CACHE VALLEY

CLEAR SKIES

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The Excom Corner

By Dell Vance

The Executive Committee (Excom) has decided to replace the "President's Corner" with the "Excom Corner". We feel this will add some variety to the monthly Newsletter. I have the opportunity to contribute this month. I am serving as the club secretary and handle all the membership items. I am also one of the CVAS coordinators for the Night Sky Network.

Executive Committee

- **President: Randy Joist**
  Rjost3@comcast.net
- **Vice President & Secretary: Dell Vance**
  avteam.dell@gmail.com
- **Newsletter: Bruce Horrocks**
  blhorrocks@gmail.com
- **Membership Coordinator: Dell Vance**
  avteam.dell@gmail.com
- **Public Relations: Bonnie Schenk-Darrington**
  bschenkdarr@gmail.com
- **Webmaster: Josh Kirk**
  me@joshkirk.com
- **NASA Night Sky Network Coordinator: Dell Vance**
  Avteam.dell@gmail.com

Club Membership

We currently have 63 Club Members. A club member is an individual that has paid membership dues and is a lifetime member. Thus, if you have ever paid membership dues, $20, you are a lifetime member. We changed the membership dues from annual to a lifetime membership a few years ago. Our club expenses are very small so annual dues are not necessary. Club members have name badges, a membership card, and can be on the roster for the Night Sky Network. They also have the opportunity to vote for club leaders.

In addition to the Club Members, we have 25 Associate Members. These are individuals that have filled out an application and have not yet paid any membership dues. The Associate Members are on the distribution list (groups.io) and receive club communications, including the monthly Newsletter. Associate Members are not on the CVAS roster for the Night Sky Network, so they do not participate in any of the Night Sky Network benefits available to CVAS members.

Night Sky Network

Night Sky Network (NSN) is an organization that helps astronomy clubs in their outreach programs for the public. Outreach is one of our club's main goals, so they are helpful in this regard. They are sponsored by NASA and operated by the Astronomical Society of the Pacific. Club members that are interested in being added to the CVAS Roster for NSN, should let me know and I will set them up and they will be allowed to set up an ID and password for the NSN. This allows them to see CVAS club activity calendars, other astronomy club calendars, and national astronomy events. It allows them to purchase astronomy magazines at the club

discount. NSN has a monthly Webinar's with guest presenters that members are notified so they can participate. Currently we have 58 members on our club NSN roster.
They also have annual outreach recognition pins for club members that are active in outreach activities locally. Each year CVAS presents these recognition pins to our members that are active in outreach activities. For the 2025 we have 17 club members that are receiving recognition pins. The pins will be presented at the January Club meeting.

January CVAS Meeting
Our monthly meeting in January is our Annual Show and Tell meeting. It is an opportunity to bring something that you have received or process that you are doing and show it to the club. We often get valuable ideas from gadgets and methods others are using. If you have something you would like to show, let a member of the Excom know and we will put you on the list. Usually, we have several items and each individual is given 5 to 10 minutes (depending on how many are planning to make presentations) to present their item. It is a great way to get new ideas. I hope to see you at our monthly meeting on January 16, 2026.

Clear Skies. – Dell Vance

Monthly Club Calendar of Events

STEM Nights

School	Date	City	Volunteers
North Park Elementary	January 22, 2026	North Park	Clark Salisbury & Randy Jost
Wellsville Elementary	January 28, 2026	Wellsville	Bruce Horrocks & Dell Vance
Canyon Elementary	February 5, 2026	Hyrum	Randy Jost & Dell Vance
Sunrise Elementary	March 24, 2026	Smithfield	Randy Jost & Dell Vance

CVAS Club Meetings

	Date	Where	Topic
January Meeting	January 16, 2026 7:00 PM	USU Engr Lab Rm 109	Show and Tell
February Meeting	February 20, 2026 7:00 PM	USU Engr Lab Rm 109	Most Exciting Topic !!!

California Nebula in SHO by Bruce Horrocks

Recent Observations by Blaine Dickey

We've enjoyed some excellent observing weather this year, with many clear nights and unusually warm conditions.

