Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

May 2022

Membership Meeting
Saturday May 14th 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

Club Officers

Gary Leavitt, President
leavittg@cableone.net

Dr. Jay Hartwell, Vice President

Jim Tubbs, Treasurer / ALCOR
jtubbs015@msn.com
208-404-2999

David Olsen, Newsletter Editor
editor@mvastro.org

Rick Widmer, Webmaster
rick@developersdesk.com

Magic Valley Astronomical Society is a member of the Astronomical League

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

May President's Message

As this month begins, several items of interest have caught my attention. On the 14th Aiden Valenta will report on his senior project during our regular monthly meeting at the Herrett Center Library at 7pm. I'm hopeful this will be the first of several presentations from local based students on astronomy related subjects.

Another one of our local members, Rick Hull, will speak to us next about his journey into astronomy and astrophotography. Should be a great meeting. Then, on Sunday night, the first of two Lunar Eclipses this year will grace our skies. The Herrett Center web site says the dome will open up at 8:45pm, at which time the eclipse will already be underway during its first partial phase. The Total Phase begins at 9:29pm and Astronomy Magazine says totality will last "a whopping 85 minutes." I refer you to our website for the complete schedule.
https://herrett.csi.edu/astronomy/20220515_total_lunar_eclipse.asp

I don't want to forget to mention that our next club star party is scheduled at the Hagerman Fossil Beds overlook on Saturday, June 4th.

VP Jay Hartwell reminds us that our June program has Rob Mayer as our featured speaker on the 11th at 7pm and of course our annual BBQ is set for July 9th. So as the weather warms, hopefully better observing and imaging conditions will offer up some clear skies. Stay safe and keep looking up,
Gary Leavitt, MVAS President

May 2022 Calendar

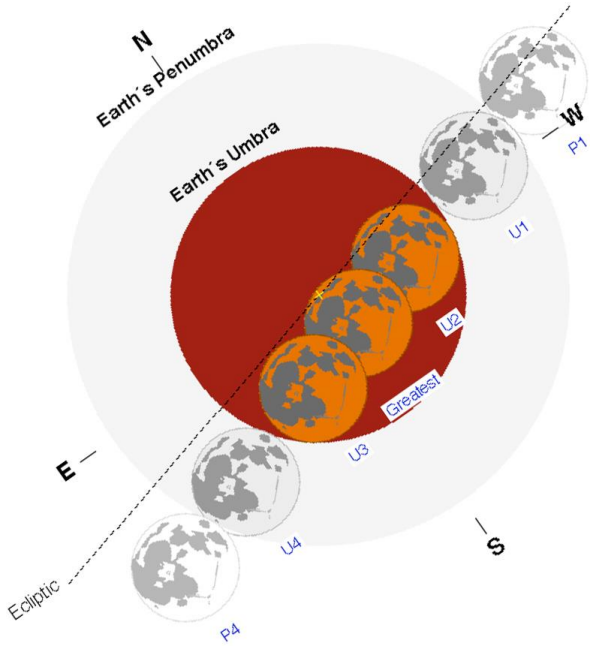
Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6	7 Astronomy Day Activities at the Herrett Center from 1:00p - 9:00p
8 Mother's Day 	9 **First Quarter Moon**  Visible 55% ↑	10	11	12	13	14 MVAS General Meeting 7:00p Herrett Center Centennial Observatory Public Star Party 9:15p - 11:15p
15 Total Lunar Eclipse 	16 **Full Flower Moon**  Visible 100%	17	18	19	20	21
22 **Last Quarter Moon**  Visible: 50% ↓ Age: 22.15 Days	23	24	25	26	27	28
29	30 Memorial Day  New Moon 1% Visible	31				

Be Careful – Be Safe – Get Out There – Explore Your Universe

Total Lunar Eclipse

The Total Lunar Eclipse of
Sunday, May 15th, 2022

The moon will rise during the first partial phase, followed by a fairly deep total eclipse.



