

# Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

August 2021

## Membership Meeting

August 14<sup>th</sup> at the Herrett Center  
CSI main campus at 7:00pm

## Centennial Observatory

See Schedule inside

## Faulkner Planetarium

See inside for Details

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

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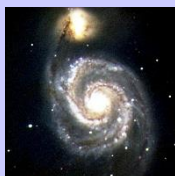
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*Magic Valley Astronomical Society is a  
member of the Astronomical League*



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

## President's Message

Colleagues,

The smoky skies are clearly making matters challenging, but it's also reminder of what role astronomy plays living on earth. A review of NASA's upcoming budget not only includes planetary and extrasolar observation, but increases in earth observatory work. A good chunk of the data and science we get on our climate comes from work via NASA. For example, many people have been asking where the smoke is coming from, and many head to NASA's satellite imagery to make that decision.

Speaking of satellites, a familiar face is coming back to speak to us. Paul Verhage has talked to MVAS twice about the use of CubeSats, but this time, he's going to take on another subject. Paul has been using the Stellina Observation Station from Vaonis and has come up with some great images. This is a unique piece of equipment and we're fortunate to get a glimpse at what it can do. We'll be going live from the Herrett Center at 7 p.m. Saturday, Aug. 14<sup>th</sup>. If you can't make it and would like us to send it via Zoom, please contact me.

Just before Paul comes and talks to us, we'll be hit by the Perseids. Those will start Aug. 11<sup>th</sup>, and because of the phase of the moon this year, it's a good time to catch it. It would be great to see any images you might come up.

Lastly, if you can help out at all, let me know. The Herrett Center can always use volunteers for solar viewing, and Gooding 4-H will be asking more often about helping their kids get started in astronomy. I visited them last month, and this has to be one of the more promising groups I've been around in a long, long time.

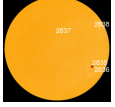

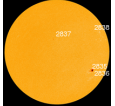
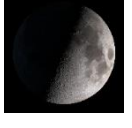
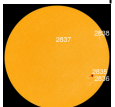

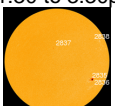

Clear Views,  
Rob Mayer



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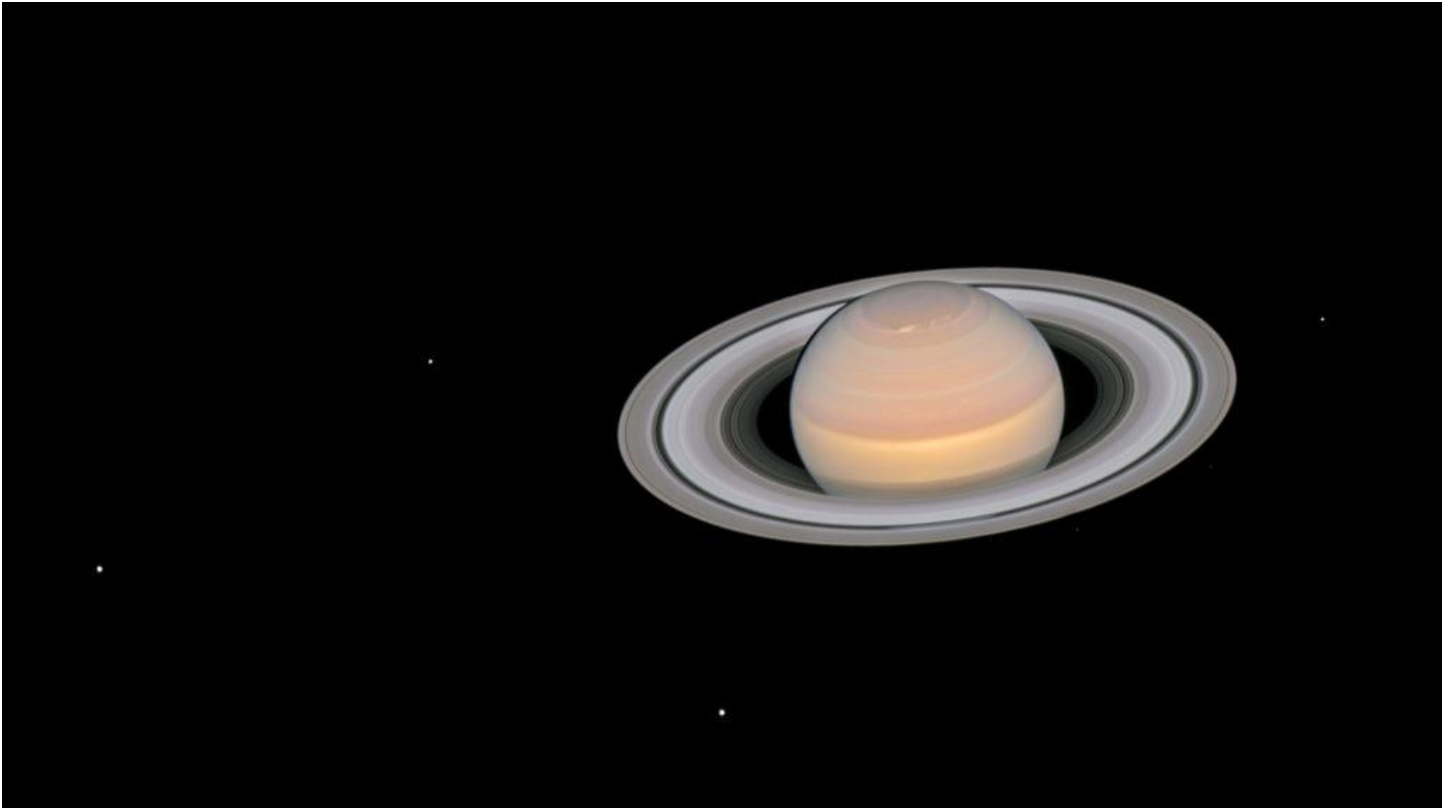
Be Careful – Be Safe – Get Out There – Explore Your Universe

