

# Snake River Skies

*The Newsletter of the Magic Valley Astronomical Society*

**December 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)

## **Club Officers**

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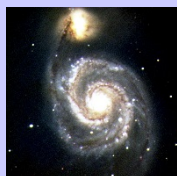
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*Magic Valley Astronomical Society is a  
member of the Astronomical League*



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

## **President's Message**








Happy December All: As we end 2022, my thoughts are with all of you for a safe and happy holiday season. We Finally witnessed Artemis 1 getting off the ground and into orbit on its lunar mission with hopes for a safe return and splash down. We are definitely GO for a Christmas Party on the 12<sup>th</sup> In the Herrett Ctr. Don't know yet which room we'll be using. I've asked Chris to prepare a Millionaire Astro game as in previous years.

Please be prepared to bring an exchange gift ( no more than \$10-15) please, and a dessert, snack, or finger food that is not home maid (CSI rules). We'll be starting at our usual time of 7pm. Program plans for 2023 will hopefully include lots of new and fun things. Our January Mtg will feature telescopes, eyepieces and tracking mounts.

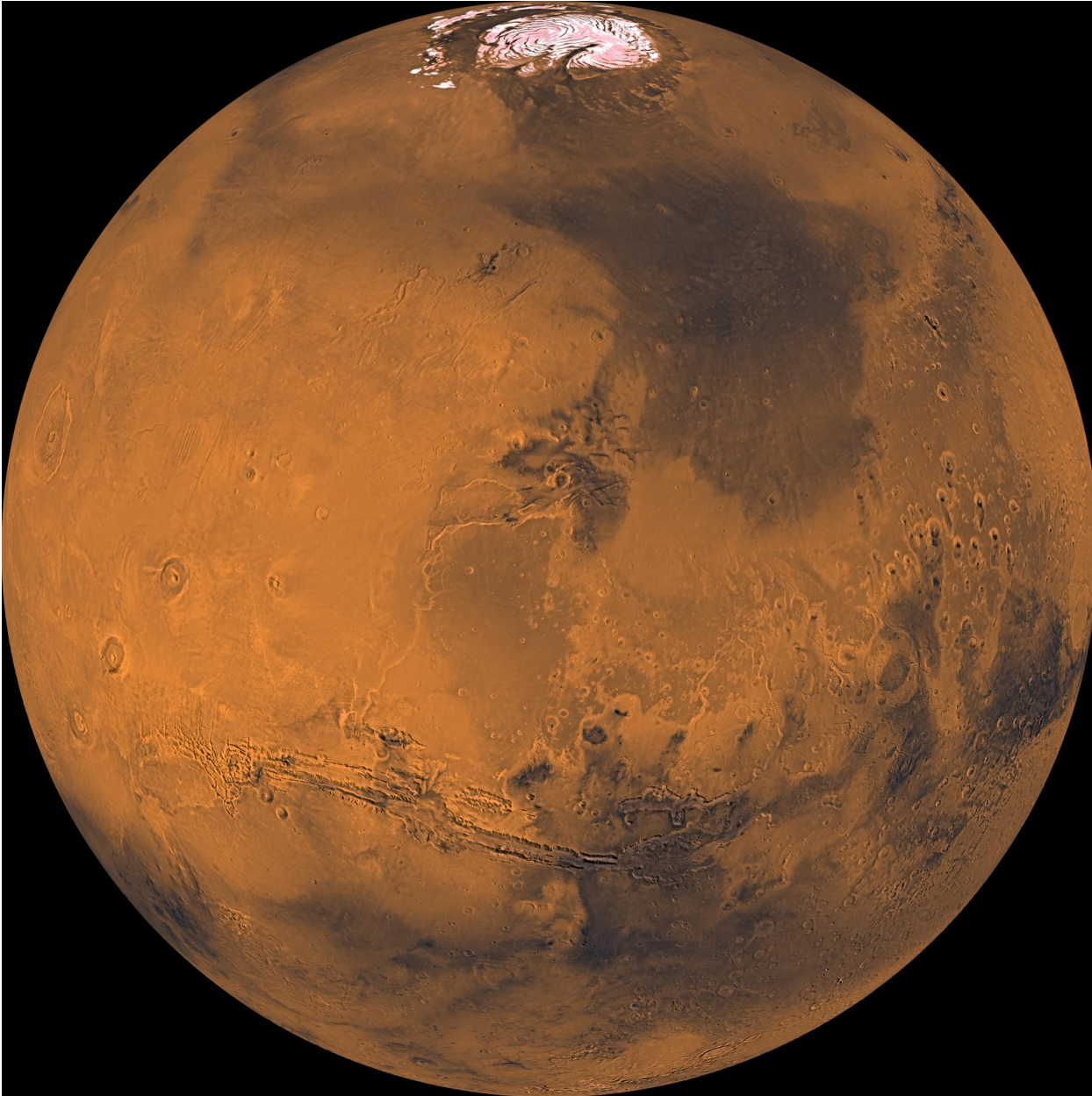
Hope to see lots of you Dec 12<sup>th</sup>

