Roanoke Valley Astronomical Society

Amateur Astronomy News and Views
In Southwestern Virginia

Volume 43—Number 9 **September 2026**

RVAS August 17 2026 Meeting Summary

Michael Good

You can watch our August meeting by selecting the following link

Duration: 01:10:14
https://vccs.zoom.us/rec/share/0W8Hf2HpOrqHjc5rOOyBBrCWfe5Y63cSvES0_WL7pA4dtBaCzpD8O4T1vmQR-OOz.aMrLFOG9E3Hah69E

In person: Mallory White, Ed Dixon, Andrew Flynn, Edwin White, Hetzal Hartley, Randy Sowden, Ben Sowden, Michael Good, Mike Hutkin, Bill Krause, John Wenskovitch (in person!), Rand Bowden

Zoom: Larry Hill, Brian Jalbert, Greg Shaffer, Ludwig Gantner, Nancy Vogelaar, rwp

Mallory opened the meeting at 7:31pm. She started out by pointing out her Virginia Tech email is down right now, and she gave mwhite@virginiawestern.edu and mallorywhitevt@gmail.com as alternate ways to contact her.

Mallory introduced the meeting agenda:

She listed the executive committee members and let each introduce themselves.

Congratulations to Caleb White, who is on his honeymoon during the meeting!

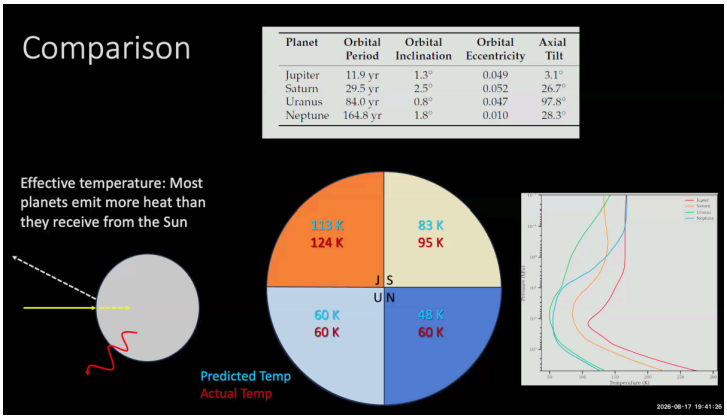
Outreach reports: Hetzal Harley reviewed the great time he and his wife had from the extremely well organized annual ALCON convention. Mallory talked about the Perseids. Michael Good spoke on a recent fireball across Washington state whose pressure wave set off multiple seismic detectors.

Our main presenter tonight: **Dr. Amy Simon**

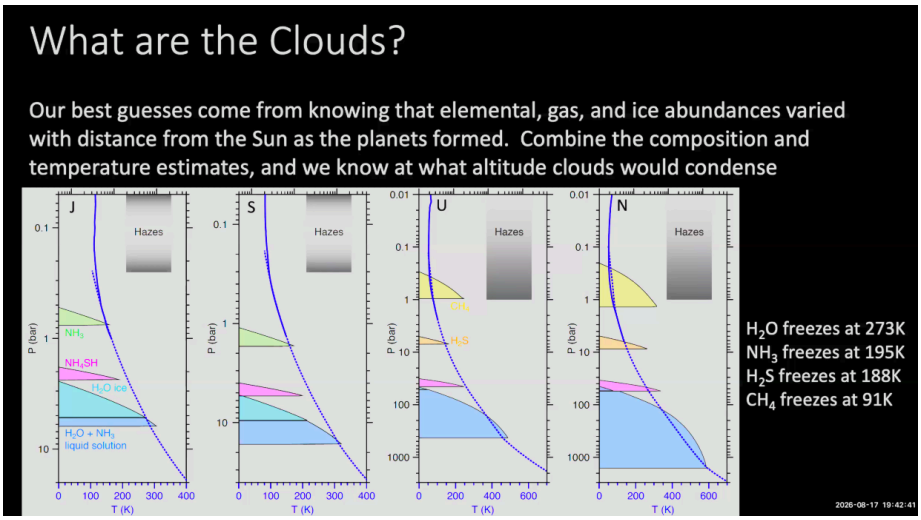
Dr. Simon explained what we can learn from observing the clouds of the planets. When we see the outer planets, we only seeing the cloud tops, though we can get clues on the following:

- Composition
- Winds, circulation, deep rotation rate
- Atmospheric stability and energy transport
- Other dynamics from large-scale atmospheric storms
- Seasonal influences.

