo, Bootes, Libra, Serpens Caput, Coma Berenices
15	17	0	Ophiuchus, Hercules, Serpens Caput, Scorpius, Serpens Cauda
16	20	0	Aquila, Aquarius, Delphinus, Sagittarius, Pegasus
17	23	0	Pisces, Pegasus, Aquarius, Cetus, Capricornus
18	2	-35	Fornax, Sculptor, Phoenix, Cetus, Eridanus
19	6	-35	Columba, Canis Major, Puppis, Lepus, Caelum
20	10	-35	Antlia, Hydra, Pyxis, Vela, Crater
21	14	-35	Centaurus, Hydra, Lupus, Libra, Virgo
22	18	-35	Scorpius, Sagittarius, Corona Australis, Ophiuchus, Ara
23	22	-35	Piscis Austrinus, Grus, Sculptor, Aquarius, Capricornus
24	4	-70	Hydrus, Mensa, Dorado, Reticulum, Volans
25	12	-70	Musca, Carina, Circinus, Centaurus, Chamaeleon
26	20	-70	Pavo, Octans, Indus, Telescopium, Triangulum Australe



# Main objects visible on chart 1

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Sh2-155 CALDWELL 9 - Cave nebula	22h 58m 19.9s	+62° 46' 55"		Nebula	50.4 x 30.0
NGC7635 CALDWELL 11 - Bubble nebula	23h 21m 54.3s	+61° 21' 16"		Nebula	15.0 x 8.0
Mel20 - Alpha Persei cluster	03h 23m 50.9s	+49° 05' 30"	1.2	Open cluster	3.08"
Stock2	02h 16m 16.6s	+59° 23' 13"	4.4	Open cluster	60.0
NGC869 CALDWELL 14 - Double cluster	02h 20m 54.9s	+57° 15' 13"	5.3	Open cluster	18.0
NGC884	02h 23m 56.4s	+57° 14' 51"	6.1	Open cluster	18.0
NGC7160	21h 54m 25.0s	+62° 43' 36"	6.1	Open cluster	5.0
NGC1545	04h 22m 54.2s	+50° 18' 55"	6.2	Open cluster	12.0
NGC457 CALDWELL 13 - Owl cluster	01h 21m 12.3s	+58° 25' 51"	6.4	Open cluster	20.0
NGC1528	04h 17m 17.9s	+51° 16' 30"	6.4	Open cluster	18.0
NGC129	00h 31m 26.1s	+60° 21' 18"	6.5	Open cluster	12.0
NGC654	01h 45m 48.2s	+62° 00' 45"	6.5	Open cluster	6.0
IC1805	02h 34m 47.8s	+61° 34' 30"	6.5	Open cluster	20.0
IC1848	02h 53m 19.8s	+60° 30' 51"	6.5	Open cluster	18.0
NGC1444	03h 51m 23.4s	+52° 43' 57"	6.6	Open cluster	4.0
NGC1027	02h 44m 38.1s	+61° 42' 16"	6.7	Open cluster	15.0
NGC7789	23h 58m 48.1s	+56° 51' 33"	6.7	Open cluster	25.0
NGC1502	04h 10m 07.9s	+62° 23' 57"	6.9	Open cluster	20.0
NGC3031 M81 - Bode's nebulae	09h 57m 39.9s	+68° 56' 35"	6.9	Galaxy	24.9 x 11.5
NGC7654 M52	23h 25m 58.3s	+61° 44' 35"	6.9	Open cluster	16.0
NGC225	00h 45m 08.4s	+61° 54' 31"	7.0	Open cluster	15.0
NGC663 CALDWELL 10	01h 48m 05.5s	+61° 20' 51"	7.1	Open cluster	15.0
Tr3	03h 13m 59.3s	+63° 16' 47"	7.2	Open cluster	23.0
NGC581 M103	01h 35m 07.7s	+60° 47' 28"	7.4	Open cluster	6.0
NGC957	02h 35m 15.1s	+57° 40' 23"	7.6	Open cluster	10.0
NGC659	01h 46m 11.4s	+60° 47' 59"	7.9	Open cluster	6.0
NGC744	02h 00m 18.2s	+55° 35' 56"	7.9	Open cluster	5.0
NGC7510	23h 12m 11.2s	+60° 42' 38"	7.9	Open cluster	7.0
NGC188 CALDWELL 1	00h 50m 20.0s	+85° 23' 59"	8.1	Open cluster	15.0
NGC637	01h 44m 54.3s	+64° 10' 00"	8.2	Open cluster	3.0
NGC1513	04h 11m 53.2s	+49° 34' 53"	8.4	Open cluster	12.0
NGC3034 M82	09h 58m 01.8s	+69° 33' 31"	8.4	Galaxy	11.2 x 4.3
IC342 CALDWELL 5	03h 49m 21.0s	+68° 10' 28"	8.4	Galaxy	21.4 x 20.9
NGC2403 CALDWELL 7	07h 39m 20.1s	+65° 32' 30"	8.5	Galaxy	23.4 x 11.8
NGC7790	23h 59m 43.9s	+61° 21' 11"	8.5	Open cluster	5.0
King14	00h 33m 23.7s	+63° 18' 36"	8.5	Open cluster	7.0
Stock4	01h 54m 45.6s	+57° 11' 38"	8.6	Open cluster	20.0
NGC189	00h 41m 06.6s	+61° 14' 15"	8.8	Open cluster	5.0
NGC436	01h 17m 36.9s	+58° 56' 54"	8.8	Open cluster	5.0
Tr1	01h 37m 28.0s	+61° 24' 55"	8.9	Open cluster	4.5
NGC433	01h 16m 48.9s	+60° 15' 46"	9.0	Open cluster	4.0
NGC146	00h 34m 33.1s	+63° 26' 41"	9.1	Open cluster	5.0
NGC185 CALDWELL 18	00h 40m 24.3s	+48° 28' 47"	9.2	Galaxy	8.0 x 7.0
King19	23h 09m 24.3s	+60° 39' 28"	9.2	Open cluster	7.0
NGC381	01h 09m 59.1s	+61° 43' 18"	9.3	Open cluster	7.0
NGC7142	21h 45m 46.5s	+65° 53' 42"	9.3	Open cluster	12.0
King12	23h 54m 18.1s	+62° 06' 41"	9.3	Open cluster	2.0
NGC133	00h 32m 47.6s	+63° 29' 42"	9.4	Open cluster	3.0
NGC7788	23h 58m 05.2s	+61° 32' 41"	9.4	Open cluster	4.0
NGC559 CALDWELL 8	01h 31m 17.6s	+63° 26' 07"	9.5	Open cluster	7.0
NGC1496	04h 06m 31.8s	+52° 43' 51"	9.6	Open cluster	3.0
NGC103	00h 26m 44.5s	+61° 27' 57"	9.8	Open cluster	5.0
Stock19	00h 05m 45.1s	+56° 10' 41"	9.8	Open cluster	3.0 x 1.0
Stock24	00h 41m 13.4s	+62° 05' 33"	9.8	Open cluster	6.0
NGC2768	09h 13m 37.5s	+59° 55' 43"	9.9	Galaxy	6.4 x 3.0
NGC3077	10h 05m 23.3s	+68° 36' 30"	9.9	Galaxy	5.2 x 4.7
King48	22h 54m 03.8s	+58° 25' 19"	9.9	Open cluster	4.0
NGC1798	05h 13m 36.6s	+47° 43' 31"	10.0	Open cluster	5.0
NGC7762	23h 51m 16.4s	+68° 10' 59"	10.0	Open cluster	15.0
NGC110	00h 28m 58.1s	+71° 32' 03"	10.0	Open cluster	19.0
NGC366	01h 08m 05.0s	+62° 22' 03"	10.0	Open cluster	4.0
NGC657	01h 45m 12.4s	+56° 00' 18"	10.0	Open cluster	7.0
NGC743	02h 00m 27.2s	+60° 17' 32"	10.0	Open cluster	7.0
NGC650 M76 - Little Dumbbell	01h 43m 57.1s	+51° 42' 06"	10.1	Planetary nebula	3.1
NGC2655	08h 58m 56.3s	+78° 07' 21"	10.1	Galaxy	4.9 x 4.1
King16	00h 45m 15.8s	+64° 19' 31"	10.1	Open cluster	3.0
King21	23h 51m 11.2s	+62° 51' 41"	10.1	Open cluster	2.5
NGC2126	06h 04m 34.1s	+49° 51' 49"	10.2	Open cluster	6.0
NGC2976	09h 49m 21.1s	+67° 47' 46"	10.2	Galaxy	5.9 x 2.7
NGC2336	07h 31m 28.7s	+80° 07' 22"	10.4	Galaxy	7.1 x 3.9
NGC2985	09h 52m 39.0s	+72° 09' 22"	10.4	Galaxy	4.6 x 3.4

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
IC10	00h 21m 49.9s	+59° 26' 12"	10.4	Galaxy	6.4 x 5.3
NGC2146	06h 22m 46.0s	+78° 20' 34"	10.6	Galaxy	5.4 x 2.9
IC356	04h 10m 30.0s	+69° 52' 45"	10.6	Galaxy	5.9 x 3.9
IC2149	05h 58m 20.0s	+46° 06' 25"	10.6	Planetary nebula	34.2"
NGC2787	09h 21m 36.8s	+69° 05' 33"	10.7	Galaxy	3.1 x 1.8
NGC278	00h 53m 33.2s	+47° 41' 30"	10.8	Galaxy	2.1 x 2.0
NGC609	01h 38m 13.8s	+64° 40' 07"	11.0	Open cluster	3.0
NGC1569	04h 33m 17.7s	+64° 54' 08"	11.0	Galaxy	3.7 x 1.8
NGC1961	05h 44m 56.0s	+69° 23' 20"	11.0	Galaxy	4.5 x 3.1
NGC2300	07h 40m 39.9s	+85° 38' 60"	11.0	Galaxy	2.8 x 2.0
NGC2805	09h 22m 25.9s	+63° 59' 29"	11.0	Galaxy	6.3 x 4.8
NGC886	02h 25m 29.7s	+63° 53' 17"	11.0	Open cluster	14.0

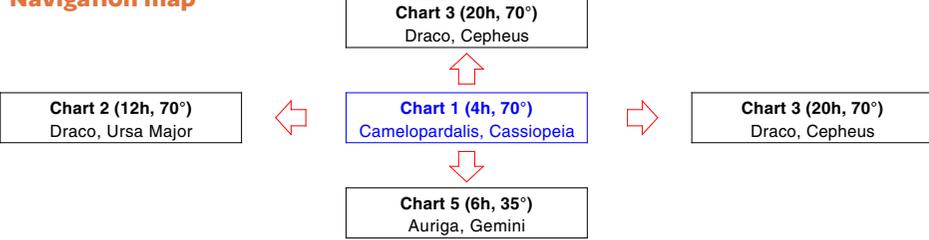
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STF 60 AB (Achird)	00h 52m 10.2s	+58° 05' 52"	3.52 / 7.36	13.4 / 327
STF 60 AH	00h 52m 10.2s	+58° 05' 52"	3.52 / 8.41	701.1 / 355
S 459 AB (β Cam)	05h 08m 04.2s	+60° 30' 36"	4.12 / 7.44	84.2 / 209
STF 262 AD	02h 33m 26.8s	+67° 37' 52"	4.63 / 8.48	210.9 / 60
SHJ 355 AC	23h 32m 27.6s	+58° 50' 10"	4.87 / 7.23	75.0 / 269
H 3 23 AC	01h 23m 24.3s	+58° 30' 11"	5.07 / 7.04	132.8 / 235
STFA 13 AB (11 Cam)	05h 10m 40.6s	+59° 02' 14"	5.20 / 6.21	177.7 / 10
STF 331 (HD 18537)	03h 04m 36.6s	+52° 33' 14"	5.21 / 6.17	12.0 / 85
S 514 AC	06h 31m 20.9s	+58° 22' 51"	5.38 / 7.92	95.5 / 272
WEB 2 AD (HD 22763)	03h 47m 03.1s	+60° 07' 49"	5.72 / 8.45	54.8 / 36
S 823 AC (2 Cas)	23h 11m 58.8s	+59° 36' 56"	5.72 / 8.16	167.2 / 163
STF 1062 AB (19 Lyn)	07h 27m 05.2s	+55° 10' 35"	5.76 / 6.71	13.8 / 317
STF 1062 AD	07h 27m 05.2s	+55° 10' 35"	5.76 / 7.57	213.7 / 4
ARN 32 AE	01h 46m 54.7s	+60° 48' 39"	5.78 / 7.12	316.8 / 268
STF 550 AB (1 Cam)	04h 36m 10.8s	+54° 01' 00"	5.78 / 6.82	10.4 / 308
S 838 AD (9 Cas)	00h 06m 57.2s	+62° 34' 38"	5.92 / 8.24	244.0 / 197
STF 3053 AB (HD 225009)	00h 05m 18.6s	+66° 23' 18"	5.96 / 7.17	15.2 / 70
BUP 91 AC	06h 42m 26.7s	+61° 25' 51"	6.04 / 6.99	399.5 / 91
SHJ 86 AB (HD 65447)	08h 07m 07.6s	+62° 56' 25"	6.15 / 7.53	51.6 / 80
STF 2893 (NSV14078)	22h 13m 48.1s	+73° 33' 57"	6.19 / 7.91	28.9 / 347
STF 396 AB (HD 21769)	03h 37m 44.8s	+58° 56' 09"	6.43 / 7.68	20.5 / 245
S 436 (HD 23594)	03h 53m 31.2s	+57° 16' 20"	6.46 / 7.17	58.3 / 76
S 405 AB (HD 12927)	02h 19m 06.0s	+79° 55' 53"	6.47 / 7.15	55.7 / 277
STTA 25 (V551 Per)	02h 20m 33.2s	+57° 17' 36"	6.52 / 7.41	102.8 / 205

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Cih (γ Cas)	00h 58m	18.0s	+60° 51' 25"	1.6 / 3.0	Er - γ Cas
U Cep	01h 04m 45.9s	+82° 00' 53"	6.75 / 9.24	2.49	Ecl - Algol
SZ Cam	04h 10m 08.0s	+62° 24' 01"	7.0 / 7.29	2.70	Ecl - Algol
RX Cam	04h 07m 08.6s	+58° 43' 44"	7.30 / 8.07	7.91	P - δ Cep
AA Cam	07h 17m 36.7s	+68° 45' 26"	9.0 / 9.6		P - Irr Superg
S Cam	05h 43m 51.8s	+68° 48' 35"	7.7 / 11.6	Jan 4, Nov 27 / 327.26P	Semi-irr
RU Cam	07h 24m 31.6s	+69° 37' 10"	8.10 / 9.79	22	P - δ Cep
RY Cam	04h 33m 17.5s	+64° 29' 45"	8.9 / 11.0	135.75	P - Semi-irr

## Navigation map

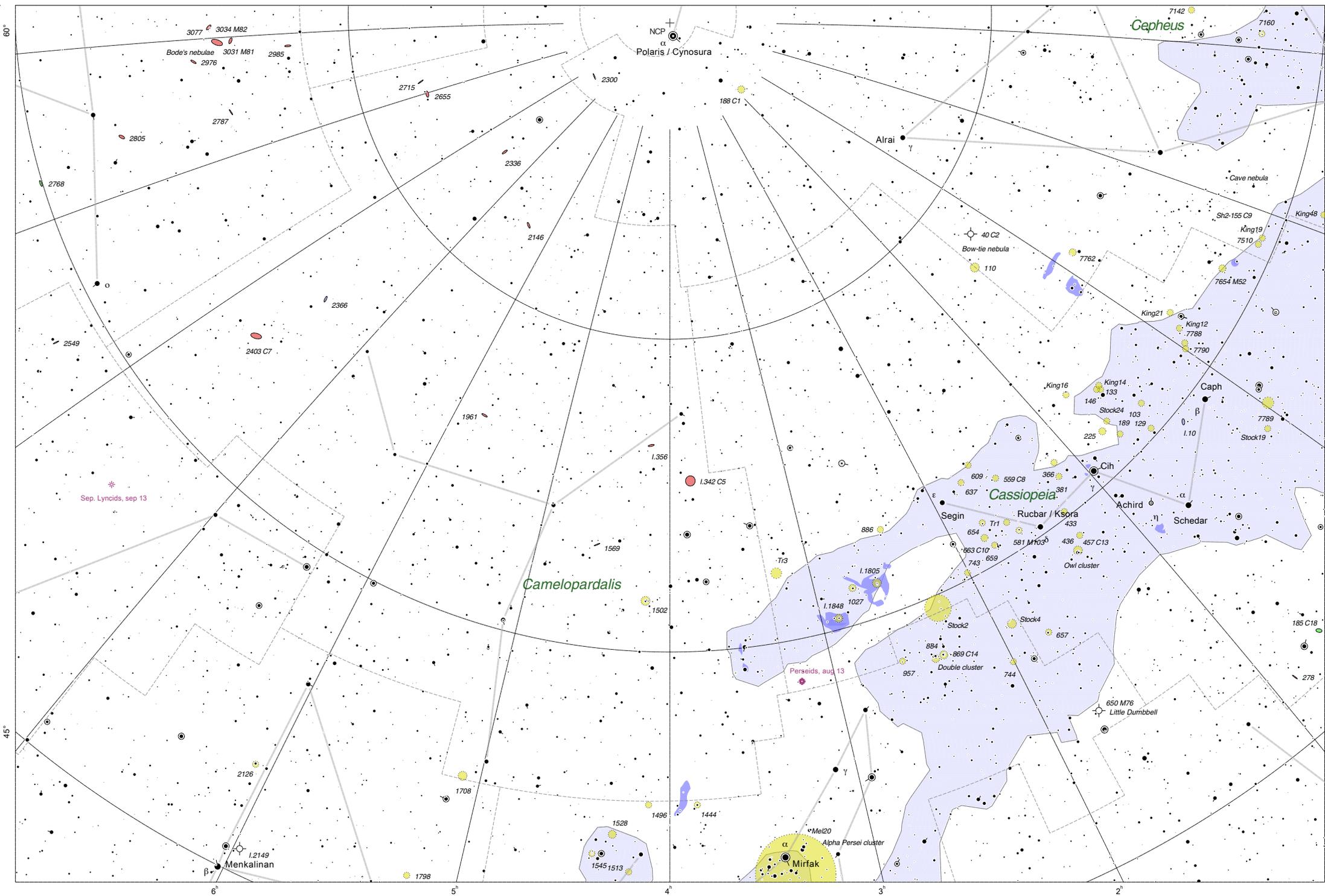


Stellar magnitudes: ● -1 ● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7 ● 8

Types of stars: ● Double ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster ☼ Globular ● Nebulose ☁ Milky Way ☼ Plan.neb. ● S ● E ● I ● SO Constellation --- Const. limit \* Meteors

Chart 1, 30°x20° around 4.0h, 70.0° (Camelopardalis, Cassiopeia, Cepheus, Ursa Major)



# Main objects visible on chart 2

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC3031 M81 - Bode's nebulae	09h 57m 39.9s	+68° 56' 35"	6.9	Galaxy	24.9 x 11.5
NGC5457 M101 - Pinwheel galaxy	14h 04m 07.5s	+54° 13' 31"	7.9	Galaxy	28.8 x 26.9
NGC6543 CALDWELL 6 - Cat eye nebula	17h 58m 33.0s	+66° 37' 58"	8.1	Planetary nebula	19.8"
NGC3034 M82	09h 58m 01.8s	+69° 33' 31"	8.4	Galaxy	11.2 x 4.3
NGC5194 M51 - Whirlpool galaxy	13h 30m 58.2s	+47° 03' 43"	8.4	Galaxy	11.2 x 6.9
NGC2403 CALDWELL 7	07h 39m 20.1s	+65° 32' 30"	8.5	Galaxy	23.4 x 11.8
NGC2841	09h 23m 49.3s	+50° 51' 52"	9.2	Galaxy	8.1 x 3.5
NGC4236-1 CALDWELL 3	12h 17m 56.3s	+69° 19' 09"	9.6	Galaxy	21.9 x 7.2
NGC5195	13h 31m 04.7s	+47° 08' 02"	9.6	Galaxy	5.9 x 4.6
NGC4125	12h 09m 22.6s	+65° 01' 47"	9.7	Galaxy	5.8 x 3.2
NGC3992 M109	11h 58m 55.7s	+53° 13' 44"	9.8	Galaxy	7.5 x 4.4
NGC2768	09h 13m 37.5s	+59° 55' 43"	9.9	Galaxy	6.4 x 3.0
NGC3077	10h 05m 23.3s	+68° 36' 30"	9.9	Galaxy	5.2 x 4.7
NGC3587 M97 - Owl nebula	11h 16m 17.2s	+54° 52' 39"	9.9	Planetary nebula	2.8
NGC5866 M102	15h 07m 12.3s	+55° 39' 52"	9.9	Galaxy	6.5 x 3.1
NGC3556 M108	11h 12m 59.8s	+55° 31' 52"	10.0	Galaxy	8.6 x 2.4
NGC2655	08h 58m 56.3s	+78° 07' 21"	10.1	Galaxy	4.9 x 4.1
NGC3953	11h 55m 09.4s	+52° 10' 49"	10.1	Galaxy	6.9 x 3.6
NGC2976	09h 49m 21.1s	+67° 47' 46"	10.2	Galaxy	5.9 x 2.7
NGC5322	13h 50m 07.0s	+60° 03' 42"	10.2	Galaxy	6.0 x 4.1
NGC6503	17h 49m 11.4s	+70° 08' 13"	10.2	Galaxy	7.0 x 2.5
NGC2681	08h 55m 23.8s	+51° 12' 48"	10.3	Galaxy	3.6 x 3.3
NGC4605	12h 41m 08.0s	+61° 27' 57"	10.3	Galaxy	5.9 x 2.4
NGC5907	15h 16m 34.4s	+56° 14' 08"	10.3	Galaxy	12.6 x 1.4
NGC2336	07h 31m 28.7s	+80° 07' 22"	10.4	Galaxy	7.1 x 3.9
NGC2985	09h 52m 39.0s	+72° 09' 22"	10.4	Galaxy	4.6 x 3.4
NGC3631	11h 22m 30.3s	+53° 01' 37"	10.4	Galaxy	5.0 x 3.7
IC2574 - Coddington nebula	10h 30m 16.1s	+68° 16' 59"	10.4	Galaxy	13.2 x 5.4
NGC2146	06h 22m 46.0s	+78° 20' 34"	10.6	Galaxy	5.4 x 2.9
NGC3147	10h 19m 03.1s	+73° 16' 11"	10.6	Galaxy	3.9 x 3.5
NGC3359	10h 48m 17.6s	+63° 05' 09"	10.6	Galaxy	7.2 x 4.4
NGC4088	12h 06m 53.4s	+50° 23' 45"	10.6	Galaxy	5.6 x 2.1
IC3568	12h 33m 48.5s	+82° 25' 15"	10.6	Planetary nebula	10.2"
NGC2787	09h 21m 36.8s	+69° 05' 33"	10.7	Galaxy	3.1 x 1.8
NGC3898	11h 50m 37.5s	+55° 56' 24"	10.7	Galaxy	4.4 x 2.6
NGC3998	11h 59m 16.2s	+55° 18' 33"	10.7	Galaxy	2.7 x 2.3
NGC4036	12h 02m 46.4s	+61° 45' 05"	10.7	Galaxy	4.3 x 1.7
NGC4589	12h 38m 24.4s	+74° 02' 57"	10.7	Galaxy	3.4 x 2.8
NGC5585	14h 20m 37.3s	+56° 36' 37"	10.7	Galaxy	5.8 x 3.6
NGC3310	10h 40m 21.7s	+53° 22' 03"	10.8	Galaxy	3.1 x 2.4
NGC3610	11h 19m 55.0s	+58° 38' 39"	10.8	Galaxy	2.7 x 2.3
NGC3718	11h 34m 00.0s	+52° 55' 24"	10.8	Galaxy	8.1 x 4.0
NGC4026	12h 00m 44.9s	+50° 49' 02"	10.8	Galaxy	5.2 x 1.3
NGC5474	14h 05m 56.8s	+53° 32' 21"	10.8	Galaxy	4.7
NGC2950	09h 44m 26.9s	+58° 43' 54"	10.9	Galaxy	2.7 x 1.8
NGC3079	10h 03m 42.5s	+55° 33' 19"	10.9	Galaxy	8.1 x 1.3
NGC3613	11h 20m 05.6s	+57° 51' 29"	10.9	Galaxy	3.9 x 1.9
NGC3690B	11h 30m 00.1s	+58° 25' 16"	10.9	Galaxy	2.0 x 1.4
NGC3945	11h 54m 35.0s	+60° 31' 50"	10.9	Galaxy	5.2 x 3.5
NGC1961	05h 44m 56.0s	+69° 23' 20"	11.0	Galaxy	4.5 x 3.1

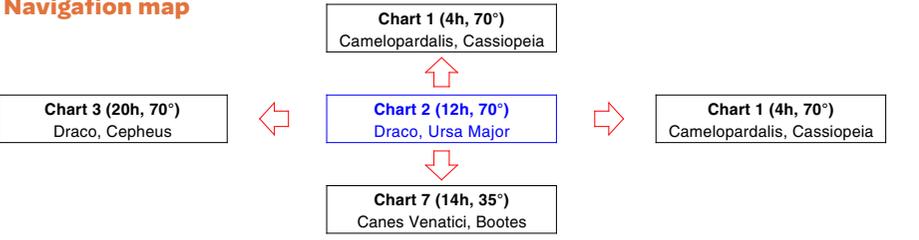
# Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
BU 1077 AC	11h 06m 54.3s	+61° 28' 11"	2.02 / 7.19	384.5 / 206
STF 1744 AB (Mizar)	13h 25m 59.2s	+54° 39' 21"	2.23 / 3.88	14.7 / 154
STF 1744 AC	13h 25m 59.2s	+54° 39' 21"	2.23 / 4.01	715.5 / 73
SMR 4 AD	13h 25m 59.2s	+54° 39' 21"	2.23 / 7.62	498.1 / 103
STT 312 AB,C	16h 24m 43.1s	+61° 23' 49"	2.80 / 8.10	565.8 / 240
STF 1821 AB (κ <sub>2</sub> Boo)	14h 15m 20.3s	+51° 32' 56"	4.53 / 6.62	13.8 / 236
STF 2241 AB (Dziban)	17h 41m 01.0s	+72° 07' 32"	4.60 / 5.59	29.6 / 14
STFA 26 AB (Asellus secundus)	14h 18m 01.2s	+51° 07' 40"	4.76 / 7.39	39.0 / 33
STF 1694 AB (HD 112028)	12h 49m 47.7s	+83° 07' 48"	5.29 / 5.74	21.8 / 324
S 649 CA	13h 30m 21.5s	+59° 40' 41"	5.46 / 8.19	182.2 / 111
STF 2308 AB (41 Dra)	17h 56m 14.8s	+80° 00' 06"	5.70 / 6.00	18.9 / 232
STF 2308 AC	17h 56m 14.8s	+80° 00' 06"	5.70 / 8.34	225.3 / 129
SHJ 86 AB (HD 65447)	08h 07m 07.6s	+62° 56' 25"	6.15 / 7.53	51.6 / 80
SHJ 136 (HD 105943)	12h 13m 15.1s	+81° 25' 14"	6.15 / 8.25	71.9 / 74
ARN 71 AD	09h 24m 18.6s	+51° 02' 32"	6.19 / 7.89	230.7 / 51
BUP 143 AC	12h 32m 31.1s	+51° 14' 56"	6.21 / 8.45	217.5 / 333
STTA 127 AB (HD 121146)	13h 52m 17.6s	+68° 03' 35"	6.53 / 8.32	87.4 / 62
STF 1520 (HD 97855)	11h 19m 00.7s	+52° 29' 19"	6.54 / 7.81	12.4 / 344
STFA 25 AB (HD 115136)	13h 15m 15.3s	+67° 00' 49"	6.64 / 7.08	180.8 / 298
STF 1972 AB (π, UMi)	15h 26m 28.8s	+80° 16' 13"	6.64 / 7.30	31.6 / 79
STF 1415 AB (NSV4802)	10h 21m 55.9s	+70° 47' 55"	6.65 / 7.27	16.5 / 168
STTA 123 AB (HD 117200)	13h 28m 50.1s	+64° 28' 02"	6.65 / 7.03	69.7 / 148
STT 565 AC	08h 21m 13.3s	+59° 01' 28"	6.71 / 8.45	226.1 / 308
HJL 1046 AB (17 Lyn)	07h 14m 15.9s	+60° 42' 10"	6.76 / 7.95	184.0 / 164
SHJ 191 (HD 132909)	15h 01m 07.8s	+53° 39' 21"	6.86 / 7.57	40.4 / 341
STTA 122 AB (HD 115043)	13h 15m 43.2s	+56° 26' 03"	6.88 / 8.11	126.0 / 216

# Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
RY Dra	12h 57m 26.8s	+65° 51' 14"	6.03 / 8.0	200	P - Semi-irr
R UMa	10h 46m 26.7s	+68° 38' 18"	6.5 / 13.7	Jul 18 / 302	P - Mira
VW UMa	11h 00m 46.5s	+69° 50' 57"	6.85 / 7.71	610	P - Semi-irr
RY UMa	12h 21m 41.4s	+61° 09' 56"	6.68 / 8.3	310	P - Semi-irr
AA Cam	07h 17m 36.7s	+68° 45' 26"	9.0 / 9.6		P - Irr Superg
T UMa	12h 37m 33.9s	+59° 20' 38"	6.6 / 13.5	Aug 2 / 257	P - Mira
S Cam	05h 43m 51.8s	+68° 48' 35"	7.7 / 11.6	Jan 4, Nov 27 / 327	P - Semi-irr
S UMa	12h 45m 04.5s	+60° 57' 04"	7.1 / 12.7	Apr 20, Dec 2 / 226	P - Mira
R Cam	14h 16m 11.7s	+83° 42' 44"	6.97 / 14.4	Jul 15 / 270	P - Mira
RU Cam	07h 24m 31.6s	+69° 37' 10"	8.10 / 9.79	22	P - δ Cep

# Navigation map



Stellar magnitudes								Types of stars		Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary										
● -1	● 0	● 1	● 2	● 3	● 4	● 5	● 6	● 7	● 8	● Double	● Variable	☀ Open cluster	☼ Globular	☁ Nebulose	☾ Milky Way	☼ Plan.neb.	☼ Galaxy	☼ Constellation	----- Const. limit	✧ Meteors



# Main objects visible on chart 3

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Sh2-155 CALDWELL 9 - Cave nebula	22h 58m 19.9s	+62° 46' 55"		Nebula	50.4 x 30.0
IC5146 CALDWELL 19 - Cocoon nebula	21h 54m 24.3s	+47° 23' 24"		Nebula	10.0
NGC7635 CALDWELL 11 - Bubble nebula	23h 21m 54.3s	+61° 21' 16"		Nebula	15.0 x 8.0
NGC7023 CALDWELL 4 - Iris nebula	21h 01m 54.4s	+68° 16' 21"		Nebula	10.0 x 8.0
NGC7092 M39	21h 32m 48.4s	+48° 32' 27"	4.6	Open cluster	31.0
NGC7160	21h 54m 25.0s	+62° 43' 36"	6.1	Open cluster	5.0
NGC7243 CALDWELL 16	22h 16m 10.3s	+50° 01' 39"	6.4	Open cluster	30.0
NGC129	00h 31m 26.1s	+60° 21' 18"	6.5	Open cluster	12.0
NGC654	01h 45m 48.2s	+62° 00' 45"	6.5	Open cluster	6.0
NGC6341 M92	17h 17m 55.3s	+43° 06' 37"	6.5	Globular cluster	14.0
NGC7789	23h 58m 48.1s	+56° 51' 33"	6.7	Open cluster	25.0
NGC7654 M52	23h 25m 58.3s	+61° 44' 35"	6.9	Open cluster	16.0
NGC225	00h 45m 08.4s	+61° 54' 31"	7.0	Open cluster	15.0
NGC663 CALDWELL 10	01h 48m 05.5s	+61° 20' 51"	7.1	Open cluster	15.0
NGC7082	21h 30m 14.1s	+47° 14' 29"	7.2	Open cluster	24.0
NGC7380	22h 48m 23.6s	+58° 16' 09"	7.2	Open cluster	20.0
NGC581 M103	01h 35m 07.7s	+60° 47' 28"	7.4	Open cluster	6.0
NGC7209	22h 06m 10.4s	+46° 36' 38"	7.7	Open cluster	15.0
NGC7234	22h 13m 19.5s	+57° 24' 09"	7.7	Open cluster	6.0
NGC6939	20h 32m 01.1s	+60° 45' 02"	7.8	Open cluster	10.0
NGC659	01h 46m 11.4s	+60° 47' 59"	7.9	Open cluster	6.0
NGC7510	23h 12m 11.2s	+60° 42' 38"	7.9	Open cluster	7.0
NGC188 CALDWELL 1	00h 50m 20.0s	+85° 23' 59"	8.1	Open cluster	15.0
NGC6543 CALDWELL 6 - Cat eye nebula	17h 58m 33.0s	+66° 37' 58"	8.1	Planetary nebula	19.8"
Stock12	23h 36m 51.2s	+52° 49' 38"	8.1	Open cluster	20.0
NGC637	01h 44m 54.3s	+64° 10' 00"	8.2	Open cluster	3.0
NGC7086	21h 31m 20.9s	+51° 42' 57"	8.4	Open cluster	12.0
NGC7261	22h 21m 06.4s	+58° 14' 29"	8.4	Open cluster	6.0
NGC7790	23h 59m 43.9s	+61° 21' 11"	8.5	Open cluster	5.0
King14	00h 33m 23.7s	+63° 18' 36"	8.5	Open cluster	7.0
NGC189	00h 41m 06.6s	+61° 14' 15"	8.8	Open cluster	5.0
NGC436	01h 17m 36.9s	+58° 56' 54"	8.8	Open cluster	5.0
NGC6826 CALDWELL 15 - Blinking planetary	19h 45m 30.3s	+50° 35' 23"	8.8	Planetary nebula	36.0"
NGC6946	20h 35m 24.8s	+60° 14' 38"	8.8	Galaxy	11.5 x 9.8
IC1369	21h 13m 03.4s	+47° 52' 28"	8.8	Open cluster	5.0
Tr1	01h 37m 28.0s	+61° 24' 55"	8.9	Open cluster	4.5
IC1434	22h 11m 28.9s	+52° 57' 43"	9.0	Open cluster	7.0
NGC433	01h 16m 48.9s	+60° 15' 46"	9.0	Open cluster	4.0
NGC7296	22h 29m 04.5s	+52° 25' 18"	9.0	Open cluster	4.0
NGC146	00h 34m 33.1s	+63° 26' 41"	9.1	Open cluster	5.0
NGC7031	21h 07m 42.7s	+50° 56' 56"	9.1	Open cluster	15.0
IC1442	22h 17m 05.1s	+54° 07' 19"	9.1	Open cluster	5.0
NGC7245	22h 16m 10.6s	+54° 28' 24"	9.2	Open cluster	5.0
King19	23h 09m 24.3s	+60° 39' 28"	9.2	Open cluster	7.0
NGC381	01h 09m 59.1s	+61° 43' 18"	9.3	Open cluster	7.0
NGC7142	21h 45m 46.5s	+65° 53' 42"	9.3	Open cluster	12.0
King12	23h 54m 18.1s	+62° 06' 41"	9.3	Open cluster	2.0
NGC133	00h 32m 47.6s	+63° 29' 42"	9.4	Open cluster	3.0
NGC6229	16h 47m 42.8s	+47° 28' 60"	9.4	Globular cluster	4.5
NGC7788	23h 58m 05.2s	+61° 32' 41"	9.4	Open cluster	4.0
NGC559 CALDWELL 8	01h 31m 17.6s	+63° 26' 07"	9.5	Open cluster	7.0
NGC7226	22h 11m 23.8s	+55° 31' 38"	9.6	Open cluster	2.0
NGC7067	21h 25m 08.0s	+48° 07' 27"	9.7	Open cluster	3.0
NGC7128	21h 44m 51.2s	+53° 50' 08"	9.7	Open cluster	4.0
NGC103	00h 26m 44.5s	+61° 27' 57"	9.8	Open cluster	5.0
Stock19	00h 05m 45.1s	+56° 10' 41"	9.8	Open cluster	3.0 x 1.0
Stock24	00h 41m 13.4s	+62° 05' 33"	9.8	Open cluster	6.0
King48	22h 54m 03.8s	+58° 25' 19"	9.9	Open cluster	4.0
NGC7762	23h 51m 16.4s	+68° 10' 59"	10.0	Open cluster	15.0
NGC110	00h 28m 58.1s	+71° 32' 03"	10.0	Open cluster	19.0
NGC366	01h 08m 05.0s	+62° 22' 03"	10.0	Open cluster	4.0
NGC743	02h 00m 27.2s	+60° 17' 32"	10.0	Open cluster	7.0
NGC7281	22h 25m 53.4s	+57° 58' 22"	10.0	Open cluster	12.0
King16	00h 45m 15.8s	+64° 19' 31"	10.1	Open cluster	3.0
King21	23h 51m 11.2s	+62° 51' 41"	10.1	Open cluster	2.5
NGC5322	13h 50m 07.0s	+60° 03' 42"	10.2	Galaxy	6.0 x 4.1
NGC6503	17h 49m 11.4s	+70° 08' 13"	10.2	Galaxy	7.0 x 2.5
IC10	00h 21m 49.9s	+59° 26' 12"	10.4	Galaxy	6.4 x 5.3
NGC6952	20h 37m 33.2s	+66° 11' 51"	10.7	Galaxy	3.9 x 3.2
NGC7008	21h 01m 18.3s	+54° 38' 48"	10.7	Planetary nebula	1.4

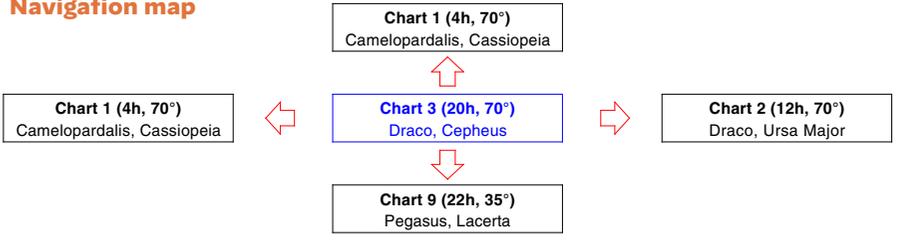
# Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STT 312 AB,C	16h 24m 43.1s	+61° 23' 49"	2.80 / 8.10	565.8 / 240
STFA 58 AC (δ Cep)	22h 31m 06.5s	+58° 40' 58"	4.21 / 6.11	41.0 / 191
STF 2241 AB (Dziban)	17h 41m 01.0s	+72° 07' 32"	4.60 / 5.59	29.6 / 14
STF 2420 AB (o Dra)	18h 51m 57.3s	+59° 27' 11"	4.77 / 8.26	37.6 / 316
STFA 35 (v <sub>2</sub> Dra)	17h 33m 16.8s	+55° 08' 18"	4.87 / 4.90	62.3 / 311
SHJ 355 AC	23h 32m 27.6s	+58° 50' 10"	4.87 / 7.23	75.0 / 269
H 6 37 AC	18h 43m 38.4s	+55° 35' 37"	5.01 / 8.24	331.2 / 340
STF 2323 AC	18h 24m 40.8s	+58° 49' 52"	5.06 / 7.95	88.9 / 20
STFA 30 AC	16h 37m 28.1s	+52° 49' 18"	5.38 / 5.50	90.2 / 193
STH 7 AC	20h 24m 40.4s	+81° 35' 44"	5.48 / 6.66	196.6 / 282
STF 2840 AB (NSV13909)	21h 53m 46.8s	+56° 02' 34"	5.64 / 6.42	18.1 / 197
STF 2308 AB (41 Dra)	17h 56m 14.8s	+80° 00' 06"	5.70 / 6.00	18.9 / 232
STF 2308 AC	17h 56m 14.8s	+80° 00' 06"	5.70 / 8.34	225.3 / 129
S 823 AC (2 Cas)	23h 11m 58.8s	+59° 36' 56"	5.72 / 8.16	167.2 / 163
STF 2816 AC (HD 206267)	21h 40m 35.0s	+57° 43' 33"	5.73 / 7.48	11.8 / 120
STF 2816 AD	21h 40m 35.0s	+57° 43' 33"	5.73 / 7.53	20.6 / 339
S 838 AD (9 Cas)	00h 06m 57.2s	+62° 34' 38"	5.92 / 8.24	244.0 / 197
STF 3053 AB (HD 225009)	00h 05m 18.6s	+66° 23' 18"	5.96 / 7.17	15.2 / 70
STFA 46 AB (16 Cyg)	19h 43m 12.7s	+50° 39' 03"	6.00 / 6.23	39.7 / 133
BEI 2 AC	22h 20m 59.2s	+63° 34' 30"	6.14 / 8.46	10.9 / 78
STF 2893 (NSV14078)	22h 13m 48.1s	+73° 33' 57"	6.19 / 7.91	28.9 / 347
STTA 200 AB (65 Dra)	20h 02m 53.4s	+64° 46' 55"	6.36 / 8.06	98.9 / 332
STF 2687 (HD 195066)	20h 27m 38.1s	+56° 48' 43"	6.37 / 8.31	25.1 / 118
ARY 43 (HD 208947)	21h 58m 30.6s	+66° 24' 20"	6.38 / 6.75	101.0 / 127
STFA 30 BC	16h 37m 28.1s	+52° 49' 17"	6.42 / 5.50	90.1 / 194

# Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Cif (γ Cas)	00h 58m 18.0s	+60° 51' 25"	1.6 / 3.0		Er - γ Cas
μ Cep	21h 44m 18.3s	+58° 53' 60"	3.43 / 5.1	730	P - Semi-irr
δ Cep	22h 30m 08.5s	+58° 32' 56"	3.48 / 4.37	5.37	P - δ Cep
CH Cyg	19h 25m 14.0s	+50° 17' 37"	5.60 / 8.49		Er - U Gem
U Cep	01h 04m 45.9s	+82° 00' 53"	6.75 / 9.24	2.49	Ecl - Algol
RU Cyg	21h 41m 31.4s	+54° 26' 37"	9.2 / 11.6	13 ene, 4 sep / 233	P - Semi-irr
T Cep	21h 09m 51.7s	+68° 35' 50"	5.2 / 11.3	7 dic / 388	P - Mira
S Cep	21h 34m 50.3s	+78° 44' 28"	7.4 / 12.9	18 jun / 487	P - Mira
EK Cep	21h 41m 48.1s	+69° 48' 43"	7.99 / 9.32	4.43	Ecl - Algol
R Cyg	19h 37m 31.3s	+50° 15' 34"	6.1 / 14.4	31 ago / 426	P - Mira
R Cam	14h 16m 11.7s	+83° 42' 44"	6.97 / 14.4	15 jul / 270	P - Mira

# Navigation map

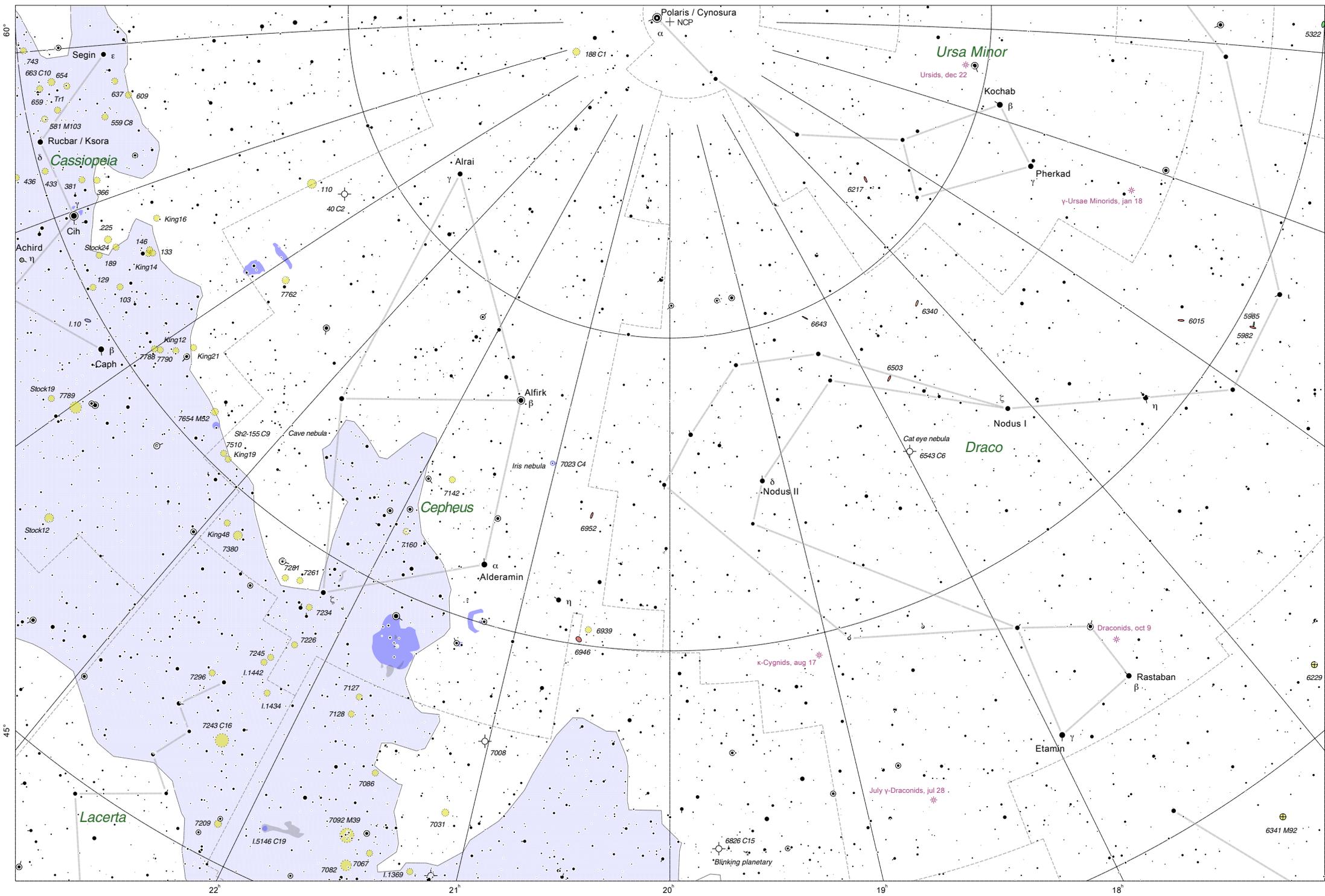


Stellar magnitudes: ● -1 ● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7 ● 8

