April 2023 Celestial Calendar by Dave Mitsky

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

4/06 Full Moon, known as the Egg, Grass, or Pink Moon, occurs at 4:34
4/07 The Moon is at the descending node at 13:51
4/10 The Moon is 1.5 degrees north of the first-magnitude star Antares (Alpha Scorpii) at 6:00
4/11 Mercury is at its greatest heliocentric latitude north today; Venus is 2.5 degrees southeast of the bright open cluster M45 (the Pleiades, the Seven Sisters, or Subaru) in Taurus at 14:00; Jupiter is in conjunction with the Sun at 22:00; Mercury is at greatest eastern elongation (19.5 degrees) at 22:00
4/13 Last Quarter Moon occurs at 9:11
4/14 The Curtiss Cross, an X-shaped clair-obscure illumination effect located between the craters Parry and Gambart, is predicted to be visible at 7:11
4/16 The Moon is at perigee, subtending 32' 28'' from a distance of 367,970 kilometers (228,645 miles), at 2:24; the Moon is 3 degrees south of Saturn at 4:00
4/17 Venus is at perihelion today; the Moon is 2 degrees south of Neptune at 17:00
4/20 A hybrid or annular-total solar eclipse that's visible in parts of the eastern hemisphere begins at 1:34; New Moon (lunation 1241) occurs at 4:13; the Moon is at the ascending node at 11:32
4/21 The Moon is 1.9 degrees south of Mercury at 7:00; the Moon is 1.7 degrees north of Uranus at 13:00; Mercury is stationary at 16:00
4/22 Mars is at its greatest heliocentric latitude north today; the Moon is 1.8 degrees south of M45 (the Pleiades) at 10:00
4/23 The peak of the Lyrid meteor shower (15 to 20 meteors per hour) is predicted to occur at 1:00; the Moon is 1.3 degrees north of Venus at 13:00
4/24 Asteroid 4 Vesta is in conjunction with the Sun at 9:00
4/26 The Moon is 3 degrees north of Mars at 2:00; the Moon is 1.5 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 18:00
4/27 The Lunar X (the Purbach or Werner Cross), an X-shaped illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to be visible at 18:23; First Quarter Moon occurs at 21:20
4/28 The Moon is at apogee, subtending 29' 34'' from a distance of 404,299 kilometers (251,220 miles), at 6:43
4/29 Today is International Astronomy Day; the Hesiodus Lunar Sunrise Crater Ray is predicted to be visible at 9:36
4/30 Asteroid 7 Iris is at opposition at 16:00

Charles Messier discovered the open cluster M50 in Monoceros on April 5, 1772. Charles Messier discovered the spiral galaxy M58 in Virgo on April 15, 1772. Johann Koehler discovered the elliptical galaxies M59 and M60 in Virgo on April 11, 1779. Caroline Herschel discovered C/1790 H1 (Herschel) on April 18, 1790. The first photograph of the Sun was taken on April 2, 1845. The first radar signal was bounced off of the Sun on April 7, 1959. The Hubble Space Telescope was placed in orbit on April 25, 1990. The Compton Gamma Ray Observatory achieved orbit on April 7, 1991.

The Lyrid meteor shower peaks on the night of April 22nd. A slender waxing crescent Moon will not affect observing the Lyrids this year. Comet C/1861 G1 (Thatcher) is responsible for creating the Lyrid meteor shower. A typical zenithal hourly rate is about 20 meteors per hour but short outbursts have occurred occasionally. Fireballs are also possible. The radiant lies to the northwest of the first-magnitude star Vega, between the Keystone of Hercules and Lyra, at approximately right ascension 18h10m, declination 33.3 degrees north. For more on this year's Lyrid meteor shower, see page 50 of the April 2023 issue of Sky & Telescope or browse https://earthsky.org/astronomy-essentials/everything-you-need-to-know-lyrid-meteor-shower and https://www.amsmeteors.org/meteor-showers/meteor-shower-calendar/