# August 2021 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4 Summer Solar Session #10 Centennial Observatory 1:30 to 3:30p 	5	6 Boise State University Physics Dept. First Friday Event 7:30pm see page 10	7
8 New Moon  Lunation 1220	9	10	11 Summer Solar Session #11 Centennial Observatory 1:30 to 3:30p 	12	13	14 MVAS General Meeting 7:00pm at the Herrett Center  Centennial Observatory Public Star Party 9:30p – 11:30p
15 First Quarter Moon 	16	17	18 Summer Solar Session #12 Centennial Observatory 1:30 to 3:30p 	19	20	21
22 Full Mountain Shadows Moon 	23	24	25 Summer Solar Session #13 Centennial Observatory 1:30 to 3:30p 	26	27	28
29	30 Last Quarter Moon 	31				

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This composite image, taken by the NASA/ESA Hubble Space Telescope on 6 June 2018, shows the ringed planet Saturn with 6 of its 62 known moons.

It's an extra good month for stargazing! Both Jupiter and Saturn reach opposition in August and make their best apparitions of the year. The grand Perseid meteor shower peaks under nearly moonless conditions, ideal for some northern summer stargazing under the Milky Way. Venus hangs low and bright over the northwestern horizon after sunset, and tiny Mercury makes a very close approach to Mars on the 18<sup>th</sup> in the same part of the sky. Early risers get to see a slender crescent Moon tangled in the stars of the Pleiades and Hyades star clusters in the pre-dawn sky. Here's what to see in the night sky this month.

**1-2 August 2021.** Saturn arrives at opposition in the constellation Capricornus as it makes its closest approach to Earth this year. The planet lies well south along the ecliptic, so northerner observers need steady air to get good views of its magnificent ring system. But it's worth the effort: Saturn is one of the most beautiful objects to observe in a telescope. Our [Saturn Observing Guide](#) will help you get a good view of this lovely celestial object and understand what to look for.



The waning crescent Moon rising in the east-northeast with the Hyades and Pleiades star clusters before dawn on August 2, 2021.

**2 August.** Look to the northeastern horizon before dawn to see a waning crescent Moon rise with the Pleiades and Hyades star clusters, both part of the constellation Taurus.

**6 August.** A wafer-thin crescent Moon lies about three finger-widths from the bright star Pollux just over the east north-eastern horizon before the Sun comes up.

**10 August.** The Moon has rounded the Earth once again and now grows thicker and brighter. Today its waxing crescent lies about  $5^\circ$  from brilliant Venus over the northwestern horizon as twilight falls.