Gary Leavitt, MVAS President

# December 2022 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
				<b>Full Cold Moon</b> 1:17 am  Visible 100%		MVAS General Meeting 7:00p Herrett Center  Centennial Observatory Public Star Party
11	12	13	14	15	16	17
					<b>Last Quarter Moon</b>  Visible: 47% ↓	
18	19	20	21	22	23	24
			Winter Solstice		<b>New Moon</b>  Visible 0% Lunation 1237	Christmas Eve 
25	26	27	28	29	30	31
Christmas (Jól) 	Boxing Day 					New Year's Eve 





A composite image of Mars from the Viking Orbiter (image credit: NASA)

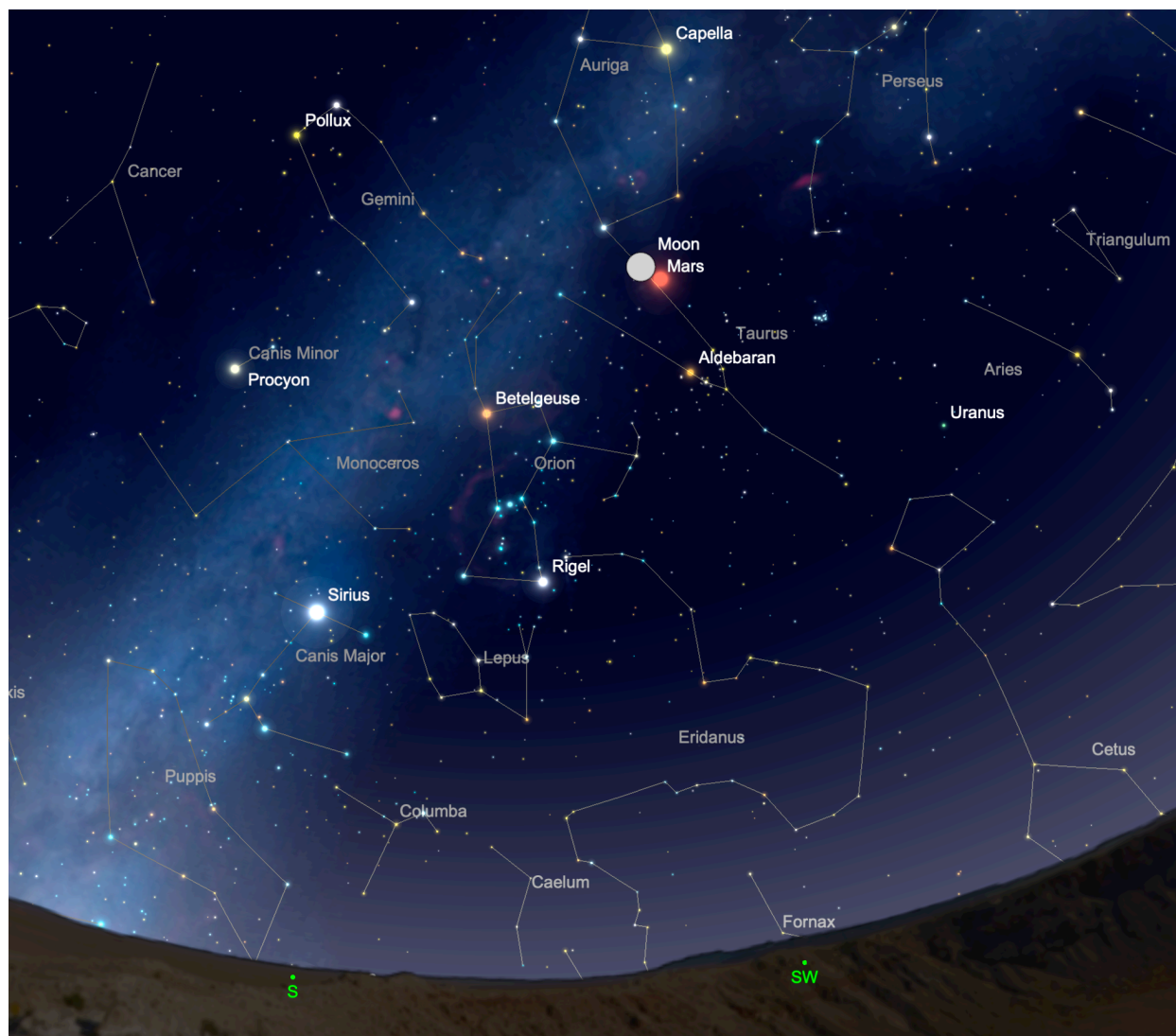
As 2022 comes to an end, Jupiter and Saturn linger in the western sky after sunset, both still big enough for fruitful telescopic observation. Mars has grown bright and fat in Taurus on its way to opposition – and a concurrent lunar occultation – on Dec. 7-8. Don't miss Mars – the next opposition arrives in early 2025. Mercury and Venus make a close but low conjunction in the evening sky later in the month. And the Geminid meteor shower arrives in the early morning at mid-month. Here's what to see in the night sky in December...

