Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society. May 2024

Membership Meeting
May 11th at the Herrett Center
CSI main campus at 7:00pm

Centennial Observatory
See Inside for Details

Faulkner Planetarium
See Inside for Details

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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

Message from the Club Vice President

Greetings Friends and Family: Another typical Idaho April, when the weather jumps from winter to summer. Hopefully May will be a little more stable. Tim Frazier will be presenting our program for May 11th on Minor Planets. We also will be having some Solar Eclipse pictures and a movie from Rick Hull. Our June program will be presented by Gary Leavitt on Back to the Moon – what is next for Artemis. The June meeting will be on June 8th as the Hagerman Fossil Bed star party has been cancelled. Also remember our summer picnic is scheduled for July 13th at the CSI Herrett Center back patio.

May Events

May 6, 7 - Eta Aquariids Meteor Shower. The Eta Aquariids is an above average shower, capable of producing up to 60 meteors per hour at its peak. Most of the activity is seen in the Southern Hemisphere. In the Northern Hemisphere, the rate can reach about 30 meteors per hour. It is produced by dust particles left behind by comet Halley, which has been observed since ancient times. The shower runs annually from April 19 to May 28. It peaks this year on the night of May 6 and the morning of the May 7. The nearly new moon means dark skies for what should be an excellent show this year. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius, but can appear anywhere in the sky.

May 8 - New Moon. The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 03:23 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

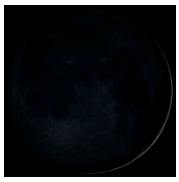
May 9 - Mercury at Greatest Western Elongation. The planet Mercury reaches greatest western elongation of 26.4 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

May 23 - Full Moon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be will be fully illuminated. This phase occurs at 13:55 UTC. This full moon was known by early Native American tribes as the Flower Moon because this was the time of year when spring flowers appeared in abundance. This moon has also been known as the Corn Planting Moon and the Milk Moon.

Until next time
Clear Skies
Dr. Jay Hartwell

Visit our Website
www.mvastro.org

May 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Moon at Last Quarter 	2	3	4
5 Cinco de Mayo η-Aquariid meteor shower 2024 Moon at perigee	6 The Moon at perihelion	7 New Moon 	8 η-Lyrid meteor shower 2024 	9	10	11 MVAS Meeting at 7:00pm. Centennial Observatory Monthly Star Party 9:30p - 11:30p
12 Mother's Day 	13 Uranus at solar conjunction 	14 Mercury at dichotomy 	15 Moon at First Quarter 	16 Mercury at highest altitude in morning sky Mercury at dichotomy	17 Asteroid 2 Pallas at opposition The Moon at apogee	18 International Astronomy Day 
19	20 Jupiter at apogee 	21	22	23 Full Moon 	24 Moon at aphelion 	25
26	27 Memorial Day 	28	29 Summer Solar Session #1 Centennial Observatory 1:30 - 3:30pm 	30 Moon at Last Quarter 	31	

All of the highlighted links are clickable.

Moon Phases for May 2024

Twin Falls, Idaho, United States

May 2024							
No.	Su	Mo	Tu	We	Th	Fr	Sa
18				1 Last Quarter 05:27 am	2 32% Waning Crescent	3 22% Waning Crescent	4 13% Waning Crescent
19	5 6% Waning Crescent	6 1% Waning Crescent	7 New Moon 09:24 pm	8 1% Waxing Crescent	9 4% Waxing Crescent	10 10% Waxing Crescent	11 18% Waxing Crescent
20	12 26% Waxing Crescent	13 35% Waxing Crescent	14 45% Waxing Crescent	15 First Quarter 05:49 am	16 64% Waxing Gibbous	17 73% Waxing Gibbous	18 81% Waxing Gibbous
21	19 88% Waxing Gibbous	20 93% Waxing Gibbous	21 97% Waxing Gibbous	22 99% Waxing Gibbous	23 Full Moon 07:55 am	24 97% Waning Gibbous	25 93% Waning Gibbous
22	26 86% Waning Gibbous	27 78% Waning Gibbous	28 68% Waning Gibbous	29 57% Waning Gibbous	30 Last Quarter 11:13 am	31 35% Waning Crescent	

May's Flower Moon name should be no surprise; flowers spring forth across North America in abundance this month!

- "Flower Moon" has been attributed to Algonquin peoples, as confirmed by Christina Ruddy of The Algonquin Way Cultural Centre in Pikwàkanagàn, Ontario.
- May's Moon was also referred to as the "Month of Flowers" by Jonathan Carver in his 1798 publication, Travels Through the Interior Parts of North America: 1766, 1767, 1768 (pp. 250-252), as a likely Dakota name. Carver stayed with the Naudowessie (Dakota) over a period of time; his expedition covered the Great Lakes region, including the Wisconsin and Minnesota areas.
- Henry David Thoreau sparked the Native American Moon names as well, referencing the Flower Moon and Carver when he wrote about Native Americans.
- The Cree names Budding Moon and Leaf Budding Moon celebrate the awakening of local flora, which really begins to leaf out now in many areas. Similarly, Planting Moon (Dakota, Lakota) marks the time when seeds should be started for the farming season ahead.

Source: https://www.mooninfo.org/moon-calendar/may-2024.html | Moon Names: The Old Farmer's Almanac, May 2024

Viewing the 2024 ETA Aquariids Meteor Showers

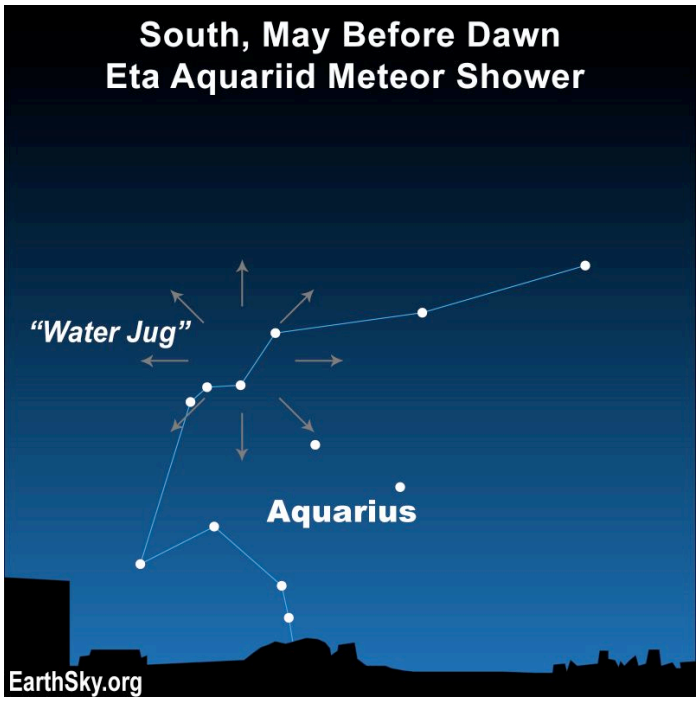
Eta Aquariids in 2024 will peak on May 5th The eta Aquariids are active from April 16 through May 27. The best rates occur from May 1-10 with an added bonus as rates are expected to be enhanced by debris perturbed by Jupiter in a direction closer to the Earth. This last occurred in 2013, when rates were significantly enhanced. We were expecting some enhancement last year but the full moon in early May spoiled efforts to verify this. There will not be any lunar interference this year as the waning crescent moon will not rise until the start of dawn for most locations. Most observers in the northern hemisphere usually see a maximum of 15-20 eta Aquariid meteors per hour under ideal conditions. Those rates could be doubled this year should the enhancement occur.

If you plan to watch for this activity, observing sessions should be undertaken when the radiant lies just below the horizon until the start of civil twilight when the limiting magnitude becomes less than +5.0. This timing is roughly 2:00am local daylight-saving time to 5:00am for observers located at 35 degrees north latitude. The window of opportunity becomes smaller the further north you are located and larger if located further southward. This activity is not visible north of 60 degrees north latitude as the sky does not get sufficiently dark from high northern latitudes this time of year. Observers in the southern tropics have the best viewing opportunity as the nights are longer and the radiant lies higher in the sky prior to dawn. Locations further south will enjoy longer nights, but the radiant elevation actually decreases as one moves southward beyond the southern tropics.

You may be surprised to hear that shower activity can be seen with the radiant located just below the horizon. At this elevation meteors can still skim the upper layers or the atmosphere and will appear as long “earthgrazers”. The condition continues at radiant rise and while the radiant lies low in the sky. As the radiant gains elevation, the meteors are able to penetrate deeper into the atmosphere creating shorter and quicker meteors.

Eta Aquariid rates will be low in April, ranging from one per night on the 16th to perhaps 3 per hour on the 30th. Lunar interference will be significant during the last ten days of April as the moon does not reach its last quarter phase until May 1st. Lunar interference rapidly subsides in early May as the moon wanes from half-illuminated toward new. It would be a good idea during the first days of May to face toward the northeast in order to keep the moon out of your field of view. The strongest activity is expected on the morning of May 5th, but sub peaks on other mornings near this date are not unusual. As with all meteor showers, it is highly suggested to view from the darkest skies possible as most of the activity is faint. A gain of one magnitude in sky darkness can lead to a doubling of observed meteors. Try to use a lounge chair that allows you to view half-way up in the sky in comfort. Don’t look straight up and most of the activity will be seen in the lower half of the sky. Look high enough to avoid hills and trees that may obscure meteors. Most eta Aquariid meteors will be seen in the eastern half of the sky, which is shown in the chart below. Also note that some meteors will not shoot forth from the eta Aquariid radiant. In early May there is a weak source of activity from Scorpius (Anthelions) plus a half-dozen random meteors each hour not associated with any known shower.