Types of stars: ● Double ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster ☉ Globular ☁ Nebulose 🌌 Milky Way ☄ Plan.neb. 🌠 Galaxy 🗺 Constellation --- Const. limit ✨ Meteors

Chart 3, 30°x20° around 20.0h, 70.0° (Draco, Cepheus, Cygnus, Cassiopeia)



# Main objects visible on chart 4

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Mel20 - Alpha Persei cluster	03h 23m 50.9s	+49° 05' 30"	1.2	Cúmulo abierto	3.08°
Mel22 M45 - Pleiades Cluster	03h 48m 57.0s	+24° 11' 43"	1.2	Cúmulo abierto	1.83°
NGC224 M31 - Andromeda nebula	00h 44m 10.0s	+41° 24' 40"	3.4	Galaxia	3.15° x 1.03°
NGC1039 M34	02h 43m 46.0s	+42° 52' 17"	5.2	Cúmulo abierto	25.0
NGC7686	23h 31m 22.1s	+49° 16' 40"	5.6	Cúmulo abierto	15.0
NGC598 M33 - Triangulum galaxy	01h 35m 20.1s	+30° 47' 26"	5.7	Galaxia	68.7 x 41.6
NGC752 CALDWELL 28	01h 59m 08.3s	+37° 57' 33"	5.7	Cúmulo abierto	75.0
NGC1545	04h 22m 54.2s	+50° 18' 55"	6.2	Cúmulo abierto	12.0
NGC1528	04h 17m 17.9s	+51° 16' 30"	6.4	Cúmulo abierto	18.0
NGC1444	03h 51m 23.4s	+52° 43' 57"	6.6	Cúmulo abierto	4.0
NGC1342	03h 33m 19.2s	+37° 27' 49"	6.7	Cúmulo abierto	17.0
NGC1582	04h 33m 29.8s	+43° 47' 50"	7.0	Cúmulo abierto	24.0
IC348	03h 46m 12.3s	+32° 14' 36"	7.3	Cúmulo abierto	10.0
NGC1664	04h 52m 57.1s	+43° 43' 06"	7.6	Cúmulo abierto	18.0
NGC744	02h 00m 18.2s	+55° 35' 56"	7.9	Cúmulo abierto	5.0
NGC205 M110	00h 41m 47.6s	+41° 49' 40"	8.1	Galaxia	19.5 x 11.5
NGC221 M32	00h 44m 07.4s	+41° 00' 29"	8.1	Galaxia	8.5 x 6.5
NGC7662 CALDWELL 22 - Blue snowball	23h 27m 09.2s	+42° 40' 44"	8.3	Nebulosa planetaria	37.2"
NGC1245	03h 16m 29.7s	+47° 20' 02"	8.4	Cúmulo abierto	10.0
NGC1513	04h 11m 53.2s	+49° 34' 53"	8.4	Cúmulo abierto	12.0
NGC956	02h 33m 56.2s	+44° 45' 37"	9.0	Cúmulo abierto	9.0
NGC185 CALDWELL 18	00h 40m 24.3s	+48° 28' 47"	9.2	Galaxia	8.0 x 7.0
NGC628 M74	01h 38m 05.7s	+15° 54' 55"	9.4	Galaxia	10.5 x 9.5
NGC1023	02h 42m 02.3s	+39° 10' 25"	9.4	Galaxia	7.4 x 2.5
NGC147 CALDWELL 17	00h 34m 37.5s	+48° 39' 01"	9.5	Galaxia	13.2 x 7.8
NGC891 CALDWELL 23	02h 24m 11.5s	+42° 27' 52"	9.9	Galaxia	11.7 x 1.6
NGC650 M76 - Little Dumbbell	01h 43m 57.1s	+51° 42' 06"	10.1	Nebulosa planetaria	3.1
NGC925	02h 28m 50.7s	+33° 41' 40"	10.1	Galaxia	10.5 x 5.9
NGC404 - Mirach's ghost	01h 10m 54.4s	+35° 51' 23"	10.3	Galaxia	3.5
NGC772	02h 00m 45.5s	+19° 07' 58"	10.3	Galaxia	7.2 x 4.3
NGC7814 CALDWELL 43	00h 04m 34.9s	+16° 17' 24"	10.6	Galaxia	5.5 x 2.3
NGC1605	04h 36m 44.9s	+45° 19' 24"	10.7	Cúmulo abierto	5.0
NGC278	00h 53m 33.2s	+47° 41' 30"	10.8	Galaxia	2.1 x 2.0
NGC672	01h 49m 22.2s	+27° 33' 42"	10.9	Galaxia	6.0 x 2.4
NGC1514	04h 10m 55.3s	+30° 50' 35"	10.9	Nebulosa planetaria	2.2
NGC1161	03h 02m 58.8s	+44° 59' 56"	11.0	Galaxia	2.8 x 2.0
IC239	02h 38m 05.7s	+39° 04' 51"	11.1	Galaxia	4.6 x 4.2
NGC315	00h 59m 14.1s	+30° 29' 31"	11.2	Galaxia	3.0 x 2.5
NGC507	01h 25m 08.2s	+33° 23' 30"	11.2	Galaxia	2.5
NGC890	02h 23m 34.3s	+33° 23' 02"	11.2	Galaxia	2.5 x 1.7
NGC1058	02h 45m 07.3s	+37° 27' 02"	11.2	Galaxia	2.5
NGC1275 CALDWELL 24 - Perseus A	03h 21m 31.7s	+41° 36' 15"	11.9	Galaxia	2.3 x 1.6

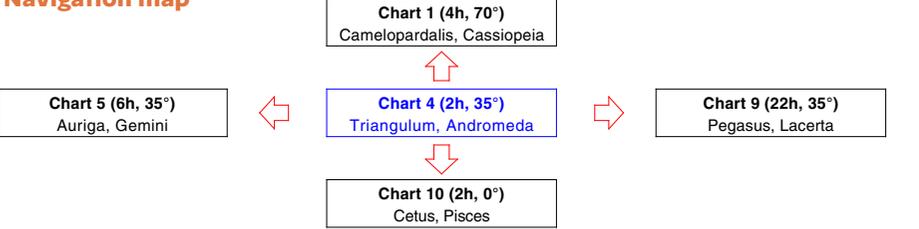
# Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 8 AB (Alcyone)	03h 50m 35.1s	+24° 15' 43"	2.83 / 6.27	117.6 / 291
STFA 8 AC	03h 50m 35.1s	+24° 15' 43"	2.83 / 8.22	182.0 / 313
H 5 17 AB (π And)	00h 39m 40.7s	+34° 00' 18"	4.36 / 7.08	36.2 / 175
H 5 12 AB (λ Ari)	02h 00m 51.1s	+23° 50' 50"	4.80 / 6.65	37.3 / 48
H 6 69 AB (14 Ari)	02h 12m 23.3s	+26° 11' 01"	4.99 / 8.01	93.1 / 35
H 6 69 AC	02h 12m 23.3s	+26° 11' 01"	5.02 / 7.97	106.0 / 279
STF 331 (HD 18537)	03h 04m 36.6s	+52° 33' 14"	5.21 / 6.17	12.0 / 85
STF 88 AB (ψ, Psc)	01h 08m 28.8s	+21° 45' 02"	5.27 / 5.45	29.9 / 159
AG 304 (15 Tri)	02h 38m 57.5s	+34° 54' 41"	5.57 / 6.75	142.4 / 16
HJL 1026 AB (Asterope)	03h 49m 00.6s	+24° 42' 46"	5.75 / 6.42	149.6 / 130
STFA 4 AB (56 And)	01h 59m 15.0s	+37° 30' 14"	5.79 / 6.07	202.5 / 298
BUP 30 AC	02h 26m 06.2s	+41° 37' 49"	5.83 / 7.42	305.8 / 9
STT 559 AB (39 Tau)	04h 08m 24.7s	+22° 08' 46"	5.97 / 8.09	176.6 / 357
STF 222 (59 And)	02h 14m 03.8s	+39° 16' 55"	6.05 / 6.71	16.6 / 36
STFA 8 BC	03h 50m 27.2s	+24° 16' 22"	6.27 / 8.22	86.2 / 345
STFA 5 AB (30 Ari)	02h 40m 01.3s	+24° 52' 13"	6.50 / 7.02	37.9 / 275
STF 401 AB (HD 21743)	03h 34m 30.1s	+27° 44' 42"	6.58 / 6.93	11.5 / 270
STTA 40 AB (HD 23873)	03h 52m 28.6s	+24° 32' 08"	6.58 / 7.53	86.8 / 309
STF 40 AB (HD 3165)	00h 37m 58.2s	+37° 07' 05"	6.72 / 8.48	11.8 / 312
STTA 252 (HD 224083)	23h 57m 35.3s	+29° 45' 54"	6.77 / 8.37	111.1 / 145
STTA 38 AB (HD 23245)	03h 47m 47.7s	+28° 03' 26"	6.78 / 6.91	135.4 / 53

# Main variable stars

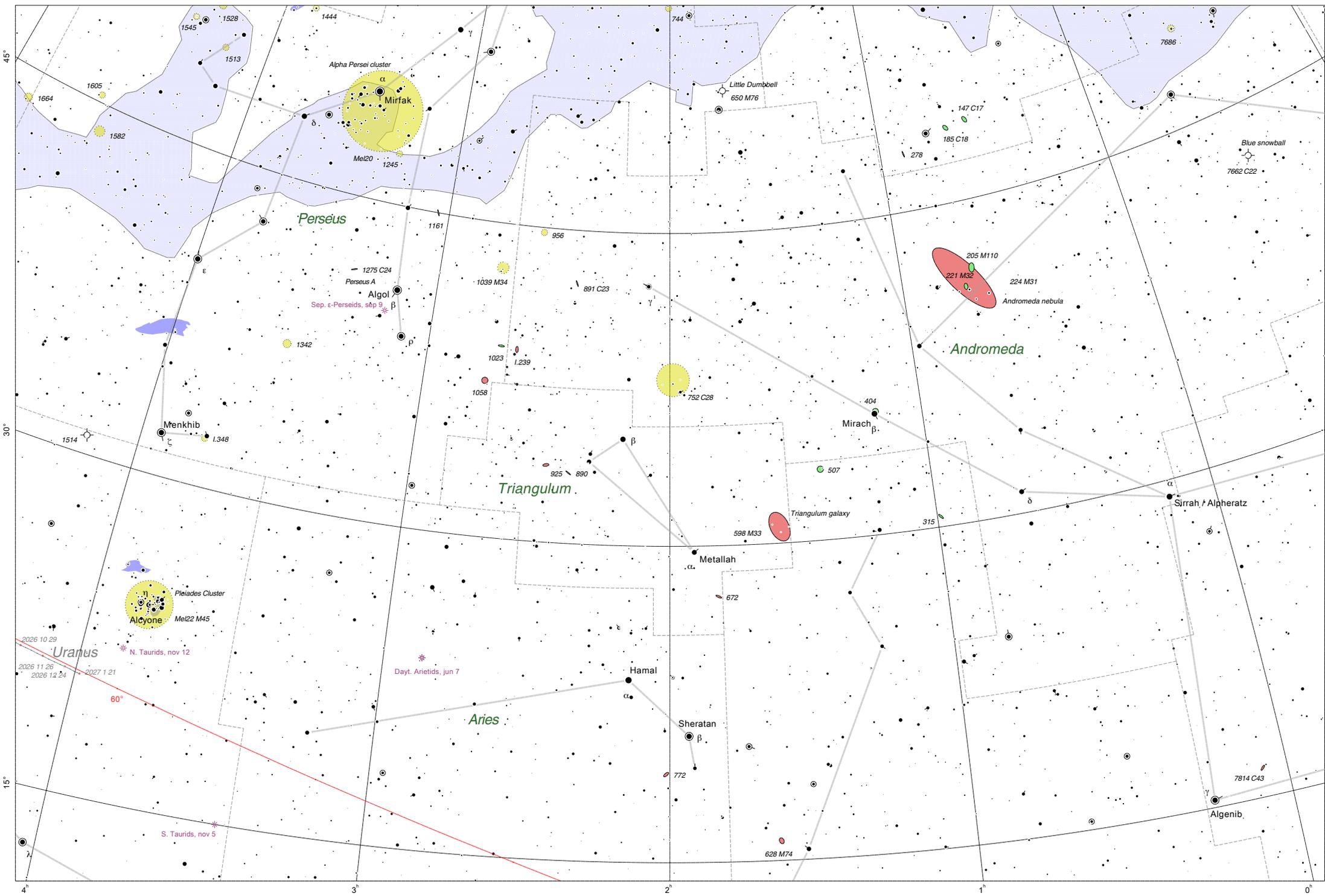
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Algol (β Per)	03h 09m 52.3s	+41° 03' 14"	2.12 / 3.39	2.87	Ecl - Algol
RW Tau	04h 05m 30.6s	+28° 11' 44"	7.98 / 11.59	2.77	Ecl - Algol
Z Peg	00h 01m 26.6s	+26° 01' 52"	7.3 / 13.6	29 mar / 335	P - Mira

# Navigation map



Stellar magnitudes	Types of stars	Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary
● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8	● Double   ● Variable	Open cluster    Globular    Nebulose    Milky Way    Plan.neb.    S    E    I    SO    Constellation    Const. limit    * Meteors

# Chart 4, 30°x20° around 2.0h, 35.0° (Triangulum, Andromeda, Perseus, Pisces)



# Main objects visible on chart 5

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
IC405 CALDWELL 31 - Flaming Star nebula	05h 18m 12.7s	+34° 22' 58"		Nebulosa	30.0 x 20.0
Mel25 CALDWELL 41 - Hyades Cluster	04h 28m 29.1s	+16° 03' 24"	1.0	Cúmulo abierto	5.50°
Mel20 - Alpha Persei cluster	03h 23m 50.9s	+49° 05' 30"	1.2	Cúmulo abierto	3.08°
Mel22 M45 - Pleiades Cluster	03h 48m 57.0s	+24° 11' 43"	1.2	Cúmulo abierto	1.83°
NGC2168 M35	06h 10m 35.7s	+24° 20' 38"	5.1	Cúmulo abierto	25.0
NGC2281	06h 50m 07.3s	+41° 02' 53"	5.4	Cúmulo abierto	25.0
NGC2099 M37	05h 54m 00.4s	+32° 33' 27"	5.6	Cúmulo abierto	15.0
NGC1960 M36	05h 38m 01.1s	+34° 09' 19"	6.0	Cúmulo abierto	10.0
NGC1545	04h 22m 54.2s	+50° 18' 55"	6.2	Cúmulo abierto	12.0
NGC1528	04h 17m 17.9s	+51° 16' 30"	6.4	Cúmulo abierto	18.0
NGC1647	04h 47m 13.6s	+19° 09' 53"	6.4	Cúmulo abierto	40.0
NGC1912 M38	05h 30m 27.8s	+35° 52' 27"	6.4	Cúmulo abierto	15.0
NGC1342	03h 33m 19.2s	+37° 27' 49"	6.7	Cúmulo abierto	17.0
NGC2129	06h 02m 41.4s	+23° 18' 60"	6.7	Cúmulo abierto	6.0
NGC2175	06h 11m 11.5s	+20° 28' 54"	6.8	Cúmulo abierto	40.0 x 30.0
NGC1582	04h 33m 29.8s	+43° 47' 50"	7.0	Cúmulo abierto	24.0
NGC1807	05h 12m 16.0s	+16° 32' 37"	7.0	Cúmulo abierto	12.0
NGC1857	05h 21m 53.0s	+39° 22' 04"	7.0	Cúmulo abierto	10.0
IC348	03h 46m 12.3s	+32° 14' 36"	7.3	Cúmulo abierto	10.0
NGC1893	05h 24m 28.2s	+33° 26' 14"	7.5	Cúmulo abierto	10.0
NGC1664	04h 52m 57.1s	+43° 43' 06"	7.6	Cúmulo abierto	18.0
NGC1778	05h 09m 50.5s	+37° 03' 19"	7.7	Cúmulo abierto	8.0
NGC1817	05h 13m 57.2s	+16° 42' 46"	7.7	Cúmulo abierto	20.0
NGC2395	07h 28m 40.5s	+13° 33' 15"	8.0	Cúmulo abierto	15.0
NGC1907	05h 29m 48.9s	+35° 20' 42"	8.2	Cúmulo abierto	5.0
NGC2420	07h 39m 56.2s	+21° 30' 48"	8.3	Cúmulo abierto	6.0
NGC1245	03h 16m 29.7s	+47° 20' 02"	8.4	Cúmulo abierto	10.0
NGC1513	04h 11m 53.2s	+49° 34' 53"	8.4	Nebulosa	12.0
NGC1952 M1 - Crab nebula	05h 36m 05.8s	+22° 01' 48"	8.4	Cúmulo abierto	6.0 x 4.0
IC2157	06h 06m 25.3s	+24° 03' 08"	8.4	Cúmulo abierto	5.0
NGC2331	07h 08m 36.9s	+27° 13' 10"	8.5	Cúmulo abierto	19.0
NGC2158	06h 09m 01.1s	+24° 05' 27"	8.6	Nebulosa planetaria	5.0
NGC2392 CALDWELL 39 - Eskimo nebula	07h 30m 43.0s	+20° 51' 26"	9.1	Cúmulo abierto	0.9
NGC2266	06h 44m 56.5s	+26° 56' 30"	9.5	Cúmulo abierto	5.0
NGC1496	04h 06m 31.8s	+52° 43' 51"	9.6	Cúmulo abierto	3.0
NGC2355	07h 18m 27.2s	+13° 42' 07"	9.7	Cúmulo abierto	8.0
NGC1798	05h 13m 36.6s	+47° 43' 31"	10.0	Cúmulo abierto	5.0
NGC2304	06h 56m 42.7s	+17° 57' 13"	10.0	Cúmulo abierto	3.0
NGC2240	06h 34m 54.7s	+35° 13' 45"	10.0	Cúmulo abierto	
NGC2126	06h 04m 34.1s	+49° 51' 49"	10.2	Cúmulo globular	6.0
NGC2419 CALDWELL 25 - Intergalactic wande	07h 39m 53.9s	+38° 49' 19"	10.3	Nebulosa planetaria	4.6
IC2149	05h 58m 20.0s	+46° 06' 25"	10.6	Cúmulo abierto	34.2"
NGC1605	04h 36m 44.9s	+45° 19' 24"	10.7	Nebulosa planetaria	5.0
NGC1514	04h 10m 55.3s	+30° 50' 35"	10.9	Cúmulo abierto	2.2
NGC2192	06h 17m 06.3s	+39° 50' 42"	10.9	Galaxia	5.0
NGC1161	03h 02m 58.8s	+44° 59' 56"	11.0	Cúmulo abierto	2.8 x 2.0
NGC1708	05h 05m 31.5s	+52° 52' 05"	11.0	Cúmulo abierto	20.0
NGC1750	05h 05m 28.7s	+23° 41' 35"	11.0	Cúmulo abierto	25.0 x 12.0
NGC1758	05h 06m 10.9s	+23° 49' 57"	11.0	Cúmulo abierto	40.0
NGC1802	05h 11m 49.2s	+24° 09' 20"	11.0		20.0

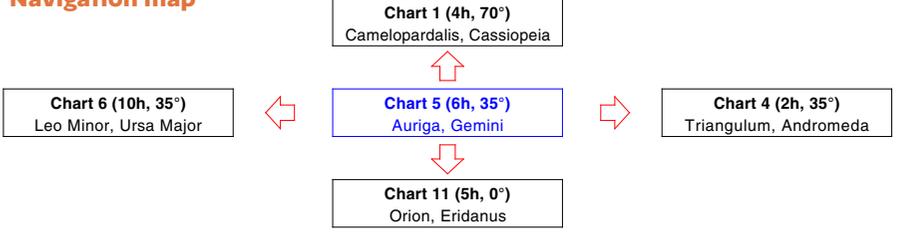
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
SHJ 51 AG	05h 20m 31.7s	+46° 03' 00"	0.08 / 8.10	522.4 / 349
STFA 8 AB (Alcyone)	03h 50m 35.1s	+24° 15' 43"	2.83 / 6.27	117.6 / 291
STFA 8 AC	03h 50m 35.1s	+24° 15' 43"	2.83 / 8.22	182.0 / 313
STFA 10 AB (Chamukuy)	04h 31m 38.2s	+15° 58' 53"	3.41 / 3.94	336.9 / 347
SHJ 77 AC	07h 07m 11.9s	+20° 29' 18"	4.05 / 7.66	101.5 / 347
STTA 77 AB (ν Gem)	06h 32m 03.2s	+20° 10' 26"	4.10 / 8.01	112.8 / 330
ALC 3 AE	07h 32m 26.5s	+31° 40' 22"	4.16 / 7.82	755.4 / 355
STF 541 AB (κ Tau)	04h 28m 28.1s	+22° 24' 30"	4.22 / 5.29	339.4 / 174
S 455 AB (τ Tau)	04h 45m 22.8s	+23° 03' 05"	4.24 / 7.02	62.5 / 214
STFA 11 (σ <sub>1</sub> Tau)	04h 42m 14.6s	+16° 00' 58"	4.69 / 5.09	444.0 / 194
LDS 2246 AB (NSV1627)	04h 33m 32.7s	+16° 18' 08"	4.78 / 6.54	250.3 / 131
STF 653 AC	05h 18m 47.8s	+32° 44' 29"	5.03 / 7.33	14.3 / 225
WNO 52 AC	05h 27m 26.4s	+17° 25' 35"	5.06 / 7.88	707.2 / 252
SHJ 40 AB (φ Tau)	04h 23m 33.7s	+27° 28' 15"	5.08 / 7.51	48.7 / 259
BLL 15 AD	05h 31m 06.2s	+34° 30' 53"	5.22 / 8.07	210.1 / 15
STF 753 AB,C (26 Aur)	05h 41m 58.7s	+30° 31' 02"	5.46 / 8.41	12.4 / 269
ARN 36 CI	04h 33m 37.1s	+15° 47' 60"	5.48 / 5.70	484.5 / 246
HJL 1026 AB (Asterope)	03h 49m 00.6s	+24° 42' 46"	5.75 / 6.42	149.6 / 130
STF 550 AB (1 Cam)	04h 36m 10.8s	+54° 01' 00"	5.78 / 6.82	10.4 / 308
STT 559 AB (39 Tau)	04h 08m 24.7s	+22° 08' 46"	5.97 / 8.09	176.6 / 357
STTA 67 AB,C (HD 38693)	05h 51m 28.4s	+20° 52' 56"	6.01 / 8.29	75.4 / 162
SHJ 49 AB (NSV1788)	05h 01m 56.4s	+14° 37' 04"	6.06 / 7.43	39.3 / 306
SHJ 44 AB (57 Per)	04h 37m 05.6s	+43° 10' 07"	6.12 / 6.83	121.4 / 197
ARN 42 AE	04h 37m 05.6s	+43° 10' 07"	6.12 / 7.42	442.1 / 79
STFA 8 BC	03h 50m 27.2s	+24° 16' 22"	6.27 / 8.22	86.2 / 345

## Main variable stars

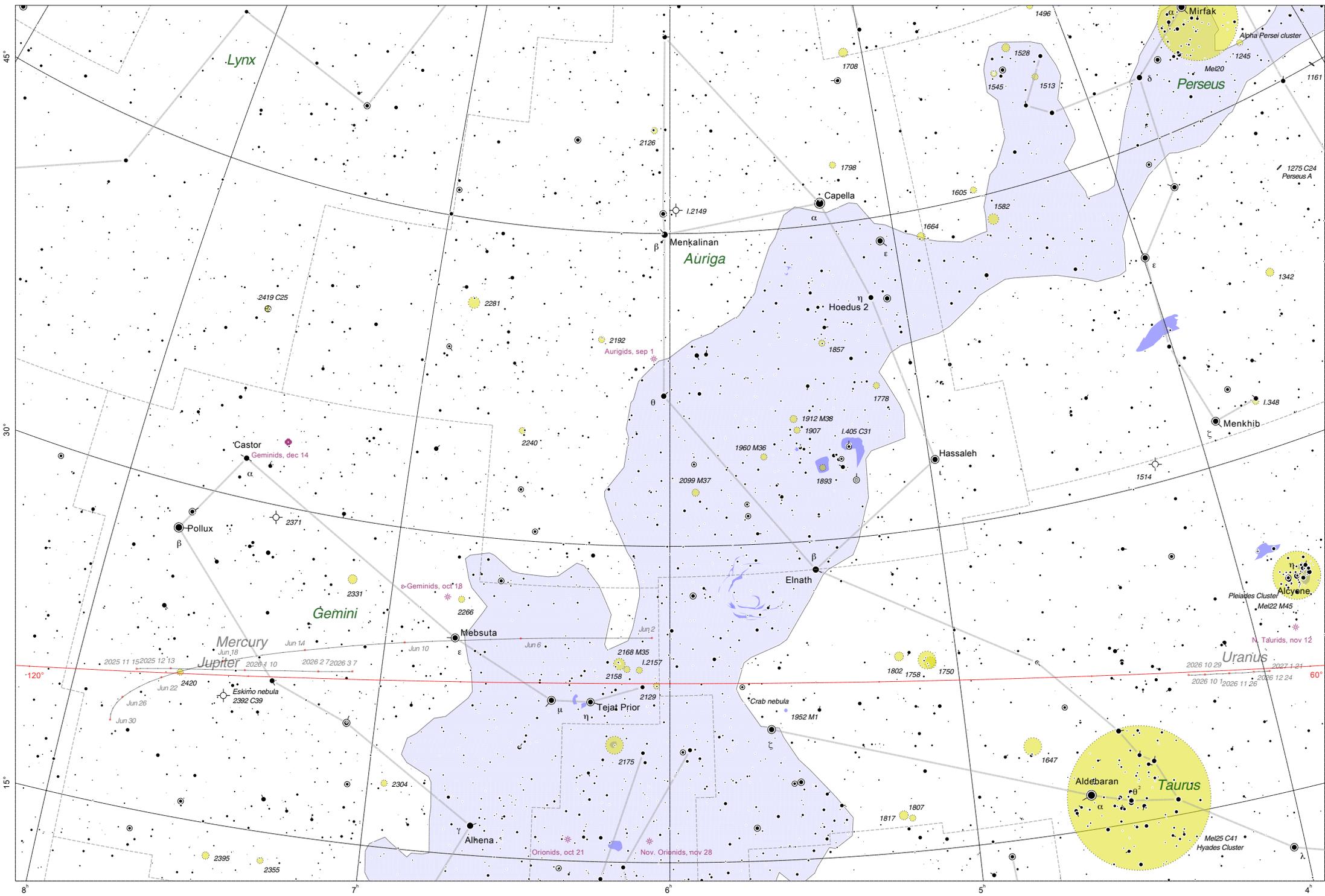
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
ε Aur	05h 03m 50.4s	+43° 51' 32"	2.92 / 3.83	9892	Ecl - Algol
η Gem	06h 16m 26.9s	+22° 29' 49"	3.15 / 3.9	232.9	P - Semi-irr
Mekbuda (ζ Gem)	07h 05m 39.0s	+20° 31' 47"	3.62 / 4.18	10.15	P - δ Cep
UU Aur	06h 38m 20.0s	+38° 25' 18"	7.83 / 10.0	234	P - Semi-irr
RT Aur	06h 30m 14.3s	+30° 28' 28"	5.00 / 5.82	3.73	P - δ Cep
U Ori	05h 57m 21.9s	+20° 10' 38"	4.8 / 13.0	15 may / 368	P - Mira
TV Gem	06h 13m 25.3s	+21° 51' 37"	8.54 / 9.8		P - Semi-irr
Y Lyn	07h 30m 04.8s	+45° 56' 08"	7.8 / 10.3	110	P - Semi-irr
R Gem	07h 08m 55.1s	+22° 39' 40"	6.0 / 14.0	2 abr / 370	P - Mira
RW Tau	04h 05m 30.6s	+28° 11' 44"	7.98 / 11.59	2.77	Ecl - Algol
T Gem	07h 50m 51.6s	+23° 40' 03"	8.0 / 15.0	18 mar, 31 dic / 288	P - Mira

## Navigation map



Stellar magnitudes	Types of stars	Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary

Chart 5, 30°x20° around 6.0h, 35.0° (Auriga, Gemini, Taurus, Orion)



# Main objects visible on chart 6

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Mel111 - Berenice Hair	12h 23m 48.3s	+25° 42' 22"	2.7	Cúmulo abierto	4.58°
NGC2632 M44 - Praesepe	08h 41m 53.4s	+19° 34' 35"	3.1	Cúmulo abierto	70.0
NGC4258 M106	12h 20m 14.5s	+47° 09' 46"	8.4	Galaxia	18.6 x 7.2
NGC3627 M66	11h 21m 36.4s	+12° 50' 50"	8.9	Galaxia	9.1 x 4.1
NGC2903	09h 33m 37.8s	+21° 22' 60"	9.0	Galaxia	12.6 x 6.0
NGC2841	09h 23m 49.3s	+50° 51' 52"	9.2	Galaxia	8.1 x 3.5
NGC3623 M65 - Leo's Triplet	11h 20m 17.0s	+12° 56' 54"	9.3	Galaxia	9.8 x 2.9
NGC3628 - Hamburger galaxy	11h 21m 38.1s	+13° 26' 50"	9.5	Galaxia	13.1 x 3.1
NGC4449 CALDWELL 21	12h 29m 27.0s	+43° 57' 05"	9.6	Galaxia	6.2 x 4.4
NGC2683	08h 54m 17.9s	+33° 19' 14"	9.8	Galaxia	9.3 x 2.1
NGC3184	10h 19m 50.0s	+41° 17' 33"	9.8	Galaxia	7.4 x 6.9
NGC4214	12h 16m 56.9s	+36° 10' 59"	9.8	Galaxia	8.0 x 6.6
NGC4490	12h 31m 51.9s	+41° 29' 58"	9.8	Galaxia	6.4 x 3.2
NGC3344	10h 44m 56.1s	+24° 47' 09"	9.9	Galaxia	7.1 x 6.5
NGC3607	11h 18m 16.5s	+17° 54' 36"	9.9	Galaxia	4.6 x 4.0
NGC3953	11h 55m 09.4s	+52° 10' 49"	10.1	Galaxia	6.9 x 3.6
NGC3675	11h 27m 32.8s	+43° 26' 35"	10.2	Galaxia	5.9 x 3.1
NGC4051	12h 04m 29.0s	+44° 23' 14"	10.2	Galaxia	5.2 x 3.9
NGC4278	12h 21m 24.9s	+29° 08' 10"	10.2	Galaxia	3.8
NGC4395	12h 27m 06.1s	+33° 24' 10"	10.2	Galaxia	13.2 x 11.0
NGC2419 CALDWELL 25 - Intergalactic wande	07h 39m 53.9s	+38° 49' 19"	10.3	Cúmulo globular	4.6
NGC2681	08h 55m 23.8s	+51° 12' 48"	10.3	Galaxia	3.6 x 3.3
NGC3198	10h 21m 29.7s	+45° 25' 07"	10.3	Galaxia	8.5 x 3.3
NGC3227	10h 24m 55.4s	+19° 43' 59"	10.3	Galaxia	4.1 x 3.9
NGC3489	11h 01m 40.5s	+13° 45' 39"	10.3	Galaxia	3.6 x 2.2
NGC3941	11h 54m 16.0s	+36° 50' 32"	10.3	Galaxia	3.5 x 2.5
NGC3377	10h 49m 04.9s	+13° 50' 53"	10.4	Galaxia	5.0 x 3.0
NGC3631	11h 22m 30.3s	+53° 01' 37"	10.4	Galaxia	5.0 x 3.7
NGC3726	11h 34m 45.0s	+46° 53' 02"	10.4	Galaxia	6.0 x 4.1
NGC3938	11h 54m 10.1s	+43° 58' 36"	10.4	Galaxia	5.4 x 4.9
NGC4244 CALDWELL 26	12h 18m 47.7s	+37° 39' 49"	10.4	Galaxia	16.6 x 1.9
NGC4274	12h 21m 09.0s	+29° 28' 10"	10.4	Galaxia	6.8 x 2.4
NGC3486	11h 01m 48.8s	+28° 50' 08"	10.5	Galaxia	7.1 x 5.2
NGC3893	11h 49m 60.0s	+48° 34' 00"	10.5	Galaxia	4.5 x 2.8
NGC4088	12h 06m 53.4s	+50° 23' 45"	10.6	Galaxia	5.6 x 2.1
NGC4314	12h 23m 49.7s	+29° 45' 07"	10.6	Galaxia	4.2 x 3.7
NGC4111	12h 08m 21.8s	+42° 55' 19"	10.7	Galaxia	4.6 x 1.0
NGC4251	12h 19m 26.8s	+28° 01' 52"	10.7	Galaxia	3.6 x 1.5
NGC3245	10h 28m 45.5s	+28° 22' 28"	10.8	Galaxia	3.2 x 1.8
NGC3310	10h 40m 21.7s	+53° 22' 03"	10.8	Galaxia	3.1 x 2.4
NGC3608	11h 18m 21.0s	+18° 00' 21"	10.8	Galaxia	3.2 x 2.6
NGC3665	11h 26m 07.7s	+38° 37' 12"	10.8	Galaxia	4.3 x 3.3
NGC3718	11h 34m 00.0s	+52° 55' 24"	10.8	Galaxia	8.1 x 4.0
NGC4026	12h 00m 44.9s	+50° 49' 02"	10.8	Galaxia	5.2 x 1.3
NGC4151	12h 11m 50.9s	+39° 15' 44"	10.8	Galaxia	6.3 x 4.5
NGC4242	12h 18m 47.2s	+45° 28' 30"	10.8	Galaxia	5.2 x 4.0
NGC4618	12h 42m 47.4s	+41° 00' 32"	10.8	Galaxia	4.2 x 3.4
NGC2859	09h 25m 53.5s	+34° 24' 01"	10.9	Galaxia	4.6 x 4.1
NGC3079	10h 03m 42.5s	+55° 33' 19"	10.9	Galaxia	8.1 x 1.3
NGC3193	10h 19m 50.7s	+21° 45' 47"	10.9	Galaxia	2.0

## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 18 (Adhafera)	10h 19m 33.8s	+23° 09' 21"	3.46 / 6.03	331.3 / 337
STF 1268 (i Cnc)	08h 49m 50.1s	+28° 33' 58"	4.13 / 5.99	30.6 / 308
DRS 47 AD	11h 21m 57.2s	+37° 54' 02"	4.77 / 7.25	500.1 / 128
SMA 75 AB (HD 92787)	10h 46m 36.1s	+45° 55' 47"	5.21 / 7.35	288.0 / 88
SHY 204 (o, Cnc)	09h 00m 08.3s	+15° 07' 09"	5.24 / 5.70	975.6 / 17
FOR 1 AB (67 UMa)	12h 04m 45.9s	+42° 45' 22"	5.24 / 6.72	274.4 / 62
ARN 5 AC	12h 04m 45.9s	+42° 45' 22"	5.24 / 8.47	375.9 / 25
S 612 AB (42 LMi)	10h 48m 44.7s	+30° 24' 27"	5.34 / 7.78	196.4 / 174
ARN 3 AC	10h 48m 44.7s	+30° 24' 27"	5.34 / 8.31	424.6 / 94
STF 1543 AD	11h 31m 51.2s	+39° 02' 60"	5.36 / 7.73	344.0 / 252
S 598 AB (Interclus)	09h 32m 02.8s	+45° 22' 18"	5.50 / 7.80	69.7 / 160
HZG 8 AC	11h 07m 23.6s	+37° 57' 36"	6.04 / 7.56	150.1 / 83
TOK 530 (13 LMi)	09h 45m 50.0s	+34° 51' 11"	6.16 / 8.31	336.7 / 205
ARN 71 AD	09h 24m 18.6s	+51° 02' 32"	6.19 / 7.89	230.7 / 51
S 574 AB (Meleph)	08h 43m 25.6s	+19° 21' 24"	6.28 / 7.48	134.0 / 250
ENG 37 AB (39 Cnc)	08h 43m 05.1s	+19° 49' 13"	6.47 / 6.58	151.8 / 150
HJ 460 AC	08h 55m 35.9s	+28° 03' 35"	6.47 / 6.04	276.8 / 20
STTA 108 AB (MN UMa)	11h 15m 21.9s	+35° 31' 50"	6.48 / 7.32	161.7 / 68
STF 1254 AC	08h 43m 20.7s	+19° 28' 56"	6.52 / 7.61	62.5 / 343
STF 1561 AD	11h 41m 30.9s	+44° 49' 12"	6.53 / 7.56	718.2 / 76
STF 1520 (HD 97855)	11h 19m 00.7s	+52° 29' 19"	6.54 / 7.81	12.4 / 344
BU 584 DC	08h 42m 49.6s	+19° 21' 12"	6.67 / 7.47	99.6 / 89
STF 1579 AB,D	11h 57m 47.0s	+46° 11' 15"	6.68 / 6.97	62.9 / 114
FOR 1 BC	12h 05m 07.8s	+42° 47' 41"	6.72 / 8.47	227.3 / 339
STTA 89 (HD 63610)	07h 54m 17.5s	+31° 28' 37"	6.83 / 7.69	76.6 / 84
SHY 212 (HD 83525)	09h 43m 05.8s	+35° 05' 51"	6.95 / 7.18	494.5 / 227
STF 1369 AB (DI Lyn)	09h 38m 35.8s	+39° 43' 42"	6.98 / 7.98	25.1 / 150
STF 1369 AC	09h 38m 35.8s	+39° 43' 42"	6.98 / 8.42	116.3 / 323

## Main variable stars

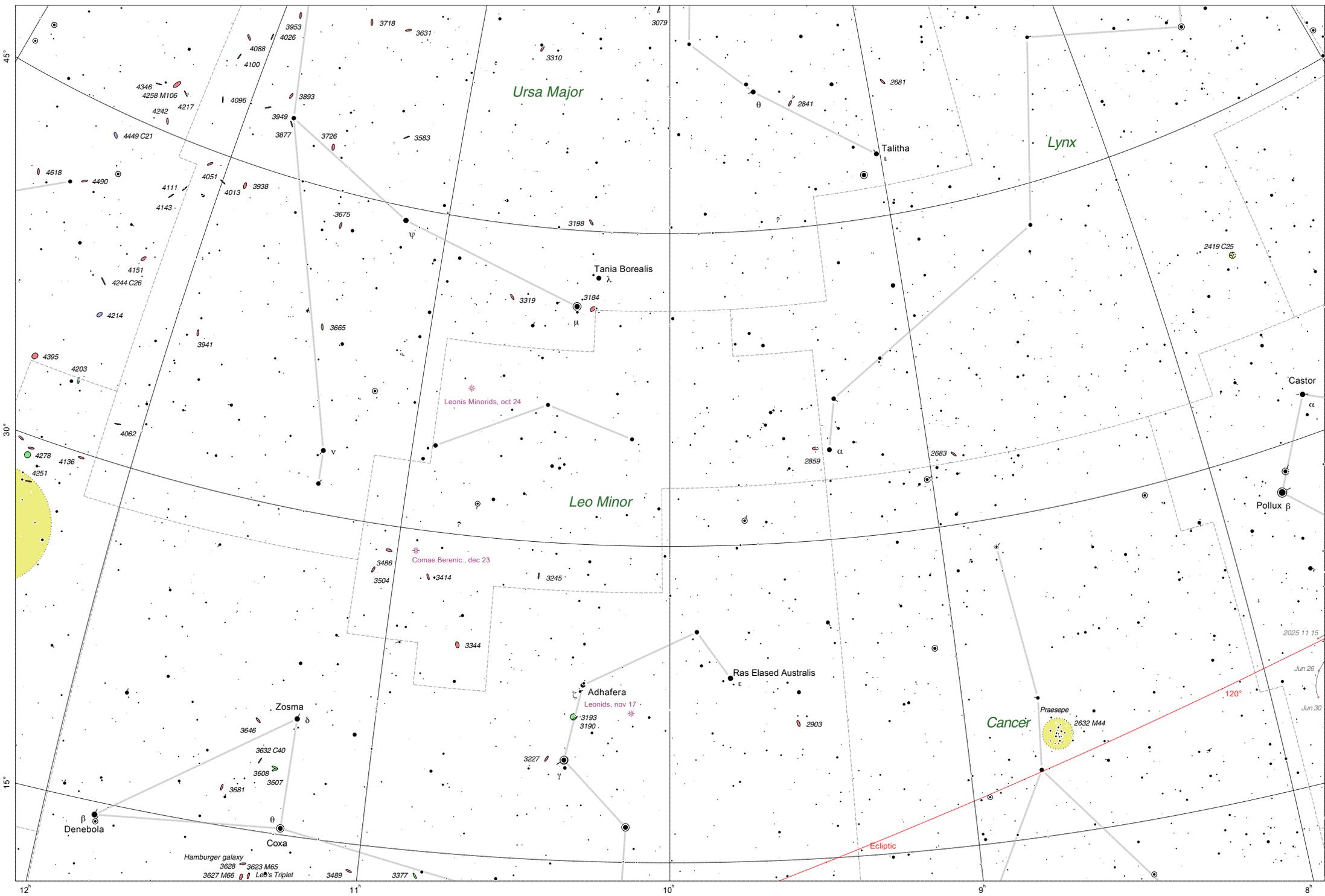
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
X Cnc	08h 56m 50.6s	+17° 07' 51"	5.6 / 7.5	195	P - Semi-irr
ST UMa	11h 29m 15.1s	+45° 02' 30"	6.0 / 7.6	110	P - Semi-irr
TX UMa	10h 46m 51.7s	+45° 25' 45"	7.06 / 8.80	3.06	Ecl - Algol
Y Lyn	07h 30m 04.8s	+45° 56' 08"	7.8 / 10.3	110	P - Semi-irr
T Gem	07h 50m 51.6s	+23° 40' 03"	8.0 / 15.0	18 mar, 31 dic / 288	P - Mira
R LMi	09h 47m 07.4s	+34° 23' 28"	6.3 / 13.2	27 jun / 372	P - Mira

## Navigation map



<b>Stellar magnitudes</b> 	<b>Types of stars</b> 	<b>Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary</b> 
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Chart 6, 30°x20° around 10.0h, 35.0° (Leo Minor, Ursa Major, Lynx, Cancer)



