The Evening Sky Map
FREE EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

Sky Calendar – August 2018

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EQUATORIAL EDITION
AUGUST 2018

Sky Map shows how the night sky looks
EARLY AUG 9 PM
LATE AUG 8 PM

Sky Map drawn for a latitude of 0° and is suitable for latitudes up to 15° north or south of this.

Symbols
Galaxy 
Double Star 
Variable Star 
Diffuse Nebula 
Planetary Nebula 
Open Star Cluster 
Globular Star Cluster 

Star Magnitudes

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Sky Calendar – August 2018

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
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<tr>
<td>4</td>
<td>Last Quarter Moon at 18:19 UT.</td>
</tr>
<tr>
<td>6</td>
<td>Moon near the Pleiades at 3h UT (morning sky).</td>
</tr>
<tr>
<td>6</td>
<td>Moon near Aldebaran (morning sky) at 19h UT.</td>
</tr>
<tr>
<td>9</td>
<td>Mercury at inferior conjunction with the Sun at 2h UT.</td>
</tr>
<tr>
<td>9</td>
<td>Mercury passes into the morning sky. Not visible.</td>
</tr>
<tr>
<td>9</td>
<td>Moon near Castor (morning sky) at 15h UT.</td>
</tr>
<tr>
<td>9</td>
<td>Moon near Pollux (morning sky) at 19h UT.</td>
</tr>
<tr>
<td>9</td>
<td>Moon near Castor (morning sky) at 15h UT.</td>
</tr>
<tr>
<td>10</td>
<td>Moon at perigee (closest to Earth) at 18:10 UT (358,078 km; angular size 33.4').</td>
</tr>
<tr>
<td>11</td>
<td>Partial Eclipse of the Sun at 9:46 UT (greatest).</td>
</tr>
<tr>
<td>11</td>
<td>Visible from northern Europe and NE Asia. Begins at 8:02 and ends at 11:31 UT.</td>
</tr>
<tr>
<td>11</td>
<td>New Moon at 9:58 UT. Start of lunation 1183.</td>
</tr>
<tr>
<td>12</td>
<td>Perseid meteor shower peaks at 20h UT. Peak lasts about 12 hours. Active from July 17 to August 24. Produces swift, bright meteors (50 to 100 per hour) many with persistent trains. Best viewing is after midnight. Favorable conditions in 2018.</td>
</tr>
<tr>
<td>12</td>
<td>Moon near Regulus (evening sky) at 4h UT.</td>
</tr>
<tr>
<td>14</td>
<td>Moon near Venus (evening sky) at 18h UT. Mag. –4.3.</td>
</tr>
<tr>
<td>15</td>
<td>Moon near Spica (evening sky) at 22h UT.</td>
</tr>
<tr>
<td>17</td>
<td>Moon near Jupiter (evening sky) at 13h UT. Mag. –2.0.</td>
</tr>
<tr>
<td>17</td>
<td>Venus at greatest elongation east (46° from Sun, evening sky) at 17h UT. Mag. –4.3.</td>
</tr>
<tr>
<td>18</td>
<td>First Quarter Moon at 7:49 UT.</td>
</tr>
<tr>
<td>19</td>
<td>Moon near Antares (evening sky) at 13h UT.</td>
</tr>
<tr>
<td>21</td>
<td>Moon near Saturn (evening sky) at 10h UT. Mag. 0.3.</td>
</tr>
<tr>
<td>23</td>
<td>Moon at apogee (farthest from Earth) at 11h UT (distance 405,746 km; angular size 29.4').</td>
</tr>
<tr>
<td>23</td>
<td>Moon near Mars (evening sky) at 16h UT. Mag. –2.3.</td>
</tr>
<tr>
<td>26</td>
<td>Full Moon at 11:57 UT.</td>
</tr>
<tr>
<td>26</td>
<td>Mercury at greatest elongation west (18° from Sun, morning sky) at 20h UT. Mag. –0.1.</td>
</tr>
</tbody>
</table>

More sky events and links at http://Skymaps.com/skycalendar/
All times in Universal Time (UT). (Singapore Standard Time = UT + 8 hours.)

