



Roanoke Valley Astronomical Society

Amateur Astronomy News and Views
In Southwestern Virginia



Volume 41—Number 2

February 2024

RVAS January Meeting Notes

NASA'S Webb Telescope – The First Year

By **Erin Elliott, Secretary**

The Celestial Café was opened at 7:00 pm by **President Mike Hutkin**. The Celestial Café is always a fun and engaging time where members and officers can catch up and tonight was no different. Members and officers spoke about various topics within astronomy, astrophotography, and big updates in their personal lives.

At 7:30, the Café closed and Mike, along with our Membership Coordinator, **Frank Baratta**, welcomed members and guests to the January meeting. To begin, Mike presented the evening's agenda.

A big thank you to **Mark Hodges** for bringing donuts and cookies to share at the meeting.

Attendance: There were 42 members and 5 guests in attendance at this month's meeting. 19 were in person and 28 attended virtually.



John Goss on volunteerism – Mike Hutkin photo

Astrophotography: We thank **Tom Cerul, Ed Dixon, Harry Kessler, and Dave Thomas** for providing their work this month. We had a variety of images focusing on near and deep sky objects.

To provide each image with the focus it deserves, we are sharing the submissions in a separate article in this newsletter. Do not miss checking out the rest of these images.



M78 – Harry Kessler photo

- You feel like you belong to something greater by sharing Astronomy with the Roanoke area.

What's Up?: Before turning to our program for the evening, Mike asked **Frank Baratta** for his “What's Up?” program on what the skies of February have in store for us. Frank's “What's Up? Highlights” in this issue provide a summary of program. His PowerPoint can be viewed by [clicking here](#). The recording of the program is available by [clicking here](#).

Member Observation Reports: **John Goss** shared that he has been working on a project with the Astronomical League on determining the color of the Moon. To do this, he grabbed paint chips from Lowe's in different shades of pale colors. He then held them against white paper in the reflection of the moonlight to see which chip shade matched best. Humorously enough, the chip that made the cut was a cool white shade in the blue family titled “Moonbeam.”



In-person attendees – Mike Hutkin photo

Volunteering: **John Goss** shared a moment on volunteerism focusing on debunking some of the reasons why people do not get involved in club leadership. This year is **Mike Hutkin's** final part of his two-year presidential term, and there will be officer elections in the spring. You can find a video of his talk by [clicking here](#). Here are some of the key details John shared on volunteering and club leadership:

- That volunteers are vital to the club.
- There is no need to be intimidated by a position.
- Tasks cannot be too time-consuming in a hobby club.
- Agreeing to something does not mean that you will be doing it forever.

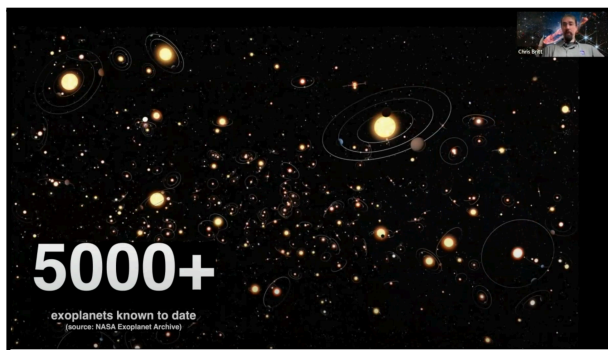
He also shared some of the reasons why past leadership enjoyed volunteering:

- Camaraderie with fellow Executive Committee members.
- Builds confidence and helps you learn something new.

NASA'S Webb Telescope – The First Year: **Dr. Chris Britt** of the Space Telescope Science Institute returned to RVAS and brought us up to date on findings from the first year of NASA's James Webb Space Telescope. Dr. Britt spoke to RVAS in June 2022 about the Webb before it was officially launched. You can find a recording of the program by [clicking here](#). Here are the topics that Dr. Britt covered in his presentation:

- The beginning of the universe and the story of us: how did we get from hydrogen and helium molecules to more complex molecules.
- The origin of elements with a focus on the origins from stars
- Reaching back in time to the distant galaxy Maisie's Galaxy.
- The use of deep fields to construct the history of galaxies over time.
- A look at JADES field and the deepest image of the universe taken to date.