Adapted from a diagram by NASA. Note that, although the moon's orbital motion causes it to move to the lower left (east) relative to Earth's shadow, it (and the shadow) are moving to the upper *right* due to Earth's rotation. Thus, for observers in Idaho, the moon moves higher in the sky relative to the local horizon throughout the eclipse. Eclipse timeline (all times listed are in Mountain Daylight Time (GMT-6 hrs.), and rise/twilight times are given for Twin Falls, Idaho, USA):

- 8:45 PM — **Moonrise.** With the first partial phase (U1) having begun at 7:28 PM, the rising moon is already showing a dark "bite" missing from its lower left edge. **Centennial Observatory opens**, weather permitting. Views provided through small telescopes on the Stargazers' Deck until the moon is high enough for the 24" telescope (10:39 PM).
- 8:53 PM — **Sunset.**
- 9:29 PM — **Total phase (U2) begins** (second umbral contact). The moon is completely immersed in Earth's umbra, taking on a red-orange, orange-brown, or darker color, depending on global atmospheric conditions. Totality begins with the moon appearing darkest at the lower left and brightest at the upper right.
- 10:13 PM — **Greatest eclipse.** The moon reaches its maximum excursion into the umbral shadow, appearing at its darkest. For this particular eclipse, the moon will be fairly deep in the umbral shadow, and so may appear quite dark.
- 10:39 PM — **Moon's altitude 15°.** Moon is high enough to view with the 24” telescope.
- 10:53 PM — **End of astronomical twilight.**
- 10:54 PM — **Total phase (U3) ends** (third umbral contact). Just before this point, the moon appears darkest on top and brightest on the bottom. As it emerges from Earth's umbra, a growing, bright sliver appears at lower left edge of the lunar disk.
- 11:55 PM — **Partial phase (U4) ends** (fourth umbral contact). The last, dark "bite" of shadow slips off the moon's upper right edge. From this point on, the moon appears normal, except for an increasingly subtle darkening of its upper right edge from Earth's penumbral shadow.
- 12:00 AM — **Observatory closes.**
- 12:51 AM — **Last penumbral phase ends (P4).** Well before this point, the moon appears completely normal to the eye, the penumbral shading being too subtle to detect.

Night Sky – May 2022

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. Also, the Eta Aquarid meteor shower peaks in the first week of the month, bright planets congregate in the eastern sky before sunrise, Jupiter and Mars make a close conjunction at the end of the month. Best of all, for much of the world, a total lunar eclipse occurs in mid-May during the 'Full Flower Moon'. Here's what to see in the night sky this month…

1-2 May. Look for Venus and Jupiter in the eastern sky before sunrise. The pair made a close conjunction on April 30, but they're still less than half a degree apart. They continue to separate over the coming days.

A slender crescent Moon among the stars of Taurus and the Hyades and Pleiades star clusters in the western sky after sunset on May 2, 2022.

2 May. As they move westward towards the horizon in the evening sky, the Hyades and Pleiades star cluster join a slender crescent Moon in the northwestern evening sky after sunset.

