

AUGUST 2010 CELESTIAL CALENDAR BY DAVE MITSKY

All times, unless otherwise noted, are UT (subtract four hours and, when appropriate, one calendar day for EDT)

- 8/1 Mars is 1.9 degrees south of Saturn at 19:00
- 8/2 Venus is at the descending node today
- 8/3 Last Quarter Moon occurs at 4:59; the Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to occur at 19:23
- 8/4 The Moon is 0.6 degree south of the bright open cluster M45 (the Pleiades) in Taurus at 17:00
- 8/7 Mercury is at greatest eastern elongation (27 degrees) at 1:00; the Moon is 0.05 degree south of the bright open cluster M35 in Gemini at 2:00
- 8/8 Mercury is at aphelion at 8:00
- 8/9 Asteroid 1 Ceres is stationary at 2:00
- 8/10 Venus is 3 degrees south of Saturn at 1:00; New Moon (lunation 1084) occurs at 3:08; the Moon is at perigee, subtending 33'51" from a distance of 357,857 km (222,362 miles) and creating large tides, at 17:58
- 8/12 Mercury is 2 degrees north of the Moon at 2:00
- 8/13 The peak of the Perseid meteor shower (a zenithal hourly rate of 60-100/hour) occurs at 0:00; Saturn is 8 degrees north of the Moon at 7:00; a double Galilean shadow transit begins at 10:12; Venus is 5 degrees north of the Moon at 12:00; Mars is 6 degrees north of the Moon at 17:00
- 8/16 First Quarter Moon occurs at 18:14
- 8/17 The Lunar X, also known as the Werner or Purbach Cross, an X-shaped illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to occur at 3:52; the Moon is 1.9 degrees north of the first-magnitude star Antares (Alpha Scorpius) at 23:00
- 8/20 Mercury is stationary at 4:00; Venus is at greatest eastern elongation (46 degrees) at 4:00; Neptune (magnitude 7.8, apparent size 2.3") is at opposition at 10:00; a double Galilean shadow transit begins at 12:06
- 8/23 Venus is 2 degrees south of Mars at 21:00
- 8/24 Neptune is 5 degrees south of the Moon at 12:00; Full Moon (known as the Fruit, Grain, Green Corn, or Sturgeon Moon), the smallest one of the year, occurs at 17:05
- 8/25 The Moon is at apogee, subtending 29'40" from a distance of 406,389 km (252,518 miles), at 5:51
- 8/27 Uranus is 6 degrees south of the Moon at 7:00; Jupiter is 7 degrees south of the Moon at 12:00; a double Galilean shadow transit begins at 15:50
- 8/28 Mercury is at its greatest heliocentric latitude south today

The Perseid meteor shower is not affected by moonlight this year.

The Moon is 20.2 days old and located in Pisces on August 1 at 0:00 UT. It's at its greatest northern declination on August 6 (+25.0 degrees) and its greatest southern declination on August 18 (-24.9 degrees). Longitudinal libration is at a maximum of +7.7 degrees on August 17 and a minimum of -7.3 degrees on August 4. Latitudinal libration is at a maximum of +6.8 degrees on August 13 and a minimum of -6.6 degrees on August 27. Large tides will occur from August 11 through August 13. Visit <http://www.astronomyblogs.com/member/saberscorp/?xjMsgID=50821> for tips on spotting extreme crescent Moons. Times and dates for the lunar light rays predicted to occur this month are available at <http://www.lunar-occultations.com/rlo/rays/rays.htm>

The Sun is located in Cancer on August 1.

