Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

Membership Meeting See President's Message for March

> Centennial Observatory See Schedule inside

Faulkner Planetarium See inside for Details 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

July 2021

President's Message

Colleagues,

As summer picks up, so does local astronomy. We successfully got back into live meetings last month with two great presentations, and this month we're going to celebrate with our annual picnic. As always, the group will provide meat and buns, while you only need to bring yourself and a side dish or a dessert. This year's picnic will mean even more as we finally start meeting in public again.

We've already been out with an outreach star party over at Hazelton. Despite bad weather and rust, we're wanted back. Expect an invitation next year, and expect to have a great time next year.

If you need to get your outreach legs back under you, please head over to the Herrett Center on Wednesdays. We can always use more volunteers helping out. You never know who you meet. I ran into one Utah visitor who was wearing Planetary Society clothing; they were wanting to know what Idaho offered for astronomy. We know it's hot, but remember, if astronauts can spend long sessions installing solar panels on the ISS, we can find a way to handle the heat of the solar session.

Lastly, I announced at the June meeting that this was my last term as president. I have enjoyed my time as president, but challenges of life are making it more and more difficult to handle the duties and need to step down in late Fall. I would invite you to consider stepping up and being the next president to take us into the next adventures of MVAS.

Clear Views, Rob Mayer



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July 2021 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 Canada Day Last Quarter Moon	2	3
4 Independence Day	5	6	Summer Sola Session #6 Centennial Observatory 1:30 to 3:30p	7 8	9	10 MVAS General Meeting Annual Picnic Centennial Observatory Public Star Party 10:15p – 12:15a New Moon
11	12	13	1 Summer Solar Session #7 Centennial Observatory 1:30 to 3:30p	<mark>4</mark> 15	16	17 First Quarter Moon
18	19	20	2 Summer Solar Session #8 Centennial Observatory 1:30 to 3:30p	1 22	23	24 Full Thunder Moon Visible: 100% Age: 15.21 days
25	26	27	2 Summer Sola Session #9 Centennial Observatory 1:30 to 3:30p	8 29	30	31 Last Quarter Moon
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The Night Sky This Month – July 2021



The northern summer Milky Way.

All the bright planets make an appearance this month. While Mars is as dim as it gets, the Red Planet appears alongside Venus and the Moon in the evening sky for a photogenic apparition. Jupiter and Saturn rise after midnight in the southeast, each planet slowly brightening and growing on its way to opposition next month. They are both spectacular in a telescope right now. And little Mercury makes a good apparition in the eastern morning twilight before the sun rises. While it's mostly planets this month, don't forget about the Milky Way emerging in the darkening east-southeastern sky. Turn your optics along this spectacular river of stars to glimpse the many clusters, nebulae, and star clouds in our part of the galaxy. Here's what's in the night sky this month...

1 July 2021. Last Quarter Moon, 21:11 UT

2 July. As evening twilight gets underway, look low over the northwestern horizon to spot Venus near the Beehive Star Cluster (Messier 44) in the constellation Cancer. Venus is plenty bright enough to see without optics, but a pair of binoculars help you glimpse the cluster. While Venus is well spaced from the Sun, it appears low over the horizon for northern-hemisphere observers. Observers south of the equator have an easier time spotting Earth's 'evil twin', a planet similar in mass and size to our own, but completely different in term of its atmosphere and surface conditions. A lovely to behold at a distance, but it is no vacation spot.

4 July. Mercury reaches greatest western elongation 22° from the Sun. This speedy little world remains in the morning sky for most of the month, reaching peak brightness of magnitude -1.0 on July 18.

5 July. Earth reaches aphelion, the most distant point in its orbit from the Sun. The two bodies are 152,100,527 km apart today, about 3.4% farther than at perihelion in early January.

6 July. The constellation Taurus has worked its way around to the other side of the sky. It's now rising in the east in the early morning sky. Today, the waning crescent Moon rises in Taurus between the Pleiades and Hyades star clusters.



Venus nears the Beehive star cluster (M44) with Mars nearby in the north-northwestern sky after sunset on July 1, 2021.



Mercury near the star zeta Tauri with a slender crescent Moon nearby before sunrise on July 8, 2021. The cyan circle shows a 2degree field of view.

8 July. Look for a slender waning crescent Moon in Taurus about 4° north of Mercury in the eastern early-morning twilight. The planet also lies within 0.5° of the 3rd-magnitude star zeta Tauri this morning. Mercury reaches its greatest elevation above the eastern horizon on July 9-10.

10 July. New Moon, 01:17 UT



Venus, Mars, and the crescent Moon nearby in the northwestern sky after sunset on July 11, 2021.