Information on passes of the ISS, the Tiangong, the USAF's X-37B, the HST, the BlueWalker 3, Starlink, and other satellites can be found at http://www.heavens-above.com/

The Moon is 10.1 days old, is illuminated 74.9%, subtends 29.9', and is located in Cancer at 0:00 UT on April 1st. The Moon is at its greatest northern declination of +27.9 degrees on April 25th and its greatest southern declination of -27.9 degrees on April 12th. Longitudinal libration is at a maximum of +5.1 degrees on April 22nd and -5.3 degrees on April 8th. Latitudinal libration is at a maximum of +6.8 degrees on April 14th and a minimum of -6.8 degrees on April 28th. Favorable librations occur for the following features: Crater Pettit on April 6th, Crater Glushko on April 8th, Crater Abel on April 23rd, and Crater Helmholtz on April 26th. The Curtiss Cross occurs on April 14th and the Lunar X on April 27th. The Moon is at the descending node on April 7th and at the ascending node on April 20th. New Moon occurs on April 20th. The Moon is at apogee on April 16th and at perigee on April 28th. The Moon passes close to the first-magnitude star Regulus (Alpha Leonis) at 12:00 on April

2nd, the first-magnitude star Spica (Alpha Virginis) at 21:00 on April 6th, the first-magnitude star Antares (Alpha Scorpii) at 8:00 on April 10th, the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 12:00 on April 22nd, the bright open cluster M35 in Gemini at 0:00 on April 25th, the first-magnitude star Castor (Alpha Geminorum) at 13:00 on April 26th, the first-magnitude star Pollux (Beta Geminorum) at 18:00 on April 26th, the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 23:00 on April 27th, and the first-magnitude star Regulus (Alpha Leonis) at 20:00 on April 29th. Browse http://www.lunar-occultations.com/iota/iotandx.htm for information on lunar occultation events. Visit https://saberdoesthestars.wordpress.com/2011/07/05/saber-does-the-stars/ for tips on spotting extreme crescent Moons and https://curtrenz.com/moon.html for Full Moon and other lunar data. Go to https://skyandtelescope.org/wp-content/uploads/MoonMap.pdf and https://celestron-site-support-files.s3.us-east-1.amazonaws.com/support_files/Explore%20the%20Moon%20Map%2024%20x%2033%20RReeves-web.pdf and https://nightsky.jpl.nasa.gov/docs/ObserveMoon.pdf for simple lunar maps. Click on https://astrostrona.pl/moon-map/ for an excellent online lunar map. Visit http://www.ap-i.net/avl/en/start to download the free Virtual Moon Atlas. Consult http://time.unitarium.com/moon/where.html for current information on the Moon and https://www.fourmilab.ch/earthview/lunarform/lunarform.html for information on various lunar features. See https://svs.gsfc.nasa.gov/5048 a lunar phase and libration calculator and https://quickmap.lroc.asu.edu/?extent=-90,-25.2362636,90,25.2362636&proj=10&layers=NrBsFYBoAZIRnpEoAsjYIHYFcA2vIBvAXwF1SizSg for the Lunar Reconnaissance Orbiter Camera (LROC) Quickmap. Click on https://www.calendar-12.com/moon_calendar/2023/april for a lunar phase calendar for this month. Times and dates for the lunar crater light rays predicted to occur this month are available at http://www.lunar-occultations.com/rlo/rays/rays.htm

The Sun is located in Pisces on April 1st. It enters Aries on April 19th. An annular-total or hybrid solar eclipse, the 52nd of 80 eclipses in Saros Series 129, occurs along a narrow path crossing the Indian Ocean, Australia's North West Cape, East Timor, West Papua, and the Pacific Ocean from 1:34 to 6:59 UT on April 20th. A maximum eclipse of 1 minute and 16 seconds occurs at 4:16:47 UT. A partial solar eclipse is visible from southeast Asia, the East Indies, Australia, New Zealand, and the Philippines. Further information on the eclipse can be found at https://eclipsewise.com/solar/SEprime/2001-2100/SE2023Apr20Hprime.html and https://earthsky.org/astronomy-essentials/hybrid-solar-eclipse-april-20-2023/

