

# Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

March 2022

## Membership Meeting

Saturday March 12, 2022 at 7:00p at the Herrett Center - CSI Campus

## Centennial Observatory

See Inside for Details

## Faulkner Planetarium

See Inside for Details

[www.mvastro.org](http://www.mvastro.org)

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*Magic Valley Astronomical Society is a member of the Astronomical League*



*M-51 imaged by Rick Widmer & Ken Thomason  
Herrett Telescope - Shotwell Camera*

## President's Message

Recently I was reading an Astronomy Magazine article previewing the upcoming 2024 total Solar Eclipse. On April 8, 2024 the eclipse is forecast to swing up from Mexico and into Texas, the Ohio Valley and through the Eastern Seaboard. Projections say more people than ever will witness this live event. I remember well, as I am sure many of you did, the Solar Eclipse here in Southern Idaho on August 17, 2017. Spectacular, yes!

In October 2023, another solar eclipse will grace our region when an Annular Solar Eclipse will swing southwest from Oregon, Nevada, Utah, New Mexico and Texas. I know, several of you got to witness the May 20, 2012 Annular Eclipse in Utah and Nevada as I did. Solar and Lunar eclipses still remain as Mother Nature's grandest events. Don't forget, we have two Lunar Eclipses this year scheduled on May 16<sup>th</sup> and November 8<sup>th</sup>. Hope many of you can make plans to see them.

Last month's MVAS meeting with Tim Frazier on building telescopes was fun and exciting. On March 12<sup>th</sup> we have our local astronomer, Dr. Candace Wright speaking on "Asteroids: Danger, Detection and Defense." Dr. Wright has been our speaker several times in the past and always comes prepared to give us good and informational material. We look forward to it, March 12<sup>th</sup> at the Herrett Center Library at 7pm.

And as Spring makes its entrance into Magic Valley in a few weeks, hopefully temps will improve so that we can get out and enjoy some warmer days and nights and clearer weather. As I mentioned at last month's meeting, I'd like to begin the season with a star party. For the first one, let me suggest the Jerome Gun Club due to its fairly close access and decent skies. There's a new moon the first weekend of April, so let's keep an eye on it and we'll announce the date later. In the meantime, if any of you get a chance to catch a break and a clear night to do some observing and or imaging, let us all know about it with pics and/or share some observation notes.

Best to all of you and cheers,

Gary Leavitt

# March 2022 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2 <b>New Moon</b>  Visible 0% Lunation 1227	3	4	5
6	7	8	9	10 <b>First Quarter Moon</b>  Visible 50% ↑ Age: 7.43 Days	11	12 MVAS General Meeting 7:00p Herrett Center  Centennial Observatory Public Star Party 7:30p – 9:30p
13 <b>Daylight Saving Time</b> Change your <b>CLOCKS...</b>  Change your <b>BATTERIES!</b> 	14 Commonwealth Day (Canada) Pi Day  (3.1415926535 is the actual Pi Day just not as tasty)	15	16	17 <b>St. Patrick's Day</b> 	18 <b>Full Eagle Moon</b> 1:17 am  Visible 100% Age: 14.94 Days	19
20	21	22	23	24	25 <b>Last Quarter Moon</b>  Visible: 47% ↓ Age: 22.44 Days	26 <b>Earth Hour</b> Centennial Observatory Telescope Viewing  8:30p – 9:30p
27	28	29	30	31		

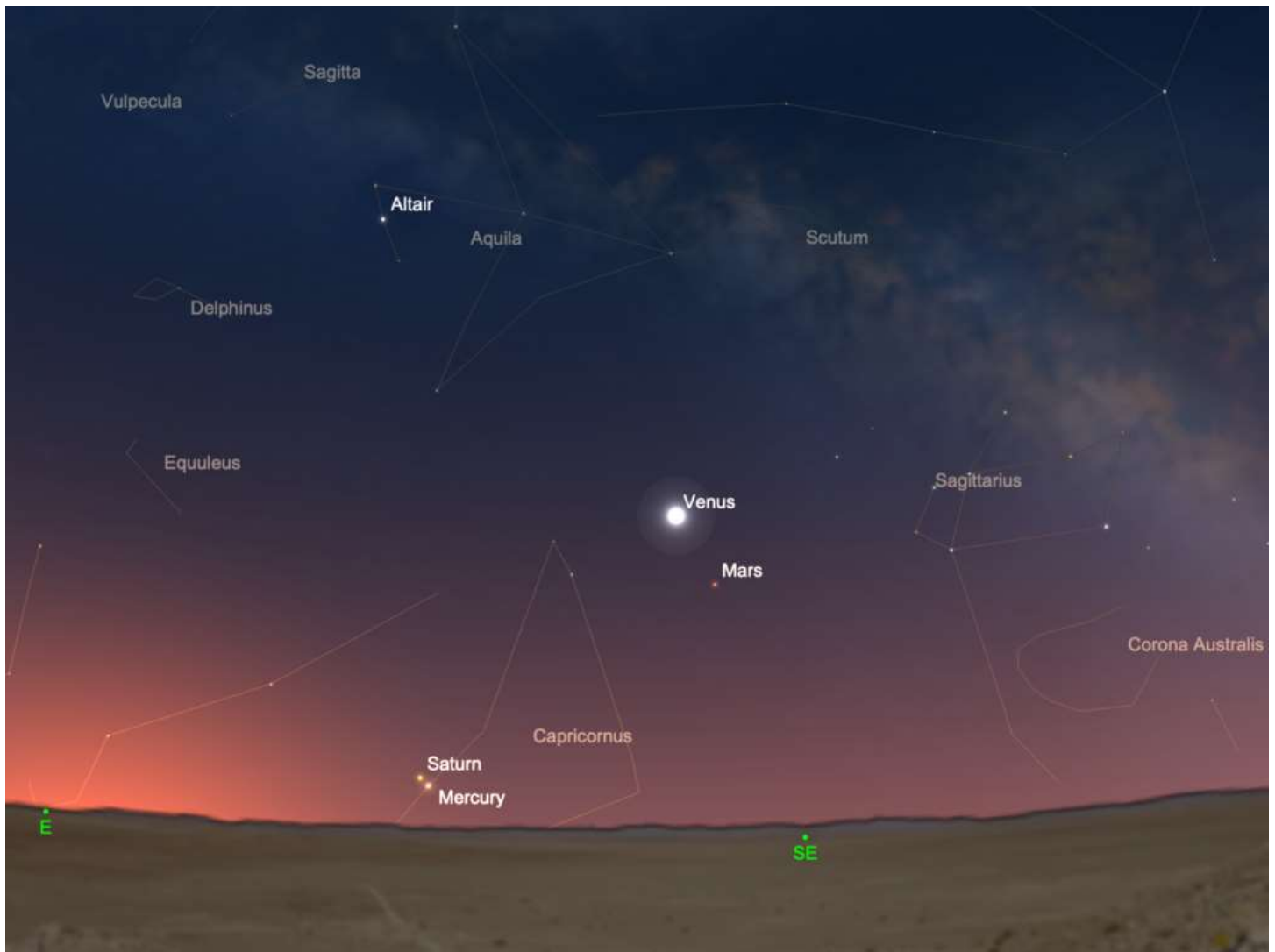
The Night Sky This Month – March 2022



Orion, Canis Major, and Taurus setting in the southwestern sky in March.

All five bright planets make an appearance in the eastern early-morning sky this month. Venus is by far the brightest of the lot, while Jupiter still lies low enough in the twilight to make it a challenge to see. The prominent constellations Orion, Taurus, and Canis Major all linger in the southwestern evening sky, and their proximity to the horizon makes for promising compositions for nightscapes. Deep-sky observers welcome the beginning of galaxy season as the Earth's nightward side looks out of the plane of the Milky Way into the depths of intergalactic space. And the seasons change as spring begins in the northern hemisphere and autumn begins in the south. Here's what to see in the night sky this month.

**2 March 2022.** New Moon, 17:35 UT



Four planets congregating in the eastern sky before sunrise on March 2, 2022.