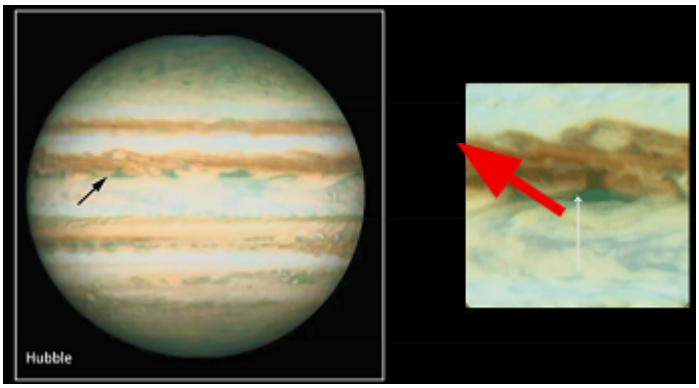
The giant planets are atmospheric laboratories for us but have different boundary conditions. Comparing the planets, the orbital dynamics (period, inclination, eccentricity, and axial tilt) affect how sunlight affects each planet. All the four outer planets give off more heat than they receive except for Uranus. Here we see this visualized including a model of the change in atmosphere with depth.



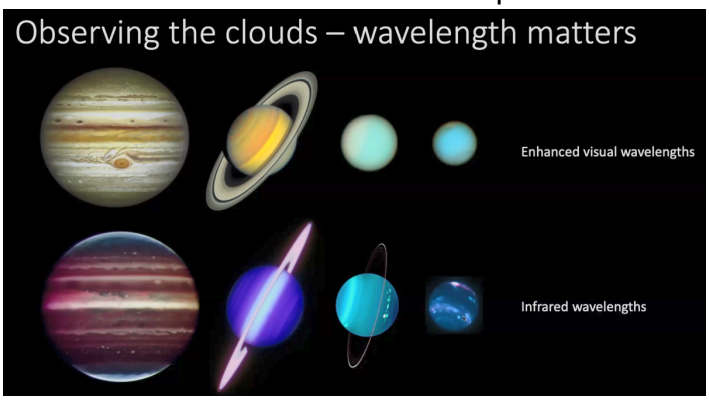
What are the clouds composed of? To answer this, you can look at when the different molecules freeze.



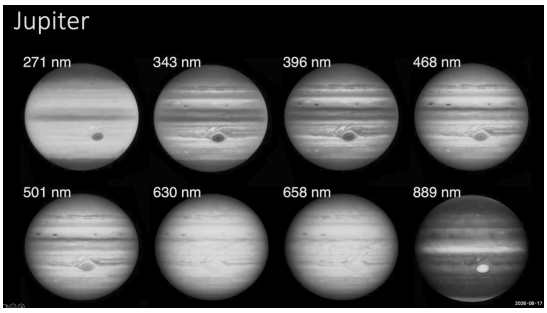
It is difficult to measure the spectral sequence of clouds. On Jupiter, only NH3 and H2O have been detected associated with upwelling (thunderstorms). An atmospheric probe was deployed with the Galileo probe on Jupiter, but unfortunately the probe went through a HOLE in the clouds (50% chance and this happened).