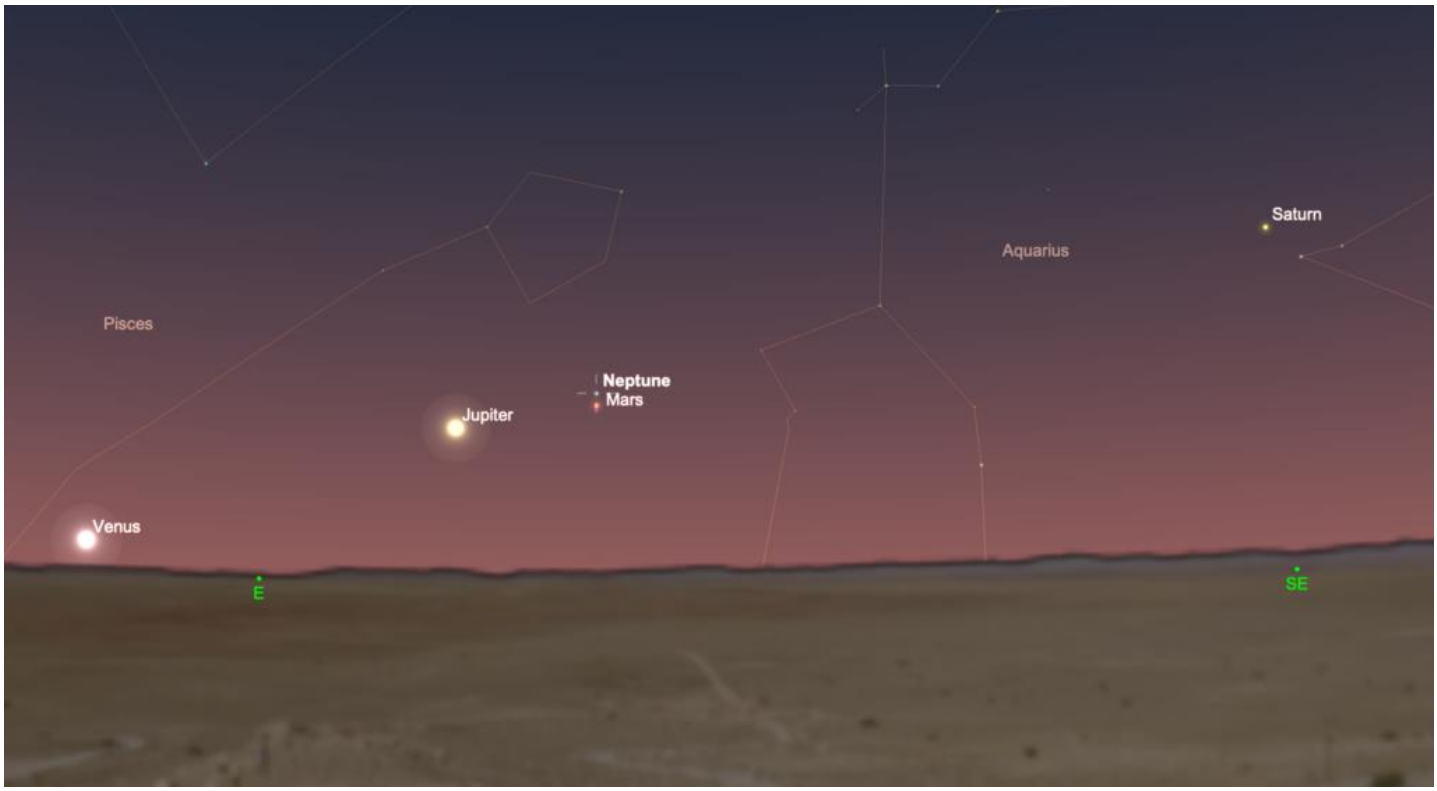
6 May. The usually reliable Eta Aquarid meteor shower peaks. The shower runs from April 21 through May 20 each year, with many meteors still visible for several days on either side of the peak. The Eta Aquarids occur as Earth passes through a stream of icy and dusty debris from Comet 1/P Halley, more 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.

7 May. Dust off your binoculars and head outside to see a thick crescent Moon about three degrees north of the Beehive star cluster in the evening sky.

9 May. First Quarter Moon, 00:21 UT

16 May. Full Moon, 04:14 UT

15-16 May. A spectacular total lunar eclipse occurs as the moon nears perigee, its closest point to Earth in its orbit. That means it appears about 6% larger than average. This May 'Flower Moon' eclipse is visible from North and South America, Western Europe and Africa, and just barely from New Zealand (but not Australia). The total phase of this lunar eclipse Western Europe and Africa, and just barely from New Zealand (but not Australia). The total phase of this lunar eclipse occurs from 3:28 UT to 4:54 UT, with peak eclipse occurring at 4:11 UT.