**2 March.** Look for four planets in the east-southeastern sky before sunrise. Saturn and Mercury lie less than a degree apart low over the horizon, while Mars and brilliant Venus are higher up and slightly west. A pair of binoculars improves the view. Southern hemisphere observers see Saturn and Mercury at a higher elevation; this is the best morning apparition of Mercury for southern observers in 2022.

**7 March.** Grab a pair of binoculars or a small telescope and look for Uranus less than a degree north of the waxing crescent Moon.

**8 March.** The crescent Moon lies between the Pleiades and Hyades star clusters in Taurus.

**10 March.** First Quarter Moon, 10:45 UT

**12 March.** Earth's two nearest planetary neighbors pass within  $4^\circ$  of each other low over the southeastern horizon before sunrise. Venus shines at an impressive magnitude  $-4.5$ , about 200 times brighter than Mars. In a telescope, Venus spans about  $27''$  and shows a disk about 45% illuminated, while Mars spans a tiny 4.9 arc-seconds, too small to reveal any surface detail in a telescope.

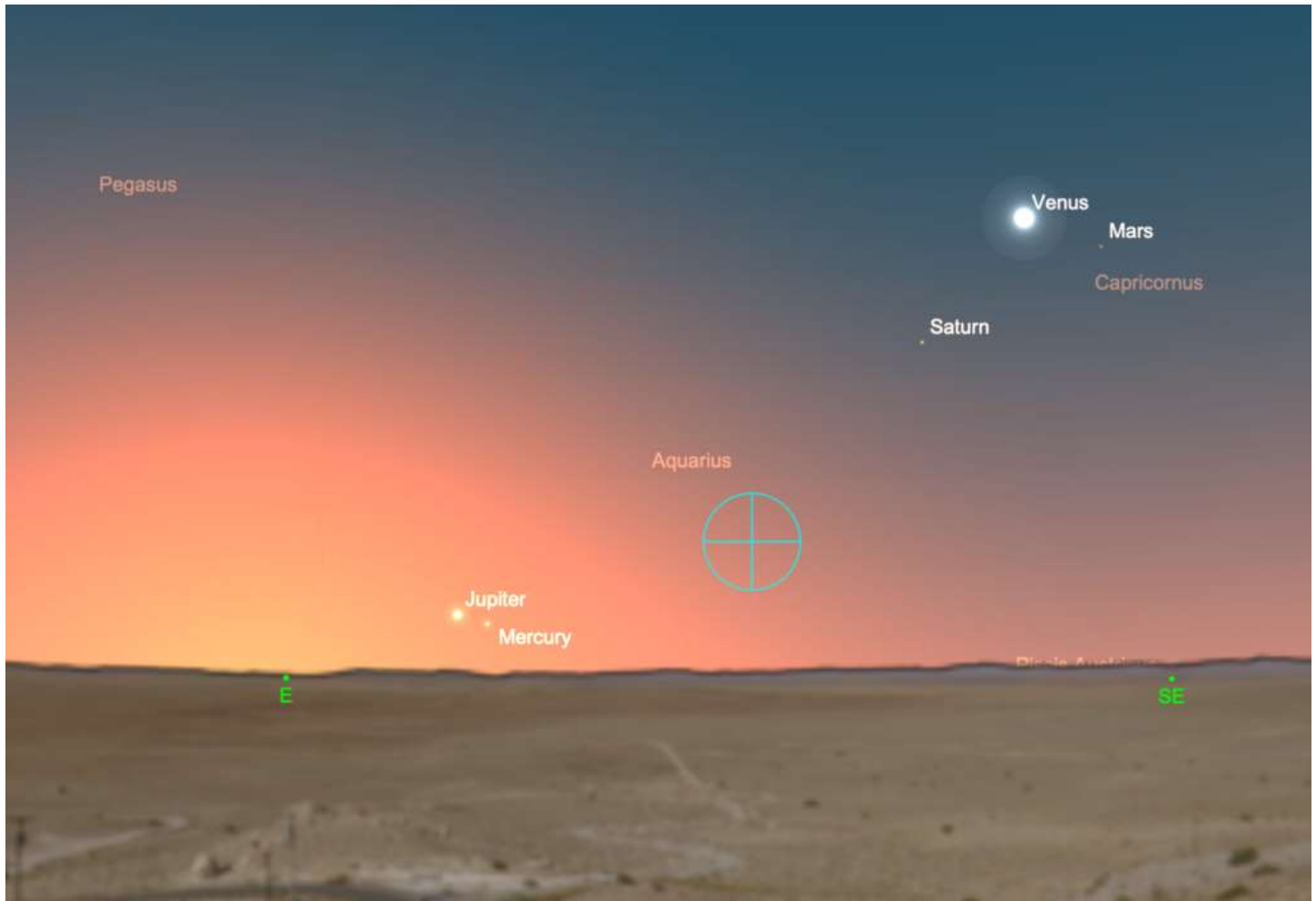
**13 March.** Daylight Saving Time begins for much of North America, magically removing an hour from your day that you won't get back until early November!

**18 March.** Full Moon, 07:18 UT

**19 March.** A thick gibbous Moon rises about  $4^\circ$  from Spica in Virgo.

**20-31 March.** As the Moon gets out of the way in the evening sky, northern observers far from city lights can spot the zodiacal light in the western sky after sunset. This whitish wedge-shaped glow emerges at a steep angle to the western horizon this time of year. It's caused by sunlight reflected by fine dust grains along the plane of the solar system. The zodiacal light is brightest closer to the Sun, so look for the zodiacal light about half hour after the end of evening twilight.

**20 March.** The Sun passes the celestial equator moving north. This marks the equinox and the first day of spring in the northern hemisphere and autumn in the southern hemisphere.



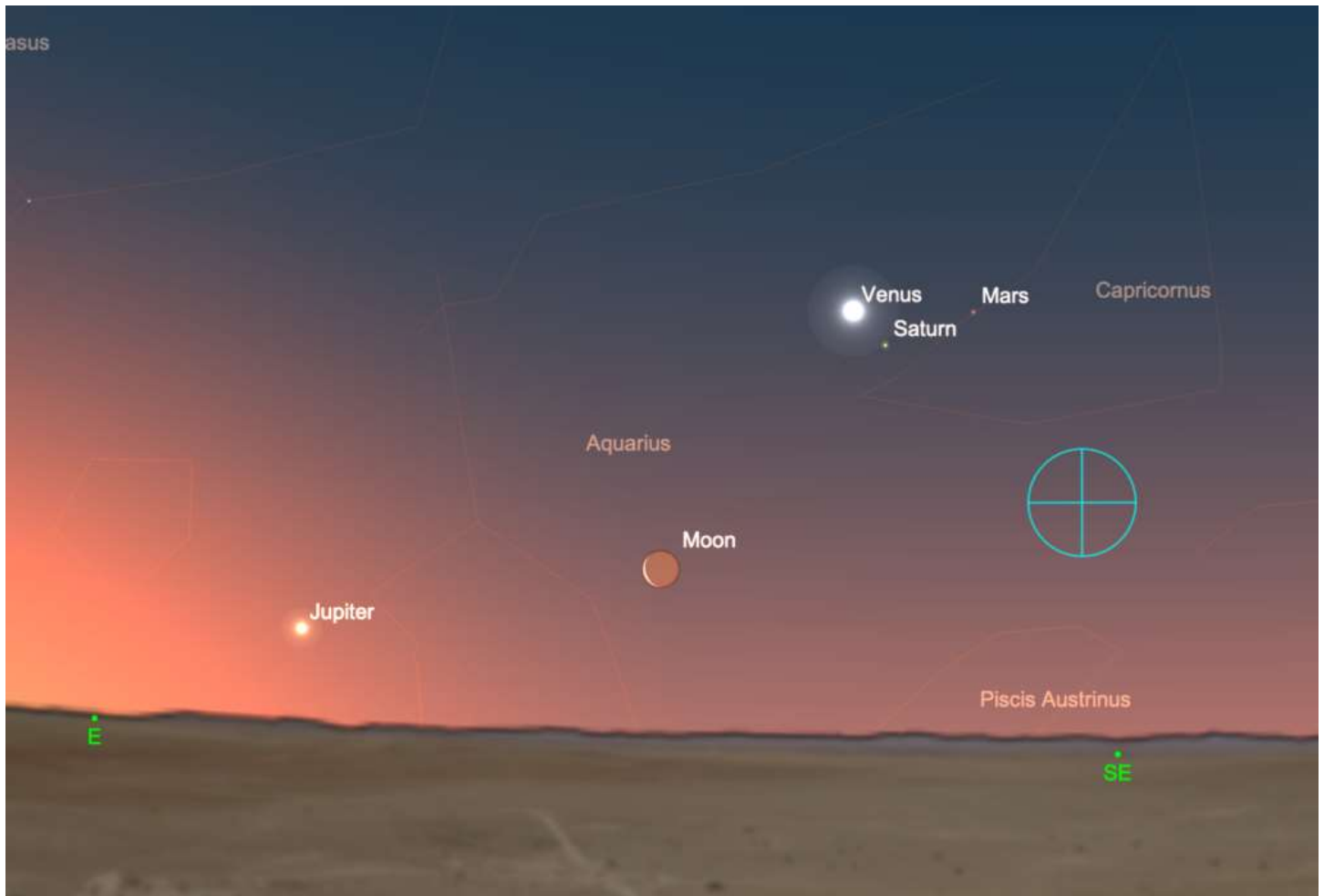
Jupiter and Mercury low in the eastern sky before sunrise on March 20, 2022. Circle with crosshair spans 5 degrees.