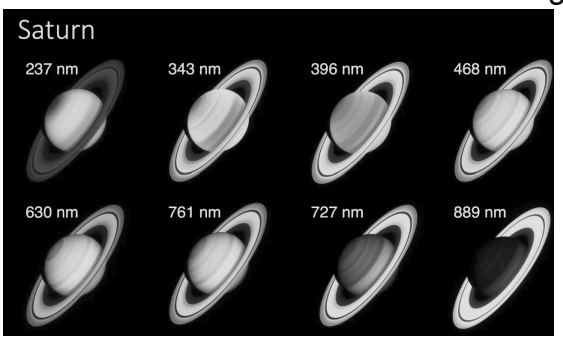
The best solution is to observe the planets in DIFFERENT WAVELENGTHS.



Here is Jupiter is different wavelengths:

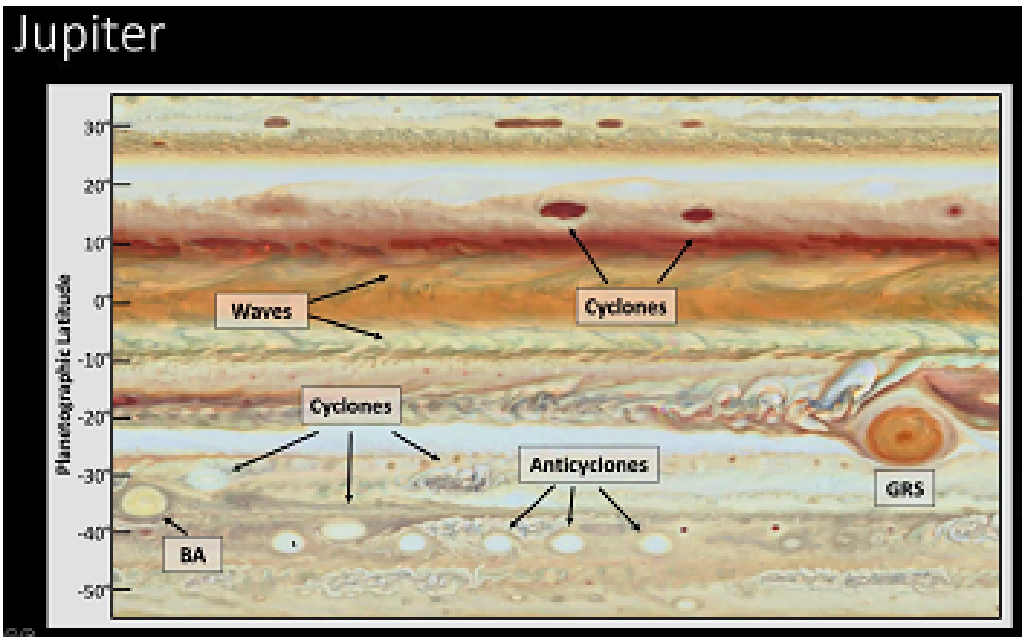


And here is Saturn in different wavelengths:



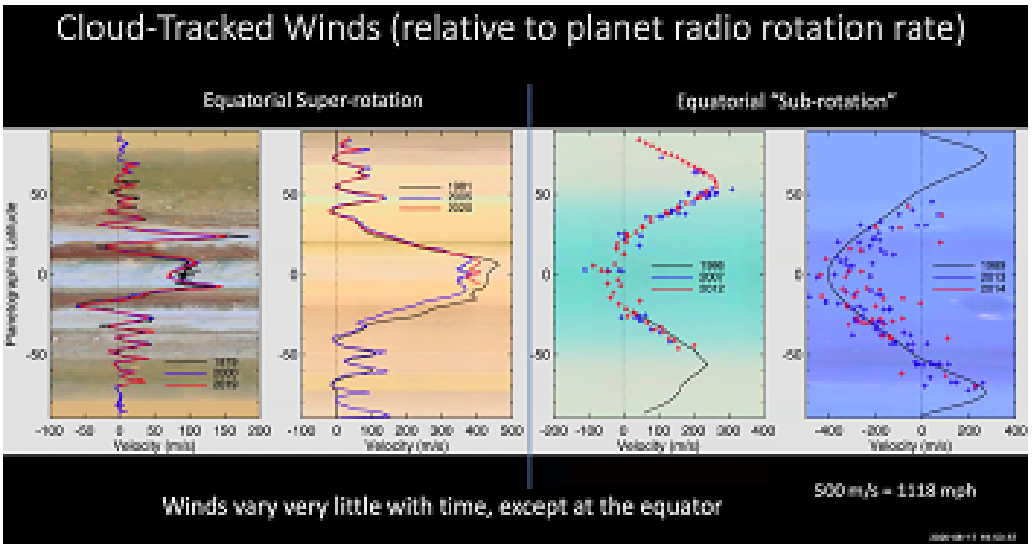
In particular, looking at the methane band on Saturn gives us interesting data. On Uranus you need to go with the farther red and infrared to see any detail. Similarly with Neptune, although if Neptune has a darker spot it is visible.