# Main objects visible on chart 7

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Mel111 - Berenice Hair	12h 23m 48.3s	+25° 42' 22"	2.7	Cúmulo abierto	4.58"
NGC5272 M3	13h 43m 23.0s	+28° 14' 44"	6.3	Cúmulo globular	18.0
NGC5024 M53	13h 14m 11.7s	+18° 01' 57"	7.7	Cúmulo globular	13.0
NGC5457 M101 - Pinwheel galaxy	14h 04m 07.5s	+54° 13' 31"	7.9	Galaxia	28.8 x 26.9
NGC4736 M94	12h 52m 06.3s	+40° 58' 49"	8.2	Galaxia	14.4 x 12.1
NGC4258 M106	12h 20m 14.5s	+47° 09' 46"	8.4	Galaxia	18.6 x 7.2
NGC5194 M51 - Whirlpool galaxy	13h 30m 58.2s	+47° 03' 43"	8.4	Galaxia	11.2 x 6.9
NGC4826 M64 - Black Eye galaxy	12h 58m 00.3s	+21° 32' 34"	8.5	Galaxia	10.0 x 5.4
NGC5055 M63 - Sunflower galaxy	13h 16m 58.7s	+41° 53' 47"	8.6	Galaxia	12.6 x 7.2
NGC4406 M86	12h 27m 30.5s	+12° 48' 09"	8.9	Galaxia	8.9 x 5.8
NGC5053	13h 17m 43.3s	+17° 33' 43"	9.0	Cúmulo globular	10.0
NGC4374 M84 - Markarian chain	12h 26m 22.7s	+12° 44' 35"	9.1	Galaxia	6.5 x 5.6
NGC4382 M85	12h 26m 42.6s	+18° 02' 49"	9.1	Galaxia	7.1 x 5.5
NGC4631 CALDWELL 32 - Whale galaxy	12h 43m 23.5s	+32° 23' 58"	9.2	Galaxia	15.2 x 2.8
NGC5466	14h 06m 37.4s	+28° 24' 42"	9.2	Cúmulo globular	9.0
NGC4321 M100	12h 24m 13.8s	+15° 40' 44"	9.4	Galaxia	7.5 x 6.1
NGC4725	12h 51m 42.8s	+25° 21' 32"	9.4	Galaxia	10.7 x 7.6
NGC6229	16h 47m 42.8s	+47° 28' 60"	9.4	Cúmulo globular	4.5
NGC4569 M90	12h 38m 08.6s	+13° 01' 16"	9.5	Galaxia	9.5 x 4.4
NGC4449 CALDWELL 21	12h 29m 27.0s	+43° 57' 05"	9.6	Galaxia	6.2 x 4.4
NGC4501 M88	12h 33m 17.7s	+14° 16' 35"	9.6	Galaxia	6.8 x 3.7
NGC4565 CALDWELL 38 - Needle galaxy	12h 37m 37.7s	+25° 50' 42"	9.6	Galaxia	15.8 x 2.1
NGC5195	13h 31m 04.7s	+47° 08' 02"	9.6	Galaxia	5.9 x 4.6
NGC4214	12h 16m 56.9s	+36° 10' 59"	9.8	Galaxia	8.0 x 6.6
NGC4490	12h 31m 51.9s	+41° 29' 58"	9.8	Galaxia	6.4 x 3.2
NGC4494	12h 32m 41.7s	+25° 37' 55"	9.8	Galaxia	4.8 x 3.5
NGC5005 CALDWELL 29	13h 12m 08.0s	+36° 55' 15"	9.8	Galaxia	5.8 x 2.9
NGC4254 M99	12h 20m 08.5s	+14° 16' 24"	9.9	Galaxia	5.3 x 4.6
NGC4216	12h 17m 13.4s	+13° 00' 12"	10.0	Galaxia	8.1 x 1.8
NGC4559 CALDWELL 36	12h 37m 14.8s	+27° 49' 01"	10.0	Galaxia	10.7 x 4.4
NGC3953	11h 55m 09.4s	+52° 10' 49"	10.1	Galaxia	6.9 x 3.6
NGC4192 M98	12h 15m 07.2s	+14° 45' 18"	10.1	Galaxia	9.8 x 2.8
NGC4414	12h 27m 44.6s	+31° 04' 48"	10.1	Galaxia	4.4 x 3.0
NGC4450	12h 29m 47.9s	+16° 56' 26"	10.1	Galaxia	5.4 x 4.1
NGC3675	11h 27m 32.8s	+43° 26' 35"	10.2	Galaxia	5.9 x 3.1
NGC4051	12h 04m 29.0s	+44° 23' 14"	10.2	Galaxia	5.2 x 3.9
NGC4278	12h 21m 24.9s	+29° 08' 10"	10.2	Galaxia	3.8
NGC4395	12h 27m 06.1s	+33° 24' 10"	10.2	Galaxia	13.2 x 11.0
NGC4438 - The Eyes	12h 29m 04.6s	+12° 51' 54"	10.2	Galaxia	8.5 x 3.0
NGC4473	12h 31m 07.6s	+13° 17' 11"	10.2	Galaxia	4.5 x 2.5
NGC4548 M91	12h 36m 45.0s	+14° 21' 12"	10.2	Galaxia	5.2 x 4.2
NGC5033	13h 14m 39.8s	+36° 27' 22"	10.2	Galaxia	10.7 x 5.0
NGC3941	11h 54m 16.0s	+36° 50' 32"	10.3	Galaxia	3.5 x 2.5
NGC3726	11h 34m 45.0s	+46° 53' 02"	10.4	Galaxia	6.0 x 4.1
NGC3938	11h 54m 10.1s	+43° 58' 36"	10.4	Galaxia	5.4 x 4.9
NGC4153	12h 11m 25.6s	+18° 23' 52"	10.4	Cúmulo globular	4.4
NGC4244 CALDWELL 26	12h 18m 47.7s	+37° 39' 49"	10.4	Galaxia	16.6 x 1.9
NGC4274	12h 21m 09.0s	+29° 28' 10"	10.4	Galaxia	6.8 x 2.4
NGC4293	12h 22m 31.8s	+18° 14' 19"	10.4	Galaxia	5.6 x 2.6
NGC4459	12h 30m 18.8s	+13° 50' 06"	10.4	Galaxia	3.5 x 2.7
NGC4477	12h 31m 20.8s	+13° 29' 37"	10.4	Galaxia	3.7 x 3.3
NGC3893	11h 49m 60.0s	+48° 34' 00"	10.5	Galaxia	4.5 x 2.8
NGC4654	12h 45m 14.9s	+12° 59' 04"	10.5	Galaxia	5.0 x 3.1
NGC4656	12h 45m 13.8s	+32° 01' 40"	10.5	Galaxia	15.3 x 2.4
NGC4088	12h 06m 53.4s	+50° 23' 45"	10.6	Galaxia	5.6 x 2.1
NGC4314	12h 23m 49.7s	+29° 45' 07"	10.6	Galaxia	4.2 x 3.7
NGC5371	13h 56m 45.6s	+40° 20' 08"	10.6	Galaxia	4.2 x 3.4
NGC4111	12h 08m 21.8s	+42° 55' 19"	10.7	Galaxia	4.6 x 1.0
NGC4251	12h 19m 26.8s	+28° 01' 52"	10.7	Galaxia	3.6 x 1.5
NGC3665	11h 26m 07.7s	+38° 37' 12"	10.8	Galaxia	4.3 x 3.3
NGC4026	12h 00m 44.9s	+50° 49' 02"	10.8	Galaxia	5.2 x 1.3
NGC4151	12h 11m 50.9s	+39° 15' 44"	10.8	Galaxia	6.3 x 4.5
NGC4242	12h 18m 47.2s	+45° 28' 30"	10.8	Galaxia	5.2 x 4.0
NGC4435 - The Eyes	12h 28m 59.5s	+12° 56' 10"	10.8	Galaxia	3.0 x 2.2
NGC4618	12h 42m 47.4s	+41° 00' 32"	10.8	Galaxia	4.2 x 3.4
NGC4651	12h 45m 00.5s	+16° 15' 06"	10.8	Galaxia	4.0 x 2.7
NGC5474	14h 05m 56.8s	+53° 32' 21"	10.8	Galaxia	4.7
NGC4096	12h 07m 19.8s	+47° 19' 52"	10.9	Galaxia	6.5 x 1.8
NGC4143	12h 10m 54.7s	+42° 23' 23"	10.9	Galaxia	2.3 x 1.4
NGC4203	12h 16m 23.4s	+33° 03' 11"	10.9	Galaxia	3.5 x 3.2
NGC4267	12h 21m 04.6s	+12° 39' 15"	10.9	Galaxia	3.0 x 2.8

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC4394	12h 27m 14.2s	+18° 04' 13"	10.9	Galaxia	3.4 x 3.2
NGC3877	11h 47m 29.4s	+47° 20' 60"	11.0	Galaxia	5.3 x 1.2
NGC4350	12h 25m 16.6s	+16° 32' 58"	11.0	Galaxia	2.9 x 1.6
NGC4388	12h 27m 06.0s	+12° 31' 05"	11.0	Galaxia	5.6 x 1.5
NGC4689	12h 49m 03.9s	+13° 37' 14"	11.0	Galaxia	4.3 x 3.5
NGC4710	12h 50m 56.6s	+15° 01' 24"	11.0	Galaxia	4.9 x 1.2
NGC5353	13h 54m 32.6s	+40° 09' 21"	11.0	Galaxia	2.2 x 1.1
NGC5448	14h 03m 49.8s	+49° 02' 54"	11.0	Galaxia	3.8 x 2.0
NGC5557	14h 19m 30.9s	+36° 22' 29"	11.0	Galaxia	2.4 x 1.9
NGC3583	11h 15m 38.6s	+48° 10' 35"	11.1	Galaxia	2.8 x 1.8
NGC3949	11h 55m 02.3s	+47° 42' 55"	11.1	Galaxia	2.9 x 1.7
NGC4062	12h 05m 23.3s	+31° 45' 02"	11.1	Galaxia	4.0 x 1.8

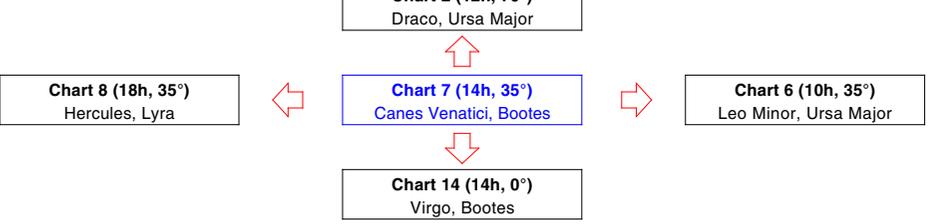
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (°)
STF 1744 AB (Mizar)	13h 25m 59.2s	+54° 39' 21"	2.23 / 3.88	14.7 / 154
STF 1744 AC	13h 25m 59.2s	+54° 39' 21"	2.23 / 4.01	715.5 / 73
SMR 4 AD	13h 25m 59.2s	+54° 39' 21"	2.23 / 7.62	498.1 / 103
STF 1692 AB (Cor Caroli)	12h 58m 28.4s	+38° 02' 16"	2.85 / 5.52	19.3 / 230
STFA 27 AB (δ Boo)	15h 17m 35.5s	+33° 07' 31"	3.56 / 7.89	105.0 / 78
STFA 28 AB (Alkalurops)	15h 26m 28.6s	+37° 11' 46"	4.33 / 7.09	109.2 / 171
STF 1821 AB (κ, Boo)	14h 15m 20.3s	+51° 32' 56"	4.53 / 6.62	13.8 / 236
STFA 26 AB (Asellus secundus)	14h 18m 01.2s	+51° 07' 40"	4.76 / 7.39	39.0 / 33
STF 1657 AB (24 Com)	12h 37m 44.3s	+18° 05' 28"	5.11 / 6.33	20.2 / 272
STFA 21 AB (17 Com)	12h 31m 30.5s	+25° 37' 33"	5.23 / 6.64	146.4 / 251
FOR 1 AB (67 UMa)	12h 04m 45.9s	+42° 45' 22"	5.24 / 6.72	274.4 / 62
ARN 5 AC	12h 04m 45.9s	+42° 45' 22"	5.24 / 8.47	375.9 / 25
STF 1543 AD	11h 31m 51.2s	+39° 02' 60"	5.36 / 7.73	344.0 / 252
STFA 29 AB (ν, CrB)	16h 24m 18.6s	+33° 40' 50"	5.39 / 5.58	354.7 / 164
HJL 1087 (22 Boo)	14h 28m 52.4s	+18° 59' 44"	5.43 / 8.38	223.8 / 255
STF 1772 AD	13h 43m 09.1s	+19° 41' 39"	5.76 / 7.38	208.7 / 1
STFA 24 AB (17 CVn)	13h 12m 26.1s	+38° 13' 24"	5.95 / 6.26	275.6 / 296
BUP 143 AC	12h 32m 31.1s	+51° 14' 56"	6.21 / 8.45	217.5 / 333
BGH 46 AB (HD 115365)	13h 19m 03.6s	+19° 30' 44"	6.46 / 7.59	202.9 / 58
STFA 23 AB (32 Com)	12h 54m 47.0s	+16° 47' 32"	6.50 / 6.99	196.3 / 51
STF 1561 AD	11h 41m 30.9s	+44° 49' 12"	6.53 / 7.56	718.2 / 76
STF 1579 AB,D	11h 57m 47.0s	+46° 11' 15"	6.68 / 6.97	62.9 / 114
STF 1919 (HD 135101)	15h 15m 04.8s	+19° 05' 39"	6.71 / 7.38	23.2 / 11
FOR 1 BC	12h 05m 07.8s	+42° 47' 41"	6.72 / 8.47	227.3 / 339
ARN 8 AB,D	13h 35m 11.7s	+34° 38' 30"	6.81 / 8.40	351.6 / 259

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Y CVn	12h 46m 20.8s	+45° 17' 55"	7.4 / 10.0	157	P - Semi-irr
TU CVn	12h 56m 07.5s	+47° 03' 22"	5.55 / 6.6	50	P - Semi-irr
ST UMa	11h 29m 15.1s	+45° 02' 30"	6.0 / 7.6	110	P - Semi-irr
ZZ Boo	13h 57m 21.1s	+25° 47' 32"	6.79 / 7.44	4.99	Ecl - Algol
V CVn	13h 20m 35.5s	+45° 23' 28"	6.52 / 8.56	22 may, 30 nov / 191.89	P - Semi-irr
U CrB	15h 19m 15.0s	+31° 33' 12"	7.66 / 8.79	3.45	Ecl - Algol
V Boo	14h 30m 48.2s	+38° 44' 47"	7.0 / 12.0	23 abr / 258.01	P - Semi-irr
S CrB	15h 22m 27.6s	+31° 16' 31"	5.8 / 14.1	8 jul / 360.26	P - Mira
R Boo	14h 38m 20.4s	+26° 37' 30"	6.2 / 13.1	5 feb, 17 sep / 223.40	P - Mira

## Navigation map



Stellar magnitudes: ● -1 ● 0 ● 1 ● 2 ● 3 ● 4 ● 5 ● 6 ● 7 ● 8

Types of stars: ● Double ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ● Open cluster ● Globular ● Nebulose ● Milky Way ● Plan.neb. ● Galaxy ● Constellation ● Const. limit ● Meteors



# Main objects visible on chart 8

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC6888 CALDWELL 27 - Crescent nebula	20h 13m 03.4s	+38° 26' 03"		Nebulosa	18.0 x 13.0
Col399	19h 26m 32.1s	+20° 14' 11"	3.6	Cúmulo abierto	60.0
NGC7000 CALDWELL 20 - North America nebul	21h 00m 13.7s	+44° 37' 08"	5.0	Nebulosa	2.0° x 1.67°
NGC6871	20h 07m 25.6s	+35° 51' 58"	5.2	Cúmulo abierto	30.0
Stock1	19h 36m 53.0s	+25° 16' 33"	5.3	Cúmulo abierto	60.0
Cr419	20h 18m 55.5s	+40° 37' 56"	5.4	Cúmulo abierto	45.0
NGC6205 M13 - Hercules cluster	16h 42m 37.3s	+36° 24' 45"	5.8	Cúmulo globular	20.0
NGC6341 M92	17h 17m 55.3s	+43° 06' 37"	6.5	Cúmulo globular	14.0
NGC6913 M29	20h 25m 03.6s	+38° 34' 43"	6.6	Cúmulo abierto	10.0
NGC6811	19h 37m 56.3s	+46° 26' 07"	6.8	Cúmulo abierto	15.0
NGC6823	19h 44m 16.5s	+23° 21' 48"	7.1	Cúmulo abierto	7.0
NGC6819	19h 42m 11.4s	+40° 14' 44"	7.3	Cúmulo abierto	5.0
IC4996	20h 17m 29.5s	+37° 43' 28"	7.3	Cúmulo abierto	7.0
NGC6853 M27 - Dumbbell nebula	20h 00m 43.6s	+22° 47' 39"	7.4	Nebulosa planetaria	6.7
NGC6910	20h 24m 07.6s	+40° 51' 49"	7.4	Cúmulo abierto	10.0
NGC6866	20h 04m 46.1s	+44° 14' 02"	7.6	Cúmulo abierto	7.0
NGC6834	19h 53m 15.2s	+29° 28' 35"	7.8	Cúmulo abierto	6.0
NGC6830	19h 52m 06.8s	+23° 10' 04"	7.9	Cúmulo abierto	6.0
NGC6883	20h 12m 16.9s	+35° 55' 43"	8.0	Cúmulo abierto	35.0
NGC6885 CALDWELL 37	20h 13m 03.4s	+26° 33' 45"	8.1	Cúmulo abierto	20.0
NGC6779 M56	19h 17m 36.4s	+30° 13' 59"	8.4	Cúmulo globular	8.8
NGC6838 M71	19h 54m 55.7s	+18° 50' 53"	8.4	Cúmulo globular	7.2
NGC6210	16h 45m 35.0s	+23° 45' 15"	8.8	Nebulosa planetaria	21.0"
NGC6720 M57 - Ring nebula	18h 54m 33.1s	+33° 03' 49"	8.8	Nebulosa planetaria	3.0 x 2.4
NGC6802	19h 31m 44.1s	+20° 19' 04"	8.8	Cúmulo abierto	5.0
NGC6826 CALDWELL 15 - Blinking planetary	19h 45m 30.3s	+50° 35' 23"	8.8	Nebulosa planetaria	36.0"
NGC6229	16h 47m 42.8s	+47° 28' 60"	9.4	Cúmulo globular	4.5
NGC6791	19h 21m 47.4s	+37° 49' 28"	9.5	Cúmulo abierto	10.0
NGC6996	20h 57m 24.6s	+45° 34' 28"	10.0	Cúmulo abierto	5.0
NGC6997	20h 57m 25.3s	+44° 45' 04"	10.0	Cúmulo abierto	8.0
IC4593	16h 12m 57.8s	+12° 00' 23"	10.7	Nebulosa planetaria	42.0"
NGC6766	20h 11m 12.8s	+46° 32' 24"	10.9	Nebulosa planetaria	15.0"
NGC6793	19h 24m 19.3s	+22° 12' 33"	11.0	Cúmulo abierto	7.0
NGC6874	20h 08m 44.7s	+38° 18' 37"	11.0	Cúmulo abierto	7.0

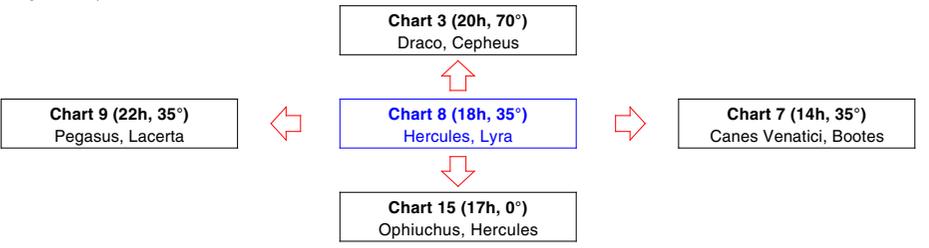
# Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STF 3127 AB (Sarin)	17h 17m 10.4s	+24° 47' 04"	3.12 / 8.30	13.8 / 291
STFA 43 AB (Albireo)	19h 32m 48.9s	+28° 04' 21"	3.19 / 4.68	34.6 / 54
STFA 39 AB (Sheliak)	18h 52m 00.2s	+33° 25' 36"	3.63 / 6.69	45.7 / 149
STFA 50 AC (α <sub>1</sub> Cyg)	20h 15m 16.2s	+46° 54' 06"	3.93 / 6.97	108.6 / 173
STFA 50 AD	20h 15m 16.2s	+46° 54' 06"	3.93 / 4.83	336.7 / 322
S 743 (α <sub>2</sub> Cyg)	20h 17m 04.4s	+47° 52' 35"	4.16 / 8.36	208.5 / 175
STFA 38 AD (ζ <sub>2</sub> Lyr)	18h 46m 33.4s	+37° 39' 44"	4.34 / 5.62	43.7 / 150
STFA 42 (Anser)	19h 30m 52.3s	+24° 46' 32"	4.61 / 5.93	427.7 / 28
STFA 37 AB,CD (Cuádruple)	18h 46m 03.3s	+39° 43' 36"	4.67 / 4.56	209.4 / 172
GUI 30 DC	20h 14m 56.0s	+46° 58' 32"	4.83 / 6.97	431.8 / 150
STFA 35 (ν <sub>2</sub> Dra)	17h 33m 16.8s	+55° 08' 18"	4.87 / 4.90	62.3 / 311
ENG 72 AB (29 Cyg)	20h 16m 28.6s	+36° 58' 03"	4.96 / 6.71	215.3 / 155
WNO 56 AF	19h 48m 24.4s	+33° 51' 30"	5.06 / 8.48	792.0 / 235
STFA 37 AD	18h 46m 03.3s	+39° 43' 36"	5.15 / 5.38	208.2 / 172
STFA 30 AC	16h 37m 28.1s	+52° 49' 18"	5.38 / 5.50	90.2 / 193
STFA 29 AB (ν <sub>1</sub> CrB)	16h 24m 18.6s	+33° 40' 50"	5.39 / 5.58	354.7 / 164
STTA 178 (HD 180243)	19h 17m 42.2s	+15° 10' 43"	5.69 / 7.64	89.6 / 267
H 6 26 AB (ε Sge)	19h 39m 38.2s	+16° 35' 00"	5.77 / 8.35	87.4 / 82
STF 2280 AB (100 Her)	18h 09m 55.9s	+26° 06' 44"	5.81 / 5.84	14.3 / 182
STFA 46 AB (16 Cyg)	19h 43m 12.7s	+50° 39' 03"	6.00 / 6.23	39.7 / 133
STFA 37 BC	18h 46m 03.3s	+39° 43' 38"	6.10 / 5.25	210.9 / 172
STFA 37 BD	18h 46m 03.3s	+39° 43' 38"	6.10 / 5.38	212.5 / 171
SHJ 282 AC	18h 56m 47.4s	+34° 02' 18"	6.14 / 7.60	45.4 / 349
SHY 713 (63 Her)	17h 13m 12.4s	+24° 10' 39"	6.22 / 6.98	195.5 / 74
H 5 137 AB (HD 186927)	19h 47m 47.3s	+35° 08' 34"	6.22 / 8.18	38.8 / 25

# Main variable stars

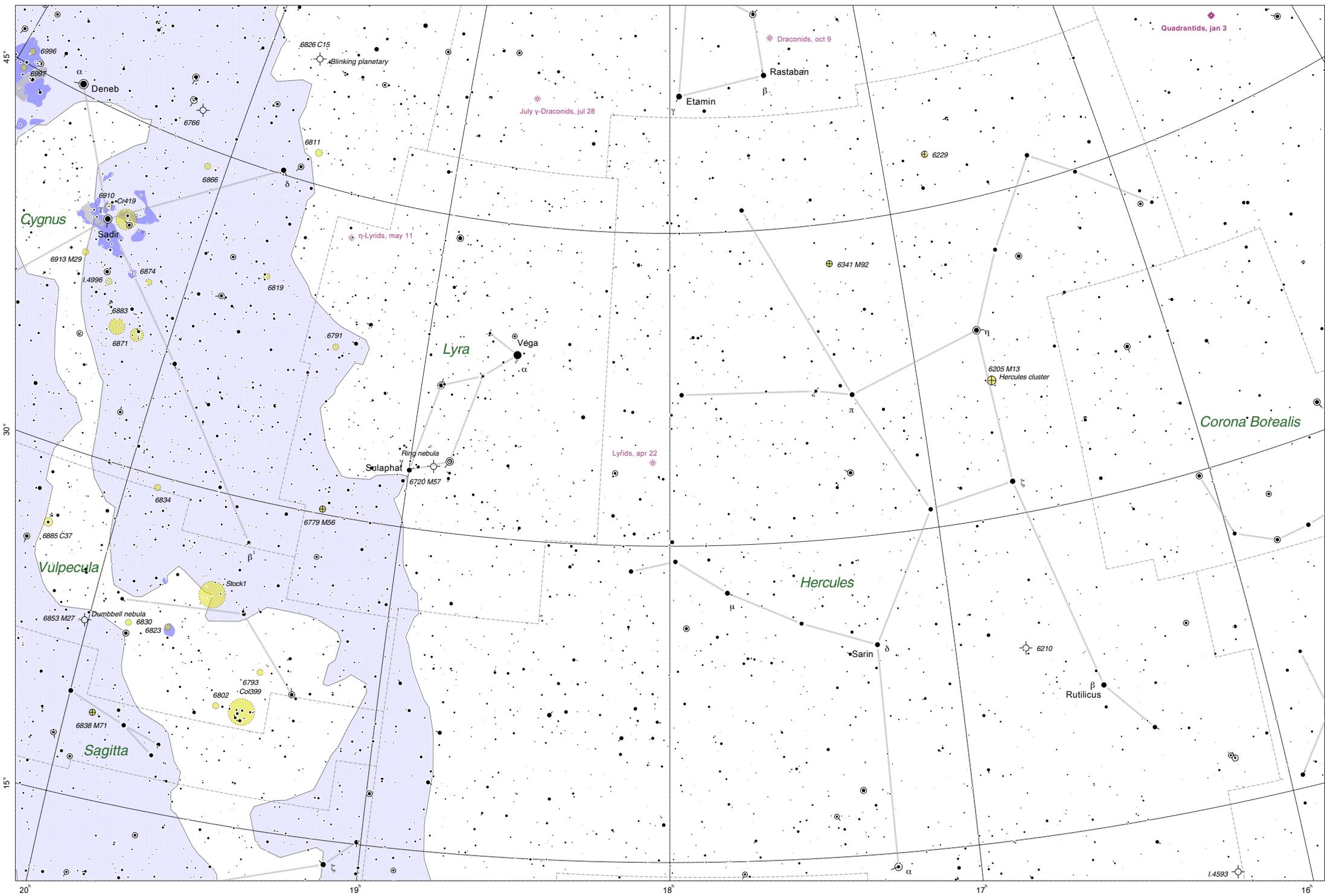
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Sheliak (β Lyr)	18h 51m 02.4s	+33° 23' 40"	3.25 / 4.36	12.91	Ecl - β Lyr
R Lyr	18h 56m 07.6s	+43° 58' 53"	3.88 / 5.0	46	P - Semi-irr
P Cyg	20h 18m 44.7s	+38° 06' 54"	3 / 6		Er
XY Lyr	18h 38m 58.0s	+39° 41' 33"	5.80 / 6.35	3.38	P - Irr Superg
CH Cyg	19h 25m 14.0s	+50° 17' 37"	5.60 / 8.49	92.5	Er - U Gem
U Sge	19h 19m 56.7s	+19° 39' 35"	6.45 / 9.28	3.85	Ecl - Algol
AF Cyg	19h 30m 59.5s	+46° 12' 13"	7.4 / 9.4	7.99	P - Semi-irr
SU Cyg	19h 45m 51.2s	+29° 19' 44"	6.44 / 7.22	3 sep / 307.28	P - δ Cep
U Vul	19h 37m 45.9s	+20° 23' 33"	6.73 / 7.54	12 abr / 417.39	P - δ Cep
S Her	16h 53m 05.0s	+14° 53' 60"	6.4 / 13.8	29 mar, 5 oct / 190.28	P - Mira
RS Cyg	20h 14m 20.4s	+38° 48' 32"	6.5 / 9.5	31 ago / 426.45	P - Semi-irr
RT Cyg	19h 44m 22.0s	+48° 50' 30"	6.0 / 13.1	102.90	P - Mira
R Cyg	19h 37m 31.3s	+50° 15' 34"	6.1 / 14.4	5 oct / 463.24	P - Mira
SX Her	16h 08m 33.0s	+24° 50' 24"	8.6 / 10.9	22 may / 406.10	P - Semi-irr
U Cyg	20h 20m 25.0s	+47° 58' 38"	5.9 / 12.1		P - Mira
U Her	16h 26m 56.5s	+18° 50' 06"	6.4 / 13.4		P - Mira

# Navigation map



<b>Stellar magnitudes</b> ● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8	<b>Types of stars</b> ● Double   ● Variable	<b>Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary</b> ☀ Open cluster   ☉ Globular   ● Nebulose   🌌 Milky Way   ☁ Plan.neb.   ● S ● E ● I ● SO Galaxy   — Constellation   - - - - - Const. limit   * Meteors
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Chart 8, 30°x20° around 18.0h, 35.0° (Hercules, Lyra, Cygnus, Draco)



# Main objects visible on chart 9

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
IC5146 CALDWELL 19 - Cocoon nebula	21h 54m 24.3s	+47° 23' 24"		Nebulosa	10.0
NGC6992 CALDWELL 33	20h 57m 22.5s	+31° 50' 33"		Nebulosa	60.0 x 8.0
NGC6960 CALDWELL 34 - Veil nebula	20h 46m 46.5s	+30° 48' 46"		Nebulosa	70.0 x 6.0
NGC6888 CALDWELL 27 - Crescent nebula	20h 13m 03.4s	+38° 26' 03"		Nebulosa	18.0 x 13.0
NGC224 M31 - Andromeda nebula	00h 44m 10.0s	+41° 24' 40"	3.4	Galaxia	3.15° x 1.03°
NGC7092 M39	21h 32m 48.4s	+48° 32' 27"	4.6	Cúmulo abierto	31.0
NGC7000 CALDWELL 20 - North America nebula	21h 00m 13.7s	+44° 37' 08"	5.0	Nebulosa	2.0° x 1.67°
NGC6871	20h 07m 25.6s	+35° 51' 58"	5.2	Cúmulo abierto	30.0
Cr419	20h 18m 55.5s	+40° 37' 56"	5.4	Cúmulo abierto	45.0
NGC7686	23h 31m 22.1s	+49° 16' 40"	5.6	Cúmulo abierto	15.0
NGC6940	20h 35m 37.7s	+28° 22' 15"	6.3	Cúmulo abierto	25.0
NGC7243 CALDWELL 16	22h 16m 10.3s	+50° 01' 39"	6.4	Cúmulo abierto	30.0
NGC6913 M29	20h 25m 03.6s	+38° 34' 43"	6.6	Cúmulo abierto	10.0
NGC6811	19h 37m 56.3s	+46° 26' 07"	6.8	Cúmulo abierto	15.0
NGC7063	21h 25m 25.8s	+36° 35' 58"	7.0	Cúmulo abierto	9.0
NGC6823	19h 44m 16.5s	+23° 21' 48"	7.1	Cúmulo abierto	7.0
NGC7082	21h 30m 14.1s	+47° 14' 29"	7.2	Cúmulo abierto	24.0
NGC6819	19h 42m 11.4s	+40° 14' 44"	7.3	Cúmulo abierto	5.0
IC4996	20h 17m 29.5s	+37° 43' 28"	7.3	Cúmulo abierto	7.0
NGC6853 M27 - Dumbbell nebula	20h 00m 43.6s	+22° 47' 39"	7.4	Nebulosa planetaria	6.7
NGC6910	20h 24m 07.6s	+40° 51' 49"	7.4	Cúmulo abierto	10.0
NGC6866	20h 04m 46.1s	+44° 14' 02"	7.6	Cúmulo abierto	7.0
NGC7039	21h 12m 08.1s	+45° 45' 27"	7.6	Cúmulo abierto	15.0
NGC7209	22h 06m 10.4s	+46° 36' 38"	7.7	Cúmulo abierto	15.0
NGC6834	19h 53m 15.2s	+29° 28' 35"	7.8	Cúmulo abierto	6.0
NGC6830	19h 52m 06.8s	+23° 10' 04"	7.9	Cúmulo abierto	6.0
NGC6883	20h 12m 16.9s	+35° 55' 43"	8.0	Cúmulo abierto	35.0
NGC205 M110	00h 41m 47.6s	+41° 49' 40"	8.1	Galaxia	19.5 x 11.5
NGC221 M32	00h 44m 07.4s	+41° 00' 29"	8.1	Galaxia	8.5 x 6.5
NGC6885 CALDWELL 37	20h 13m 03.4s	+26° 33' 45"	8.1	Cúmulo abierto	20.0
Stock12	23h 36m 51.2s	+52° 49' 38"	8.1	Cúmulo abierto	20.0
NGC7062	21h 24m 24.4s	+46° 29' 28"	8.3	Cúmulo abierto	5.0
NGC7662 CALDWELL 22 - Blue snowball	23h 27m 09.2s	+42° 40' 44"	8.3	Nebulosa planetaria	37.2"
NGC6838 M71	19h 54m 55.7s	+18° 50' 53"	8.4	Cúmulo globular	7.2
NGC7086	21h 31m 20.9s	+51° 42' 57"	8.4	Cúmulo abierto	12.0
NGC7027	21h 08m 00.1s	+42° 20' 32"	8.5	Nebulosa planetaria	18.0" x 12.0"
NGC6826 CALDWELL 15 - Blinking planetary	19h 45m 30.3s	+50° 35' 23"	8.8	Nebulosa planetaria	36.0"
IC1369	21h 13m 03.4s	+47° 52' 28"	8.8	Cúmulo abierto	5.0
IC1434	22h 11m 28.9s	+52° 57' 43"	9.0	Cúmulo abierto	7.0
NGC7296	22h 29m 04.5s	+52° 25' 18"	9.0	Cúmulo abierto	4.0
NGC7031	21h 07m 42.7s	+50° 56' 56"	9.1	Cúmulo abierto	15.0
IC1442	22h 17m 05.1s	+54° 07' 19"	9.1	Cúmulo abierto	5.0
NGC185 CALDWELL 18	00h 40m 24.3s	+48° 28' 47"	9.2	Galaxia	8.0 x 7.0
NGC7245	22h 16m 10.6s	+54° 28' 24"	9.2	Cúmulo abierto	5.0
NGC147 CALDWELL 17	00h 34m 37.5s	+48° 39' 01"	9.5	Galaxia	13.2 x 7.8
NGC6791	19h 21m 47.4s	+37° 49' 28"	9.5	Cúmulo abierto	10.0
NGC7331 CALDWELL 30	22h 38m 16.7s	+34° 33' 21"	9.5	Galaxia	10.2 x 4.2
NGC7226	22h 11m 23.8s	+55° 31' 38"	9.6	Cúmulo abierto	2.0
NGC7067	21h 25m 08.0s	+48° 07' 27"	9.7	Cúmulo abierto	3.0
NGC7128	21h 44m 51.2s	+53° 50' 08"	9.7	Cúmulo abierto	4.0
NGC6996	20h 57m 24.6s	+45° 34' 28"	10.0	Cúmulo abierto	5.0
NGC6997	20h 57m 25.3s	+44° 45' 04"	10.0	Cúmulo abierto	8.0
NGC7217	22h 09m 02.1s	+31° 29' 15"	10.1	Galaxia	4.0 x 3.4
NGC6891	20h 16m 22.3s	+12° 47' 08"	10.5	Nebulosa planetaria	21.0"
IC4997	20h 21m 20.2s	+16° 48' 56"	10.5	Nebulosa planetaria	13.2"
NGC7006 CALDWELL 42	21h 02m 42.4s	+16° 17' 29"	10.6	Cúmulo globular	3.6
NGC7814 CALDWELL 43	00h 04m 34.9s	+16° 17' 24"	10.6	Galaxia	5.5 x 2.3
NGC7008	21h 01m 18.3s	+54° 38' 48"	10.7	Nebulosa planetaria	1.4
NGC278	00h 53m 33.2s	+47° 41' 30"	10.8	Galaxia	2.1 x 2.0
NGC6766	20h 11m 12.8s	+46° 32' 24"	10.9	Nebulosa planetaria	15.0"
NGC7026	21h 07m 12.2s	+47° 57' 29"	10.9	Nebulosa planetaria	0.8
NGC6874	20h 08m 44.7s	+38° 18' 37"	11.0	Cúmulo abierto	7.0
NGC7127	21h 44m 45.5s	+54° 42' 58"	11.0	Cúmulo abierto	6.0
NGC6905 - Blue flash nebula	20h 23m 32.6s	+20° 11' 22"	11.1	Nebulosa planetaria	1.2
NGC7332	22h 38m 39.2s	+23° 56' 01"	11.1	Galaxia	4.1 x 1.1
NGC7177	22h 01m 55.6s	+17° 51' 47"	11.2	Galaxia	3.2 x 2.1
NGC7457	23h 02m 14.7s	+30° 17' 05"	11.2	Galaxia	4.3 x 2.3

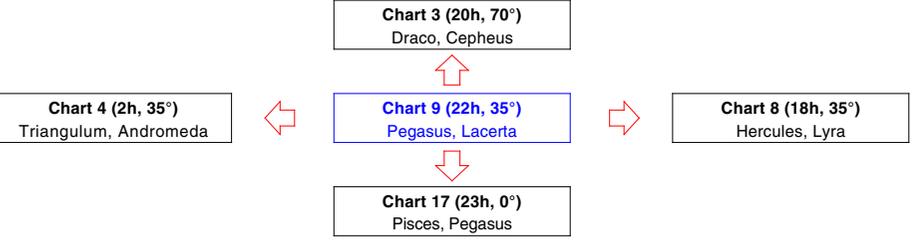
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 50 AC (o, Cyg)	20h 15m 16.2s	+46° 54' 06"	3.93 / 6.97	108.6 / 173
STFA 50 AD	20h 15m 16.2s	+46° 54' 06"	3.93 / 4.83	336.7 / 322
S 743 (o <sub>2</sub> Cyg)	20h 17m 04.4s	+47° 52' 35"	4.16 / 8.36	208.5 / 175
STF 2822 AD	21h 46m 27.7s	+28° 59' 00"	4.75 / 6.94	197.0 / 43
GUI 30 DC	20h 14m 56.0s	+46° 58' 32"	4.83 / 6.97	431.8 / 150
ENG 72 AB (29 Cyg)	20h 16m 28.6s	+36° 58' 03"	4.96 / 6.71	215.3 / 155
WNO 56 AF	19h 48m 24.4s	+33° 51' 30"	5.06 / 8.48	792.0 / 235
STF 2758 AB (61 Cyg)	21h 08m 55.7s	+38° 57' 40"	5.35 / 6.10	32.0 / 154
STF 2922 AB (8 Lac)	22h 38m 11.4s	+39° 54' 19"	5.66 / 6.29	22.5 / 186
A 1469 AE	22h 38m 11.4s	+39° 54' 19"	5.66 / 7.25	335.2 / 239
S 799 AB (79 Cyg)	21h 45m 35.2s	+38° 31' 26"	5.69 / 7.00	149.5 / 60
STFA 46 AB (16 Cyg)	19h 43m 12.7s	+50° 39' 03"	6.00 / 6.23	39.7 / 133
STF 2822 BD	21h 46m 26.7s	+28° 59' 02"	6.18 / 6.94	196.7 / 45
H 5 137 AB (HD 186927)	19h 47m 47.3s	+35° 08' 34"	6.22 / 8.18	38.8 / 25
BOT 3 AC	19h 47m 47.3s	+35° 08' 34"	6.22 / 8.25	443.8 / 76
STFA 53 AB (48 Cyg)	20h 39m 38.9s	+31° 45' 26"	6.29 / 6.54	182.7 / 177
A 1469 BE	22h 38m 11.4s	+39° 53' 56"	6.29 / 7.25	324.0 / 242
ARY 129 AB,C (HD 206644)	21h 44m 28.8s	+41° 18' 60"	6.30 / 7.80	145.5 / 132
STF 2578 AB (HD 186901)	19h 47m 34.5s	+36° 13' 16"	6.37 / 7.04	14.9 / 124
STTA 207 AC	20h 24m 42.3s	+43° 09' 12"	6.41 / 8.01	85.8 / 65
STF 2841 A,B,C (HD 208202)	21h 56m 43.9s	+19° 57' 57"	6.45 / 7.99	22.4 / 110
BU 1138 AC (HD 200595)	21h 04m 39.0s	+46° 03' 25"	6.46 / 7.82	152.1 / 330
STTA 215 AC	21h 12m 19.5s	+47° 54' 25"	6.55 / 7.52	136.7 / 189
STF 2637 AC	20h 12m 14.5s	+21° 04' 17"	6.56 / 7.52	91.9 / 222
STFA 55 AB (HD 203857)	21h 25m 54.6s	+37° 34' 37"	6.61 / 6.61	364.1 / 304

## Main variable stars

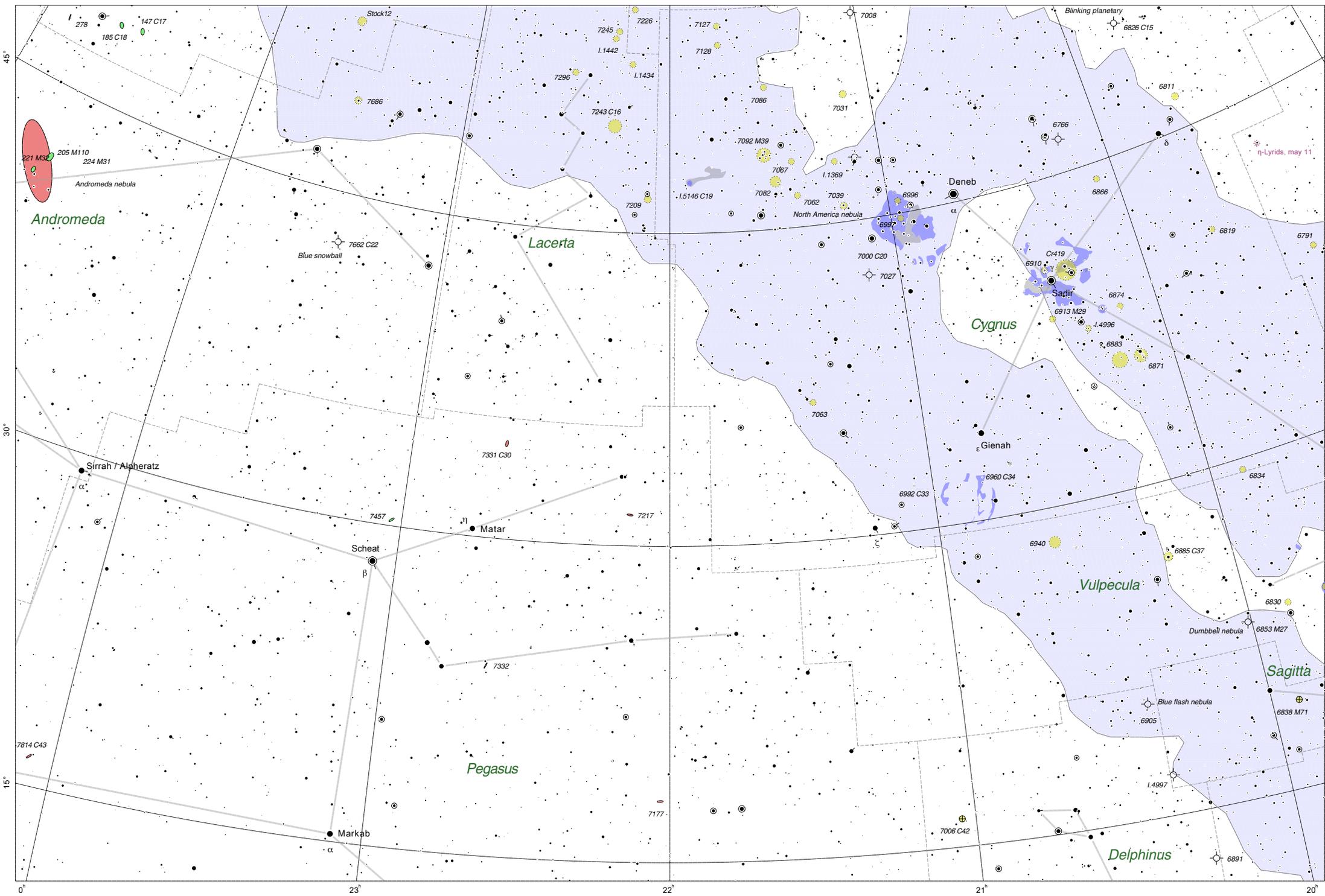
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
P Cyg	20h 18m 44.7s	+38° 06' 54"	3 / 6		Er
EW Lac	22h 58m 13.8s	+48° 49' 24"	5.22 / 5.48		Er - γ Cas
X Cyg	20h 44m 25.3s	+35° 40' 58"	5.85 / 6.91	16.39	P - δ Cep
U Del	20h 46m 39.7s	+18° 11' 09"	7.6 / 8.9	110	P - Semi-irr
AF Cyg	19h 30m 59.5s	+46° 12' 13"	7.4 / 9.4	92.5	P - Semi-irr
SU Cyg	19h 45m 51.2s	+29° 19' 44"	6.44 / 7.22	3.85	P - δ Cep
DY Vul	21h 04m 39.0s	+24° 06' 01"	8.4 / 9.7		P - Irr Superg
RU Cyg	21h 41m 31.4s	+54° 26' 37"	9.2 / 11.6	13 ene, 4 sep / 233.43	P - Semi-irr
TW Peg	22h 05m 10.4s	+28° 28' 30"	7.5 / 8.4	929.3	P - Semi-irr
RS Cyg	20h 14m 20.4s	+38° 48' 32"	6.5 / 9.5	12 abr / 417.39	P - Semi-irr
RT Cyg	19h 44m 22.0s	+48° 50' 30"	6.0 / 13.1	29 mar, 5 oct / 190.28	P - Mira
R Cyg	19h 37m 31.3s	+50° 15' 34"	6.1 / 14.4	31 ago / 426.45	P - Mira
Z Peg	00h 01m 26.6s	+26° 01' 52"	7.3 / 13.6	29 mar / 334.8	P - Mira
W Peg	23h 21m 07.5s	+26° 25' 17"	7.6 / 13.0	14 feb / 345.5	P - Mira
S Del	20h 44m 16.8s	+17° 10' 59"	8.3 / 12.4	24 ago / 277.75	P - Mira
U Cyg	20h 20m 25.0s	+47° 58' 38"	5.9 / 12.1	5 oct / 463.24	P - Mira