**20 March.** Look for Jupiter a little over a degree north of Mercury in the eastern sky before dawn. Northern observers will find this observation challenging because of the shallow angle of the ecliptic with the horizon. Southern-hemisphere observers will see the pair at a better elevation. **With the arrival of Jupiter in the morning sky, all five bright planets are now visible before sunrise.**

**20 March.** Venus lies at greatest western elongation about  $47^\circ$  from the Sun in the morning sky. In a telescope today, the planet appears 50% illuminated.

**25 March.** Last Quarter Moon, 05:37 UT





Planets and the crescent Moon on March 29, 2022 in the eastern pre-dawn sky. Circle with crosshair spans 5 degrees.

**28 March.** Venus continues to outshine its fellow bright planets in the early-morning sky. At magnitude  $-4.3$ , it now shows a disk about 54% illuminated. Saturn is still small, about  $15.7''$  across, and shines at magnitude  $+0.9$ . Mars lies about seven degrees to the west of the pair. A very slender crescent Moon lies below the two planets.

## Celestial Calendar

### March 2022 Celestial Calendar by Dave Mitsky

All times, unless otherwise noted, are UT (subtract five hours and, when appropriate, one calendar day for MST and six hours for MDT as of March 13th)

- 3/1 The Moon is 4 degrees south of Saturn at 0:00  
3/2 Mercury is 0.7 degrees south of Saturn at 13:00; New Moon (lunation 1227) occurs at 17:35  
3/5 Jupiter is in conjunction with the Sun at 14:00  
3/7 The Moon is 0.8 degrees south of Uranus, with an occultation occurring in southwestern Polynesia, southeastern Melanesia, southeastern Australia, and a portion of eastern Antarctica at 6:00  
3/9 The Moon is 0.3 degrees north of the dwarf planet/asteroid 1 Ceres, with an occultation occurring in northern Polynesia (except Hawaii), Micronesia, northern Melanesia, Papua New Guinea, eastern Indonesia, and northern and western Australia, at 7:00  
3/10 The Lunar X (the Purbach or Werner Cross), an X-shaped clair-obscure illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to be visible at 6:48; First Quarter Moon occurs at 10:45; the Moon is at apogee, subtending 29' 34" from a distance of 404,268 kilometers (251,200 miles), at 23:04  
3/12 Venus is 4 degrees north of Mars at 14:00  
3/13 Daylight Saving Time (DST) begins today; Neptune is in conjunction with the Sun at 12:00  
3/18 Full Moon (known as the Crow, Lenten, and Sap Moon) occurs at 7:18  
3/20 Venus is at greatest western elongation (47 degrees) at 9:00; the vernal equinox occurs at 15:33; Mercury is 1.3 degrees south of Jupiter at 22:00  
3/21 Mercury is at greatest heliocentric latitude south today; Venus is at dichotomy (50% illuminated) at 05:45  
3/24 The Moon is at perigee, subtending 32' 19" from a distance of 369,760 kilometers (229,758 miles), at 23:37  
3/25 Last Quarter Moon occurs at 5:37  
3/26 The Curtiss Cross, an X-shaped clair-obscure illumination effect located between the craters Parry and Gambart, is predicted to be visible at 9:40  
3/28 The Moon is 4 degrees south of Mars at 3:00; the Moon is 7 degrees south of Venus at 10:00; the Moon is 4 degrees south of Saturn at 12:00  
3/29 Venus is 2 degrees north of Saturn at 13:00  
3/30 The Moon is 4 degrees south of Jupiter at 15:00

Titan, Saturn's largest satellite, was discovered on March 25, 1655 by the Dutch astronomer Christiaan Huygens. The English astronomer Edward Pigott discovered the spiral galaxy M63 (the Black Eye Galaxy) on March 23, 1779. The English astronomer Sir William Herschel discovered Uranus on March 13, 1781. The grand design spiral galaxy M101 was discovered by the French astronomer Pierre Méchain on March 27, 1781. Asteroid 2 Pallas was discovered by the German astronomer Heinrich Wilhelm Matthias Olbers on March 28, 1802. Asteroid 4 Vesta was discovered by Heinrich Wilhelm Matthias Olbers on March 29, 1807. The first photograph of the Moon was taken on March 23, 1840. The Czech astronomer Luboš Kohoutek discovered Comet C/1973 E1 (Kohoutek) on March 7, 1973. The rings of Uranus were discovered on March 10, 1977. The Spanish amateur astronomer Francisco Garcia Diaz discovered supernova SN 1993 in the spiral galaxy M81 (Bode's Galaxy) on March 28th, 1993.

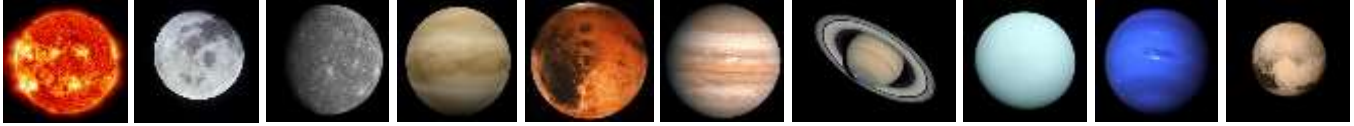
The zodiacal light should be visible in the western sky after evening twilight from dark locations for two weeks starting on March 20th.

The major meteor showers that will occur this year are discussed at <https://skyandtelesc...howers-of-2022/>



Zodiacal Light

## Our Sun, the Moon and the Solar System Planets



The **Moon** is 27.6 days old, is illuminated 4.8%, subtends 32.0 arc minutes, and is located in the constellation of Capricornus at 0:00 UT on March 1st. The Moon attains its greatest northern declination (+26.7 degrees) for the month on March 12th and greatest southern declination (-26.6 degrees) on March 25th. Longitudinal libration is at a maximum of +5.5 degrees on March 5th. It's at a minimum of -5.2 degrees on March 17th. Latitudinal libration is at maximums of +6.5 degrees on March 2nd and +6.6 degrees on March 29th and a minimum of -6.6 on March 16th. Favorable librations occur for the following craters: Beals (March 5th), Neper (March 8th), Guthnick (March 18th), and Pascal (March 24th). The Lunar X takes place on March 10th and the Curtiss Cross occurs on March 26th. New Moon occurs on March 2nd. The Moon is at apogee on March 10th and at perigee on March 24th. The Moon occults Uranus on March 7th and 1 Ceres on March 9th from certain parts of the world. Browse <http://www.lunar-occ...ota/iotandx.htm> for information on lunar occultation events. Visit <https://saberdoesthe...does-the-stars/> for tips on spotting extreme crescent Moons and <http://www.curtrenz.com/moon06.html> for Full Moon data. Go to <https://skyandtelesco...ads/MoonMap.pdf> and <https://celestron-si...RReeves-web.pdf> and <https://nightsky.jpl...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.unitariu...moon/where.html> for current information on the Moon and <https://www.fourmila.../lunarform.html> for information on various lunar features. See <https://svs.gsfc.nasa.gov/4955> a lunar phase and libration calculator and <https://quickmap.lro...2vIBvAXwF1SizSg> for the Lunar Reconnaissance Orbiter Camera (LROC) Quickmap. Click on <https://www.calendar...ndar/2022/march> 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-occ...o/rays/rays.htm>

The **Sun** is in Aquarius on March 1st at 0:00 UT. It crosses the celestial equator at 15:33 UT on March 20th, bringing spring to the northern hemisphere. At the equinox, the Sun is located in Aries and has a longitude of zero degrees.