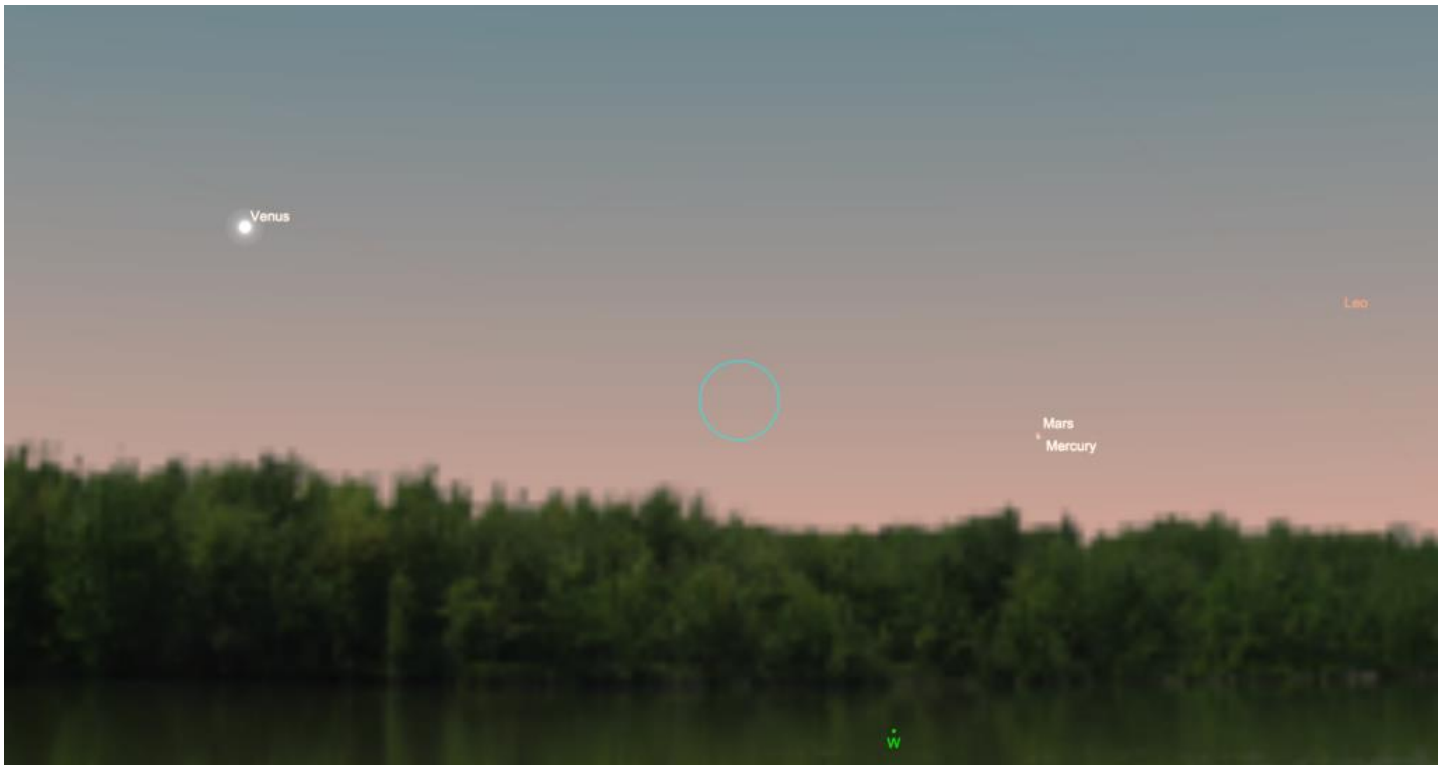


2012 Perseids Meteor Shower over the Snowy Range in Wyoming (credit: David Kingham)

**11-12 August.** The Perseid meteor shower peaks in the early-morning hours. This is the finest meteor shower of the year for northern stargazers, with 40-60 meteors per hour visible at the peak in the hours before dawn on August 13. Once called the Tears of St. Lawrence, this meteor shower occurs as the Earth moves through a stream of debris left by Comet Swift-Tuttle. This year the Moon is not quite at first quarter, so it sets and stays out of the way for the best part of the shower. You get the best view after midnight on August 11 and into the morning of the 12<sup>th</sup>. Stay away from city lights, if you can, and you will be rewarded with a bright meteor every few minutes or so. The Perseids are also a long-lasting show, running from July 17 through August 25. So if you miss the peak, you still have a good chance to see some meteors.

**15 August.** The Lunar X, also known as the Werner or Purbach Cross, an X-shaped clair-obscur illumination effect involving various ridges and crater rims located between the craters La Caille, Blanchinus, and Purbach, is predicted to be visible at 10:28; a double Galilean shadow transit begins at 14:41; a double Galilean shadow transit begins at 15:17; First Quarter Moon occurs at 15:20; a triple Galilean satellite transit occurs at 15:31.

**16 August.** The newly gibbous Moon lies about 4° from the bright red-orange star Antares in the constellation Scorpius along the southern ecliptic.



Mars and Mercury make a close approach on in the west-northwestern sky after sunset on August 18, 2021. The cyan circle shows a 2 ° field of view.

**18 August.** Mars passes as close as 0.1 degree from Mercury. The pair is visible in the daylight sky, which makes it an ideal target for a go-to telescope with a high magnification eyepiece. Or wait until just after sunset when the two planets are over the western horizon. A pair of binoculars can pull them out of the twilight sky. Much brighter Venus lies about 20° away. NOTE – When attempting to observe Mars and Mercury in daylight, make sure you do not accidentally glimpse the Sun!





Jupiter and Saturn near opposition in August 2021 in the constellation Capricornus.

**19 August.** Jupiter reaches opposition, making its closest approach to Earth this year. It lies in eastern Capricornus just over the border from Aquarius. At magnitude -2.9, the planet outshines everything else in the night sky except for the Moon and Venus. Our [Jupiter Observing Guide](#) helps you get the best view in binoculars and a telescope, and helps you understand a little more about the solar system's biggest planet.

#### More August Highlights:

Take [a brief tour of the famous 'Coathanger' asterism](#), one of the best sights for binocular observers anywhere in the sky.

Bob King offers [a tour of some lovely double stars](#), all ideal sights for those of us suffering compromised skies.

In this video, Alyn Wallace explains [how to do astrophotography with a smartphone](#).

We're not the only Earth-bound species who can see the stars. [This article explains what animals can see in the night sky](#), and what they lose as light pollution encroaches.

Soon after it was commissioned, the magnificent ALMA telescope in Chile's Atacama desert directly imaged new planets forming around other stars. [Now, it captured an image of a moon forming around an exoplanet](#). Just amazing.

[A short documentary video about Jocelyn Bell](#), who as a young graduate student who discovered pulsars in 1967 only to have her graduate advisor win the Nobel Prize in 1974.

Enjoy [this absolutely dazzling video](#) of the space probe Juno's flyby of Jupiter's moon Ganymede, the largest moon in the solar system.

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](#).

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Boise State Professor Dr. Brian Jackson's Astronomy Information Website: <http://www.astrojack.com/>

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

For more on the planets and how to locate them, browse <http://www.nakedeyeplanets.com/> / A wealth of current information on solar system celestial bodies is posted at <http://nineplanets.org/> and <http://www.curtrenz.com/astronomy.html>

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/>

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

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

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... july-september>  
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 <http://sao64.free.fr...ataloguesac.pdf>

Freeware 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/>

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 <http://tonightssky.com/MainPage.php> and <https://dso-browser.com/>

The multiple star 36 Ophiuchi consists of three orange dwarf stars. For more on this interesting system, see <https://stardate.org...orange-triplets> and <http://www.solstatio...rs/36ophiu3.htm>

#### **Even More:**

This month Mercury, Venus, and Mars are located in the west, Jupiter and Neptune in the east, and Saturn in the southeast during the evening. At midnight, Jupiter and Saturn can be found in the south, Uranus in the east, and Neptune in the southeast. Uranus is in the southeast, and Jupiter, Saturn, and Neptune in the southwest in the morning sky.