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on August 1: Mercury (0.1 magnitude, 6.9", 57% illuminated, 0.98 a.u., Leo), Venus (-4.3 magnitude, 19.9", 58% illuminated, 0.84 a.u., Leo), Mars (1.5 magnitude, 4.7", 93% illuminated, 1.99 a.u., Virgo), Jupiter (-2.7 magnitude, 45.8", 99% illuminated, 4.31 a.u., Pisces), Saturn (1.1 magnitude, 16.4", 100% illuminated, 10.13 a.u., Virgo), Uranus (5.8 magnitude, 3.7", 100% illuminated, 19.43 a.u., Pisces), Neptune (7.8 magnitude, 2.4", 100% illuminated, 29.05 a.u., Aquarius), and Pluto (14.0 magnitude, 0.1", 100% illuminated, 31.06 a.u., Sagittarius).

Mercury, Venus, Mars, and Saturn are visible in the west this month. At midnight, Jupiter and Uranus can be found in the southeast and Neptune in the southwest. Jupiter and Uranus are in the southwest in the morning.

At midmonth, Mercury is visible during evening twilight, Venus sets at 10:00 p.m. EDT, Mars sets at 10:00 p.m. EDT, Jupiter rises at 10:00 p.m. EDT and transits the meridian at 4:00 p.m. EDT, and Saturn sets at 10:00 p.m. EDT for observers at latitude 40 degrees north.

Mercury is best seen during the first two weeks of August when it's very low in the west-southwest about 20 degrees to the southwest of Venus. Southern hemisphere observers are favored.

Venus is at its highest in early August for observers at latitude 40 degrees north. It increases in magnitude to -4.6 by the end of the month. Venus is three degrees south of Saturn on August 10 and two degrees south of Mars on August 23. During the first twelve days of the month, Venus, Mars, and Saturn fit within a binocular field of view. The three planets are most tightly grouped on August 7, when they all lie within a circle with a diameter of 4.8 degrees, thus forming a "planetary trio". Venus, Mars, and the first-magnitude star Spica form a triangle from August 29 into early September. Spica is one degree north of Venus on the evening of August 31.

Mars passes 1.9 degrees south of Saturn on August 1 and lies two degrees south of Venus on August 23. The Red Planet is less than 4.5 arc seconds in angular diameter by the end of the month.

During August, Jupiter shines brightly at magnitude -2.8 and spans 48 arc seconds. The distance between Jupiter and Uranus decreases from 3 to 1.8 degrees this month due to Jupiter's retrograde motion. On August 12, Europa is in eclipse from 12:37 a.m. EDT to 5:17 a.m. EDT. Europa is also eclipsed by Jupiter on August 19 beginning at 3:13 a.m. EDT. Click on http://skyandtelescope.com/observing/objects/planets/article_107_1.asp to determine transit times of the central meridian by the Great Red Spot. Data on the Galilean satellites is available at <http://skytonight.com/observing/objects/javascript/3307071.html>

Saturn is 1.9 degrees north of Mars on August 1 and three degrees north of Venus on August 10. The planet is less than 16 arc seconds in angular size by month's end.

Uranus is three degrees west of Jupiter on August 1. By the end of the month, it lies 1.8 degrees to the west of Jupiter. On August 25, Uranus passes 0.9 degree south of the point of the vernal equinox.

This month Neptune moves westward from Aquarius into Capricornus. The eighth planet is located two degrees from the fifth-magnitude star Mu Capricorni at the start of the month. By August 31, it's one degree from the star.

Finder charts for Uranus and Neptune are posted at http://media.skyandtelescope.com/documents/Uranus_Neptune_2010.pdf

The dwarf planet Pluto is located about 2.7 degrees north of the fourth-magnitude star Mu Sagittarii. A finder chart is available on page 60 of the July 2010 issue of Sky & Telescope and online at <http://www.skyandtelescope.com/skytel/beyondthepage/89002802.html>

Asteroid 1 Ceres decreases in brightness from magnitude 8.1 to magnitude 8.6 during August as it passes through southern Ophiuchus. Ceres is within three degrees of the third-magnitude star Theta Ophiuchi for the entire month. The eleventh-magnitude asteroid 16 Psyche will occult an eighth-magnitude star from the southern United States on the morning of August 21. For further information, see http://asteroidoccultation.com/2010_08/0821_16_21181_Summary.txt

Comet 10P/Tempel travels southeastward through Cetus this month. The eight-magnitude periodic comet is just north of the third-magnitude star Eta Ceti on the night of August 4. Browse <http://www.aerith.net/comet/future-n.html> for additional information on this and other visible comets.