In the evening, Uranus can be seen in the west. In the morning sky, Mercury, Jupiter, and Saturn are in the east and Venus and Mars are in the southeast.

Venus, Mars, Pluto, and asteroid 4 Vesta are all located in Sagittarius early this month. Mercury and Saturn lie less than one degree apart low in the sky in Capricornus on March 2nd. Venus, Mars, and Saturn all lie within a binocular field of view in Capricornus on March 25th. A 26-day-old waning crescent Moon joins the three planets on March 28th.

The best morning apparition of **Mercury** of the year for southern hemisphere observers continues this month. Mercury passes 42 arc minutes south of Saturn on the morning of March 2nd. The speediest planet brightens during the early part of the month but eventually disappears into morning twilight. Mercury passes 1.3 degrees north of Jupiter on March 20th and achieves its southernmost latitude from the ecliptic plane on March 21st.

**Venus** rises more than two hours before the Sun on March 1st. Venus and Mars are approximately five degrees apart on March 1st. The two planets depart Sagittarius and enter Capricornus on March 6th. The brightest planet passes four degrees north of Mars on March 12th and reaches maximum western elongation on March 20th. Venus is nearly the same distance from Mars and Saturn on March 24th and March 25th, about four degrees, forming a planetary triangle that is almost nine degrees in altitude an hour before sunrise. Venus lies some seven degrees from the waning crescent Moon on March 28th and passes two degrees north of Saturn on March 29th.

**Mars** remains south of brilliant Venus throughout the month. The two planets are closest on March 15th, when they are separated by 3.9 degrees.

**Jupiter** is in solar conjunction on March 5th and won't be visible until the end of March.

**Saturn's** brightness and angular size change very little this month. The Ringed Planet's elongation from the Sun increases from 22 degrees on March 1st to 49 degrees on March 31st. For information on the major satellites of Saturn, browse <https://skyandtelesco...watching-tools/>

**Uranus** is located 44 arc minutes southeast of the sixth-magnitude star 29 Arietis as March begins. The waxing crescent Moon passes 0.8 degrees south of Uranus on March 7th. Uranus can be found within 18 arc minutes of a seventh-magnitude red giant star from March 14 to March 23rd. By the end of the month, Uranus lies 0.8 degrees due west of the sixth-magnitude star Omicron Arietis. A finder chart for Uranus can be found at <http://www.nakedeyep...com/uranus.htm>



Click on <https://skyandtelesc...watching-tools/> for JavaScript utilities that will illustrate the positions of the five brightest satellites of Uranus.

**Neptune** is in solar conjunction on March 13th and will not be visible again until April.

The dwarf planet **Pluto** is 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 March can be found at <https://skynews.ca/c...ts-at-a-glance/>

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

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

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### Asteroids



The dwarf planet/asteroid 1 Ceres shines at ninth magnitude as it continues northeastward through Taurus this month. It lies just east of the fourth-magnitude star 37 Tauri on March 1st and several degrees north of the fourth-magnitude star Tau Tauri as March comes to a close. Asteroids brighter than magnitude +11.0 that reach opposition this month include 16 Psyche (magnitude +10.5) in Leo on March 3rd and 39 Laetitia (magnitude +10.6) in Virgo on March 15th. Consult [http://asteroidoccul.../2022\\_03\\_si.htm](http://asteroidoccul.../2022_03_si.htm) for information on asteroid occultation events taking place this month. Visit <http://www.curtrenz.com/asteroids.html> to learn more about a number of asteroids.

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### Comets



The periodic comet 19P/Borrelly shines at tenth magnitude as it travels northeastward from Aries to Perseus during March. It passes about three degrees south of 41 Arietis on March 4th and less than two degrees south of NGC 1499 (the California Nebula) on March 25th. The periodic comet 9P/Tempel (magnitude +11.2) is at perihelion in Sagittarius on March 3th. The periodic comet 22P/Kopff (magnitude +10.4) is at perihelion in Capricornus on March 16th. Visit <http://cometchasing.skyhound.com/> and <http://www.aerith.ne...t/future-n.html> and <https://cobs.si/> for additional information on these and other comets visible this month.

A list of the closest approaches of comets to the Earth is posted at <http://www.cometogra.../nearcomet.html>

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### Meteor Showers



No meteor showers for this month.

## Deep Sky Objects



Thirty binary and multiple stars for March: Struve 1173, Struve 1181, Struve 1187, Zeta Cancri, 24 Cancri, Phi-2 Cancri, Iota-1 Cancri, Struve 1245, Iota-2 Cancri, 66 Cancri, Struve 1327 (Cancer); Struve 1270, Epsilon Hydrae, 15 Hydrae, 17 Hydrae, Theta Hydrae, 27 Hydrae, Struve 1347, Struve 1357, Struve 1365 (Hydra); 3 Leonis, Struve 1360, 6 Leonis, Omicron Leonis (Leo); Struve 1274, Struve 1282, Struve 1333, 38 Lyncis, Struve 1369 (Lynx); h4046 (Puppis)

Thirty-five deep-sky objects for March: M44, M67, NGC 2775 (Cancer); Abell 33, M48, NGC 2610, NGC 2642, NGC 2811, NGC 2835, NGC 2855, NGC 2935, NGC 2992, NGC 3052, NGC 3078 (Hydra); NGC 2903, NGC 2916, NGC 2964, NGC 2968, NGC 3020 (Leo); NGC 2859, NGC 3003, NGC 3021 (Leo Minor); NGC 2683 (Lynx); NGC 2567, NGC 2571 (Puppis); M81, M82, NGC 2639, NGC 2654, NGC 2681, NGC 2685, NGC 2742, NGC 2768, NGC 2787, NGC 2841, NGC 2880, NGC 2950, NGC 2976, NGC 2985 (Ursa Major)

Top ten binocular deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2571, NGC 2683, NGC 2841, NGC 2903, NGC 2976

Top ten deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2654, NGC 2683, NGC 2835, NGC 2841, NGC 2903

Challenge deep-sky object for March: Abell 30 (Cancer)

The objects listed above are located between 8:00 and 10:00 hours of right ascension.

The famous eclipsing variable star Algol (Beta Persei) is at a minimum, decreasing in magnitude from 2.1 to 3.4, on March 1st, 4th, 7th, 9th, 12th, 15th, 18th, 21st, 24th, 27th, and 30th. Consult page 49 of the March 2022 issue of Sky & Telescope for the times of the minima. The Demon Star is at minimum brightness for approximately two hours centered at 12:17 a.m. EST on March 4th, at 9:06 p.m. EST on March 6th, at 11:51 p.m. EDT on March 26th, and 8:41 p.m. EDT on March 29th. For more on Algol, see <http://stars.astro.i.../sow/Algol.html> and <http://www.solstatio...ars2/algol3.htm>

Data on current supernovae can be found at <http://www.rochester...y.org/snimages/>

Information on observing some of the more prominent galaxies in the Messier Catalog is available at <http://www.cloudynig...ur-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.cambridg...s\\_january-march](https://www.cambridg...s_january-march)

Telrad finder charts for the Messier Catalog and the SAC's 110 Best of the NGC are posted at <http://www.custerobs...cs/messier2.pdf> and <http://www.star-shin...ssierTelrad.htm> and <https://www.saguaroa...k110BestNGC.pdf>

Steve Tonkin's The Binocular Sky Newsletter for March can be seen at <https://binocularsky...r/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>

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Boise State Professor Dr. Brian Jackson's Astronomy Information Website: <http://www.astrojack.com/> has past BSU First Friday's events and other information.