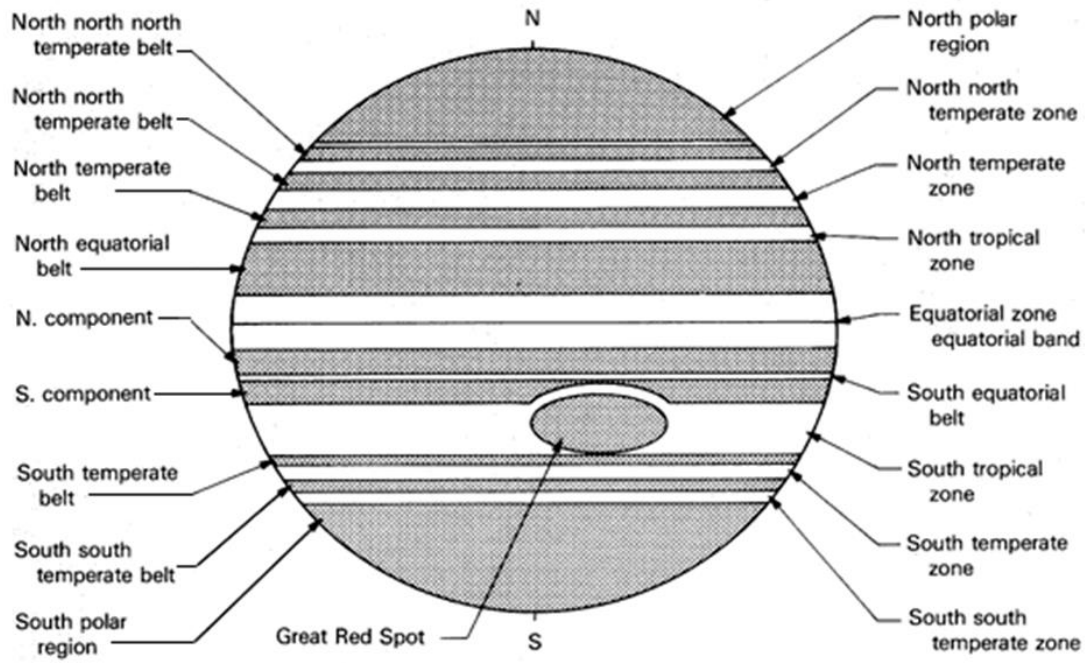
Asteroid 89 Julia shines at ninth magnitude as it travels northwestward through Aquarius this month, passing about one degree south of Gamma Aquarii on August 6th and just south of Sadalmelik (Alpha Aquarii) on August 21st. It reaches opposition on August 24th. Other asteroids brighter than magnitude +11.0 reaching opposition include 43 Ariadne, 80 Sappho, and 349 Dembowska. For information on asteroid occultations taking place this month, see [http://www.asteroido.../2020\\_08\\_si.htm](http://www.asteroido.../2020_08_si.htm)

The periodic comet 4P/Faye heads eastward through Taurus during August. This comet has a period of 7.6 years and shines at approximately tenth magnitude as it passes just south of the faint nebula NGC 1554/5 on August 21st and into the border of the bright open cluster NGC 1647 on August 30th. Visit <http://cometchasing.skyhound.com/> and <http://www.aerith.ne...t/future-n.html> and <https://cobs.si/> for information on comets visible this month.

Top ten binocular deep-sky objects for August: Cr 399, IC 4756, M8, M11, M17, M22, M24, M25, M27, NGC 6633 (IC 4756 and NGC 6633 are collectively known as the Binocular Double Cluster)

Top ten deep-sky objects for August: M8, M11, M16, M17, M20, M22, M24, M27, M55, M57

# Guide to Jupiter's Bands





# Heads Up! It's a Meteor Shower

Smaller than grains of sand, meteors vaporize in a bright streak of light as they hit Earth's atmosphere. Meteor showers come from comets, but the sporadic meteors on other nights are mostly asteroid bits.

## Observing a Meteor Shower

- ✓ You don't need a telescope, just your eyes.
- ✓ Find a dark spot away from streetlights
- ✓ Get warm — layers are good
- ✓ Lie down on a blanket or reclining chair
- ✓ Look up! Watch the whole sky.

### Tips:

- ✓ A bright Moon can wash out meteors, making them hard to see.
- ✓ Give your eyes time to adjust to the dark and you will see more faint meteors.

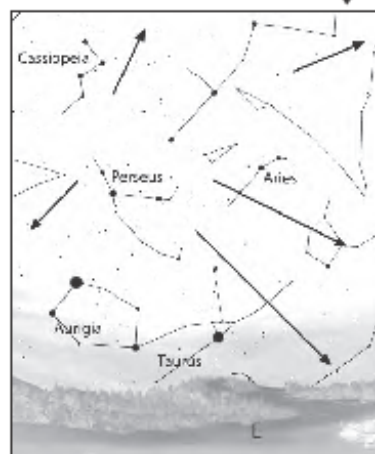
Meteors can be seen all over the sky. If you trace them back, they appear to be radiating from one constellation. That's how they get their names!

**If you get up early on August 12th and look to the east, you might see something like this** ↓

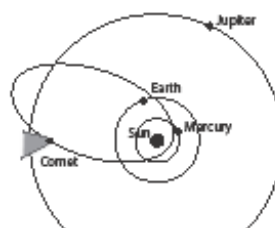
What constellation can you trace the meteors to?

Check the calendar below to see which meteor shower happens in August.

The Perseids appear to radiate from the constellation Perseus



## Meteor Showers Come From Comets

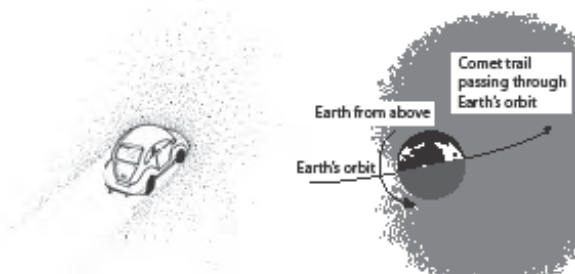


Comets come from the outer Solar System and leave behind a stream of dust as they are warmed by the Sun. Only a few comets pass through Earth's orbit.

The dust left behind by Halley's comet causes the Eta Aquarid and Orionid meteor showers (see calendar below).

Halley's comet passes Earth every 75 years. We will see it again in 2061.

How old will you be the next time it comes around?



**Here's how:** As Earth runs into these particles, it's like bugs hitting Earth's windshield (or atmosphere). But the comet bits hit Earth's atmosphere so fast, the pieces vaporize in bright streaks — making a meteor shower! We see meteor showers better after midnight because that's when we are facing the direction of Earth's orbit.

## Calendar of Major Meteor Showers

Meteor showers are best viewed **after midnight** around the dates listed below.