11-12 July. Venus and Mars lie less than a degree apart low over the western horizon after sunset. At magnitude -3.9, Venus is by far the brighter of the two. On July 11, a slender crescent Moon lies about 5° north of the pair. On the following evening, the Moon moves about 8° to the east of the two planets near the 1st-magnitude star Regulus. Binoculars help you get a better view in the slowly darkening sky. Mars continues to sink towards the horizon as summer continues on its way to conjunction in October. It presents little detail in a telescope right now.

17 July. First Quarter Moon, 10:11 UT

21 July. Look to the west-northwest after sunset to see bright Venus just a degree from the star Regulus.

24 July. Full Moon, 02:37 UT

25 July. What are those bright stars near the Moon tonight? Those 'stars' are the planets Jupiter and Saturn. This is an excellent time to observe each planet in a telescope as they are slowly growing in size and brightness on their way to opposition next month. Jupiter rises about 10 p.m. local time by the end of July, while Saturn precedes it by about 45 minutes. Jupiter spans about 48" and shines at a brilliant magnitude -2.8, Saturn spans about 19" (without rings) and shines at magnitude +0.2 on its way to opposition on August 2.

27-30 July. The Delta Aquariid meteor shower peaks. This annual event favors observers in the southern hemisphere and southerly latitudes in the northern hemisphere, though all observers can see some of these slow-moving meteors. The Delta Aquariids appear to radiate from a point near the star Skat (delta Aquarii) in the constellation Aquarius. The shower peaks around July 27-30, but unlike most meteor showers, the Delta Aquariids lack a sharp maximum so meteors are visible from mid-July through early August. The maximum hourly rate can reach 15-20 meteors in a dark sky. **31 July.** Last Quarter Moon, 13:16 UT

Source: Brian Ventrudo https://cosmicpursuits.com/ used with permission of the author. Pictures by the author.



Jupiter and Saturn with the waning gibbous Moon between them after midnight in the early hours of July 25, 2021.



The galaxies NGC 2936 and NGC 2937, collectively known as Arp 142 or the "Penguin and Egg" galaxies.



Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
Summer Solar Session #6	Centennial Observatory	Wednesday, July 7th, 2021	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, July 10th, 2021	10:15 PM to 12:15 AM	FREE
Summer Solar Session #7	Centennial Observatory	Wednesday, July 14th, 2021	1:30 to 3:30 PM	FREE
Summer Solar Session #8	Centennial Observatory	Wednesday, July 21st, 2021	1:30 to 3:30 PM	FREE
Summer Solar Session #9	Centennial Observatory	Wednesday, July 28th, 2021	1:30 to 3:30 PM	FREE

Faulkner Planetarium



Now Showing!













Visit the Herrett Center Video Vault

NASA Night Sky Notes



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!

Observe the Milky Way and Great Rift

David Prosper

Summer skies bring glorious views of our own Milky Way galaxy to observers blessed with dark skies. For many city dwellers, their first sight of the Milky Way comes during trips to rural areas - so if you are traveling away from city lights, do yourself a favor and look up!

To observe the Milky Way, you need clear, dark skies, and enough time to adapt your eyes to the dark. Photos of the Milky Way are breathtaking, but they usually show far more detail and color than the human eye can see – that's the beauty and quietly deceptive nature of long exposure photography. For Northern Hemisphere observers, the most prominent portion of the Milky Way rises in the southeast as marked by the constellations Scorpius and Sagittarius. Take note that, even in dark skies, the Milky Way isn't easily visible until it rises a bit above the horizon and the thick, turbulent air which obscures the view. The Milky Way is huge, but is also rather faint, and our eyes need time to truly adjust to the dark and see it in any detail. Try not to check your phone while you wait, as its light will reset your night vision. It's best to attempt to view the Milky Way when the Moon is at a new or crescent phase; you don't want the Moon's brilliant light washing out any potential views, especially since a full Moon is up all night.

Keeping your eyes dark adapted is especially important if you want to not only see the haze of the Milky Way, but also the dark lane cutting into that haze, stretching from the Summer Triangle to Sagittarius. This dark detail is known as the Great Rift, and is seen more readily in very dark skies, especially dark, dry skies found in high desert regions. What exactly is the Great Rift? You are looking at massive clouds of galactic dust lying between Earth and the interior of the Milky Way. Other "dark nebulae" of cosmic clouds pepper the Milky Way, including the famed Coalsack, found in the Southern Hemisphere constellation of Crux. Many cultures celebrate these dark clouds in their traditional stories along with the constellations and Milky Way.