The potential increase in activity may also interest radio meteor scatter observers located in mid-northern latitudes as the radiant lies in a favorable zone in the sky for approximately six hours centered at 08:00. Note that this timing is entirely during daylight this time of year when the meteors cannot be seen visually. This zone is centered at an elevation of 45 degrees above the horizon. Radio rates at higher or lower elevations will be less than when the radiant is located near 45 degrees elevation. For more information on radio meteor scatter visit: https://www.imo.net/observations/methods/radio-observation/



The radiant point of the Eta Aquariid meteor shower will be near the star Eta Aquarii in the constellation Aquarius the Water Bearer. The radiant will rise in the wee hours after midnight and will continue climbing toward its highest point at dawn. That highest point will be in the south as viewed from the Northern Hemisphere, closer to overhead for the Southern Hemisphere. That's why the Southern Hemisphere will see more meteors (the radiant will be higher up), and it's why – for all of us around the globe – the hours before dawn will be best for this shower.

This year serious observers can help us determine if in fact the eta Aquariids were enhanced in 2024. You simply need to view for at least one hour and estimate your limiting magnitude at the start and end of your session. This is easily done by counting the number of stars visible with certain areas of the sky. Charts for these areas are available at: https://www.imo.net/observations/methods/visual-observation/major/observation/#table1. Area 6 on chart #6 would be the easiest to use. Using more than one area is also encouraged to provide a better estimate over your entire field of view. The conversion table is available in Table 2 on the link provided above. Helpful tips for visual observing are also available at: https://www.imo.net/observations/methods/visual-observation/ and https://www.imo.net/observations/methods/visual-observation/major/observation/. Other important information to record of each meteor is the time, type, and magnitude. In order to submit your observations we suggest that you fill out a visual meteor report form provided by the International Meteor Organization. You must register to provide your data, but there is a free option for those not wishing to subscribe to the IMO Journal. The AMS also accepts observations emailed directly to: Robert Lunsford

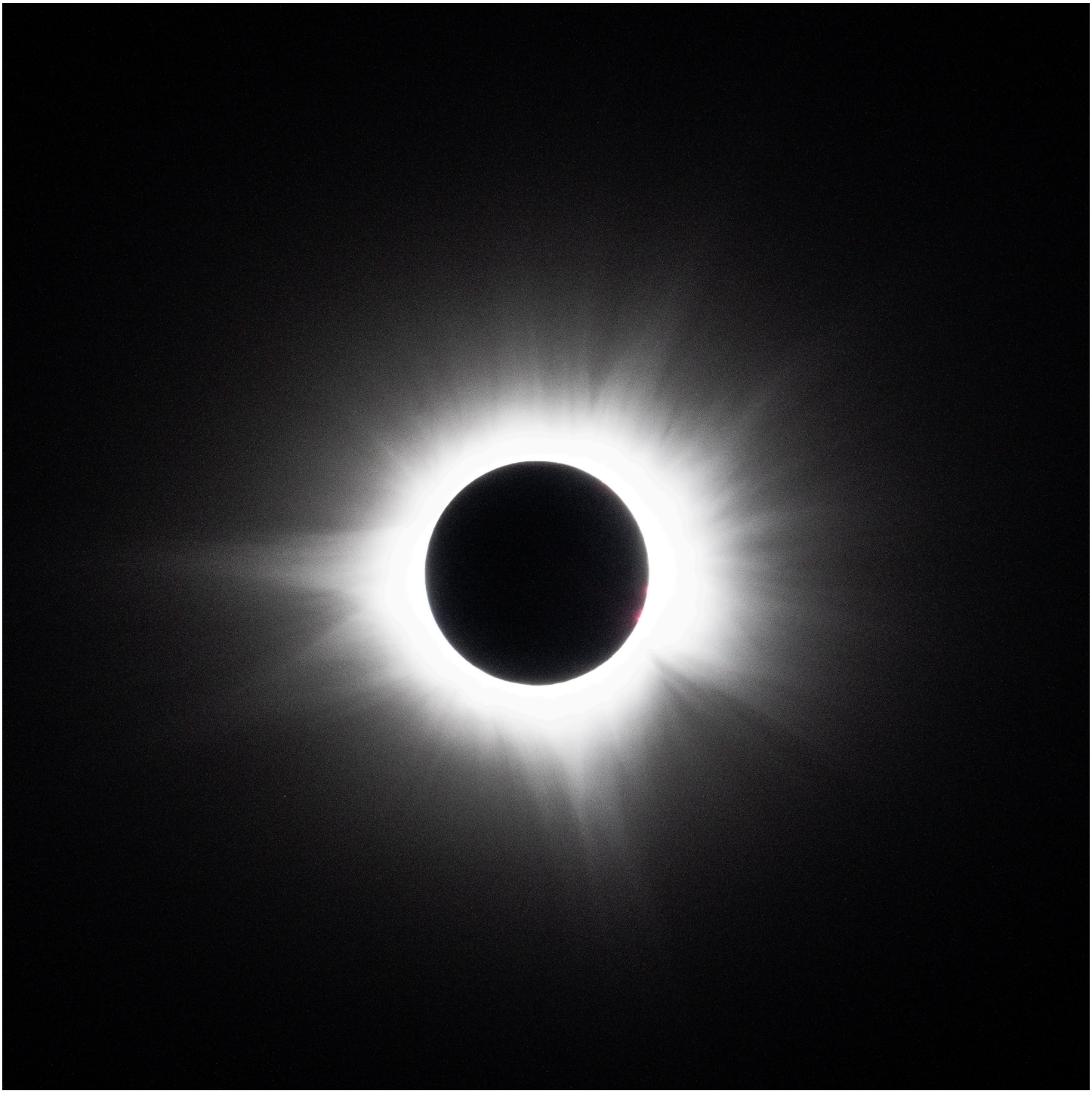
In conclusion, the eta Aquariids will offer a good chance of seeing the strongest activity from this source until the 2040's. We highly encourage everyone with clear skies to observe during this time and to share your observations. We wish you good luck and look forward to seeing your results!

Halley's comet, the parent of the May Eta Aquariid and October Orionid meteor showers. Dust from this comet will light the night as Eta Aquariid meteors on the morning of May 5. Image via NASA.

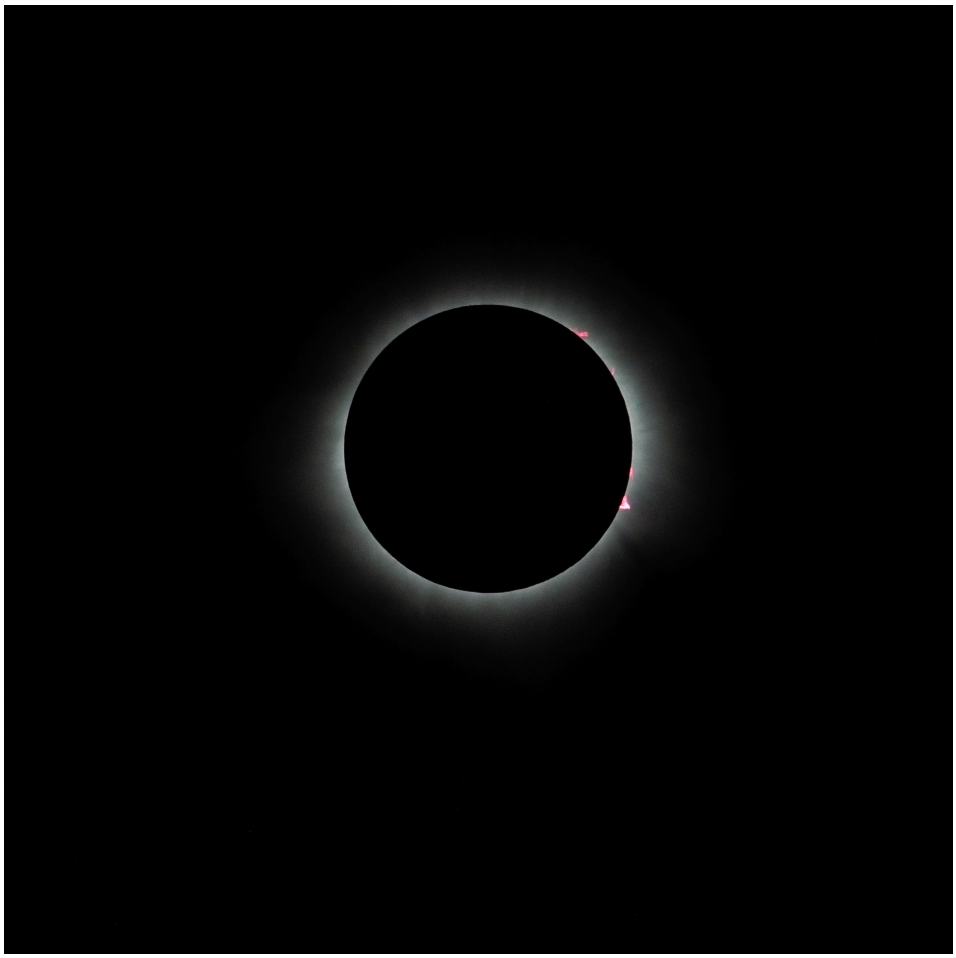
Article source: https://amsmeteors.org/2024/04/viewing-the-2024-eta-aquariid-meteor-shower/ Note: This article was edited for formatting.