1 December 2022. Look for still-bright Jupiter about  $2.5^\circ$  above the waxing gibbous Moon just past first quarter. The planet dominates the southwestern sky after sunset. Still bright at magnitude  $-2.6$ , it spans about  $43''$ , large enough to show well in a telescope.

6 Dec. The thickening gibbous Moon lies between the Hyades and Pleiades in Taurus.

7-8 Dec. Mars reaches opposition for the first time in 26 months. The planet shines at magnitude  $-1.9$  in the constellation Taurus and spans about  $17.2''$ . That's not as large as the past few oppositions, but it's still impressive. The planet lies along the northern reaches of the ecliptic which favors northern observers who see it high in the sky at culmination, but

southern-hemisphere observers see it also. While Mars fades to magnitude -1.2 by month's end and slowly shrinks, all of December presents the best time (if a chilly one, for northern observers) to observe the planet in the evening hours. [Read more about how to observe Mars here.](#)



Mars lies near the full Moon on Dec. 7-8. Observers in much of North America and western Europe see the Moon occult Mars just two hours before opposition.

7-8 Dec. As if a Martian opposition isn't enough, the planet undergoes a spectacular lunar occultation for observers in much of the U.S., all of Canada, and westernmost Europe. Observers elsewhere see the bright planet close to the full Moon in the late hours of Dec. 7 and into the morning of Dec. 8. Learn more about this spectacular occultation [in this separate article at Cosmic Pursuits.](#)

8 Dec. Full Moon (Cold Moon), 04:08 UTC

10-11 Dec. Look for a thick gibbous Moon less than  $2^\circ$  from Pollux. It forms a triangle with that star and its 'twin', Castor, rising in the east.

13-14 Dec. The usually reliable Geminid meteor shower peaks in the late hours of December 13 and into the early morning of the 14th. The waning gibbous Moon obscures the faintest meteors this year, but it's still worth the effort to spot a few Geminids late in the evening and after midnight. Geminids can appear anywhere in the sky and trace their path back to a point near the star Castor in the constellation Gemini. Also, try looking after dark on the 13th for a few brighter Geminids that may enter the atmosphere at a shallow angle and burn slowly across the sky. The meteor shower happens on this date each year as the Earth passes through a stream of debris from the asteroid 3200 Phaethon, an Apollo asteroid discovered in 1983.