January 2nd–3rd  
April 22nd–23rd  
May 5th–6th  
July 29th–30th  
**August 11–12th**

Quadrantids  
Lyrids  
Eta Aquarids  
Delta Aquarids  
**Perseids\***

October 21–22nd  
November 4–5th  
**November 16–17th**  
**December 12–13th**  
December 22–23rd

Orionids  
Taurids  
**Leonids\***  
**Geminids\***  
Ursids

**\* Don't miss these!**

Check [stardate.org/nightsky/meteors](http://stardate.org/nightsky/meteors) for this year's viewing suggestions, including Moon phases  
Find the most exciting astronomy clubs and events: [NightSkyNetwork.org](http://NightSkyNetwork.org)



## Observatory and Planetarium Events



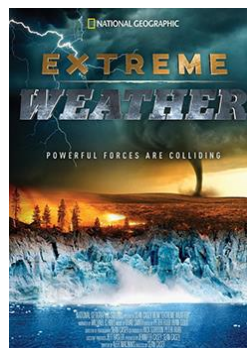
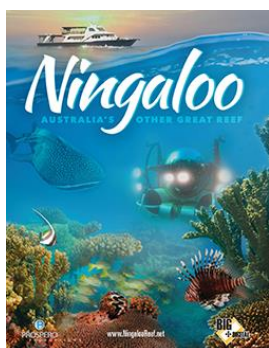
### Centennial Observatory Upcoming Events

Event	Place	Date	Time	Admission
Summer Solar Session #10	Centennial Observatory	Wednesday, August 4 <sup>th</sup> , 2021	1:30 to 3:30 PM	FREE
Summer Solar Session #11	Centennial Observatory	Wednesday, August 11 <sup>th</sup> , 2021	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, August 14 <sup>th</sup> , 2021	9:30 to 11:30 PM	FREE
Summer Solar Session #12	Centennial Observatory	Wednesday, August 18 <sup>th</sup> , 2021	1:30 to 3:30 PM	FREE
Summer Solar Session #13	Centennial Observatory	Wednesday, August 25 <sup>th</sup> , 2021	1:30 to 3:30 PM	FREE

### Faulkner Planetarium



[Now Showing!](#)



Visit the Herrett Center [Video Vault](#)



# Boise State Physics First Friday Astronomy

Friday, Aug 6th

## Galaxy Clusters: The Giants in the Universe



Prof. Heidi Wu  
Dept. of Physics  
Boise State University

Online lecture begins 7:30pm MT

<http://boi.st/astrobrncoslive>

Donate at [give.boisestate.edu/astronomy](http://give.boisestate.edu/astronomy)



**This article is distributed by NASA Night Sky Network**

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

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### Corner the Great Square of Pegasus

David Prosper

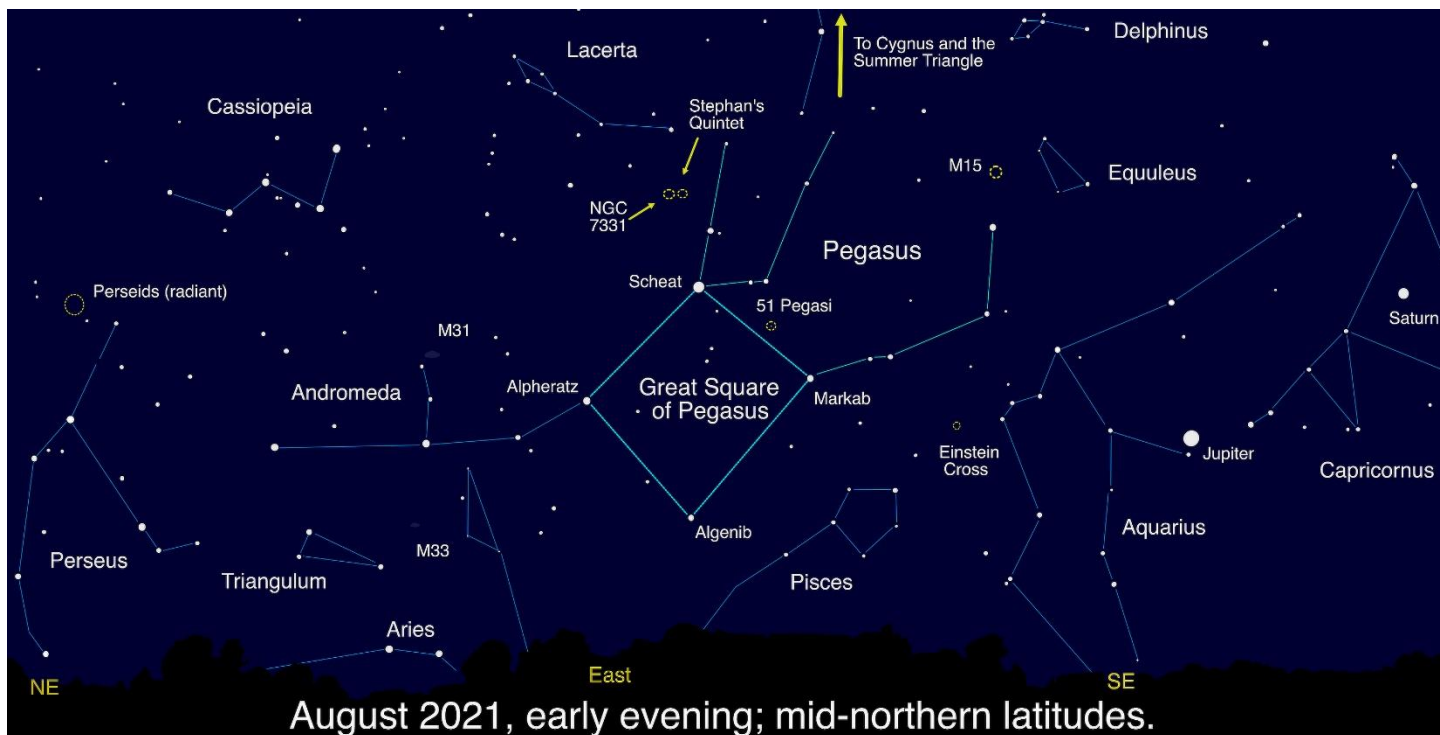
The Summer Triangle may be the most famous seasonal star pattern, but during early August evenings another geometrically-themed asterism rises: the Great Square of Pegasus. This asterism's name is a bit misleading: while three of its stars - Scheat, Markab, and Algenib - are indeed found in the constellation of the winged horse Pegasus, its fourth star, Alpheratz, is the brightest star in the constellation Andromeda!