- How spectroscopy is used to measure galaxies.
- The shape of spectral lines can reveal black holes in the centers of galaxies and how Webb's data compares to previously collected data.
- Leveraging images from multiple telescopes to compare what is known to what is being discovered.
- JWST early black holes are more massive compared to their galaxies than local black holes.
- Extremely distant galaxies in Pandora's Cluster.
- How Webb has worked to determine if supernovae produce dust in the long term.
- Never-before-seen details in supernova remnant.
- Webb discovers ice in a dark cloud, which is a big milestone for star and planet formation.
- The difference between images of visible light with Hubble compared to near-infrared and mid-infrared with Webb.
- Exploring objects in our galaxy, like L1527 in near-infrared light.



5,000+ exoplanets – Zoom Screenshot

- Dusty disk in Fomalhaut with comparison of Webb mid-infrared versus ALMA sub-mm radio.
- Water in the inner disk of PDS 70, a Main-Belt Comet, geysers of Enceladus.
- We now know there are more than 5,000 exoplanets known to date.

- Challenges for habitability and formation of strange worlds.
- How transit spectroscopy is used in these findings, like with GJ 486b.
- Secondary eclipses and how temperature comes into effect.
- Trappist-1 b and studying the atmosphere.
- K2-18b and finding the missing methane.
- How oxygen locked up in tiny quartz crystals in the atmosphere of hot gas giant exoplanet WASP-17b.
- Jupiter's equatorial jet stream and the study of the planet's winds.
- Ices found on Jupiter's moon Europa and how Webb has mapped out its signatures of carbon.



Member Outreach Committee: RVAS has a busy start to 2024 with outreach opportunities! **Mike Hutkin** spoke to the Kiwanis of Roanoke on January 3, 2024. He shared a presentation on the upcoming Astronomy highlights of 2024.

Erin Elliott has been leading an Astronomy class with a group of 14 middle schoolers at Community School with the help of RVAS members. The students have been working on a constellation art project, which also includes students learning when and where their chosen constellations can be viewed. **Ed Dixon** came to the class and discussed his astrophotography gear, shared images with the

students, and helped them view and take images of the Sun with his Seestar S50. **Mike Hutkin** shared an engaging presentation on the Planets and Moons of the Solar System. Upcoming talks to students by RVAS members include: **Rand Bowden** (how telescopes work); **Mark Hodges** and **Mike Hutkin** (the Sun); and **Bill Savage** (making a viewing device for the April solar eclipse).

On January 17, **John Goss** did a webinar via Facebook on 2024's Most Fascinating Events as seen with the help of the Library Telescope.

There are more upcoming outreach events on the horizon, which include the following:

- February 6, 2024: Astronomy 101 Workshop at Franklin County Parks and Recreation
- February 7, 2024: A presentation on the Planets at Moons of our Solar System at East Salem Elementary School
- March 9, 2024: Roanoke County Parks and Rec have requested a 30 minute presentation on the basics of Astronomy and equipment use, which will be followed by an observing session
- Salem Montessori School has reached out looking for opportunities to share with students a wide variety of topics in Astronomy

It is great to see so many outreach opportunities for our club already this year!

Save the date! The RVAS Annual Picnic will be on **September 28th at Claytor Nature Center and Belk Observatory**. The picnic will run from 4:00-7:00 pm and the observing will last from 7:00-10:00 pm.

Proposed Changes to the RVAS Club

Constitution and Bylaws: There was a quick reminder to vote on the proposed changes to the RVAS Constitution and Bylaws.

- Reducing Time in Leadership for the Club President

- Adding a Person to the Executive Committee

An email was sent on January 1, 2024 with more details and a link to a Google Form to cast your vote by January 31st.

Star Parties in 2024: You asked for it! There will be 4 Star Parties in 2024. These are opportunities for members to come together and share the sky with each other. The first one will be **Saturday, February 10 at 6:00pm at Cahas Overlook**. The following parties are projected to be May 4, August 3, and November 22. Please reach out to **Mike Hutkin** at president@rvasclub.org to join RVAS' Google Group to stay up to date in communication on these events.