Where exactly is our solar system within the Milky Way? Is there a way to get a sense of scale? The "Our Place in Our Galaxy" activity can help you do just that, with only birdseed, a coin, and your imagination: <u>bit.ly/galaxyplace</u>. You can also discover the amazing science NASA is doing to understand our galaxy – and our place in it - at<u>nasa.gov</u>.



The Great Rift is shown in more detail in this photo of a portion of the Milky Way along with the bright stars of the Summer Triangle. You can see why it is also called the "Dark Rift." Credit: NASA / A.Fujii



If the Milky Way was shrunk down to the size of North America, our entire Solar System would be about the size of a quarter. At that scale, the North Star, Polaris - which is about 433 light years distant from us - would be 11 miles away! Find more ways to visualize these immense sizes with the Our Place in Our Galaxy activity: <u>bit.ly/galaxyplace</u>

Phil Harrington's Cosmic Challenge Cosmic Challenge: Mons Hadley and Rima Hadley July 2021 Inis month's suggested aperture range: Office of the second second

Target	Туре	Best lunar phases (days after New Moon)
Mons Hadley and Rima Hadley	Lunar mountain peak and rille	Days 7 and 20-21

Fifty years ago this month, on July 30, 1971, Commander David Scott and Pilot James Irwin navigated their Apollo 15 lunar module, nicknamed Falcon, to land among the lunar Apennine mountains, while Alfred Worden remained in orbit aboard the command module, Endeavor. Scott and Irwin guided Falcon to a soft landing between the edge of a deep precipice and the base of a tall mountain to establish Hadley Base, as the landing site became known.

Apollo 15 was the most ambitious mission up to that point. The fourth crewed landing, it was the first of the so-called "J" series of missions. The J missions, which also included Apollo's 16 and 17, were focused on more extensive scientific investigation of the Moon, both from on the lunar surface as well as from orbit. They were also designed to enable longer stays on the Moon, as well as use a second generation Lunar Module modified to carry along the Lunar Roving Vehicle (LRV). The LRV allowed astronauts Scott and Irwin to travel as far as 3.1 miles (5.0 km) from their Lunar Module. In the 18.5 hours spent outside the Lunar Module, they drove a total of 17.25 miles (27.8 km).



Above: Apollo 15 astronaut James Irwin salutes the United States flag on the Moon, August 2, 1971. The Lunar Roving Vehicle is seen at the right. Photo credit: NASA Johnson Space Center Restored by Bammesk, Public domain, via Wikimedia Commons

Landing sites for the final three Apollo missions were chosen because of their scientific interest, In the case of Apollo 15's site, geologists had long been curious about the origin of the Moon's *rimae*, Latin for rilles. Some believed the Moon's

sinuous rilles were caused by flowing fluid, probably lava, back when the Moon was still volcanically active some 3.5 billion years ago. To further that research, Apollo 15 returned 170 pounds (77 kg) of lunar soil and rocks. Based on that research and continuing study, sinuous rilles like Hadley are likely the result of ancient lava flows or collapsed lava tubes. Schröter's Valley in Oceanus Procellarum is the largest sinuous rille on the Moon.

The remains of Hadley Base may be invisible through our telescopes, but its spectacular surroundings are a must-see stop on any tour of the Moon.

To get there, follow the curve of the Apennines toward their northern end, where, to the east, lies a flat area known as Pales Putredinis, the Swamp of Decay. Just west of the Swamp, in the lunar highlands, is the prominent peak Mons Hadley. Hadley rises an impressive 14,500 feet above its surroundings, about half the height of Mount Everest, the tallest mountain on Earth.



Above: Finder chart for this month's <u>Cosmic Challenge</u>. Credit: Chart adapted from <u>Cosmic Challenge: The Ultimate Observing List for Amateurs</u> by Phil Harrington. Click on the chart to open a printable PDF version.

Below: Close-up photo of the area around Hadley Base. Note that this image is inverted compared to the finder chart above.



Look carefully just to the east-southeast of Mons Hadley for a thin, sinuous channel that snakes through the adjacent flat plane. That's Hadley Rille, or more accurately, Rima Hadley. Rima Hadley meanders for 48 miles (77 km), severed almost perfectly in the middle by the 4-mile-diameter (6.4 km) crater Hadley C. The rille, cut by flowing lava 3.8 billion years ago, is 2 miles (3.2 km) wide at its broadest and drops 1/4 mile (0.4 km) to its floor below.