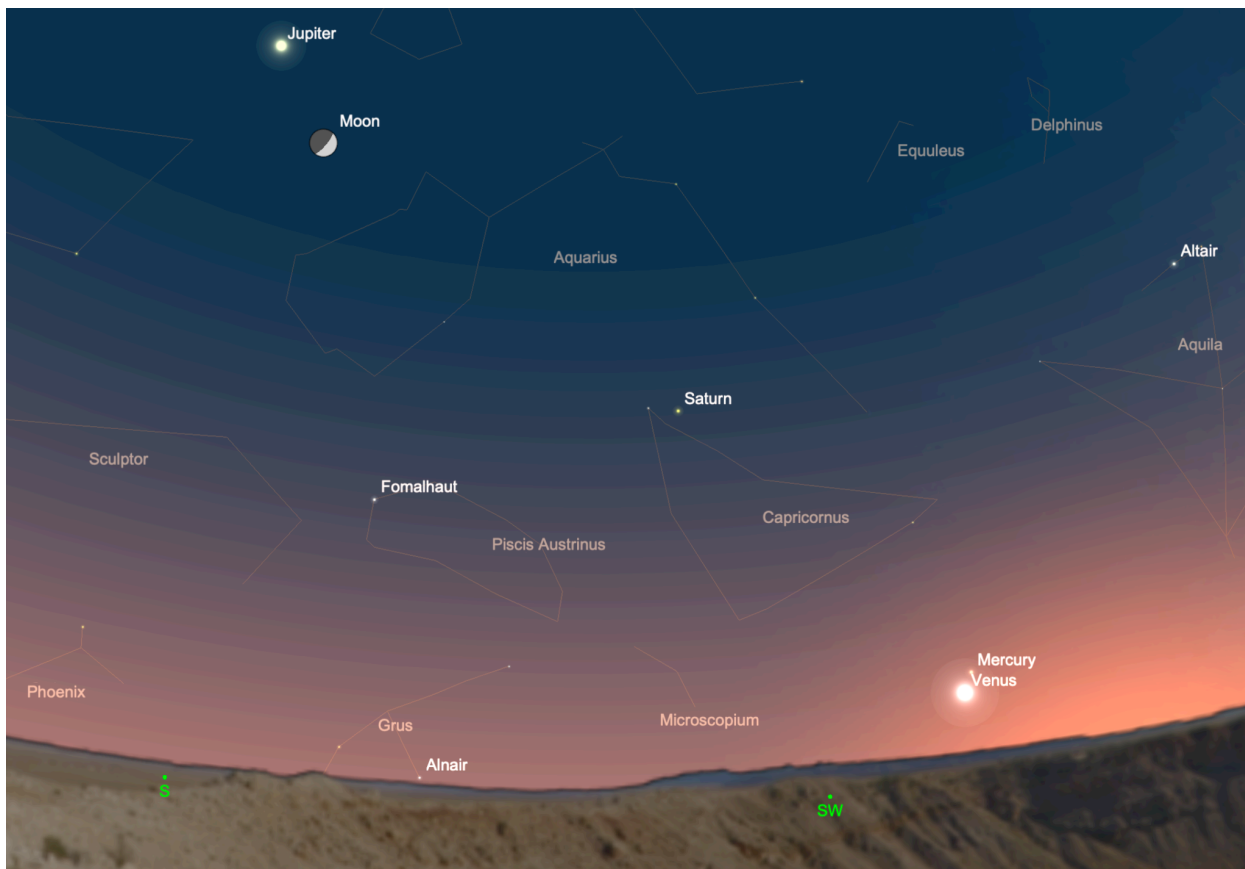
16 Dec. Last Quarter Moon, 08:56 UTC

18 Dec. Look for a waning crescent Moon  $5^\circ$  from the bright star Spica in Virgo in the southwestern sky before dawn.

21 Dec. The December solstice arrives at 21:48 UTC. This marks the longest night of the year in the northern hemisphere and the longest day of the year in the southern hemisphere.

21 Dec. Mercury reaches greatest eastern elongation about  $20^\circ$  from the Sun. Tonight it lies in the western sky after sunset about  $5^\circ$  from Venus. The smaller planet shines at a bright magnitude  $-0.6$ , but remains embedded in the twilight.

23 Dec. New Moon, 10:17 UTC



28-29 Dec. Grab a pair of binoculars and head outside just after sunset to see Venus and Mercury just  $1.4^\circ$  apart low over the southwestern horizon. Venus lies below Mercury, and outshines it by four full magnitudes. The evening twilight and low elevation of the pair makes this observation a little tricky – you will need a clear view of the horizon and binoculars (or a wide-field telescope). Saturn, a waxing crescent Moon, and Jupiter lie to the upper left.