Next month: On February 19, 2024, we will have another Member's Potpourri with the following speakers and topics:

- **John Goss** – *The Moons of Jupiter*
- **Todd Atkins** – *Review of The Search for Planet Nine ALP Webinar*
- **Ed Dixon** – *Some New Equipment*
- **Chris Savage** – *Roanoke Planetarium*
- **Mike Hutkin** – *A few astronomical definitions*

The meeting was adjourned at 9:00 pm

BYLAWS AND CONSTITUTIONAL CHANGE

Proposed Change : The Constitution and Bylaws of the Society shall be amended to: (1) create a second “Executive Committee Member at Large” officer position, the title for both of which will be simplified to “Officer at Large,” and (2) reduce the number of former presidents serving on the Executive Committee from two to one.

Voting opened January 1, 2024 at 7:53 am

Voting closed January 31, 2024 at 11:59 pm

Approved votes 43

Disapproved vote 0

The Change is **adopted**.

Welcome Mat

The Society welcomes the following new members who have joined since the last meeting:

Diane Brzeski
Kirk, Barbara and Allison Ferrell
Mattox and Brian Jalbert
Jeff and Andrelië Reynolds
Bret, Chrystal and Ellie Shawn
Thomas (“Noah”) Winslow

Look for Welcome Mat profiles of these individual and family memberships in this and future newsletters.

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. See calendar on last page of newsletter for location. Meetings are open to the public.** Observing sessions are held one or two weekends a month 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

Mike Hutkin, President (president@rvasclub.org)

John Wenskovitch, Vice President (vicepresident@rvasclub.org)

Erin Elliott , Secretary (secretary@rvasclub.org)

Frank Baratta, Treasurer (treasurer@rvasclub.org)

Nancy Vogelaar, Member at Large (memberatlarge@rvasclub.org)

John Goss, Immediate Past President (immediatepastpresident@rvasclub.org)

Michael Martin, Past President (pastpresident@rvasclub.org)

Ed Dixon, RVAS Newsletter Editor (editor@rvasclub.org)

Erin Elliott, Webmaster (webmaster@rvasclub.org)

RVAS Member Anniversaries

Congratulations to the following members who reach the indicated number of consecutive years with the RVAS since joining or rejoining during the month of February:

Paul and Grainne Caffrey (1999) – 25 years

David Thaler (2000) – 24 years

David, Brenda and Adam Uργο (2014) – 10 years

Nancy, Bruce and Amy Vogelaar (2020) – 4 years

Nathan, Christa and Zach Bowden (2023) – 1 year

Thanks to all of you for being RVAS members!

STAR PARTY



Date: Saturday February 10

Time: 6:00 pm set up (sunset 6:01 pm)

Place: Cahas overlook MP 139 Blue ridge parkway

Moon: New (Sets 7:01 pm)

