Sky Calendar – January 2018

1. Mercury at greatest elongation west (23° from Sun, morning sky) at 20h UT. Mag. ~0.3.
2. Moon at perigee (closest to Earth) at 21:54 UT (356,565 km; angular size 33.5°). Closest of 2018.
3. Full Moon at 2:24 UT.
4. Earth at Perihelion (closest to Sun) at 6h UT. The Sun-Earth distance is 0.983284 a.u. or 147.1 million kilometers.
5. Moon near Regulus (morning sky) at 8h UT. Occultation visible from Alaska, northern Canada, Greenland and Iceland.
6. Last Quarter Moon at 22:25 UT.
7. Venus at superior conjunction with the Sun at 22:20 UT.
8. Moon at apogee (farthest from Earth) at 7h UT. The Moon will appear red-orange in color during totality (the color of Earth’s sunsets). Visible from west North America, the Pacific, Australia, New Zealand, Asia, Russia and India.
9. Total Eclipse of the Moon begins at 12:52 UT and ends at 15:11 UT. The Moon will appear red-orange in color during totality (the color of Earth’s sunsets). Visible from west North America, the Pacific, Australia, New Zealand, Asia, Russia and India.
10. Mercury at superior conjunction with the Sun at 22:20 UT.
11. Moon near Jupiter and Mars (60° from Sun, morning sky) at 10h UT. Mags. ~1.9 and 1.4.
12. Mercury 0.6° S of Saturn (20° from Sun, morning sky) at 8h UT. Mags. ~0.3 and 0.5.
13. Moon at apogee (farthest from Earth) at 2h UT. The Moon will appear red-orange in color during totality (the color of Earth’s sunsets). Visible from west North America, the Pacific, Australia, New Zealand, Asia, Russia and India.
15. First Quarter Moon at 22:20 UT.
16. Moon near Aldebaran (evening sky) at 9h UT. Occultation visible from NW Canada, Alaska, NE Asia.
17. Moon near Regulus (morning sky) at 10h UT (358,994 km; angular size 33.3°).
18. Moon near Boötes at 11h UT. The Moon will appear red-orange in color during totality (the color of Earth’s sunsets). Visible from west North America, the Pacific, Australia, New Zealand, Asia, Russia and India.
19. Full Moon at 13:27 UT.

More sky events and links at http://Skymaps.com/skycalendar/

All times in Universal Time (UT). (Australian Eastern Summer Time = UT + 11 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 billion stars held together by gravity.

Globular Star Cluster – A ball-shaped grouping 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

Capella
- Aur

Sirius
- CMa
- The brightest star in the sky. Also known as the "Dog Star". Dist=8.6 ly.

Procyon
- CMi
- Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly.

Canopus
- Car
- Second brightest star in the sky. 14,000 times more luminous than the Sun. Dist=309 ly.

β Centauri
- Cent
- With Alpha Centauri, forms the so-called "Pointers-to-the-Cross". Dist=525 ly.

α Centauri
- Cent
- Nearest bright star to Sun at 4.4 ly. Brilliant double star in a telescope. 80 year period.

Achernar
- Eri
- Brightest star in Eridanus. The River. Arabic name meaning "end of river". Dist=144 ly.

Castor
- Gem
- Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly.

Pollux
- Gem
- With Castor, the twin sons of Leda in classical mythology. Dist=34 ly.

Rigel
- Ori
- The brightest star in Orion. Blue supergiant star with mag 7 companion. Dist=770 ly.

Betalgeuse
- Ori
- One of the largest red supergiant stars known. Diameter=300 times that of Sun. Dist=430 ly.

Pleiades
- τ
- The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=399 ly.

Hyades
- τ
- Large V-shaped star cluster. Binoculars reveal many more stars. Dist=152 ly.

Adlebaran
- τ
- Brightest star in Taurus. Not associated with the Hyades star cluster. Dist=66.7 ly.

Easily Seen with Binoculars

M38
- Aur
- Stars appear arranged in "pi" or cross shape. Dist=4,300 ly.

M36
- Aur
- About half size of M38. Located in rich Milky Way star field. Dist=4,100 ly.

M37
- Aur
- Very fine star cluster. Discovered by Messier in 1764. Dist=4,400 ly.

M41
- CMA
- First recorded observation by Aristotle in 325 BC as "cloudy spot". Dist=2,300 ly.

2516 Car
- Spectacular open star cluster of 100 stars spanning 1/2 deg. Dist=1,300 ly.

2808 Car
- Located 4 deg W of Nu Carinae. Visible to the naked eye on clear nights.

3114 Car
- Stunning open cluster. 30+ stars visible through 7x binoculars. Dist=2,900 ly.

3293 Car

IC 2602
- Car
- The "Five of Diamonds". Bright cluster twice diameter of full Moon. Dist=401 ly.

3372 Car
- Eta Carina 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.

Mira
- Cet
- Famous long period variable star. Varies between 3.0 & 10.1 over 332 days.

LMC
- Dor
- Large Magellanic Cloud. A neighbouring galaxy of the Milky Way. Dist=180,000 ly.

M35
- Gem
- Clear open cluster located near foot of the twin Castor. Dist=2,800 ly.

M48
- Hya
- 12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly.

γ Leporis
- Leo

2232 Mon
- Mon
- A large scattered star cluster of 20 stars. Dist=1,300 ly.

2244 Mon
- Surrounded by the rather faint Rosette Nebula. Dist=5,540 ly.

M50
- Mon
- Clear open cluster. 75 stars visible through 7x binoculars. Dist=3,000 ly.

M42
- Ori

L2
- Phoenix
- Semi-variable. Magnitude varies between 2.6 & 6.2 over 140.42 days.

M47
- Pup
- Bright star cluster. 15+ stars in 7x binoculars. Dist=1,500 ly.

M46
- Pup
- Dist=5,400 ly. Contains planetary NGC 2438 (Mag 11, d=65°) - not associated.

2451 Pup
- Pup
- 30+ stars in binoculars. The brightest star, 7 Puppis, is red. Dist=850 ly.

2531 Tuc
- Tuc
- Spectacular nebula. Visible through a telescope. Dist=15,000 ly.

2547 Vel
- Vel
- Large open cluster visible through binoculars. Dist=1,300 ly.

IC 2391
- Vel

Telescopic Objects

2070 Dor
- Dor
- Tarantula Nebula. A bright nebula located in LMC. A star-forming region.

η Eridani
- Eri

β Monoceros
- Mon
- Triple star. Mags 4.6, 5.0 & 5.4. Requires telescope to view arc-shape. Sep=7.3 ly.

2264 Mon
- Mon
- Christmas Tree Cluster. Associated with the Cone Nebula. Dist=2,450 ly.

α Orionis
- Ori
- Superb multiple star. 2 mag stars one side, mag 9 star on other. Struve 761 triple in field.

κ Puppis
- Pup
- Telescope easily shows two blue-white stars of almost equal brightness. Sep=9.9 ly.

M1
- Tau
- Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 ly.

3132 Vel
- Vel
- One of the brightest planetary nebulae. Magnitude 10 central star. Dist=2,600 ly.

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