## Navigation map



**Stellar magnitudes**: ● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8  
**Types of stars**: ● Double   ● Variable  
**Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary**:  
 ● Open cluster   ● Globular   ● Nebulose   ● Milky Way   ● Plan.neb.   ● Galaxy   ● Constellation   ● Const. limit   ● Meteors

Chart 9, 30°x20° around 22.0h, 35.0° (Pegasus, Lacerta, Cygnus, Vulpecula)



# Main objects visible on chart 10

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC1068 M77 - Cetus A	02h 44m 00.8s	+00° 05' 48"	8.9	Galaxia	7.1 x 6.0
IC1613 CALDWELL 51	01h 06m 07.8s	+02° 15' 27"	9.2	Galaxia	16.6 x 14.9
NGC628 M74	01h 38m 05.7s	+15° 54' 55"	9.4	Galaxia	10.5 x 9.5
NGC1407	03h 41m 22.2s	-18° 29' 52"	9.7	Galaxia	4.6 x 4.3
NGC524	01h 26m 09.9s	+09° 40' 24"	10.2	Galaxia	2.8
NGC720	01h 54m 16.3s	-13° 36' 41"	10.2	Galaxia	4.7 x 2.4
NGC936	02h 28m 57.1s	-01° 02' 27"	10.2	Galaxia	4.7 x 4.1
NGC488	01h 23m 07.7s	+05° 23' 29"	10.3	Galaxia	5.4 x 3.9
NGC772	02h 00m 45.5s	+19° 07' 58"	10.3	Galaxia	7.2 x 4.3
NGC157	00h 36m 05.6s	-08° 15' 11"	10.4	Galaxia	3.5 x 2.4
NGC1300	03h 20m 51.3s	-19° 19' 07"	10.4	Galaxia	6.2 x 4.1
NGC584	01h 32m 38.8s	-06° 44' 02"	10.5	Galaxia	4.1 x 2.0
NGC1052	02h 42m 21.3s	-08° 08' 40"	10.5	Galaxia	2.8 x 2.0
NGC1055	02h 43m 05.5s	+00° 33' 10"	10.6	Galaxia	7.6 x 2.7
NGC7814 CALDWELL 43	00h 04m 34.9s	+16° 17' 24"	10.6	Galaxia	5.5 x 2.3
NGC821	02h 09m 44.6s	+11° 06' 60"	10.7	Galaxia	2.4 x 1.7
NGC1084	02h 47m 16.7s	-07° 28' 11"	10.7	Galaxia	2.8 x 1.4
NGC210	00h 41m 53.2s	-13° 43' 48"	10.9	Galaxia	5.0 x 3.3
NGC246 CALDWELL 56 - Skull nebula	00h 48m 21.8s	-11° 43' 47"	10.9	Nebulosa planetaria	4.1
NGC596	01h 34m 10.3s	-06° 53' 57"	10.9	Galaxia	3.2 x 2.0
NGC864	02h 16m 49.5s	+06° 07' 19"	10.9	Galaxia	4.7 x 3.5
NGC1087	02h 47m 45.0s	-00° 23' 28"	10.9	Galaxia	3.9 x 2.3
NGC988	02h 36m 43.7s	-09° 14' 33"	11.0	Galaxia	4.1 x 1.6
NGC1042	02h 41m 40.5s	-08° 19' 25"	11.0	Galaxia	4.3 x 3.6
NGC1073	02h 45m 00.8s	+01° 29' 07"	11.0	Galaxia	4.9 x 4.3
NGC1400	03h 40m 41.0s	-18° 36' 18"	11.0	Galaxia	2.5 x 2.1
NGC741	01h 57m 42.5s	+05° 45' 18"	11.1	Galaxia	3.0 x 2.9
NGC660	01h 44m 25.5s	+13° 46' 26"	11.2	Galaxia	8.3 x 3.2
NGC779	02h 01m 00.8s	-05° 50' 20"	11.2	Galaxia	4.1 x 1.2

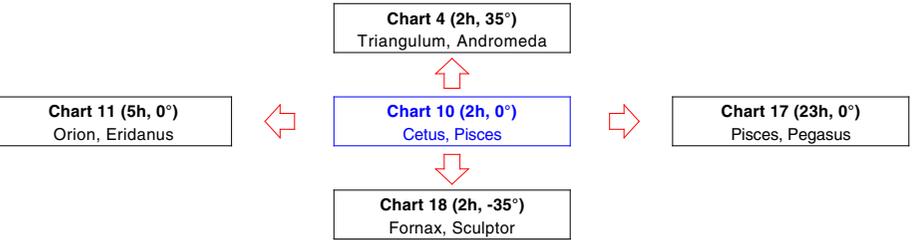
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
PWL 1 AC	02h 04m 44.7s	+03° 00' 44"	4.10 / 8.25	404.9 / 63
ENG 8 (χ Cet)	01h 52m 08.9s	-10° 25' 48"	4.69 / 6.81	184.1 / 250
STFA 3 AB (37 Cet)	01h 17m 00.8s	-07° 38' 56"	5.19 / 7.85	47.1 / 331
STF 100 AB (Revati)	01h 16m 26.9s	+07° 50' 59"	5.22 / 6.26	23.1 / 64
STU 15 AC	02h 03m 01.7s	-08° 16' 27"	5.66 / 7.03	384.4 / 61
STF 231 AB (66 Cet)	02h 15m 26.4s	-02° 09' 08"	5.72 / 7.71	16.8 / 235
HJ 323 (HD 3807)	00h 43m 21.0s	-04° 04' 02"	6.01 / 8.46	63.0 / 286
STF 12 (35 Psc)	00h 17m 39.7s	+09° 06' 35"	6.06 / 7.51	11.2 / 148
S 398 AB (NSV519)	01h 31m 06.7s	+08° 13' 44"	6.34 / 8.02	68.9 / 100
STF 90 AB (77 Psc)	01h 08m 30.7s	+05° 11' 09"	6.39 / 7.26	33.2 / 83
STTA 27 AB (VW Ari)	02h 29m 33.8s	+10° 47' 47"	6.72 / 8.31	73.8 / 31
HJ 2052 (HD 9336)	01h 34m 04.5s	-18° 45' 25"	6.86 / 7.47	80.8 / 114
HJ 1981 A,BC (HD 2760)	00h 33m 38.2s	-09° 47' 53"	6.91 / 8.43	78.4 / 89

## Main variable stars

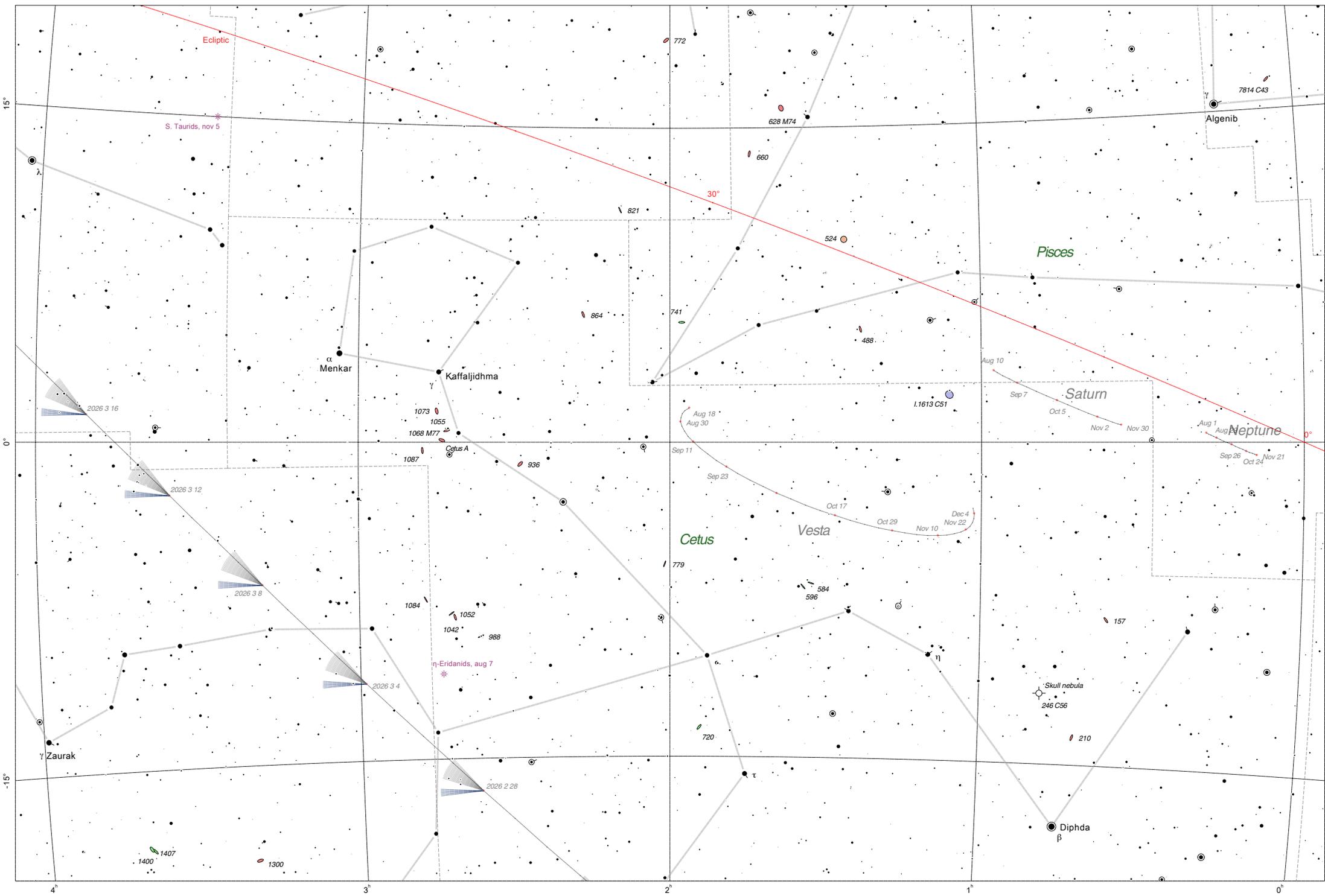
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Mira Ceti (o Cet)	02h 20m 39.7s	-02° 51' 39"	2.0 / 10.1	20 mar / 332	P - Mira

## Navigation map



Stellar magnitudes										Types of stars		Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary								
● -1	● 0	● 1	● 2	● 3	● 4	● 5	● 6	● 7	● 8	● Double	● Variable	☀ Open cluster	☼ Globular	☁ Nebulose	☾ Milky Way	☉ Plan.neb.	☾ Galaxy	☾ Constellation	----- Const. limit	* Meteors

Chart 10, 30°x20° around 2.0h, 0.0° (Cetus, Pisces, Aries, Taurus)



# Main objects visible on chart 11

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
IC434 - Horsehead nebula	05h 42m 17.5s	-02° 26' 48"		Nebulosa	16.0 x 12.0
NGC2261 CALDWELL 46 - Hubble's variable n	06h 40m 34.7s	+08° 43' 10"		Nebulosa	3.0 x 1.0
NGC2237 CALDWELL 49 - Rosette nebula	06h 32m 17.6s	+05° 01' 40"		Nebulosa	80.0 x 50.0
Cr70	05h 37m 19.3s	-01° 05' 07"	0.6	Cúmulo abierto	2.50° x 1.17°
Mel25 CALDWELL 41 - Hyades Cluster	04h 28m 29.1s	+16° 03' 24"	1.0	Cúmulo abierto	5.50"
NGC1976 M42 - Orion nebula	05h 36m 33.8s	-05° 22' 30"	4.0	Nebulosa	40.0 x 35.0
NGC2264 - Christmas Tree cluster	06h 42m 24.1s	+09° 52' 10"	4.1	Cúmulo abierto	40.0
NGC1981	05h 36m 29.3s	-04° 25' 05"	4.2	Cúmulo abierto	28.0
NGC2232	06h 28m 32.1s	-04° 46' 33"	4.2	Cúmulo abierto	45.0
NGC2244 CALDWELL 50	06h 33m 17.9s	+04° 55' 16"	4.8	Cúmulo abierto	24.0
NGC2169	06h 09m 52.9s	+13° 57' 32"	5.9	Cúmulo abierto	6.0
NGC2323 M50	07h 04m 02.8s	-08° 24' 55"	5.9	Cúmulo abierto	15.0
NGC2301	06h 53m 05.4s	+00° 25' 35"	6.0	Cúmulo abierto	15.0
NGC1647	04h 47m 13.6s	+19° 09' 53"	6.4	Cúmulo abierto	40.0
NGC1662	04h 49m 53.4s	+10° 58' 26"	6.4	Cúmulo abierto	12.0
NGC2175	06h 11m 11.5s	+20° 28' 54"	6.8	Cúmulo abierto	40.0 x 30.0
NGC1807	05h 12m 16.0s	+16° 32' 37"	7.0	Cúmulo abierto	12.0
NGC2251	06h 36m 03.4s	+08° 20' 39"	7.3	Cúmulo abierto	10.0
NGC2286	06h 48m 58.2s	-03° 10' 41"	7.5	Cúmulo abierto	15.0
NGC1817	05h 13m 57.2s	+16° 42' 46"	7.7	Cúmulo abierto	20.0
NGC2252	06h 36m 34.2s	+05° 23' 52"	7.7	Cúmulo abierto	18.0
NGC2068 M78	05h 48m 05.0s	+00° 05' 17"	8.3	Nebulosa	8.0 x 6.0
NGC2215	06h 22m 04.7s	-07° 17' 51"	8.4	Cúmulo abierto	8.0
NGC2194	06h 15m 13.7s	+12° 47' 51"	8.5	Cúmulo abierto	9.0
NGC2236	06h 31m 03.7s	+06° 48' 42"	8.5	Cúmulo abierto	8.0
NGC2180	06h 10m 59.0s	+04° 42' 21"	8.5	Cúmulo abierto	6.0
NGC2204	06h 16m 41.2s	-18° 40' 31"	8.6	Cúmulo abierto	10.0
NGC2186	06h 13m 30.4s	+05° 27' 02"	8.7	Cúmulo abierto	5.0
NGC2250	06h 35m 06.7s	-05° 06' 22"	8.9	Cúmulo abierto	10.0
NGC2302	06h 53m 12.3s	-07° 07' 02"	8.9	Cúmulo abierto	2.5
NGC1982 M43	05h 36m 48.1s	-05° 15' 09"	9.0	Nebulosa	20.0 x 15.0
NGC2219	06h 25m 01.4s	-04° 41' 31"	9.0	Cúmulo abierto	10.0
NGC2260	06h 39m 22.1s	-01° 29' 48"	9.0	Cúmulo abierto	20.0
NGC2270	06h 45m 19.7s	+03° 27' 04"	9.0	Cúmulo abierto	20.0
NGC2112	05h 55m 05.4s	+00° 24' 52"	9.1	Cúmulo abierto	18.0
NGC2254	06h 37m 11.2s	+07° 38' 52"	9.1	Cúmulo abierto	6.0
Cr96	06h 31m 21.7s	+02° 50' 50"	9.1	Cúmulo abierto	8.0
IC418	05h 28m 40.5s	-12° 40' 36"	9.3	Nebulosa planetaria	12.0"
NGC2141	06h 04m 21.4s	+10° 26' 39"	9.4	Cúmulo abierto	10.0
NGC1535	04h 15m 28.7s	-12° 40' 29"	9.6	Nebulosa planetaria	0.8
NGC2311	06h 59m 04.7s	-04° 38' 52"	9.6	Cúmulo abierto	7.0
NGC1407	03h 41m 22.2s	-18° 29' 52"	9.7	Galaxia	4.6 x 4.3
NGC2269	06h 44m 39.7s	+04° 35' 49"	10.0	Cúmulo abierto	3.0
NGC2304	06h 56m 42.7s	+17° 57' 13"	10.0	Cúmulo abierto	3.0
NGC2202	06h 18m 14.3s	+05° 59' 08"	10.0	Cúmulo abierto	7.0
NGC2306	06h 55m 45.2s	-07° 13' 59"	10.0	Cúmulo abierto	
NGC1300	03h 20m 51.3s	-19° 19' 07"	10.4	Galaxia	6.2 x 4.1
NGC2309	06h 57m 19.3s	-07° 12' 36"	10.5	Cúmulo abierto	5.0
IC2165	06h 22m 54.7s	-13° 00' 03"	10.5	Nebulosa planetaria	28.2"
NGC1637	04h 42m 46.5s	-02° 48' 34"	10.8	Galaxia	3.3 x 2.7

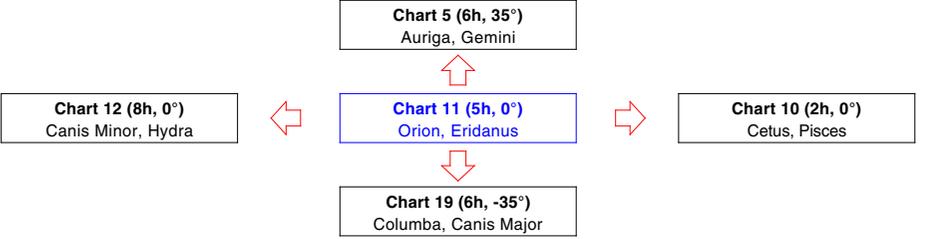
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
STFA 14 AC (Mintaka)	05h 34m 39.6s	-00° 15' 56"	2.41 / 6.83	56.2 / 4
STF 752 AB (Hatysa)	05h 37m 58.8s	-05° 52' 50"	2.77 / 7.73	11.2 / 141
STFA 10 AB (Chamukuy)	04h 31m 38.2s	+15° 58' 53"	3.41 / 3.94	336.9 / 347
STF 762 AB,D	05h 41m 21.8s	-02° 34' 29"	3.76 / 6.56	12.9 / 83
STF 762 AB,E	05h 41m 21.8s	-02° 34' 29"	3.76 / 6.34	41.4 / 62
STF 3135 AB,F	05h 41m 21.8s	-02° 34' 29"	3.76 / 7.86	208.0 / 324
SHJ 65 AB,H	05h 41m 21.8s	-02° 34' 29"	3.76 / 8.06	306.9 / 125
SHJ 65 AB,I	05h 41m 21.8s	-02° 34' 29"	3.76 / 8.44	524.7 / 60
SHJ 45 AB (88 Tau)	04h 38m 30.6s	+10° 15' 48"	4.27 / 7.84	69.2 / 300
STF 900 AB (ε Mon)	06h 26m 31.4s	+04° 33' 40"	4.42 / 6.64	12.2 / 29
STFA 11 (σ, Tau)	04h 42m 14.6s	+16° 00' 58"	4.69 / 5.09	444.0 / 194
STF 747 AB (NSV2261)	05h 37m 35.7s	-05° 58' 20"	4.70 / 5.51	36.3 / 224
LDS 2246 AB (NSV1627)	04h 33m 32.7s	+16° 18' 08"	4.78 / 6.54	250.3 / 131
STF 696 (23 Ori)	05h 25m 34.2s	+03° 35' 22"	4.95 / 6.76	32.0 / 29
STFA 16 AB (θ, Ori)	05h 37m 56.4s	-05° 23' 12"	5.03 / 6.19	52.3 / 93
STFA 16 AC	05h 37m 56.4s	-05° 23' 12"	5.03 / 8.46	128.5 / 98
STFA 17 AD	05h 37m 56.4s	-05° 23' 12"	5.03 / 5.06	134.4 / 315
WNO 52 AC	05h 27m 26.4s	+17° 25' 35"	5.06 / 7.88	707.2 / 252
STF 748 CD	05h 37m 49.4s	-05° 21' 37"	5.06 / 6.38	13.4 / 62
ARN 36 CI	04h 33m 37.1s	+15° 47' 60"	5.48 / 5.70	484.5 / 246
TOK 252 (63 Eri)	05h 02m 17.8s	-10° 11' 23"	5.48 / 8.47	297.9 / 221
STF 855 AB (HD 42111)	06h 11m 40.9s	+02° 29' 12"	5.68 / 6.68	29.1 / 115
SHJ 73 (ν, CMa)	06h 38m 39.7s	-18° 42' 26"	5.79 / 7.38	17.4 / 264
SRT 2 (HD 26590)	04h 13m 53.0s	-20° 13' 32"	5.82 / 7.68	61.8 / 334
HJ 3759 (HD 35722)	05h 28m 15.3s	-19° 39' 14"	5.87 / 7.30	26.6 / 317
ARN 37 AC	06h 01m 06.1s	+01° 50' 15"	5.92 / 6.94	177.8 / 293
SHJ 49 AB (NSV1788)	05h 01m 56.4s	+14° 37' 04"	6.06 / 7.43	39.3 / 306
STFA 16 BC	05h 37m 59.4s	-05° 23' 15"	6.19 / 8.46	76.5 / 102

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Betelgeuse (α Ori)	05h 56m 34.8s	+07° 24' 35"	0.0 / 1.3	2335	P - Semi-irr
λ Tau	04h 02m 07.5s	+12° 33' 43"	3.37 / 3.91	3.95	Ecl - Algol
RX Lep	05h 12m 35.8s	-11° 49' 07"	5.0 / 7.4	60	P - Semi-irr
U Ori	05h 57m 21.9s	+20° 10' 38"	4.8 / 13.0	15 may / 368	P - Mira
CK Ori	05h 31m 42.4s	+04° 13' 22"	5.9 / 7.1	120	P - Semi-irr
T Mon	06h 26m 37.2s	+07° 04' 10"	5.58 / 6.62	27.02	P - δ Cep
V Mon	06h 24m 02.2s	-02° 12' 37"	6.0 / 13.9	29 oct / 341	P - Mira

## Navigation map



Stellar magnitudes	Types of stars	Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary

v Chart 11, 30°x20° around 5.0h, 0.0° (Orion, Eridanus, Taurus, Lepus)

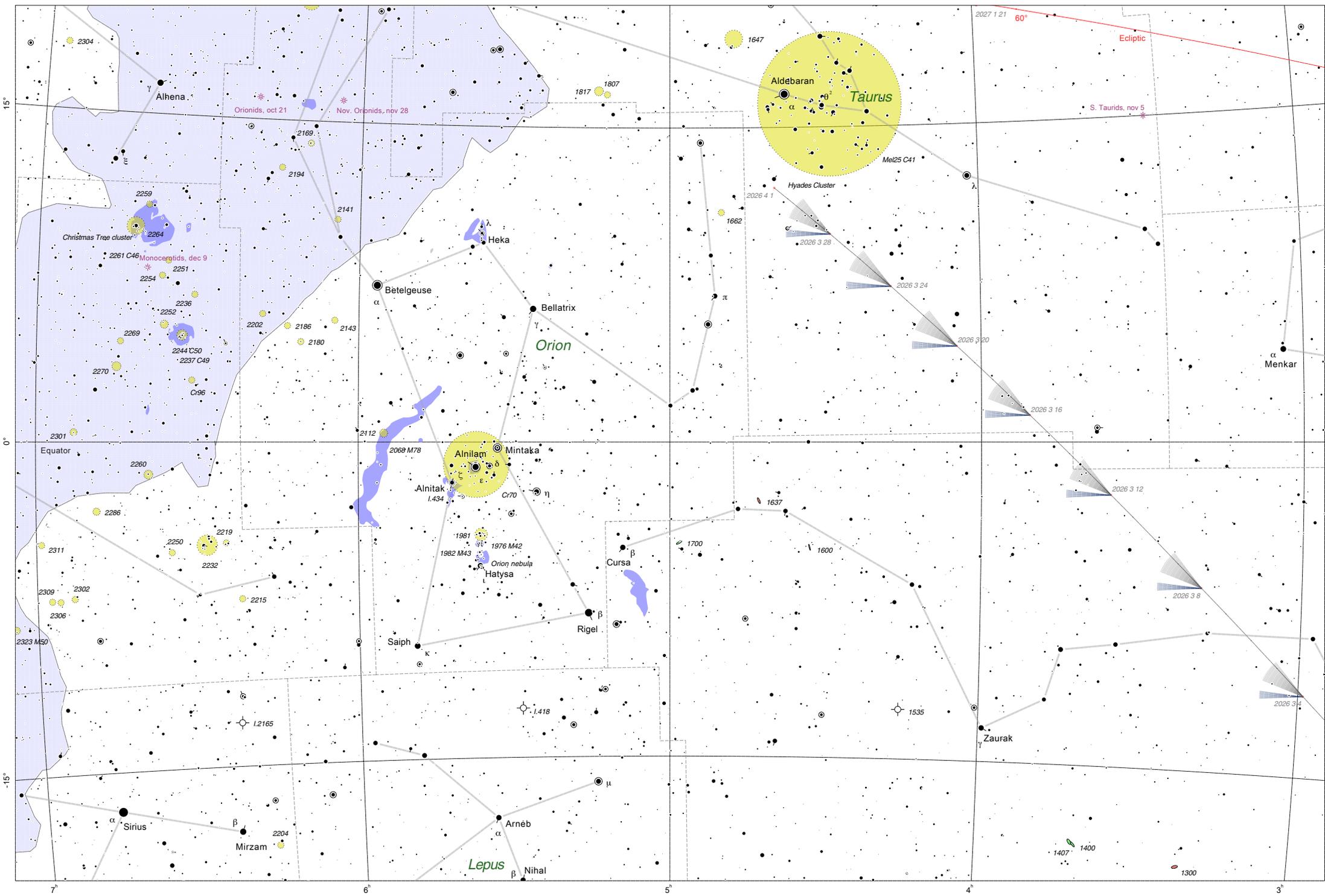
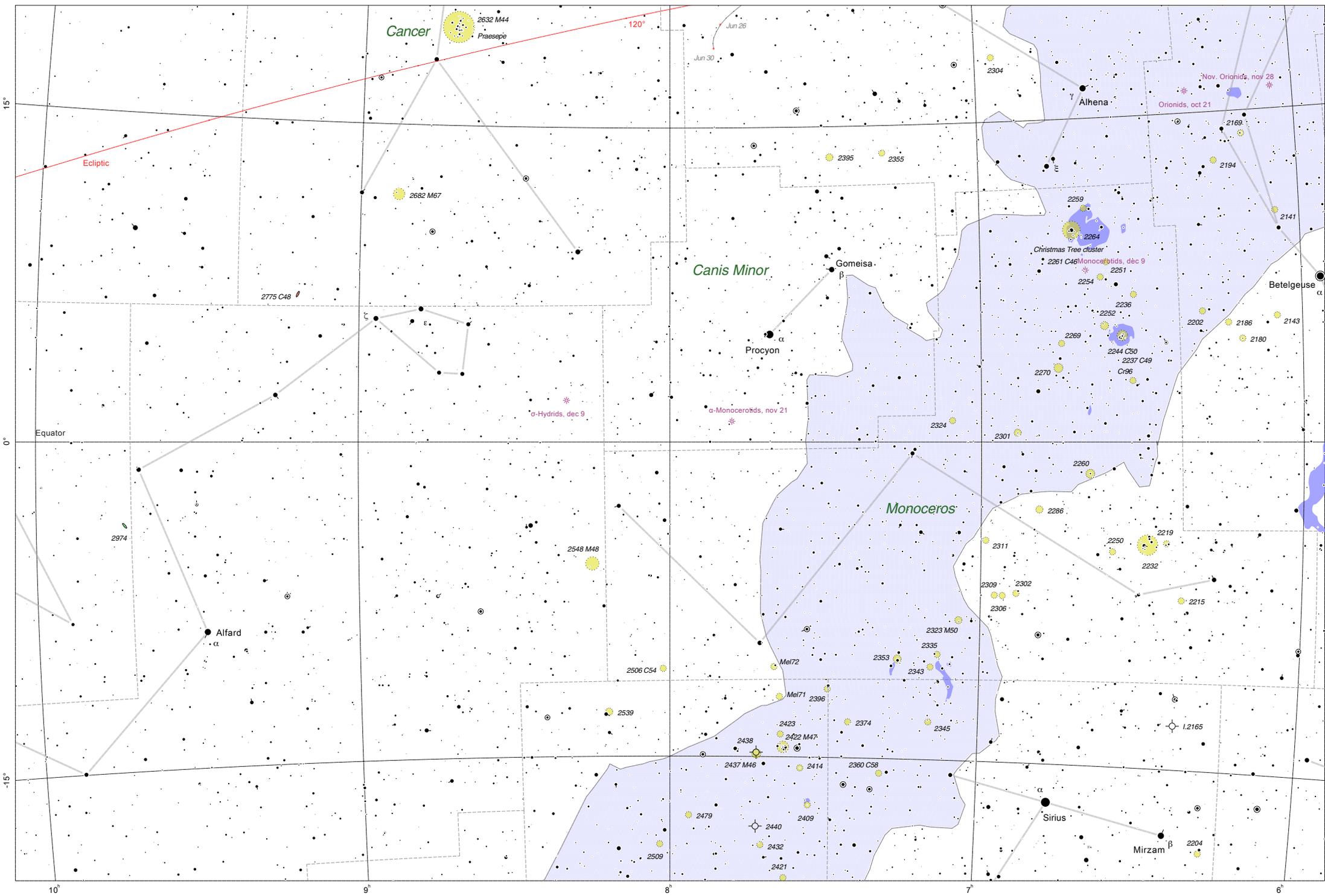




Chart 12, 30°x20° around 8.0h, 0.0° (Canis Minor, Hydra, Monoceros, Cancer)



# Main objects visible on chart 13

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC3242 CALDWELL 59 - Ghost of Jupiter	10h 26m 01.3s	-18° 46' 28"	7.7	Nebulosa planetaria	1.1
NGC4594 M104 - Sombrero galaxy	12h 41m 20.5s	-11° 45' 54"	8.0	Galaxia	8.6 x 4.2
NGC4472 M49	12h 31m 06.0s	+07° 51' 24"	8.4	Galaxia	10.2 x 8.3
NGC4486 M87 - Virgo A	12h 32m 08.3s	+12° 14' 50"	8.6	Galaxia	8.3 x 6.6
NGC4649 M60	12h 44m 58.4s	+11° 24' 40"	8.8	Galaxia	7.6 x 6.2
NGC3115 CALDWELL 53 - Spindle galaxy	10h 06m 31.8s	-07° 50' 43"	8.9	Galaxia	7.2 x 2.4
NGC3627 M66	11h 21m 36.4s	+12° 50' 50"	8.9	Galaxia	9.1 x 4.1
NGC4406 M86	12h 27m 30.5s	+12° 48' 09"	8.9	Galaxia	8.9 x 5.8
NGC3521	11h 07m 08.7s	-00° 10' 40"	9.0	Galaxia	11.2 x 5.4
NGC4374 M84 - Markarian chain	12h 26m 22.7s	+12° 44' 35"	9.1	Galaxia	6.5 x 5.6
NGC4382 M85	12h 26m 42.6s	+18° 02' 49"	9.1	Galaxia	7.1 x 5.5
NGC4697 CALDWELL 52	12h 49m 56.5s	-05° 56' 29"	9.2	Galaxia	7.2 x 4.7
NGC3368 M96	10h 48m 08.0s	+11° 40' 57"	9.3	Galaxia	7.8 x 5.2
NGC3379 M105	10h 49m 11.8s	+12° 26' 36"	9.3	Galaxia	5.3 x 4.8
NGC3623 M65 - Leo's Triplet	11h 20m 17.0s	+12° 56' 54"	9.3	Galaxia	9.8 x 2.9
NGC4526	12h 35m 22.1s	+07° 33' 21"	9.3	Galaxia	7.0 x 2.5
NGC4321 M100	12h 24m 13.8s	+15° 40' 44"	9.4	Galaxia	7.5 x 6.1
NGC3628 - Hamburger galaxy	11h 21m 38.1s	+13° 26' 50"	9.5	Galaxia	13.1 x 3.1
NGC4569 M90	12h 38m 08.6s	+13° 01' 16"	9.5	Galaxia	9.5 x 4.4
NGC4636	12h 44m 09.4s	+02° 32' 42"	9.5	Galaxia	5.9 x 4.6
NGC4699	12h 50m 23.3s	-08° 48' 19"	9.5	Galaxia	3.8 x 2.8
NGC4365	12h 25m 47.7s	+07° 10' 25"	9.6	Galaxia	6.9 x 5.0
NGC4501 M88	12h 33m 17.7s	+14° 16' 35"	9.6	Galaxia	6.8 x 3.7
NGC4621 M59	12h 43m 20.8s	+11° 30' 18"	9.6	Galaxia	5.4 x 3.7
NGC3351 M95	10h 45m 20.1s	+11° 33' 59"	9.7	Galaxia	7.4 x 5.0
NGC4303 M61	12h 23m 14.6s	+04° 19' 43"	9.7	Galaxia	6.5 x 5.9
NGC4579 M58	12h 39m 02.5s	+11° 40' 32"	9.7	Galaxia	6.0 x 4.8
NGC4552 M89	12h 36m 58.6s	+12° 24' 47"	9.8	Galaxia	3.5
NGC3384	10h 49m 39.0s	+12° 29' 27"	9.9	Galaxia	5.4 x 2.7
NGC3607	11h 18m 16.5s	+17° 54' 36"	9.9	Galaxia	4.6 x 4.0
NGC4254 M99	12h 20m 08.5s	+14° 16' 24"	9.9	Galaxia	5.3 x 4.6
NGC4216	12h 17m 13.4s	+13° 00' 12"	10.0	Galaxia	8.1 x 1.8
NGC4429	12h 28m 45.4s	+10° 57' 50"	10.0	Galaxia	5.8 x 2.8
NGC4535	12h 35m 39.4s	+08° 03' 16"	10.0	Galaxia	7.1 x 5.0
NGC4753	12h 53m 42.2s	-01° 20' 27"	10.0	Galaxia	6.0 x 2.8
NGC2775 CALDWELL 48	09h 11m 42.9s	+06° 55' 48"	10.1	Galaxia	4.3 x 3.3
NGC4192 M98	12h 15m 07.2s	+14° 45' 18"	10.1	Galaxia	9.8 x 2.8
NGC4450	12h 29m 47.9s	+16° 56' 26"	10.1	Galaxia	5.4 x 4.1
NGC3169	10h 15m 35.6s	+03° 20' 14"	10.2	Galaxia	4.2 x 2.9
NGC4438 - The Eyes	12h 29m 04.6s	+12° 51' 54"	10.2	Galaxia	8.5 x 3.0
NGC4473	12h 31m 07.6s	+13° 17' 11"	10.2	Galaxia	4.5 x 2.5
NGC4548 M91	12h 36m 45.0s	+14° 21' 12"	10.2	Galaxia	5.2 x 4.2
NGC3227	10h 24m 55.4s	+19° 43' 59"	10.3	Galaxia	4.1 x 3.9
NGC3489	11h 01m 40.5s	+13° 45' 39"	10.3	Galaxia	3.6 x 2.2
NGC4038 CALDWELL 60 - Antennae	12h 03m 12.9s	-19° 00' 33"	10.3	Galaxia	3.4 x 1.7
NGC4039 CALDWELL 61	12h 03m 13.9s	-19° 01' 49"	10.3	Galaxia	3.3 x 1.7
NGC4546	12h 36m 49.8s	-03° 56' 10"	10.3	Galaxia	3.3 x 1.6
NGC4762	12h 54m 14.3s	+11° 05' 23"	10.3	Galaxia	8.7 x 1.7
NGC3166	10h 15m 06.4s	+03° 17' 46"	10.4	Galaxia	4.8 x 2.3
NGC3377	10h 49m 04.9s	+13° 50' 53"	10.4	Galaxia	5.0 x 3.0
NGC3640	11h 22m 27.0s	+03° 05' 31"	10.4	Cúmulo globular	4.0 x 3.2
NGC4153	12h 11m 25.6s	+18° 23' 52"	10.4	Galaxia	4.4
NGC4261	12h 20m 42.7s	+05° 40' 49"	10.4	Galaxia	4.1 x 3.6
NGC4293	12h 22m 31.8s	+18° 14' 19"	10.4	Galaxia	5.6 x 2.6
NGC4442	12h 29m 23.1s	+09° 39' 37"	10.4	Galaxia	4.5 x 1.8
NGC4459	12h 30m 18.8s	+13° 50' 06"	10.4	Galaxia	3.5 x 2.7
NGC4477	12h 31m 20.8s	+13° 29' 37"	10.4	Galaxia	3.7 x 3.3
NGC4517	12h 34m 05.5s	-00° 01' 40"	10.4	Galaxia	10.5 x 1.5
NGC4596	12h 41m 14.9s	+10° 02' 02"	10.4	Galaxia	4.0 x 3.0
NGC3412	10h 52m 15.7s	+13° 16' 28"	10.5	Galaxia	3.7 x 2.2
NGC4527	12h 35m 28.5s	+02° 30' 37"	10.5	Galaxia	6.2 x 2.1
NGC4654	12h 45m 14.9s	+12° 59' 04"	10.5	Galaxia	5.0 x 3.1
NGC4664	12h 46m 25.7s	+02° 54' 48"	10.5	Galaxia	3.5
NGC4856	13h 00m 43.5s	-15° 10' 55"	10.5	Galaxia	4.3 x 1.2
NGC3887	11h 48m 24.0s	-16° 59' 54"	10.6	Galaxia	3.5 x 2.7
NGC4030	12h 01m 43.4s	-01° 14' 43"	10.6	Galaxia	4.2 x 3.2
NGC4536	12h 35m 46.7s	+02° 02' 39"	10.6	Galaxia	7.6 x 3.2
NGC4698	12h 49m 41.9s	+08° 20' 49"	10.6	Galaxia	4.0 x 2.5
NGC4754	12h 53m 36.0s	+11° 10' 23"	10.6	Galaxia	4.4 x 2.4
NGC3962	11h 55m 59.6s	-14° 07' 10"	10.7	Galaxia	2.6 x 2.2

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC4666	12h 46m 28.2s	-00° 36' 17"	10.7	Galaxia	4.5 x 1.4
NGC3608	11h 18m 21.0s	+18° 00' 21"	10.8	Galaxia	3.2 x 2.6
NGC3810	11h 42m 19.1s	+11° 19' 34"	10.8	Galaxia	4.3 x 3.0
NGC4371	12h 26m 14.6s	+11° 33' 37"	10.8	Galaxia	4.0 x 2.3
NGC4435 - The Eyes	12h 28m 59.5s	+12° 56' 10"	10.8	Galaxia	3.0 x 2.2
NGC4568	12h 37m 53.0s	+11° 05' 45"	10.8	Galaxia	4.6 x 2.2
NGC4643	12h 44m 39.8s	+01° 50' 09"	10.8	Galaxia	3.1 x 2.5
NGC4651	12h 45m 00.5s	+16° 15' 06"	10.8	Galaxia	4.0 x 2.7
NGC2974	09h 43m 51.9s	-03° 49' 08"	10.9	Galaxia	3.4 x 2.1
NGC3593	11h 15m 58.5s	+12° 40' 35"	10.9	Galaxia	5.2 x 1.9
NGC4267	12h 21m 04.6s	+12° 39' 15"	10.9	Galaxia	3.0 x 2.8
NGC4361	12h 25m 52.1s	-18° 55' 41"	10.9	Nebulosa planetaria	2.1

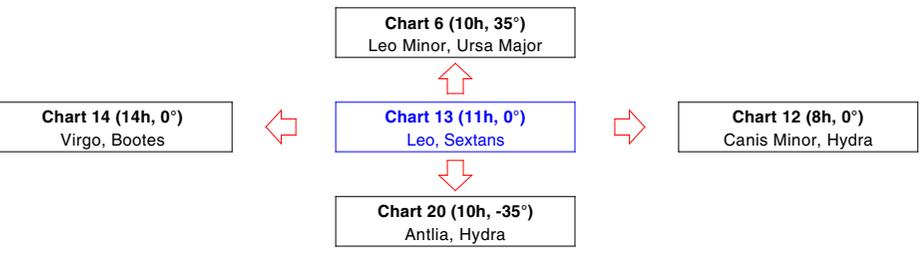
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
STFB 6 AB (Regulus)	10h 11m 08.6s	+11° 42' 38"	1.40 / 8.24	179.2 / 304
BU 604 AD (Denebola)	11h 51m 44.7s	+14° 16' 58"	2.14 / 8.49	239.6 / 195
SHJ 145 AB (Algorab)	12h 32m 34.7s	-16° 48' 08"	2.95 / 8.47	24.2 / 216
HJ 1167 (r. Hya)	09h 31m 46.8s	-02° 59' 56"	4.64 / 7.28	65.7 / 4
SHJ 105 AB (27 Hya)	09h 23m 01.4s	-09° 46' 43"	4.91 / 7.03	229.1 / 211
STFA 19 AB (r Leo)	11h 30m 36.3s	+02° 34' 09"	5.05 / 7.47	89.2 / 181
STF 1657 AB (24 Com)	12h 37m 44.3s	+18° 05' 28"	5.11 / 6.33	20.2 / 272
BU 600 AC	11h 19m 36.3s	-07° 25' 10"	6.15 / 8.22	53.2 / 99
SHJ 110 AC	10h 06m 31.9s	-18° 21' 19"	6.22 / 6.97	21.2 / 274
STF 1466 AC	10h 46m 02.7s	+04° 28' 26"	6.23 / 8.10	333.8 / 210
HJ 2530 AC (HD 90155)	10h 26m 54.0s	+02° 06' 10"	6.42 / 6.72	201.6 / 63
STF 1540 AB (83 Leo)	11h 29m 25.4s	+02° 43' 35"	6.55 / 7.50	28.6 / 146
STF 1627 (HD 106975)	12h 20m 50.3s	-04° 14' 14"	6.55 / 6.90	20.1 / 196
STF 1474 AB (HD 93526)	10h 50m 12.1s	-15° 32' 15"	6.66 / 7.00	65.9 / 27
STF 1474 AC	10h 50m 12.1s	-15° 32' 15"	6.66 / 7.59	72.6 / 26
STF 1659 EF	12h 38m 15.3s	-12° 18' 25"	6.78 / 6.64	333.8 / 121
STF 1604 AC	12h 12m 09.6s	-12° 08' 46"	6.86 / 8.12	10.5 / 4
S 605 (9 Sex)	09h 56m 49.9s	+04° 41' 52"	6.89 / 8.40	53.5 / 286

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
SS Vir	12h 26m 34.3s	+00° 37' 33"	6.0 / 9.6	10 mar / 364	P - Semi-irr
R Vir	12h 39m 49.1s	+06° 50' 46"	6.1 / 12.1	7 may, 29 sep / 146	P - Mira

## Navigation map

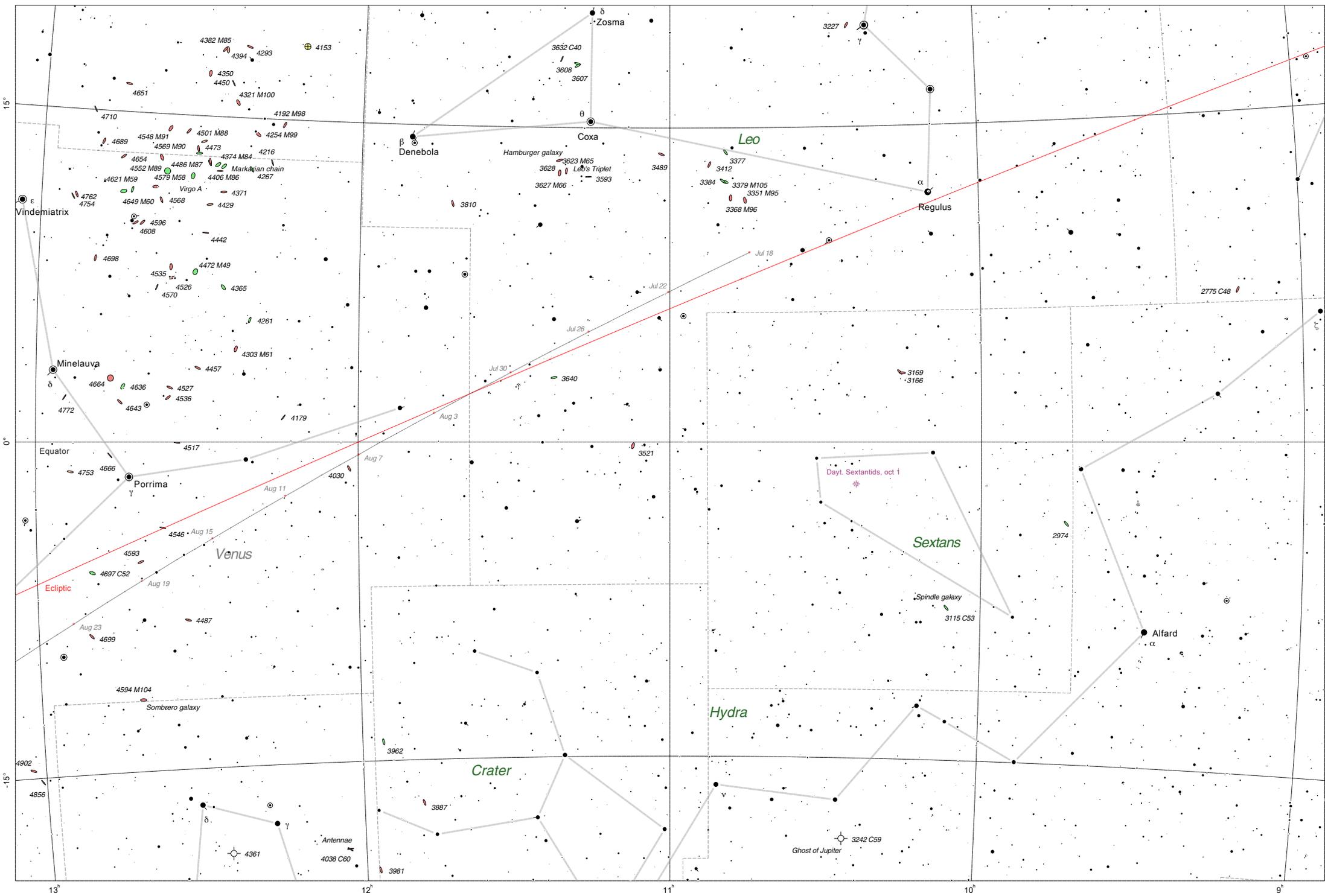


Stellar magnitudes: ● -1, ● 0, ● 1, ● 2, ● 3, ● 4, ● 5, ● 6, ● 7, ● 8

Types of stars: ● Double, ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster, ☼ Globular, ☁ Nebulose, ☄ Milky Way, ☄ Plan.neb., ☄ Galaxy, ☄ Constellation, ----- Const. limit, \* Meteors