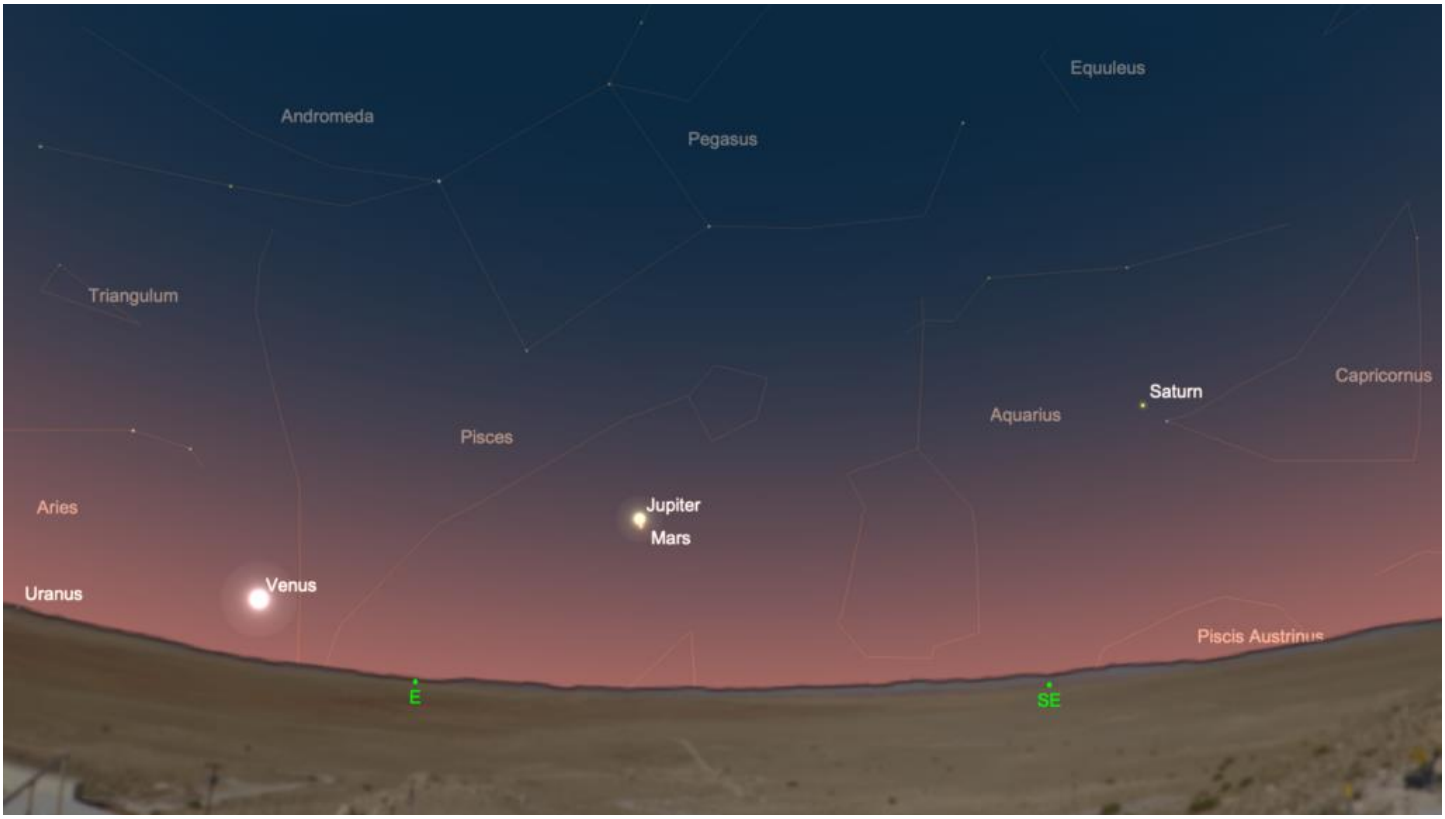
Mars and Neptune make a close conjunction in the eastern sky before sunrise on May 18, 2022.