Eclipse Pictures

Tim Frazier

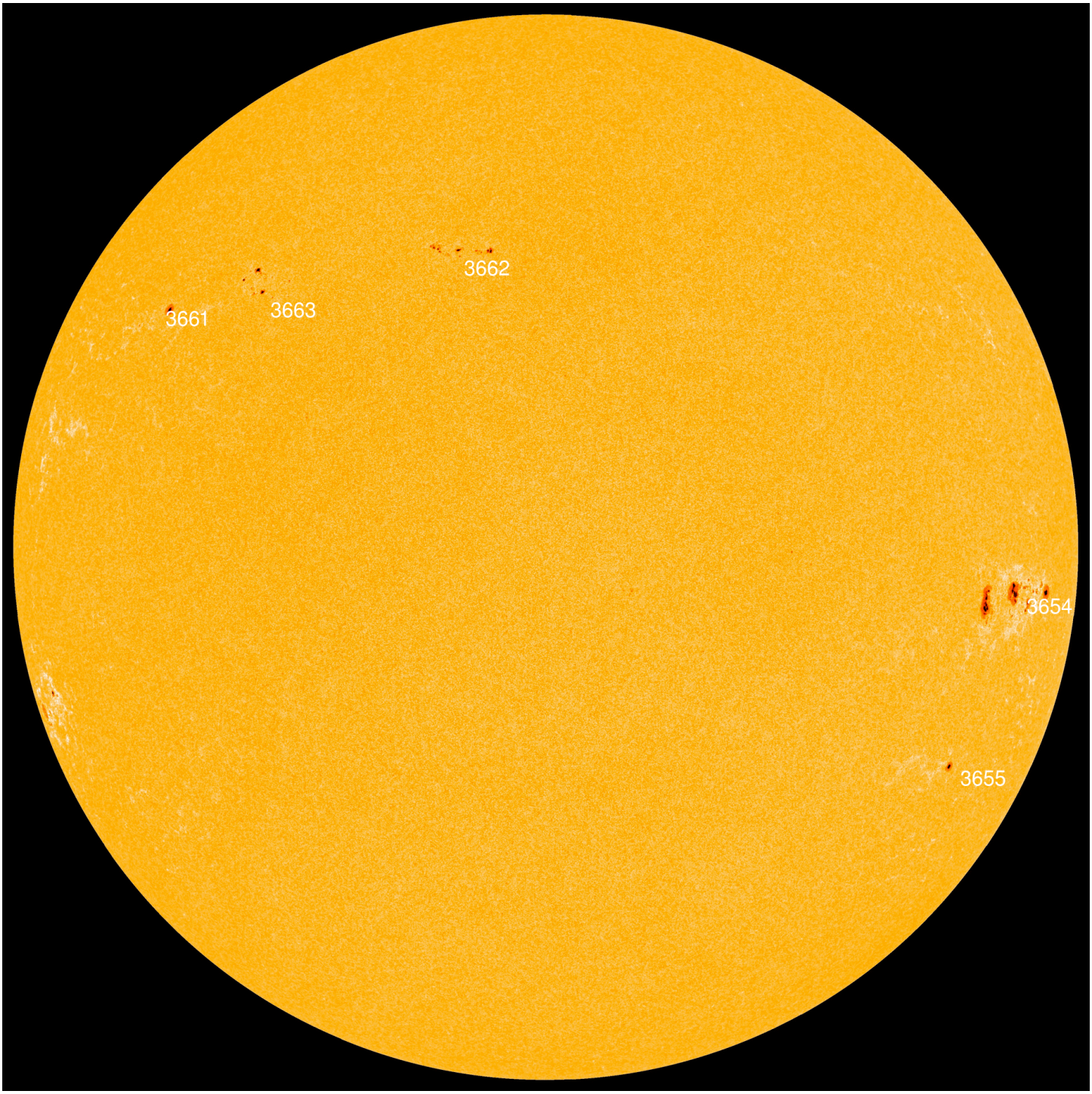


Corona



Top: Diamon ring corona Bottom: Totality

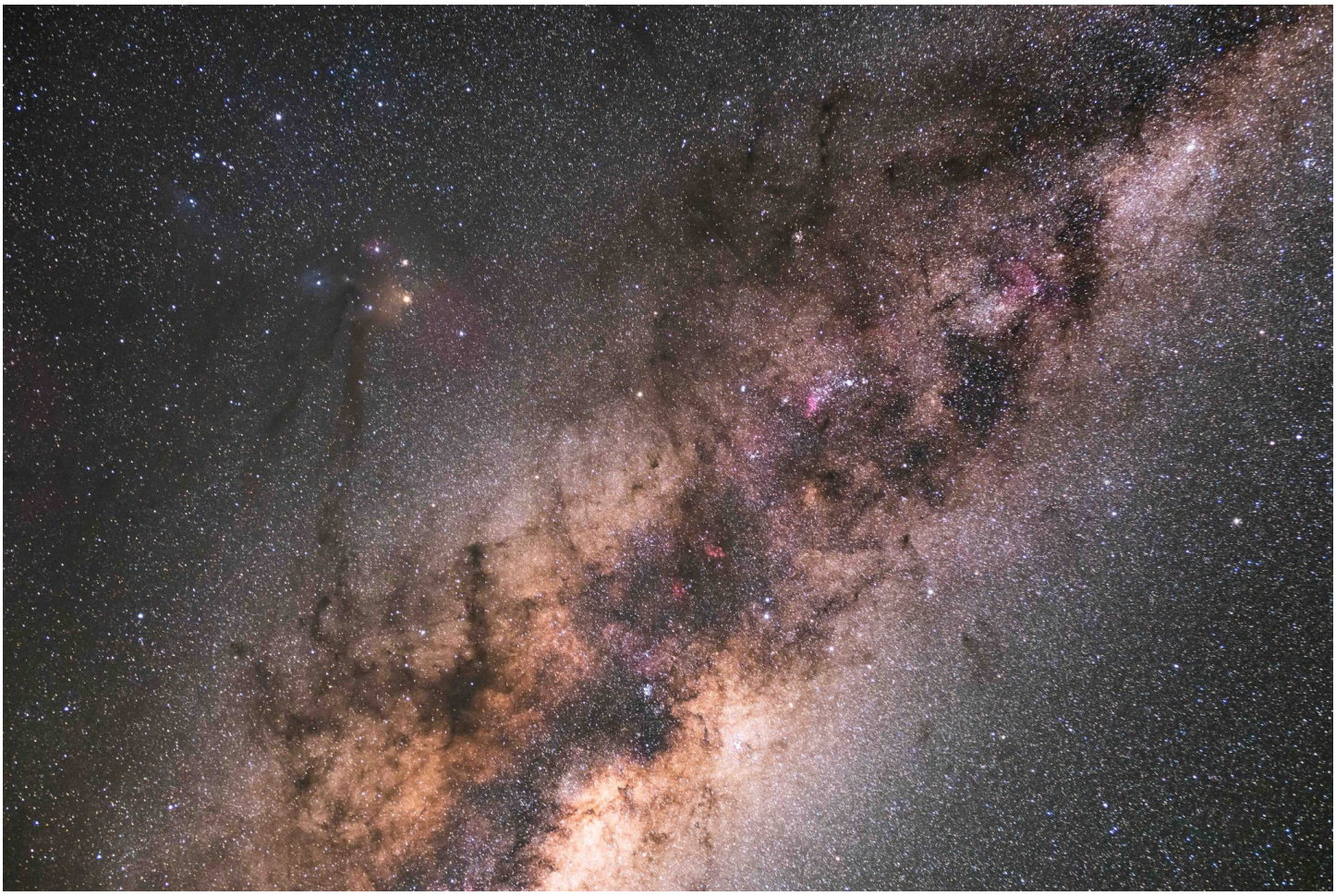
Have You Seen the Sun Lately?



Source: https://www.spaceweather.com/images2024/01may24/hmi1898.gif

Join Observatory Coordinator, Chris Anderson, for an afternoon of safe Solar Viewing on Wednesday, May 29th 2024 at the Centennial Observatory, Herrett Center, College of Southern Idaho from 1:30pm - 3:30pm. This is a free event.