Bring your equipment and share the sky with others

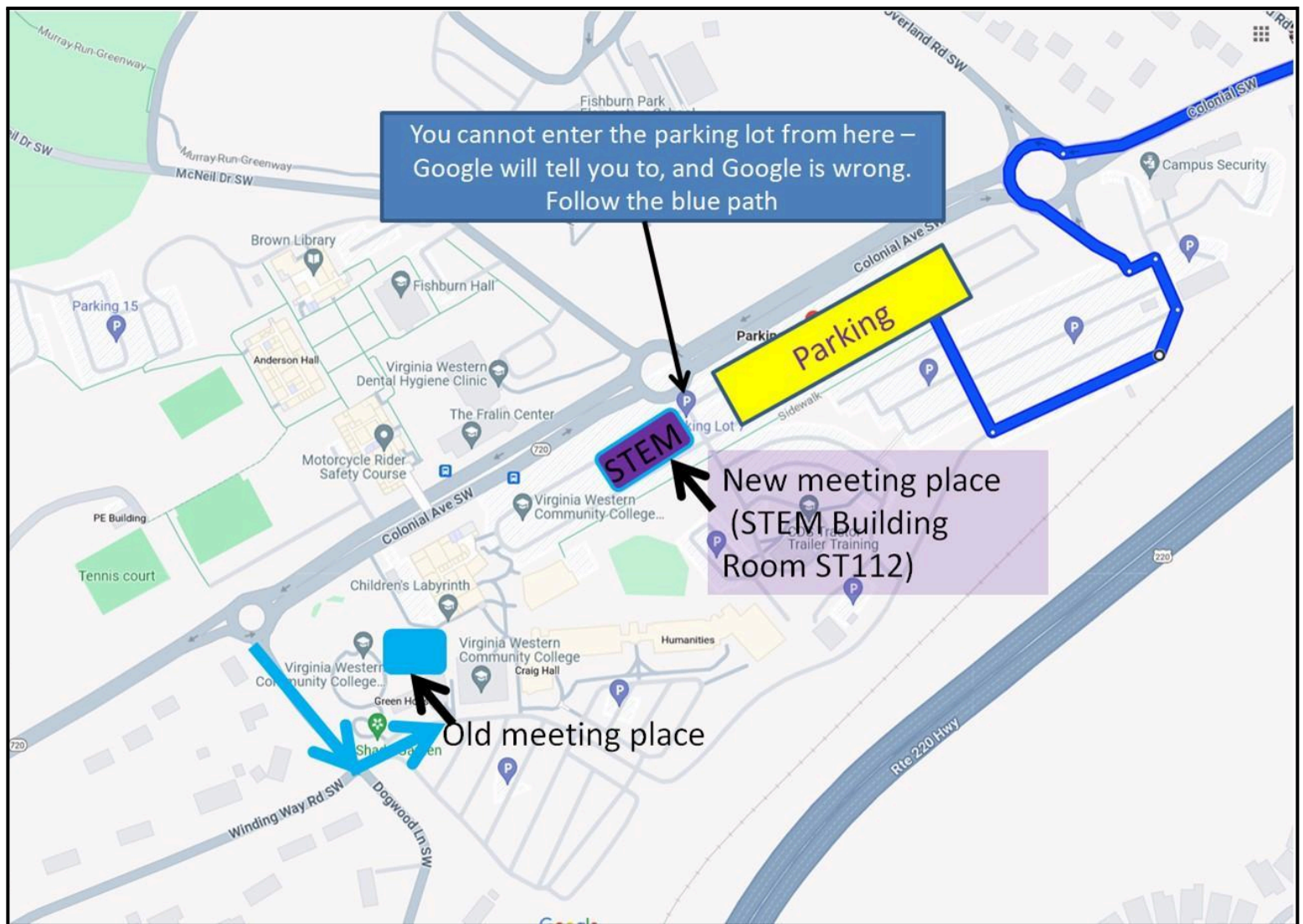
Communication on session via google group page – contact Mike at president@rvasclub.org to join the group."

RVAS Meeting Room Change

Effective for the February 19th Meeting and Thereafter
Celestial Café at 7:00 p.m.; Meeting at 7:30 p.m.

Our current room at VWCC is no longer available due to a class being held there this Spring. Thanks to RVAS member Mallory White, Assistant Professor at VWCC, we have new accommodations starting with the February 19th meeting. We will be meeting in VWCC's STEM Building, Room ST112, a larger, more modern room (like a small auditorium with desks) with the same technology. Read the following note carefully and see the map below.

Note: Using Google for directions to the STEM Building yields incorrect guidance to access the parking lot from the roundabout at McNeill Drive. That roundabout **does not** provide an entrance to the parking lot. Access to the parking lot is from the roundabout at Overland Drive and Colonial Avenue, near the Campus Security Building at the top right of the map below. Follow the darker blue path from that roundabout and park anywhere in the lot. The Stem Building is at the opposite end of the lot from Campus Security.





This article is distributed by NASA's Night Sky Network (NSN).

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

NASA's 2024 Winter Astrophoto Challenge



Join NASA's Universe of Learning for an exciting opportunity to use real astronomical data and tools to create your own images of the Crab Nebula. Use your images to explore how this dynamic dead star behaves across different types of light and how it is changing with time. Or just create an image that you think is beautiful. You can capture your own real-time telescope image using the MicroObservatory robotic telescope network. You can also work with an archival set of data files taken with multi-wavelength NASA, ESA, and CSA space telescope mission (Webb, Hubble, Chandra, and XMM-Newton).

The NASA's Astrophoto Challenge provides learners of all familiarity levels authentic experiences using real astrophysics data, including those from NASA space-based missions. Participants engage in the scientific practices of a scientist through accessible data tools and experiences while they create and share their composite images.

The NASA's Astrophoto Challenge includes instructions on how to turn the data into beautiful composite images with a simple and free web-based image processing tool used by professional astronomers. The JS9 image processing tool is widely used by the astronomical community to process and analyze the data from the world's premiere research telescopes. NASA's Astrophoto Challenge uses a version of this tool, JS9-4L, developed for learners.