Source: Brian Ventrudo <https://cosmicpursuits.com/> used with permission of the author. If you're not already a subscriber to Cosmic Pursuits, you can [sign up here](#). Copyright © 2022 Mintaka Publishing Inc. Information on observing some of the more prominent galaxies in the Messier Catalog is available at <http://www.cloudynig...ur-astronomers/>

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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 December 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://telescopus.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/>



## December Skies by Dick Cookman

**Highlights:** Comet Journal, Martian Landers, Meteor Showers, Planet Plotting, December Moon

**Focus Constellations:** Ursa Major, Ursa Minor, Draco, Cepheus, Cassiopeia, Perseus, Camelopardalis, Auriga, Gemini, Taurus, Aries, Pisces, Andromeda, Pegasus, Cygnus

### Comet Journals

Comet C/2020 V2 (ZTF) is between Polaris and the tail of Draco and will pass Polaris before Christmas. It is at 10th magnitude and should maintain that brightness until after it passes perihelion in May, 2023. It will be closest to Earth in September, 2023.

Comet C/2022 E3 (ZTF) is between Hercules and Bootes. It is currently at 10th magnitude, and will brighten in December. It is expected to reach naked eye visibility as a Christmas comet and achieve maximum brilliance when at perihelion on January 13 or when closest to Earth in early February.

### Mars Landers

Why should we devote so much effort to study Mars? Most of the meteorites which bombard Earth are thought to come from the Asteroid Belt and some come from impacts on Mars which blast material into space. Mars is closer to the Asteroid Belt than Earth, indicating that bombardment was more thorough. Meteorites often contain abundant organic molecules including amino acids – the building blocks for proteins. In addition, some meteorites contain abundant water and carbon dioxide ice. Billions of years ago, Mars was probably the recipient of vast quantities of the above components from the nearby Asteroid Belt. Our landers and rovers have provided abundant evidence that Mars weather was much milder and that it had running water, lakes, and possibly oceans where these components may have formed the building blocks for the first life in the Solar System. Life on Earth may have even come from debris blasted off of Mars by later impactors from the Asteroid Belt!

### Meteor Showers

The best December showers for the northern hemisphere are the Geminid (12/14 – 2 days before last quarter Moon) and Ursid (12/22 – waning crescent Moon). The former is one of the best showers of the year, rivaling the August Perseids. Minor showers include the Chi Orionids (12/2) and Monoceratids (12/9) which will have to contend with glare from the gibbous Moon, and Coma Berenicids (12/20) which will occur during the waning crescent Moon phase.

- **December 14: Geminids.** Active December 7 – 17, Radiant 7h28m +33°, ZHR 120, 35km/sec. Waning gibbous Moon. Progenitor: possibly minor planet 3200 Phaethon
- **December 22: Ursids.** Active December 17 – 26, Radiant 14h28m +76°, ZHR variable, up to 50, 33km/sec. Waning crescent Moon. Progenitor: Comet 8P/Tuttle.

### Planet Plottings

All the planets are in the evening sky in December when Mercury (-0.5 to +1.2), Venus (-3.8), and the Sun all move through Ophiuchus and Sagittarius together. Early in the month, Mercury and Venus set about a half hour after the Sun and move higher in the western sky and set later each evening throughout the month. Mercury is at greatest eastern elongation (20°) on the 21st and is 1.4° from Venus on the 29th. A very thin waning crescent Moon passes both on the 24th.

Saturn (+0.8) is in the south-southwest in Capricornus. It sets 4 hours after Venus on the 1st. The waxing crescent Moon and Saturn set slightly less than 2 hours after Venus on the 26th. Neptune (+7.9) in Aquarius and Jupiter (-2.4 to -2.2) in Pisces are in the southwest evening sky in December and set with the waxing gibbous Moon about an hour after Midnight EST on the 1st. They set with the waxing crescent Moon an hour before Midnight on the 31st. Uranus (+5.6 to +5.7) and Mars (-1.8 to -1.2) rise in the late afternoon in Aries and Taurus on the 1st, respectively and set during dawn. On the 31st, they rise in the mid-afternoon and set after everyone is in bed. They can be found near the waxing gibbous Moon on the 5th and 8th respectively. Mars (-1.3 to -1.8) is at one of its best oppositions in years on December 1st, appearing higher above the horizon than it was during recent oppositions. After sunset, the bright reddish orange planet dominates the eastern and southeastern sky and joins brilliant Jupiter in the south.