The Night Sky This Month – May 2024

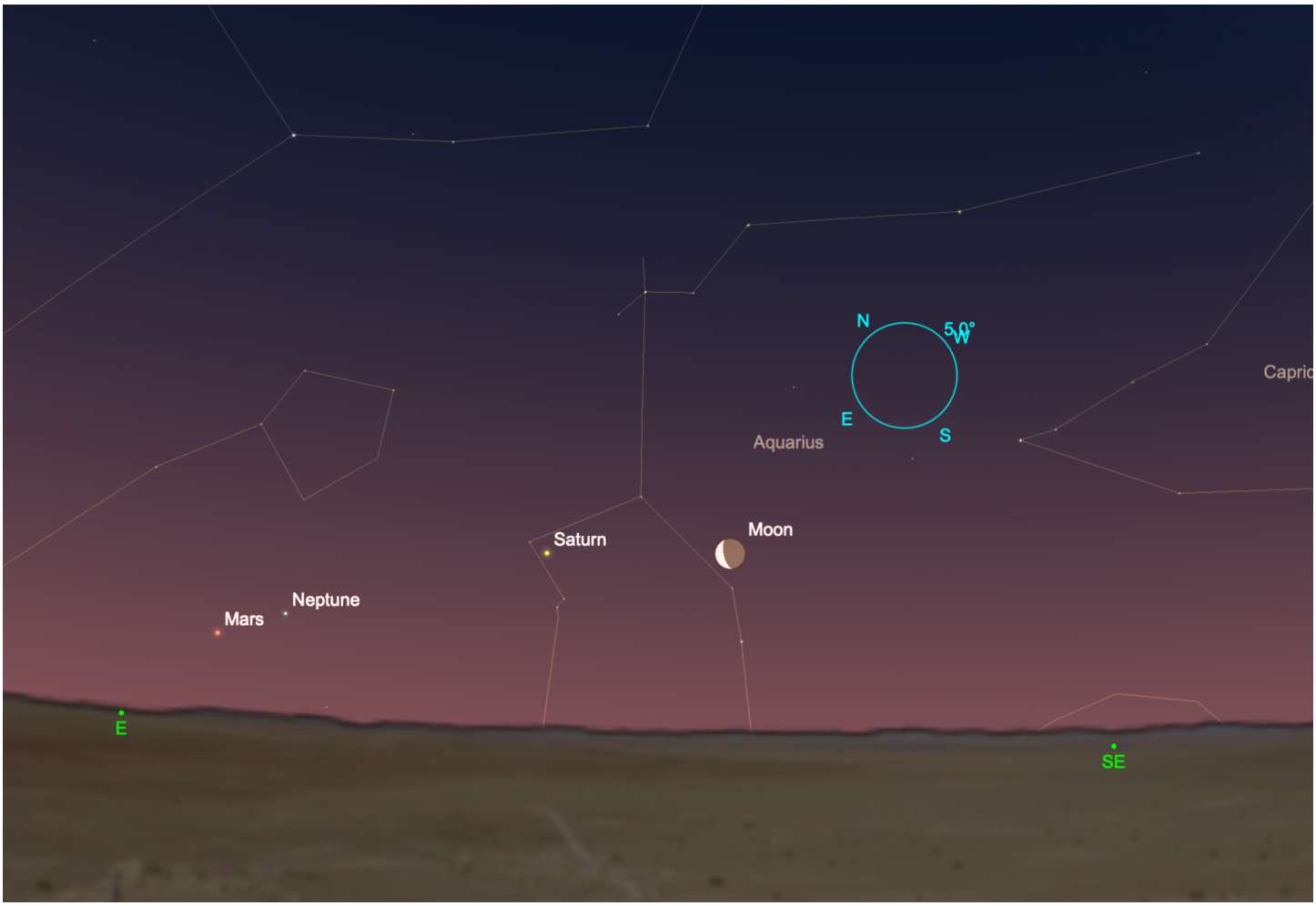


The southern Milky Way.

(Looking for last month's 'Night Sky'? Find it at this link…)

For deep-sky observers, May means galaxy season as our night sky looks out of the plane of the Milky Way into the intergalactic void. It's the best time of year to grab some aperture and go deep. Those who rise early and look southeastward, however, see the bright band of the Milky Way rising along with Mars and Saturn. Venus and Jupiter lie too close to the Sun this month to observe. But the best meteor shower of the year for southern observers, the Eta Aquariids, is already going strong and peaks on May 5-6 with the Moon mostly out of the way. Here's what to see in the night sky this month.

1 May 2024. Last Quarter Moon, 11:27 UT



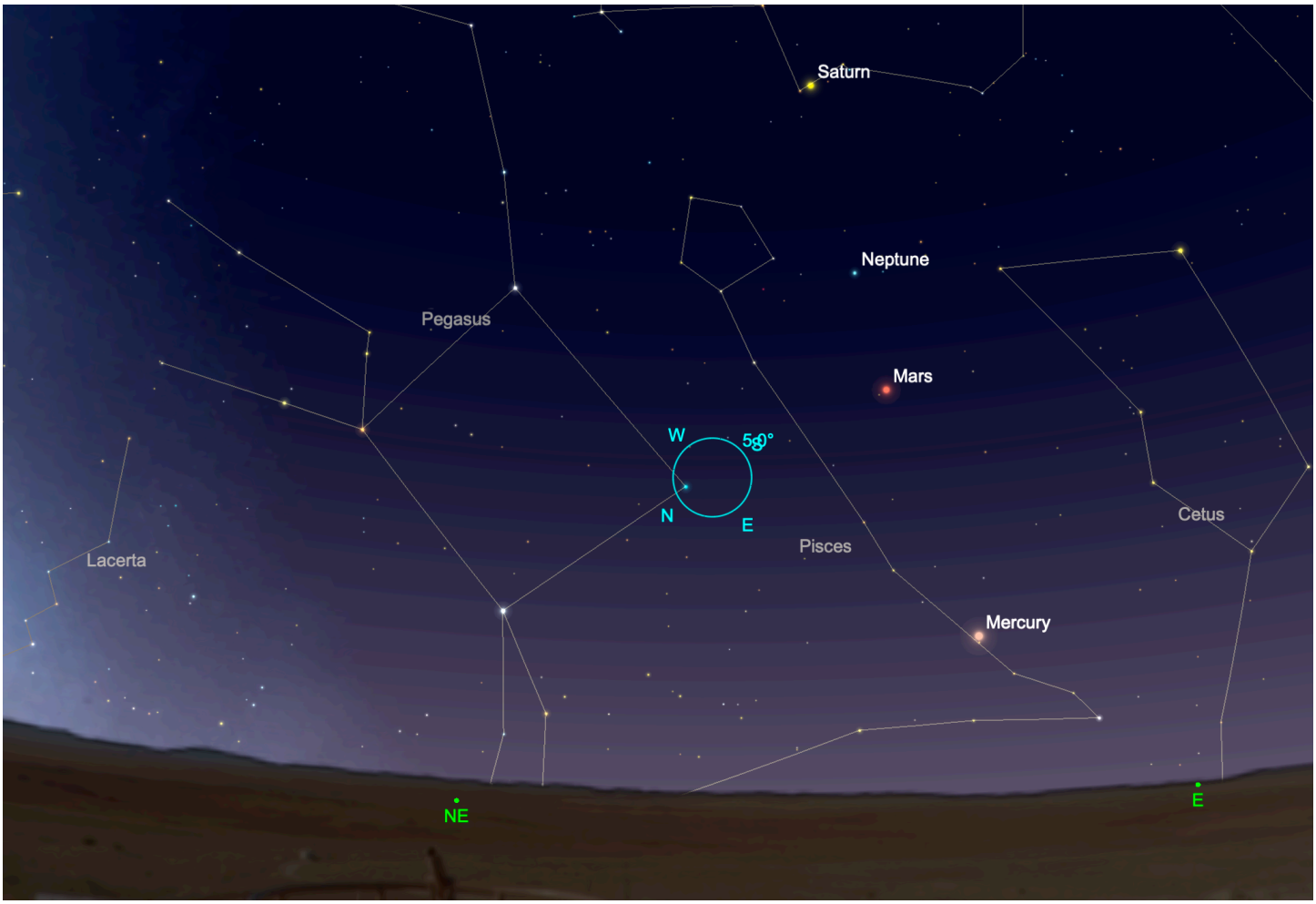
Mars, Saturn, Neptune, and a waning crescent Moon in the eastern sky before dawn on May 3, 2024.

3 May. Look to the southeast in the early-morning sky to see a waning crescent Moon, Saturn, and Mars lined up before dawn. Saturn has brightened to magnitude +1.2 and spans about 17”. Mars, at magnitude +1.1, outshines Saturn ever so slightly but spans a paltry 5”. Both grow only slightly larger and brighter throughout the month.

5 May. Mars and a thin lunar crescent lie less than 5º apart in the eastern sky before sunrise.

5-6 May. The usually reliable Eta Aquariid meteor shower peaks. The shower runs from April 21 through May 20 each year, with many meteors still visible for several days on either side of the peak. The Eta Aquariids occur as Earth passes through a stream of icy and dusty debris from Comet 1/P Halley, more commonly called Halley’s Comet. We pass through a second stream of the comet in late October during the Orionids meteor shower. Look for the meteors anywhere in the sky, preferably after midnight. They trace their paths back to a point near the star Eta Aquarii which rises in the eastern/southeastern sky before dawn. This is perhaps the best meteor shower of the year for southern hemisphere stargazers, but northern observers may see a few of these meteors too. NOTE: If you’re clouded out, you can always watch some of the shower on the excellent live feed from the Subaru Telescope on Mauna Kea, Hawaii.

8 May. New Moon, 03:22 UT



Mercury makes its best morning apparition of the year for southern-hemisphere observers in May 2024. As shown here for mid-southern latitudes, the planet is visible in Pisces in the eastern sky before sunrise.