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## Earth & Miscellaneous



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

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

Information on the celestial events transpiring each week can be found at <http://astronomy.com/skythisweek> and <http://www.skyandtel...ky-at-a-glance/>

A monthly podcast on various astronomical topics is available at <https://www.skyandte...onomy-podcasts/>

Free star charts for the month can be downloaded at <http://www.skymaps.com/downloads.html> and <http://whatsouttonight.com/>

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>

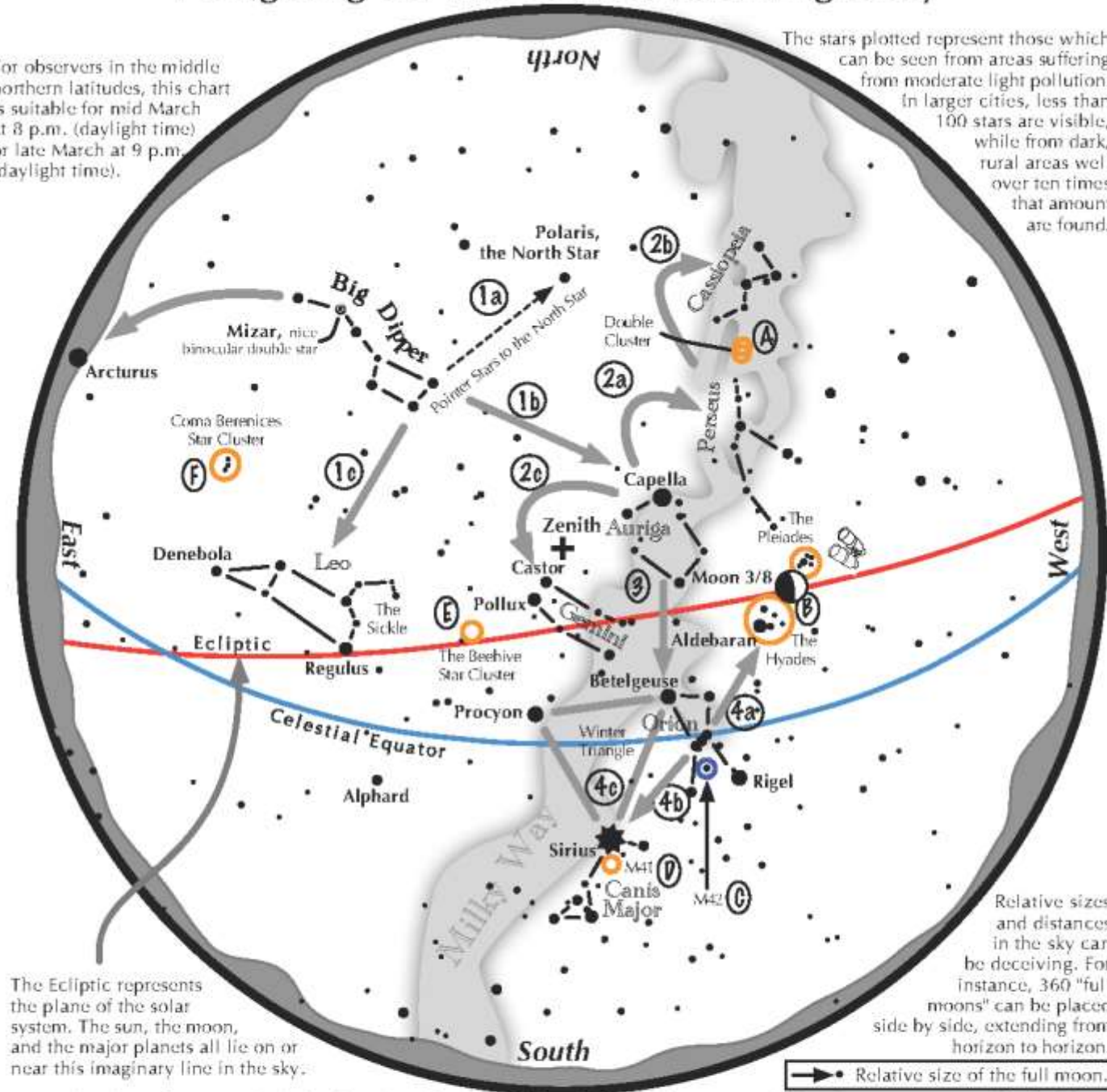
Freeware sky atlases can be downloaded at <http://www.deepskywa...-atlas-full.pdf> and <https://www.cloudyni...ar-charts-r1021> and <https://allans-stuff.com/triatlas/>



# Navigating the mid to late March Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid March at 8 p.m. (daylight time) or late March at 9 p.m. (daylight time).

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

→ • Relative size of the full moon.

## Navigating the March night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star. Its top bowl stars point west to Capella in Auriga, nearly overhead. Leo reclines below the Dipper's bowl.
- 2 From Capella jump northwestward along the Milky Way to Perseus, then to the "W" of Cassiopeia. Next jump southeastward from Capella to the twin stars of Castor and Pollux in Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star Rigel.
- 4 Use Orion's three Belt stars to point northwest to the red star Aldebaran and the Hyades star cluster, then to the Pleiades star cluster. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius. It is a member of the Winter Triangle.