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on April 1: Mercury (-1.1 magnitude, 5.8", 80% illuminated, 1.15 a.u., Pisces), Venus (-4.0, 14.0", 77% illuminated, 1.19 a.u., Aries), Mars (+1.0 magnitude, 6.4", 90% illuminated, 1.45 a.u., Gemini), Jupiter (-2.0 magnitude, 33.2", 100% illuminated, 5.94 a.u., Pisces), Saturn (+1.0 magnitude, 15.7", 100% illuminated, 10.58 a.u., Aquarius), Uranus (+5.8 magnitude, 3.4", 100% illuminated, 20.58 a.u. on April 16th, Aries), Neptune (+8.0 magnitude, 2.2", 100% illuminated, 30.78 a.u. on April 16th, Pisces), and Pluto (+14.4 magnitude, 0.1", 100% illuminated, 34.81 a.u. on April 16th, Capricornus).

Mercury, Venus, Mars, and Uranus are located in the west in the evening. Mars can be found in the west at midnight. Saturn and Neptune are in the east in the morning sky.

Mercury undergoes its best evening apparition of the year for observers in the northern hemisphere this month. The speediest planet is at its greatest heliocentric latitude north and is at greatest eastern elongation on April 11th. It fades in brightness from magnitude -1.1 to magnitude +2.0 by April 21st when it will be stationary and in conjunction with a slender waxing crescent Moon.

Venus increases in brightness from magnitude -4.0 to magnitude -4.2 and in angular diameter from 14.2 to 16.9 arc seconds but decreases in illumination from 77% to 67% this month. Venus and M45 (the Pleiades) will fit into a binocular field of view from April 7th to April 14th but are at their closest on the nights of April 10th and April 11th. The brightest planet is at perihelion on April 17th.

Mars shrinks from 6.4 to 5.4 arc seconds in angular size and dims from magnitude +1.0 to magnitude +1.3 during April. The bright open cluster M35 and Mars can be seen in a binocular field of view until April 8th. The Red Planet passes within a quarter of a degree of the third-magnitude binary star Epsilon Geminorum (Mebsuta) on April 14th. The waxing crescent Moon passes three degrees north of Mars on April 26th. Mars passes two degrees north of the fourth-magnitude trinary star Delta Geminorum (Wasat) at the end of the month.

Jupiter disappears from view this month. The gas giant is in conjunction with the Sun on April 11th.

Saturn grows in solar elongation from 35 to 65% during April as it climbs higher into the morning sky. The waning crescent Moon passes 3 degrees south of Saturn on April 16th. Eighth-magnitude Titan is located due west of the planet on April 30th. Browse http://www.skyandtelescope.com/observing/interactive-sky-watching-tools/ for information on Saturn's satellites.

Uranus disappears into evening twilight by the third week of April. A thin waxing crescent Moon passes less than two degrees north of the ice giant on April 21st.

Eighth-magnitude Neptune is low in the east at dawn. The waning crescent Moon passes two degrees south of Neptune on April 17th. Neptune departs Aquarius and enters Pisces in late April.

The dwarf planet Pluto is still not a viable target this month.

For more on the planets and how to locate them, browse http://www.nakedeyeplanets.com/

A summary on the planets for April can be found at https://earthsky.org/astronomy-essentials/visible-planets-tonight-mars-jupiter-venus-saturn-mercury/

The graphic at https://www.timeanddate.com/astronomy/planets/distance displays the apparent and comparative sizes of the planets, along with their magnitudes and distances, for a given date and time.