A free star map for August can be downloaded at <http://www.skymaps.com/downloads.html>

Sixty binary and multiple stars for August: 5 Aquilae, Struve 2404, 11 Aquilae, Struve 2426, 15 Aquilae, Struve 2449, 23 Aquilae, Struve 2532, Pi Aquilae, 57 Aquilae (Aquila); Beta Cygni (Albireo), 16 Cygni, Delta Cygni, 17 Cygni (Cygnus); 41 & 40 Draconis, 39 Draconis, Struve 2348, Sigma Draconis, Struve 2573, Epsilon Draconis (Draco); 95 Herculis, 100 Herculis, Struve 2289, Struve 2411 (Hercules); Struve 2349, Struve 2372, Epsilon-1 & Epsilon-2 Lyrae (the Double-Double), Zeta-2 Lyrae, Beta Lyrae, Otto Struve 525, Struve 2470 & Struve 2474 (the Other Double-Double) (Lyra); 67 Ophiuchi, 69 Ophiuchi, 70 Ophiuchi, Struve 2276, 74 Ophiuchi (Ophiuchus); Mu Sagittarii, Eta Sagittarii, 21 Sagittarii, Zeta Sagittarii, H N 119, 52 Sagittarii, 54 Sagittarii (Sagittarius); Struve 2306, Delta Scuti, Struve 2373 (Scutum); Struve 2296, Struve 2303, 59 Serpentis, Theta Serpentis (Serpens Cauda); Struve 2445, Struve 2455, Struve 2457, 4 Vulpeculae, Struve 2521, Struve 2523, Struve 2540, Struve 2586, Otto Struve 388, Struve 2599 (Vulpecula)

Challenge binary star for August: Alvan Clark 11 (ADS 11324) (Serpens Cauda)

Notable carbon star for August: V Aquilae

Eighty deep-sky objects for August: B139, B142, B143, NGC 6709, NGC 6738, NGC 6741, NGC 6751, NGC 6755, NGC 6772, NGC 6778, NGC 6781, NGC 6804, PK64+5.1 (Aquila); NGC 6819, NGC 6826, NGC 6834, (Cygnus); NGC 6643, NGC 6742 (Draco); DoDz 9 (Hercules); M56, M57, NGC 6703, NGC 6791, Ste1 (Lyra); NGC 6572, NGC 6633 (Ophiuchus); H20, M71 (Sagitta); B86, B87, B90, B92, B93, M8, M17, M18, M20, M21, M22, M23, M24, M25, M28, M54, M55, M69, M70, M75, NGC 6520, NGC 6544, NGC 6546, NGC 6553, NGC 6565, NGC 6603, NGC 6818, NGC 6822 (Sagittarius); IC 4703, IC 4756, M16, NGC 6604 (Serpens Cauda); B100, B101, B103, B104, B110, B111, B113, Bas 1, IC 1295, M11, M26, NGC 6649, NGC 6712 (Scutum); Cr 399 (asterism), M27, NGC 6802, NGC 6823, NGC 6834, NGC 6940, St 1 (Vulpecula)

Top ten binocular deep-sky objects for August: Cr 399, IC 4765, M8, M11, M17, M22, M24, M25, M27, NGC 6633 (IC 4756 and NGC 6633 are collectively known as the Binocular Double Cluster)

Top ten deep-sky objects for August: M8, M11, M16, M17, M20, M22, M24, M27, M55, M57

Challenge deep-sky object for August: Abell 53 (Aquila)

The objects listed above are located between 18:00 and 20:00 hours of right ascension.