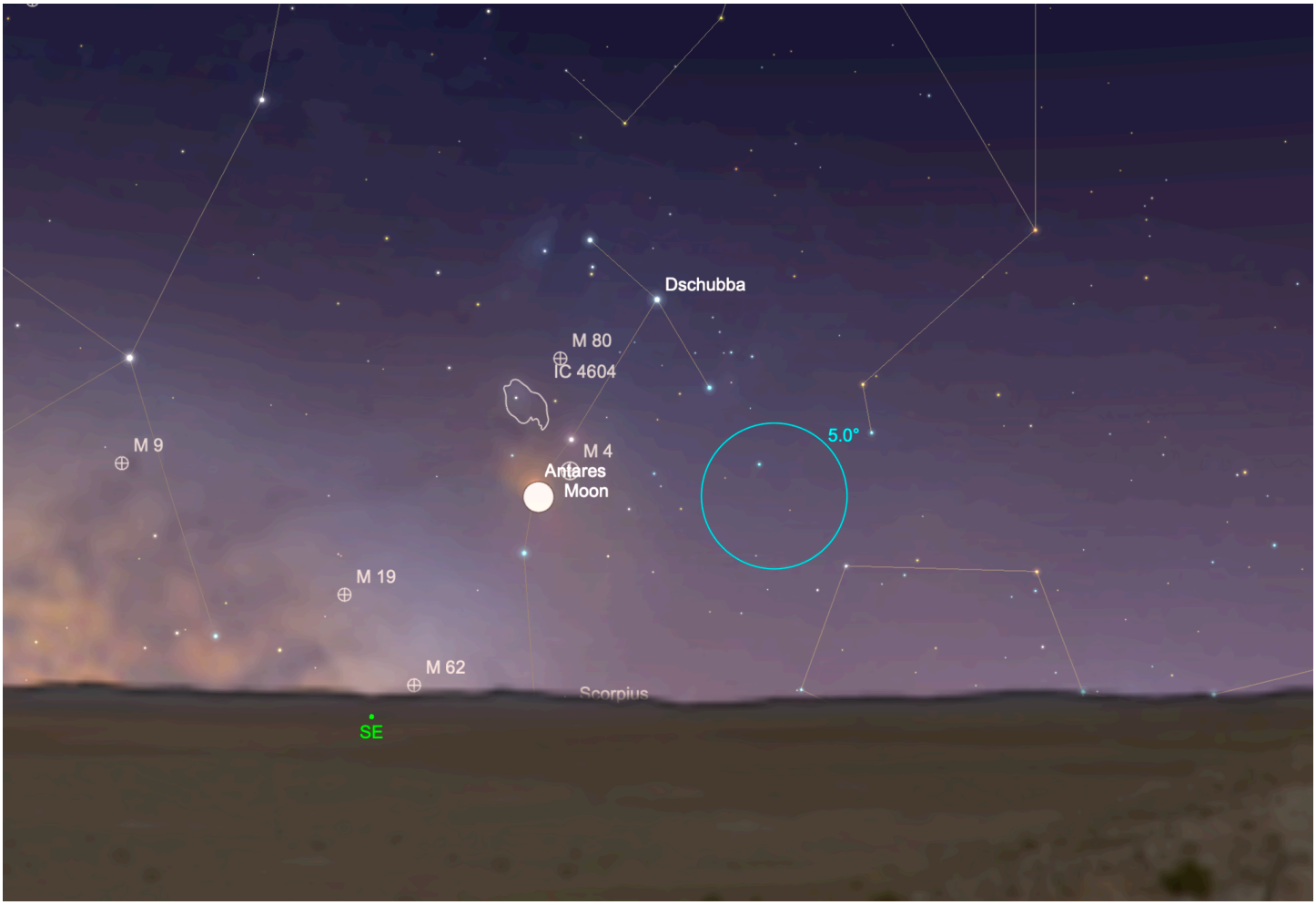
9 May. Mercury reaches its greatest western elongation about 26° from the Sun. The planet lies in Pisces and continues to brighten in the morning sky as it moves closer to the Sun over the next couple of weeks. Viewing strongly favors southern-hemisphere observers during this apparition; northern observers struggle to see the planet low over the eastern horizon this month.

15 May. First Quarter Moon, 11:48 UT

15 May. Look for the first-quarter Moon about 3° from Regulus, the brightest star in Leo, an anchor constellation in the northern spring sky.
18 May. Jupiter reaches conjunction with the Sun. It will reappear in the morning twilight in the east in the coming weeks.

19 May. A fattening gibbous Moon lies west of blue-white Spica in the eastern sky as darkness falls. The two are about 4° apart. If you're up stargazing for a few hours, watch the Moon grow closer to the star as the night wears on. On May 20, the Moon sits about 6° east of the star.

23 May. Full Moon, 13:53 UT (The 'Flower Moon')



Antares makes a close approach to the full Moon on May 23, 2024.

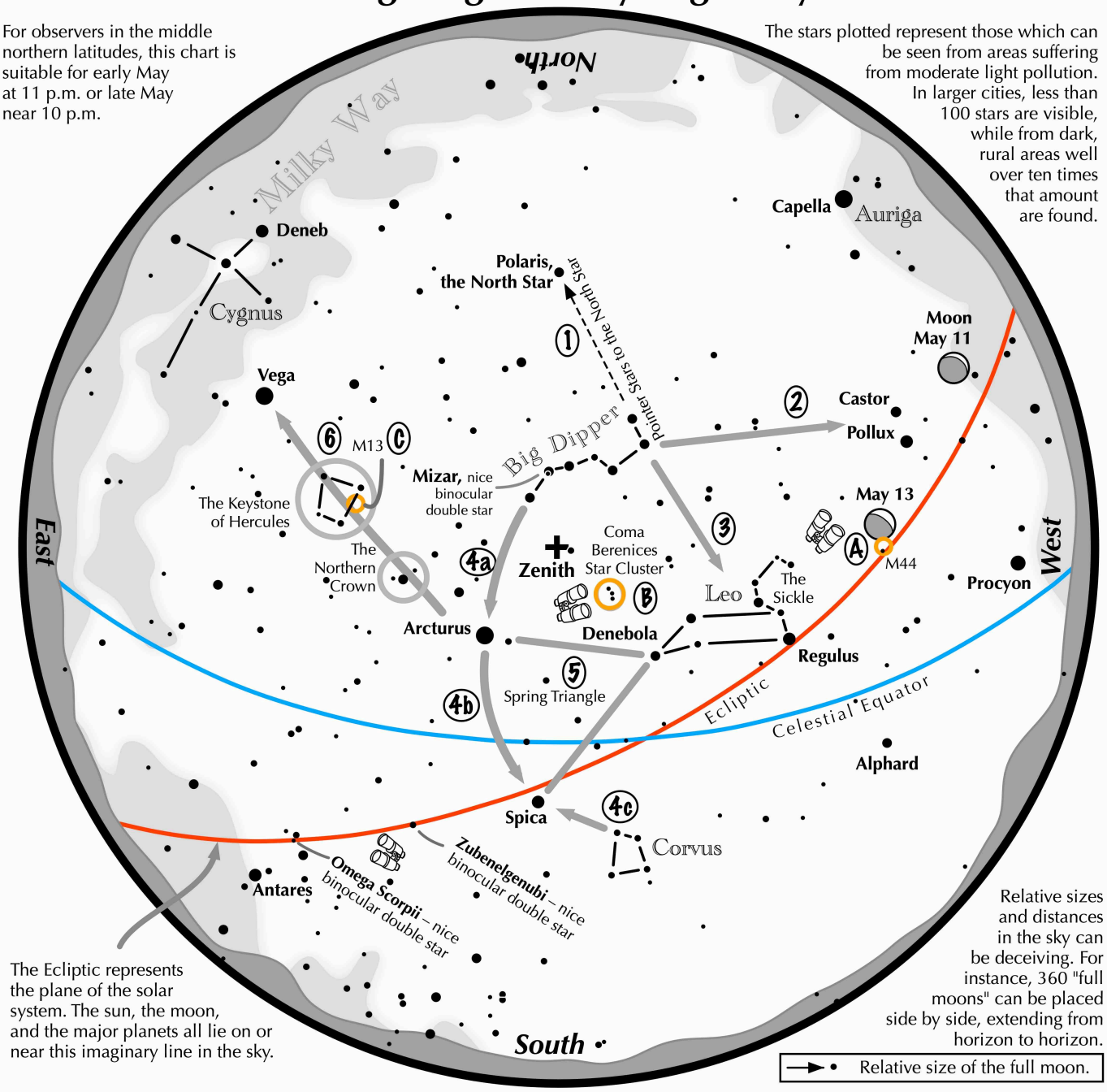
23 May. As you take in the Flower Moon rising in the east, look for brilliant Antares less than a degree north. Observers in the southeastern U.S., the Caribbean, Central America, and northeastern South America (including Brazil) will see the Moon occult the star. See timing for hundreds of locations along the path of the occultation at this link.

31 May. Last Quarter Moon, 17:13 UT. The quarter Moon lies about a degree south of Saturn low in the eastern morning twilight. Look for Mars further east and lower over the horizon.

Navigating the May Night Sky

For observers in the middle northern latitudes, this chart is suitable for early May at 11 p.m. or late May near 10 p.m.

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 May night sky: Simply start with what you know or with what you can easily find.

1. Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
3. Directly below the Dipper's bowl reclines the constellation Leo with its primary star, Regulus.
4. Follow the arc of the Dipper's handle. It first intersects Arcturus, then continues to Spica.
   Confirm Spica by noting that two moderately bright stars just to its southwest form a straight line with it.
5. Arcturus, Spica, and Denebola form the Spring Triangle, a large equilateral triangle.
6. Draw a line from Arcturus to Vega. One-third of the way sits "The Northern Crown." Two-thirds of the way hides the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.

Binocular Highlights

A: M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux. **B:** Look near the zenith for the loose star cluster of Coma Berenices. **C:** M13, a round glow from a cluster of over 500,000 stars.

Binoculars and Double Stars

A rewarding and challenging activity

https://www.astroleague.org/binocular-double-star-observing-program/

Effective Binocular Observing ...

- Binoculars must be precisely focused.
- Binoculars must be held steady. Mounted on a tripod is best.
- Adequate dark adaption is needed. Wait at least 15 minutes in the dark before meaningful observing begins. 30 minutes is better.
- Glare from a bright primary interferes with spotting a dim secondary. The greater the magnitude difference, the greater the difficulty splitting them.
- Steady atmospheric seeing is desired.
- Best observed when the double star has an altitude higher than 30º.

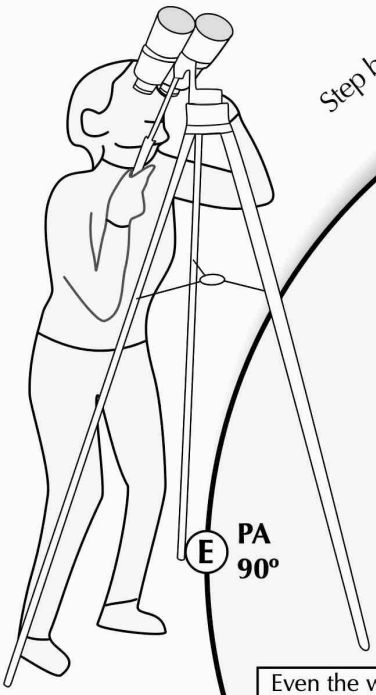
In Your Observing Notes:

- Brightnesses of the components.
- Separation of the components.
- Position Angle (PA).
- Colors of the components.
- Neighboring stars in the field?
- Seeing conditions.
- Atmospheric transparency.
- Altitude.

Rule of Thumb ...

Minimum <u>true</u> separation with 10 x 50 binoculars:

- 24 arc seconds for two stars of 4th magnitude. This equals 4 minutes apparent separation.
- For comparison, the full moon has a true diameter of 1800 arc seconds (=30 minutes).
- **True separation** is the angular space between stars as it appears to the unaided eye. **Apparent separation** is how it appears in binoculars.



Step back 1.5 m (4.75 ft) from this 150 mm (6 inch) printed field, and the 6º field will match 6º in the sky.

PA N 0º

6º true angular field – typical for binoculars

PA E 90º

PA 270º W

PA S 180º

Example Doubles

Alpha Capricorni
381", PA: 290º

Delta Cephei
41", PA: 191º

Σ1474 Hydrae
66", PA: 27º

56 Andromedae
203", PA: 298º

Nu Draconis
61", 311º

Alpha Ursae Majoris
385", 206º

Stellar Magnitude

2
3
4
5
6
7
8

Relative diameter of the full moon.

Separation distance

— 600" = 10'
– 300" = 5'
- 120" = 2'
· 60" = 1'
· 40" = 0.67'

Even the wider doubles appear close to each other. Two stars that have a tight separation, or a large magnitude difference, or a combination of the two are much more difficult to split, sometimes frustratingly so, but an enjoyble challenge nonetheless.

2402

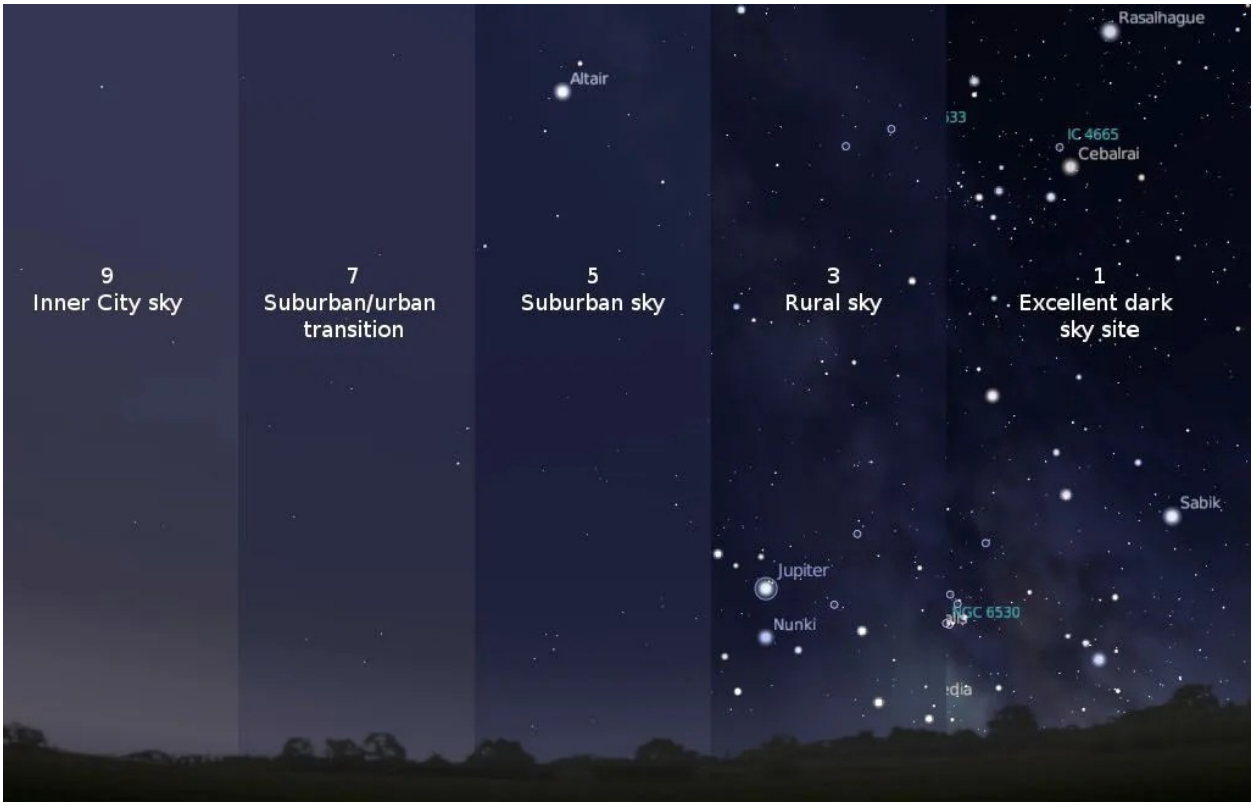
May’s Night Sky Notes: Stargazing for Beginners

By Kat Troche

Millions were able to experience the solar eclipse on April 8, 2024, inspiring folks to become amateur astronomers – hooray! Now that you’ve been ‘bitten by the bug’, and you’ve decided to join your local astronomy club, here are some stargazing tips!

The Bortle Scale

Before you can stargaze, you’ll want to find a site with dark skies. It’s helpful to learn what your Bortle scale is. But what is the Bortle scale? The Bortle scale is a numeric scale from 1-9, with 1 being darkest and 9 being extremely light polluted; that rates your night sky’s darkness. For example, New York City would be a Bortle 9, whereas Cherry Springs State Park in Pennsylvania is a Bortle 2.

