**Sky Calendar – August 2022**

2. Mars 1.3° SE of Uranus at 1h UT (morning sky). Mags. 0.2 and 5.8.
3. Moon near Spica at 2h UT (evening sky).
4. Mercury 0.7° NNE of Regulus at 10h UT (18° from Sun, evening sky). Mags. –0.4 and 1.4.
5. First Quarter Moon at 11:06 UT.
6. Moon near Antares at 11h UT (evening sky).
7. Moon at perigee (closest to Earth) at 17:07 UT (distance 359,828km; angular size 33.2°).
8. Saturn at opposition (opposite the Sun) at 17h UT (distance 359,828km; angular size 33.2°).
9. Moon at perigee (closest to Earth) at 17:07 UT (distance 359,828km; angular size 33.2°).
10. Full Moon at 13:35 UT.
11. Moon near Saturn at 7h UT (midnight sky). Mag. 0.3.
12. Perseid meteor shower peaks at 1h UT. Peak lasts about 12 hours. Active from July 14 to September 1. Produces swift, bright meteors (50-100 per hour) with persistent trains. Best viewed after midnight. Bright moonlight will hinder viewing this year.
13. Saturn at opposition (opposite the Sun) at 17h UT. The planet is at its closest and brightest at Mag. 0.3. Saturn’s rings are visible even in a small telescope.
15. Moon near Uranus at 15h UT (97° from Sun, morning sky). Occultation visible from the north Pacific Ocean. Mag. 5.7.
16. Last Quarter Moon at 4:35 UT.
17. Moon near Mars at 11h UT (morning sky). Mag. 0.0.
18. Moon near the Pleiades at 14h UT (morning sky).
19. Moon near Aldebaran at 8h UT (morning sky).
20. Moon at apogee (farthest from Earth) at 22h UT (distance 405,418km; angular size 29.5°).
21. Moon near Beehive cluster M44 at 5h UT (morning sky).
22. New Moon at 8:16 UT. Start of lunation 1233.
23. Mercury at greatest elongation east at 16h UT (27° from Sun, evening sky). Mag. 0.3.
24. Moon near Mercury at 18h UT (27° from Sun, evening sky). Mag. 0.3.
25. Moon near Spica at 8h UT (evening sky).

**More sky events and links at [https://Skymaps.com/skycalendar/](https://Skymaps.com/skycalendar/)**

All times in Universal Time (UT). (Australian Central Standard Time = UT + 9.5 hours.)
About the Celestial Objects
Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars. They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

Tips for Observing the Night Sky
When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it’s always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today’s large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

Astronomical Glossary
Conjunction – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.
Constellation – A defined area of the sky containing a star pattern.
Diffuse Nebula – A cloud of gas illuminated by nearby stars.
Double Star – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (”).
Ecliptic – The path of the Sun’s center on the celestial sphere as seen from Earth.
Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.
Galaxy – A mass of up to several billions stars held together by gravity.
Globular Star Cluster – A ball-shaped group of several thousand old stars.
Light Year (ly) – The distance a beam of light travels at 300,000 km/sec in one year.
Magnitude – The brightness of a celestial object as it appears in the sky.
Open Star Cluster – A group of tens or hundreds of relatively young stars.
Opposition – When a celestial body is opposite the Sun in the sky.
Planetary Nebula – The remnants of a shell of gas blown off by a star.
Universal Time (UT) – A time system used by astronomers. Also known as Greenwich Mean Time. Australian Eastern Standard Time (Sydney, Australia) is UT plus 10 hours.
Variable Star – A star that changes brightness over a period of time.

Easily Seen with the Naked Eye

Altair Aql – Brightest star in Aquila. Name means “the flying eagle”. Dist=16.7 ly.
Arcturus Boo – Orange, giant K star. Name means “bear watcher”. Dist=36.7 ly.
β Centauri Cen – With Alpha Centauri, forms the so-called “Pointers-to-the-Cross”. Dist=625 ly.
γ Centauri Cen – Nearest bright star to Sun at 4.4 ly. Brilliant double star in a telescope. 80 year period.
κ Herculis Her – Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion.
Vega Lyr – The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly.
Fomalhaut PsA – Brightest star in Piscis Austrinus. In Arabic “the fish’s mouth”. Dist=25 ly.
Spica Vir – Latin name means “ear of wheat” and shown held in Virgo’s left hand. Dist=250 ly.

Easily Seen with Binoculars

η Aquilae Aql – Bright Cepheid variable. Mag varies between 3.6 & 4.5 over 7.166 days. Dist=1,200 ly.
6397 Aqr – Thought to be the nearest globular. Dist=7,000 ly.
IC 2602 Vul – The “Five of Diamonds”. Bright cluster twice diameter of Full Moon. Dist=401 ly.
3372 Car – Eta Carinae Nebula. Enormous glowing cloud in rich star field. Dist=8,000 ly.
3532 Car – Herschel - “most brilliant cluster”. 60+ stars in 7x binoculars. Dist=1,300 ly.
ω Centauri Cen – Largest and brightest globular star cluster in sky. 1 million stars. Dist=17,000 ly.
47 Tucanae Tuc – Large Magellanic Cloud. A neighbouring galaxy of the Milky Way. Dist=180,000 ly.
M13 Her – Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly.
R Hydrae Hya – Long period variable. Mag varies between 3.0 & 11.0 over 390 days. Brilliant red.
τ Lyrae Lyr – Famous Double Double. Binoculars show a double star. High power reveals each a double.
M12 Oph – Close to the brighter M10. Dist=18,000 ly.
M10 Oph – 3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly.
κ Pavonis Pav – Cepheid-type. Magnitude varies between 3.9 & 4.8 over 9,088 days.
6752 Pav – One of the better globular star clusters in the sky. Dist=14,000 ly.
M25 Sgr – Bright cluster located about 6 deg N of “teapot’s” lid. Dist=1,900 ly.
M22 Sgr – A spectacular globular star cluster. Telescope will show stars. Dist=10,000 ly.
M4 Sco – A close globular. May just be visible without optical aid. Dist=7,000 ly.
M6 Sco – Butterfly Cluster. 30+ stars in 7x binoculars. Dist=1,960 ly.
M5 Ser – Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly.
6025 Tri – A small open star cluster in Milky Way. Dist=2,700 ly.
47 Tucanae Tuc – Spectacular object. Telescope will reveal stars. Near edge of SMC. Dist=15,000 ly.

Telescopic Objects

7009 Aqr – Saturn Nebula. Requires 8-inch telescope to see Saturn-like appendages.
3918 Cen – The Blue Planetary. Visible in a small telescope as a round blue disk.
4755 Cygni – A close globular, may just be visible without optical aid. Dist=3,434 ly.
δ Delphini Del – Appears yellow & white. Mags 4.3 & 5.2. Dist=100 ly. Strobe 2725 double in same field.
M83 Hya – Classic face-on spiral. Discovered in 1752 by Lacaille. In attractive star field.
5822 Lup – Large, attractive cluster. Dist=1,800 ly. Open cluster NGC 5823 to the south.
M23 Sgr – Elongated star cluster. Telescope required to show stars. Dist=2,100 ly.
M21 Sgr – A fine and impressive cluster. Dist=4,200 ly.
M17 Sgr – Omega Nebula. Contains the star cluster NGC 6618. Dist=4,900 ly.
6124 Sco – Contains 5 bright tightly packed stars near centre. 7 star chain. Dist=1,600 ly.
M16 Ser – Eagle Nebula. Requires a telescope of large aperture. Dist=8,150 ly.

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