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• Telescopes & Binoculars

All sales support the production and free distribution of The Evening Sky Map.
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 billion stars held together by gravity.
Global 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. Singapore Standard Time is UT plus 8 hours.
Variable Star – A star that changes brightness over a period of time.

Easily Seen with the Naked Eye

<table>
<thead>
<tr>
<th>Altair</th>
<th>Aql</th>
<th>Brightest star in Aquila. Name means &quot;the flying eagle&quot;. DIST=16.8 ly.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arcturus</td>
<td>Boo</td>
<td>Orange giant K star. Name means &quot;bear watcher&quot;. DIST=36.7 ly.</td>
</tr>
<tr>
<td>B Centauri</td>
<td>Cen</td>
<td>With Alpha Centauri, forms the so-called &quot;Pointers-to-the-Cross&quot;. DIST=625 ly.</td>
</tr>
<tr>
<td>θ Centauri</td>
<td>Cen</td>
<td>Nearest bright star to Sun at 4.4 ly. Brilliant double star in a telescope. 80 year period.</td>
</tr>
<tr>
<td>Deneb</td>
<td>Cyg</td>
<td>Brightest star in Cygnus. One of the greatest known supergiants. DIST=1,400±200 ly.</td>
</tr>
<tr>
<td>θ Herculis</td>
<td>Her</td>
<td>Semi-variable. Magnitude varies between 3.1 &amp; 3.9 over 90 days. Mag 5.4 companion.</td>
</tr>
<tr>
<td>Vega</td>
<td>Lyn</td>
<td>The 5th brightest star in the sky. A blue-white star. DIST=25.0 ly.</td>
</tr>
<tr>
<td>Antares</td>
<td>Sco</td>
<td>Red, supergiant star. Name means &quot;rival of Mars&quot;. DIST=135.9 ly.</td>
</tr>
</tbody>
</table>