Planet	Constellation(s)	Magnitude	Planet Passages	Time	Date	
Sun	Ophiuchus, Sagittarius	-26.5	New Moon	5:17AM EST	12/23	
Mercury	Ophiuchus, Sagittarius	-0.5 to +1.2	Max. East Elongation Venus, 1.4 S	10:00AM EST 4:00AM EST	12/21 12/29	
Venus	Ophiuchus, Sagittarius	-3.8	Mercury 1.4 N	4:00AM EST	12/29	
Mars	Taurus	-1.8 to -1.2	Opposition	1:00AM EST	12/8	
Jupiter	Pisces	-2.4 to -2.2				
Saturn	Capricornus	0.8				
Uranus	Aries	+5.6 to +5.7				
Neptune	Aquarius	7.9				

## December Moon

The New Moon of December in Sagittarius on the 23rd at 5:17AM EST follows the northern Winter Solstice which is at 4:48PM EST on December 21st (mid-summer in the southern hemisphere). The New Moon is the start of Lunation 1237 which ends 29.65 days later with January's New Moon in Capricornus on the 21st at 8:53PM EST. The Full Moon is in Taurus on the 7th at 11:08PM EST. The December Moon is the "Moon before Yule." It was called the "Oak Moon" in Medieval England and for Celts it was the "Cold Moon". In China, it is the "Bitter Moon" and Colonial Americans called it "Christmas Moon". Anishnaabe (Odawa and Ojibwa) first people recognize the 12th Moon as "Manidoo-Giizisoons" (Little Spirit Moon). Earth Haven Farm in Ontario documents the cultural teaching which explains the cycle of life and nature of the 12th Grandmother Moon of Creation as follows: "The twelfth moon of Creation is the Little Spirit Moon, a time of healing. By receiving both vision of the spirits and good health, we may walk the Red Road with purest intentions, and we can share this most positive energy with our families and friends for the good of all."

Lunar Apogee (maximum lunar distance) in December is on the 11th at 7:28PM EST, when the Moon will be at a distance of 252,195 mi. (63.64 Earth radii). Lunar Perigee distance (minimum lunar distance) is 222,619 mi. (56.17 Earth radii) on the 24th at 3:27AM EST. The waxing gibbous Moon appears to pass Neptune and Jupiter on the 1st, Uranus on the 5th and brilliant Mars on the 7th. The waxing crescent Moon passes Venus and Mercury on the 24th, Saturn on the 26th and Neptune on the 28th. On the 29th, it passes Jupiter.

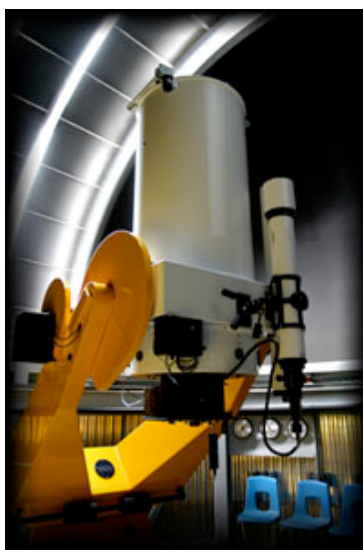
Planet	Constellation	Magnitude	Moon Passages	Moon Phase	Moon Age
Sun	Scorpius	-26.8	5:17AM EST, 12/23	New	0 Days
Mercury	Sagittarius	-0.2	4.0°S, 2:00PM EST, 12/24	Waxing Crescent	1.63 Days
Venus	Sagittarius	-3.8	3.0°S, 6:00AM EST, 12/24	Waxing Crescent	1.03 Days
Mars	Taurus	-1.9	0.5°N, 11:00PM EST, 12/7	Waxing Gibbous	14.21 Days
Jupiter	Pisces	-2.4	3.0°S, 8:00PM EST, 12/1	Waxing Gibbous	8.09 Days
Jupiter	Pisces	-2.2	2.0°S, 6:00AM EST, 12/29	Waxing Crescent	6.45 Days
Saturn	Capricornus	0.8	4.0°S, 11:00AM EST, 12/26	Waxing Crescent	3.24 Days
Uranus	Aries	5.7	0.7°N, 1:00PM EST, 12/5	Waxing Gibbous	11.89 Days
Neptune	Aquarius	7.9	3.0° S, 8:00AM EST, 12/1	Waxing Gibbous	7.59 Days

## Observatory and Planetarium Events



### Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
Telescope Tuesday	Centennial Observatory	Tuesday, December 27 <sup>th</sup> , 2022	5:45 to 9:00 PM	\$1.50 or free with <a href="#">Faulkner Planetarium</a> admission



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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: [jttubbs015@msn.com](mailto:jttubbs015@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.