Jupiter is the Van Gogh of our planets, with waves, cyclones, anti-cyclones, the GRS (Great Red Spot). The cyclones and anticyclones can last decades or centuries.



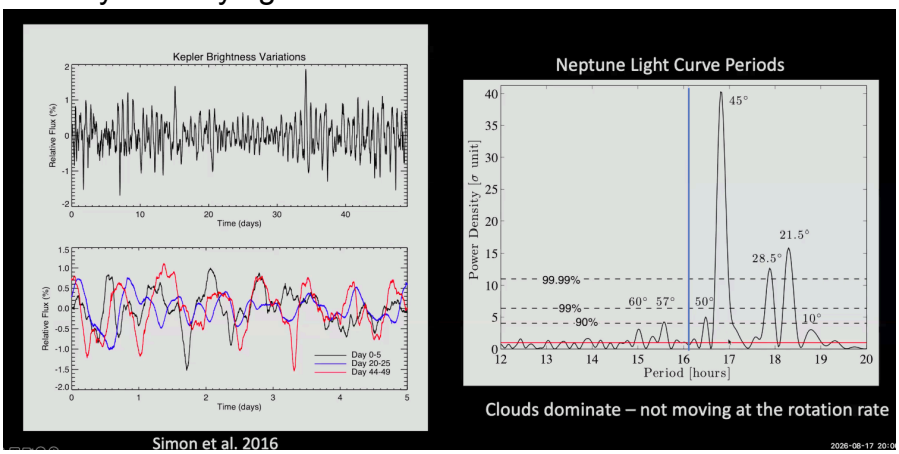
On Saturn, we do see storms but there are smaller storms and high latitude storms, along with the famous Hexagon at the pole.

What to study? Observe the winds using small clouds with a small time step say under 10 hours. With this data, we can model winds relative to planet latitude.



Above shows, left to right, Jupiter, Saturn, Uranus, and Neptune. These winds are primarily generated by fast planetary rotation. Neptune and Saturn have the highest speed winds which rules out sunlight. Atmospheric waves affect temperatures and winds in the stratosphere. On Earth we see this with a 2 year period. Jupiter 4, and Saturn estimated 17 year patterns. The winds can also constrain the rotation period. Normally rotation periods based on radio signals thought to be tied to deep magnetic field.

On exoplanets we can't see the clouds, so you can study the Kepler brightness variations. Studied Neptune first. Using a fast fourier transform, you do not see Neptune's rotational velocity. So this is an indication of the difficulty in studying these.