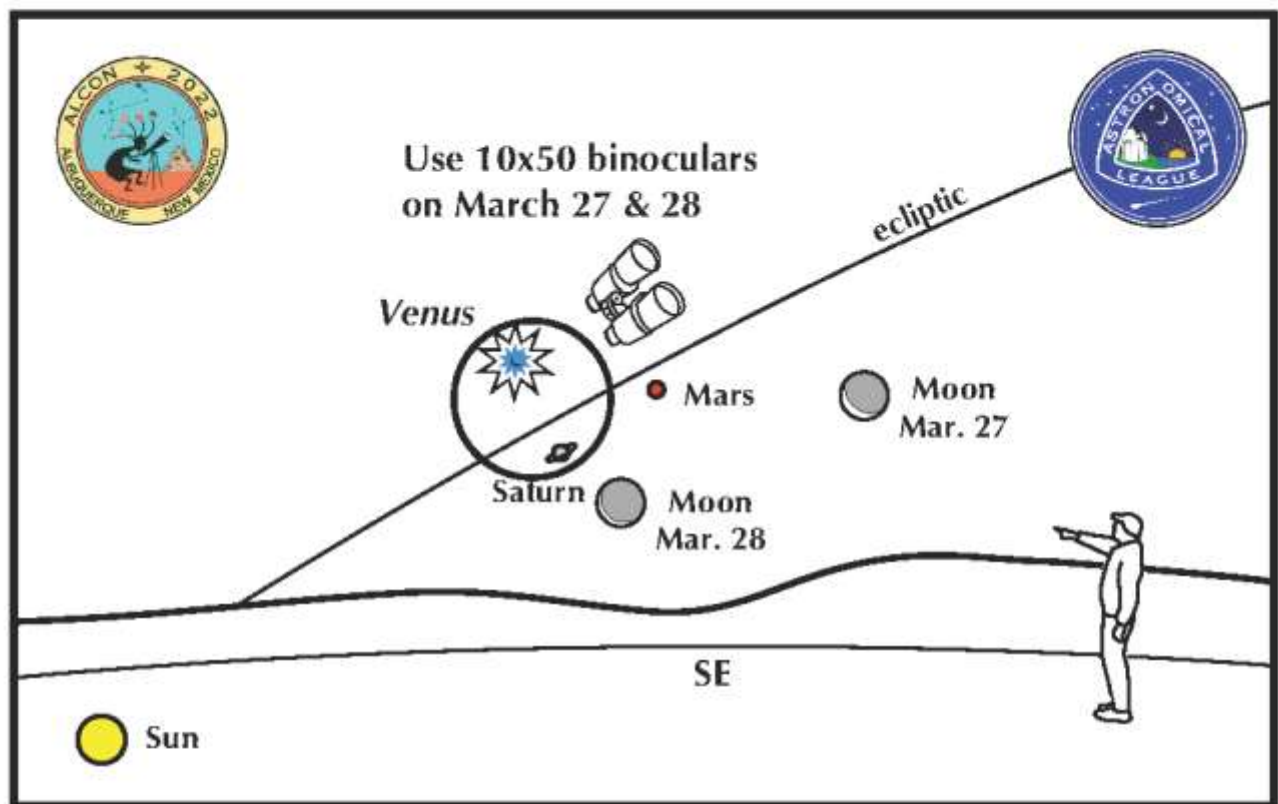
### Binocular Highlights

**A:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **B:** Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** M42 in Orion is a star forming nebula. **D:** Look south of Sirius for the star cluster M41. **E:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **F:** Look high in the east for the loose star cluster of Coma Berenices.





If you can see only one celestial event in the morning this March, see this one.



### Crescent Moon passes Venus, Mars & Saturn

- Look in the east–southeast beginning 75 minutes before sunrise on March 27 & 28.
- Venus shines brightly low above the east–southeastern horizon.
- On Mar. 27, Mars lies about 1 binocular field to the right of Venus and Saturn lies in the same field as Venus, but to its lower right. The very thin crescent moon, full with earthshine, glows to the planetary trio's right.
- On the following morning, an even thinner moon floats below Saturn and Mars. Saturn should be slightly brighter than reddish Mars.



## Observatory and Planetarium Events



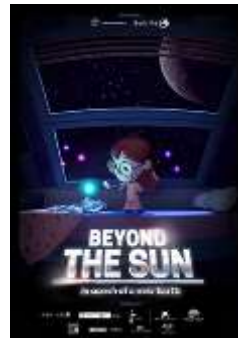
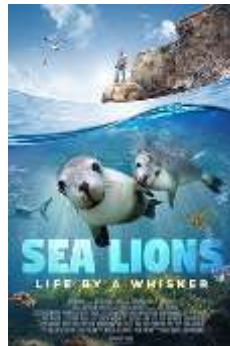
### Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, March 12 <sup>th</sup> , 2022	7:30 to 9:30 PM	FREE
<a href="#">"Earth Hour"</a> Telescope Viewing	Centennial Observatory	Saturday, March 26 <sup>th</sup> , 2022	8:30 to 9:30 PM	FREE

### Faulkner Planetarium



[Now Showing!](#)



Note: There are more shows for the Planetarium. To learn more and find show times visit the [Now Showing](#) link above.



Visit the Herrett Center [Video Vault](#)



## This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

## Embracing the Equinox

David Prosper

Depending on your locale, equinoxes can be seen as harbingers of longer nights and gloomy weather, or promising beacons of nicer temperatures and more sunlight. Observing and predicting equinoxes is one of the earliest skills in humanity's astronomical toolkit. Many ancient observatories around the world observed equinoxes along with the more pronounced solstices. These days, you don't need your own observatory to know when an equinox occurs, since you'll see it marked on your calendar twice a year! The word "equinox" originates from Latin, and translates to **equal** (equi-) **night** (-nox). But what exactly *is* an equinox?

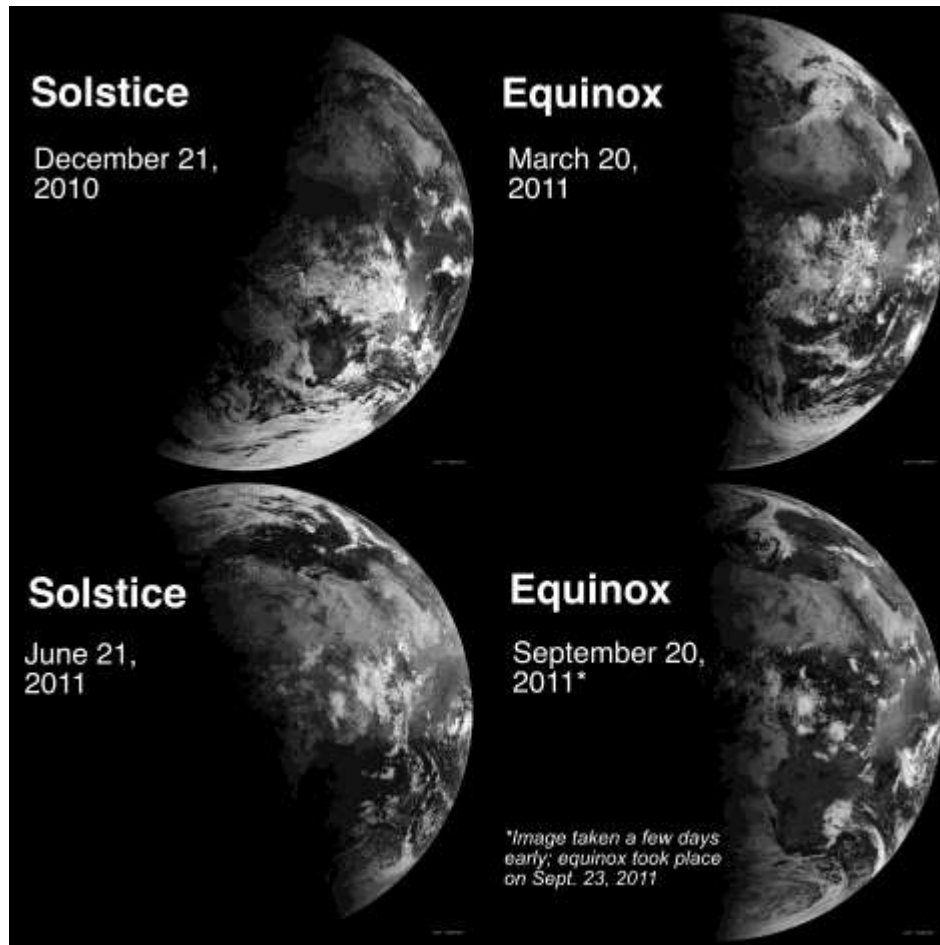
An **equinox** occurs twice every year, in March and September. In 2022, the equinoxes will occur on March 20, at exactly 15:33 UTC (or 11:33 am EDT), and again on September 23, at 01:04 UTC (or September 22 at 9:04 pm EDT). The equinox marks the exact moment when the center of the Sun crosses the plane of our planet's equator. The day of an equinox, observers at the equator will see the Sun directly overhead at noon. After the March equinox, observers anywhere on Earth will see the Sun's path in the sky continue its movement further north every day until the June solstice, after which it begins traveling south. The Sun crosses the equatorial plane again during the September equinox, and continues traveling south until the December solstice, when it heads back north once again. This movement is why some refer to the March equinox as the **northward equinox**, and the September equinox as the **southward equinox**.

Our Sun shines equally on both the Northern and Southern Hemispheres during equinoxes, which is why they are the only times of the year when the Earth's North and South Poles are simultaneously lit by sunlight. Notably, the length of day and night on the equinox aren't precisely equal; the date for that split depends on your latitude, and may occur a few days earlier or later than the equinox itself. The complicating factors? Our Sun and atmosphere! The Sun itself is a sphere and not a point light source, so its edge is refracted by our atmosphere as it rises and sets, which adds several minutes of light to every day. The Sun doesn't neatly wink on and off at sunrise and sunset like a light bulb, and so there isn't a *perfect* split of day and night on the equinox - but it's very close.