The best time to visit the area of Hadley Base is at First Quarter, when the Sun has broken over the mountains and poured into the flat surrounding plain. This month, that occurs on July 17. With steady seeing conditions, magnifications more than 300x add a three-dimensional beauty to the scene, with the towering mountain rising dramatically above the steep gorge. From the looks of it, lava flowed from broad gash in the hills at the southern end of the rille and migrated northward, making several sharp turns along the way, before emptying into the mare. Apollo 15 landed just north of the rille's northernmost crook, where it veers suddenly to the west. Alternatively, Last Quarter, as the Sun sets over Hadley Base, is also prime viewing time for this area. That will be on July 31, one day after the 50th anniversary of the mission's landing.

Good luck with this month's challenge! And be sure to post your results in this column's discussion forum. Remember that half of the fun is the thrill of the chase. Game on!



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

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Astronomy Resources

The light from Supernova SN 1054 was first noted by Chinese astronomers on July 4, 1054. The first lunar map was drawn by Thomas Harriot on July 26, 1609. Charles Messier discovered the globular cluster M28 in Sagittarius on July 27, 1764. Comet D/1770 L1 (Lexell) passed closer to the Earth than any comet in recorded history on July 1, 1770. Charles Messier discovered the globular cluster M54 in Sagittarius on July 24, 1778. Caroline Herschel discovered the open cluster NGC 6866 in Cygnus on July 23, 1783. The globular cluster NGC 6569 in Sagittarius was discovered by William Herschel on July 13, 1784. Karl Ludwig Hencke discovered asteroid 6 Hebe on July 1, 1847. The first photograph of a star, namely Vega, was taken on July 17, 1850. The first photograph of a total solar eclipse was taken on July 28, 1851. Hendri Deslandres invented the spectroheliograph on July 24, 1853. Sinope, one of Jupiter's many satellites was discovered by Seth Nicholson on July 21, 1914. Karl Jansky announced the detection of radio radiation from the center of the Milky Way on July 8, 1933. Seth Nicholson discovered Neptune's satellite Lysithea on July 6, 1938. The Mariner 4 probe took the first close-up image of another planet, namely Mars, on July 14, 1965. The Apollo 11 lunar module landed on the Moon on July 20, 1969. Neptune's satellites Despinea and Galatea are discovered using images from the Voyager 2 probe on July 27, 1989. Fragments of Comet D/1993 F2 (Shoemaker-Levy) impacted Jupiter on July 16, 1994. Prospero, one of the satellites of Uranus, is discovered by Matthew Holman on July 18, 1999. Pluto's satellite Styx is discovered using images from the New Horizon probe on July 11, 2012.

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

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

The periodic comet 4P/Faye travels northeastward through Aries during July. The tenth-magnitude comet passes less than two degrees to the north of Uranus on July 18th and July 19th. Visit <u>http://cometchasing.skyhound.com/</u> and <u>http://www.aerith.ne...t/future-n.html</u> and <u>https://cobs.si/</u> for information on comets visible this month.

Asteroid 4 Vesta heads southeastward from Leo into Virgo this month. The main belt asteroid lies within one degree of the fifth-magnitude star Pi Virginis for five nights centered on July 13th. It passes 20 arc seconds south of the spiral galaxy M61 on July 27th. Asteroid 6 Hebe (magnitude +8.4) is at opposition on July 17th and asteroid 12 Victoria (magnitude +8.8) is at opposition on July 30th. Information on asteroid occultation's taking place this month is available at https://www.asteroid../2021_07_si.htm

A wealth of current information on solar system celestial bodies is posted at <u>http://nineplanets.org/</u> and <u>http://www.curtrenz.com/astronomy.html</u> Information on the celestial events transpiring each week can be found at <u>https://stardate.org/nightsky</u> and <u>http://astronomy.com/skythisweek</u> and <u>http://www.skyandtel...ky-at-a-glance/</u>

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

Free star maps for July can be downloaded at <u>http://www.skymaps.com/downloads.html</u> and <u>http://www.telescop...thly-Star-Chart</u> and <u>http://www.kenpress.com/index.html</u>

Finder charts for the Messier objects and other deep-sky objects are posted at <u>https://freestarcharts.com/messier</u> and <u>https://freestarcharts.com/ngc-ic</u> and <u>https://www.cambridg..._july-september</u>

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

Sky atlases can be downloaded at http://www.deepskywa...-atlas-full.pdf and http://astro.mxd120....ee-star-atlases

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

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

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

The multiple star 36 Ophiuchi consists of three orange dwarf stars. For more on this interesting system, see https://stardate.org...orange-triplets and https://www.solstatio...rs/360phiu3.htm

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 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.