18 May. Look eastward again before sunrise to see Mars less than a degree below dim and distant Neptune. You will need optics, at least bigger binoculars and most likely a telescope to see both planets. Mars spans an apparent diameter of just 6.1" and shines at magnitude +0.8. Neptune spans 2.2" and shines about 700 times fainter at magnitude +7.9. Neptune's faint blue-green color makes a striking contrast to brightening Mars' red-orange glow. Much brighter Jupiter lies about six degrees to the west of the pair.

22 May. Last Quarter Moon, 18:43 UT

24 May. Look for Jupiter and Mars rising together in the eastern sky before sunrise with a waning crescent Moon nearby. The two grow closer each day on their way to conjunction next week.

27 May. The action continues in the eastern sky before sunrise as a thin crescent Moon, only 8% lit, lies about four degrees east of Venus over the eastern horizon before sunrise. The pair make lovely sight in binoculars. In contrast to the Moon's thin crescent, in a telescope Venus shows a disk more than three-quarters illuminated. A beautiful sight to start your day (or to finish your night if you've been up with your telescope).



Jupiter and Mars make a close conjunction in the eastern sky before sunrise on May 29, 2022.

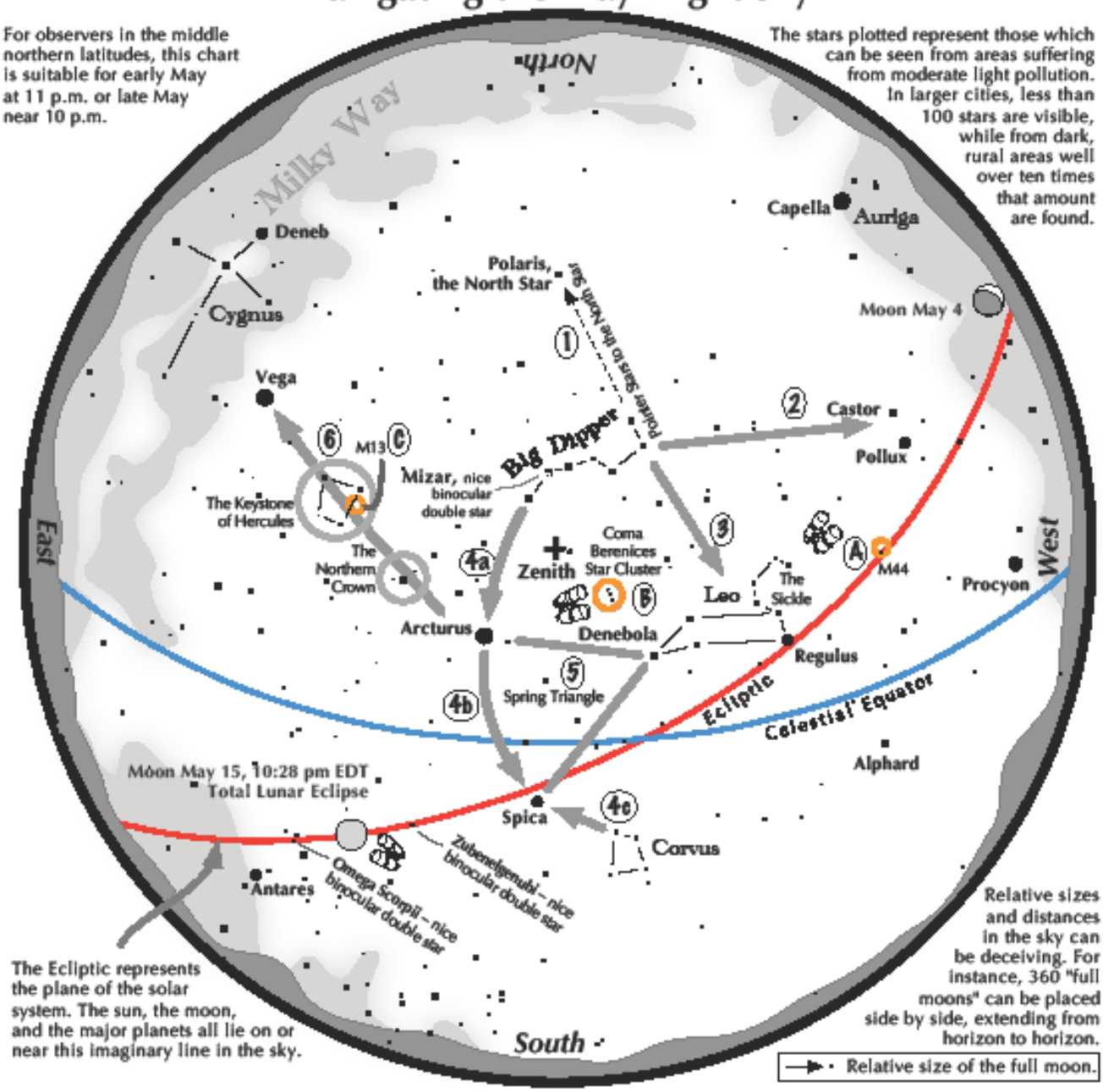
29 May. At the end of last month, it was Jupiter and Venus making a close conjunction in the early-morning sky. In May, the biggest planet makes a close approach to Mars in the southeastern sky before sunrise. The two planets lie about half a degree apart and are easily visible to the naked eye. At magnitude +0.7, red-orange Mars makes a striking color contrast with much brighter yellow-white Jupiter (magnitude -2.2). Both fit into the same field of view of a small telescope at low-to-moderate magnification. In a telescope, you can see the disks of each planet and Jupiter's large Galilean moons and major cloud belts. Still distant, Mars gives up little detail. Both planets continue to grow larger and brighter over the coming months on their way to opposition on September 26 (Jupiter) and December 8 (Mars).