The challenge also features a short video by professional astronomers. These subject matter experts provide science content knowledge of the Crab Nebula as observed over time and across the

electromagnetic spectrum. Submit your creations to the challenges and they may be highlighted as standout entries commented on by scientists.

Join the NASA's Astrophoto Challenge,
here: <https://mo-www.cfa.harvard.edu/OWN/astrophoto>

The challenge is open December 18, 2023 - February 29, 2024

You can also learn more about other opportunities to discover the universe for yourselves at NASA's Universe of Learning: <https://www.universe-of-learning.org/>



Galileo Observing Program

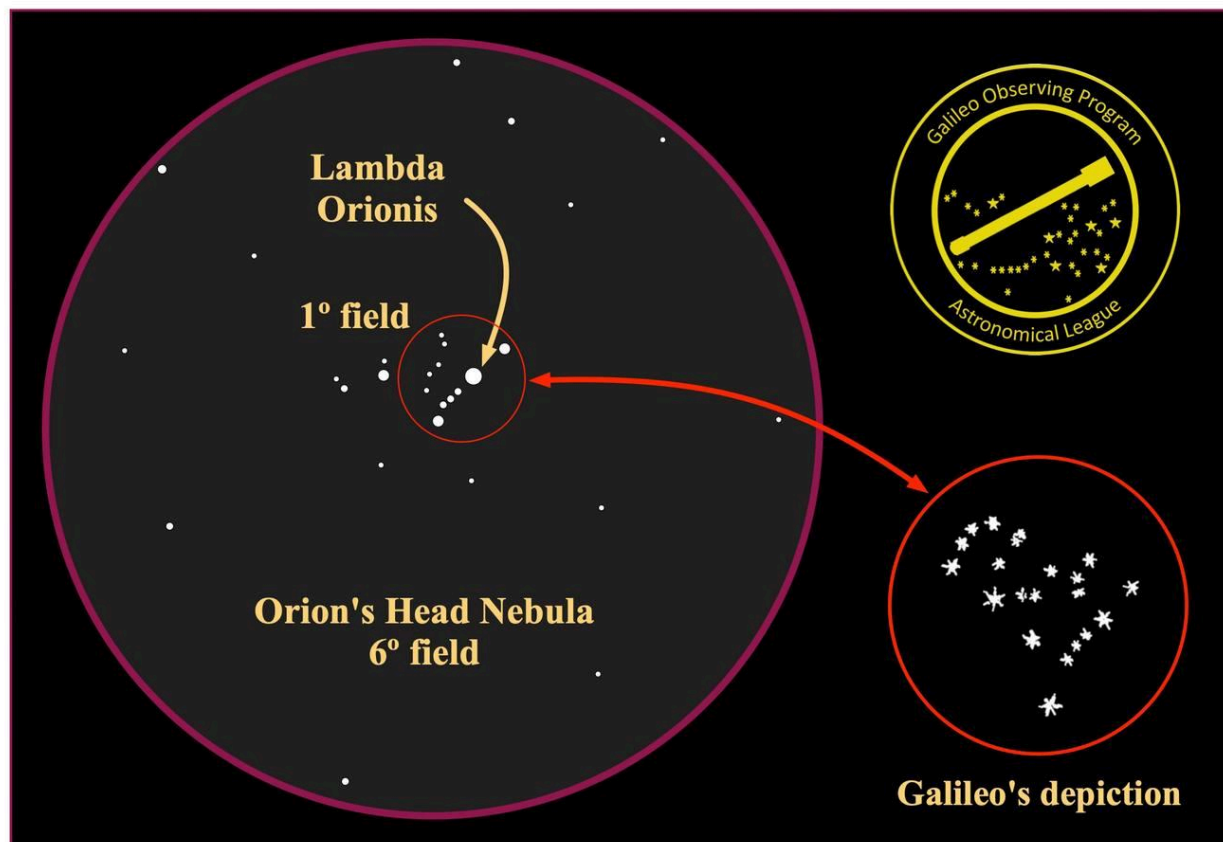
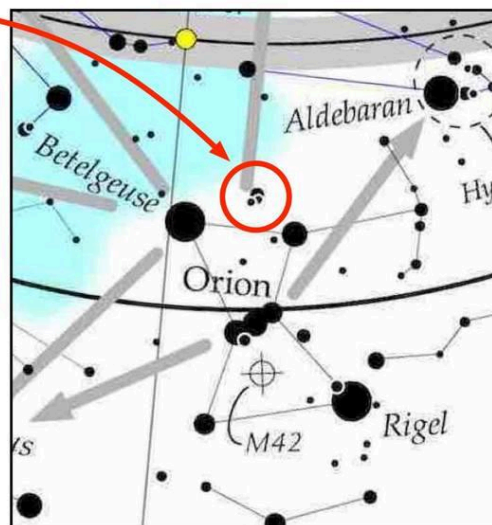
Activity No. 5: Orion's Head Nebula