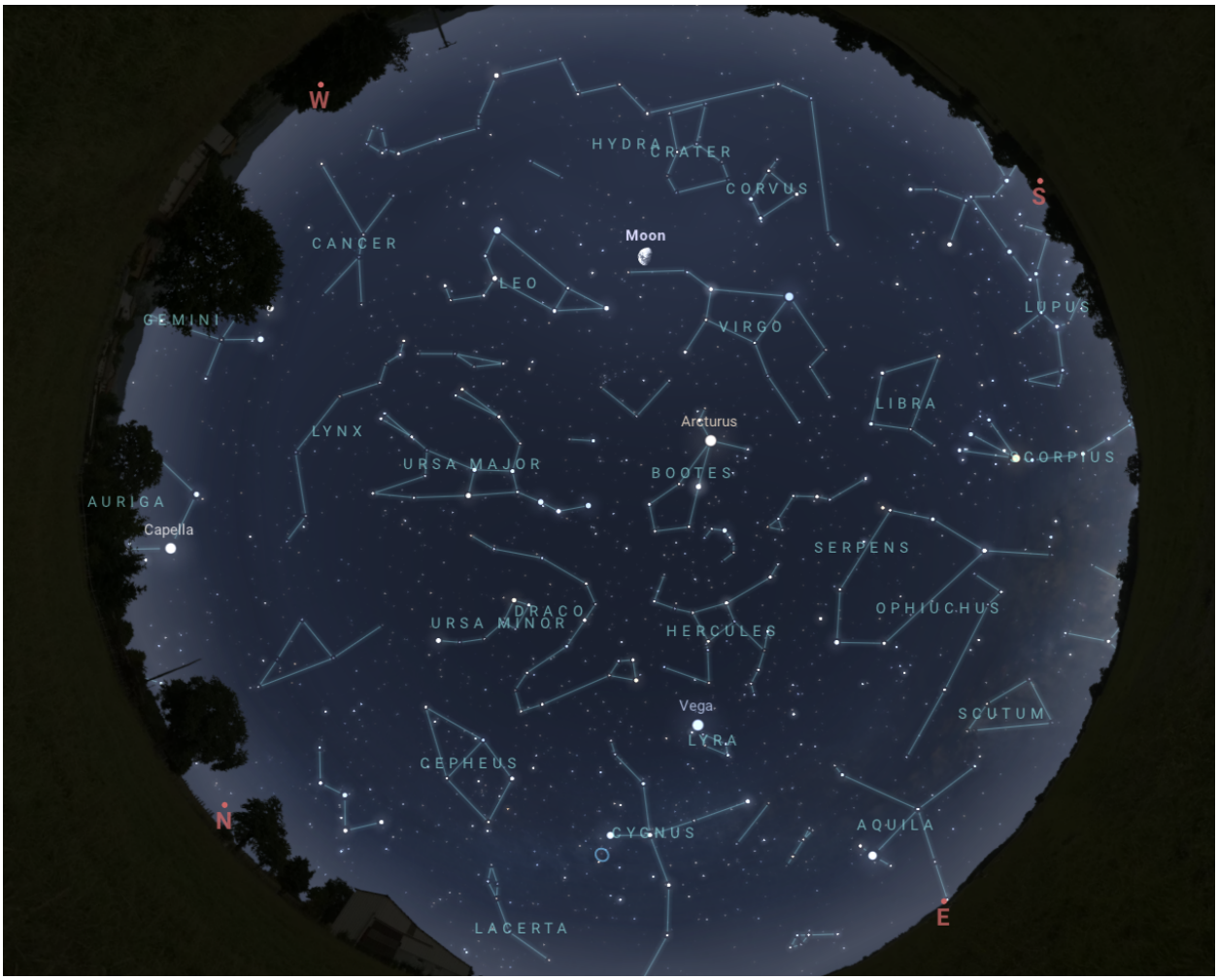


The Bortle scale helps amateur astronomers and stargazers to know how much light pollution is in the sky where they observe. Credit: International Dark Sky Association

Determining the Bortle scale of your night sky will help narrow down what you can expect to see after sunset. Of course, other factors such as weather (clouds namely) will impact seeing conditions, so plan ahead. Find Bortle ratings near you here: www.lightpollutionmap.info

No Equipment? No Problem!

There’s plenty to see with your eyes alone. Get familiar with the night sky by studying star maps in books, or with a planisphere. These are great to begin identifying the overall shapes of constellations, and what is visible during various months.



A full view of the northern hemisphere night sky in mid-May. Credit: Stellarium Web.

Interactive sky maps, such as Stellarium Web, work well with mobile and desktop browsers, and are also great for learning the constellations in your hemisphere. There are also several astronomy apps on the market today that work with the GPS of your smartphone to give an accurate map of the night sky.

Keep track of Moon phases. Both the interactive sky maps and apps will also let you know when planets and our Moon are out! This is especially important because if you are trying to look for bright deep sky objects, like the Andromeda Galaxy or the Perseus Double Cluster, you want to avoid the Moon as much as possible. Moonlight in a dark sky area will be as bright as a streetlight, so plan accordingly! And if the Moon is out, check out this Skywatcher's Guide to the Moon: bit.ly/MoonHandout.

Put On That **Red** Light

If you're looking at your phone, you won't be able to see as much. Our eyes take approximately 30 minutes to get dark sky adapted, and a bright light can ruin our night vision temporarily. The easiest way to stay dark sky adapted is to avoid any bright lights from car headlights or your smartphone. To avoid this, simply use red lights, such as a red flashlight or headlamp. The reason: white light constricts the pupils of your eyes, making it hard to see in the dark, whereas red light allows your pupils to stay dilated for longer. Most smartphones come with adaptability shortcuts that allow you to make your screen red, but if you don't have that feature, use red cellophane on your screen and flashlight.

Up next: why binoculars can sometimes be the best starter telescope, with Night Sky Network's upcoming mid-month article through NASA's website!

This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

Phil Harrington's Cosmic Challenge

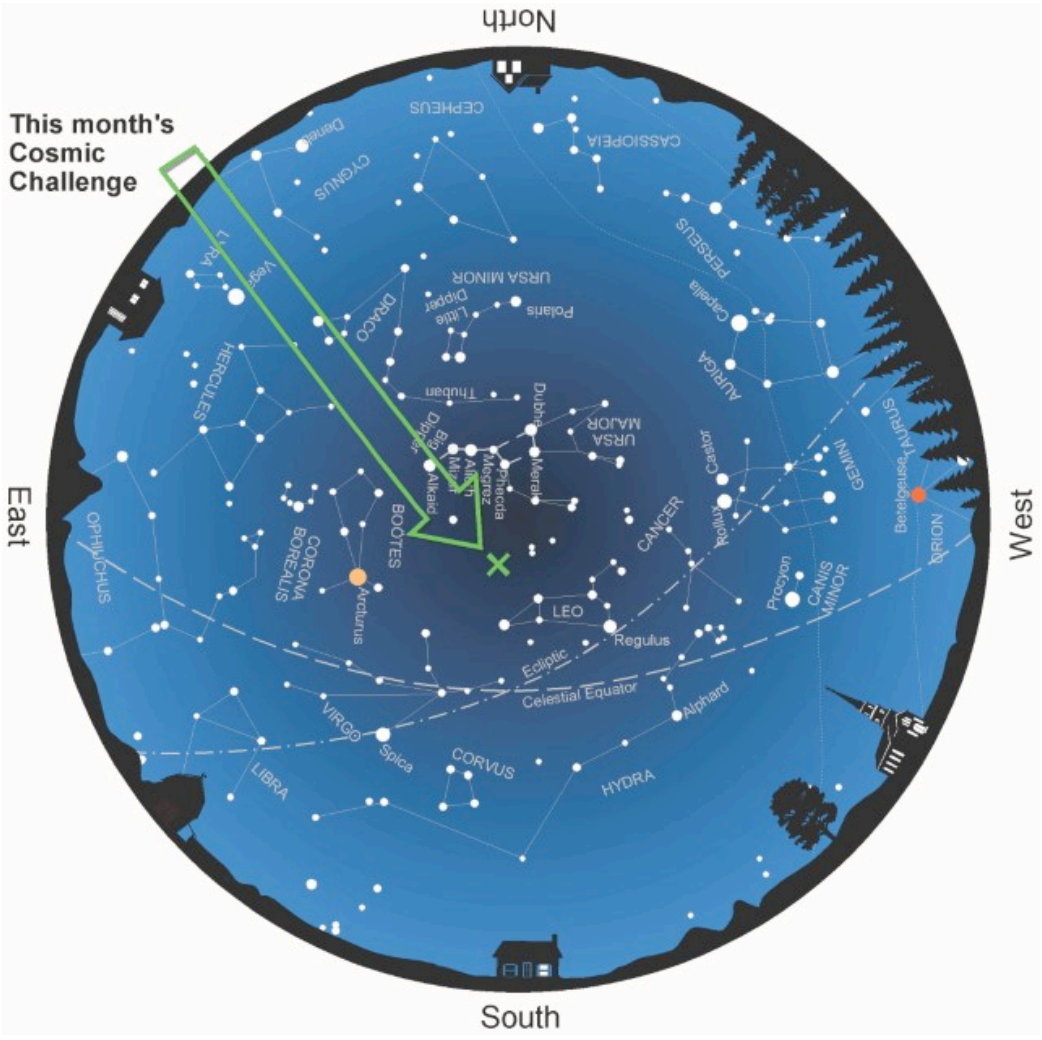
Palomar 4

This month's suggested aperture range:
15-inch (38-cm) and larger telescopes
Featured telescope JMI NGT 18”

Target	Type	RA	DEC	Constellation	Magnitude	Size
Palomar 4	Globular Cluster	11h 29.3m	+28° 58.4’	Ursa Major	14.2	1'