Chart 13, 30°x20° around 11.0h, 0.0° (Leo, Sextans, Virgo, Crater)



# Main objects visible on chart 14

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC5904 M5	15h 19m 52.8s	+01° 59' 24"	5.7	Cúmulo globular	23.0
NGC5024 M53	13h 14m 11.7s	+18° 01' 57"	7.7	Cúmulo globular	13.0
NGC4594 M104 - Sombrero galaxy	12h 41m 20.5s	-11° 45' 54"	8.0	Galaxia	8.6 x 4.2
NGC4472 M49	12h 31m 06.0s	+07° 51' 24"	8.4	Galaxia	10.2 x 8.3
NGC4486 M87 - Virgo A	12h 32m 08.3s	+12° 14' 50"	8.6	Galaxia	8.3 x 6.6
NGC4649 M60	12h 44m 58.4s	+11° 24' 40"	8.8	Galaxia	7.6 x 6.2
NGC4406 M86	12h 27m 30.5s	+12° 48' 09"	8.9	Galaxia	8.9 x 5.8
NGC5053	13h 17m 43.3s	+17° 33' 43"	9.0	Cúmulo globular	10.0
NGC4374 M84 - Markarian chain	12h 26m 22.7s	+12° 44' 35"	9.1	Galaxia	6.5 x 5.6
NGC4382 M85	12h 26m 42.6s	+18° 02' 49"	9.1	Galaxia	7.1 x 5.5
NGC4697 CALDWELL 52	12h 49m 56.5s	-05° 56' 29"	9.2	Galaxia	7.2 x 4.7
NGC4526	12h 35m 22.1s	+07° 33' 21"	9.3	Galaxia	7.0 x 2.5
NGC4321 M100	12h 24m 13.8s	+15° 40' 44"	9.4	Galaxia	7.5 x 6.1
NGC4569 M90	12h 38m 08.6s	+13° 01' 16"	9.5	Galaxia	9.5 x 4.4
NGC4636	12h 44m 09.4s	+02° 32' 42"	9.5	Galaxia	5.9 x 4.6
NGC4699	12h 50m 23.3s	-08° 48' 19"	9.5	Galaxia	3.8 x 2.8
NGC5634	14h 30m 59.5s	-06° 05' 26"	9.5	Cúmulo globular	5.5
NGC4365	12h 25m 47.7s	+07° 10' 25"	9.6	Galaxia	6.9 x 5.0
NGC4501 M88	12h 33m 17.7s	+14° 16' 35"	9.6	Galaxia	6.8 x 3.7
NGC4621 M59	12h 43m 20.8s	+11° 30' 18"	9.6	Galaxia	5.4 x 3.7
NGC4303 M61	12h 23m 14.6s	+04° 19' 43"	9.7	Galaxia	6.5 x 5.9
NGC4579 M58	12h 39m 02.5s	+11° 40' 32"	9.7	Galaxia	6.0 x 4.8
NGC4552 M89	12h 36m 58.6s	+12° 24' 47"	9.8	Galaxia	3.5
NGC4254 M99	12h 20m 08.5s	+14° 16' 24"	9.9	Galaxia	5.3 x 4.6
NGC4216	12h 17m 13.4s	+13° 00' 12"	10.0	Galaxia	8.1 x 1.8
NGC4429	12h 28m 45.4s	+10° 57' 50"	10.0	Galaxia	5.8 x 2.8
NGC4535	12h 35m 39.4s	+08° 03' 16"	10.0	Galaxia	7.1 x 5.0
NGC4753	12h 53m 42.2s	-01° 20' 27"	10.0	Galaxia	6.0 x 2.8
NGC5247	13h 39m 27.6s	-18° 00' 58"	10.0	Galaxia	5.4 x 4.9
NGC5846	15h 07m 48.3s	+01° 30' 22"	10.0	Galaxia	4.0 x 3.7
NGC4192 M98	12h 15m 07.2s	+14° 45' 18"	10.1	Galaxia	9.8 x 2.8
NGC4450	12h 29m 47.9s	+16° 56' 26"	10.1	Galaxia	5.4 x 4.1
NGC5363	13h 57m 25.5s	+05° 07' 39"	10.1	Galaxia	4.1 x 2.6
NGC4438 - The Eyes	12h 29m 04.6s	+12° 51' 54"	10.2	Galaxia	8.5 x 3.0
NGC4473	12h 31m 07.6s	+13° 17' 11"	10.2	Galaxia	4.5 x 2.5
NGC4548 M91	12h 36m 45.0s	+14° 21' 12"	10.2	Galaxia	5.2 x 4.2
NGC4038 CALDWELL 60 - Antennae	12h 03m 12.9s	-19° 00' 33"	10.3	Galaxia	3.4 x 1.7
NGC4039 CALDWELL 61	12h 03m 13.9s	-19° 01' 49"	10.3	Galaxia	3.3 x 1.7
NGC4546	12h 36m 49.8s	-03° 56' 10"	10.3	Galaxia	3.3 x 1.6
NGC4762	12h 54m 14.3s	+11° 05' 23"	10.3	Galaxia	8.7 x 1.7
NGC5248 CALDWELL 45	13h 38m 49.7s	+08° 45' 16"	10.3	Galaxia	6.2 x 4.5
NGC5746	14h 46m 14.9s	+01° 50' 51"	10.3	Galaxia	7.4 x 1.3
NGC4153	12h 11m 25.6s	+18° 23' 52"	10.4	Cúmulo globular	4.4
NGC4261	12h 20m 42.7s	+05° 40' 49"	10.4	Galaxia	4.1 x 3.6
NGC4293	12h 22m 31.8s	+18° 14' 19"	10.4	Galaxia	5.6 x 2.6
NGC4442	12h 29m 23.1s	+09° 39' 37"	10.4	Galaxia	4.5 x 1.8
NGC4459	12h 30m 18.8s	+13° 50' 06"	10.4	Galaxia	3.5 x 2.7
NGC4477	12h 31m 20.8s	+13° 29' 37"	10.4	Galaxia	3.7 x 3.3
NGC4517	12h 34m 05.5s	-00° 01' 40"	10.4	Galaxia	10.5 x 1.5
NGC4596	12h 41m 14.9s	+10° 02' 02"	10.4	Galaxia	4.0 x 3.0
NGC4527	12h 35m 28.5s	+02° 30' 37"	10.5	Galaxia	6.2 x 2.1
NGC4654	12h 45m 14.9s	+12° 59' 04"	10.5	Galaxia	5.0 x 3.1
NGC4664	12h 46m 25.7s	+02° 54' 48"	10.5	Galaxia	3.5
NGC4856	13h 00m 43.5s	-15° 10' 55"	10.5	Galaxia	4.3 x 1.2
NGC5364	13h 57m 30.4s	+04° 53' 21"	10.5	Galaxia	6.8 x 4.4
NGC5813	15h 02m 30.3s	+01° 36' 02"	10.5	Galaxia	4.0 x 2.8
NGC4030	12h 01m 43.4s	-01° 14' 43"	10.6	Galaxia	4.2 x 3.2
NGC4536	12h 35m 46.7s	+02° 02' 39"	10.6	Galaxia	7.6 x 3.2
NGC4698	12h 49m 41.9s	+08° 20' 49"	10.6	Galaxia	4.0 x 2.5
NGC4754	12h 53m 36.0s	+11° 10' 23"	10.6	Galaxia	4.4 x 2.4
NGC5566	14h 21m 38.6s	+03° 48' 53"	10.6	Galaxia	6.6 x 2.3
NGC3962	11h 55m 59.6s	-14° 07' 10"	10.7	Galaxia	2.6 x 2.2
NGC4666	12h 46m 28.2s	-00° 36' 17"	10.7	Galaxia	4.5 x 1.4
NGC4958	13h 07m 10.3s	-08° 09' 31"	10.7	Galaxia	3.9 x 1.4
NGC4371	12h 26m 14.6s	+11° 33' 37"	10.8	Galaxia	4.0 x 2.3
NGC4435 - The Eyes	12h 28m 59.5s	+12° 56' 10"	10.8	Galaxia	3.0 x 2.2
NGC4568	12h 37m 53.0s	+11° 05' 45"	10.8	Galaxia	4.6 x 2.2
NGC4643	12h 44m 39.8s	+01° 50' 09"	10.8	Galaxia	3.1 x 2.5
NGC4651	12h 45m 00.5s	+16° 15' 06"	10.8	Galaxia	4.0 x 2.7
NGC5018	13h 14m 24.8s	-19° 39' 24"	10.8	Galaxia	3.4 x 2.6

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC5044	13h 16m 47.2s	-16° 31' 17"	10.8	Galaxia	3.0
NGC5850	15h 08m 26.8s	+01° 26' 43"	10.8	Galaxia	4.5 x 3.9
NGC5921	15h 23m 13.9s	+04° 58' 43"	10.8	Galaxia	4.8 x 4.0
NGC4267	12h 21m 04.6s	+12° 39' 15"	10.9	Galaxia	3.0 x 2.8
NGC4361	12h 25m 52.1s	-18° 55' 41"	10.9	Nebulosa planetaria	2.1
NGC4394	12h 27m 14.2s	+18° 04' 13"	10.9	Galaxia	3.4 x 3.2
NGC4457	12h 30m 18.6s	+03° 25' 39"	10.9	Galaxia	2.6 x 2.3
NGC4570	12h 38m 12.4s	+07° 06' 15"	10.9	Galaxia	3.7 x 1.2
NGC4593	12h 40m 59.8s	-05° 29' 11"	10.9	Galaxia	3.9 x 2.9
NGC4902	13h 02m 22.0s	-14° 39' 12"	10.9	Galaxia	2.9 x 2.6
NGC5054	13h 18m 21.7s	-16° 46' 16"	10.9	Galaxia	5.1 x 2.8
NGC5701	14h 40m 29.0s	+05° 15' 10"	10.9	Galaxia	4.3 x 4.1
NGC5838	15h 06m 45.1s	+01° 59' 57"	10.9	Galaxia	4.2 x 1.5

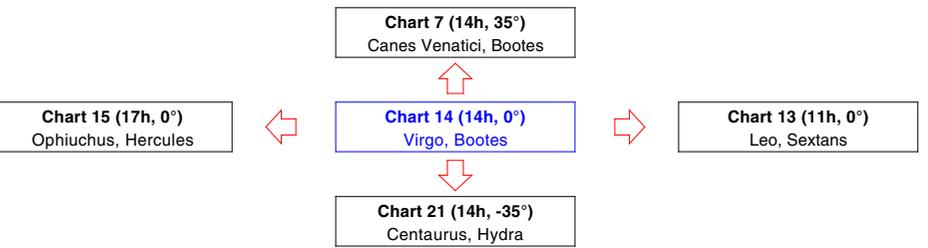
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
SHJ 186 AB (Zubenelgenubi)	14h 53m 46.6s	-16° 15' 11"	2.74 / 5.19	231.1 / 314
SHJ 145 AB (Algorab)	12h 32m 34.7s	-16° 48' 08"	2.95 / 8.47	24.2 / 216
STF 1657 AB (24 Com)	12h 37m 44.3s	+18° 05' 28"	5.11 / 6.33	20.2 / 272
HJL 1086 AB (HD 126201)	14h 26m 46.8s	+05° 35' 13"	5.11 / 7.32	158.5 / 274
HJL 1087 (22 Boo)	14h 28m 52.4s	+18° 59' 44"	5.43 / 8.38	223.8 / 255
STF 1772 AD	13h 43m 09.1s	+19° 41' 39"	5.76 / 7.38	208.7 / 1
STF 1962 (178 Lib)	15h 41m 28.8s	-08° 57' 26"	6.44 / 6.49	11.7 / 188
BGH 46 AB (HD 115365)	13h 19m 03.6s	+19° 30' 44"	6.46 / 7.59	202.9 / 58
STFA 23 AB (32 Com)	12h 54m 47.0s	+16° 47' 32"	6.50 / 6.99	196.3 / 51
STF 1627 (HD 106975)	12h 20m 50.3s	-04° 14' 14"	6.55 / 6.90	20.1 / 196
SHJ 179 AB (HD 126367)	14h 28m 25.1s	-20° 12' 07"	6.61 / 7.16	35.0 / 296
STF 1919 (HD 135101)	15h 15m 04.8s	+19° 05' 39"	6.71 / 7.38	23.2 / 11
STF 1659 EF	12h 38m 15.3s	-12° 18' 25"	6.78 / 6.64	333.8 / 121
SHJ 195 (HD 135208)	15h 17m 25.5s	-18° 37' 07"	6.79 / 8.32	47.5 / 141
STF 1604 AC	12h 12m 09.6s	-12° 08' 46"	6.86 / 8.12	10.5 / 4
SHJ 202 AB (HD 137763)	15h 30m 59.1s	-09° 31' 29"	6.95 / 7.61	52.0 / 132

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
δ Lib	15h 02m 21.9s	-08° 37' 14"	4.91 / 5.90	2.33	Ecl - Algol
RS Vir	12h 26m 34.3s	+00° 37' 33"	6.0 / 9.6	10 mar / 364	P - Semi-irr
R Vir	12h 39m 49.1s	+06° 50' 46"	6.1 / 12.1	7 may, 29 sep / 146	P - Mira

## Navigation map

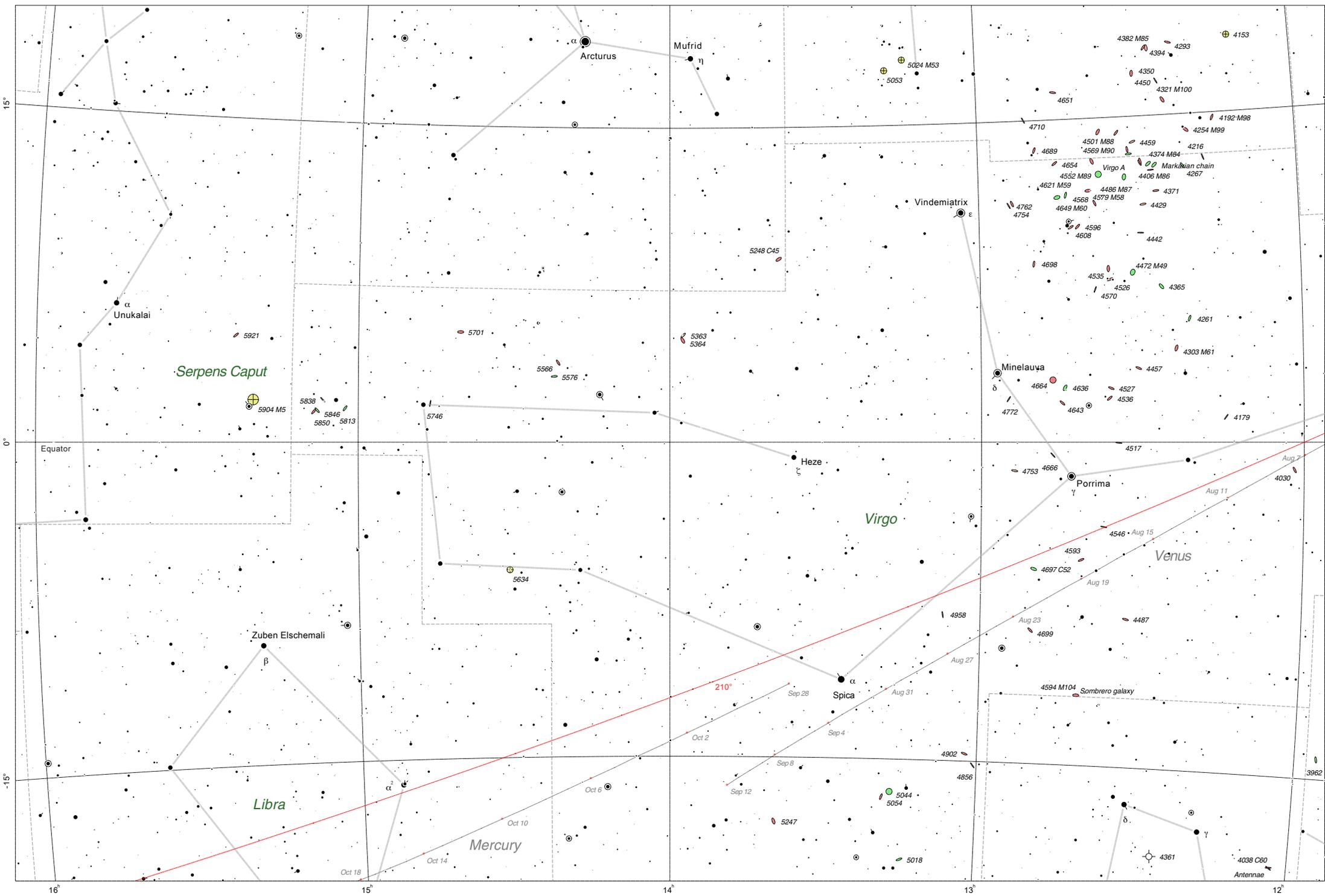


Stellar magnitudes: -1 0 1 2 3 4 5 6 7 8

Types of stars: Double Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: Open cluster Globular Nebulose Milky Way Plan.neb. Galaxy Constellation Const. limit Meteors

Chart 14, 30°x20° around 14.0h, 0.0° (Virgo, Bootes, Libra, Serpens Caput)



# Main objects visible on chart 15

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Mel186	18h 01m 54.2s	+02° 56' 03"	3.0	Cúmulo abierto	4.0°
IC4665	17h 47m 28.5s	+05° 42' 30"	4.2	Cúmulo abierto	70.0
NGC6633	18h 28m 31.1s	+06° 31' 33"	4.6	Cúmulo abierto	20.0
IC4725 M25	18h 33m 16.9s	-19° 05' 58"	4.6	Cúmulo abierto	26.0
IC4756	18h 40m 10.7s	+05° 27' 29"	4.6	Cúmulo abierto	40.0
IC4715 M24 - Sagittarius Star Cloud	18h 20m 19.6s	-18° 32' 16"	5.0	Cúmulo abierto	1.50°
NGC6494 M23	17h 58m 27.9s	-19° 00' 47"	5.5	Cúmulo abierto	25.0
NGC5904 M5	15h 19m 52.8s	+01° 59' 24"	5.7	Cúmulo globular	23.0
NGC6705 M11 - Wild Duck cluster	18h 52m 28.7s	-06° 14' 15"	5.8	Cúmulo abierto	11.0
NGC6618 M17 - Omega nebula	18h 22m 17.0s	-16° 09' 29"	6.0	Nebulosa	20.0 x 15.0
NGC6605	18h 17m 53.2s	-14° 59' 21"	6.0	Cúmulo abierto	29.0
NGC6611 M16	18h 20m 13.5s	-13° 47' 10"	6.0	Cúmulo abierto	8.0
NGC6218 M12	16h 48m 35.6s	-01° 59' 31"	6.1	Cúmulo globular	16.0
Cr350	17h 49m 19.2s	+01° 17' 34"	6.1	Cúmulo abierto	45.0
NGC6604	18h 19m 33.4s	-12° 12' 17"	6.5	Cúmulo abierto	6.0
NGC6254 M10	16h 58m 31.3s	-04° 08' 16"	6.6	Cúmulo globular	20.0
NGC6709	18h 52m 43.8s	+10° 21' 57"	6.7	Cúmulo abierto	15.0
NGC6613 M18	18h 21m 28.6s	-17° 05' 19"	6.9	Cúmulo abierto	7.0
NGC6402 M14	17h 38m 58.0s	-03° 15' 32"	7.6	Cúmulo globular	11.0
NGC6171 M107	16h 33m 59.4s	-13° 06' 24"	7.8	Cúmulo globular	13.0
NGC6333 M9	17h 20m 43.2s	-18° 32' 28"	7.8	Cúmulo globular	12.0
NGC6664	18h 37m 55.5s	-08° 09' 51"	7.8	Cúmulo abierto	12.0
NGC6694 M26	18h 46m 40.6s	-09° 21' 22"	8.0	Cúmulo abierto	8.0
NGC6572	18h 13m 22.2s	+06° 51' 44"	8.1	Nebulosa planetaria	15.0"
NGC6712	18h 54m 29.4s	-08° 40' 19"	8.1	Cúmulo globular	9.8
NGC6356	17h 25m 06.0s	-17° 50' 06"	8.2	Cúmulo globular	10.0
NGC6645	18h 34m 08.2s	-16° 51' 46"	8.5	Cúmulo abierto	15.0
Tr33	18h 26m 14.3s	-19° 42' 02"	8.5	Cúmulo abierto	5.5
NGC6539	18h 06m 14.4s	-07° 34' 54"	8.9	Cúmulo globular	7.9
NGC6649	18h 34m 54.6s	-10° 22' 51"	8.9	Cúmulo abierto	6.0
NGC6625	18h 24m 40.1s	-11° 59' 53"	9.0	Cúmulo abierto	39.0
NGC6704	18h 52m 08.8s	-05° 10' 22"	9.2	Cúmulo abierto	6.0
NGC6440	17h 50m 25.4s	-20° 21' 56"	9.3	Cúmulo globular	4.4
NGC6535	18h 05m 10.8s	-00° 17' 37"	9.3	Cúmulo globular	3.4
NGC6683	18h 43m 36.4s	-06° 11' 08"	9.4	Cúmulo abierto	3.0
NGC6342	17h 22m 42.4s	-19° 36' 38"	9.5	Cúmulo globular	4.4
NGC6366	17h 29m 07.3s	-05° 05' 46"	9.5	Cúmulo globular	13.0
NGC5846	15h 07m 48.3s	+01° 30' 22"	10.0	Galaxia	4.0 x 3.7
NGC6639	18h 32m 25.8s	-13° 09' 02"	10.0	Cúmulo abierto	5.0
NGC6517	18h 03m 16.0s	-08° 57' 24"	10.1	Cúmulo globular	4.0
IC1276	18h 12m 10.0s	-07° 12' 14"	10.3	Cúmulo globular	8.0
NGC6384	17h 33m 39.9s	+07° 02' 38"	10.4	Galaxia	6.2 x 4.1
NGC5813	15h 02m 30.3s	+01° 36' 02"	10.5	Galaxia	4.0 x 2.8
IC4593	16h 12m 57.8s	+12° 00' 23"	10.7	Nebulosa planetaria	42.0"
NGC5850	15h 08m 26.8s	+01° 26' 43"	10.8	Galaxia	4.5 x 3.9
NGC5921	15h 23m 13.9s	+04° 58' 43"	10.8	Galaxia	4.8 x 4.0
NGC5838	15h 06m 45.1s	+01° 59' 57"	10.9	Galaxia	4.2 x 1.5
NGC6426	17h 46m 12.7s	+03° 09' 42"	10.9	Cúmulo globular	4.2
NGC6567	18h 15m 17.0s	-19° 03' 59"	11.0	Nebulosa planetaria	12.0"
NGC6596	18h 19m 03.3s	-16° 38' 18"	11.0	Cúmulo abierto	10.0

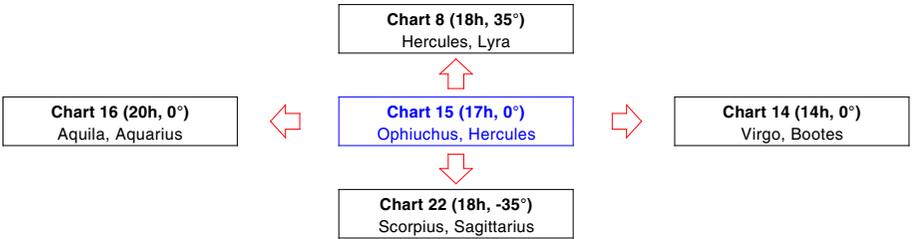
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
H 3 7 AC (Acraab)	16h 08m 28.0s	-19° 56' 32"	2.59 / 4.52	13.4 / 20
PWL 9001 AD	16h 08m 28.0s	-19° 56' 32"	2.62 / 7.50	518.2 / 30
CSN 9 AD	17h 33m 05.2s	-01° 05' 54"	3.82 / 5.50	16.9 / 317
H 6 2 AC (67 Oph)	18h 03m 15.3s	+02° 56' 03"	3.96 / 8.06	54.7 / 143
LUH 11 (σ Ser)	16h 24m 42.8s	+00° 54' 38"	4.09 / 7.82	43.0 / 132
H 5 6 AC	16h 15m 01.9s	-19° 35' 25"	4.35 / 6.60	41.3 / 336
STF 2417 AB (Alya)	18h 58m 47.9s	+04° 16' 32"	4.59 / 4.93	22.4 / 106
STF 2417 AC	18h 58m 47.9s	+04° 16' 32"	4.59 / 6.78	421.0 / 58
STF 2417 BC	18h 58m 49.9s	+04° 16' 27"	4.93 / 6.78	405.6 / 56
STF 2010 AB (Marsic)	16h 10m 26.1s	+16° 54' 45"	5.10 / 6.21	26.8 / 14
STFA 31 AB (37 Her)	16h 43m 14.1s	+04° 07' 23"	5.76 / 6.92	69.3 / 229
STFA 34 AB (53 Oph)	17h 37m 05.3s	+09° 33' 22"	5.80 / 7.50	41.3 / 189
STF 2379 AB (5 Aql)	18h 49m 10.0s	-00° 54' 06"	5.88 / 7.02	12.5 / 121
STFA 33 AB (NSV8152)	17h 06m 02.6s	+13° 32' 12"	5.91 / 6.17	304.9 / 117
STF 2202 AB (61 Oph)	17h 47m 10.8s	+02° 33' 42"	6.13 / 6.47	20.8 / 92
H 6 50 AC	18h 52m 27.9s	-05° 50' 56"	6.15 / 8.23	111.8 / 171
SHJ 251 AB (HD 160315)	17h 41m 45.5s	+02° 00' 12"	6.37 / 7.78	111.3 / 328
WEB 6 (HD 149631)	16h 37m 46.0s	+16° 57' 15"	6.41 / 7.26	155.3 / 1
STF 1962 (178 Lib)	15h 41m 28.8s	-08° 57' 26"	6.44 / 6.49	11.7 / 188
SHY 696 AE	16h 08m 31.7s	-06° 25' 41"	6.46 / 7.90	260.0 / 271
S 694 (HD 162651)	17h 54m 43.6s	+01° 06' 10"	6.67 / 7.26	79.3 / 238
TOK 620 (HD 175541)	18h 59m 11.8s	+04° 20' 15"	6.78 / 8.10	842.1 / 270
TOB 271 AC	18h 09m 41.1s	+15° 55' 38"	6.82 / 8.31	112.2 / 340
SHJ 264 AB,C (NSV10543)	18h 21m 46.2s	-18° 35' 39"	6.86 / 7.63	17.2 / 50
BU 966 AG	18h 34m 56.7s	-19° 04' 59"	6.87 / 8.00	429.6 / 254
STF 2007 AB (HD 144563)	16h 08m 28.5s	+13° 11' 04"	6.89 / 7.98	37.7 / 322

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
Ras Algethi (α, Her)	17h 15m 50.1s	+14° 21' 45"	2.74 / 4.0		P - Semi-irr
δ Lib	15h 02m 21.9s	-08° 37' 14"	4.91 / 5.90	2.33	Ecl - Algol
U Sgr	18h 33m 25.2s	-19° 06' 16"	6.28 / 7.15	6.75	P - δ Cep
R Ser	15h 51m 53.8s	+15° 03' 23"	5.16 / 14.4	3 abr / 356	P - Mira
R Oph	17h 09m 15.5s	-16° 07' 31"	7.0 / 13.8	19 oct / 307	P - Mira
X Oph	18h 39m 35.7s	+08° 51' 32"	5.9 / 9.2	21 abr / 329	P - Mira
S Her	16h 53m 05.0s	+14° 53' 60"	6.4 / 13.8	3 sep / 307	P - Mira
V Oph	16h 28m 10.7s	-12° 29' 00"	7.3 / 11.6	5 abr / 297	P - Mira
U Her	16h 26m 56.5s	+18° 50' 06"	6.4 / 13.4	22 may / 406	P - Mira

## Navigation map

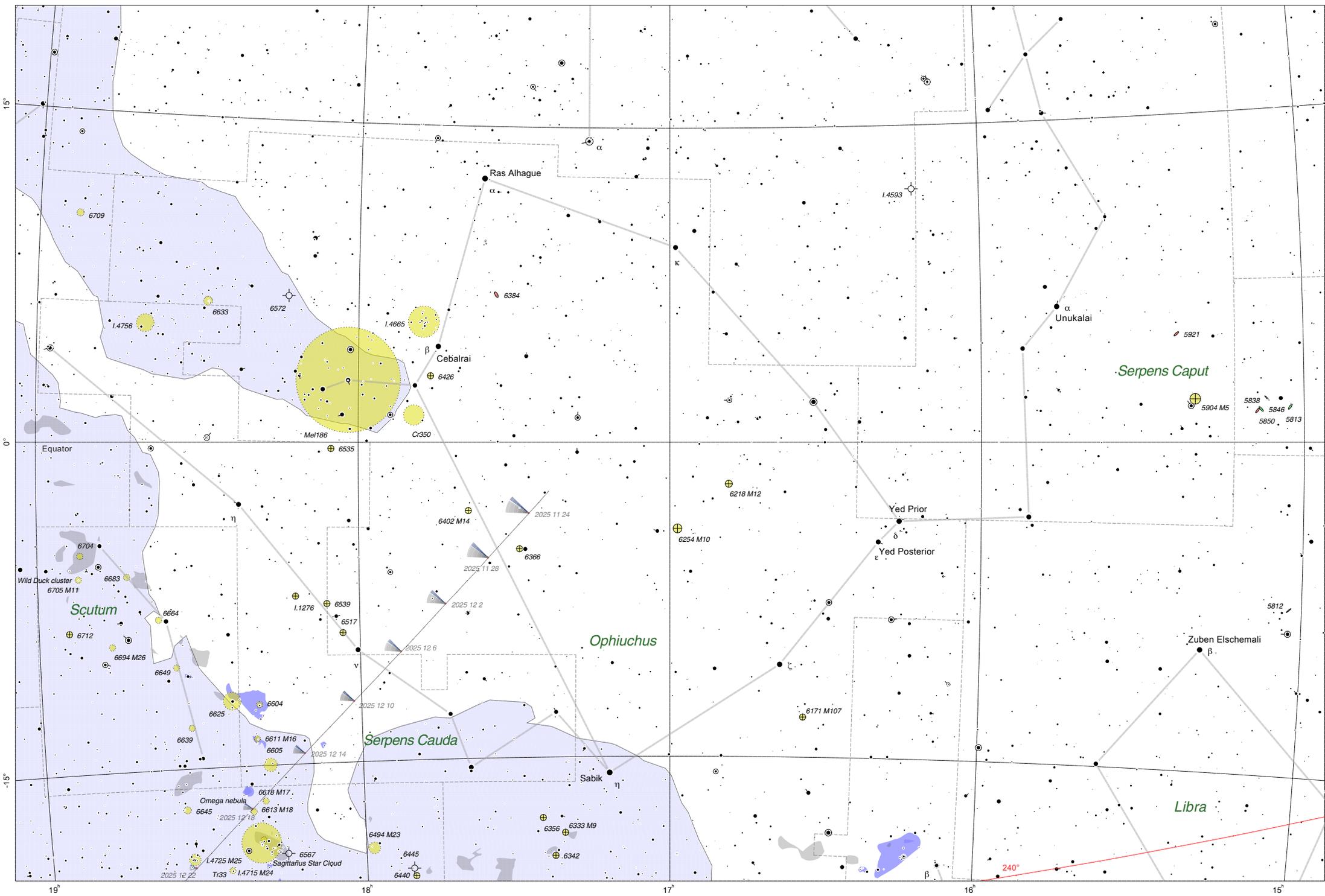


Stellar magnitudes: -1 0 1 2 3 4 5 6 7 8

Types of stars: Double Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: Open cluster Globular Nebulose Milky Way Plan.neb. Galaxy Constellation Const. limit Meteors

Chart 15, 30°x20° around 17.0h, 0.0° (Ophiuchus, Hercules, Serpens Caput, Scorpius)



# Main objects visible on chart 16

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
Mel186	18h 01m 54.2s	+02° 56' 03"	3.0	Cúmulo abierto	4.0°
Col399	19h 26m 32.1s	+20° 14' 11"	3.6	Cúmulo abierto	60.0
NGC6633	18h 28m 31.1s	+06° 31' 33"	4.6	Cúmulo abierto	20.0
IC4725 M25	18h 33m 16.9s	-19° 05' 58"	4.6	Cúmulo abierto	26.0
IC4756	18h 40m 10.7s	+05° 27' 29"	4.6	Cúmulo abierto	40.0
IC4715 M24 - Sagittarius Star Cloud	18h 20m 19.6s	-18° 32' 16"	5.0	Cúmulo abierto	1.50°
NGC6494 M23	17h 58m 27.9s	-19° 00' 47"	5.5	Cúmulo abierto	25.0
NGC6705 M11 - Wild Duck cluster	18h 52m 28.7s	-06° 14' 15"	5.8	Cúmulo abierto	11.0
NGC6618 M17 - Omega nebula	18h 22m 17.0s	-16° 09' 29"	6.0	Nebulosa	20.0 x 15.0
NGC6605	18h 17m 53.2s	-14° 59' 21"	6.0	Cúmulo abierto	29.0
NGC6611 M16	18h 20m 13.5s	-13° 47' 10"	6.0	Cúmulo abierto	8.0
NGC7078 M15	21h 31m 13.7s	+12° 16' 57"	6.3	Cúmulo globular	18.0
NGC6604	18h 19m 33.4s	-12° 12' 17"	6.5	Cúmulo abierto	6.0
NGC7089 M2	21h 34m 47.4s	-00° 42' 23"	6.6	Cúmulo globular	16.0
NGC6709	18h 52m 43.8s	+10° 21' 57"	6.7	Cúmulo abierto	15.0
NGC6613 M18	18h 21m 28.6s	-17° 05' 19"	6.9	Cúmulo abierto	7.0
NGC6716	18h 56m 06.2s	-19° 52' 25"	7.5	Cúmulo abierto	10.0
NGC6755	19h 09m 06.5s	+04° 18' 33"	7.5	Cúmulo abierto	15.0
NGC6664	18h 37m 55.5s	-08° 09' 51"	7.8	Cúmulo abierto	12.0
NGC6694 M26	18h 46m 40.6s	-09° 21' 22"	8.0	Cúmulo abierto	8.0
NGC7009 CALDWELL 55 - Saturn nebula	21h 05m 35.6s	-11° 15' 31"	8.0	Nebulosa planetaria	1.0 x 0.6
NGC6572	18h 13m 22.2s	+06° 51' 44"	8.1	Nebulosa planetaria	15.0"
NGC6712	18h 54m 29.4s	-08° 40' 19"	8.1	Cúmulo globular	9.8
NGC6838 M71	19h 54m 55.7s	+18° 50' 53"	8.4	Cúmulo globular	7.2
NGC6645	18h 34m 08.2s	-16° 51' 46"	8.5	Cúmulo abierto	15.0
Tr33	18h 26m 14.3s	-19° 42' 02"	8.5	Cúmulo abierto	5.5
NGC6822 CALDWELL 57 - Barnard's galaxy	19h 46m 24.8s	-14° 44' 31"	8.7	Galaxia	15.4 x 14.2
NGC6802	19h 31m 44.1s	+20° 19' 04"	8.8	Cúmulo abierto	5.0
NGC6539	18h 06m 14.4s	-07° 34' 54"	8.9	Cúmulo globular	7.9
NGC6649	18h 34m 54.6s	-10° 22' 51"	8.9	Cúmulo abierto	6.0
NGC6934 CALDWELL 47	20h 35m 28.0s	+07° 29' 43"	8.9	Cúmulo globular	7.1
NGC6625	18h 24m 40.1s	-11° 59' 53"	9.0	Cúmulo abierto	39.0
NGC6760	19h 12m 31.4s	+01° 04' 33"	9.0	Cúmulo globular	9.6
NGC6704	18h 52m 08.8s	-05° 10' 22"	9.2	Cúmulo abierto	6.0
NGC6981 M72	20h 54m 53.4s	-12° 26' 12"	9.2	Cúmulo globular	6.6
NGC6535	18h 05m 10.8s	-00° 17' 37"	9.3	Cúmulo globular	3.4
NGC6818	19h 45m 25.6s	-14° 05' 19"	9.3	Nebulosa planetaria	0.8
NGC6683	18h 43m 36.4s	-06° 11' 08"	9.4	Cúmulo abierto	3.0
NGC6639	18h 32m 25.8s	-13° 09' 02"	10.0	Cúmulo abierto	5.0
NGC6517	18h 03m 16.0s	-08° 57' 24"	10.1	Cúmulo globular	4.0
IC1276	18h 12m 10.0s	-07° 12' 14"	10.3	Cúmulo globular	8.0
NGC6790	19h 24m 16.1s	+01° 33' 55"	10.5	Nebulosa planetaria	10.2"
NGC6891	20h 16m 22.3s	+12° 47' 08"	10.5	Nebulosa planetaria	21.0"
IC4997	20h 21m 20.2s	+16° 48' 56"	10.5	Nebulosa planetaria	13.2"
NGC6756	19h 09m 59.7s	+04° 44' 56"	10.6	Cúmulo abierto	4.0
NGC7006 CALDWELL 42	21h 02m 42.4s	+16° 17' 29"	10.6	Cúmulo globular	3.6
NGC6567	18h 15m 17.0s	-19° 03' 59"	11.0	Nebulosa planetaria	12.0"
NGC6596	18h 19m 03.3s	-16° 38' 18"	11.0	Cúmulo abierto	10.0
NGC6774	19h 17m 47.5s	-16° 16' 38"	11.0	Cúmulo abierto	20.0
NGC6603	18h 19m 55.5s	-18° 23' 40"	11.1	Cúmulo abierto	4.0
NGC6905 - Blue flash nebula	20h 23m 32.6s	+20° 11' 22"	11.1	Nebulosa planetaria	1.2
NGC6814	19h 44m 06.1s	-10° 15' 41"	11.2	Galaxia	3.0 x 2.8
NGC7177	22h 01m 55.6s	+17° 51' 47"	11.2	Galaxia	3.2 x 2.1
NGC6964 CALDWELL 12	20h 48m 44.0s	+00° 23' 54"	13.0	Galaxia	1.7 x 1.3

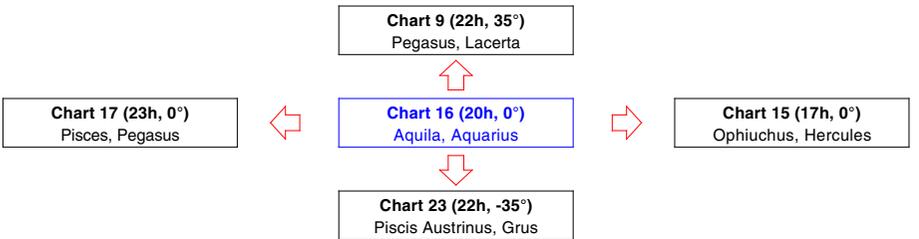
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 52 AB (Dabih)	20h 23m 55.7s	-14° 36' 46"	3.15 / 6.08	205.2 / 266
EHR 16 AB (λ Aql)	19h 09m 00.5s	-04° 47' 53"	3.50 / 7.50	12.5 / 30
STFA 51 AE	20h 20m 55.5s	-12° 22' 45"	3.66 / 4.34	381.2 / 290
H 6 2 AC (67 Oph)	18h 03m 15.3s	+02° 56' 03"	3.96 / 8.06	54.7 / 143
HLA 22 AC (HD 189340)	20h 02m 37.4s	-09° 48' 40"	4.40 / 7.83	10.3 / 296
STF 2417 AB (Alya)	18h 58m 47.9s	+04° 16' 32"	4.59 / 4.93	22.4 / 106
STF 2417 AC	18h 58m 47.9s	+04° 16' 32"	4.59 / 6.78	421.0 / 58
STFA 54 AD	21h 12m 51.5s	+10° 20' 48"	4.70 / 6.06	335.2 / 152
STF 2417 BC	18h 58m 49.9s	+04° 16' 27"	4.93 / 6.78	405.6 / 56
SHJ 323 AD	20h 31m 49.5s	-17° 38' 13"	4.97 / 6.68	258.7 / 150
STF 2737 AB,C (ε Equ)	21h 01m 41.1s	+04° 29' 56"	5.30 / 7.05	10.6 / 67
HJ 599 AC (54 Sgr)	19h 43m 41.2s	-16° 10' 06"	5.42 / 7.65	45.5 / 41
SHJ 286 (15 Aql)	19h 07m 42.6s	-03° 56' 56"	5.52 / 6.98	39.6 / 211
STF 2594 AB (57 Aql)	19h 57m 26.6s	-08° 05' 13"	5.65 / 6.35	36.3 / 171
STTA 178 (HD 180243)	19h 17m 42.2s	+15° 10' 43"	5.69 / 7.64	89.6 / 267
H 6 26 AB (ε Sge)	19h 39m 38.2s	+16° 35' 00"	5.77 / 8.35	87.4 / 82
STT 592 AC	20h 06m 27.6s	+17° 13' 15"	5.86 / 6.92	217.0 / 335
STF 2379 AB (5 Aql)	18h 49m 10.0s	-00° 54' 06"	5.88 / 7.02	12.5 / 121
SHJ 324 AB (o Cap)	20h 32m 52.3s	-18° 24' 20"	5.91 / 6.68	22.0 / 238
H 6 50 AC	18h 52m 27.9s	-05° 50' 56"	6.15 / 8.23	111.8 / 171
STFA 56 AB (3 Peg)	21h 40m 19.2s	+06° 51' 17"	6.18 / 7.50	38.7 / 349
STFA 41 AB (2 Sge)	19h 26m 42.1s	+17° 02' 36"	6.26 / 6.86	342.3 / 78
STF 2737 BC	21h 01m 40.1s	+04° 29' 55"	6.31 / 7.05	10.6 / 66
STFA 40 AB (24 Aql)	19h 21m 30.5s	+00° 26' 17"	6.52 / 6.78	423.5 / 316
PLT 3 AB (BB Sgr)	18h 54m 04.9s	-20° 13' 45"	6.70 / 7.50	93.6 / 101