1610 – Orion's Head Nebula

The objective is to show that there are more stars visible through binoculars or a small telescope than there are with the naked-eye. Observe and sketch the region at the head of Orion (the star is called Lambda Orionis or Meissa). You will note that what looks like 1 star as seen with the unaided eye is actually 3 brighter stars and many lesser ones.

Sketch what you see. Galileo was able to see 20 in a region about 2 degrees across.



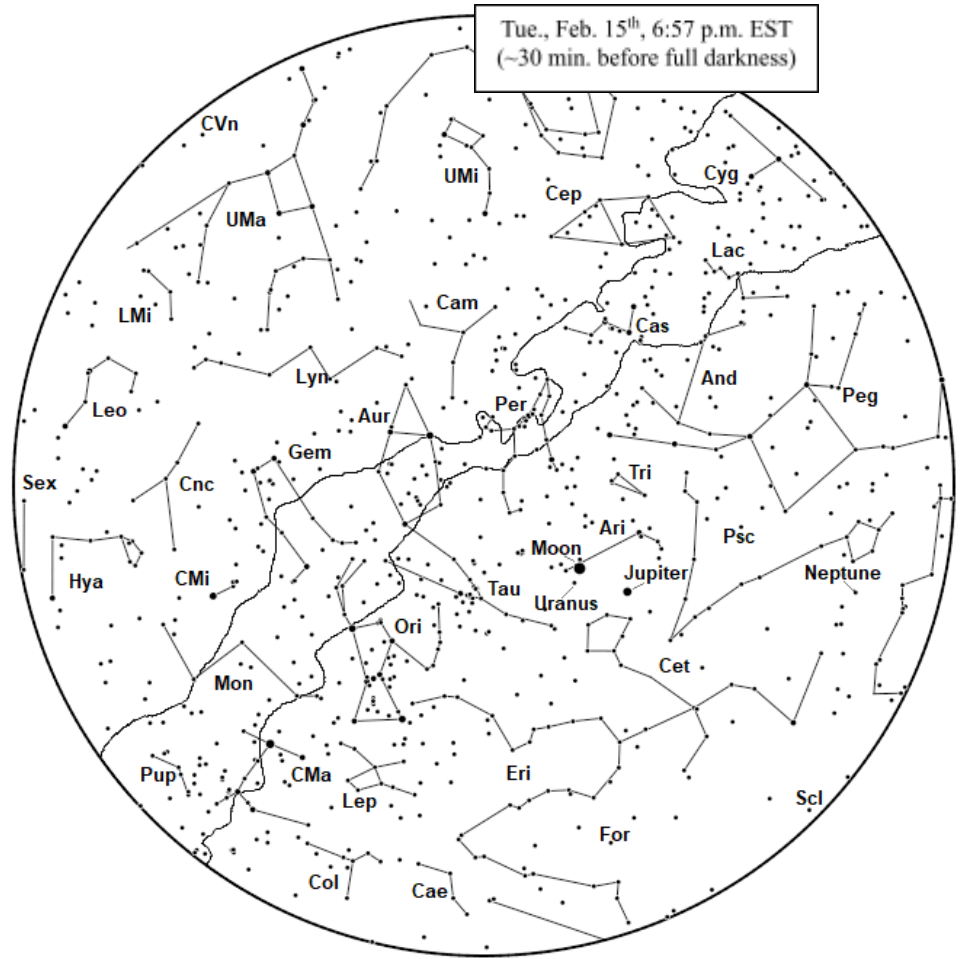
What's Up? Highlights

February 1 to 29, 2024

(From the program presented at the January 22, 2024, meeting. Click [here](#) for the PowerPoint and [here](#) for the video.)