I've been eager to see how my Seestar would perform with its new image enhancement features. When Orion finally rose above the eastern mountains, I jumped at the chance to photograph an old favorite: **Messier 42, the Great Orion Nebula**. The result appears in the upper left image. Even more improvements were added to the Seestar during the last weeks of December, and I'm looking forward to trying them out in the coming year. The **Sun** was quite active in early December, producing a large number of sunspots, as shown in the upper left corner. As far as I know, Utah didn't receive any northern lights from this activity.

The middle right image shows my attempt to capture the interstellar comet **3I/ATLAS**. This comet follows a hyperbolic orbit, meaning it's moving too fast for the Sun's gravity to retain it. It arrived from interstellar space and will leave the solar system forever as it recedes. It is only the third known interstellar object. To photograph it, I had to get up early on December 13; the image was taken at 6:03 a.m. Although small, it was bright enough

to record. There has been wild speculation about it being an alien spacecraft, but having observed many comets over my lifetime, I'm confident it is simply a comet visiting from deep space. At its closest approach, it was nearly twice as far from Earth as the Sun is. It is now heading toward Jupiter on its way out of the solar system.

In the lower left is a beautiful double cluster: **Messier 35 and NGC 2158**. The dimmer cluster lies much farther away than Messier 35, yet both fit within the same field of view through a small telescope in the constellation Gemini.

Although the Seestar isn't ideal for planetary imaging, it can still capture interesting events. One such moment occurred on December 13 at 6:25 a.m., when Jupiter's moons **Io and Ganymede** came within 8 arc-seconds of each other. My overexposed image of **Jupiter** (bottom center) shows them appearing to "hug" as they passed.

I also rarely photograph the Moon in the early morning, but this time I did. The terminator reveals different details as it moves across the lunar surface. Look closely and you'll see the crater **Copernicus** right on the dividing line between sunlight and shadow. To its left is **Kepler**, another prominent crater with bright rays extending outward. Copernicus is often called the father of modern astronomy for placing the Sun—rather than Earth—at the center of the solar system. Johannes Kepler, for whom the crater is named, is known for formulating the three laws of planetary motion.

All of the images above were taken on the morning of December 13, except for the Sun, which was photographed on the afternoon of December 6.

Looking ahead, 2026 will bring several major astronomical events. A total lunar eclipse will occur early on March 3, beginning at 2:51 a.m. and ending at 6:18 a.m. If you happen to be in Europe, you'll also be able to witness a total solar eclipse on August 12. And of course, the year will offer comets, planets, meteor showers, possible northern lights, novae and supernovae, and occultations of stars and planets by the Moon and asteroids. Don't forget the conjunctions of planets and the Moon, and the many deep sky objects waiting to be observed and photographed.

What you choose to observe of course is entirely up to you. Happy stargazing! -

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Orion Nebula

Ultra Cat 108 with ZWO 2600MM and LRGB filters 20 x 6 seconds images per filter with some Ha 10 x 60 seconds images added. Image by Bruce Horrocks night of the club Christmas Social.

Here's a 30 minute exposure (10 second sub exposures) of IC434 that I took on December 12th with my SeeStar S30 from my backyard in North Ogden. I used 4K, had the built in dew heater on and used the built in filter. I also had my 3D printed dew shield on from Buckeye Stargazer to help block stray ambient light. When we next have a clear moonless night I want to try it again with my SkyWatcher wedge so that I can put the S30 in equatorial mode and take longer sub exposures so I can compare.

David Rady

If you have a recent Image send it in to us to post !

Tom Westre has the following equipment for sale. If anyone is interested they can contact Tom at 435-787-6380 to get more information and discuss prices.

1. Celestron 8 SE with Alt-Az mount, tripod and Celestron auto Align.
2. Celestron 8 inch Schmidt Cassegrain OTA
3. Orion EON 115mm (4.5") Apochromatic Triplet Refractor
4. ZWO Seestar S50 all in one Smart Telescope
5. Celestron 11 inch Schmidt Cassegrain f/10 with CGX-L equatorial mount, Tripod and Celestron StarSense, & AutoGuider
6. NexDome backyard Observatory.

If anyone is interested they can contact Tom at 435-787-6380 to get more information and discuss prices.

Dale Narker has the following for sale:

STELLARVUE SVX152T APOCHROMAT TRIPLET (6" Apo f/7.9, 1,200mm f/l)
Selling my Apochromat to fund more aggressive projects (lol); I'm building a wide field platform for astrophotography and even though this is an excellent system with a longer focal length to it, it's a much longer than I'd like. It comes with an SFFX2 focal reducer at 0.80x (960mm) and for my ZWO ASI294 pro camera, this gives me only 1.13 degree field of view, which isn't wide enough.
Apochromat is a Stellarvue 152mm aperture triplet, serial no. 051, ($9,995.00 current listing) at 1,200mm f/l (f/7.9),Strehl rating of 0.98. System with mounting rings weighs 28 lbs. Currently used on a paramount MyT mount which is an excellent combination together. 3.5" feathertouch focuser ($1,020.00 new listing) along with 9x50 finder scope.
Comes with everything listed, First $10,700 takes it, saving $1,000.00 new; must see to appreciate.
Comes with the list of the following (Listed prices new):

$9,995.00 - Stellarvue SVX152T Apo
$ 500.00 - Road Case travel case
$ 639.00 - SFFX2 field flattener/0.8x reducer
$ 243.00 - 9x50 finder with illuminated cross hairs.
$ 329.00 - 90 degree diagonal
$ 40.00 - small equipment case (for above gear)
$ 125.00 – Solar filter (white light – orange)

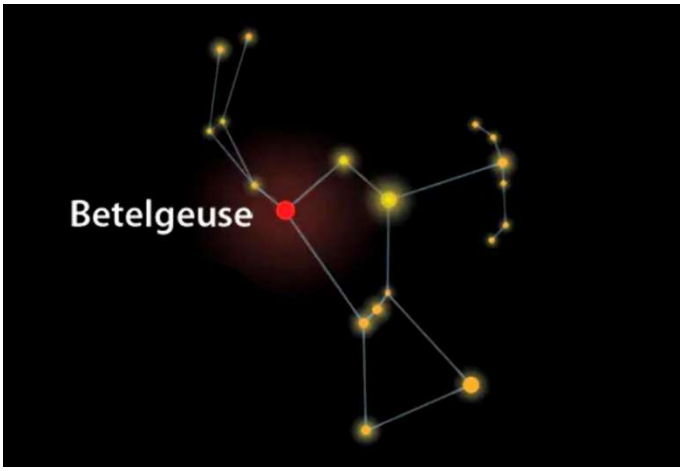
$11,871.00 - total of all brand new, will sell for $10,700

Thanks,
Dale Nartker 208-851-0284

Christmas Social Fun

We want to thank Dell Vance for hosting our Christmas Social event this year. We all had a great time trying some different foods from around the world and enjoying the company of fellow space aficionados.

Yes, Bonnie, you can take the glass balls out of the bottles !



Look up tonight at Orion's left shoulder. That reddish star is Betelgeuse—and you're watching a dying giant that could explode at any moment, or maybe it already has.

Betelgeuse is a red supergiant located roughly 650 light-years away in the constellation Orion. It's one of the largest stars known to astronomy. If you placed Betelgeuse where our Sun is, its outer atmosphere would extend past the orbit of Mars, possibly reaching Jupiter. The star is so large that its surface would engulf Mercury, Venus, Earth, and Mars entirely. And yet, despite its immense size, Betelgeuse is dying.

Stars like Betelgeuse don't age like our Sun. Our Sun is a stable middle-aged star that will burn hydrogen in its core for another five billion years before swelling into a red giant and eventually shedding its outer layers to become a white dwarf. Betelgeuse has already passed through those stages. It was born as a massive blue star roughly 10 million years ago—young by cosmic standards, but massive stars burn fast and die young. Betelgeuse exhausted its core hydrogen millions of years ago and has been fusing heavier elements ever since: helium into carbon, carbon into oxygen, oxygen into neon, neon into magnesium, and now silicon into iron.

Iron is the endpoint. When a star's core fills with iron, fusion stops. Iron fusion doesn't release energy—it consumes energy. Once the core becomes iron, there's no outward pressure to counteract gravity. The core collapses in less than a second, rebounds in a catastrophic shockwave, and the star explodes as a supernova. For Betelgeuse, that moment could come tomorrow, or it could come a hundred thousand years from now. Astronomically speaking, both timescales are essentially "now."

When Betelgeuse explodes, it will be spectacular. The supernova will briefly outshine the entire galaxy, releasing in a few weeks more energy than our Sun will produce in its entire 10-billion-year lifetime. From Earth, 650 light-years away, Betelgeuse will become as bright as the full Moon, visible in broad daylight for weeks or even months. It will cast shadows at night. It will dominate the sky, brighter than Venus, brighter than Jupiter, a brilliant point of light that appears suddenly where Orion's shoulder used to be.

But you won't have advance warning. Supernovae don't announce themselves. The core collapse happens deep inside the star, and the light from that collapse takes hours to propagate outward through the star's massive envelope. By the time the shockwave breaks through the surface and the star begins to brighten, the explosion is already underway. The light you'll see—the sudden brightening—will have left Betelgeuse 650 years ago, during the late 1300s on Earth, around the time of the Black Plague. The explosion could have already happened, and the light is still traveling toward us. Or it could happen tomorrow. Or in 100,000 years. Astronomers can't predict it with precision, because the final stages of massive star evolution are chaotic and not fully understood.

In late 2019 and early 2020, Betelgeuse dimmed dramatically—dropping to about 40 percent of its normal brightness—and speculation exploded across astronomy communities and social media. Was this the precursor to supernova? Was Betelgeuse finally going? The dimming was real, visible even to the naked eye, and it generated headlines worldwide. But the star didn't explode. Instead, it recovered. Follow-up studies using telescopes revealed that Betelgeuse had likely ejected a massive cloud of gas and dust that temporarily blocked our view of part of the star's surface. The dimming was a surface event, not a core collapse. Betelgeuse returned to normal brightness by mid-2020, and it's still there tonight, pulsing red and brilliant above Orion's Belt.

That dimming event was a reminder of how dynamic and unpredictable dying stars can be. Betelgeuse is a variable star—it pulsates irregularly, swelling and shrinking over periods of weeks to months, and its brightness changes by about a factor of two even under normal conditions. It's shedding mass constantly, blowing off its outer layers in powerful stellar winds. The environment around Betelgeuse is a chaotic shell of gas, dust, and shock waves, visible in infrared images as a glowing asymmetric bubble.

When Betelgeuse does explode, it will leave behind either a neutron star or a black hole, depending on the exact mass of its core at the moment of collapse. Either way, the supernova will enrich the surrounding interstellar medium with heavy elements—carbon, oxygen, silicon, iron, and everything in between—seeding future generations of stars and planets. The iron in your blood, the calcium in your bones, the oxygen you breathe—all of it was forged inside stars like Betelgeuse and scattered across space in supernova explosions billions of years ago.

Tonight, Betelgeuse sits high in the southern sky a few hours after sunset, unmistakable as the reddish star marking Orion's left shoulder. Every photon reaching your eye tonight left that star around the year 1375, during the Ming Dynasty in China, before the printing press, before the Renaissance, before Columbus. You're seeing the star not as it is now, but as it was 650 years ago. And if it exploded last week, or last year, or 500 years ago, you wouldn't know yet. The light is still on its way.

Look up tonight. Find Orion. Locate the red star at his shoulder. And know that you're watching a star in its final act—a giant that will one day erupt, flood the sky with light, and leave behind a remnant that will endure for millions of years. You're watching a countdown that's already begun, and the only question is when the light will arrive.

New composite image of IC 2163 and NGC 2207 (Credit: X-ray: NASA/CXC/SAO; Infrared: NASA/ESA/CSA/STScI/Webb

When Galaxies Collied

Galaxies don’t exactly move with urgency. At distances measured in hundreds of thousands of light years and timescales spanning hundreds of millions of years, even a direct collision unfolds slowly. The two spiral galaxies captured in NASA’s latest composite image, IC 2163 and NGC 2207, brushed past each other millions of years ago at speeds of hundreds of kilometres per second. From our perspective, they appear frozen mid embrace, their spiral arms reaching toward one another like dancers caught in an eternal waltz.

Galaxy mergers rank among the most dramatic events in the universe, yet they proceed with counterintuitive gentleness. Despite containing hundreds of billions of stars each, these galaxies won’t experience many actual stellar collisions. Stars are simply too small and too widely spaced. The average distance between stars is so vast that if you scaled the Sun down to the size of a grain of sand, the nearest star would sit roughly four kilometres away. When galaxies merge, their stars pass through each other.

What's Up in the Sky in January

HIGH POINT SCIENTIFIC

WHAT'S IN THE SKY THIS MONTH?

Source: NASA/STSCI (S.T.A.R.S)

Jupiter at Opposition

Opposition is when a planet beyond the Earth - such as Mars, Jupiter, Saturn, Uranus, or Neptune - appears opposite the Sun in the sky. It's also when the distance between our two worlds is the smallest, making the planet appear larger and brighter than at any other time. Jupiter at opposition is an unmistakable sight - it's the brightest "star" in the night sky and, this year, it's close to the twin stars of Castor and Pollux in Gemini.

Being opposite the Sun in the sky, it'll rise at sunset and set at sunrise, giving you the entire night to observe the planet. Binoculars will show its four largest moons as tiny points of light on either side of the planet, while even a small telescope will show dark bands in its atmosphere. Scopes with an aperture of 150mm or greater can also detect the planet's famous Great Red Spot, an Earth-sized hurricane that has raged through the atmosphere for at least 400 years!

OUR NEAREST NEIGHBORS

It's a quiet start to the year, with two of the brighter planets - **Venus** and **Mars** - both too close to the Sun to be visible. However, **Saturn** can be seen over the southwestern horizon in the evening, and if you wait until night falls (roughly 90 minutes after sunset), you can use binoculars or a telescope to spot faint **Neptune** nearby. They're drawing closer together and will both fit within the same 10x50 binocular field of view. Be sure to take a look, as Neptune may be too close to the Sun to be seen by the end of the month - and they won't be this close again for nearly 70 years! Look out for a waxing crescent **Moon** close to Saturn on the 22nd and 23rd. Similarly, **Uranus** remains within the same 10x50 binocular field of view as the Pleiades throughout January, and **Jupiter** reaches opposition on the 10th. Keen-sighted early risers can catch **Mercury** very low over the southeastern horizon at around 15 minutes before sunrise, but only for the first few days of the month. Lastly, there's a full Wolf **Moon** in Gemini on the 3rd, and then a new Moon on the 18th.

The Quadrantid Meteor Shower: The Quadrantids have a very short maximum that only lasts a few hours. This year, it's predicted to peak at 7:34 PM ET on January 3rd, long before the radiant rises above the horizon for North American observers.

M41 - Aristotle's Cluster: Binoculars will show a tiny hazy patch, while a telescope at low power reveals a multitude of blue-white stars of almost equal brightness. Look for a brighter pair, one of which is orange.

Castor: Castor is one of the twin stars in Gemini, with the other star being Pollux. This star is composed of three pairs of stars, and one pair is easily seen with a telescope. Use an eyepiece that produces a magnification close to 100x to see a pair of white stars of almost equal brightness.

The Rosette Nebula: To see the Rosette with a telescope, you'll most likely need dark skies, a scope with a minimum aperture of 150mm, and a UHC or H-alpha filter. However, this is an excellent target for a smart telescope, regardless of your location - just be prepared for a long exposure time and then potentially processing the image to bring out the best.

NGC 2237 - The Rosette Nebula

Source: Jean Dean

LOOKING BACK

In January 1803, the German-British astronomer William Herschel turned his telescope toward Castor, long regarded as a single star in Gemini, and discovered it was actually a binary system. Before Herschel's observations, most astronomers assumed that double stars were merely optical pairs, with no physical connection, but his careful measurements revealed that some were truly gravitationally bound. This discovery challenged existing views and marked one of the first confirmations of stellar companionship. Herschel's work not only reshaped our understanding of Castor itself, but also demonstrated that stars could form true binary systems, literally changing our view of multiple stars forever.

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 **Dell Vance, Membership Coordinator** at avteam.dell@gmail.com.