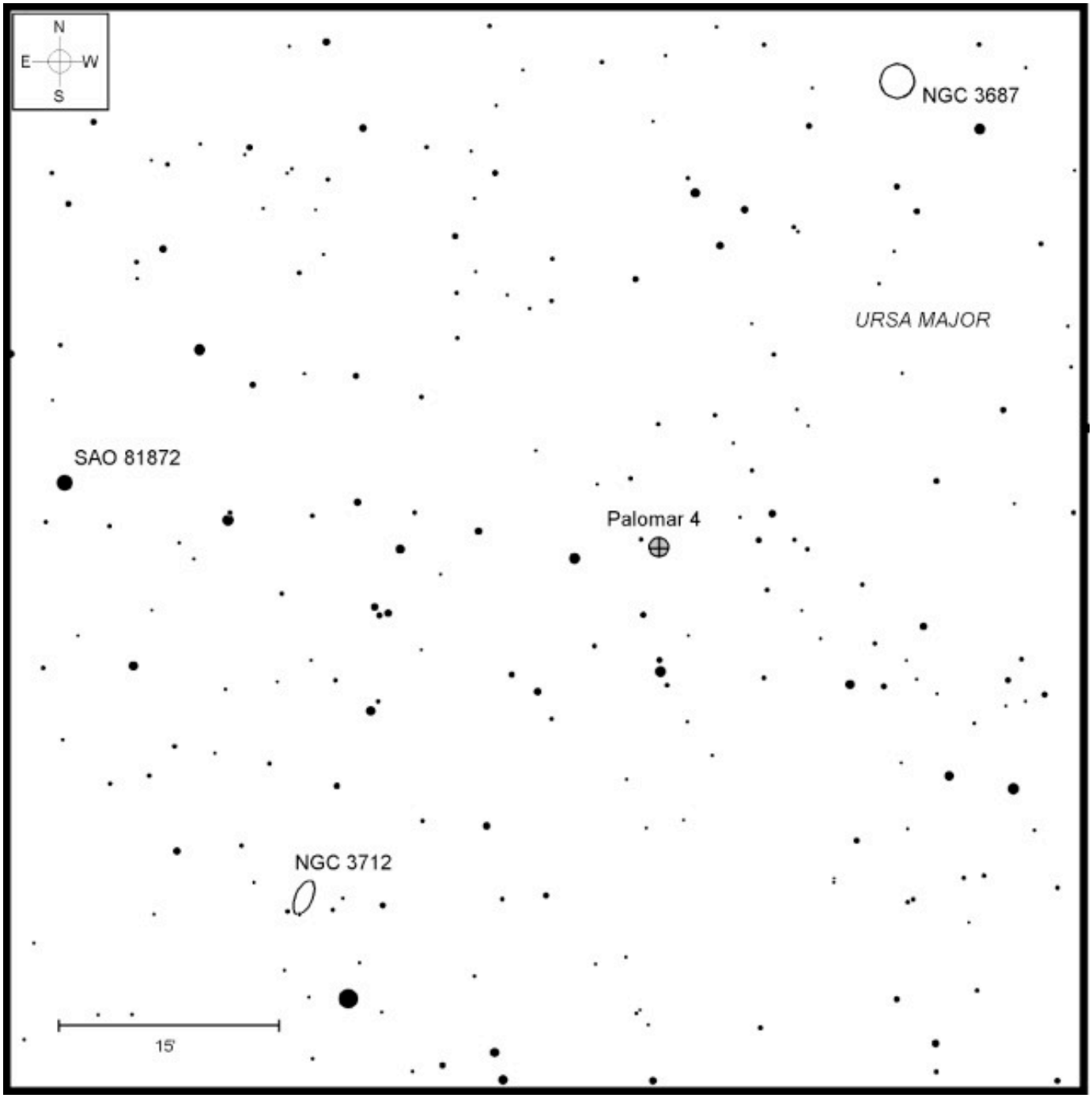
When you think of deep-sky objects in Ursa Major, you probably don't think of globular clusters. Galaxies, sure! Planetary nebulae? There's the Owl Nebula. But globular clusters? Probably not.

Well, guess what? There is actually a renegade globular cluster within the Great Bear. Today, we know it as Palomar 4, the fourth entry in the list of 15 challenging globular clusters discovered on the plates of the Palomar Sky Survey of sixty years ago. This particular globular was discovered by Edwin Hubble in 1949 and confirmed a year later by A.G. Wilson. Based on early observations, Palomar 4 was initially misclassified as a dwarf spherical galaxy, in part because of its remote distance. Palomar 4 is estimated to be 330,000 light years away from the Sun. That's further away than the two Magellanic Cloud satellite galaxies. More recent studies, however, prove that Palomar 4 is, indeed, a member of the Milky Way's family of globular clusters, albeit the most secluded save for Arp-Madone 1 in the southern constellation Horologium.



Above: Evening star map. Credit: Map adapted from Star Watch by Phil Harrington

Below: Finder chart for this month's Cosmic Challenge.

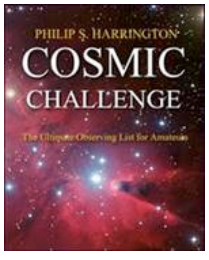


Palomar 4 lies near the star Alula Australis [Xi (ξ) Ursae Majoris], the Bear's big toe on its hind leg. Alula Australis, together with its twin star just to the north, Alula Borealis [Nu (ν) Ursae Majoris], is located 10° south of Phecda [Gamma (γ) Ursae Majoris]. Be sure to pause at both on your way to Palomar 4, as each is an attractive binary system. Nu's golden primary is accompanied by a 10th-magnitude companion 7" to its south-southeast. Xi is tougher thanks to its 4.3- and 4.8-magnitude suns being separated by only about 1½" at present. Incidentally, Xi was the first binary star whose components were proven to be physically related. William Herschel drew that conclusion in 1802 after he had found each star changed orientation relative to the other after a span of 22 years. A quarter century later, the French astronomer Felix Savary determined that the stars orbited each other in just under 60 years.

Palomar 4 is parked about 3½° southeast of Alula Australis. To find it, move 2½° southeastward from the star to a westward-aimed isosceles triangle of 7th-magnitude stars. Extend the triangle's eastern side southward to 7.8-magnitude SAO 81872, and then turn toward the west, passing a 9.3-magnitude star 12' later and coming to a 9.8-magnitude star in another 24'. Palomar 4 is just 6' further west of that last star. Look for its faint glow just to the west-southwest of a 13th-magnitude field star.

Its far-flung distance coupled with its inherently weak stellar concentration conspires to dilute the cluster to nothing more than a very faint glow measuring just an arc-minute or so across. From my suburban backyard observatory, my 18-inch (46-cm) reflector revealed only the faintest hint of the cluster at 206x, and then only fleetingly with averted vision. From darker sites in North Carolina and California, respectively, experienced deep-sky observers Kent Blackwell and Stephen Waldee have independently seen Palomar 4 through 10-inch telescopes. Congratulations to both; that's quite an accomplishment. If searching for Palomar globulars is your thing, below is a complete listing of the 15 objects in that elite list. I'll profile some in future columns.

Palomar #	Constellation	Right Ascension	Declination	Magnitude	Size (')
1	Cepheus	03 33 23.0	+79 34 50	13.6	2.8
2	Auriga	04 46 05.8	+31 22 55	13.0	2.2
3	Sextans	10 05 31.4	+00 04 17	13.9	1.6
4	Ursa Major	11 29 16.8	+28 58 25	14.2	1.3
5	Serpens	15 16 05.3	-00 06 41	11.8	8.0
6	Ophiuchus	17 43 42.2	-26 13 21	11.6	1.2
7	Serpens	18 10 44.2	-07 12 27	10.3	8.0
8	Sagittarius	18 41 29.9	-19 49 33	10.9	5.2
9	Sagittarius	18 55 06.0	-22 42 06	8.4	5.4
10	Sagitta	19 18 02.1	+18 34 18	13.2	4.0
11	Aquila	19 45 14.4	-08 00 26	9.8	10.0
12	Capricornus	21 46 38.8	-21 15 03	11.7	2.9
13	Pegasus	23 06 44.4	+12 46 19	13.8	0.7
14	Hercules	16 11 04.9	+14 57 29	14.7	2.5
15	Ophiuchus	16 59 51	-00 32 31	14.2	3.0



About the Author:

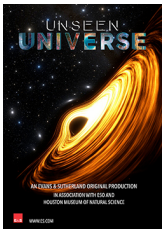
Phil Harrington is a contributing editor to Astronomy magazine and is the author of 9 books on astronomy. Visit www.philharrington.net to learn more.

Centennial Observatory Upcoming Events
All events are weather permitting.

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, May 11th, 2024	9:30 to 11:30 PM	FREE
International Astronomy Day Solar Viewing	Centennial Observatory	Saturday, May 18th, 2024	11:00 AM to 4:00 PM	FREE
International Astronomy Day Nighttime Telescope Viewing	Centennial Observatory	Saturday, May 18th, 2024	9:00 to 11:00 PM	FREE
Summer Solar Session #1	Centennial Observatory	Wednesday, May 29th, 2024	1:30 to 3:30 PM	FREE

Faulkner Planetarium Shows
For the full schedule and current show times visit!

Now Showing!



You may also visit the Herrett Center Video Vault

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

Visit https://saberdoesthe...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://skyandtelesc...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://svs.gsfc.nasa.gov/5187/ The Lunar Reconnaissance Orbiter Camera (LROC) quick map. https://www.universa...ise-and-sunset/

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

Summaries on the planets for each month can be found at https://earthsky.org/astronomy-essentials/

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.

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

Click on https://www.curtrenz.../asteroids.html for information on asteroid occultations taking place this month.

Visit http://cometchasing.skyhound.com/ and http://www.aerith.ne...t/future-n.html and https://cobs.si/ for additional information on comets visible this month.

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

A wealth of current 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 https://stardate.org/nightsky and http://astronomy.com/skythisweek and http://www.skyandtel...ky-at-a-glance/

Free star maps for any month may be downloaded at http://www.skymaps.com/downloads.html and https://www.telescop...thly-Star-Chart and http://www.kenpress.com/index.html

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

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 http://www.cambridge..._april-june.htm

Telrad finder charts for the Messier Catalog are posted at http://www.custerobs...cs/messier2.pdf and http://www.star-shin...ssierTelrad.htm

Telrad finder charts for the SAC's 110 Best of the NGC are available at https://www.saguaroa...k110BestNGC.pdf

Information pertaining to observing some of the more prominent Messier galaxies can be found at http://www.cloudynig...ur-astronomers/

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

Stellarium and Cartes du Ciel are two excellent 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/

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

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 Robert Mayer, 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.