This Month:

And then there were three. For months we've been enjoying having Jupiter, Saturn, Uranus and Neptune all in the evening sky for viewing. But all things come to an end. In this case it's the departure of Saturn from the pack. On the first of the month, it's just barely above the western horizon as twilight ends; by month's end, however, it sets well before full darkness arrives. In compensation, we still have Jupiter and its quartet of Galilean moons, easily seen in a small telescope or binoculars, though you might need to support the latter for a steady view. This month we're also reminded of the difference of human-devised time measurements. On the 12th clocks hit noon before the Sun does. And this year February adds a leap day to keep calendars in sync with the solar year. Interestingly, our Gregorian isn't the most accurate ever introduced. The Persian calendar, introduced in the 2nd Millenium BCE is accurate to under 1 second per year. Ours? 27 seconds per year!



Celestial Events:

- Sun., 4nd – Cross-Quarter day between winter solstice and spring equinox. Spring began in Celtic and other calendars. (See also “Groundhog Day.”)
- Mon., 12th – The sun is highest in sky (solar noon) 14.23 minutes after clocks read noon. Maximum clocks ahead for 2024. (“Equation of Time”)
- Fri., 16th – Naked Eye Challenge: View the Pleiades ~2.5° west of the first quarter moon; take note of the moon's size compared to the star cluster.
- Tue., 27th – Look for the Zodiacal Light in west an hour after sunset before moonrise (9:17 p.m.). Need dark sky. Best around March equinox.
- Thu., 29th – Leap Day. (Divisible by 4, but not if exactly divisible by 100, unless exactly divisible by 400. So, 1600 and 2020 were, but 2028 isn't.)

Sunset and Twilight:

Sunset Range: 5:44 p.m. (Feb. 1st) to 6:13 p.m. (Feb. 29th)

Twilight Ends: 7:13 p.m. (Feb. 1st) to 7:40 p.m. (Feb. 29th)

Weekend Observing Opportunities: (Dark of the Moon Weekends)

Feb. 2nd/3rd

Feb. 9th/10th

Moon Phases:

Fri., 2nd – Last Quarter

Fri., 9th – New Moon

Fri., 16th – First Quarter

Sat., 24th – Full Moon

Welcome Mat



The Society bids a warm welcome to newlyweds Jeff and Andrelie Reynolds, of Roanoke County, who joined in December with a Family membership. Born in West Germany prior to unification, Jeff grew up in Abingdon, Virginia. Andrelie—“Relee” to friends—is a native of the Philippines who’s lived in the U.S. since her teens. Jeff has a B.A. in Arts in Education from VCU; remaining in Richmond thereafter, he obtained certification as an Emergency Medical Technician. Relee has a B.S. in Nursing from the Philippines Women’s University, a co-ed institution since the 1970s. A job with Carilion Clinic drew Jeff to the Roanoke area in 2020 from Austin, Texas, where he’d been living for over a decade. The Reynolds’ path to astronomy begins with Jeff’s interest, but he readily adds that Relee “is a willing partner.” She even contributed substantially to their mutual purchase of a Sky-Watcher 10-inch Truss-type Dobsonian telescope as a wedding gift! Imagine if they’d had it on their honeymoon under the dark skies of Utah’s Zion National Park! They’ve since had it out at Explore Park and Cahas Mt. Overlook and encountered focusing issues. Jeff’s looking forward to good views of Jupiter and nebulae and other deep sky objects. An internet search led the Reynolds to the RVAS, their first time joining an astronomy club. Increasing their knowledge—especially using their scope—meeting new people, observing activities and sharing experiences are priorities for the couple. Among their other interests, Jeff’s into fitness, a triathlon and marathon runner currently learning to identify birds and their songs who enjoys cooking, baking bread in particular. Relee enjoys reading and is a foodie for pastas, steaks and breads.

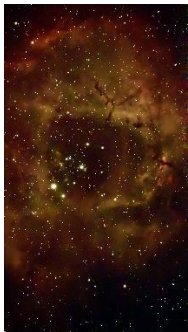




Jeff and Relee, we’re glad you’ve joined the RVAS. You’ll find members ready to share and help with those focusing issues. With club stargazes being planned quarterly, be sure to join the RVAS Google Group for notices about the upcoming sessions.