## Main variable stars

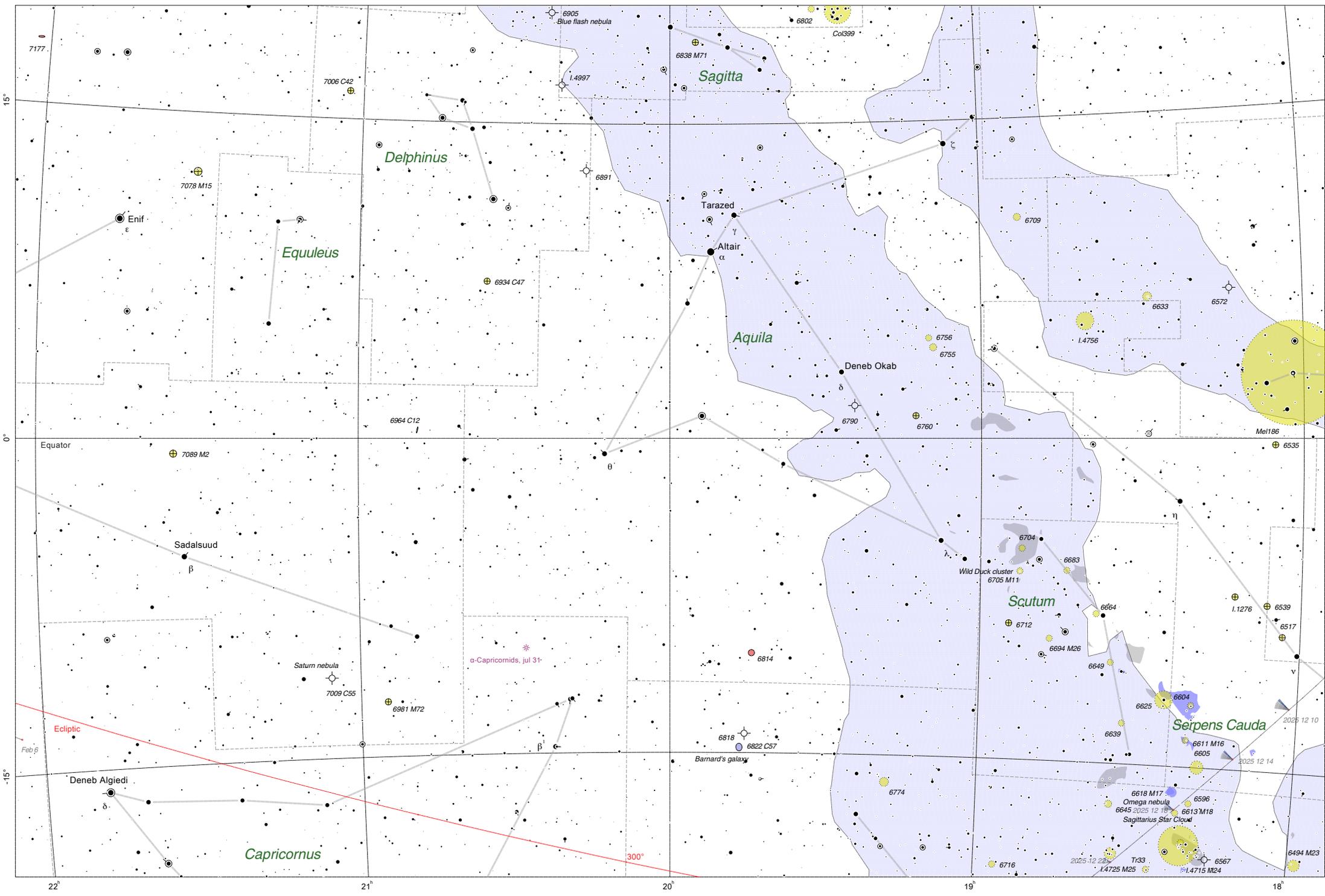
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
η Aql	19h 53m 47.8s	+01° 04' 27"	3.48 / 4.39	7.18	P - δ Cep
R Sgr	19h 18m 13.2s	-19° 15' 35"	6.7 / 12.83	19 feb, 16 nov / 270	P - Mira
U Sgr	18h 33m 25.2s	-19° 06' 16"	6.28 / 7.15	6.75	P - δ Cep
U Sge	19h 19m 56.7s	+19° 39' 35"	6.45 / 9.28	3.38	Ecl - Algol
U Del	20h 46m 39.7s	+18° 11' 09"	7.6 / 8.9	110	P - Semi-irr
U Vul	19h 37m 45.9s	+20° 23' 33"	6.73 / 7.54	7.99	P - δ Cep
X Oph	18h 39m 35.7s	+08° 51' 32"	5.9 / 9.2	21 abr / 329	P - Mira
R Aql	19h 07m 37.4s	+08° 16' 16"	5.5 / 12.0	9 ago / 284	P - Mira
V Aqr	20h 48m 08.2s	+02° 32' 03"	7.6 / 9.4	244.0	P - Semi-irr
S Del	20h 44m 16.8s	+17° 10' 59"	8.3 / 12.4	24 ago / 278	P - Mira

## Navigation map



<p>Stellar magnitudes</p> <p>● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8</p>	<p>Types of stars</p> <p>● Double   ● Variable</p>	<p>Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary</p> <p>☀ Open cluster   ☉ Globular   ☁ Nebulose   ☄ Milky Way   ☄ Plan.neb.   ● S ● E ● I ● SO Galaxy   — Constellation   - - - - - Const. limit   * Meteors</p>
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Chart 16, 30°x20° around 20.0h, 0.0° (Aquila, Aquarius, Delphinus, Sagittarius)



# Main objects visible on chart 17

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC7078 M15	21h 31m 13.7s	+12° 16' 57"	6.3	6.3	18.0
NGC7089 M2	21h 34m 47.4s	-00° 42' 23"	6.6	6.6	16.0
NGC7293 CALDWELL 63 - Helix nebula	22h 31m 03.4s	-20° 42' 09"	7.3	7.3	17.6
NGC7009 CALDWELL 55 - Saturn nebula	21h 05m 35.6s	-11° 15' 31"	8.0	8.0	1.0 x 0.6
NGC6981 M72	20h 54m 53.4s	-12° 26' 12"	9.2	9.2	6.6
NGC157	00h 36m 05.6s	-08° 15' 11"	10.4	10.4	3.5 x 2.4
NGC7006 CALDWELL 42	21h 02m 42.4s	+16° 17' 29"	10.6	10.6	3.6
NGC7727	23h 41m 14.3s	-12° 08' 55"	10.6	10.6	4.7 x 3.5
NGC7814 CALDWELL 43	00h 04m 34.9s	+16° 17' 24"	10.6	10.6	5.5 x 2.3
NGC7606	23h 20m 25.7s	-08° 20' 38"	10.8	10.8	5.4 x 2.1
NGC210	00h 41m 53.2s	-13° 43' 48"	10.9	10.9	5.0 x 3.3
NGC246 CALDWELL 56 - Skull nebula	00h 48m 21.8s	-11° 43' 47"	10.9	10.9	4.1
NGC7479 CALDWELL 44	23h 06m 14.9s	+12° 27' 46"	10.9	10.9	4.0 x 3.1
NGC7619	23h 21m 33.7s	+08° 20' 59"	11.1	11.1	2.5 x 2.3
NGC7626	23h 22m 01.7s	+08° 21' 35"	11.1	11.1	2.6 x 2.3
NGC7177	22h 01m 55.6s	+17° 51' 47"	11.2	11.2	3.2 x 2.1
NGC7492	23h 09m 48.8s	-15° 28' 11"	11.2	11.2	4.2
NGC7723	23h 40m 17.7s	-12° 49' 01"	11.2	11.2	3.5 x 2.2

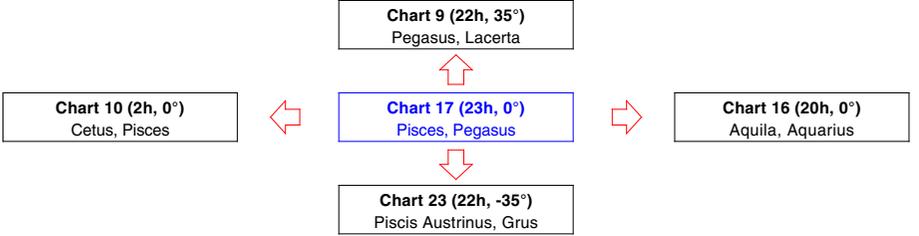
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 54 AD	21h 12m 51.5s	+10° 20' 48"	4.70 / 6.06	335.2 / 152
STF 2998 AB	23h 21m 49.7s	-13° 10' 24"	5.27 / 6.97	12.1 / 352
STF 2737 AB,C (ε Equ)	21h 01m 41.1s	+04° 29' 56"	5.30 / 7.05	10.6 / 67
STFA 59 AB,C (83 Aqr)	23h 07m 52.0s	-07° 24' 44"	5.47 / 7.21	257.6 / 149
HJ 323 (HD 3807)	00h 43m 21.0s	-04° 04' 02"	6.01 / 8.46	63.0 / 286
STF 12 (35 Psc)	00h 17m 39.7s	+09° 06' 35"	6.06 / 7.51	11.2 / 148
STFA 56 AB (3 Peg)	21h 40m 19.2s	+06° 51' 17"	6.18 / 7.50	38.7 / 349
STF 2737 BC	21h 01m 40.1s	+04° 29' 55"	6.31 / 7.05	10.6 / 66
STF 2841 A,BC (HD 208202)	21h 56m 43.9s	+19° 57' 57"	6.45 / 7.99	22.4 / 110
HJ 1981 A,BC (HD 2760)	00h 33m 38.2s	-09° 47' 53"	6.91 / 8.43	78.4 / 89

## Main variable stars

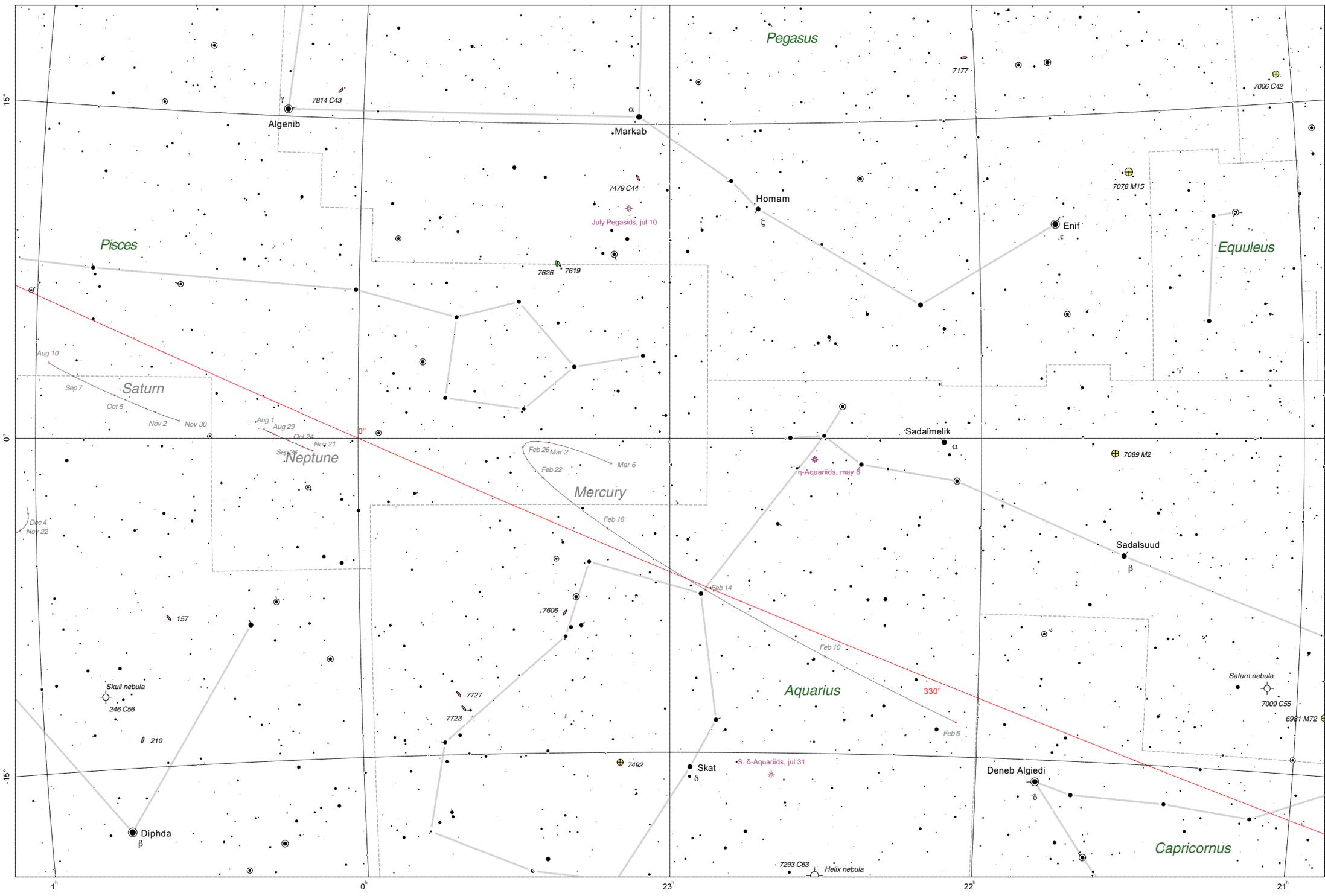
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
R Peg	23h 07m 57.7s	+10° 41' 03"	6.9 / 13.8	21 ago / 378	P - Mira

## Navigation map



<p>Stellar magnitudes</p> <p>● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8</p>	<p>Types of stars</p> <p>● Double   ● Variable</p>	<p>Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary</p> <p>● Open cluster   ● Globular   ● Nebulose   ● Milky Way   ● Plan.neb.   ● Galaxy   ● Constellation   ● Const. limit   ● Meteors</p>
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Chart 17, 30°x20° around 23.0h, 0.0° (Pisces, Pegasus, Aquarius, Cetus)



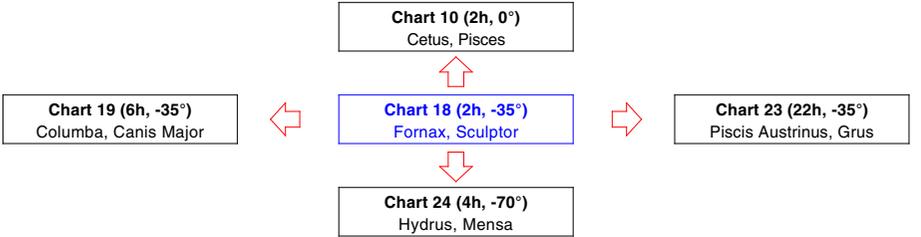
# Main objects visible on chart 18

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC253 CALDWELL 65 - Sculptor galaxy	00h 48m 49.6s	-25° 08' 45"	7.2	Galaxia	29.0 x 6.8
NGC55 CALDWELL 72	00h 16m 26.0s	-39° 04' 30"	7.9	Galaxia	31.2 x 5.9
NGC288	00h 54m 01.5s	-26° 27' 24"	8.1	Cúmulo globular	13.0
NGC300 CALDWELL 70	00h 56m 06.8s	-37° 32' 37"	8.1	Galaxia	19.0 x 12.9
NGC1291	03h 18m 15.3s	-41° 00' 47"	8.5	Galaxia	11.0 x 9.5
NGC1316 - Fornax A	03h 23m 40.9s	-37° 06' 59"	8.5	Galaxia	11.0 x 7.2
NGC247 CALDWELL 62	00h 48m 25.5s	-20° 37' 06"	9.1	Galaxia	19.2 x 5.5
NGC7793	23h 59m 09.3s	-32° 26' 49"	9.1	Galaxia	9.3 x 6.3
NGC1360	03h 34m 21.0s	-25° 47' 06"	9.4	Nebulosa planetaria	6.4
NGC1097 CALDWELL 67	02h 47m 26.0s	-30° 10' 03"	9.5	Galaxia	9.4 x 6.6
NGC1365	03h 34m 36.3s	-36° 03' 17"	9.6	Galaxia	11.0 x 6.2
NGC1395	03h 39m 37.5s	-22° 56' 37"	9.6	Galaxia	5.0 x 4.5
NGC1399	03h 39m 28.7s	-35° 21' 58"	9.6	Galaxia	6.9 x 6.5
NGC1398	03h 39m 57.9s	-26° 15' 14"	9.7	Galaxia	7.2 x 5.2
NGC1407	03h 41m 22.2s	-18° 29' 52"	9.7	Galaxia	4.6 x 4.3
NGC1232	03h 10m 55.7s	-20° 28' 54"	9.9	Galaxia	7.4 x 6.5
NGC1380	03h 37m 27.8s	-34° 53' 26"	9.9	Galaxia	4.0 x 2.4
NGC1433	03h 42m 50.2s	-47° 08' 25"	9.9	Galaxia	6.5 x 5.9
NGC1532	04h 13m 03.7s	-32° 48' 28"	9.9	Galaxia	11.6 x 3.4
NGC1404	03h 39m 51.4s	-35° 30' 34"	10.0	Galaxia	3.3 x 3.0
NGC613	01h 35m 30.5s	-29° 17' 10"	10.1	Galaxia	5.5 x 4.2
NGC908	02h 24m 16.7s	-21° 06' 58"	10.2	Galaxia	6.1 x 2.7
NGC1332	03h 27m 26.3s	-21° 14' 41"	10.3	Galaxia	4.5 x 1.4
NGC1350	03h 32m 09.5s	-33° 32' 24"	10.3	Galaxia	5.9 x 3.1
NGC1512	04h 04m 45.3s	-43° 16' 44"	10.3	Galaxia	8.9 x 5.6
NGC134	00h 31m 38.7s	-33° 06' 06"	10.4	Galaxia	8.4 x 1.8
NGC1300	03h 20m 51.3s	-19° 19' 07"	10.4	Galaxia	6.2 x 4.1
NGC1344	03h 29m 22.9s	-30° 58' 46"	10.4	Galaxia	4.8 x 3.1
NGC1326	03h 24m 56.4s	-36° 22' 24"	10.5	Galaxia	3.9 x 2.9
IC5332	23h 35m 50.1s	-35° 57' 27"	10.5	Galaxia	8.9 x 8.2
PGC3589 - Sculptor dwarf	01h 01m 07.9s	-33° 33' 37"	10.5	Galaxia	75.0
NGC45	00h 15m 23.0s	-23° 02' 13"	10.6	Galaxia	8.5 x 5.9
NGC1425	03h 43m 15.0s	-29° 48' 45"	10.6	Galaxia	5.8 x 2.5
NGC1537	04h 14m 41.5s	-31° 34' 52"	10.6	Galaxia	3.9 x 2.6
NGC7552 - Grus quartet	23h 17m 36.5s	-42° 26' 33"	10.6	Galaxia	3.4 x 2.7
NGC7582	23h 19m 49.1s	-42° 13' 38"	10.6	Galaxia	5.0 x 2.3
NGC1201	03h 05m 15.6s	-25° 58' 07"	10.7	Galaxia	3.6 x 2.1
NGC1302	03h 20m 58.0s	-25° 58' 04"	10.7	Galaxia	3.9 x 3.7
NGC1371	03h 36m 08.1s	-24° 50' 53"	10.7	Galaxia	5.6 x 3.9
NGC1387	03h 37m 57.0s	-35° 25' 17"	10.7	Galaxia	2.8 x 2.6
NGC1457	03h 45m 22.8s	-44° 33' 55"	10.7	Galaxia	7.6 x 1.7
NGC1187	03h 03m 47.1s	-22° 45' 59"	10.8	Galaxia	4.2 x 3.2
NGC1527	04h 09m 10.1s	-47° 49' 45"	10.8	Galaxia	3.9 x 1.5
NGC210	00h 41m 53.2s	-13° 43' 48"	10.9	Galaxia	5.0 x 3.3
NGC578	01h 31m 43.3s	-22° 31' 60"	10.9	Galaxia	4.8 x 3.0
NGC986	02h 34m 36.5s	-38° 55' 57"	10.9	Galaxia	4.0 x 3.2
NGC1255	03h 14m 39.4s	-25° 37' 43"	10.9	Galaxia	4.2 x 2.7
NGC1379	03h 37m 03.7s	-35° 21' 22"	10.9	Galaxia	2.4 x 2.3
NGC1385	03h 38m 35.7s	-24° 25' 07"	10.9	Galaxia	3.6 x 2.2
NGC1427	03h 43m 18.8s	-35° 18' 40"	10.9	Galaxia	3.8 x 2.6
NGC289	00h 53m 57.2s	-31° 03' 53"	11.0	Galaxia	5.1 x 3.6
NGC685	01h 48m 42.0s	-52° 37' 59"	11.0	Galaxia	3.6 x 3.1
NGC1317	03h 23m 43.8s	-37° 00' 43"	11.0	Galaxia	2.8 x 2.4
NGC1400	03h 40m 41.0s	-18° 36' 18"	11.0	Galaxia	2.5 x 2.1
NGC1366	03h 34m 56.7s	-31° 06' 27"	11.1	Galaxia	2.1 x 0.9
NGC1374	03h 36m 16.8s	-35° 08' 26"	11.1	Galaxia	2.7 x 2.4
NGC625	01h 36m 12.0s	-41° 18' 19"	11.2	Galaxia	5.8 x 1.9
NGC1386	03h 37m 45.8s	-35° 54' 52"	11.2	Galaxia	3.4 x 1.3
NGC7713	23h 37m 38.0s	-37° 47' 42"	11.2	Galaxia	4.5 x 1.8

## Main double stars

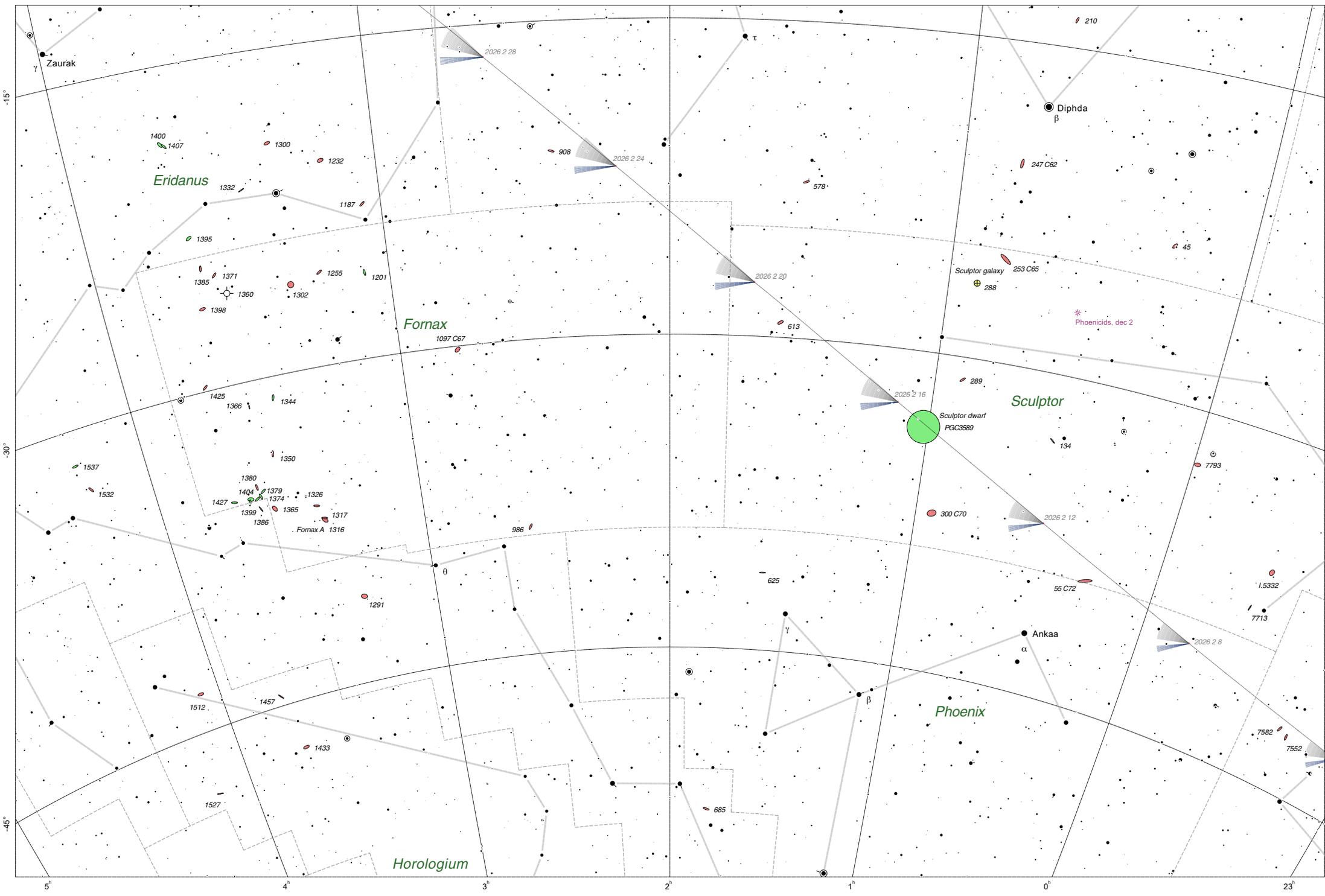
Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
SHY 834 AC (ι Phe)	23h 37m 51.4s	-42° 19' 37"	4.70 / 6.68	294.1 / 212
SHY 836 (HD 222226)	23h 41m 42.0s	-45° 19' 24"	4.74 / 7.05	804.4 / 122
HJ 3506 (ω For)	02h 36m 07.7s	-28° 00' 23"	4.95 / 7.71	11.0 / 246
SHY 140 (φ For)	02h 30m 13.8s	-33° 34' 51"	5.14 / 7.64	391.1 / 218
SKF 949 (HD 24706)	03h 55m 09.7s	-46° 44' 34"	6.06 / 8.47	76.4 / 3
SKF 760 (AL Scl)	23h 57m 57.5s	-31° 37' 55"	6.09 / 6.82	133.9 / 1
SKF 1280 A,B,C (χ, For)	03h 27m 56.5s	-35° 44' 30"	6.40 / 7.34	140.0 / 164
LDS 21 (HD 3405)	00h 39m 04.8s	-48° 50' 48"	6.85 / 8.48	329.7 / 273
HJ 2052 (HD 9336)	01h 34m 04.5s	-18° 45' 25"	6.86 / 7.47	80.8 / 114

## Navigation map



Stellar magnitudes	Types of stars	Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary
● -1   ● 0   ● 1   ● 2   ● 3   ● 4   ● 5   ● 6   ● 7   ● 8	● Double   ● Variable	☀ Open cluster   ☉ Globular   ☁ Nebulose   ☄ Milky Way   ☄ Plan.neb.   ● S ● E ● I ● SO   --- Constellation   - - - - - Const. limit   * Meteors

Chart 18, 30°x20° around 2.0h, -35.0° (Fornax, Sculptor, Phoenix, Cetus)



# Main objects visible on chart 19

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC2451	07h 46m 19.7s	-38° 00' 52"	2.8	Cúmulo abierto	50.0
NGC2362 CALDWELL 64 - Tau Canis Majoris Cluster	07h 19m 46.1s	-25° 00' 12"	3.8	Cúmulo abierto	6.0
NGC2422 M47	07h 37m 46.8s	-14° 32' 21"	4.4	Cúmulo abierto	25.0
NGC2287 M41	06h 47m 07.0s	-20° 47' 09"	4.5	Cúmulo abierto	39.0
IC2395	08h 43m 20.6s	-48° 12' 10"	4.6	Cúmulo abierto	13.0
NGC2547	08h 10m 55.0s	-49° 18' 11"	4.7	Cúmulo abierto	25.0
NGC2477 CALDWELL 71	07h 53m 05.5s	-38° 35' 54"	5.8	Cúmulo abierto	20.0
NGC2437 M46	07h 42m 58.5s	-14° 52' 21"	6.1	Cúmulo abierto	20.0
NGC2447 M93	07h 45m 36.2s	-23° 55' 15"	6.2	Cúmulo abierto	10.0
NGC2546	08h 13m 21.5s	-37° 41' 45"	6.3	Cúmulo abierto	70.0
NGC2354	07h 15m 14.1s	-25° 44' 11"	6.5	Cúmulo abierto	18.0
NGC2527	08h 06m 02.2s	-28° 13' 17"	6.5	Cúmulo abierto	10.0
NGC2423	07h 38m 18.8s	-13° 55' 53"	6.7	Cúmulo abierto	12.0
NGC2439	07h 41m 45.9s	-31° 45' 16"	6.9	Cúmulo abierto	9.0
NGC2571	08h 19m 59.9s	-29° 49' 55"	7.0	Cúmulo abierto	7.0
NGC2645	08h 39m 55.2s	-46° 19' 12"	7.0	Cúmulo abierto	3.0
NGC1851 CALDWELL 73	05h 14m 57.6s	-40° 01' 05"	7.1	Cúmulo globular	12.0
NGC2360 CALDWELL 58	07h 18m 53.9s	-15° 41' 24"	7.2	Cúmulo abierto	14.0
NGC2409	07h 32m 46.7s	-17° 14' 47"	7.3	Cúmulo abierto	2.5
NGC2482	07h 56m 18.2s	-24° 19' 42"	7.3	Cúmulo abierto	10.0
NGC2384	07h 26m 17.5s	-21° 04' 28"	7.4	Cúmulo abierto	5.0
NGC2567	08h 19m 35.0s	-30° 43' 21"	7.4	Cúmulo abierto	11.0
NGC2579	08h 21m 51.9s	-36° 17' 59"	7.5	Cúmulo abierto	19.0
NGC2483	07h 56m 42.9s	-27° 57' 55"	7.6	Cúmulo abierto	9.0
NGC2506 CALDWELL 54	08h 01m 15.9s	-10° 50' 33"	7.6	Cúmulo abierto	12.0
NGC2533	08h 08m 07.0s	-29° 56' 35"	7.6	Cúmulo abierto	6.0
NGC1904 M79	05h 25m 14.9s	-24° 30' 05"	7.7	Cúmulo globular	9.6
NGC2345	07h 09m 30.9s	-13° 14' 11"	7.7	Cúmulo abierto	12.0
NGC2670	08h 46m 20.2s	-48° 53' 15"	7.8	Cúmulo abierto	7.0
NGC2367	07h 21m 12.8s	-21° 55' 54"	7.9	Cúmulo abierto	5.0
NGC2414	07h 34m 23.9s	-15° 30' 41"	7.9	Cúmulo abierto	6.0
NGC2489	07h 57m 18.3s	-30° 08' 05"	7.9	Cúmulo abierto	5.0
NGC2374	07h 25m 08.3s	-13° 18' 56"	8.0	Cúmulo abierto	12.0
NGC2421	07h 37m 20.0s	-20° 40' 16"	8.0	Cúmulo abierto	8.0
NGC2453	07h 48m 38.1s	-27° 15' 38"	8.3	Cúmulo abierto	4.0
NGC2383	07h 25m 47.4s	-21° 00' 00"	8.4	Cúmulo abierto	5.0
NGC1291	03h 18m 15.3s	-41° 00' 47"	8.5	Galaxia	11.0 x 9.5
NGC1316 - Fornax A	03h 23m 40.9s	-37° 06' 59"	8.5	Galaxia	11.0 x 7.2
NGC2204	06h 16m 41.2s	-18° 40' 31"	8.6	Cúmulo abierto	10.0
NGC2659	08h 43m 29.6s	-45° 05' 40"	8.6	Cúmulo abierto	15.0
NGC2660	08h 43m 29.5s	-47° 17' 42"	8.8	Cúmulo abierto	3.0
Mel71	07h 38m 31.2s	-12° 09' 36"	8.9	Cúmulo abierto	8.0
Tr9	07h 56m 47.2s	-25° 57' 13"	9.1	Cúmulo abierto	7.0
NGC2587	08h 24m 28.0s	-29° 35' 37"	9.2	Cúmulo abierto	10.0
NGC2298	06h 49m 54.5s	-36° 02' 09"	9.3	Cúmulo globular	5.0
NGC2509	08h 01m 57.4s	-19° 07' 25"	9.3	Cúmulo abierto	12.0
NGC2243	06h 30m 33.4s	-31° 18' 01"	9.4	Cúmulo abierto	8.3
NGC2440	07h 43m 05.0s	-18° 16' 14"	9.4	Nebulosa planetaria	1.3
NGC1365	03h 34m 36.3s	-36° 03' 17"	9.6	Galaxia	11.0 x 6.2
NGC1399	03h 39m 28.7s	-35° 21' 58"	9.6	Galaxia	6.9 x 6.5
NGC1535	04h 15m 28.7s	-12° 40' 29"	9.6	Nebulosa planetaria	0.8
NGC2479	07h 56m 16.2s	-17° 46' 40"	9.6	Cúmulo abierto	11.0
NGC1398	03h 39m 57.9s	-26° 15' 14"	9.7	Galaxia	7.2 x 5.2
NGC2580	08h 22m 31.4s	-30° 22' 33"	9.7	Cúmulo abierto	8.0
NGC1380	03h 37m 27.8s	-34° 53' 26"	9.9	Galaxia	4.0 x 2.4
NGC1433	03h 42m 50.2s	-47° 08' 25"	9.9	Galaxia	6.5 x 5.9
NGC1532	04h 13m 03.7s	-32° 48' 28"	9.9	Galaxia	11.6 x 3.4
NGC1808	05h 08m 36.5s	-37° 28' 51"	9.9	Galaxia	6.5 x 3.9
NGC1404	03h 39m 51.4s	-35° 30' 34"	10.0	Galaxia	3.3 x 3.0
NGC1792	05h 06m 07.4s	-37° 56' 45"	10.2	Galaxia	5.2 x 2.6
NGC2432	07h 42m 02.1s	-19° 08' 19"	10.2	Cúmulo abierto	7.0
NGC2455	07h 50m 07.9s	-21° 22' 06"	10.2	Cúmulo abierto	15.0
NGC1350	03h 32m 09.5s	-33° 32' 24"	10.3	Galaxia	5.9 x 3.1
NGC1512	04h 04m 45.3s	-43° 16' 44"	10.3	Galaxia	8.9 x 5.6
NGC2280	06h 45m 51.0s	-27° 40' 02"	10.3	Galaxia	6.3 x 3.0
NGC1326	03h 24m 56.4s	-36° 22' 24"	10.5	Galaxia	3.9 x 2.9
NGC1425	03h 43m 15.0s	-29° 48' 45"	10.6	Galaxia	5.8 x 2.5
NGC1537	04h 14m 41.5s	-31° 34' 52"	10.6	Galaxia	3.9 x 2.6
NGC1387	03h 37m 57.0s	-35° 25' 17"	10.7	Galaxia	2.8 x 2.6
NGC1457	03h 45m 22.8s	-44° 33' 55"	10.7	Galaxia	7.6 x 1.7
NGC2217	06h 22m 42.0s	-27° 14' 53"	10.7	Galaxia	4.7 x 4.3

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC2568	08h 19m 16.4s	-37° 11' 16"	10.7	Cúmulo abierto	3.0
NGC1527	04h 09m 10.1s	-47° 49' 45"	10.8	Galaxia	3.9 x 1.5
NGC1964	05h 34m 27.9s	-21° 55' 44"	10.8	Galaxia	5.6 x 1.8
NGC2438	07h 43m 02.3s	-14° 47' 50"	10.8	Nebulosa planetaria	1.3
NGC1379	03h 37m 03.7s	-35° 21' 22"	10.9	Galaxia	2.4 x 2.3
NGC1427	03h 43m 18.8s	-35° 18' 40"	10.9	Galaxia	3.8 x 2.6
NGC2207	06h 17m 28.2s	-21° 23' 00"	10.9	Galaxia	3.9 x 2.2
NGC2559	08h 18m 11.1s	-27° 32' 19"	10.9	Galaxia	3.0 x 1.4
NGC1317	03h 23m 43.8s	-37° 00' 43"	11.0	Galaxia	2.8 x 2.4
NGC2196	06h 13m 15.7s	-21° 48' 51"	11.0	Galaxia	2.8 x 2.2
NGC2292	06h 48m 42.2s	-26° 46' 36"	11.0	Galaxia	4.0 x 3.5
NGC1366	03h 34m 56.7s	-31° 06' 27"	11.1	Galaxia	2.1 x 0.9

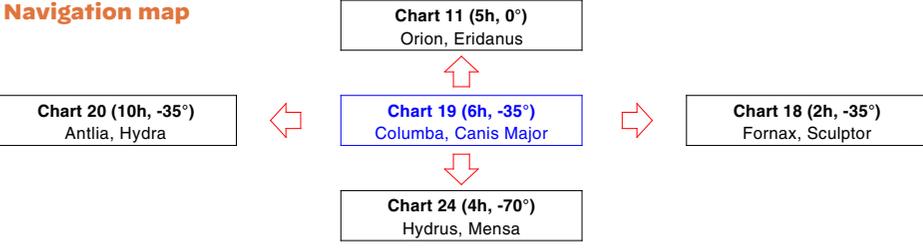
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
AGC 1 AB (Sirius)	06h 47m 28.4s	-16° 46' 27"	-1.47 / 8.44	11.3 / 67
DUN 65 AB (γ, Vel)	08h 11m 08.2s	-47° 29' 33"	1.79 / 4.14	41.2 / 221
DUN 65 AC	08h 11m 08.2s	-47° 29' 33"	1.79 / 7.26	62.4 / 152
SMY 2 (Aludra)	07h 26m 09.5s	-29° 24' 29"	2.45 / 6.77	177.0 / 287
DUN 43 AB (π Pup)	07h 18m 59.3s	-37° 11' 39"	2.89 / 7.94	69.0 / 213
SMY 1 AB (Furud)	06h 22m 18.8s	-30° 05' 25"	2.96 / 7.81	169.6 / 340
H 6 40 AB (γ Lep)	05h 46m 39.3s	-22° 25' 48"	3.64 / 6.28	95.5 / 349
DUN 65 BC (Suhail al muhlif)	08h 11m 05.2s	-47° 30' 04"	4.14 / 7.26	60.9 / 113
HJ 3948 AD	07h 20m 51.4s	-25° 03' 12"	4.42 / 8.22	83.5 / 78
SHY 512 AD	07h 37m 28.6s	-28° 29' 15"	4.62 / 7.88	530.5 / 209
JC 10 AB (NV Pup)	07h 20m 09.0s	-36° 49' 55"	4.66 / 5.07	241.6 / 102
HJ 3945 AB (145 CMa)	07h 18m 48.6s	-23° 24' 43"	5.00 / 5.84	26.5 / 50
DUN 67 (OS Pup)	08h 15m 55.3s	-36° 28' 59"	5.03 / 5.99	66.8 / 176
DUN 31 (NSV3072)	06h 40m 01.2s	-48° 16' 11"	5.14 / 7.38	12.9 / 321
DUN 47 A,CD	07h 26m 43.7s	-31° 54' 53"	5.40 / 7.58	97.1 / 344
DUN 21 AD	05h 31m 34.8s	-47° 02' 28"	5.52 / 6.68	197.7 / 271
DUN 18 AB (ι Pic)	04h 52m 05.4s	-53° 22' 35"	5.61 / 6.24	12.3 / 58
DUN 38 AB (HD 53705)	07h 05m 33.3s	-43° 41' 20"	5.61 / 6.68	21.3 / 125
HJ 3869 (HD 46547)	06h 34m 35.9s	-32° 04' 22"	5.68 / 7.87	24.7 / 258
DUN 28 AC	06h 25m 49.4s	-36° 44' 21"	5.73 / 6.91	63.6 / 74
H 5 108 A,BC (HZ CMa)	06h 52m 21.0s	-31° 46' 14"	5.76 / 7.71	42.7 / 66
SHJ 73 (ν, CMa)	06h 38m 39.7s	-18° 42' 26"	5.79 / 7.38	17.4 / 264
SRT 2 (HD 26590)	04h 13m 53.0s	-20° 13' 32"	5.82 / 7.68	61.8 / 334
HJ 3759 (HD 35722)	05h 28m 15.3s	-19° 39' 14"	5.87 / 7.30	26.6 / 317
DUN 30 AB,CD	06h 31m 06.1s	-50° 16' 39"	5.97 / 7.98	11.7 / 312
HJ 3834 AE	06h 06m 10.3s	-45° 05' 09"	6.02 / 6.39	196.1 / 321
SKF 949 (HD 24706)	03h 55m 09.7s	-46° 44' 34"	6.06 / 8.47	76.4 / 3
HJ 3644 AB,D (NSV1574)	04h 23m 40.5s	-25° 36' 32"	6.15 / 8.23	43.7 / 41
SHY 462 AB (HD 27604)	04h 19m 57.1s	-52° 44' 13"	6.16 / 7.80	270.4 / 236
DUN 59 (HD 66005)	08h 00m 40.1s	-50° 07' 18"	6.23 / 6.24	16.4 / 48

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
L2 Pup	07h 14m 20.0s	-44° 40' 60"	2.6 / 6.2	140.6	P - Semi-irr
R CMa	07h 20m 38.8s	-16° 26' 45"	5.70 / 6.34	1.14	Ecl - Algol
S Lep	06h 06m 49.9s	-24° 11' 59"	6.0 / 7.58	89.0	P - Semi-irr

## Navigation map



Stellar magnitudes: -1, 0, 1, 2, 3, 4, 5, 6, 7, 8

Types of stars: Double, Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: Open cluster, Globular, Nebulose, Milky Way, Plan.neb., Galaxy, Constellation, Const. limit, Meteors







# Main objects visible on chart 21

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC6193 CALDWELL 82	16h 43m 17.7s	-48° 48' 41"	5.2	Cúmulo abierto	14.0
NGC5139 CALDWELL 80 - Omega Centauri	13h 28m 21.1s	-47° 36' 55"	5.3	Cúmulo globular	55.0
NGC5460	14h 09m 16.7s	-48° 25' 21"	5.6	Cúmulo abierto	35.0
NGC6124 CALDWELL 75	16h 27m 04.6s	-40° 43' 28"	5.8	Cúmulo abierto	40.0
NGC6250	16h 59m 50.6s	-45° 58' 29"	5.9	Cúmulo abierto	16.0
NGC5822	15h 05m 57.3s	-54° 26' 21"	6.5	Cúmulo abierto	35.0
NGC6169	16h 35m 56.3s	-44° 05' 52"	6.6	Cúmulo abierto	12.0
NGC6167	16h 36m 33.2s	-49° 49' 27"	6.7	Cúmulo abierto	7.0
NGC5128 CALDWELL 77 - Centaurus A	13h 27m 00.9s	-43° 09' 03"	6.8	Galaxia	25.7 x 20.0
NGC6134	16h 29m 40.6s	-49° 13' 13"	7.2	Cúmulo abierto	6.0
NGC6178	16h 37m 44.0s	-45° 41' 53"	7.2	Cúmulo abierto	5.0
NGC4590 M68	12h 40m 51.0s	-26° 53' 05"	7.3	Cúmulo globular	11.0
NGC5286 CALDWELL 84	13h 48m 06.1s	-51° 30' 07"	7.4	Cúmulo globular	11.0
NGC6200	16h 46m 04.5s	-47° 30' 58"	7.4	Cúmulo abierto	15.0
NGC5236 M83	13h 38m 28.4s	-29° 59' 56"	7.5	Galaxia	12.9 x 11.5
NGC3680	11h 26m 53.2s	-43° 23' 35"	7.6	Cúmulo abierto	7.0
NGC5986	15h 47m 46.0s	-37° 51' 54"	7.6	Cúmulo globular	9.6
NGC5927	15h 29m 54.0s	-50° 45' 39"	8.0	Cúmulo globular	6.0
Hogg18	14h 52m 32.6s	-52° 22' 22"	8.0	Cúmulo abierto	3.0
NGC6204	16h 48m 03.3s	-47° 03' 27"	8.2	Cúmulo abierto	6.0
NGC6249	16h 59m 35.0s	-44° 50' 35"	8.2	Cúmulo abierto	6.0
NGC4945 CALDWELL 83	13h 06m 57.7s	-49° 36' 05"	8.4	Galaxia	19.8 x 4.0
NGC5897	15h 18m 54.6s	-21° 06' 13"	8.4	Cúmulo globular	11.0
NGC5946	15h 37m 22.8s	-50° 44' 37"	8.4	Cúmulo globular	3.0
NGC6192	16h 42m 11.7s	-43° 24' 51"	8.5	Cúmulo abierto	9.0
NGC5749	14h 50m 41.7s	-54° 36' 02"	8.8	Cúmulo abierto	10.0
NGC5834	15h 05m 34.8s	-33° 10' 03"	9.1	Cúmulo globular	7.4
NGC6139	16h 29m 26.2s	-38° 54' 16"	9.1	Cúmulo globular	8.2
NGC5882	15h 18m 37.0s	-45° 44' 35"	9.4	Nebulosa planetaria	19.8"
NGC5102	13h 23m 26.1s	-36° 46' 02"	9.6	Galaxia	8.6 x 2.7
NGC3923	11h 52m 20.9s	-28° 57' 02"	9.8	Galaxia	5.9 x 3.9
NGC4976	13h 10m 09.5s	-49° 38' 38"	10.0	Galaxia	5.6 x 3.0
NGC5068	13h 20m 19.0s	-21° 10' 27"	10.0	Galaxia	7.3 x 6.4
NGC5247	13h 39m 27.6s	-18° 00' 58"	10.0	Galaxia	5.4 x 4.9
NGC5643	14h 34m 21.7s	-44° 17' 16"	10.0	Galaxia	4.7 x 4.2
NGC3909	11h 50m 48.3s	-48° 24' 35"	10.0	Cúmulo abierto	20.0
NGC6216	16h 51m 16.3s	-44° 46' 29"	10.1	Cúmulo abierto	4.0
NGC5694 CALDWELL 66	14h 41m 07.7s	-26° 38' 55"	10.2	Cúmulo globular	4.3
IC4406	14h 24m 06.1s	-44° 16' 05"	10.2	Nebulosa planetaria	1.8
NGC4038 CALDWELL 60 - Antennae	12h 03m 12.9s	-19° 00' 33"	10.3	Galaxia	3.4 x 1.7
NGC4039 CALDWELL 61	12h 03m 13.9s	-19° 01' 49"	10.3	Galaxia	3.3 x 1.7
NGC4696	12h 50m 15.6s	-41° 27' 11"	10.4	Galaxia	4.7 x 3.3
NGC5061	13h 19m 31.1s	-26° 58' 25"	10.4	Galaxia	3.5 x 3.0
NGC5253	13h 41m 24.9s	-31° 46' 22"	10.4	Galaxia	5.0 x 1.9
NGC4856	13h 00m 43.5s	-15° 10' 55"	10.5	Galaxia	4.3 x 1.2
NGC5084	13h 21m 41.5s	-21° 57' 48"	10.5	Galaxia	9.3 x 1.7
NGC5121	13h 26m 15.2s	-37° 49' 02"	10.6	Galaxia	1.9 x 1.5
IC4296	13h 38m 08.4s	-34° 05' 52"	10.6	Galaxia	2.8
NGC3962	11h 55m 59.6s	-14° 07' 10"	10.7	Galaxia	2.6 x 2.2
NGC4105	12h 08m 01.2s	-29° 54' 17"	10.7	Galaxia	2.8 x 2.1
NGC4936	13h 05m 42.7s	-30° 39' 56"	10.7	Galaxia	2.7 x 2.3
NGC5101	13h 23m 12.3s	-27° 33' 59"	10.7	Galaxia	5.4 x 4.6
NGC5333	13h 56m 03.0s	-48° 38' 23"	10.7	Galaxia	1.9 x 1.0
NGC5018	13h 14m 24.8s	-19° 39' 24"	10.8	Galaxia	3.4 x 2.6
NGC5044	13h 16m 47.2s	-16° 31' 17"	10.8	Galaxia	3.0
NGC5419	14h 05m 10.8s	-34° 06' 08"	10.8	Galaxia	4.1 x 3.3
NGC3885	11h 48m 05.4s	-28° 04' 00"	10.9	Galaxia	2.4 x 1.0
NGC3904	11h 50m 32.3s	-29° 25' 18"	10.9	Galaxia	2.7 x 2.0
NGC4361	12h 25m 52.1s	-18° 55' 41"	10.9	Nebulosa planetaria	2.1
NGC4373	12h 26m 40.9s	-39° 54' 16"	10.9	Galaxia	3.6 x 2.6
NGC4709	12h 51m 30.6s	-41° 31' 25"	10.9	Galaxia	2.3 x 2.0
NGC4902	13h 02m 22.0s	-14° 39' 12"	10.9	Galaxia	2.9 x 2.6
NGC5054	13h 18m 21.7s	-16° 46' 16"	10.9	Galaxia	5.1 x 2.8
NGC5206	13h 35m 19.3s	-48° 17' 04"	10.9	Galaxia	3.8 x 3.3
NGC6153	16h 33m 17.9s	-40° 18' 25"	10.9	Nebulosa planetaria	24.0"
IC3896	12h 58m 13.2s	-50° 29' 15"	10.9	Galaxia	2.5 x 1.8
NGC3981	11h 57m 26.8s	-20° 02' 31"	11.0	Galaxia	5.3 x 2.5
NGC5078	13h 21m 16.0s	-27° 32' 44"	11.0	Galaxia	4.0 x 1.9
NGC5873	15h 14m 31.1s	-38° 13' 17"	11.0	Nebulosa planetaria	13.2"
IC3370	12h 29m 00.7s	-39° 28' 53"	11.0	Galaxia	2.1 x 1.6