August evenings are an excellent time to look for the Great Square, as it will be rising in the east after sunset. If not obvious at first, wait for this star pattern to rise a bit above the murky air, and remember that depending on your point of view, it may appear more like a diamond than a square. Look for it below the Summer Triangle, or to the southeast of nearby Cassiopeia at this time. As the Great Square rises in prominence during autumn evenings, it becomes a handy guidepost to finding more constellations, including some of the dimmer members of the Zodiac: Aries, Pisces, Aquarius, and Capricornus. Like the Summer Triangle, the Great Square of Pegasus is also huge, but Pegasus itself is even larger; out of the 88 constellations, Pegasus is 7th in size, and feels larger as the stars in its neighboring constellations are much dimmer.

There are many notable deep-sky objects found within the stars of Pegasus - ranging from easily spotted to expert level targets - making it a great constellation to revisit as your observing skills improve. Notable objects include the densely-packed stars of globular cluster M15, a great first target. The potential "Milky Way look-alike" galaxy NGC 7331 is a fun target for more advanced observers, and expert observers can hop nearby to try to tease out the much dimmer interacting galaxies of Stephan's Quintet. A fascinating (but extremely difficult to observe) object is a gravitationally-lensed quasar famously known as the Einstein Cross. Pegasus has quite a storied history in the field of exoplanet research: 51 Pegasi was the first Sun-like star discovered to be host to a planet outside our solar system, now officially named Dimidium.

While observing Pegasus and its surroundings, keep your eyes relaxed and ready to catch some Perseids, too! August 2021 promises an excellent showing of this annual meteor shower. The crescent Moon sets early on the evening of the shower's peak on August 11-12, but you can spot stray Perseids most of the month. If you trace the path of these meteors, you'll find they originate from one point in Perseus - their radiant. Giant planets Jupiter and Saturn will be up all evening as well. Look south - they easily stand out as the brightest objects in the faint constellations Aquarius and Capricornus.

Pegasus truly holds some fantastic astronomical treasures! Continue your exploration of the stars of Pegasus and beyond with NASA at [nasa.gov](https://nasa.gov).



While the stars of the Great Square of Pegasus are not as bright as those of the Summer Triangle, they still stand out compared to their neighbors, and make a great foundation for exploring this area of the night sky. Note that the brightness of the stars near the horizon is exaggerated in this picture.



Stephan's Quintet is one of the most famous deep-sky objects in Pegasus. First discovered in 1877, it contains the first galaxy group discovered (which includes 4 of the 5 galaxies making up the Quintet) – and has been studied extensively ever since. One day this group will merge into one supergalaxy! While famous, these galaxies are hard to spot in all but the largest backyard telescopes – but are a favorite target of astrophotographers. Take a virtual flyby of these galaxies with a tour created from Hubble data at: [bit.ly/quintetflyby](https://bit.ly/quintetflyby) Credit: NASA, ESA, and G. Bacon, J. DePasquale, F. Summers, and Z. Levay (STScI)



## Phil Harrington's Cosmic Challenge

### Cosmic Challenge: Planetary Nebula GJJC-1

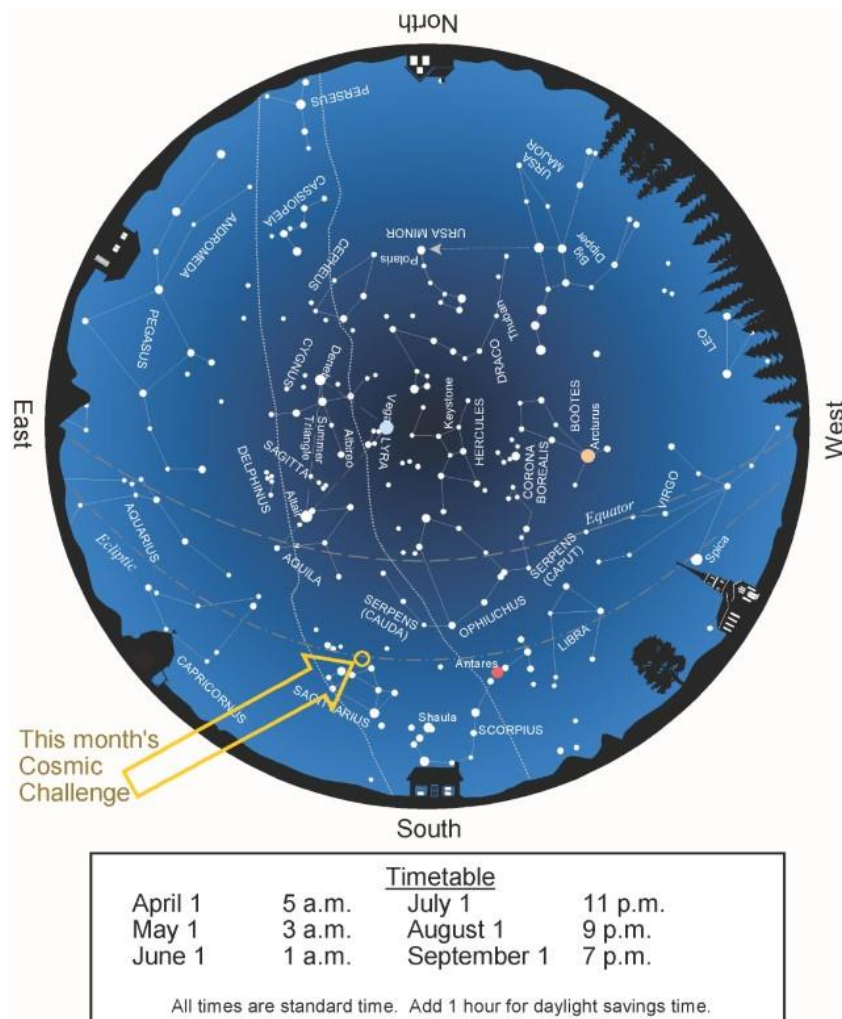
#### This month's suggested aperture range:



