CACHE VALLEY ASTRONOMICAL SOCIETY
cvas-utahskies.org

CACHE VALLEY CLEAR SKIES

Journal of the Cache Valley Astronomical Society

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PRESIDENT'S CORNER

by Bruce Horrocks

Shannon Horrocks

The kids are back in school and fall colors will be here soon. I must admit I have not had the best summer. It has been hot and dry, and I was banned from most activities this summer due to a couple of small foot surgeries I had to have. Needless to say, I am a fan of fall time and the cooler weather and colorful leaves. I must also admit I do like the bit shorter days so I can start looking at the skies earlier and not have to wait until 11:30 p.m. or so.

This month will also be the start of our monthly club meetings again. We will be meeting in person and unless we change venues, we will continue to meet at the Nibley City Office buildings. We would love to find a more central place but until the library gets completed, we will most likely be meeting at this spot. Please plan on attending and if you happen to know of a better location, let us know and we will look into another possible meeting spot.

As you all know, this hobby of astronomy is always looking in the past. We see things as they were several thousand if not millions of years ago. It is always like looking back into the history of the universe and seeing things as they were then. Well, if you were on a planet only about 24 trillion miles from earth and had a great telescope, you would see me starting to serve as the vice president of our club. That was four years ago. Then three years ago, I was asked to serve as the president, which is what I have been doing since then. I must admit the last few years have been tough on clubs, with all the COVID restrictions and associat-

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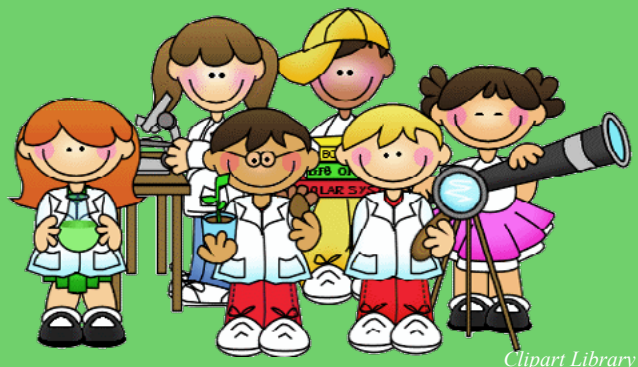

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UPCOMING EVENTS

Club Meeting & Elections

- September 21 at the Nibley City Offices

Star Parties

- September 9: Richmond City
- September 22: Edith Bowen Star Party (at Nibley's Virgil Gibbons Heritage Park)
- October 7: North Park Elementary
- October 17: Mountainside 6th Grade Class
- October 21: River Heights 6th Grade Class

STEM Nights

- September 29: Summit Elementary
- October 3: Mountainside Elementary
- October 26: Nibley Elementary
- November 3: Lincoln Elementary

Keep up to date by visiting our website:

President's Corner, cont'd from p. 1

ed challenges. I am glad to see that our club has held together and made it through all of this. While the COVID issues are still around, I think this will be the new normal, and so we will want to be considerate of each other and do what we can to all stay healthy.

As we have our first meeting of this new season, I would really like to encourage any of you to reach out and see how you might help in our club leadership. The qualifications and required skills for this job are clear: NO PREVIOUS EXPERIENCE NECESSARY. NO SKILLS, JUST SOME TIME. With that list of requirements, I think each of you are qualified. Don't worry, there will be plenty of backup support for you with Tom and Dell, and even myself. I would say the only thing needed is a bit of desire to share a fascinating hobby with others and try to have a bit of fun in doing so. Being in the club leadership is a great way to help others learn, while you learn a bit more, yourself. It really does not take a lot of time, maybe a few hours each month. I hope that, as folks who are normally looking into the past, we can look forward to a club that will be around for many years to come. Please consider giving some help, even in some small way. It will be greatly appreciated.

With the start of the school year, we once again have been asked to support the STEM elementary school nights. They have many of them coming up this year, as well as some star parties. We appreciate all those who have helped in the past and hope you will be able to lend some of your time again to these outreach activities. I recently went to Bryce Canyon, where I was given the opportunity to assist the local park ranger with their weekend star parties. For a park that boasts of its night skies and great view opportunities, I was a bit disappointed in what they offer to park visitors. I would daresay that our club star party activities are above what they do. While I must confess the weather did not cooperate with us, there were no other presentation or backup plan for people who travel from all over the world to see the dark skies while they are enjoying the park features down there.

Thanks again to each of you, and we hope to see you at our club meeting this month.

Clear Skies,
Bruce Horrocks

Agenda for Club Meeting on September 21

- Elections of Executive Committee members.
- Presentation on Solarium software by Bruce Horrocks and Dell Vance.

FreePik

PIkPNG

Challenge from Our President

Please run for a position on the CVAS Executive Committee. Elections are at our meeting on September 21. No experience is necessary!

Please help out at upcoming star parties and STEM nights. (See "Did You Know?" on p. 13.)

PLEASE CONSIDER RUNNING FOR A POSITION ON THE CVAS EXECUTIVE COMMITTEE

by Dell Vance

It is time to start getting ready for the election of club leaders in September. Bruce Horrocks has served for three years as president now and will step down in September. James Somers is also stepping down from the Vice President's position, and Lyle Johnson is stepping down as PR Coordinator. Tom Westre will remain our Webmaster-Librarian, and Dell Vance will remain as Night Sky Coordinator, but he would like a second NSN Coordinator to share the workload. Bonnie Schenk-Darrington will run for Secretary-Treasurer again. In short, we have multiple positions available.

Why should you consider serving on the CVAS Executive Committee? There are multiple reasons, explains Bonnie Schenk-Darrington. "I have a strong belief in community service. How can I expect to live in a better world if I'm not willing to work toward it myself? Our club does such important science outreach to kids and social outreach to adults. Also, the leadership experience I have received as a member of ExecComm has given me courage to speak up more at work. CVAS has improved my skills for my paid employment."