The rise and set times and locations of the planets can be determined by clicking on https://www.timeanddate.com/astronomy/night/

This month the dwarf planet/asteroid 1 Ceres shines at seventh magnitude as it progresses westward through Coma Berenices and into Leo. On April 6th, the main belt denizen lies approximately two degrees north of the fifth-magnitude star 6 Comae Berenices. Asteroid 7 Iris (magnitude +9.6) reaches opposition in Libra on April 30th. Click on http://www.asteroidoccultation.com/2023_04_si.htm for information on asteroid occultations taking place this month. See https://www.curtrenz.com/asteroids.html for additional current information on a number of asteroids.

Comet C/2020 V2 (ZTF) travels southeastward through Triangulum and into Aries during April. The tenth-magnitude comet passes several degrees to the west of the spiral galaxy NGC 972 in Aries on April 15th. Visit http://cometchasing.skyhound.com/ and http://www.aerith.net/comet/future-n.html and https://cobs.si/ for additional information on this and other comets visible this month.

A list of the closest approaches of comets to the Earth is posted at http://www.cometography.com/nearcomet.html

A wealth of information on solar system celestial bodies is posted at http://www.curtrenz.com/astronomy.html and http://nineplanets.org/

Information on the celestial events transpiring each week can be found at http://astronomy.com/skythisweek and https://skyandtelescope.org/observing/sky-at-a-glance/

Astronomical events of interest for the entire month are covered at https://astronomy.com/magazine/sky-this-month/2023/03/sky-this-month-april-2023

Informative videos discussing astronomical objects worthy of observing each month can be found at https://solarsystem.nasa.gov/skywatching/whats-up/ and https://hubblesite.org/resource-gallery/learning-resources/tonights-sky

Free star maps for this month can be downloaded at http://www.skymaps.com/downloads.html and http://whatsouttonight.com/

An online interactive star chart appears at https://skyandtelescope.org/interactive-sky-chart/

The fifth-magnitude G-type main-sequence star 61 Virginis - http://www.solstation.com/stars/61vir2co.jpg - is a sun-like star at a distance of 28 light years. It hosts three exoplanets and is visible to the naked-eye.

Data on current supernovae can be found at http://www.rochesterastronomy.org/snimages/

Information on observing some of the more prominent Messier galaxies is available at http://www.cloudynights.com/topic/358295-how-to-locate-some-of-the-major-messier-galaxies-and-helpful-advice-for-novice-amateur-astronomers/

Finder charts for the Messier objects and other deep-sky objects are posted at https://freestarcharts.com/messier and https://freestarcharts.com/ngc-ic and https://www.cambridge.org/turnleft/seasonal_skies_april-june

Telrad finder charts for the Messier Catalog and the SAC's 110 Best of the NGC are posted at http://www.custerobservatory.org/docs/messier2.pdf and http://www.star-shine.ch/astro/messiercharts/messierTelrad.htm and https://www.saguaroastro.org/wp-content/sac-docs/Book110BestNGC.pdf

Steve Tonkin's The Binocular Sky Newsletter for April can be seen at https://binocularsky.com/newsletter/BinoSkyNL.pdf

Author Phil Harrington offers an excellent freeware planetarium program for binocular observers known as TUBA (Touring the Universe through Binoculars Atlas) at http://www.philharrington.net/tuba.htm

Stellarium and Cartes du Ciel are useful freeware planetarium programs that are available at http://stellarium.org/ and https://www.ap-i.net/skychart/en/start

Deep-sky object list generators can be found at http://www.virtualcolony.com/sac/ and https://telescopius.com/ and http://tonightssky.com/MainPage.php

Freeware sky atlases can be downloaded at http://www.deepskywatch.com/files/deepsky-atlas/Deep-Sky-Hunter-atlas-full.pdf and https://www.cloudynights.com/articles/cat/articles/observing-skills/free-mag-7-star-charts-r1021 and https://allans-stuff.com/triatlas/