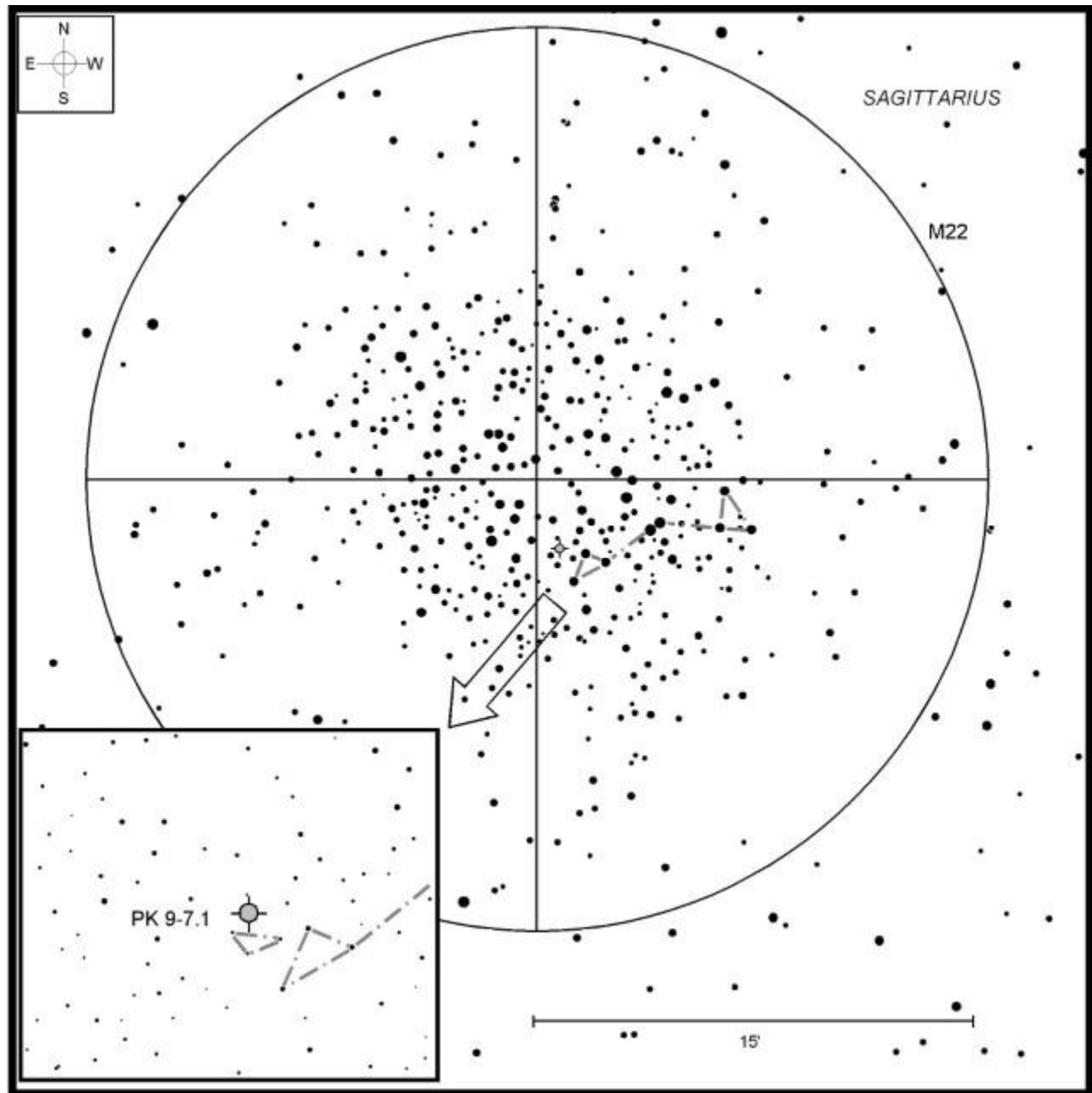
15-inch (38cm) and larger telescopes

Target	Type	RA	DEC	Constellation	Mag	Size
GJJC-1	Planetary Nebula	18h 36.4m	-23° 55.3'	Sagittarius	14	9"

What is your favorite globular cluster? Apart from those two southern hemisphere beauties, Omega ( $\omega$ ) Centauri and 47 Tucanae, my answer has to be M22 in Sagittarius. Admittedly, the star chains and "propeller" formation within M13 in Hercules (profiled in the [July 2017 Cosmic Challenge](#)) are visually intriguing. But there is just something about the remarkable richness of M22 and its surrounding star field that calls to me.