I want to assure anyone that is interested in running for one of the positions that they are not very time-consuming or difficult to serve in. The Executive Committee (ExecComm) meets one night a month for about an hour to plan programs and star parties. With five people on the ExecComm, we usually have a lot of input on the items considered. The elected positions are as follows:

President: Chairs the committee and sets up the ExecComm meeting. He/she will also conduct the monthly meeting during the fall and winter months, and writes a monthly column for the newsletter. Time spent each month is about five hours.

Vice-President: Conducts meetings when president is not available. (This doesn't happen very often.) He/she may also take assignments when needed by the ExecComm and provides important input at the ExecComm meeting. Works with PR Specialist to advertise club meetings. Time spent each month is about three hours.

Secretary-Treasurer: Keeps the minutes of meetings. Edits the newsletter. Collects membership dues, writes checks for expenses, and reports monthly the status of membership and financial activities each month at the ExecComm meeting. Time spent each month is about eight hours.

Public Relations Specialist: Posts info about upcoming club meetings on Cache Valley Daily Calendar and UPR Community Calendar. Designs a monthly poster about upcoming club meetings and send them to local public libraries to post. Time spent each month is about three hours.

Night Sky Network Coordinator: CVAS is a member society of the NASA Night Sky Network. The NSN Coordinator reports on meetings and activities on the NSN website. They also set up new club members in the roster for NSN.

Time spent on leadership responsibilities may vary depending on how much effort and innovation that you apply to the tasks. As you can see, the time requirements can be minimal. I hope each member will take an active role in the leadership of the club at some time during their membership. The turnover of members for the ExecComm can provide a good mix of ideas and opportunities. In addition, the past president also attends the ExecComm meeting to provide continuity and coaching to the committee.

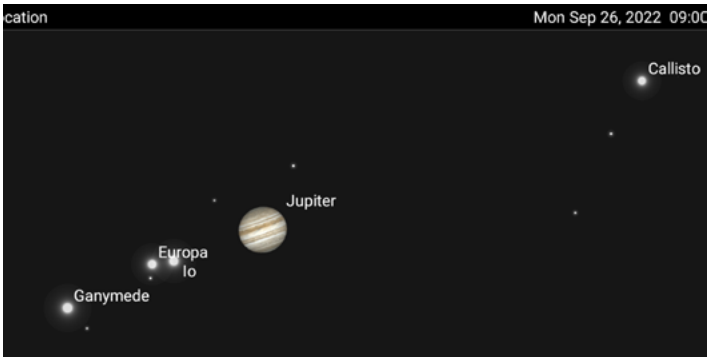
If you are interested in serving in one of the ExecComm positions, be sure to let one of the current members of the ExecComm know so that we can get you on the ballot.

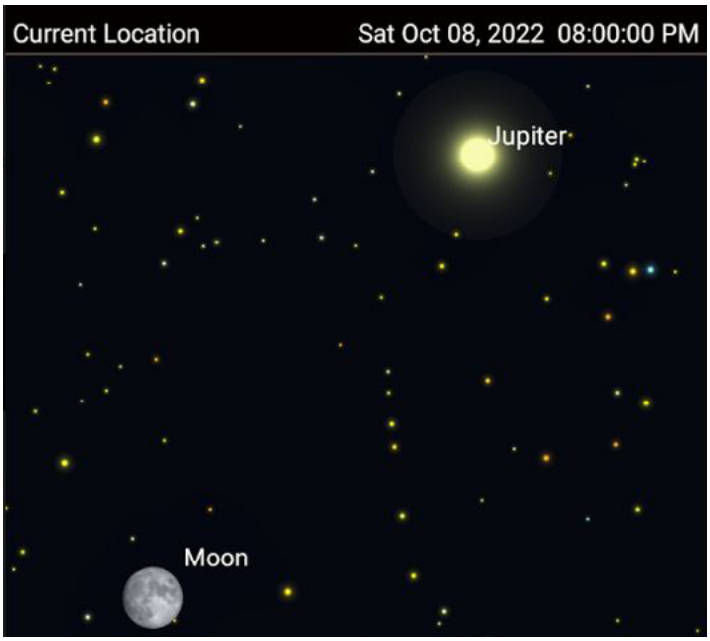
CELESTIAL EVENTS TO END THE YEAR 2022

by Blaine Dickey

As the year winds down, you might be tempted to sit in your easy chair and wait until the weather warms up in the spring. However, if you do, you will miss some of the best celestial events that will happen this year.

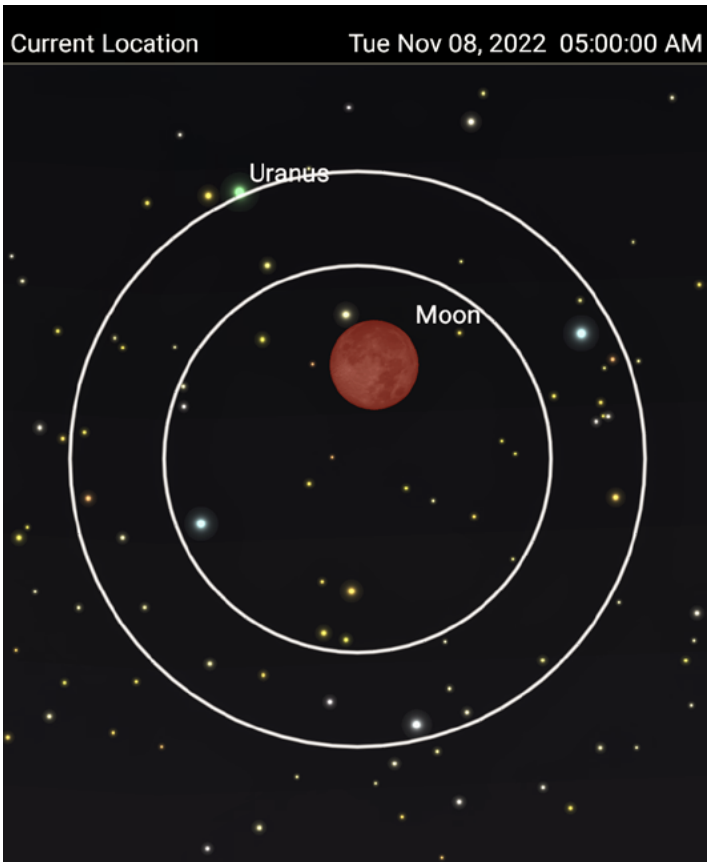
Jupiter will be at opposition on the evening of September 26, 2022. Jupiter is now quite far north in the sky, so its disk will be appear much clearer during the fall and winter as it climbs high in the sky.





Later on October 8, the two brightest objects in the sky, the moon and Jupiter, will pass within 5 degrees of each other, forming a nice pair in the evening sky.

Moving ahead, the early morning of November 8 will mark the second total eclipse of the moon for this year. First contact of the earth's shadow will be in the early morning beginning at 2:10 a.m. The shadow of the earth will slowly move across the moon's surface until it is completely covered at 3:17 a.m. It will remain totally eclipsed until 4:44 a.m when a partial eclipse will begin. The partial phase of the eclipse will end at 5:50 a.m. Thus the entire eclipse will be visible from here in the valley.



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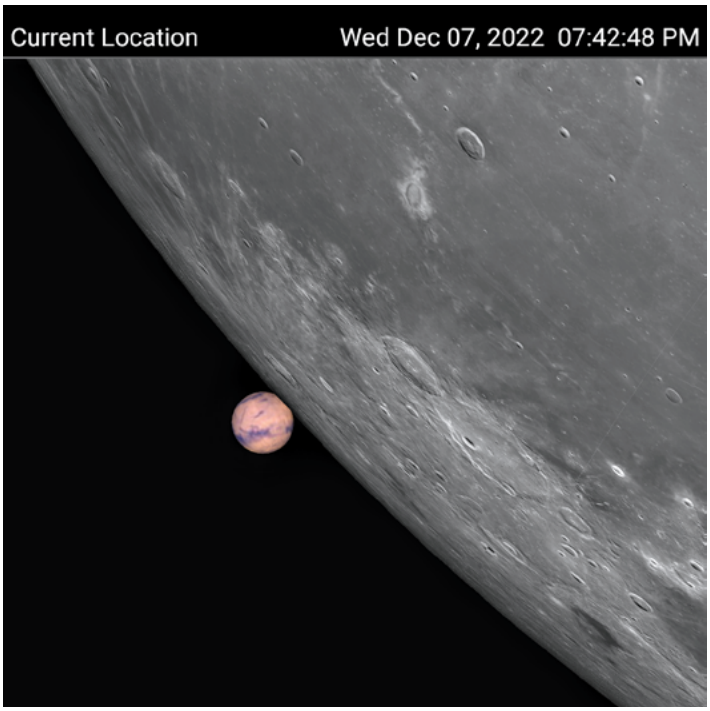
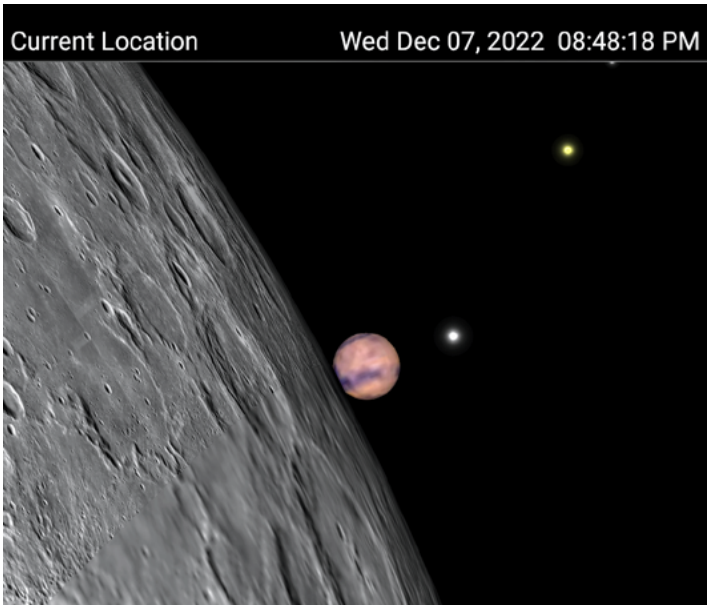
Celestial Events, cont'd from p. 4

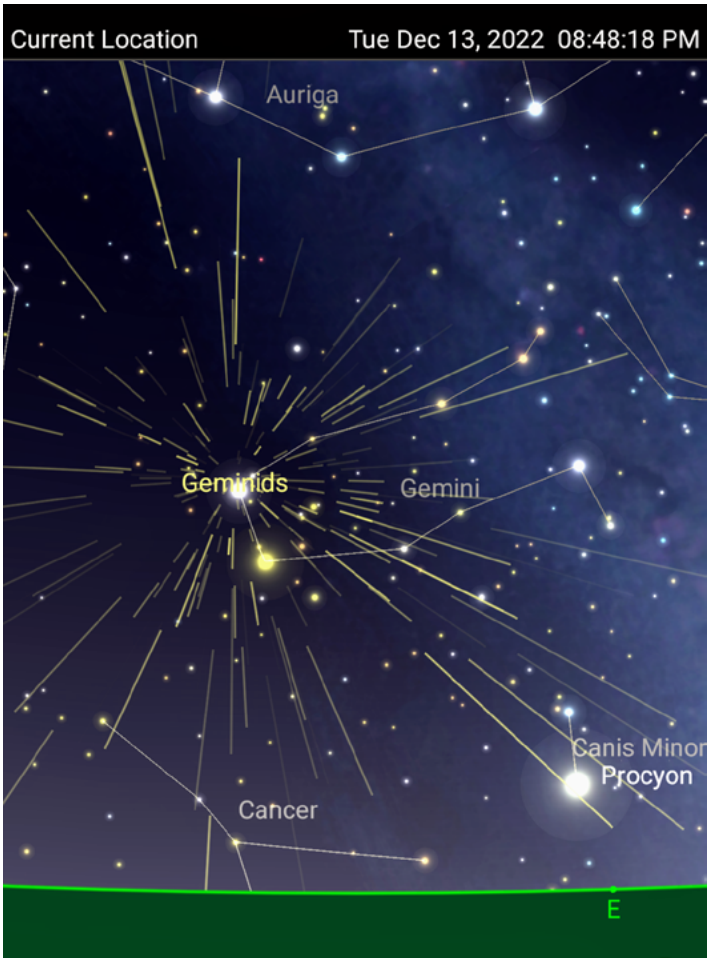
While you are looking at the eclipse, you will be able to also see the planet Uranus about 1 degree to the upper right of the eclipsed moon. You can observe it with binoculars. In a telescope, Uranus will appear as a small greenish disk.

A somewhat rare event will occur on the evening of December 7 when the full moon will occult the planet Mars beginning at 7:42:48 p.m. Then, a little over an hour later at 8:47:33 p.m., Mars will begin to emerge on the other side of the moon. A binocular or small telescope should be sufficient to observe this event.





Finally the Geminids meteor shower will peak on the evening of December 13, 2022. This is a major meteor shower with up to 120 meteors per hour on average. Unfortunately for us here in Cache valley it is often cloudy and cold. If you decide to view this event you will need to dress warm. Between 8:00–9:00 p.m., look toward the eastern sky to the constellation Gemini. The meteors will seem to radiate from a point near the stars Castor and Pollux in the constellation Gemini.



These are some of the nonrecurring celestial events that will take place this fall and early winter, and each one is unique. Each eclipse, occultation, opposition, and conjunction looks different than any other that has ever occurred. Each event is worth the effort it takes you to observe it either with your eye, binoculars, telescope, or imaging camera.

All illustrations are from the SkySafari 7 Pro Android app, courtesy of the author.

HD 162826: OUR SUN'S POSSIBLE SIBLING?

by Tom Westre

One of the most popular deep sky objects for amateur astronomers is the Orion Nebula, also known as Messier 42. This is one of the brightest nebulae visible to the naked eye. This makes it a popular target for visual observation and astrophotography.

The Orion Nebula is a place where stars are forming. It's a stellar nursery. Astronomers have located at least 700 stars in the process of forming within the nebula.

It's believed that most stars, including our sun, formed in groups in a similar interstellar cloud of gas and dust. As the stars formed in the nebula over time, they became an open cluster of stars that are mutually attracted by their gravity.

Other examples of open clusters that are visible in telescopes include the Pleiades (M45), M34 in Perseus, M52 in Cassiopeia, the Hyades in Taurus, and many others.

Image of the sun's possible sibling, HD 162826. Image courtesy of the author.

Our sun was also born in a nebula billions of years ago. Our sun and others in the nebula began as protostars in their early stages. As the stars formed over time, the cluster in which they formed began to dissipate, and they started their journey moving among the other stars of the Milky Way.

The seven stars that make up the Big Dipper are another example of a group of related stars that are moving in the same direction about 80–90 light-years from Earth.

Over time, stars that formed together will be moved apart in separate orbits around the Milky Way galaxy.

Astronomers have identified the star HD 162826 in the constellation Hercules as a possible sibling of our sun. Both stars are F-type yellow stars with similar chemical makeup. The orbital dynamics also suggest

Both our sun and HD 162826 are F-type yellow stars with similar chemical makeup. The orbital dynamics also suggest the two stars have a similar origin. The two stars have a similar age of 4.6 billion years and similar temperatures. The sibling is 15 percent more massive that the sun and is metal-rich.

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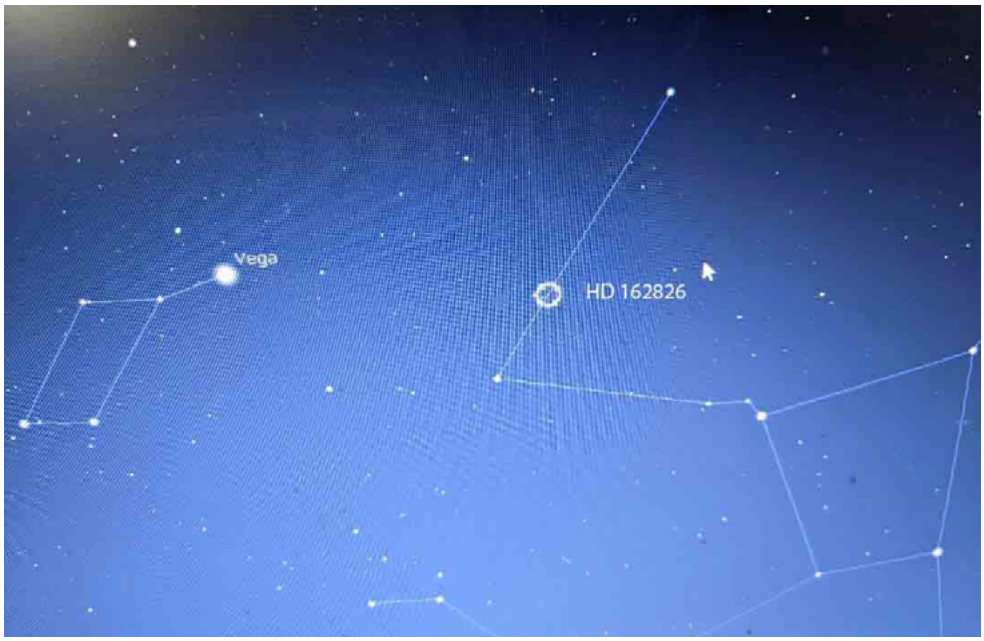
HD 162286, cont'd from p. 6



HD 162826 in Hercules. Image courtesy of the author.

the two stars have a similar origin. The two stars have a similar age of 4.6 billion years and similar temperatures. The sibling is 15 percent more massive that the sun and is metal-rich.

HD 162826 lies at a distance of only 110 light-years and has a magnitude of 6.6.

No large planets have been found orbiting HD 162826 but it is possible that small terrestrial planets may exist.

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USU Observatory Public Night

September 16, 2022
9:00 – 11:00 p.m.

For details about location, targets, weather, and parking, visit the USU Physics Department website here.

CACHE VALLEY ASTRONOMICAL SOCIETY

Our Website: CVAS-UTAHSKIES.ORG

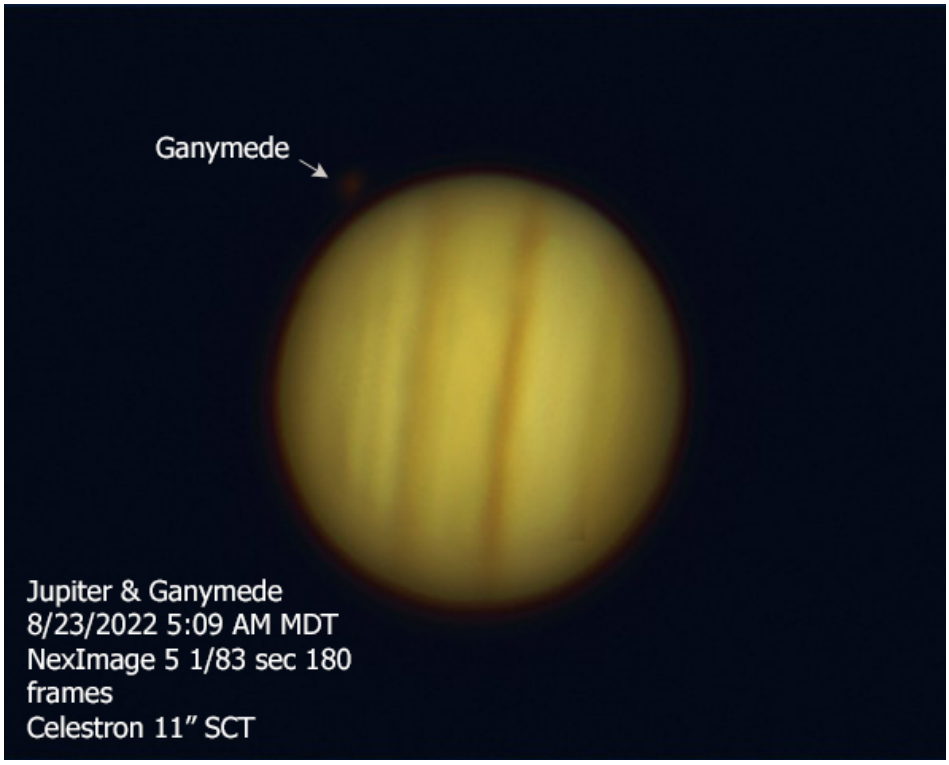
EXECUTIVE COMMITTEE

- President: Bruce Horrocks; bruceh@gembuildings.com
- Vice President: James Somers; james-.m.somers@aggiemail.edu.usu
- Secretary-Treasurer: Bonnie Schenk-Darrington; bschenkdarr@gmail.com
- Night Sky Network Coordinator: Dell Vance; avteam.dell@gmail.com
- Past President: Dell Vance; avteam.dell@gmail.com
- Public Relations: Lyle Johnson; lyledj@aol.com
- Webmaster-Librarian: Tom Westre; twestre45@aol.com

JUPITER AT OPPOSITION THIS MONTH

by Dell Vance

About 9:30 p.m. MDT, Jupiter will be rising in the east. It is easy to locate, because it is the brightest object in the sky other than the moon. Jupiter is very visible to the naked eye. With binoculars or a telescope, it presents a stunning view. Colored bands stretch across the planet, and even a red spot can be seen occasionally. That bright red spot is a gaseous storm that has been raging for over 400 years. Jupiter is so huge that if you combine all the other planets in the solar system together, they still wouldn't be as big as Jupiter. Jupiter will reach opposition on September 26. It will be the closest it has been to the Earth since 1963 and won't be this close again until 2129.



In 1610, Galileo observed and documented that Jupiter had moons. This was a huge accomplishment. He was using a 1.5-inch diameter telescope, which he had built himself. With that telescope, he was able observe Jupiter and a small group of stars around it. Within a few days, he realized that they were not stars, but moons orbiting Jupiter. These four moons are known as the Galilean moons. They are named Europa, Callisto, Io, and Ganymede.

It is believed that Jupiter has 79 moons. Only 53 have been named; the other 26 haven't received official names yet. Of all these moons the four Galilean moons are most interesting to scientists.

When we observe Jupiter and the Galilean moons, they are usually in a line with each other. It looks like a small solar system of its own. The orbits are so well known that you can identify each of the four moons you observe, with the help of an app on your phone or an astronomical magazine. It is fun to impress your friends with your knowledge of the sky.

pngset

Hey, Astronomy Hero! What's Your Origin Story?

CVAS members are astronomy superheroes who share their love of astronomy with the galaxy! (Or, at least with the people of Earth!)

What piqued your interest in astronomy? Please tell us! Send your article to Bonnie at bschenkdarr@gmail.com!

Clipart.World and Cliparts Zone

Need a quick astronomy fix?
Tune in to CVAS's astronomy show on Utah Public Radio!

UTAH SKIES

Every Tuesday at 4:48 p.m.
91.5 KUSU-FM (west Cache Valley)
89.5 KUSR (east Cache Valley)

You can also download the UPR app or listen to the livestream here.
Check out our past radio shows here.

Free Online Course: Introduction to Amateur Astronomy

Clipart Library

We advertised this course in our January issue and in our club e-mails. Kalamazoo (Michigan) Astronomical Society has been giving a free introductory astronomy class online. Students who attend all five sessions even receive a nifty certificate!

It's too late to formally join the class. But CVAS has been given special permission to post the YouTube videos of the lectures! So, if you'd like to brush up on your introductory astronomy, here are links to the lessons!

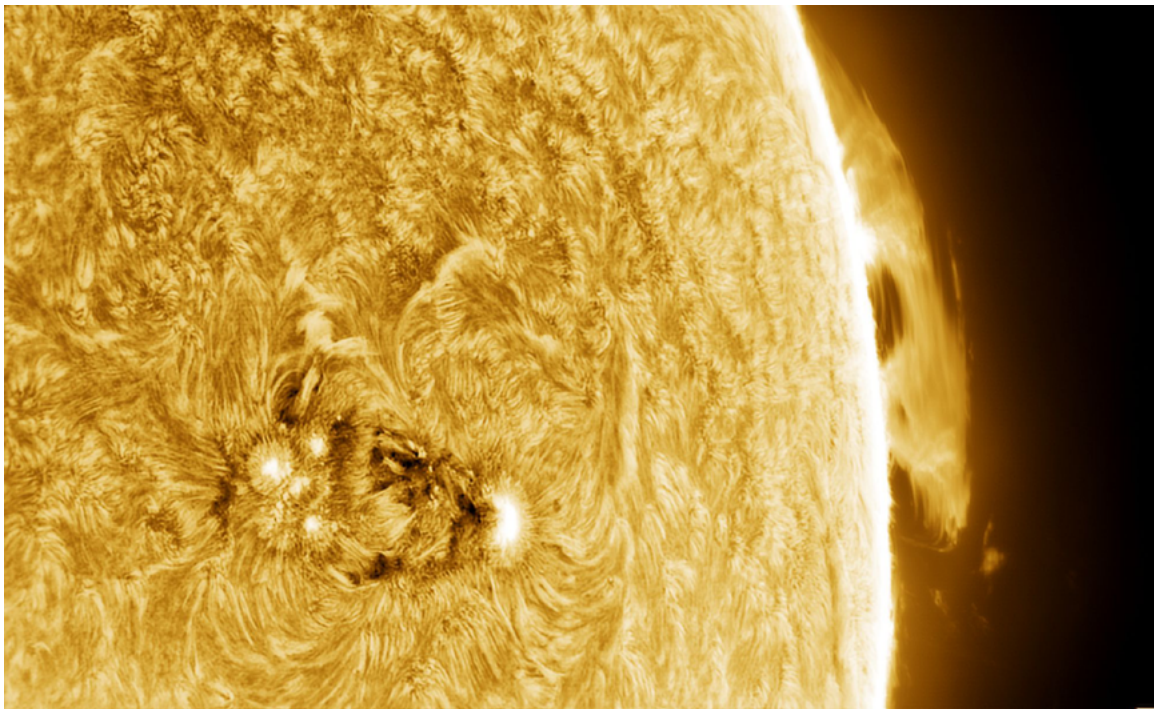
They have a gift shop full of cool stuff and offer many free online lectures, besides the introductory class. You can check out their main website at https://www.kasonline.org.

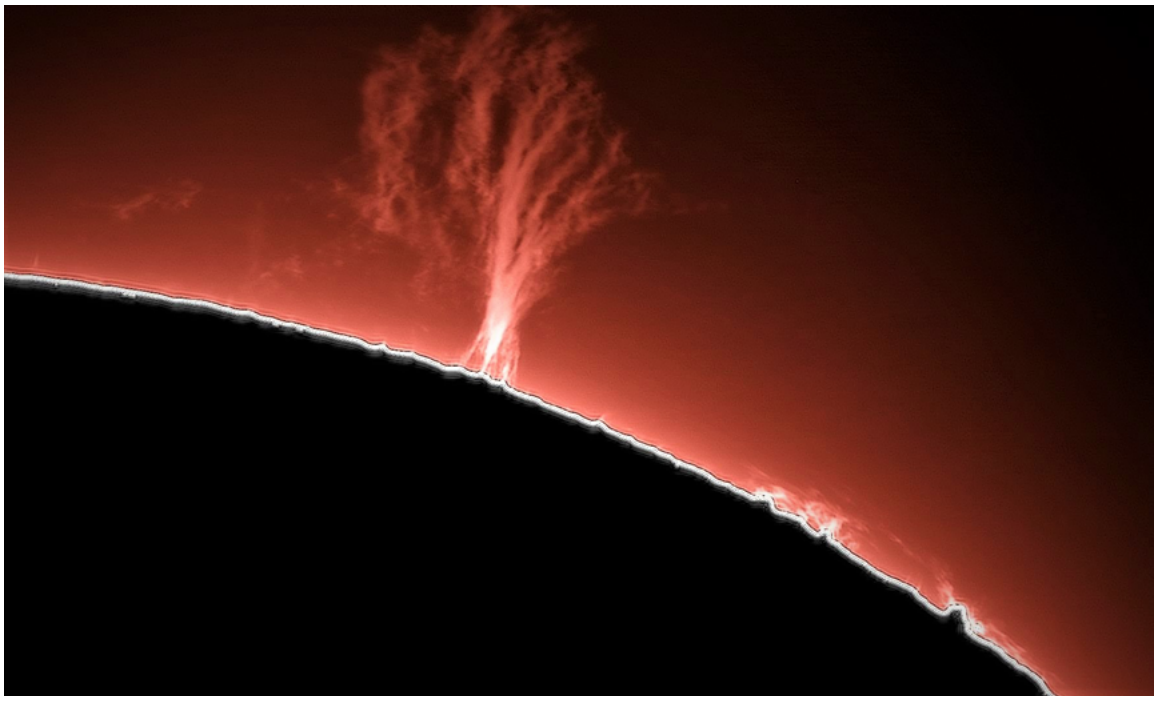
Introductory Astronomy Lessons

Part 1: Our Place Among the Infinities
Part 2: Discovering the Night Sky
Part 3: Binocular Basics
Part 4: Telescope Tutorial
Part 5: The Art of Astrophotography

ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members





Solar Flares
Bruce Horrocks

Above: Solar flare, taken June 23, 2022.

Below: Solar flare, taken August 25, 2022. Bruce processed the picture by blackening the sun to make the flare show up a bit better.

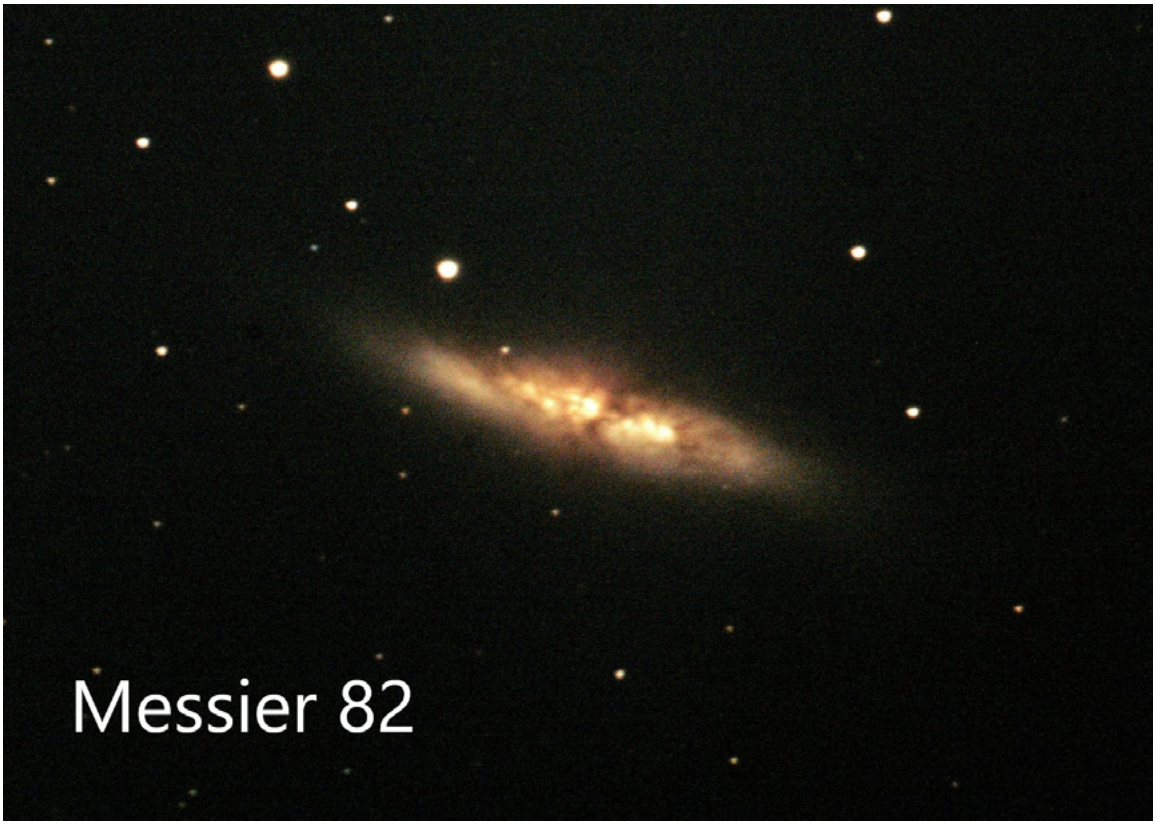
ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members

Messier Objects
Blaine Dickey

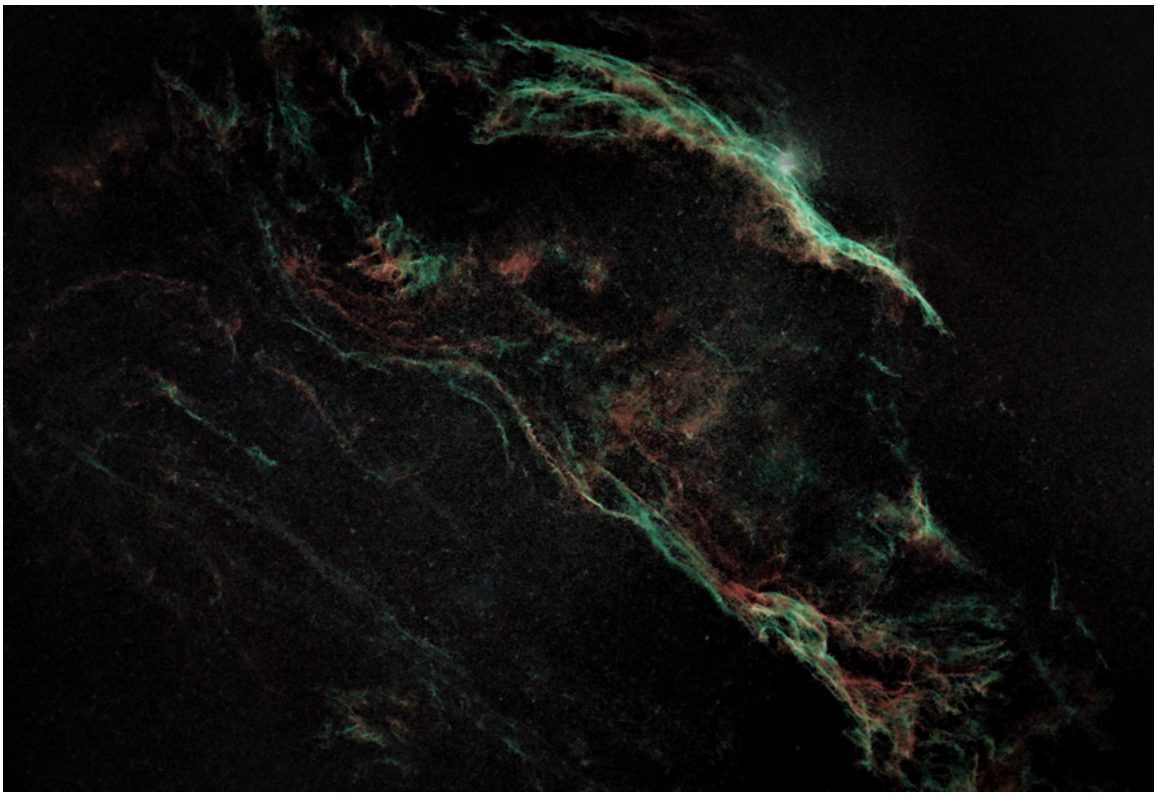
Above: Messier 81

Below: Messier 82



ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members



Eastern Veil Nebula
Bruce Horrocks

Bruce explains that this image was taken using a 11-inch Edge telescope with the Hyperstar lens and a ZWO2600MC camera with an L-enhance narrowband filter. It is 15 images at 240-second exposures and processed in Pixinsight.

Waxing Gibbous Moon
Bonnie Schenk-Darrington

Bonnie took this image on September 7, 2022. It was taken facing south-east, in Nibley, Utah.

Want to share your images next month?

Please send them to Bonnie at bschenkdarr@gmail.com.

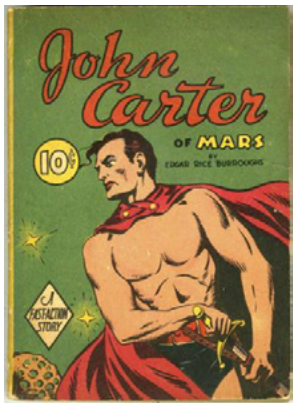
UPCOMING ASTRONOMY EVENTS AND ANNIVERSARIES

by Bonnie Schenk-Darrington

Wikimedia Commons

• Sept. 1: 3204 Lindgren, an asteroid named after beloved Swedish children's author Astrid Lindgren, was discovered in 1978. This asteroid was surveyed as part of the NASA NEOWISE mission, supported by our local USU Space Dynamics Laboratory.

• Sept. 1: Author Edgar Rice Burroughs was born in 1875. His fictional novels about John Carter's adventures on the planet Mars introduced multiple generations to the fantasy of space travel to alien worlds.



Wikimedia Commons

• Sept. 1 and 2: Aurigid meteor shower peaks. Best viewing time will probably be just before dawn.

• Sept. 5: Venus at perihelion—its closest approach to the sun. Sadly, this will not be visible from Cache Valley.

• Sept. 8: Conjunction of the moon and Saturn. Moon also at aphelion—its furthest distance from the sun.

• Sept. 9: Epsilon-Perseid meteor shower peaks. Best viewing time will probably be just before dawn.

• Sept. 12: Conjunction of the moon and Jupiter.

• Sept. 15: Close approach of the moon and Uranus. A lunar occultation of Uranus will be visible in parts of Africa, Asia, and Europe.

Clipart Library

• Sept. 15: *Lost in Space* TV show debuted in 1965.

• Sept. 17: Conjunction of the moon and Mars.

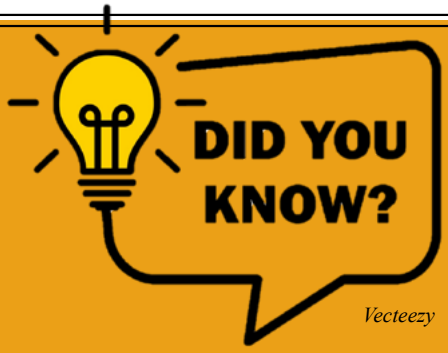
• Sept. 22: Autumnal equinox.

• Sept. 26: Jupiter is at opposition and the brightest and largest we have seen it since 1963. Read more about it in this edition of *Cache Valley Clear Skies* (Vance, p. 8).

Wikimedia Commons

• Sept. 27: 47-TUC globular cluster is well-placed for viewing. Its magnitude is 4.0, so you will need a very dark sky or a telescope to view it.

iStock



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What Is a STEM Night?

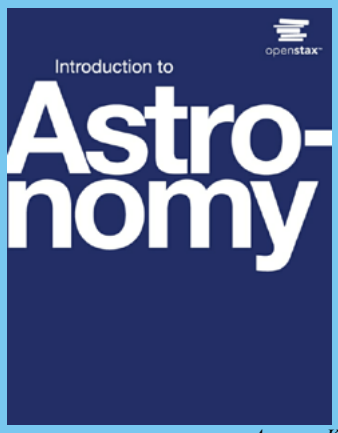
"STEM" stands for Science, Technology, Engineering, and Mathematics. Local elementary schools host evenings at which children can learn about STEM topics informally. This is a great chance for us to share our love of astronomy! We only need two to three people for each event. Contact any member of the Executive Committee to volunteer. During the winter, we stay indoors, so you won't have to worry about getting cold! Events last from 6:00 to 8:00 p.m. Please plan to arrive at 5:30.

UPCOMING EXCITING NASA EVENT

PNGlib

International Observe the Moon Night Is October 1, 2022

Check out their website for fun activities and information!

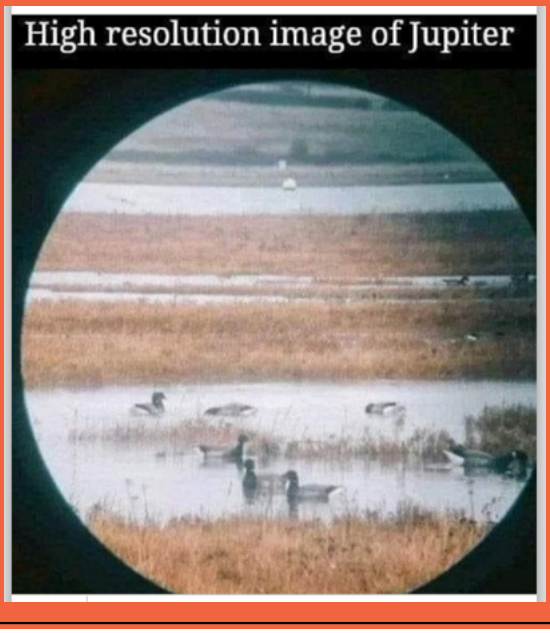


Amazon Kindle

Free Astronomy 101 Textbook Now Available!

In an effort to democratize knowledge, the OpenStax project produces free digital and inexpensive hard-copy college-level textbooks written by professionals in many fields. You do not have to be a college student to request a copy. You can read more about the new astronomy textbook here. And you can download or order a copy here.

A LITTLE ASTRONOMY HUMOR



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