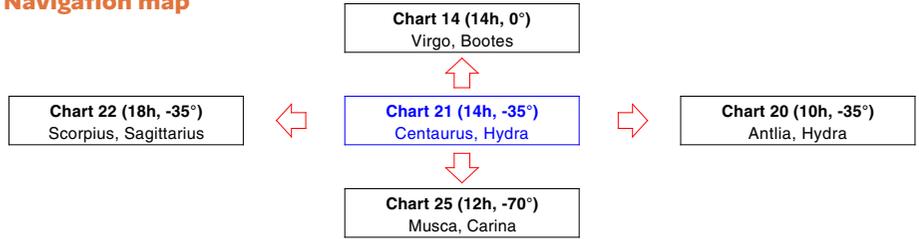
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
JC 2 AB (δ Cen)	12h 11m 05.5s	-51° 00' 42"	2.51 / 4.42	269.1 / 325
JC 2 AC	12h 11m 05.5s	-51° 00' 42"	2.51 / 6.35	216.9 / 227
SHJ 186 AB (Zubenelgenubi)	14h 53m 46.6s	-16° 15' 11"	2.74 / 5.19	231.1 / 314
SHJ 145 AB (Algorab)	12h 32m 34.7s	-16° 48' 08"	2.95 / 8.47	24.2 / 216
RMK 21 AB (η Lup)	16h 03m 34.9s	-38° 32' 22"	3.37 / 7.50	14.8 / 19
DUN 176 (ζ Lup)	15h 16m 04.0s	-52° 17' 27"	3.50 / 6.74	71.7 / 249
DUN 177 (κ, Lup)	15h 15m 35.4s	-48° 55' 47"	3.83 / 5.52	26.3 / 143
WFC 145 AB (χ Cen)	14h 09m 15.2s	-41° 25' 31"	4.31 / 8.49	85.2 / 78
HJ 4853 (ε Nor)	16h 31m 01.1s	-47° 39' 60"	4.51 / 6.12	22.9 / 334
DUN 180 AC	15h 22m 11.0s	-48° 03' 40"	4.93 / 6.34	23.1 / 128
DUN 180 BC	15h 22m 11.0s	-48° 03' 39"	4.99 / 6.34	23.3 / 128
PZ 4 (ξ, Lup)	16h 00m 13.4s	-34° 06' 45"	5.09 / 5.56	10.2 / 50
BSO 6 (HD 99803)	11h 31m 06.5s	-42° 57' 40"	5.13 / 7.38	13.2 / 170
BU 1245 A,CD (ζ, Crv)	12h 23m 16.6s	-22° 30' 14"	5.17 / 6.04	347.8 / 295
RMK 18 (HD 120641)	13h 55m 28.7s	-53° 03' 58"	5.24 / 7.50	18.5 / 289
HJ 4465 AC (HD 101666)	11h 44m 20.6s	-32° 47' 17"	5.37 / 8.34	66.1 / 44
HJ 4690 AB (HD 128266)	14h 40m 46.3s	-46° 21' 21"	5.55 / 7.65	19.2 / 24
BSO 12 AB (HD 146836)	16h 22m 50.8s	-31° 01' 39"	5.55 / 6.88	23.6 / 318
H N 69 AB (HD 118349)	13h 39m 43.4s	-26° 45' 31"	5.74 / 6.60	10.2 / 190
H N 28 AB (KX Lib)	15h 00m 27.2s	-21° 37' 16"	5.88 / 8.18	26.2 / 307
HJ 4518 (HD 107998)	12h 27m 31.9s	-41° 40' 18"	6.47 / 8.37	10.0 / 208
DUN 178 AC	15h 15m 07.5s	-45° 28' 12"	6.53 / 7.31	30.1 / 255
SHJ 179 AB (HD 126367)	14h 28m 25.1s	-20° 12' 07"	6.61 / 7.16	35.0 / 296
DUN 199 AC (V1027 Sco)	16h 12m 05.1s	-39° 13' 34"	6.62 / 7.13	44.4 / 184
DUN 114 (HD 101406)	11h 42m 33.4s	-38° 23' 49"	6.74 / 8.04	17.1 / 95
SHJ 195 (HD 135208)	15h 17m 25.5s	-18° 37' 07"	6.79 / 8.32	47.5 / 141
DUN 195 AB (HD 142080)	15h 58m 42.1s	-50° 29' 12"	6.81 / 7.46	12.1 / 9
DUN 192 AB,C (HD 140817)	15h 50m 25.7s	-35° 40' 02"	6.91 / 7.26	34.7 / 143
DUN 113 (HD 100954)	11h 39m 32.6s	-39° 14' 51"	6.94 / 7.62	149.1 / 149
DUN 146 (HD 120272)	13h 52m 23.6s	-40° 46' 22"	6.95 / 7.45	68.5 / 87

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
R Hya	13h 31m 08.4s	-23° 24' 54"	3.5 / 10.9	16 ago / 389	P - Mira
RS Lib	15h 25m 51.3s	-23° 00' 06"	7.0 / 13.0	19 mar, 23 oct / 218	P - Mira

## Navigation map



Stellar magnitudes: ● -1, ● 0, ● 1, ● 2, ● 3, ● 4, ● 5, ● 6, ● 7, ● 8

Types of stars: ● Double, ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster, ☿ Globular, ☾ Nebulose, ☾ Milky Way, ☾ Plan.neb., ☾ Galaxy, ☾ Constellation, ----- Const. limit, \* Meteors



# Main objects visible on chart 22

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC6729 CALDWELL 68	19h 03m 40.4s	-36° 55' 07"		Nebulosa	25.0 x 20.0
NGC6231 CALDWELL 76	16h 55m 59.6s	-41° 51' 56"	2.6	Cúmulo abierto	14.0
NGC6475 M7 - Ptolemy's cluster	17h 55m 34.1s	-34° 47' 48"	3.3	Cúmulo abierto	75.0
NGC6405 M6	17h 42m 01.8s	-32° 16' 13"	4.2	Cúmulo abierto	33.0
NGC6523 M8 - Lagoon nebula	18h 05m 17.7s	-24° 22' 38"	4.6	Nebulosa	45.0 x 30.0
NGC6530	18h 06m 05.7s	-24° 21' 18"	4.6	Cúmulo abierto	15.0
IC4725 M25	18h 33m 16.9s	-19° 05' 58"	4.6	Cúmulo abierto	26.0
IC4715 M24 - Sagittarius Star Cloud	18h 20m 19.6s	-18° 32' 16"	5.0	Cúmulo abierto	1.50"
NGC6193 CALDWELL 82	16h 43m 17.7s	-48° 48' 41"	5.2	Cúmulo abierto	14.0
NGC6656 M22	18h 37m 59.3s	-23° 52' 46"	5.2	Cúmulo globular	32.0
NGC6121 M4	16h 25m 11.3s	-26° 35' 00"	5.4	Cúmulo globular	36.0
NGC6281	17h 06m 33.5s	-37° 55' 18"	5.4	Cúmulo abierto	8.0
NGC6383	17h 36m 24.2s	-32° 35' 49"	5.5	Cúmulo abierto	20.0
NGC6494 M23	17h 58m 27.9s	-19° 00' 47"	5.5	Cúmulo abierto	25.0
NGC6416	17h 46m 01.8s	-32° 22' 14"	5.7	Cúmulo abierto	15.0
NGC6124 CALDWELL 75	16h 27m 04.6s	-40° 43' 28"	5.8	Cúmulo abierto	40.0
NGC6250	16h 59m 50.6s	-45° 58' 29"	5.9	Cúmulo abierto	16.0
NGC6531 M21	18h 05m 47.6s	-22° 29' 49"	5.9	Cúmulo abierto	16.0
NGC6322	17h 20m 17.5s	-42° 57' 34"	6.0	Cúmulo abierto	5.0
NGC6514 M20 - Trifid nebula	18h 04m 16.7s	-22° 58' 10"	6.3	Nebulosa	20.0
NGC6541 CALDWELL 78	18h 09m 55.3s	-43° 42' 20"	6.3	Cúmulo globular	15.0
NGC6809 M55	19h 41m 38.2s	-30° 54' 00"	6.3	Cúmulo globular	19.0
NGC6242	16h 57m 18.1s	-39° 30' 24"	6.4	Cúmulo abierto	9.0
NGC6266 M62	17h 02m 52.1s	-30° 08' 52"	6.4	Cúmulo globular	15.0
Cr367	18h 11m 35.4s	-23° 59' 35"	6.5	Cúmulo abierto	50.0 x 30.0
NGC6169	16h 35m 56.3s	-44° 05' 52"	6.6	Cúmulo abierto	12.0
NGC6167	16h 36m 33.2s	-49° 49' 27"	6.7	Cúmulo abierto	7.0
NGC6273 M19	17h 04m 14.3s	-26° 18' 10"	6.8	Cúmulo globular	17.0
NGC6388	17h 38m 11.2s	-44° 44' 56"	6.8	Cúmulo globular	10.4
NGC6723	19h 01m 18.1s	-36° 35' 36"	6.8	Cúmulo globular	13.0
NGC6626 M28	18h 26m 08.9s	-24° 51' 12"	6.9	Cúmulo globular	13.8
IC4651	17h 26m 52.8s	-49° 57' 53"	6.9	Cúmulo abierto	10.0
NGC6134	16h 29m 40.6s	-49° 13' 13"	7.2	Cúmulo abierto	6.0
NGC6178	16h 37m 44.0s	-45° 41' 53"	7.2	Cúmulo abierto	5.0
NGC6425	17h 48m 41.2s	-31° 32' 16"	7.2	Cúmulo abierto	10.0
NGC6441	17h 51m 59.1s	-37° 03' 22"	7.2	Cúmulo globular	9.6
NGC6093 M80	16h 18m 35.8s	-23° 02' 13"	7.3	Cúmulo globular	10.0
NGC6200	16h 46m 04.5s	-47° 30' 58"	7.4	Cúmulo abierto	15.0
NGC6401	17h 40m 12.2s	-23° 55' 17"	7.4	Cúmulo globular	4.8
NGC6544	18h 08m 56.7s	-24° 59' 30"	7.5	Cúmulo globular	9.2
NGC6716	18h 56m 06.2s	-19° 52' 25"	7.5	Cúmulo abierto	10.0
Tr29	17h 43m 19.2s	-40° 09' 40"	7.5	Cúmulo abierto	10.0
NGC6520	18h 05m 03.3s	-27° 53' 18"	7.6	Cúmulo abierto	5.0
NGC6624	18h 25m 20.7s	-30° 20' 42"	7.6	Cúmulo globular	8.8
NGC6715 M54	18h 56m 43.1s	-30° 26' 34"	7.7	Cúmulo globular	12.0
NGC6333 M9	17h 20m 43.2s	-18° 32' 28"	7.8	Cúmulo globular	12.0
NGC6352 CALDWELL 81	17h 27m 27.9s	-48° 26' 36"	7.8	Cúmulo globular	9.0
NGC6681 M70	18h 44m 54.2s	-32° 15' 49"	7.8	Cúmulo globular	8.0
NGC6259	17h 02m 38.5s	-44° 41' 29"	8.0	Cúmulo abierto	15.0
NGC6546	18h 08m 56.9s	-23° 17' 29"	8.0	Cúmulo abierto	15.0
NGC6316	17h 18m 15.6s	-28° 09' 58"	8.1	Cúmulo globular	5.4
NGC6204	16h 48m 03.3s	-47° 03' 27"	8.2	Cúmulo abierto	6.0
NGC6249	16h 59m 35.0s	-44° 50' 35"	8.2	Cúmulo abierto	6.0
NGC6451	17h 52m 20.7s	-30° 13' 01"	8.2	Cúmulo abierto	8.0
NGC6469	17h 54m 30.7s	-22° 18' 57"	8.2	Cúmulo abierto	8.0
NGC6293	17h 11m 47.3s	-26° 36' 43"	8.3	Cúmulo globular	8.2
NGC6304	17h 16m 11.7s	-29° 29' 23"	8.3	Cúmulo globular	8.0
NGC6553	18h 10m 52.4s	-25° 54' 03"	8.3	Cúmulo globular	9.2
NGC6637 M69	18h 33m 04.9s	-32° 19' 38"	8.3	Cúmulo globular	7.1
NGC6569	18h 15m 20.4s	-31° 49' 00"	8.4	Cúmulo globular	6.4
NGC6717	18h 56m 40.2s	-22° 39' 55"	8.4	Cúmulo globular	5.4
NGC6192	16h 42m 11.7s	-43° 24' 51"	8.5	Cúmulo abierto	9.0
NGC6396	17h 39m 20.4s	-35° 02' 22"	8.5	Cúmulo abierto	3.0
NGC6652	18h 37m 27.9s	-32° 58' 00"	8.5	Cúmulo globular	6.0
Tr24	16h 58m 48.7s	-40° 42' 19"	8.5	Cúmulo abierto	40.0
Tr33	18h 26m 14.3s	-19° 42' 02"	8.5	Cúmulo abierto	5.5
NGC6355	17h 25m 35.6s	-26° 22' 31"	8.6	Cúmulo globular	4.2
NGC6496	18h 00m 55.8s	-44° 15' 52"	8.6	Cúmulo globular	5.6
NGC6558	18h 11m 59.8s	-31° 45' 22"	8.6	Cúmulo globular	4.2
NGC6568	18h 14m 17.7s	-21° 34' 29"	8.6	Cúmulo abierto	12.0
NGC6400	17h 41m 58.0s	-36° 58' 25"	8.8	Cúmulo abierto	12.0

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC6235	16h 54m 59.0s	-22° 13' 04"	8.9	Cúmulo globular	5.0
NGC6284	17h 06m 04.3s	-24° 47' 54"	8.9	Cúmulo globular	6.2
NGC6642	18h 33m 29.2s	-23° 27' 19"	8.9	Cúmulo globular	5.8
NGC6144	16h 28m 49.7s	-26° 04' 51"	9.0	Cúmulo globular	7.4
NGC6139	16h 29m 26.2s	-38° 54' 16"	9.1	Cúmulo globular	8.2
NGC6638	18h 32m 32.6s	-25° 28' 33"	9.2	Cúmulo globular	7.3
Tr26	17h 30m 15.4s	-29° 31' 09"	9.2	Cúmulo abierto	10.0
NGC6287	17h 06m 43.5s	-22° 44' 29"	9.3	Cúmulo globular	4.8
NGC6440	17h 50m 25.4s	-20° 21' 56"	9.3	Cúmulo globular	4.4
NGC6540	18h 07m 46.8s	-27° 45' 37"	9.3	Cúmulo globular	1.5
NGC6268	17h 03m 52.0s	-39° 45' 24"	9.5	Cúmulo abierto	6.0
NGC6342	17h 22m 42.4s	-19° 36' 38"	9.5	Cúmulo globular	4.4
NGC6302 CALDWELL 69 - Bug nebula	17h 15m 29.8s	-37° 07' 55"	9.6	Nebulosa planetaria	1.5
NGC6528	18h 06m 29.6s	-30° 03' 06"	9.6	Cúmulo globular	5.0
NGC6522	18h 05m 14.1s	-30° 01' 50"	9.9	Cúmulo globular	9.4
NGC6583	18h 17m 22.8s	-22° 07' 37"	10.0	Cúmulo abierto	5.0
NGC6216	16h 51m 16.3s	-44° 46' 29"	10.1	Cúmulo abierto	4.0
NGC6325	17h 19m 34.2s	-23° 47' 28"	10.2	Cúmulo globular	4.1
NGC6453	17h 52m 35.7s	-34° 36' 12"	10.2	Cúmulo globular	7.6
NGC6404	17h 41m 19.9s	-33° 15' 32"	10.6	Cúmulo abierto	6.0
NGC6644	18h 34m 10.8s	-25° 06' 26"	10.7	Nebulosa planetaria	12.0"
IC1297	19h 19m 10.4s	-39° 33' 50"	10.7	Nebulosa planetaria	24.0"
IC4776	18h 47m 33.0s	-33° 18' 47"	10.8	Nebulosa planetaria	18.0"
NGC6153	16h 33m 17.9s	-40° 18' 25"	10.9	Nebulosa planetaria	24.0"

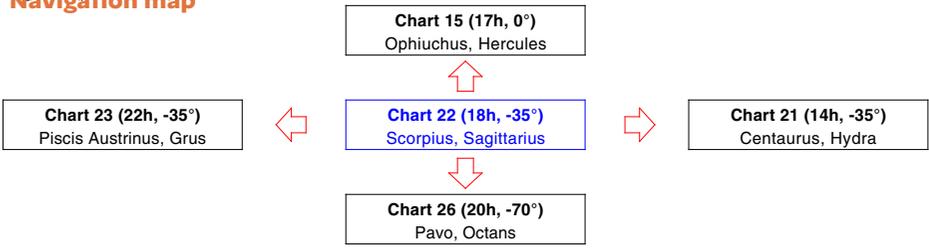
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
H 4 121 AB (Alniyat)	16h 24m 21.3s	-25° 42' 43"	2.89 / 8.42	20.5 / 269
SKF 2608 AH	16h 55m 24.1s	-38° 07' 48"	2.97 / 3.51	346.8 / 72
DUN 226 (Arkab Prior)	19h 26m 21.4s	-44° 21' 16"	3.98 / 7.21	28.3 / 76
H 2 19 AC	16h 28m 42.7s	-23° 33' 38"	5.07 / 7.29	151.1 / 0
H 2 19 AD	16h 28m 42.7s	-23° 33' 38"	5.07 / 6.81	156.1 / 253
SHJ 243 AC	17h 18m 35.1s	-26° 39' 21"	5.12 / 6.46	732.5 / 74
SHJ 243 AD	17h 18m 35.1s	-26° 39' 21"	5.12 / 7.80	295.5 / 342
SHJ 243 BD	17h 18m 35.1s	-26° 39' 25"	5.12 / 7.80	272.3 / 337
H 3 25 (o Oph)	17h 21m 11.8s	-24° 20' 16"	5.23 / 6.64	10.8 / 355
DUN 222 (κ, CrA)	18h 36m 57.9s	-38° 40' 55"	5.58 / 6.16	20.5 / 359
DUN 216 AC	17h 30m 42.8s	-45° 52' 56"	5.63 / 7.12	102.5 / 312
JC 23 AF	16h 57m 41.7s	-41° 53' 11"	5.65 / 6.56	56.7 / 19
DUN 206 AC	16h 45m 14.9s	-48° 51' 29"	5.71 / 6.76	10.2 / 265
DUN 219 AB (HD 163651)	18h 02m 28.0s	-36° 51' 27"	5.84 / 7.75	54.2 / 253

## Main variable stars

Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
R Sgr	19h 18m 13.2s	-19° 15' 35"	6.7 / 12.83	19 feb, 16 nov / 269.84	P - Mira
RR Sco	16h 58m 17.6s	-30° 37' 09"	5.0 / 12.4	26 feb, 4 dic / 281.45	P - Mira
R Oph	17h 09m 15.5s	-16° 07' 31"	7.0 / 13.8	19 oct / 306.5	P - Mira
HD 176386	19h 03m 24.0s	-36° 51' 07"	7.22 / 7.28		P
BF Oph	17h 07m 42.4s	-26° 36' 50"	6.93 / 7.71	4.07	P - δ Cep
VX Sgr	18h 09m 38.2s	-22° 13' 07"	6.5 / 14.0	732	P - Semi-irr
RS Sco	16h 57m 31.4s	-45° 08' 34"	6.2 / 13.0	7 sep / 319.91	P - Mira

## Navigation map

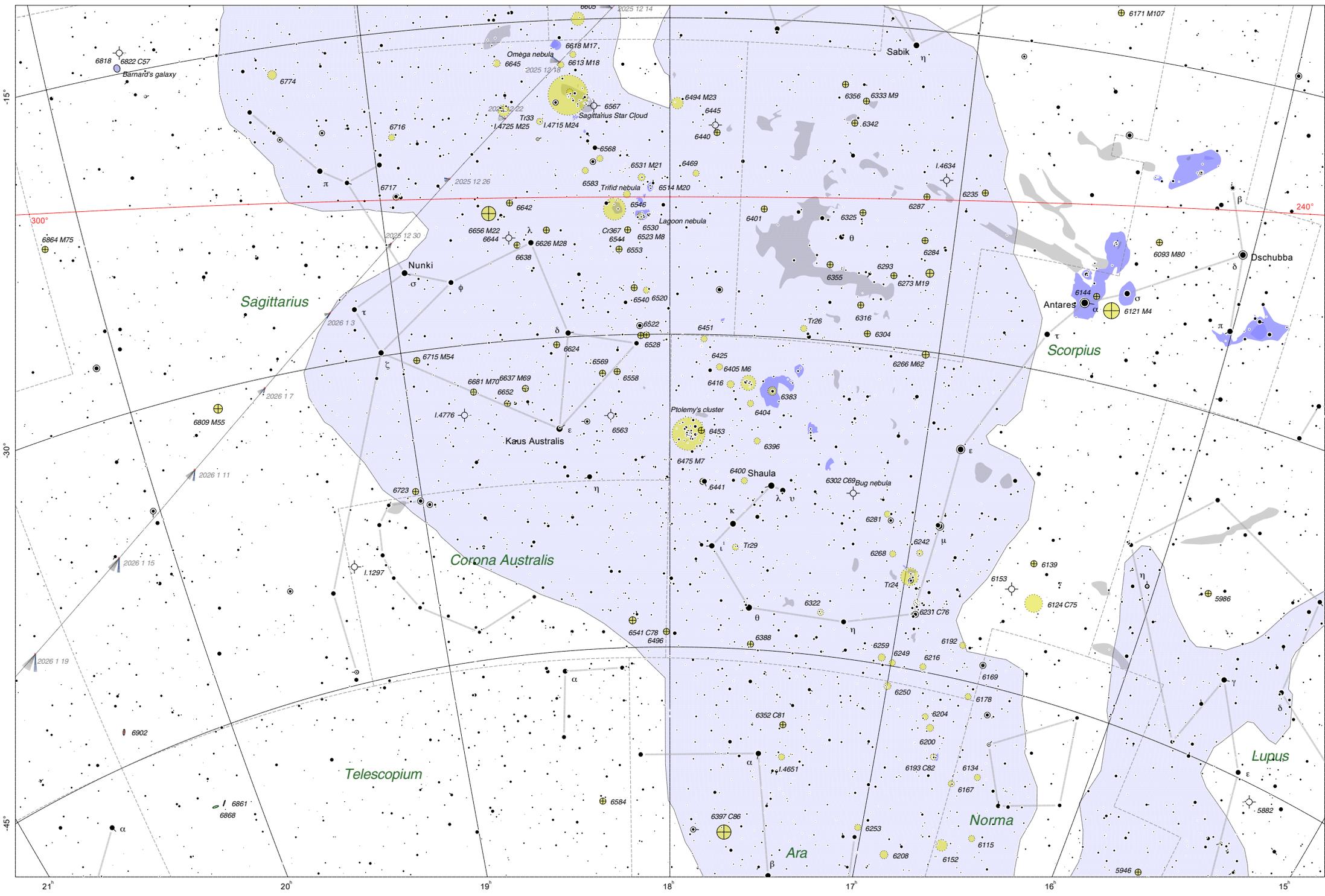


Stellar magnitudes: ● -1, ● 0, ● 1, ● 2, ● 3, ● 4, ● 5, ● 6, ● 7, ● 8

Types of stars: ● Double, ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster, 🌐 Globular, ☁ Nebulose, 🌌 Milky Way, 🌠 Plan.neb., 🌌 Galaxy, 🌌 Constellation, --- Const. limit, ✨ Meteors

Chart 22, 30°x20° around 18.0h, -35.0° (Scorpius, Sagittarius, Corona Australis, Ophiuchus)



# Main objects visible on chart 23

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC6809 M55	19h 41m 38.2s	-30° 54' 00"	6.3	Cúmulo globular	19.0
NGC7099 M30	21h 41m 50.4s	-23° 03' 35"	6.9	Cúmulo globular	12.0
NGC7293 CALDWELL 63 - Helix nebula	22h 31m 03.4s	-20° 42' 09"	7.3	Nebulosa planetaria	17.6
NGC55 CALDWELL 72	00h 16m 26.0s	-39° 04' 30"	7.9	Galaxia	31.2 x 5.9
NGC6864 M75	20h 07m 36.6s	-21° 50' 41"	8.6	Cúmulo globular	6.8
NGC7793	23h 59m 09.3s	-32° 26' 49"	9.1	Galaxia	9.3 x 6.3
IC1459	22h 58m 37.2s	-36° 19' 23"	10.0	Galaxia	5.2 x 1.8
NGC7213	22h 10m 53.4s	-47° 02' 19"	10.1	Galaxia	3.1 x 2.8
NGC7410	22h 56m 28.5s	-39° 31' 23"	10.3	Galaxia	5.2 x 1.6
NGC7507	23h 13m 31.3s	-28° 23' 49"	10.4	Galaxia	2.8 x 2.7
NGC7424	22h 58m 46.4s	-40° 55' 53"	10.5	Galaxia	9.5 x 8.1
IC5152	22h 04m 22.9s	-51° 10' 11"	10.5	Galaxia	5.0 x 3.2
IC5267	22h 58m 42.4s	-43° 15' 23"	10.5	Galaxia	5.2 x 3.9
IC5332	23h 35m 50.1s	-35° 57' 27"	10.5	Galaxia	8.9 x 8.2
NGC45	00h 15m 23.0s	-23° 02' 13"	10.6	Galaxia	8.5 x 5.9
NGC7049	21h 20m 45.4s	-48° 27' 02"	10.6	Galaxia	4.5 x 3.0
NGC7513	23h 14m 37.4s	-28° 12' 58"	10.6	Galaxia	3.2 x 2.1
NGC7552 - Grus quartet	23h 17m 36.5s	-42° 26' 33"	10.6	Galaxia	3.4 x 2.7
NGC7582	23h 19m 49.1s	-42° 13' 38"	10.6	Galaxia	5.0 x 2.3
NGC7727	23h 41m 14.3s	-12° 08' 55"	10.6	Galaxia	4.7 x 3.5
NGC6868	20h 11m 46.8s	-48° 18' 06"	10.7	Galaxia	3.6 x 2.8
NGC7090	21h 38m 16.0s	-54° 26' 15"	10.7	Galaxia	7.3 x 1.2
IC1297	19h 19m 10.4s	-39° 33' 50"	10.7	Nebulosa planetaria	24.0"
NGC7144	21h 54m 22.9s	-48° 07' 53"	10.8	Galaxia	3.7 x 3.6
IC5201	22h 22m 32.4s	-45° 54' 11"	10.8	Galaxia	8.5 x 3.9
IC5271	22h 59m 27.7s	-33° 36' 09"	10.8	Galaxia	2.6 x 0.9
NGC6902	20h 26m 14.5s	-43° 34' 02"	10.9	Galaxia	5.6 x 3.9
NGC7184	22h 04m 06.3s	-20° 41' 10"	10.9	Galaxia	5.9 x 1.3
NGC7314	22h 37m 11.9s	-25° 54' 54"	11.0	Galaxia	4.6 x 2.0
IC5150	22h 01m 09.2s	-39° 15' 34"	11.0	Nebulosa planetaria	2.2
NGC6861	20h 09m 12.4s	-48° 17' 33"	11.1	Galaxia	3.0 x 2.0
NGC7377	22h 49m 11.7s	-22° 10' 25"	11.1	Galaxia	3.0 x 2.5
NGC7418	22h 58m 02.9s	-36° 53' 22"	11.1	Galaxia	3.5 x 2.6
NGC6907	20h 26m 39.4s	-24° 43' 23"	11.2	Galaxia	3.4 x 2.6
NGC7041	21h 18m 17.5s	-48° 15' 12"	11.2	Galaxia	3.6 x 1.5
NGC7145	21h 55m 00.5s	-47° 45' 32"	11.2	Galaxia	2.5 x 2.3
NGC7492	23h 09m 48.8s	-15° 28' 11"	11.2	Cúmulo globular	4.2
NGC7713	23h 37m 38.0s	-37° 47' 42"	11.2	Galaxia	4.5 x 1.8
NGC7723	23h 40m 17.7s	-12° 49' 01"	11.2	Galaxia	3.5 x 2.2

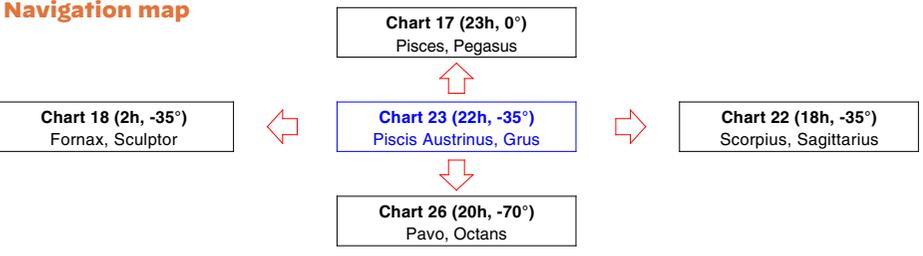
## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP(°)
STFA 52 AB (Dabih)	20h 23m 55.7s	-14° 36' 46"	3.15 / 6.08	205.2 / 266
PZ 7 AC (β PsA)	22h 34m 26.1s	-32° 04' 38"	4.28 / 7.12	30.4 / 172
JC 20 AC	23h 09m 47.6s	-43° 14' 17"	4.45 / 7.77	158.9 / 292
SHY 834 AC (ι Phe)	23h 37m 51.4s	-42° 19' 37"	4.70 / 6.68	294.1 / 212
SHY 836 (HD 222226)	23h 41m 42.0s	-45° 19' 24"	4.74 / 7.05	804.4 / 122
SHJ 323 AD	20h 31m 49.5s	-17° 38' 13"	4.97 / 6.68	258.7 / 150
SEE 437 AC (η Mic)	21h 09m 47.5s	-41° 10' 26"	5.66 / 7.92	127.8 / 88
SHY 811 AC	22h 39m 59.5s	-40° 19' 11"	5.88 / 6.29	337.9 / 275
SHJ 324 AB (ο Cap)	20h 32m 52.3s	-18° 24' 20"	5.91 / 6.68	22.0 / 238
DUN 241 (HD 214121)	22h 39m 29.8s	-31° 23' 34"	5.93 / 7.55	93.1 / 31
SKF 760 (AL Scl)	23h 57m 57.5s	-31° 37' 55"	6.09 / 6.82	133.9 / 1
DUN 249 (HD 220391)	23h 26m 49.1s	-53° 31' 22"	6.14 / 7.07	26.4 / 211
DUN 248 AB,C	23h 23m 43.5s	-50° 01' 15"	6.15 / 6.58	17.0 / 212
H 6 119 AB (HD 214599)	22h 42m 36.5s	-28° 03' 11"	6.43 / 7.50	86.5 / 157
HJ 5188 AC	20h 23m 39.4s	-29° 01' 45"	6.66 / 7.55	27.3 / 321
DUN 236 (HD 200011)	21h 05m 37.8s	-42° 47' 39"	6.68 / 6.95	57.4 / 73
JC 19 AB (HD 212386)	22h 27m 43.2s	-41° 10' 29"	6.68 / 8.15	14.8 / 59
CRU 9041 AD	22h 27m 43.2s	-41° 10' 29"	6.68 / 7.80	237.0 / 37

## Main variable stars

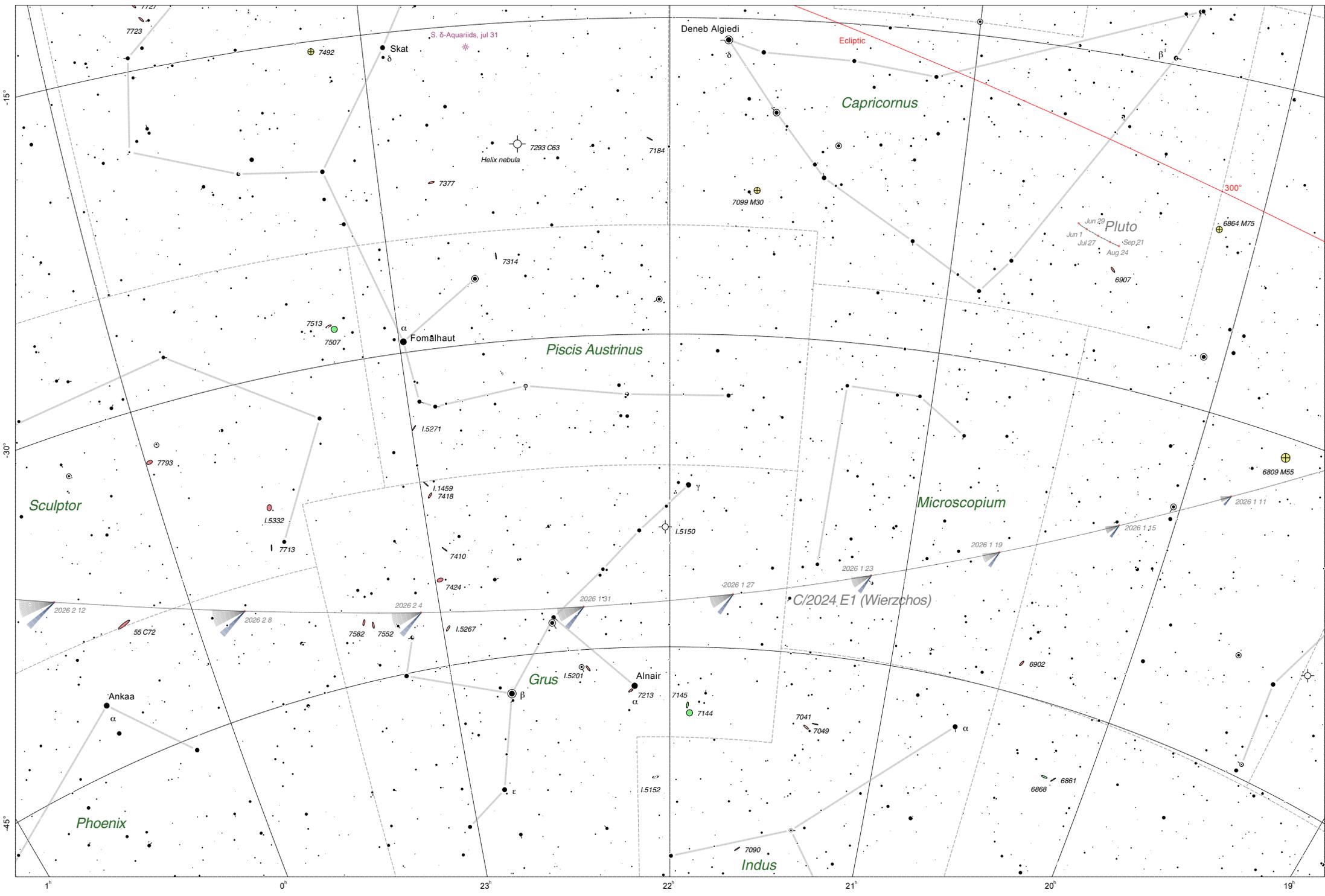
Name	RA (J2026)	DEC	Magnitude	Max./period (d)	Type
RT Cap	20h 18m 37.7s	-21° 14' 10"	8.9 / 11.7	393	P - Semi-irr

## Navigation map



<p>Stellar magnitudes</p> <p>-1   0   1   2   3   4   5   6   7   8</p>	<p>Types of stars</p> <p>● Double   ● Variable</p>	<p>Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary</p> <p>☀ Open cluster   ☉ Globular   ☁ Nebulose   ☄ Milky Way   ☄ Plan.neb.   ● Galaxy   ☄ Constellation   - - - - - Const. limit   * Meteors</p>
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Chart 23, 30°x20° around 22.0h, -35.0° (Piscis Austrinus, Grus, Sculptor, Aquarius)



# Main objects visible on chart 24

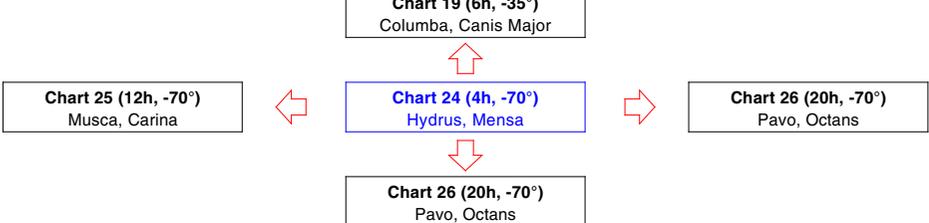
Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC2070 CALDWELL 103 - Tarantula nebula (30 Dor)	05h 38m 31.9s	-69° 05' 14"		Nebulosa	30.0 x 20.0
LMC - Large Magellanic Cloud	05h 23m 21.5s	-69° 43' 48"	0.5	Galaxia	7.20"
NGC292 - Small Magellanic Cloud	00h 53m 39.0s	-72° 41' 16"	2.3	Galaxia	5.32" x 3.42"
NGC2516 CALDWELL 96	07h 58m 29.9s	-60° 49' 29"	3.8	Cúmulo abierto	22.0
NGC104 CALDWELL 106 - 47 Tucanae	00h 25m 13.7s	-71° 56' 11"	4.0	Cúmulo globular	50.0
NGC3114	10h 03m 26.4s	-60° 13' 35"	4.2	Cúmulo abierto	35.0
NGC2808	09h 12m 33.0s	-64° 58' 13"	6.2	Cúmulo globular	14.0
NGC362 CALDWELL 104	01h 04m 06.9s	-70° 42' 31"	6.8	Cúmulo globular	14.0
NGC1261 CALDWELL 87	03h 12m 58.1s	-55° 07' 11"	8.3	Cúmulo globular	6.8
NGC2055	05h 36m 50.9s	-69° 25' 02"	8.4	Cúmulo abierto	36.0"
NGC1829	05h 04m 53.7s	-68° 01' 16"	8.5	Cúmulo abierto	2.1
NGC1313	03h 18m 35.3s	-66° 24' 05"	8.7	Galaxia	9.2 x 7.2
NGC1814	05h 03m 46.0s	-67° 15' 56"	9.0	Cúmulo abierto	1.0
NGC1816	05h 03m 50.4s	-67° 13' 33"	9.0	Cúmulo abierto	1.0
NGC1820	05h 04m 03.5s	-67° 14' 12"	9.0	Cúmulo abierto	
NGC1850	05h 08m 37.7s	-68° 43' 46"	9.0	Cúmulo abierto	3.4
NGC1955	05h 26m 07.1s	-67° 28' 34"	9.0	Cúmulo abierto	1.8
NGC1968	05h 27m 21.1s	-67° 26' 34"	9.0	Cúmulo abierto	1.1
NGC1974	05h 27m 57.7s	-67° 24' 10"	9.0	Cúmulo abierto	1.7
NGC2014	05h 32m 15.8s	-67° 40' 21"	9.0	Cúmulo abierto	1.8
NGC2050	05h 36m 27.0s	-69° 22' 08"	9.3	Cúmulo abierto	1.0
NGC1553	04h 16m 44.7s	-55° 42' 59"	9.4	Galaxia	4.5 x 2.8
NGC1747	04h 55m 11.8s	-67° 07' 43"	9.4	Cúmulo abierto	24.0 x 20.0
NGC330	00h 57m 12.9s	-72° 19' 19"	9.6	Cúmulo globular	1.4
NGC2004	05h 30m 38.0s	-67° 16' 03"	9.6	Cúmulo abierto	2.7
NGC2042	05h 35m 59.9s	-68° 54' 31"	9.6	Cúmulo abierto	9.0
NGC2060	05h 37m 40.7s	-69° 09' 33"	9.6	Nebulosa	3.4
NGC2100	05h 41m 57.9s	-69° 12' 02"	9.6	Cúmulo abierto	2.8
NGC1566	04h 20m 35.6s	-54° 52' 34"	9.7	Galaxia	8.2 x 6.5
NGC1672	04h 46m 07.4s	-59° 12' 06"	9.7	Galaxia	6.7 x 5.6
NGC1818	05h 04m 17.5s	-66° 23' 59"	9.7	Cúmulo abierto	3.4
NGC1848	05h 07m 07.9s	-71° 09' 45"	9.7	Cúmulo abierto	2.0
NGC1866	05h 13m 44.5s	-65° 26' 11"	9.7	Cúmulo abierto	4.5
NGC1549	04h 16m 19.4s	-55° 31' 41"	9.8	Galaxia	4.9 x 4.1
NGC1994	05h 28m 11.5s	-69° 07' 19"	9.8	Cúmulo abierto	36.0"
NGC1731	04h 53m 34.0s	-66° 53' 02"	9.9	Cúmulo abierto	8.0
NGC1755	04h 55m 11.5s	-68° 09' 50"	9.9	Cúmulo abierto	2.6
NGC1761	04h 56m 45.2s	-66° 26' 23"	9.9	Cúmulo abierto	1.2
NGC1858	05h 09m 47.2s	-68° 52' 01"	9.9	Cúmulo abierto	
NGC1983	05h 27m 34.8s	-68° 57' 57"	9.9	Cúmulo abierto	2.0
NGC1984	05h 27m 30.8s	-69° 06' 51"	10.0	Cúmulo abierto	3.0 x 2.4
NGC1712	04h 50m 50.3s	-69° 21' 52"	10.0	Cúmulo abierto	2.5
NGC1901	05h 17m 41.6s	-68° 24' 24"	10.0	Cúmulo abierto	40.0
NGC1711	04h 50m 25.2s	-69° 56' 32"	10.1	Cúmulo abierto	2.4
NGC1856	05h 09m 20.5s	-69° 05' 46"	10.1	Cúmulo abierto	1.8
NGC1871	05h 13m 49.8s	-67° 25' 26"	10.1	Cúmulo abierto	2.0
NGC2002	05h 30m 19.7s	-66° 51' 56"	10.1	Cúmulo abierto	2.0
NGC1845	05h 05m 29.3s	-70° 32' 52"	10.2	Cúmulo abierto	20.0
NGC2157	05h 57m 23.4s	-69° 11' 44"	10.2	Cúmulo abierto	2.7
NGC2210	06h 11m 20.9s	-69° 07' 41"	10.2	Cúmulo abierto	2.1
NGC2037	05h 34m 40.5s	-69° 43' 15"	10.3	Cúmulo abierto	30.0"
NGC2164	05h 58m 46.7s	-68° 30' 53"	10.3	Cúmulo abierto	2.5
IC2553	10h 10m 09.7s	-62° 44' 29"	10.3	Nebulosa planetaria	9.0"
NGC1574	04h 22m 30.0s	-56° 54' 52"	10.4	Galaxia	4.0 x 3.6
NGC1617	04h 32m 14.2s	-54° 32' 52"	10.4	Galaxia	4.3 x 2.1
NGC1854	05h 09m 12.4s	-68° 48' 57"	10.4	Cúmulo globular	4.6
NGC1873	05h 13m 54.2s	-67° 18' 20"	10.4	Cúmulo abierto	3.5
NGC1916	05h 18m 25.6s	-69° 22' 51"	10.4	Cúmulo abierto	2.0
NGC2016	05h 31m 21.6s	-69° 55' 25"	10.4	Cúmulo abierto	18.0"
NGC2041	05h 36m 26.7s	-66° 58' 30"	10.4	Cúmulo abierto	42.0"
NGC2122	05h 48m 36.9s	-70° 03' 46"	10.4	Cúmulo abierto	4.5
NGC2442	07h 36m 18.7s	-69° 35' 24"	10.4	Galaxia	6.0 x 5.0
IC2448	09h 07m 21.1s	-70° 02' 49"	10.4	Nebulosa planetaria	27.0"
IC2501	09h 39m 32.4s	-60° 12' 35"	10.4	Nebulosa planetaria	1.8"
NGC1543	04h 13m 14.0s	-57° 40' 19"	10.5	Galaxia	3.8 x 2.8
NGC1782	04h 57m 42.2s	-69° 21' 12"	10.5	Cúmulo abierto	1.2
NGC2136	05h 52m 45.6s	-69° 29' 17"	10.5	Cúmulo abierto	1.9
NGC1767	04h 56m 18.6s	-69° 21' 39"	10.6	Cúmulo abierto	1.6
NGC1805	05h 02m 25.4s	-66° 04' 34"	10.6	Cúmulo abierto	2.2
NGC1835	05h 04m 55.9s	-69° 22' 11"	10.6	Cúmulo abierto	1.2