Above: Summer star map showing the location of this month's Cosmic Challenge. **Credit:** Map adapted from [Star Watch](#) by Phil Harrington



Above: Finder chart for this month's [Cosmic Challenge](#). Credit: Chart adapted from [Cosmic Challenge](#) by Phil Harrington Click on the chart to open a printable PDF version in a new window

A buried treasure remained hidden among all of M22's stars until 1985, when IRAS, the InfraRed Astronomy Satellite, uncovered a mysterious infrared source. It was subsequently included as IRAS 18333-2357 in the IRAS Point Source Catalog, but it would be another four years before [research by F. C. Gillett, G. H. Jacoby, R. R. Joyce, and J. G. Cohen](#) would reveal the unexpected origin of the radiation. It was a planetary nebula. What's the big deal? Planetary nebulae are commonplace. That's true, they are -- except in globular clusters. Even today, only four are known to exist.

Our unusual friend within M22 now goes by any of three designations: IRAS 18333-2357; GJJC-1, after the initials of the four researchers; and PK 9-7.1 in the second (2000) edition of the Perek-Kohoutek [Catalogue of Galactic Planetary Nebulae](#). Call it what you will, we are talking about the same object.

And that object is one tough challenge to find. Of the handful of amateurs who have reported spotting GJJC-1, their accounts seem to have four things in common. First, all but one were using 20-inch-plus apertures. Next, each observer had at hand a series of finder charts showing the area around the target in increasing detail. All were also using what I would call "crazy high magnifications," that is, in excess of 600x. In some cases, magnification exceeded 900x. That

means the final common ingredient had to be steady seeing. Even minor air turbulence at these apertures and magnifications will quickly turn stars into mush.

Requirement one, aperture, is up to you, but I can give you a hand with the charts. The finder chart above shows the central core of M22 with several key asterisms that can be used to zero in on the planetary's location. Begin by locating the right triangle of 11th-magnitude stars shown along the western edge of the cluster. Follow the base of the triangle 1.1' eastward to a close-set pair of stars at the end of a diagonal line. Extend a line southeastward from those stars to an equilateral triangle. If you can find that triangle, then you are getting very near the planetary. Just beyond the eastern tip of the triangle is another, smaller threesome of 13th-magnitude stars. GJJC-1 is 8" north of that triangle's easternmost star. Be careful not to confuse a dim field star just beyond the planetary for the planetary itself. Unless you can see both clearly, then the chances are good that you are only seeing the star and not GJJC-1, which is fainter.

To confirm the find, try using a narrowband filter. Due to the faintness of the planetary, reports I have seen suggest threading the filter onto your eyepiece rather than flipping it in and out. The filter should shrink the bloated stars, while revealing that the planetary is very slightly oval.

CN member and moderator Dave Mitsky [wrote of his encounter](#) with GJJC-1 at Pennsylvania's [Cherry Springs State Park](#) back in 2012.

*My friend Tony Donnangelo and I observed many celestial objects both new and old during that time [at the park] but the most memorable highlight for me was successfully observing a certain planetary nebula.*

*The sky was beginning to cloud up completely early Saturday morning so I packed up my dew-soaked gear and was ready to crawl into my sleeping bag when conditions began to improve dramatically. I walked over to Tony's 24" f/3.3 Starmaster Sky Tracker Dob as he was making an attempt at one of the classic observing challenge objects, the planetary nebula located within the globular cluster M22. We had never actually seen it before but with great seeing, the dark skies of Cherry Springs, a very detailed finder chart, Tony's impressive star-hopping skills, an aperture of 24 inches, and a magnification approaching 800x, Tony, Dr. Elliott McKinley (a fellow Cherry Springs regular), and I all caught glimpses of the very elusive DSO.*

*The conditions were superb after midnight on Sunday morning and Tony, Elliott, and I had an even better view of GJJC1 through the 24" Starmaster. Stars were surprisingly sharp at 771x (3-6mm Tele Vue Nagler zoom set at 3mm) and the transparency was excellent. Even so, the tiny and dim planetary nebula was nothing more than a slightly fuzzy star when seen with averted vision. Pease 1 in M15 is a piece of cake compared to GJJC1.*

One of the best images of GJJC-1 ever taken by an amateur is the one below by Rolf Wahl Olsen. Compare it the finder chart above before you set out to attempt this difficult challenge. Before going further, be sure to visit Rolf's [website](#) as well as his gallery on [pbase.com](#) to see more remarkable images taken from his observatory west of Auckland, New Zealand. One look and you'll want to emigrate to New Zealand, as he did from Denmark in 2003!

## Planetary nebula GJJC1 in the core of Messier 22

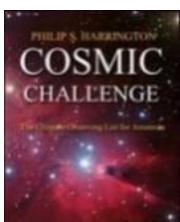


Above: GJJC-1. Photo by Rolf Wahl Olsen. Equipment: 10-inch (25cm) f/5 Newtonian reflector, ToUCam Pro SC1, and a Baader UV/IR block filter. Copyright Rolf Wahl Olsen, used with permission.

Studies reveal that GJJC-1 is a true member of M22, not just a line-of-sight superimposition. It's an odd little beast for more reasons than its location. Spectroscopic analyses also disclose that, unlike most planetaries, GJJC-1 is depleted of hydrogen and helium. Rather, the only prominent lines in its spectrum are those of doubly ionized oxygen (oxygen-III) and neon (neon-III). Its shape is also asymmetrical, shaped like a half moon likely due to gravitational compression from interaction with its packed surroundings. This would also explain the lack of lighter elements, as they would have been stripped away by the process.

For amateurs who try to spot this difficult object, planetary nebula observer par-excellence Doug Snyder offered an excellent discussion, as well as first-hand reports and finder charts for the task on his website, [blackskies.org](http://blackskies.org). That site is now gone, replaced by an online betting website of all things. Thankfully, [seds.org](http://seds.org) has saved his site for posterity. Click [here](#) to go there now.

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



About the Author: Phil Harrington writes the monthly [Binocular Universe](#) column in [Astronomy](#) magazine and is the author of 9 books on astronomy, including [Cosmic Challenge: The Ultimate Observing List for Amateurs](#).

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## About the Magic Valley Astronomical Society

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

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

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

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

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

Annual Membership dues will be:

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

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

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

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President 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.