Seventy-five binary and multiple stars for April: h4481 (Corvus); Aitken 1774, Gamma Crateris, Jacob 16, Struve 3072, h4456, Burnham 1078 (Crater); h4311, Burnham 219, N Hydrae, h4455, h4465 (Hydra); 31 Leonis, Alpha Leonis (Regulus), h2520, Struve 1417, 39 Leonis, Struve 1421, Gamma Leonis (Algieba), Otto Struve 216, 45 Leonis, Struve 1442, Struve 1447, 49 Leonis, Struve 1482, 54 Leonis, Struve 1506, Chi Leonis, 65 Leonis, Struve 1521, Struve 1527, Struve 1529, Iota Leonis, 81 Leonis, 83 Leonis, Tau Leonis, 88 Leonis, 90 Leonis, Struve 1565, Struve 1566, 93 Leonis, h1201, S Leonis (Leo); h2517, Struve 1405, Struve 1432, 33 Leo Minoris, Struve 1459, 40 Leo Minoris, Struve 1492 (Leo Minor); Struve 1401, Struve 1441, Struve 1456, Struve 1464, 35 Sextantis, 40 Sextantis, 41 Sextantis (Sextans); Struve 1402, Struve 1415, Struve 1427, Struve 1462, Struve 1486, Struve 1495, Struve 1510, Struve 1520, Xi Ursae Majoris, Nu Ursae Majoris, Struve 1541, 57 Ursae Majoris, Struve 1544, Struve 1553, Struve 1561, Struve 1563, 65 Ursae Majoris, Otto Struve 241 (Ursa Major)

Notable carbon star for April: V Hydrae (Hydra)

One hundred deep-sky objects for April: NGC 4024, NGC 4027 (Corvus); NGC 3511, NGC 3513, NGC 3672, NGC 3887, NGC 3892, NGC 3955, NGC 3962, NGC 3981 (Crater); NGC 3091, NGC 3109, NGC 3145, NGC 3203, NGC 3242, NGC 3309, NGC 3585, NGC 3621, NGC 3717, NGC 3904, NGC 3936 (Hydra); M65, M66, M95, M96, M105, NGC 3098, NGC 3162, NGC 3177, NGC 3185, NGC 3190, NGC 3226, NGC 3227, NGC 3300, NGC 3346, NGC 3367, NGC 3377, NGC 3384, NGC 3389, NGC 3412, NGC 3437, NGC 3489, NGC 3495, NGC 3507, NGC 3521, NGC 3593, NGC 3607, NGC 3608, NGC 3626, NGC 3628, NGC 3630, NGC 3640, NGC 3646, NGC 3655, NGC 3681, NGC 3684, NGC 3686, NGC 3691, NGC 3810, NGC 3842, NGC 3872, NGC 3900, NGC 4008 (Leo); NGC 3245, NGC 3254, NGC 3277, NGC 3294, NGC 3344, NGC 3414, NGC 3432, NGC 3486, NGC 3504 (Leo Minor); NGC 2990, NGC 3044, NGC 3055, NGC 3115, NGC 3156, NGC 3166, NGC 3169, NGC 3246, NGC 3423 (Sextans); IC 750, M97, M108, M109, NGC 3079, NGC 3184, NGC 3198, NGC 3310, NGC 3359, NGC 3610, NGC 3665, NGC 3675, NGC 3738, NGC 3877, NGC 3898, NGC 3941, NGC 3953, NGC 3998, NGC 4026 (Ursa Major)

Top ten deep-sky objects for April: M65, M66, M95, M96, M97, M105, M108, NGC 3115, NGC 3242, NGC 3628

Top ten binocular deep-sky objects for April: M65, M66, M95, M96, M97, M105, M108, M109, NGC 3115, NGC 3242

Challenge deep-sky object for April: Leo I (Leo)

The objects listed above are located between 10:00 and 12:00 hours of right ascension.