30 May. New Moon, 11:30UT

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.

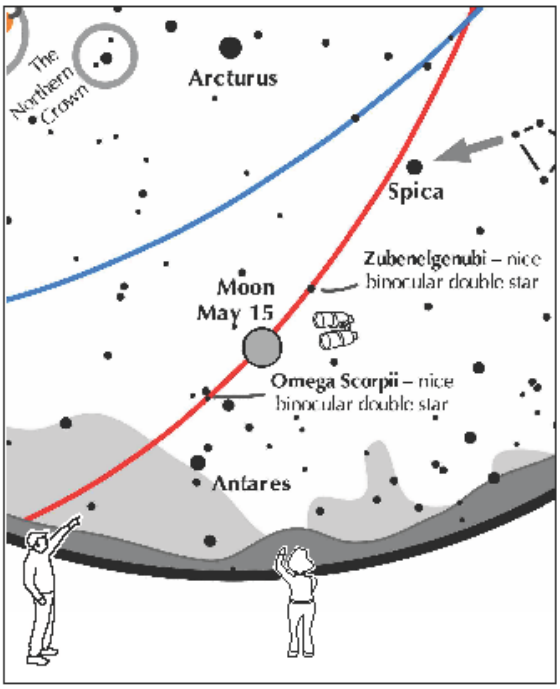
Relative size of the full moon.

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

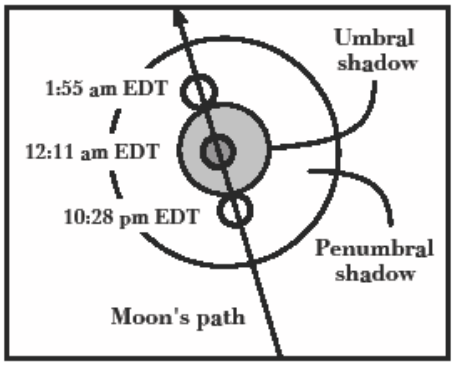
1. Extend a line northward from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Through the two diagonal stars of the Dipper's bowl, draw a line pointing to the twin stars of Castor and Pollux in Gemini.
3. Directly below the Dipper's bowl reclines the constellation 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.