Equinoxes are associated with the changing seasons. In March, Northern Hemisphere observers welcome the longer, warmer days heralded by their **vernal**, or spring, equinox, but Southern Hemisphere observers note the shorter days – and longer, cooler nights - signaled by their **autumnal**, or fall, equinox. Come September, the reverse is true. Discover the reasons for the seasons, and much more, with NASA at [nasa.gov](https://nasa.gov)



*This (not to scale) image shows how our planet receives equal amounts of sunlight during equinoxes.  
Credit: NASA/GSFC/Genna Duberstein*



Scenes of Earth from orbit from season to season, as viewed by EUMETSAT. Notice how the terminator - the line between day and night - touches both the North and South Poles in the equinox images. See how the shadow is lopsided for each solstice, too: sunlight pours over the Northern Hemisphere for the June solstice, while the sunlight dramatically favors the Southern Hemisphere for the December solstice.

Source: [bit.ly/earthequinox](http://bit.ly/earthequinox) Images: NASA/Robert Simmon

## Phil Harrington's Cosmic Challenge

### This month's suggested aperture range:

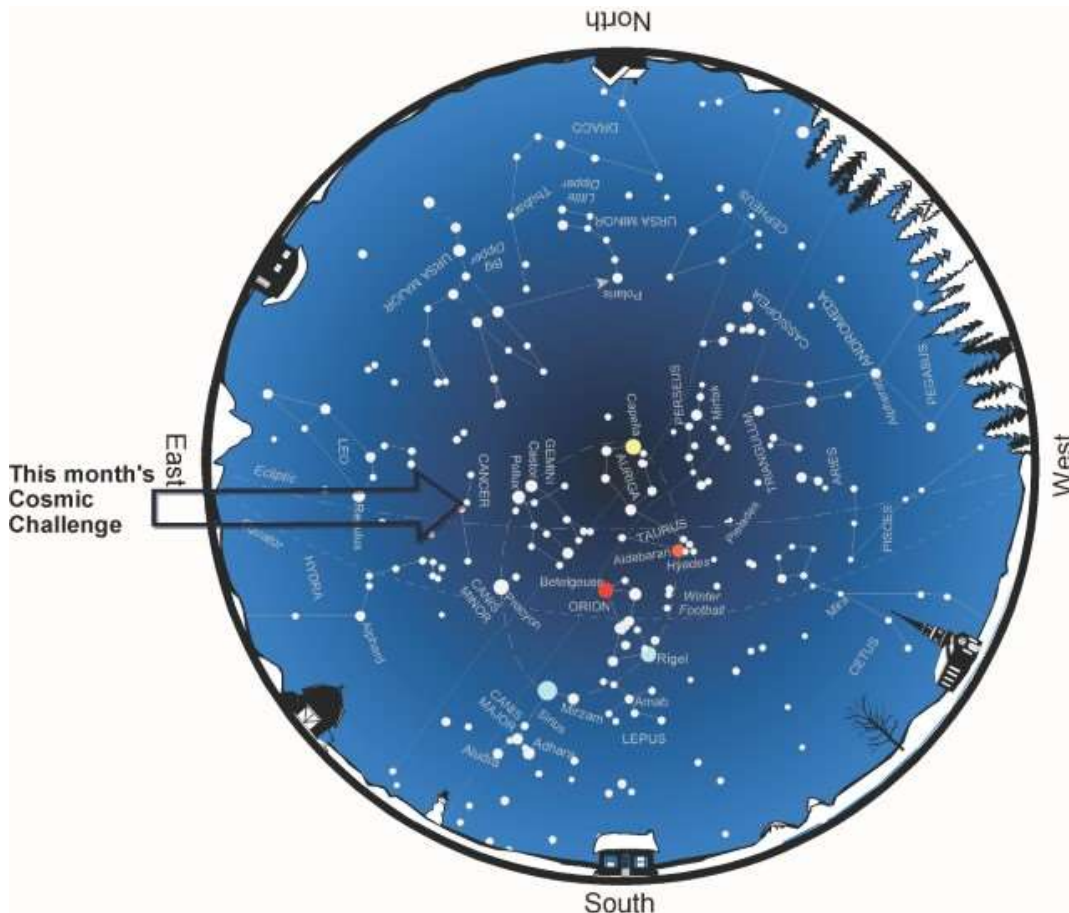


15-inch (38 cm) and larger telescopes

Target	Type	RA	DEC	Constellation	Mag	Span
Beehive Galaxies	Galaxy collection	08h 40.4m	+19° 40'	Cancer	varies	66'

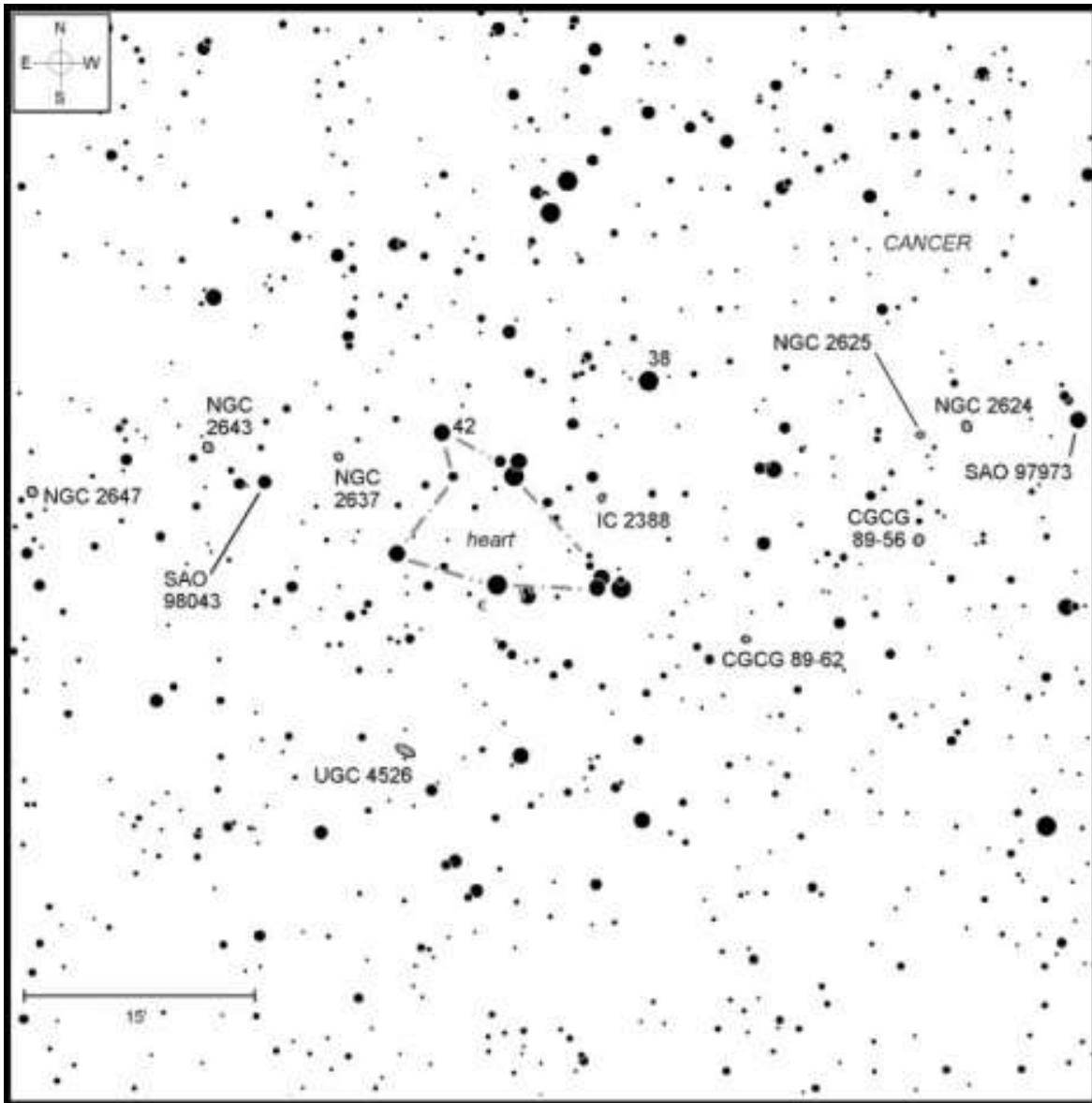
One of my favorite binocular open clusters in the entire sky is M44, the Beehive Cluster or Praesape, in Cancer the Crab. It's a wonderful target through just about any pair of binoculars. Even the smallest, cheapest pair will show a rich vault of stars. Nine of the brightest stars near the center of the cluster form a distinctive V asterism that is sometimes called the Heart of the Crab. The Heart points toward the southwest and always attracts attention.

