Roanoke Valley Astronomical Society

Amateur Astronomy News and Views
In Southwestern Virginia

Volume 43—Number 3 **March 2026**

RVAS February Meeting Summary

Pop, Boom, Fizz: The Strange World of Cryovolcanoes!

Our Feb meeting had 28 attendees (see below) and was recorded with a duration of 01:18:17
https://us06web.zoom.us/rec/share/NO8hl8bRj2Oam0oKWZMw2M2UsYjtAjr_amcbMQJbgmpcko0dw2fvgFkEWNcemFf0.s3p8X55QsQNmtMSl Passcode: UMqC?7+*

In-person attendees (14)

Michael Good, Bill Dillon, Harry Kessler, Diana Anderson (guest), Ed Dixon, Tom Cerul, Rand Bowden, Brian Moreira, Edwin White, Murphy Griffin (guest), Hetzal Hartley, Mallory White, Bill Kraus, Bill Savage

Zoom attendees (14)

Caleb White, Caitlin Ahrens (speaker), Michael Hutkin, Brian Bone, Brian Jalbert, David Thaler, Genevieve Goss, Gordon Daniel (guest), Greg Shaffer, John Goss, John Wenskovitch (2nd speaker), Mattox J., Michael Martin, Robert Cap

After our usual 7pm in-person and zoom meet and greet, the meeting started at 7:34pm.

Michael discussed our March meeting (Dr. Ed Dixon), which will be held on March 16. The subject will be:

Astrophotography - Things that make it go better. Ed will talk about taking pictures of the sky and the tools, steps, and processes that can yield better results.

Cry-Volcanism

Our main speaker was **Dr. Caitlin Ahrens**, who has a B.S. in Astrophysics and Geology from West Virginia University, and a Ph.D. in Space and Planetary Science from the University of Arkansas. Caitlin is an assistant research scientist from the University of Maryland working at NASA Goddard Space Flight Center.

Caitlin introduced her topic: **Pop, Boom, Fizz: The Strange World of Cryovolcanoes!**

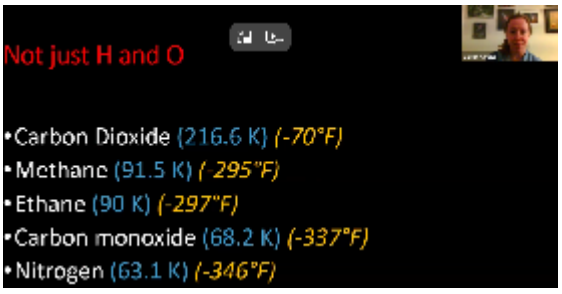
Her first task was to compare our traditional lava volcanoes with cryovolcanoes. She referenced the wide variety of earth-based volcanoes. One differentiation is Effusive versus Explosive:

Explosive: High-viscosity magma (sticky), which resists gas pressure
Effusive: Low-viscosity (watery) with little resistance (seeps and leaks)

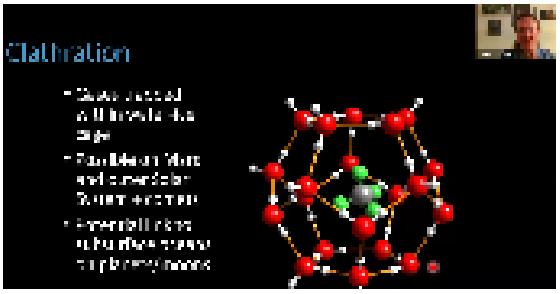
Showed examples of mud volcanoes on Mars versus on earth. Talked about the Frost Line and how it affects the chemistry. The frost line can talk about where H2O freezes, or where CH4 (Methane) freezes, and the ice structures that result. Methane freezes at the Uranus/Neptune distance from our sun, acting hard as rock.

There are 19 (NINETEEN!) different crystalline types of H2O! The internal structure changes with different pressures and temperatures. Caitlin described these as different "yoga" positions of the atoms.