Easily Seen with Binoculars

<table>
<thead>
<tr>
<th>M2</th>
<th>Aqr</th>
<th>Resembles a fuzzy star in binoculars.</th>
</tr>
</thead>
<tbody>
<tr>
<td>η Aquilae</td>
<td>Aql</td>
<td>Bright Cepheid variable. Mag varies between 3.6 &amp; 4.5 over 7.166 days. DIST=1,200 ly.</td>
</tr>
<tr>
<td>6397 Ara</td>
<td></td>
<td>Thought to be the nearest globular. DIST=7,000 ly.</td>
</tr>
<tr>
<td>η Cygni</td>
<td>Cyg</td>
<td>Long period pulsating red giant. Magnitude varies between 3.8 &amp; 14.2 over 407 days.</td>
</tr>
<tr>
<td>θ M39</td>
<td>Cyg</td>
<td>May be visible to the naked eye under good conditions. DIST=900 ly.</td>
</tr>
<tr>
<td>v Draconis</td>
<td>Dra</td>
<td>Wide pair of white stars. One of the finest binocular pairs in the sky. DIST=100 ly.</td>
</tr>
<tr>
<td>M13 Her</td>
<td></td>
<td>Best globular in northern skies. Discovered by Halley in 1714. DIST=23,000 ly.</td>
</tr>
<tr>
<td>M92 Her</td>
<td></td>
<td>Fainter and smaller than M13. Use a telescope to resolve its stars.</td>
</tr>
<tr>
<td>ε Lyrae</td>
<td>Lyn</td>
<td>Famous Double Double. Binoculars show a double star. High power reveals each a double.</td>
</tr>
<tr>
<td>R Lyrae</td>
<td>Lyn</td>
<td>Semi-variable. Magnitude varies between 3.9 &amp; 5.0 over 46.0 days.</td>
</tr>
<tr>
<td>M12 Oph</td>
<td></td>
<td>Close to the brighter M10. DIST=18,000 ly.</td>
</tr>
<tr>
<td>M10 Oph</td>
<td></td>
<td>3 degrees from the fainter M12. Both may be glimpsed in binoculars. DIST=14,000 ly.</td>
</tr>
<tr>
<td>IC 4665 Oph</td>
<td></td>
<td>Large, scattered open cluster. Visible with binoculars.</td>
</tr>
<tr>
<td>6633 Oph</td>
<td></td>
<td>Scattered open cluster. Visible with binoculars.</td>
</tr>
<tr>
<td>k Pavonis</td>
<td>Pav</td>
<td>Cepheid-type. Magnitude varies between 3.9 &amp; 4.8 over 9.088 days.</td>
</tr>
<tr>
<td>6793 Pav</td>
<td>Pav</td>
<td>One of the better globular star clusters in the sky. DIST=14,000 ly.</td>
</tr>
<tr>
<td>M15 Peg</td>
<td></td>
<td>Only globular known to contain a planetary nebula (Mag 14, d=1&quot;). DIST=30,000 ly.</td>
</tr>
<tr>
<td>M8 Sgr</td>
<td></td>
<td>Lagoon Nebula. Bright nebula bisected by a dark lane. DIST=5,200 ly.</td>
</tr>
<tr>
<td>M25 Sgr</td>
<td></td>
<td>Bright cluster located about 6 deg N of &quot;teapot's&quot; lid. DIST=1,900 ly.</td>
</tr>
<tr>
<td>M22 Sgr</td>
<td></td>
<td>A spectacular globular star cluster. Telescope will show stars. DIST=10,000 ly.</td>
</tr>
<tr>
<td>M4 Sco</td>
<td></td>
<td>A close globular. May just be visible without optical aid. DIST=7,000 ly.</td>
</tr>
<tr>
<td>6231 Sco</td>
<td></td>
<td>Easy to see in binoculars. DIST=5,900 ly.</td>
</tr>
<tr>
<td>M6 Sco</td>
<td></td>
<td>Butterfly Cluster. 30+ stars in 7x binoculars. DIST=1,960 ly.</td>
</tr>
<tr>
<td>M7 Sco</td>
<td></td>
<td>Super open cluster. Visible to the naked eye. Age=260 million years. DIST=780 ly.</td>
</tr>
<tr>
<td>M5 Ser</td>
<td></td>
<td>Fine globular star cluster. Telescope will reveal individual stars. DIST=25,000 ly.</td>
</tr>
<tr>
<td>6025 TriA</td>
<td></td>
<td>A small open star cluster in Milky Way. DIST=2,700 ly.</td>
</tr>
<tr>
<td>Cr 399 Vul</td>
<td></td>
<td>Coathanger asterism or &quot;Brochis's Cluster&quot;. Not a true star cluster. DIST=218 to 1,140 ly.</td>
</tr>
</tbody>
</table>

Telescopic Objects

| 7009 Aqr | Saturn Nebula. Requires 8-inch telescope to see Saturn-like appendages. |
| ε Boötis Boo | Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split. |
| Albireo Cyg | Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4". |
| 61 Cygni | Attractive double star. Mag 5.2 & 6.1 orange dwarfs. DIST=11.4 ly. Sep=28.4". |
| θ Delphini Del | Appears yellow & white. Mag 3.5 & 6.2. DIST=100 ly. Strove 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. |
| β Lyrae Lyn | Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star. |
| M57 Lyn | Ring Nebula. Magnificent object. Smoke-ring shape. DIST=4,100 ly. |
| M23 Sgr | Elongated star cluster. Telescope required to show stars. DIST=2,100 ly. |
| M20 Sgr | Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. DIST=5,200 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. |
| M27 Vul | Dumbbell Nebula. Large, twin-lobbed shape. Most spectacular planetary. DIST=975 ly. |

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