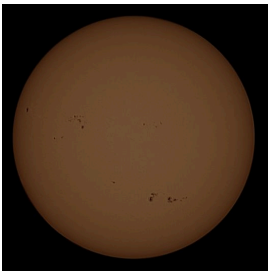
The RVAS Astro-photographers

JANUARY 2024

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

	<p>TOM CERUL</p> <p>IC 443 Jellyfish Nebula</p>
	<p>TOM CERUL</p> <p>NGC2237 Rosette Nebula</p>

	<p>ED DIXON</p> <p>NGC2237 Rosette Nebula</p>
	<p>ED DIXON</p> <p>The Orion Nebula</p>
	<p>ED DIXON</p> <p>The Moon</p>
	<p>HARRY KESSLER</p> <p>M78 is a cloud of interstellar dust located about 1,600 light years from Earth</p>
	<p>HARRY KESSLER</p> <p>The Cone Nebula, in NGC 2264 star cluster, is a long, dark interstellar pillar of gas and dust located in the constellation Monoceros.</p>

	<p style="text-align: center;">DAVE THOMAS</p> <p>Sunspots</p>
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Monthly Calendar

RVAS Monthly Meeting: Monday, February 19th, 7:30 p.m. (Informal “Celestial Café” chat session begins at 7:00 p.m.) **NOTE CHANGE IN THE MEETING LOCATION: STEM BUILDING, ROOM ST112, Virginia Western Community College, Colonial Avenue, Roanoke, VA.** The RVAS returns to its regular third-Monday meeting schedule. This month’s featured program is a member-focused potpourri, including something for everyone:

The moons of Jupiter - John Goss
A review of the webinar "The search for planet nine" - Todd Atkins
My new scope control computer - Ed Dixon
Roanoke Planetarium update - Chris Savage (director)
Astronomical measurements - Mike Hutkin

Rounding out the evening will be announcements, outreach updates, astrophotography, observing reports and What’s Up for March. Make plans to attend, in person or virtually, and watch for the Zoom invitation in the days prior to the meeting. **SEE ELSEWHERE IN THIS ISSUE FOR DETAILS REGARDING THE ROOM CHAGE AND A MEETING LOCATION MAP.**

Weekend Observing Opportunities: The following information on Fridays and Saturdays that may be suitable for observing is provided as a courtesy to RVAS members and other readers. The RVAS assumes no responsibility for the health or safety of anyone venturing out to stargaze, and cautions all who may do so to observe appropriate health and safety precautions.

- **Friday and Saturday, February 2nd & 3rd.** Sunset is at 5:46 p.m. Astronomical twilight ends at 7:15p.m. The Moon rises at 1:27 and 2:33 a.m., respectively.
- **Friday and Saturday, February 9th & 10th.** Sunset is at 5:54 p.m. Astronomical twilight ends at 7:22 p.m. The Moon sets at 5:39 and 6:57 p.m., respectively.
 - **Note: Saturday, February 10th is the first 2024 RVAS quarterly star party.** Cahas Mt. Overlook, Milepost 139 on the Blue Ridge Parkway. Set-up time: Sunset (about 6:00 p.m.)
- **Future Weekend Observing Opportunities: March 1st & 2nd; 8th & 9th; 29th and 30th.**

Astro-Quiz

While a seminal event in astronomy's development, Galileo's observations of the motions of Jupiter's moons in early January 1610 did not disprove Ptolemy's geocentric model. Rather, it was his observations later that year (unpublished until 1613) of the full series of Venus' phases that did so. What was it about Venus' phases that overturned the Ptolemaic system?

Answer to Last Month's Quiz: Last month's quiz presented a multiple choice question about a constellation well known to the ancient world yet excluded by the Egyptian astronomer Claudius Ptolemaeus (Ptolemy) around 140 A.D. in his book *Syntaxis*. We asked whether he excluded Caelum, Coma Berenices, Lacerta or Pyxis. Later known as the *Almagest*, the book was a treatise in which he proposed his mathematical model to explain and predict the motions of celestial objects. Ptolemy's list excluded Coma Berenices, because he did not recognize it as independent, considering it an asterism in the constellation Leo, representing the tuft at the end of the lion's tail. Coma Berenices finally achieved independence on the 16th century celestial globe by the cartographer Caspar Vopel. Have an answer to this month's quiz (or a future quiz question and answer to suggest)? E-mail it to treasurer@rvasclub.org!