Hidden among the stars of M44 are no fewer than eight distant galaxies. Until 1987, most of us knew nothing of them. That was the year when the Uranometria 2000.0 star atlas was published. It showed the sky to a depth never before captured in a convenient star atlas format, and immediately shed light on thousands of objects that no amateurs, except possibly for a few extreme deep-sky hunters, even knew existed.



Above: Evening star map showing the location of this month's Cosmic Challenge.  
**Credit:** Map adapted from Star Watch by Phil Harrington.





Finder chart for this month's cosmic challenge

**Credit:** Chart adapted from [Cosmic Challenge](#) by Phil Harrington

For a printable chart visit: [cloudynights.com/images/2022/2022-03\\_CC\\_files/chart.pdf](http://cloudynights.com/images/2022/2022-03_CC_files/chart.pdf)

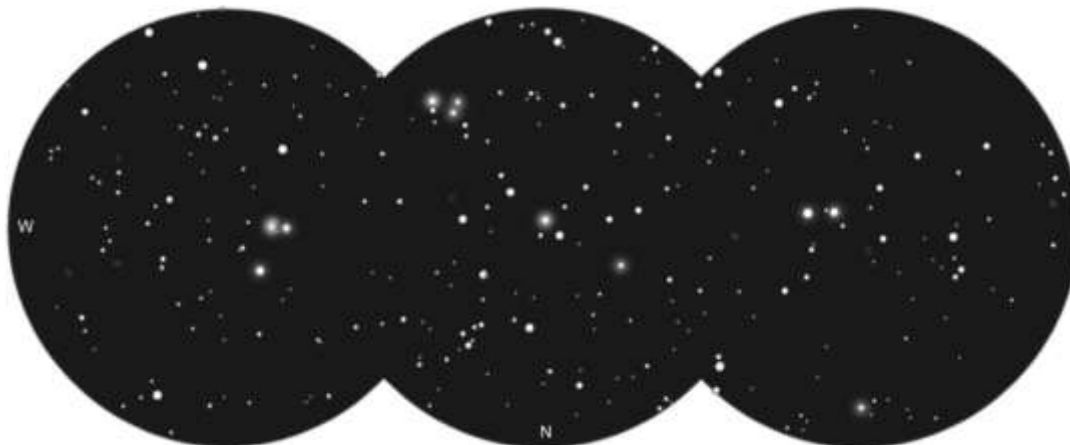
The biggest problem in spotting the galaxies beyond the Beehive is not their dimness, although that is clearly a factor. That dilemma pales compared to the predicament caused by the cluster's stars. Those stars shine as brightly as 6th magnitude, so they easily out-dazzle these puny 14th- and 15th-magnitude galaxies. Although a 15-inch (38cm) or larger scope will be needed to see all of the galaxies listed in the table below, the brightest two or three can be captured with a 10-inch (25cm), perhaps even smaller, under dark skies.

#### Beehive Galaxies

Target	RA	DEC	Magnitude	Size
NGC 2624	08 38.2	+19 43.6	14.6	0.7'x0.5'
NGC 2625	08 38.4	+19 43.0	14.5p	0.4'
CGCG 89-56	08 38.4	+19 35.8	15.2	0.7'x0.2'
CGCG 89-62	08 39.2	+19 28.9	15.6	0.4'
IC 2388	08 39.9	+19 38.7	15.7	0.5'x0.3'
UGC 4526	08 40.9	+19 21.3	14.8p	1.4'x0.2'
NGC 2637	08 41.2	+19 41.5	15.4	0.5'x0.4'
NGC 2643	08 41.9	+19 42.1	15.6	0.7'x0.4'
NGC 2647	08 42.7	+19 39.0	15.1	0.7'x0.6'



German-born astronomer Albert Marth discovered the first five background galaxies in 1864 while working as William Lassell's assistant at Lassell's observatory in Malta. Personally, I find **NGC 2647** the easiest to spot. Look for it about 1' northeast of a 13th-magnitude star along the cluster's eastern flank. At 206x, my 18-inch (46cm) displays a faint, round glow no more than 20" across, as shown in the rendering below. I've never seen any hint of a central core, but others have noted a stellar nucleus, so be sure to check for yourself. The largest backyard telescopes might also pick up a pair of very faint stars to either side of the galaxy.



Above: Look carefully and you will see many faint fuzzies across this three-field view through the author's 18-inch (46cm) telescope.

Scan westward across the full breadth of M44 for **NGC 2624**, another galaxy bright enough to be seen in 10-inch (25cm) scopes. Look for it 8' to the east of 8th-magnitude SAO 97973 at the cluster's western edge. Through my 18-inch (46cm) at 206x, this tiny spiral galaxy appears as a faint, circular glow measuring perhaps 25" across and slightly brighter toward the center. A very faint field star lies nearby to the southwest, while another galaxy, **NGC 2625**, is about 3' to the east-southeast.

NGC 2625, an elliptical galaxy, is smaller and fainter than its neighbor, but I can still make it out with direct vision in the 18-inch (46cm) at 206x. Using averted vision, however, reveals a very faint star on the western edge of the galaxy -- don't confuse it for a supernova! Interestingly, some catalogs list NGC 2625 as more than a magnitude fainter than NGC 2624. My own experience, however, points to it being no more than half a magnitude dimmer, so take those numbers under advisement.

Moving southward, **CGCG 89-56**, a pair of close-set galaxies listed in the Catalog of Galaxies and Clusters of Galaxies by Fritz Zwicky, is visible as a very small, dim blur. The Digital Sky Survey shows two small, edge-on spirals oriented east-west and north-south, but try as I might through my 18-inch (46cm), I cannot resolve them. Another member of Zwicky's catalog, **CGCG 89-62**, lies about 3' west-northwest of a pair of 10th- and 11th-magnitude stars set southwest of the Heart. I have never been able to see it convincingly, despite being able to see a 15th-magnitude star just 1' to its east. Perhaps you will have better success.

**IC 2388** is found 1.6' to the south of a 10th-magnitude star that marks the tip of an isosceles triangle near the Heart of the Crab. Marth missed it that night in 1864, but it is visible through my 18-inch (46cm) under 5th-magnitude skies, so don't shy away from it just because it is not in the NGC. Continuing eastward, we come to **NGC 2637**, a fairly easy catch because of its position comparatively far from any bright cluster stars. The nearest bright stars are 42 Cancri, 7' to its west-northwest, and SAO 98043, 5' south-southeast. Averted vision is still required to see this little system, but with patience, it should come through pretty clearly.

Finally, try to spot **NGC 2643** about 1' northwest of an 11th-magnitude cluster star. NGC 2643 is the toughest of the NGC galaxies here. I can barely make it out through the 18-inch (46cm) at 206x by using averted vision, and then only as a very dim, very small smear no more than 15" across.

Have a favorite challenge object of your own? I'd love to hear about it, as well as how you did with this month's challenge. Contact me through my [website](#) or post to this month's discussion forum.

Phil Harrington writes the monthly *Binocular Universe* column in *Astronomy* magazine and is the author of 9 books on astronomy, including *Cosmic Challenge: The Ultimate Observing List for Amateurs*.

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## About the Magic Valley Astronomical Society

Magic Valley Astronomical Society  
550 Sparks St.  
Twin Falls, ID

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy. Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be:

\$20.00 for individuals, families, and \$10.00 for students.

Contact Treasurer Jim Tubbs for dues information via e-mail: [jtubbs015@msn.com](mailto:jtubbs015@msn.com)

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President [Gary Leavitt](#), for more information on these and other benefits.



*Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon.*

Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA.