CACHE VALLEY ASTRONOMICAL SOCIETY
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CACHE VALLEY CLEAR SKIES

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PRESIDENT'S CORNER

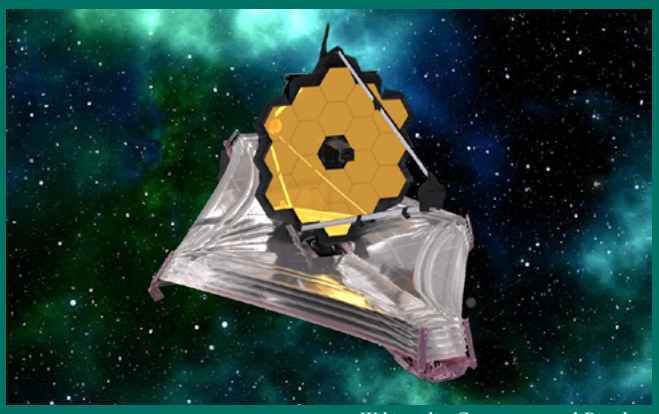
by Dell Vance

Ann-Maree Vance

Astronomy is a great hobby! Just think of all the great times we have during the winter months. When the skies are clear the stars are very bright and you get to wear the "best" in arctic clothing. I have been working through the process of switching my telescopes in my observatory. I think the biggest lesson I have learned is when working with a new telescope, warmer weather is preferrable. I have been challenged with getting the system set up, aligned, and learning the differences with a smaller telescope. This is not hard, but it would be nice to have clear skies for at least two to three consecutive hours in a night and for the temperature to be above 20 degrees F. It certainly helps me appreciate having an observatory for the winter months. I'm glad that several of our members have been able to get great images of the comet and other objects this winter.

We had a very interesting meeting in February.

cont'd on p. 2



Wikimedia Commons and Pixabay

UPCOMING EVENTS

Club Meeting

- Friday, March 10, at 7:00 p.m. We will be meeting at the USU Engineering Lab building, room 107. (NEW location! Reach out to a member of the Exec-Comm if you need a map or directions.)
- 2022 NASA Night Sky Network awardees to be honored! Come see club members receive awards for their service in 2022! (List of awardees on p. 2.)
- Speaker: CVAS VP Dale Hooper will give us an update on the James Webb Telescope and its amazing images and discoveries!

STEM Events

Events last from 6:00 to 8:00 p.m. Please plan to arrive at 5:30.

- March 9: Cedar Ridge Elementary
- March 13: Greenville Elementary
- March 23: Providence Elementary
- March 28: Bridger Elementary
- March 29: Sunrise Elementary

Keep up to date by visiting our website:

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

Zach Casper did a great job in helping us get fired up for the Artemis Program. I found it beneficial to see where the program is going and what the future plans are. It really is "Rocket Science!" I have been fascinated with space exploration as long as I can remember. I watched or listened to the launches of the Mercuries, Geminis, Apollos, and the Space Shuttles. I'm always impressed by the power and the science involved in making a successful mission.

This month we have our meeting on March 10, up at the USU Campus. We hope that this will be a more central location for everyone. We also hope that many USU students may be interested in attending, as well. Dale Hooper will give us information about the things we are learning from the James Webb Space Telescope. It's certainly giving us much to think about.

At the March meeting we will also present the Night Sky Network Outreach Awards to our members that have been involved in outreach activities. We have 18 recipients this year. The club has been very active in working with the general public. Be sure to come out and support all the recipients.

Thanks again for your efforts and support.

Clear Skies,
Dell Vance

ClipartMax

USU Observatory Update

The December public night was cancelled due to copious snow and freezing weather. The observatory is currently closed and will reopen in the spring. For details about location, targets, weather, and parking, visit the USU Physics Department website here.

Night Sky Network

Night Sky Network Outreach Award Recipients for 2022

Below is the list of CVAS Members who have participated in outreach events in 2022. These opportunities included star parties, solar parties, newsletter articles or images, STEM fairs, Utah Public Radio items, website management, library loaner telescope maintenance, school presentations, and Executive Committee service. The awards will be presented at the March CVAS Meeting, and we encourage all recipients to attend the presentation. We also encourage all members to come out and recognize the recipients. Many heartfelt thanks to all those who help the public to appreciate astronomy!

- Blaine Dickey
- Dale Hooper
- Bruce Horrocks
- Lyle Johnson
- Frank Kenyon
- Becca L.
- Dean L.
- Ned Miller
- Dale Nartker
- Richard Palfreyman
- Byron N. Ray
- Clark Salisbury
- Bonnie Schenk-Darrington
- James Somers
- Dell Vance
- Sylvia Westre
- Tom Westre
- Paul Yamaguchi

Night Sky Network

MY TRIP TO THE LARGE BINOCULAR TELESCOPE OBSERVATORY AT MT. GRAHAM

by Blaine Dickey

Visiting a major astronomical observatory is an unforgettable experience. You can imagine how I felt when I was invited to tour of one of the largest optical telescopes in the world. The telescope I am referring to is the Mount Graham Large Binocular Telescope. It is located west of the city of Safford, Arizona, near the top of Mount Graham. Safford, Arizona, has enacted lighting restrictions so that the light pollution is minimal at the observatory.

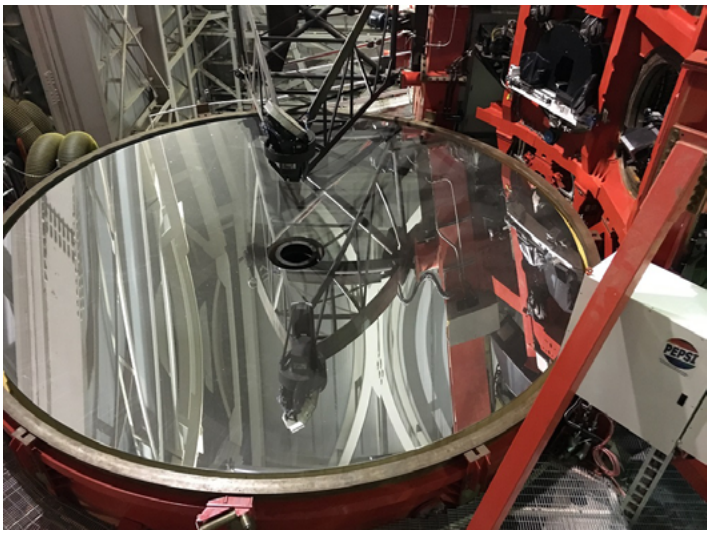
My wife, daughter, and I were visiting relatives in Safford, Arizona. My mother-in-law informed me that the daughter of the chief engineer of the Large Binocular Telescope lived next door to them. When his daughter found out I was an amateur astronomer, she talked to her father and he offered to give me private tour of the facility.

My brother-in-law, Wayne Rogers, joined me as we drove to the Mt. Graham facility at the base of the mountain. There we met Jack Newton, who was the chief engineer. We climbed into his vehicle and started driving up a road to the observatory on Mount Graham. The ride up the mountain took about 45 minutes on a paved road, except for the last half mile, which was gravel. The view at the top was amazing.

Jack took us inside the observatory, where the giant Binocular Telescope was located. We saw two 6.5-meter mirrors spaced about 100 feet apart. When the light of the two mirrors are combined, it effectively makes one of the largest mirrors in the world. The image at the bottom left of this page shows one of the enormous 6.5-meter mirrors.

While we watched, a worker slewed the telescope from the vertical position to a horizontal position. The two main mirrors send their light to thin adaptive optical secondary mirrors above each large mirror, which greatly enhances the image quality. One of those adaptive mirrors is shown below.

Pictured in the control room of the telescope are Jack Newton on the right and a coworker standing in front of the computers that control the telescope.



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Large Binocular Telescope, cont'd from p. 3

The next picture shows an astronomer seated at the console, working at the telescope controls, getting ready for the evening observations.

One interesting thing about this telescope is that the Binocular Telescope and the whole building that houses it rotate on a track with huge metal wheels. You can see one of the large steel wheels in the picture below.

The large, square gray building (upper right corner of this page) is the part that rotates with the Binocular Telescope.

We also saw the Vatican Observatory (bottom right), a dome that can be seen in the pine trees. The telescope is owned by the Catholic Church and is being used to do active research.

It started to snow at the observatory as we started going down the mountain. They probably didn't do any observing that night. It was a great experience and we appreciated the time that Jack Newton took out of his day to show us around this great observatory.

Images courtesy of the author.

ASTROPHOTOGRAPHY GALLERY

Recent Images by Club Members

Leo Triplet (left)

and

NGC 2903 (below)

Dean L.

M81 and M82 (below)

Dean L.

PNGEgg

Your Image Could Be Here Next Month!

We all learn when you share your astrophotography with the club! Send your images to bschenkdarr@gmail.com for publication!

ASTROPHOTOGRAPHY GALLERY

A Winter Treat: C/2022 E3 (ZTF)

Astronomers planetwide were entranced by C/2022 E3 (ZTF), a long-period comet from the Oort Cloud whose orbit brought it near Earth in January and February 2023. Its closest approach to Earth was on February 1.

What made this comet extra special was that it was last seen 50,000 years ago—when early humans and woolly mammoths existed! NASA is uncertain whether it came close enough to Earth for them to observe it, however, because each time a comet passes a planet or the sun, its orbit is altered slightly by the pull of their gravity. This time, though, it came within 26 million miles of Earth and could, for a few weeks, be seen by the unaided eye.

Another exciting fact about the comet is that its nucleus glowed green, probably due to diatomic carbon interacting with the solar wind.

Poring over photos of green astronomical objects seems especially appropriate as we approach St. Patrick's Day! Please enjoy these comet images taken by club members.

Parker Mortensen

Three-minute tracked exposure.
Jan. 18, 2023.
Scope: AT72EDii
Camera: ASI ZWO 294 MC Pro
Mount: EQM-35 pro

Dale Hooper

A 60-second shot.
Feb. 2, 2023.
Taken during a huge, waxing gibbous moon.

ASTROPHOTOGRAPHY GALLERY

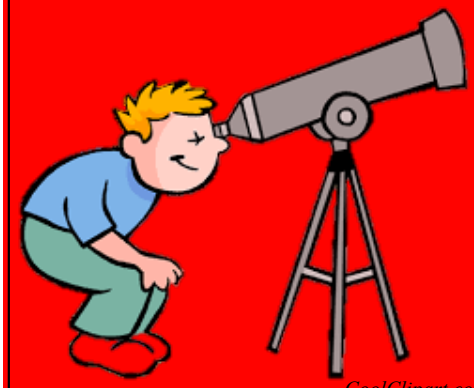
A Winter Treat: C/2022 E3 (ZTF)

Blaine Dickey

**Comet C/2022 E3 (ZTF).
Jan. 23, 2023;
5:15 a.m.
Four seconds at ISO 3200 with a Nikon D5100, through an 80mm refractor—unguided.**

Bruce Horrocks

**A parting shot of this comet.
Feb. 2, 2023.
I took some short exposures to get just the star field, and then some long exposures to get just the comet. I then processed both images and added the better comet image to the cleaner star field image.**



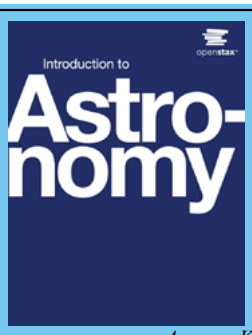
CoolClipart.com

Stumped? Befuddled?? Bamboozled???
Telescope Help Is Available!

When even your CVAS friends can't answer your obscure telescope questions, you might find it helpful to call Tom Sevcik at the Clark Planetarium in Salt Lake City! His number is (385) 468-1264. You can read his bio on the Clark Planetarium website.

Classroom Clipart

You can see CVAS events on the NASA Night Sky Network calendar at https://nightsky.jpl.nasa.gov/clubs-and-events.cfm. If you don't yet have access to the NSN website, please let a member of the Executive Committee know! We can add you to the roster and help you create a login and password.



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.

CACHE VALLEY
ASTRONOMICAL
SOCIETY

Our Website: CVAS-UTAHSKIES.ORG

EXECUTIVE COMMITTEE

- President: Dell Vance; avteam.dell@gmail.com
- Vice President: Dale Hooper; dchooper5@gmail.com
- Secretary-Treasurer: Bonnie Schenk-Darrington; bschenkdarr@gmail.com
- Night Sky Network Coordinator: Dell Vance; avteam.dell@gmail.com
- Public Relations: Bruce Horrocks; bruceh@gembuildings.com
- Webmaster-Librarian: Tom Westre; twestre45@aol.com

UPCOMING ASTRONOMY EVENTS AND ANNIVERSARIES

by Bonnie Schenk-Darrington

Wikimedia Commons

- March 2: Conjunction of Mercury and Saturn.
- March 2: Conjunction of Venus and Jupiter.
- March 4: Benjamin Franklin Peery, Jr., was born in 1922. He was especially interested in cool giant stars, and pioneered astron¬omy and science education programs targeted at Black children and adults.
- March 6: Carolyn Porco was born in 1953 in New York City. She served on the imaging teams for both the Voyager and Cassini missions and is an expert on Enceladus (a moon of Saturn) and planetary rings.
- March 7: Full moon.
- March 7: NASA launched the Kepler observatory in 2009, hoping to discover Earthlike planets orbiting other stars.
- March 9: Johannes Fabricius and his father, David, begin observations of sunspots, first with a telescope, then with a pinhole camera.
- March 12: Daylight saving time begins at 2:00 a.m.; set your clock ahead one hour.
- March 13: William Herschel discovered the planet Uranus in 1781. He originally believed it to be a comet. (See also Caroline Herschel, below.)

KindPNG

- March 14: Pi Day. It's a great day to enjoy some pie with a mathematically-minded friend!
- March 14: European Space Agency robotic spacecraft *Giotto* observed Halley's Comet in 1986—the first satellite to fly by and photograph a comet up close.
- March 15: γ-Normid meteor shower peaks.
- March 16: Robert H. Goddard launched the first liquid-fueled rocket in 1926.
- March 16: Caroline Herschel was born in 1750, in Hanover. She eventually immigrated to Bath, England, where she lived and worked with her brother, William. The pair became interested in astronomy. Eventually, Caroline discovered multiple comets, and became the first woman to earn a salary as a scientist and to publish her findings in the Philosophical Transactions of the Royal Society. She was widely lauded and received awards and honors for her work in England, Ireland, and Prussia.
- March 18: NASA's *Messenger* became the first spacecraft to orbit Mercury in 2011.

Wikimedia Commons

- March 20: Vernal equinox at 3:24 p.m. MDT.
- March 20: Alien Abduction Day.
- March 21: New moon.
- March 22: Conjunction of the moon and Jupiter.
- March 22: Ulugh Beg Mirza born in 1394, in Sultaniyah, Iran. He was the grandson of Timur (Tamerlane). A deputy during his father's rule, he ruled the Mawaraunnahr region, especially the city Samarkand, where he built an observatory that was very sophisticated for its time. He and the astronomers he hired calculated the obliquity of the ecliptic, or path of the sun and where it crosses the equator. He also published a star catalogue, the *Zij-I Sultani*, that became the seminal such work until the seventeenth century.
- March 23: Wernher von Braun was born in 1912 in Wirsitz, Posen Province, German Empire.

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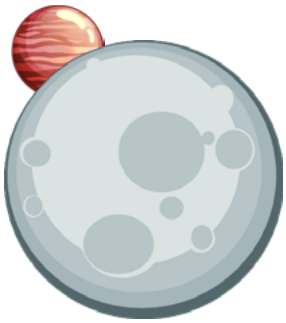
Upcoming Events, cont'd from p. 9

- March 24: Conjunction of moon and Venus. People in southern Africa and southern Asia will be able to see the moon occult Venus, but we will only be able to see the conjunction in Cache Valley.
- March 25: Honore Flaugergues discovered the Great Comet of 1811.
- March 31: Conjunction of Venus and Uranus.



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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!

A LITTLE ASTRONOMY HUMOR

Memebase

CACHE VALLEY ASTRONOMICAL SOCIETY
MEMBERSHIP APPLICATION FORM

Member # _____

NAME:_____ _____ _____
First Middle Initial Last

Address:_____ _____ _____ _____
Street City State Zip Code

Home Phone: _____ **Cell Phone:**_____

Work Phone : _____ **Occupation** :_____

Email Address: _____

How did you learn about CVAS?

_____Website ____Star Party ____CVAS Member ____Other _____

Membership: $20 lifetime membership

Tell us about yourself: Do you have a special interest in astronomy? Do you have special skills? Are you willing to volunteer on CVAS projects or attend public outreach star parties? Astro equipment owned.

_____

_____

By signing this application, I acknowledge I have access to the CVAS website, cvas-utahskies.org , and the CVAS constitution. I agree to abide by the constitution.

Signature: _____ Date:_____

Bring this form to the meeting or contact **Bonnie Schenk-Darrington, Secretary/Treasurer** at bschenkdarr@gmail.com.