If you can observe only one celestial event in the evening this May, see this one.



View to the southeast
on May 15
at 11 pm EDT,
8 pm PDT (near sunset)



The Moon slides through a total eclipse

In the evening hours of May 15, the brilliant full moon slides into Earth's shadow.

- Even though the partial umbral eclipse begins at 10:28 EDT, darkening may not be noticed for another 5 minutes.
- When totality is reached, the full moon's brilliance is gone, allowing the stars to appear. Can you spot the wide double star Zubenelgenubi to the moon's upper right? How about red Antares rising in the southeast?
- At mid eclipse, what color is the moon? How red is it?
- During the partial phases, can you notice that the shadow's edge is not straight, but curved?

Jupiter passes Venus

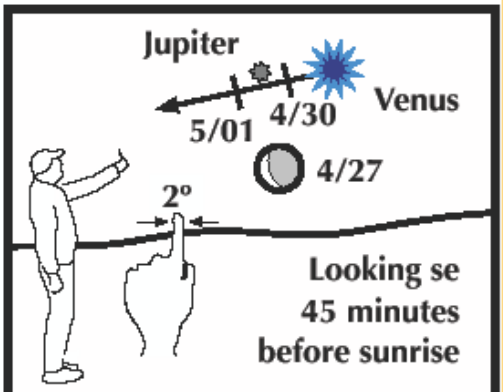
45 minutes before sunrise look to the east-southeast for Venus and Jupiter. Each morning follow their approach and measure their separation by using your index finger as a reference.

The angular width of the tip of your index finger on your fully extended arm is 2°.

While they won't merge into a single bright planet, their glare fields will blur together.

Be sure to use binoculars for a clearer view!

As a bonus, the crescent moon joins them on April 27. Enchanting!



Date	Fingers	Degrees
Apr 25	2.5	5
Apr 27	1.6	3.2
Apr 30	0.2	0.5
May 1	0.3	0.6
May 4	1.6	3.3

What a great way to start your day!

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 to find local clubs, events, and more!

Night Lights: Aurora, Noctilucent Clouds, and the Zodiacal Light

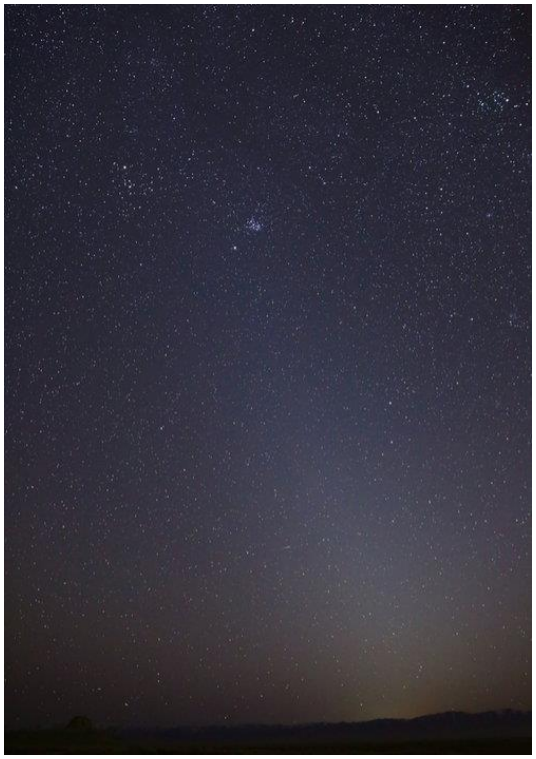
David Prosper

Have you spotted any “night lights”? These phenomena brighten dark skies with celestial light ranging from mild to dazzling: the subtle light pyramid of the zodiacal light, the eerie twilight glow of noctilucent clouds, and most famous of all, the wildly unpredictable and mesmerizing aurora.