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC1837	05h 04m 39.5s	-70° 40' 47"	10.6	Cúmulo abierto	1.3
NGC1951	05h 26m 07.5s	-66° 34' 33"	10.6	Cúmulo abierto	1.9
NGC2011	05h 32m 16.9s	-67° 30' 21"	10.6	Cúmulo abierto	1.0
NGC2044	05h 35m 55.0s	-69° 11' 01"	10.6	Cúmulo abierto	2.0
NGC1533	04h 10m 26.0s	-56° 03' 04"	10.7	Galaxia	2.8 x 2.3
NGC1559	04h 17m 55.8s	-62° 43' 17"	10.7	Galaxia	3.5 x 2.0
NGC1947	05h 26m 57.5s	-63° 44' 24"	10.7	Galaxia	3.0 x 2.6
NGC1978	05h 28m 47.0s	-66° 13' 03"	10.7	Cúmulo abierto	3.9
NGC2098	05h 42m 23.4s	-68° 15' 52"	10.7	Cúmulo abierto	1.6
NGC3136	10h 06m 28.3s	-67° 30' 17"	10.7	Galaxia	3.1 x 2.1
NGC1735	04h 54m 20.8s	-67° 03' 32"	10.8	Cúmulo abierto	1.6
NGC1774	04h 58m 07.1s	-67° 12' 14"	10.8	Cúmulo abierto	1.8

## Main double stars

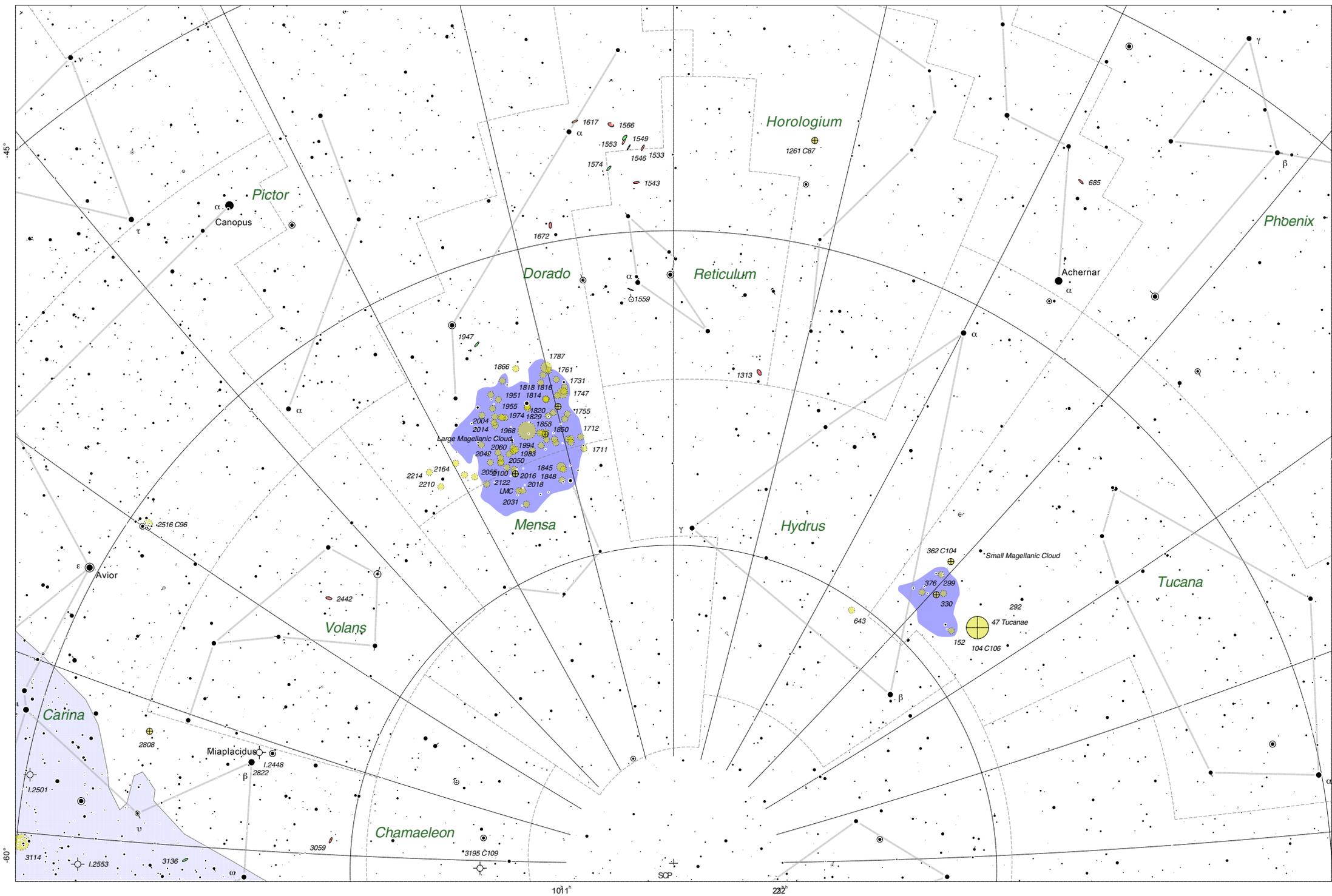
Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
DUN 42 (γ, Vol)	07h 08m 17.0s	-70° 35' 03"	3.86 / 5.43	14.5 / 299
LCL 119 AC (β, Tuc)	00h 33m 53.7s	-62° 40' 17"	4.28 / 4.51	27.1 / 168
SHY 114 AE	00h 33m 53.7s	-62° 40' 17"	4.28 / 5.07	548.9 / 118
HJ 3423 A,CD	01h 17m 27.3s	-68° 36' 09"	4.88 / 7.23	319.2 / 310
ALB 1 AB (ζ, Ret)	03h 19m 11.5s	-62° 19' 09"	5.30 / 5.57	309.1 / 217
BSO 17 AB (κ, Vol)	08h 19m 37.7s	-71° 40' 51"	5.31 / 5.59	64.0 / 58
BSO 17 AC	08h 19m 37.7s	-71° 40' 51"	5.31 / 7.67	98.4 / 48
SHY 528 AC (η Cha)	08h 39m 24.0s	-79° 08' 59"	5.44 / 6.11	501.4 / 140
BSO 17 BC	08h 19m 49.9s	-71° 40' 16"	5.59 / 7.67	37.2 / 30
DUN 18 AB (i Pic)	04h 52m 05.4s	-53° 22' 35"	5.61 / 6.24	12.3 / 58
HJ 3568 (BN Hyi)	03h 05m 54.5s	-78° 47' 26"	5.70 / 7.70	15.2 / 225
DUN 5 (ρ Eri)	01h 41m 44.0s	-55° 55' 53"	5.78 / 5.90	11.3 / 186
DUN 254 (HD 222820)	23h 47m 00.9s	-64° 06' 56"	5.87 / 7.20	241.9 / 8
DUN 30 AB,CD	06h 31m 06.1s	-50° 16' 39"	5.97 / 7.98	11.7 / 312
DUN 60 (NSV3871)	08h 02m 38.7s	-54° 39' 45"	6.10 / 7.86	40.4 / 162
SHY 462 AB (HD 27604)	04h 19m 57.1s	-52° 44' 13"	6.16 / 7.80	270.4 / 236
DUN 62 (V375 Car)	08h 05m 26.8s	-62° 59' 12"	6.22 / 7.80	86.3 / 259
DUN 20 AB,C (θ Pic)	05h 25m 57.1s	-52° 16' 21"	6.24 / 6.74	38.1 / 289
DUN 34 (HD 49192)	06h 45m 16.6s	-54° 45' 06"	6.44 / 6.66	129.4 / 192
DUN 27 AB (HD 44105)	06h 17m 02.6s	-59° 14' 05"	6.49 / 7.61	32.5 / 234
HJ 3822 AB (NSV2753)	05h 58m 20.3s	-53° 25' 22"	6.63 / 7.58	55.6 / 303
DUN 2 (λ, Tuc)	00h 54m 22.3s	-69° 13' 20"	6.70 / 7.35	20.5 / 83
DUN 26 AB (9 Lyn)	06h 12m 18.4s	-65° 32' 48"	6.86 / 8.07	20.5 / 119
DUN 247 (HD 219621)	23h 21m 02.8s	-60° 43' 07"	6.87 / 8.17	51.8 / 294
BSO 16 (V389 Car)	07h 22m 18.5s	-62° 03' 10"	6.89 / 8.36	170.4 / 210

## Navigation map



**Stellar magnitudes**: -1, 0, 1, 2, 3, 4, 5, 6, 7, 8  
**Types of stars**: Double, Variable  
**Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary**: Open cluster, Globular, Nebulose, Milky Way, Plan.neb., Galaxy, Constellation, Const. limit, Meteors

Chart 24, 30°x20° around 4.0h, -70.0° (Hydrus, Mensa, Dorado, Reticulum)



101°

222°

-60°

-45°

# Main objects visible on chart 25

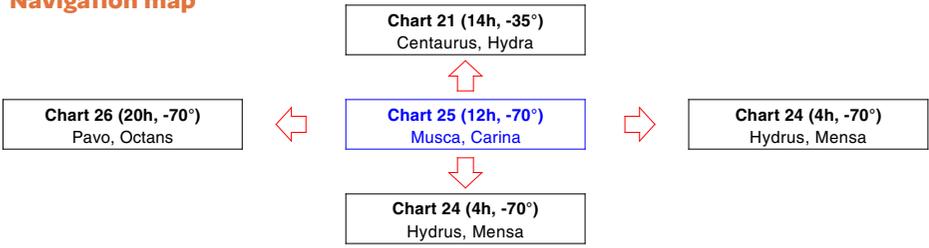
Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
CALDWELL 99 - Coalsack	12h 51m 34.7s	-62° 38' 28"		Nebulosa	7.0° x 5.0°
IC2944 CALDWELL 100 - Running Chicken nebula	11h 37m 00.2s	-63° 09' 49"		Nebulosa	40.0 x 20.0
NGC3372 CALDWELL 92 - Eta Carinae nebula	10h 46m 06.8s	-60° 00' 14"		Nebulosa	2.0"
LMC - Large Magellanic Cloud	05h 23m 21.5s	-69° 43' 48"	0.5		7.20"
IC2602 CALDWELL 102 - Southern Pleiades	10h 43m 52.6s	-64° 31' 51"	1.6	Cúmulo abierto	1.67"
IC2391 CALDWELL 85 - Omicron Velorum cluster	08h 41m 02.8s	-53° 00' 36"	2.6	Cúmulo abierto	60.0
NGC3532 CALDWELL 91	11h 06m 46.6s	-58° 52' 27"	3.0	Cúmulo abierto	50.0
NGC2516 CALDWELL 96	07h 58m 29.9s	-60° 49' 29"	3.8	Cúmulo abierto	22.0
NGC3114	10h 03m 26.4s	-60° 13' 35"	4.2	Cúmulo abierto	35.0
NGC4755 CALDWELL 94 - Jewel Box	12h 55m 13.4s	-60° 30' 08"	4.2	Cúmulo abierto	10.0
IC2581	10h 28m 24.6s	-57° 45' 32"	4.3	Cúmulo abierto	5.0
IC2395	08h 43m 20.6s	-48° 12' 10"	4.6	Cúmulo abierto	13.0
NGC3293 - Gem cluster	10h 36m 50.9s	-58° 21' 55"	4.7	Cúmulo abierto	5.0
NGC6025 CALDWELL 95	16h 05m 31.3s	-60° 30' 05"	5.1	Cúmulo abierto	15.0
NGC3766 CALDWELL 97	11h 37m 27.8s	-61° 45' 14"	5.3	Cúmulo abierto	15.0
NGC5139 CALDWELL 80 - Omega Centauri	13h 28m 21.1s	-47° 36' 55"	5.3	Cúmulo globular	55.0
NGC6087 CALDWELL 89 - S Normae cluster	16h 21m 02.0s	-57° 57' 39"	5.4	Cúmulo abierto	15.0
NGC5662	14h 37m 24.1s	-56° 46' 30"	5.5	Cúmulo abierto	30.0
NGC5460	14h 09m 16.7s	-48° 25' 21"	5.6	Cúmulo abierto	35.0
NGC5281	13h 48m 27.5s	-63° 02' 19"	5.9	Cúmulo abierto	8.0
NGC3228	10h 22m 23.6s	-51° 51' 36"	6.0	Cúmulo abierto	5.0
NGC5316	13h 55m 51.2s	-61° 58' 37"	6.0	Cúmulo abierto	15.0
NGC2669	08h 47m 04.5s	-53° 01' 52"	6.1	Cúmulo abierto	14.0
NGC2808	09h 12m 33.0s	-64° 58' 13"	6.2	Cúmulo globular	14.0
NGC5617	14h 31m 41.9s	-60° 49' 31"	6.3	Cúmulo abierto	10.0
NGC5822	15h 05m 57.3s	-54° 26' 21"	6.5	Cúmulo abierto	35.0
NGC3572	11h 11m 33.6s	-60° 23' 07"	6.6	Cúmulo abierto	7.0
NGC3201 CALDWELL 79	10h 18m 41.0s	-46° 32' 28"	6.9	Cúmulo globular	20.0
NGC4609 CALDWELL 98	12h 43m 52.5s	-63° 08' 10"	6.9	Cúmulo abierto	6.0
NGC2910	09h 31m 21.1s	-53° 01' 45"	7.2	Cúmulo abierto	6.0
NGC4372 CALDWELL 108	12h 27m 18.3s	-72° 48' 09"	7.2	Cúmulo globular	5.0
NGC4463	12h 31m 25.0s	-64° 55' 58"	7.2	Cúmulo abierto	6.0
NGC3330	10h 39m 49.4s	-54° 15' 03"	7.4	Cúmulo abierto	6.0
NGC4103	12h 08m 01.5s	-61° 23' 41"	7.4	Cúmulo abierto	6.0
NGC4349	12h 25m 33.0s	-62° 00' 51"	7.4	Cúmulo abierto	4.0
NGC5286 CALDWELL 84	13h 48m 06.1s	-51° 30' 07"	7.4	Cúmulo globular	11.0
IC2488	09h 28m 14.0s	-57° 04' 14"	7.4	Cúmulo abierto	18.0
NGC3247	10h 25m 09.6s	-57° 53' 45"	7.6	Cúmulo abierto	5.0
NGC5138	13h 28m 57.7s	-59° 10' 33"	7.6	Cúmulo abierto	8.0
NGC3519	11h 05m 07.4s	-61° 30' 31"	7.7	Cúmulo abierto	8.0
NGC5606	14h 29m 43.1s	-59° 44' 51"	7.7	Cúmulo abierto	3.0
NGC2670	08h 46m 20.2s	-48° 53' 15"	7.8	Cúmulo abierto	7.0
NGC5823 CALDWELL 88	15h 07m 27.4s	-55° 42' 11"	7.9	Cúmulo abierto	12.0
NGC5927	15h 29m 54.0s	-50° 45' 39"	8.0	Cúmulo globular	6.0
Hogg18	14h 52m 32.6s	-52° 22' 22"	8.0	Cúmulo abierto	3.0
NGC3918 - Blue planetary	11h 51m 35.6s	-57° 19' 36"	8.1	Nebulosa planetaria	22.8"
NGC6362	17h 34m 36.3s	-67° 03' 52"	8.1	Cúmulo globular	15.0
NGC3496	11h 00m 40.2s	-60° 28' 35"	8.2	Cúmulo abierto	7.0
NGC3590	11h 14m 06.3s	-60° 55' 50"	8.2	Cúmulo abierto	2.0
IC2714	11h 18m 29.6s	-62° 51' 50"	8.2	Cúmulo abierto	15.0
NGC2925	09h 34m 02.9s	-53° 30' 43"	8.3	Cúmulo abierto	15.0
NGC3960	11h 51m 51.1s	-55° 49' 16"	8.3	Cúmulo abierto	7.0
NGC4439	12h 29m 53.9s	-60° 14' 48"	8.4	Cúmulo abierto	4.0
NGC4833 CALDWELL 105	13h 01m 21.2s	-71° 00' 50"	8.4	Cúmulo globular	14.0
NGC4945 CALDWELL 83	13h 06m 57.7s	-49° 36' 05"	8.4	Galaxia	19.8 x 4.0
NGC5925	15h 29m 24.5s	-54° 37' 02"	8.4	Cúmulo abierto	20.0
Mel101	10h 43m 07.1s	-65° 14' 12"	8.4	Cúmulo abierto	15.0
NGC4815	12h 59m 37.2s	-65° 06' 06"	8.6	Cúmulo abierto	5.0
NGC3033	09h 49m 31.6s	-56° 32' 00"	8.8	Cúmulo abierto	12.0
NGC4052	12h 03m 20.8s	-63° 21' 59"	8.8	Cúmulo abierto	10.0
NGC5749	14h 50m 41.7s	-54° 36' 02"	8.8	Cúmulo abierto	10.0
NGC4337	12h 25m 29.2s	-58° 16' 03"	8.9	Cúmulo abierto	3.5
NGC4852	13h 01m 44.6s	-59° 45' 11"	8.9	Cúmulo abierto	12.0
NGC5999	15h 54m 13.1s	-56° 32' 56"	9.0	Cúmulo abierto	3.0
NGC3603	11h 16m 14.3s	-61° 24' 11"	9.1	Cúmulo abierto	4.0
NGC5168	13h 32m 51.6s	-61° 04' 21"	9.1	Cúmulo abierto	4.0
NGC6101 CALDWELL 107	16h 28m 48.2s	-72° 15' 29"	9.2	Cúmulo globular	5.0
NGC2867 CALDWELL 90	09h 22m 09.4s	-58° 25' 22"	9.7	Nebulosa planetaria	24.0"
NGC3105	10h 01m 35.0s	-54° 54' 48"	9.7	Cúmulo abierto	2.0
IC4291	13h 38m 43.5s	-62° 13' 29"	9.7	Cúmulo abierto	4.0
NGC5315	13h 55m 55.6s	-66° 38' 25"	9.8	Nebulosa planetaria	13.8"

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC5715	14h 45m 35.0s	-57° 40' 45"	9.8	Cúmulo abierto	7.0
NGC2972	09h 41m 07.5s	-50° 26' 21"	9.9	Cúmulo abierto	5.0
NGC6221	16h 55m 02.0s	-59° 15' 34"	9.9	Galaxia	3.5 x 2.5
NGC4976	13h 10m 09.5s	-49° 38' 38"	10.0	Galaxia	5.6 x 3.0
NGC5643	14h 34m 21.7s	-44° 17' 16"	10.0	Galaxia	4.7 x 4.2
NGC2866	09h 22m 59.1s	-51° 12' 51"	10.0	Cúmulo abierto	20.0
NGC5189 - Spiral planetary nebula	13h 35m 24.2s	-66° 06' 22"	10.0	Nebulosa planetaria	2.3
IC4499	15h 04m 41.8s	-82° 18' 50"	10.1	Cúmulo globular	8.0
NGC2157	05h 57m 23.4s	-69° 11' 44"	10.2	Cúmulo abierto	2.7
NGC2210	06h 11m 20.9s	-69° 07' 41"	10.2	Cúmulo abierto	2.1
NGC6300	17h 19m 26.2s	-62° 50' 47"	10.2	Galaxia	4.3 x 2.8
IC4406	14h 24m 06.1s	-44° 16' 05"	10.2	Nebulosa planetaria	1.8
NGC2164	05h 58m 46.7s	-68° 30' 53"	10.3	Cúmulo abierto	2.5
IC2553	10h 10m 09.7s	-62° 44' 29"	10.3	Nebulosa planetaria	9.0"
NGC2122	05h 48m 36.9s	-70° 03' 46"	10.4	Cúmulo abierto	4.5
NGC2442	07h 36m 18.7s	-69° 35' 24"	10.4	Galaxia	6.0 x 5.0
IC2448	09h 07m 21.1s	-70° 02' 49"	10.4	Nebulosa planetaria	27.0"
IC2501	09h 39m 32.4s	-60° 12' 35"	10.4	Nebulosa planetaria	1.8"
NGC2136	05h 52m 45.6s	-69° 29' 17"	10.5	Cúmulo abierto	1.9
IC4191	13h 10m 32.8s	-67° 46' 52"	10.6	Nebulosa planetaria	4.8"
NGC3136	10h 06m 28.3s	-67° 30' 17"	10.7	Galaxia	3.1 x 2.1
NGC3211	10h 18m 41.4s	-62° 48' 03"	10.7	Nebulosa planetaria	19.2"
NGC5333	13h 56m 03.0s	-48° 38' 23"	10.7	Galaxia	1.9 x 1.0

## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
DUN 252 AC	12h 29m 32.7s	-63° 23' 11"	1.25 / 4.80	89.0 / 203
DUN 125 AC	12h 50m 48.4s	-59° 58' 18"	1.28 / 7.17	372.7 / 23
DUN 252 BC	12h 29m 32.7s	-63° 23' 12"	1.55 / 4.80	89.0 / 203
DUN 124 AB (Gacrux)	12h 34m 05.2s	-57° 23' 60"	1.83 / 6.45	133.2 / 24
JC 2 AB (δ Cen)	12h 11m 05.5s	-51° 00' 42"	2.51 / 4.42	269.1 / 325
JC 2 AC	12h 11m 05.5s	-51° 00' 42"	2.51 / 6.35	216.9 / 227
DUN 166 AB (α Cir)	14h 46m 48.4s	-65° 11' 35"	3.18 / 8.47	15.7 / 224
DUN 176 (ζ Lup)	15h 16m 04.0s	-52° 17' 27"	3.50 / 6.74	71.7 / 249
DUN 42 (γ, Vol)	07h 08m 17.0s	-70° 35' 03"	3.86 / 5.43	14.5 / 299
DUN 102 AB (NSV5011)	10h 55m 37.4s	-59° 07' 52"	3.88 / 6.23	160.4 / 205
DUN 103 AC	10h 55m 37.4s	-59° 07' 52"	3.88 / 7.84	56.6 / 7
DUN 126 AB (μ, Cru)	12h 57m 42.2s	-57° 27' 31"	3.94 / 4.95	34.5 / 17
DUN 95 AB (HD 92449)	10h 41m 23.2s	-55° 52' 32"	4.38 / 6.06	51.8 / 106
DUN 133 AB,C (HD 116087)	13h 26m 03.2s	-61° 15' 30"	4.49 / 6.15	60.4 / 346
HJ 4825 AB,C (ι, Nor)	16h 07m 49.0s	-57° 54' 49"	4.64 / 8.02	11.0 / 242
DUN 131 AC	13h 18m 51.7s	-68° 10' 04"	4.76 / 7.24	58.2 / 331
BSO 18 A,BC (HY Vel)	08h 43m 54.6s	-53° 18' 11"	4.79 / 5.45	76.3 / 311
DUN 74 (V376 Car)	08h 58m 14.2s	-59° 25' 55"	4.87 / 6.58	40.1 / 76
DUN 94 (NSV4922)	10h 40m 44.7s	-59° 27' 18"	4.89 / 7.48	14.6 / 21
BSO 22 AB (δ, Aps)	16h 28m 20.3s	-78° 48' 46"	4.90 / 5.41	103.0 / 10
FGL 1 AB,C (ε Cha)	12h 02m 19.4s	-78° 30' 40"	4.91 / 6.62	134.0 / 39
RMK 18 (HD 120641)	13h 55m 28.7s	-53° 03' 58"	5.24 / 7.50	18.5 / 289
BSO 17 AB (κ, Vol)	08h 19m 37.7s	-71° 40' 51"	5.31 / 5.59	64.0 / 58
BSO 17 AC	08h 19m 37.7s	-71° 40' 51"	5.31 / 7.67	98.4 / 48
SHY 528 AC (η Cha)	08h 39m 24.0s	-79° 08' 59"	5.44 / 6.11	501.4 / 140

## Navigation map

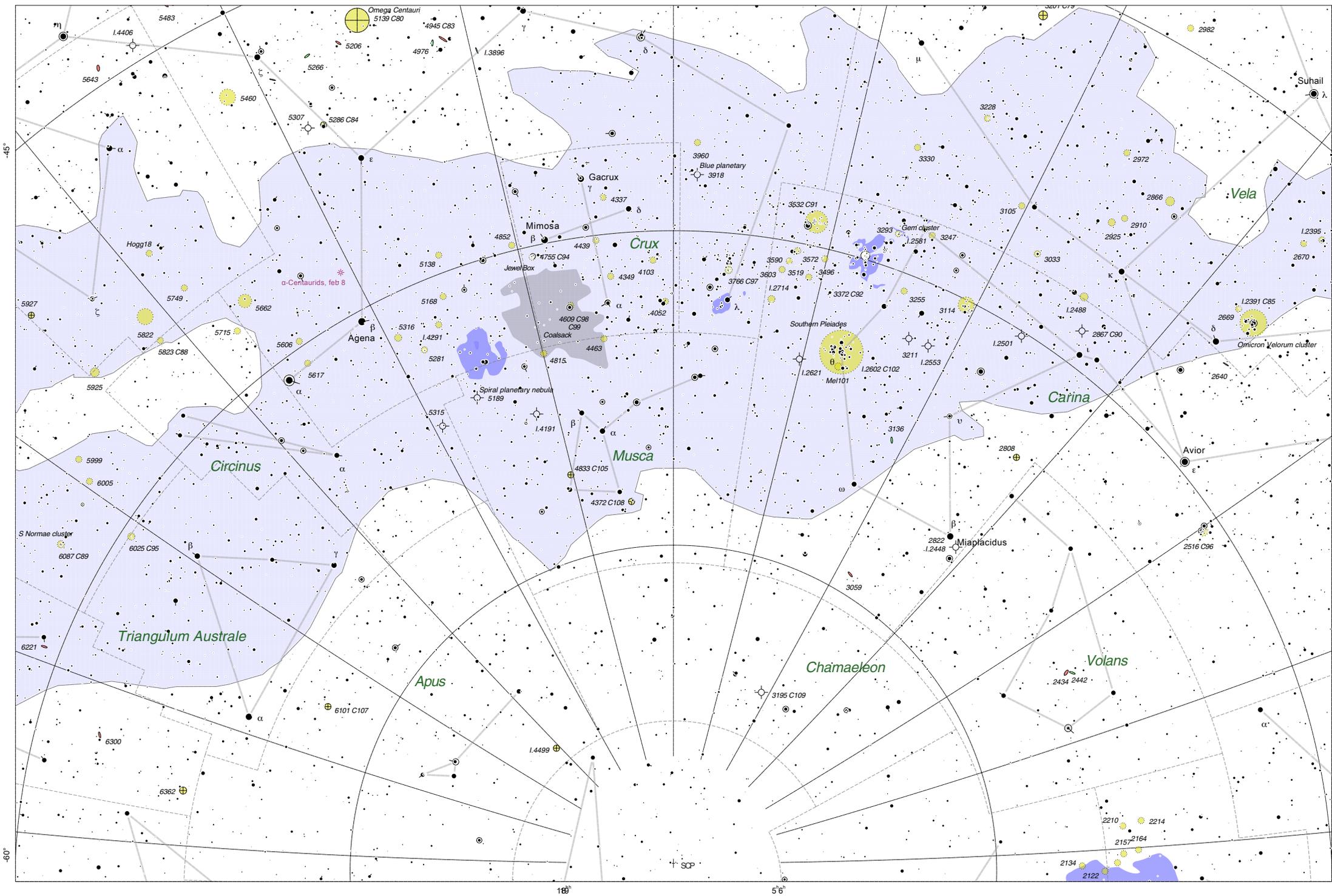


Stellar magnitudes: ● -1, ● 0, ● 1, ● 2, ● 3, ● 4, ● 5, ● 6, ● 7, ● 8

Types of stars: ● Double, ● Variable

Symbols for deep sky objects (star cluster, nebula, galaxy) and constellation figure/boundary: ☀ Open cluster, ☾ Globular, ☁ Nebulose, ☄ Milky Way, ☄ Plan.neb., ☄ Galaxy, ☄ Constellation, --- Const. limit, ✨ Meteors

Chart 25, 30°x20° around 12.0h, -70.0° (Musca, Carina, Circinus, Centaurus)



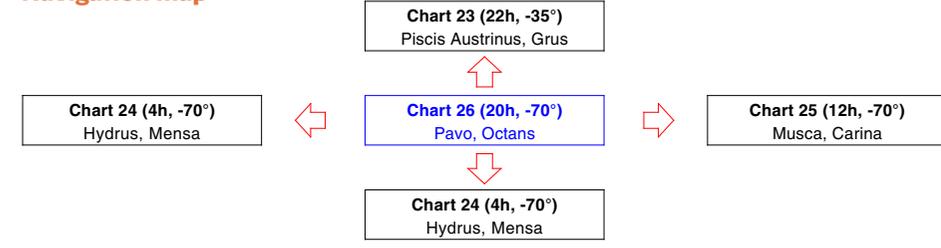
# Main objects visible on chart 26

Name	RA (J2026)	DEC	Magnitude	Type	Angular size (')
NGC292 - Small Magellanic Cloud	00h 53m 39.0s	-72° 41' 16"	2.3	Galaxia	5.32° x 3.42°
NGC104 CALDWELL 106 - 47 Tucanae	00h 25m 13.7s	-71° 56' 11"	4.0	Cúmulo globular	50.0
NGC6025 CALDWELL 95	16h 05m 31.3s	-60° 30' 05"	5.1	Cúmulo abierto	15.0
NGC6193 CALDWELL 82	16h 43m 17.7s	-48° 48' 41"	5.2	Cúmulo abierto	14.0
NGC6397 CALDWELL 86	17h 42m 48.4s	-53° 41' 04"	5.3	Cúmulo globular	31.0
NGC6752 CALDWELL 93	19h 13m 08.9s	-59° 56' 12"	5.3	Cúmulo globular	29.0
NGC6087 CALDWELL 89 - S Normae cluster	16h 21m 02.0s	-57° 57' 39"	5.4	Cúmulo abierto	15.0
NGC6067	16h 15m 14.1s	-54° 17' 00"	5.6	Cúmulo abierto	15.0
NGC5281	13h 48m 27.5s	-63° 02' 19"	5.9	Cúmulo abierto	8.0
NGC6250	16h 59m 50.6s	-45° 58' 29"	5.9	Cúmulo abierto	16.0
NGC5316	13h 55m 51.2s	-61° 58' 37"	6.0	Cúmulo abierto	15.0
NGC6322	17h 20m 17.5s	-42° 57' 34"	6.0	Cúmulo abierto	5.0
NGC5617	14h 31m 41.9s	-60° 49' 31"	6.3	Cúmulo abierto	10.0
NGC6167	16h 36m 33.2s	-49° 49' 27"	6.7	Cúmulo abierto	7.0
NGC362 CALDWELL 104	01h 04m 06.9s	-70° 42' 31"	6.8	Cúmulo globular	14.0
NGC6388	17h 38m 11.2s	-44° 44' 56"	6.8	Cúmulo globular	10.4
IC4651	17h 26m 52.8s	-49° 57' 53"	6.9	Cúmulo abierto	10.0
NGC6208	16h 51m 30.9s	-53° 44' 54"	7.2	Cúmulo abierto	18.0
NGC6200	16h 46m 04.5s	-47° 30' 58"	7.4	Cúmulo abierto	15.0
NGC5606	14h 29m 43.1s	-59° 44' 51"	7.7	Cúmulo abierto	3.0
NGC6352 CALDWELL 81	17h 27m 27.9s	-48° 26' 36"	7.8	Cúmulo globular	9.0
NGC6584	18h 20m 42.3s	-52° 12' 07"	7.9	Cúmulo globular	6.6
NGC6259	17h 02m 38.5s	-44° 41' 29"	8.0	Cúmulo abierto	15.0
NGC6152	16h 34m 47.3s	-52° 41' 47"	8.1	Cúmulo abierto	25.0
NGC6362	17h 34m 36.3s	-67° 03' 52"	8.1	Cúmulo globular	15.0
NGC6204	16h 48m 03.3s	-47° 03' 27"	8.2	Cúmulo abierto	6.0
NGC6249	16h 59m 35.0s	-44° 50' 35"	8.2	Cúmulo abierto	6.0
NGC6031	16h 09m 36.7s	-54° 05' 03"	8.5	Cúmulo abierto	3.0
NGC6744 CALDWELL 101	19h 12m 13.4s	-63° 48' 45"	8.5	Galaxia	20.1 x 12.9
NGC5999	15h 54m 13.1s	-56° 32' 56"	9.0	Cúmulo abierto	3.0
NGC6101 CALDWELL 107	16h 28m 48.2s	-72° 15' 29"	9.2	Cúmulo globular	5.0
NGC330	00h 57m 12.9s	-72° 19' 19"	9.6	Cúmulo globular	1.4
NGC5315	13h 55m 55.6s	-66° 38' 25"	9.8	Nebulosa planetaria	13.8"
NGC6115	16h 26m 27.5s	-52° 00' 41"	9.8	Cúmulo abierto	3.4
NGC6221	16h 55m 02.0s	-59° 15' 34"	9.9	Galaxia	3.5 x 2.5
NGC7213	22h 10m 53.4s	-47° 02' 19"	10.1	Galaxia	3.1 x 2.8
IC4499	15h 04m 41.8s	-82° 18' 50"	10.1	Cúmulo globular	8.0
NGC6253	17h 01m 10.2s	-52° 45' 12"	10.2	Cúmulo abierto	4.0
NGC6300	17h 19m 26.2s	-62° 50' 47"	10.2	Galaxia	4.3 x 2.8
NGC6684	18h 51m 30.6s	-65° 08' 29"	10.4	Galaxia	4.6 x 2.9
IC5052	20h 54m 33.4s	-69° 06' 21"	10.5	Galaxia	5.9 x 0.9
IC5152	22h 04m 22.9s	-51° 10' 11"	10.5	Galaxia	5.0 x 3.2
NGC7049	21h 20m 45.4s	-48° 27' 02"	10.6	Galaxia	4.5 x 3.0
NGC6005	15h 57m 54.2s	-57° 31' 04"	10.7	Cúmulo abierto	5.0
NGC7090	21h 38m 16.0s	-54° 26' 15"	10.7	Galaxia	7.3 x 1.2
NGC7144	21h 54m 22.9s	-48° 07' 53"	10.8	Galaxia	3.7 x 3.6
IC5201	22h 22m 32.4s	-45° 54' 11"	10.8	Galaxia	8.5 x 3.9
NGC376	01h 04m 42.4s	-72° 41' 05"	10.9	Cúmulo abierto	1.0
NGC6782	19h 26m 13.7s	-59° 52' 11"	11.0	Galaxia	2.4 x 2.0
NGC7205	22h 10m 18.3s	-57° 18' 51"	11.0	Galaxia	4.0 x 2.0
NGC152	00h 34m 00.3s	-72° 58' 22"	11.0	Cúmulo abierto	1.7
NGC299	00h 54m 19.6s	-72° 03' 20"	11.0	Cúmulo abierto	42.0"
NGC361	01h 03m 03.0s	-71° 28' 02"	11.0	Cúmulo abierto	1.6
NGC643	01h 35m 26.5s	-75° 25' 27"	11.0	Cúmulo abierto	1.5
NGC6753	19h 13m 34.5s	-57° 00' 14"	11.1	Galaxia	2.4 x 2.1
IC4891	19h 47m 18.2s	-54° 16' 44"	11.1	Galaxia	2.2 x 1.5
IC5250A	22h 49m 00.1s	-64° 55' 22"	11.1	Galaxia	3.1 x 3.0
NGC121	00h 27m 54.7s	-71° 23' 35"	11.2	Cúmulo globular	1.5
NGC419	01h 09m 04.0s	-72° 44' 42"	11.2	Cúmulo abierto	2.4
NGC6730	19h 10m 19.5s	-68° 52' 10"	11.2	Galaxia	1.8 x 1.5
NGC6920	20h 47m 44.0s	-79° 54' 16"	11.2	Galaxia	1.8 x 1.5
NGC7041	21h 18m 17.5s	-48° 15' 12"	11.2	Galaxia	3.6 x 1.5
NGC7083	21h 37m 45.9s	-63° 47' 09"	11.2	Galaxia	3.9 x 2.3
NGC7145	21h 55m 00.5s	-47° 45' 32"	11.2	Galaxia	2.5 x 2.3
NGC7192	22h 08m 43.7s	-64° 11' 18"	11.2	Galaxia	1.9 x 1.8
IC4765	18h 49m 45.6s	-63° 18' 02"	11.2	Galaxia	3.5 x 1.9
IC5250B	22h 49m 04.8s	-64° 55' 15"	11.2	Galaxia	3.0 x 2.9

## Main double stars

Name	RA (J2026)	DEC	Magnitude	Sep (") / AP (")
DUN 166 AB (α Cir)	14h 46m 48.4s	-65° 11' 35"	3.18 / 8.47	15.7 / 224
LCL 119 AC (β <sub>1</sub> Tuc)	00h 33m 53.7s	-62° 40' 17"	4.28 / 4.51	27.1 / 168
SHY 114 AE	00h 33m 53.7s	-62° 40' 17"	4.28 / 5.07	548.9 / 118
HJ 4825 AB,C (ι, Nor)	16h 07m 49.0s	-57° 54' 49"	4.64 / 8.02	11.0 / 242
HJ 3423 A,CD	01h 17m 27.3s	-68° 36' 09"	4.88 / 7.23	319.2 / 310
BSO 22 AB (δ <sub>1</sub> , Aps)	16h 28m 20.3s	-78° 48' 46"	4.90 / 5.41	103.0 / 10
TOK 331 AC	19h 27m 01.3s	-54° 19' 09"	5.02 / 7.09	416.3 / 171
SHY 314 (HD 177389)	19h 15m 19.5s	-68° 20' 03"	5.41 / 7.59	449.2 / 1
SHY 759 AB (HD 186957)	19h 55m 07.3s	-59° 03' 24"	5.48 / 7.06	406.6 / 232
DUN 227 (HD 187420)	19h 56m 44.6s	-54° 49' 56"	5.80 / 6.39	23.0 / 148
HJ 5114 AB (HD 182509)	19h 31m 57.2s	-54° 12' 53"	5.85 / 8.24	76.1 / 236
JRN 16 AD	14h 53m 14.4s	-66° 48' 22"	5.86 / 7.72	88.2 / 322
DUN 254 (HD 222820)	23h 47m 00.9s	-64° 06' 56"	5.87 / 7.20	241.9 / 8
DUN 249 (HD 220391)	23h 26m 49.1s	-53° 31' 22"	6.14 / 7.07	26.4 / 211
DUN 232 (μ <sub>2</sub> Oct)	20h 47m 42.6s	-75° 09' 37"	6.51 / 7.07	16.6 / 19
JC 25 AB (HD 206428)	21h 47m 38.5s	-57° 05' 01"	6.54 / 6.90	152.3 / 4
JC 25 AC	21h 47m 38.5s	-57° 05' 01"	6.54 / 7.47	187.0 / 214
DUN 2 (λ, Tuc)	00h 54m 22.3s	-69° 13' 20"	6.70 / 7.35	20.5 / 83
DUN 247 (HD 219621)	23h 21m 02.8s	-60° 43' 07"	6.87 / 8.17	51.8 / 294

## Navigation map

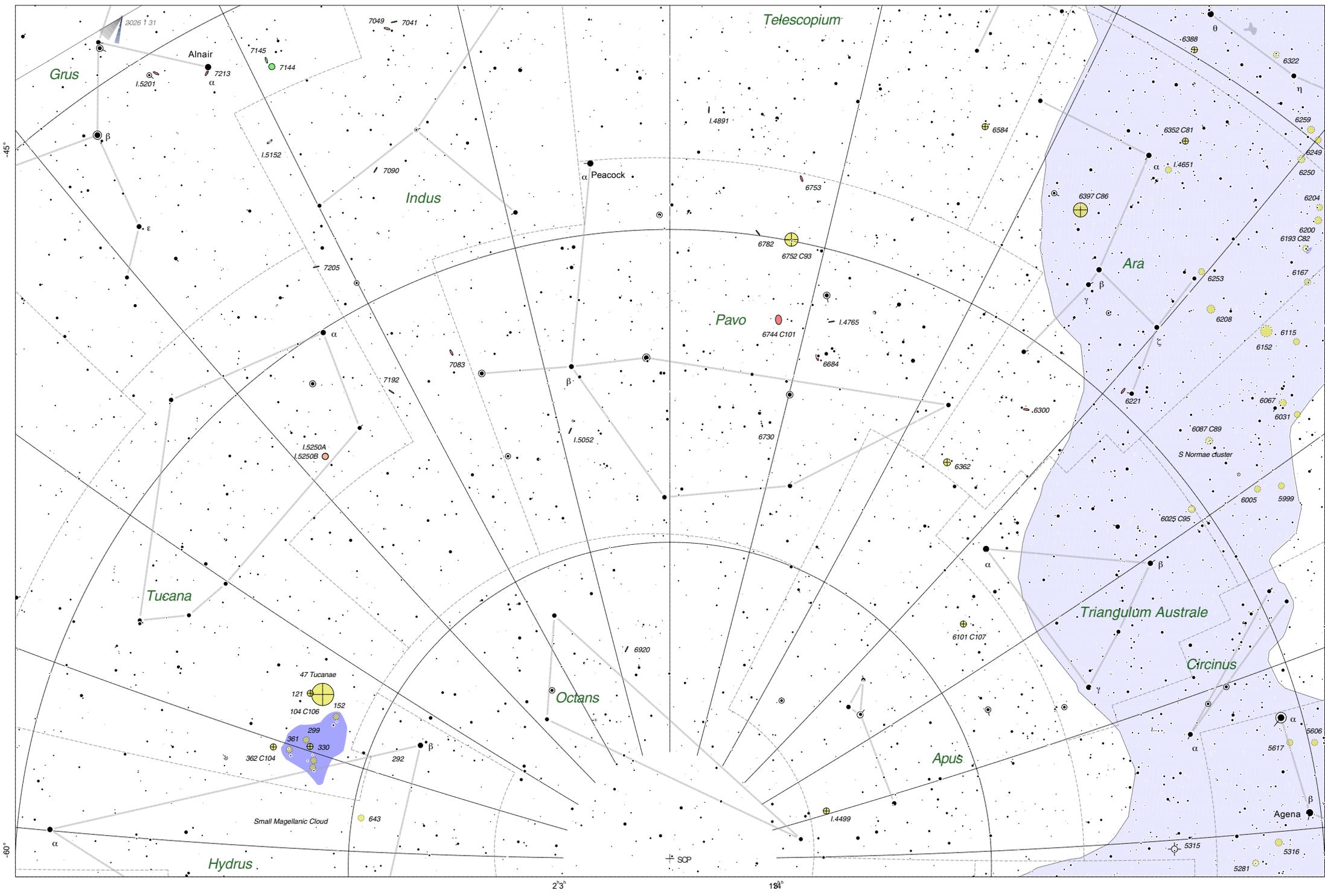


-1  
  0  
  1  
  2  
  3  
  4  
  5  
  6  
  7  
  8

Double  
  Variable

Open cluster  
  Globular  
   Nebulose  
  Milky Way  
  Plan.neb.  
    Galaxy  
 Constellation  
 Const. limit  
 \* Meteors

Chart 26, 30°x20° around 20.0h, -70.0° (Pavo, Octans, Indus, Telescopium)





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