The different freezing points of Carbon Dioxide, Methane, Ethane, Carbon Monoxide, and Nitrogen come in to play as we get to colder locations in our solar system. These different elements and their compounds can create cryo-volcanoes.



Our next new word is "**Clathration**": a water ice cage trapping other gases inside them. These can be formed on earth as well, especially inside under ice gas pipelines.



Tholins (coined by Carl Sagan) suggested a methane organic (not found on earth), but on icy bodies such as Titan and Pluto. Caitlin describes these as sun-burned ice, where UV irradiation strikes the ice and upper atmospheres, ripping apart the ice leading to organic compounds which fall like snow onto the mountaintops of Pluto and Titan.

Caitlin took us on a journey of ice volcanoes, warning there was no exact definition for cryovolcanoes. These are structures that look like volcanoes and spew melted ices. These can also create cryo-lava.

We began our tour.

Europa – geyser evidence from Europa, with upcoming Europa-clipper spacecraft. Despite appearing reddish, Caitlin explained this is NOT from tholins but from salt. Showed us salt domes (1 or 2 kilometers in size).

Enceladus – active ocean moon. Mostly in southern hemisphere: "tiger stripes" (sulky). Long geyser vents that classify as a cryo-volcano. Showed Cassini image of the venting. Cassini flew through the geyser. The temperature/salinity was a great match with our oceans on earth.

Titan – only moon with a thick atmosphere, with higher surface pressure (1.5 bars) compared to earth (1 bar).

Triton – Orbiting Neptune, 1979 was our last look from Voyager fly-by. "Cantelope" terrain. Basins of smooth material with vents (no full-size mountain required) sending out cryo-lava (carbon dioxide and nitrogen). Southern part of Triton: black streaks. Decided these are geysers with a wind pattern (Triton has exo-sphere transient atmosphere). Also seen on Mars.

Pluto – weird geology. Flyby by New Horizons in 2015. Southern hemisphere: Wright (2 mi high) and Piccard Mons (3.5 mi high) are both cryo-volcano candidates. Vents with knobby material (cryo lava). North of these is a caldera called Hekla Cavus. Caitlin described the caldera that formed on Mt St Helens after it's eruption. Showed Kiladze as another possible caldera (based on chemistry/morphology, to distinguish from an impact). Ammonia acts like a salt at these planets.

Next discussed upcoming missions (Davinci+ for Venus and Veritas), Lunar-VISE for our moon, Europa clipper is an orbiter, Dragonfly (!) octo-copter drone size of a small car bouncing around the surface of Titan. Passing design reviews, looking at chemistry on Titan.

Dr. Ahrens ended with a slide on upcoming research questions.

Caitlin's talk provoked 14 minutes of excellent questions from our club. Watch the video to catch them all! (such as geysers on Mars being nitrogen outgassing, only leaving tiny circles on the surface).

We thanked Caitlin for a very complete and spirited presentation to our club.

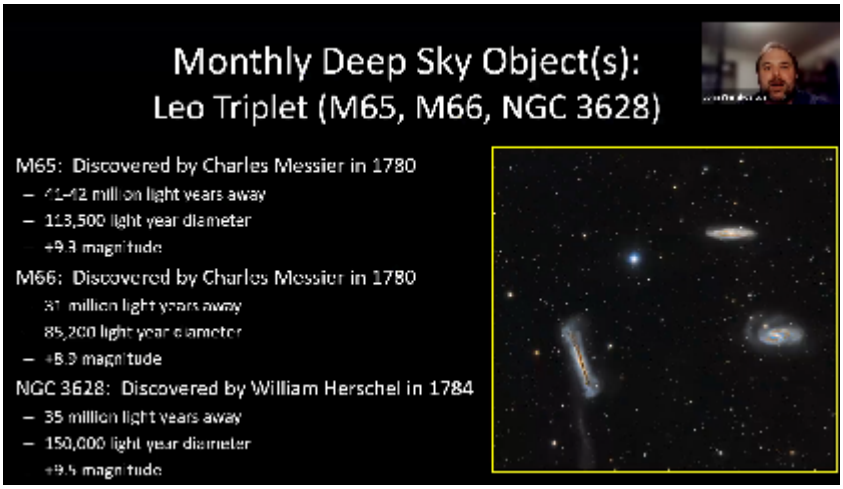
What's Up

Next up was our own **Dr. John Wenskovitch**, presenting

“What’s Up? Highlighting the Night Sky
February 16, 2026 through March 16, 2026

Please reference John’s excellent recap as a separate article below. John highlighted several celestial events. Events include the Feb 27 opposition of the asteroid (7) Iris, a total lunar eclipse for 5:30am on March 3, a Saturday March 7 opposition with Saturn-Venus-Neptune, and the Gamma Normid meteor shower on March 15. This is a slow rate (5/hour) shower but coming from the horizon could make for an interesting (horizon to horizon) fireball if one occurs.

John’s selected **monthly deep sky object** is the Leo triplet.



John’s selected **Astronomical League Program** of the month is the Lunar Observing Program. Who knew about the Woman in the moon, the Cow Jumping over the moon, the Lion in the Moon, the Crab in the Moon, the Rabbit in the moon, the Man carrying sticks in the moon, the Frog in the moon, and on and on. Aaah astronomers – so much time to contemplate our earth’s moon.

Club Astrophotos

Please reference links to the Facebook page, starting with Caleb White’s pretty aurora image on Jan 19. Caleb described his technique in capturing this pretty image. Michael noted that most of our astrophotographers were not in attendance because our meeting fell on a CLEAR, MOONLESS night and they were out capturing photons!

Astronomical League

With thanks to Genevieve Goss for highlighting this, our monthly February 2026 Astronomical League newsletter can be found here:

https://www.astroleague.org/wp-content/uploads/2026/02/Whats-Up-with-Astro-League-February-10-2026.pdf

Of particular interest might be the **ALCON 2026 convention** being hosted within driving distance by the Cincinnati Astronomical Society, being held in **Covington Kentucky** at the Marriott Rivercenter, a hotel that looks out across the Ohio river into downtown Cincinnati. This is Aug 12-15, 2026.

Then on **Friday March 6, 2026 at 7pm EST**, you can go online to www.facebook.com/Astronomical.League and listen to our own **John Goss** present "In Celebration of Global Astronomy Month: Project and Activities from your Astronomical League", as shown in this flyer:

Annual TriStar Convention now on April 11

Many of us from RVAS drive south to the Greensboro area to attend the annual TriStar convention. This is held at the Guildford Technical Community College in the Koury Auditorium, in Jamestown North Carolina near Greensboro. In past years this has been NOW (first weekend in March), but starting this year and going forward, the convention is moved into April (April 11 this year).

URL: TriStar 2026

Doors open at 8:30, with the first speaker at 9:30am.

This year's speakers are as follows:

- Charlotte Wood (NC A&T)-- Nancy Roman Space Telescope
- Joe Heafner -- Imaging with Unistellar telescopes
- Hank Corbett (UNC-CH)-- Argus Array Update
- Doug Lively/Mike Keefe (NASA Ambassadors)-- Back to the Moon: NASA's Artemis Program

Annual Kite Festival in Salem Virginia - April 18

As long as we are blocking out April, please know that Nancy Vogelaar conversed with her fellow RVAS Executive Committee and we all agreed to sign up again for the annual Kite Festival, on Saturday April 18, from 10am-3pm. This is an outreach event where we have had great public interest and club volunteerism including solar observing. More on that later.

What's Up? Highlights

March 1 to 31, 2026

As the month of March begins, Venus and Mercury are visible in the evening twilight, Mars is nearly invisible in the morning sky, Jupiter continues to be an excellent view throughout the night, Uranus lingers near the Pleiades, and Saturn and Neptune are still visible but close to being lost in the evening sky. By the end of the month, Mercury, Saturn, and Neptune have all shifted to the morning sky, Venus still shines brightly in the evening, and the status of Jupiter and Uranus remains nearly unchanged (partly as a result of the spring time change). The Moon opens the month with a total lunar eclipse in the morning of the 3rd, setting during totality in Roanoke. This will be the last total eclipse until December 31, 2028 / January 1, 2029 (which will be primarily visible from Asia), so it's worth waking up early for it! The winter and spring constellations split the evening sky, with the galaxy clusters in Coma Berenices and Virgo coming into view, a perfect time to take on that challenging piece of the Messier Program with the Astronomical League. T CrB will still be a morning sky object for the month. Near the end of the month, look to the evening twilight to see if you can spot the brightening Comet C/2025 R3 (PanSTARRS)!

Celestial Events:

- March 3: Total lunar eclipse (early morning)
- March 7: Venus / Saturn / Neptune conjunction
- March 15: Gamma Normid meteor shower peak
- March 20: Spring Equinox (10:46am)
- March 22: Neptune solar conjunction
- March 25: Saturn solar conjunction
- March 26: Moon near Jupiter

Sunset and Twilight:

- Sunset ranges from 6:14pm (1st) to 7:41pm (31st)
- Evening twilight ends from 7:41pm (1st) to 9:10pm (31st)

Lunar Phases and Apsides:

- Full Moon: March 3, 6:39am
- Last Quarter: March 11, 5:41am
- Apogee: March 10, 9:43am (251,273 miles)
- New Moon: March 18, 9:26pm
- Perigee: March 22, 7:43am (227,956 miles)
- First Quarter: March 25, 3:19pm

The Roanoke Valley Astronomical Society is a membership organization of amateur astronomers dedicated to the pursuit of observational and photographic astronomical activities. **Meetings are held at 7:30 p.m. on the third Monday of each month. We meet at the VWCC STEM building ST314. Directions are below. Meetings are open to the public.** Observing sessions may be held, weather and sky conditions permitting, at a dark-sky site. For information regarding joining RVAS, including annual dues, click here. Articles, quotes, etc. published in the newsletter do not necessarily reflect the views of the RVAS or its editor.

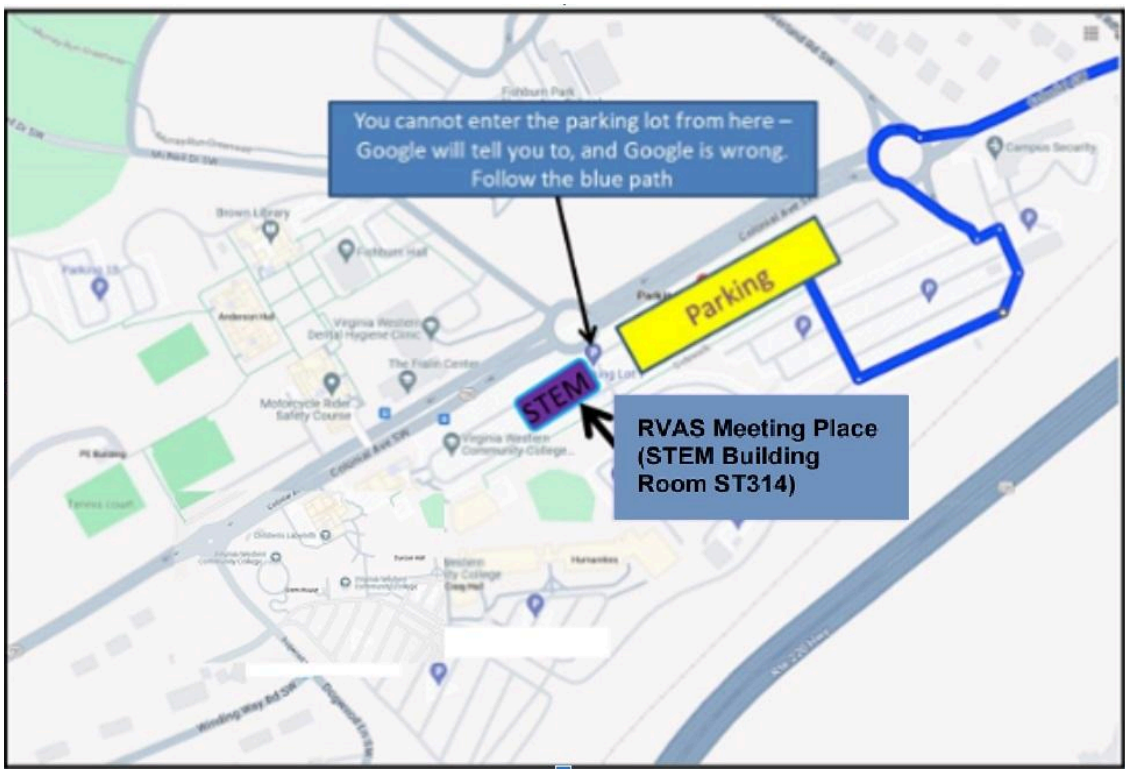
Officers/Executive Committee/Editor/Webmaster

Michael Good, President (president@rvasclub.org)
William Krause, Vice President (vicepresident@rvasclub.org)
Erin Elliott, Secretary (secretary@rvasclub.org)
Brian Bone, Treasurer (acting) (treasurer@rvasclub.org)
Nancy Vogelaar, Officer at Large #1 (officeratlarge1@rvasclub.org)
Caleb White, Officer at Large #2 (officeratlarge2@rvasclub.org)
Michael Hutkin, Past President (pastpresident@rvasclub.org)
Ed Dixon, Newsletter Editor (newsletter@rvasclub.org)
Ed Dixon, Webmaster (webmaster@rvasclub.org)

Directions to RVAS Meeting Location

Virginia Western Community College STEM Building, Room ST314
3094 Colonial Ave SW, Roanoke, VA 24015

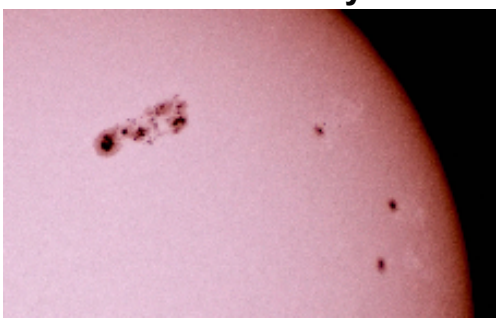
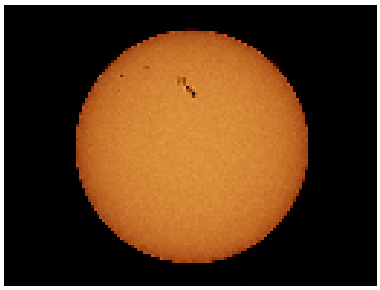
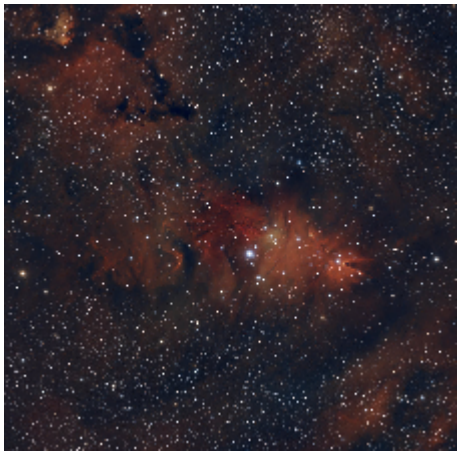
VWCC is located in the southwestern area of the City of Roanoke. The STEM Building is accessed via the roundabout at Overland Drive and Colonial Avenue, near Campus Security at the top right of the map. The STEM Building is at the opposite end of the Colonial parking lot from Campus Security. Follow the darker blue path from the roundabout and park anywhere in the lot.



Note: Google provides incorrect guidance to access the parking lot from the roundabout at McNeill Drive. That roundabout **does not** provide an entrance to the parking lot.

February 2026

Ctrl- Click on the picture see the source file and additional information

David Thomas 	**Hetzal Hartley** 
David Thomas 	**David Thomas** 
Michael Good 	**David Thomas** 
Noah Winslow 	**Noah Winslow** 

Noah Winslow

Ed Dixon

Ben Hartman

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