Aurora, often referred to as the northern lights (aurora borealis) or southern lights (aurora australis), can indeed be a wonderful sight, but the beautiful photos and videos shared online are often misleading. For most observers not near polar latitudes, auroral displays are relatively rare and faint, and without much structure, more gray than colorful, and show up much better in photos. However, geomagnetic storms can create auroras that dance and shift rapidly across the skies with several distinct colors and appear to observers much further away from the poles - on very rare occasions even down to the mid-latitudes of North America! Geomagnetic storms are caused when a magnetic storm on our Sun creates a massive explosion that flings a mass of particles away from its surface, known as a Coronal Mass Ejection (CME). If Earth is in the path of this CME, its particles interact with our planet’s magnetic field and result in auroral displays high up in our ionosphere. As we enter our Sun’s active period of its 11-year solar cycle, CMEs become more common and increase the chance for dazzling displays! If you have seen any aurora, you can report your sighting to the Aurorasaurus citizen science program at aurorasaurus.org

Have you ever seen wispy clouds glowing an eclectic blue after sunset, possibly towards your west or northwest? That wasn’t your imagination; those luminescent clouds are noctilucent clouds (also called Polar Mesospheric Clouds (PMC)). They are thought to form when water vapor condenses around ‘seeds’ of dust from vaporized meteorites - along with other sources that include rocket launches and volcanic eruptions - around 50 miles high in the mesosphere. Their glow is caused by the Sun, whose light still shines at that altitude after sunset from the perspective of ground-based observers. Noctilucent clouds are increasing both in frequency and in how far south they are observed, a development that may be related to climate change. Keeping in mind that observers closer in latitude to the poles have a better chance of spotting them, your best opportunity to spot noctilucent clouds occurs from about half an hour to two hours after sunset during the summer months. NASA’s AIM mission studies these clouds from its orbit high above the North Pole: go.nasa.gov/3uV3Yj1
You may have seen the zodiacal light without even realizing it; there is a reason it’s nicknamed the “false dawn”! Viewers under dark skies have their best chance of spotting this pyramid of ghostly light a couple of hours after sunset around the spring equinox, or a couple of hours before dawn around the autumnal equinox. Unlike our previous two examples of night lights, observers closer to the equator are best positioned to view the zodiacal light! Long known to be reflected sunlight from interplanetary dust orbiting in the plane of our solar system, these fine particles were thought to originate from comets and asteroids. However, scientists from NASA’s Juno mission recently published a fascinating study indicating a possible alternative origin: dust from Mars! Read more about their serendipitous discovery at: go.nasa.gov/3Onf3kN
Curious about the latest research into these night lights? Find news of NASA’s latest discoveries at nasa.gov

Comet NEOWISE flies high above a batch of noctilucent clouds in this photo from Wikimedia contributor Brwynog. License and source CC BY-SA 4.0 https://commons.wikimedia.org/wiki/File:Comet_Neowise_and_noctilucent_clouds.jpg



The zodiacal light extends into the Pleiades, as seen in the evening of March 1, 2021 above Skull Valley. Utah. The Pleiades star cluster (M45) is visible near the top. Credit and source:: NASA / Bill Dunford

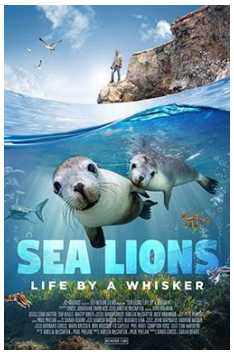
Observatory and Planetarium Events

Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
International Astronomy Day Solar Viewing	Centennial Observatory	Saturday, May 7th, 2022	11:00 AM to 4:00 PM	FREE
International Astronomy Day Nighttime Telescope Viewing	Centennial Observatory	Saturday, May 7th, 2022	9:15 to 11:15 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, May 14th, 2022	9:30 to 11:30 PM	FREE
Total Lunar Eclipse	Centennial Observatory	Sunday, May 15th, 2022	8:45 PM to 12:00 AM	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

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

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.