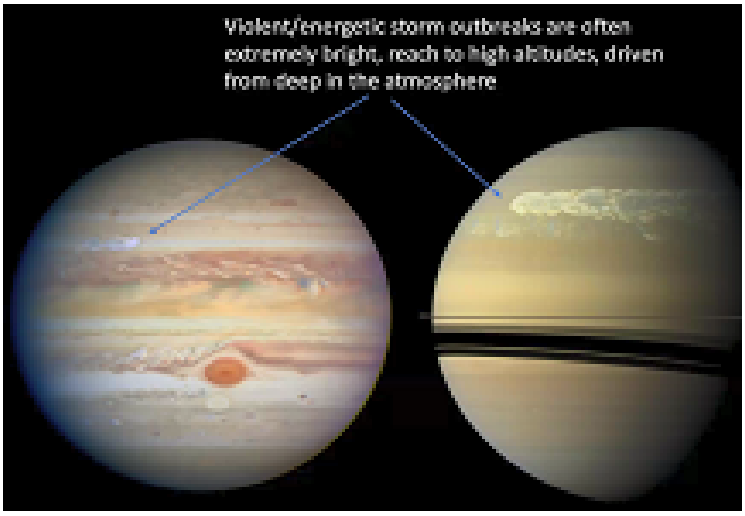
You can also consider clouds and 3D circulation. Cloud bands vary with time, and this is seen on Saturn with a 2018 – 2019 – 2020 comparison of cloud colors per latitude. Tied to photochemistry.

Deep circulation: used to study the hexagon on Saturn. Wind blown clouds and not temperature.

Waves:

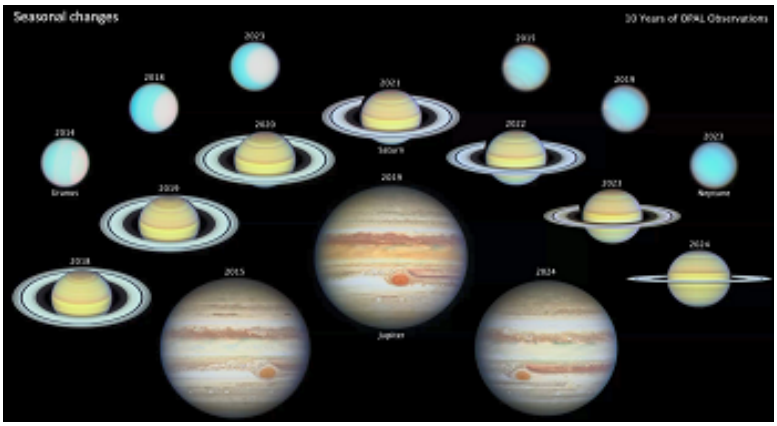
- Transport energy
- Multiple types
    - Rossby (planetary scale)
    - Gravity-inertia (buoyancy)
    - Kelvin (fluid shear)

Planetary waves require deep water abundance, wind shear below the clouds, and an atmospheric stability profile. Dr. Simon then presented pictures of the different types of waves as seen on Jupiter by the New Horizons and Voyager probes.



Dr. Simon then discussed mega-storms on the planets.

Finally, she talked about seasonal changes



Researchers often use Hubble images, but can use images submitted by amateurs to the Planetary Virtual Observatory at http://pvol2.ehu.eus/pvol2/

There were many questions asked, showing the interest the club had.
We thanked Amy for a wonderful talk.

Next up was Dr. John Wenskovitch with his IN-PERSON What's Up presentation. Highlights from John's presentation form a separate article in this newsletter.

What's Up? Highlights

September 1 to 30, 2026

This Month:

The nights continue to get longer throughout September, with the Autumnal Equinox occurring on the 22nd at 8:05pm and with daylight spanning less than 12 hours beginning on the 26th. An unusual feature for the month is the peak of the Daytime Sextantid meteors, a particularly bright meteor shower with a radiant very close to the Sun. Within the solar system, Venus remains the highlight of the early evening sky, slowly but steadily descending into the twilight as its phase drifts from half-phase to crescent. The planet peaks in brightness at -4.8 magnitude on the 22nd, accompanying the timing of the equinox. Neptune reaches opposition on the 25th, and Saturn gets closer to rising before sunset but doesn't quite reach opposition before the month ends. Mars and Jupiter continue to rise earlier and earlier throughout the month as well, ending September with rise times of 1:44am and 3:16am respectively. Speaking of Jupiter, a daytime occultation of the planet occurs on the 8th, with the planet disappearing from view at 3:04pm and reappearing on the other side at 4:02pm. Watch for the moon Io to vanish a few seconds after the planet, as well as for the moons Ganymede and Callisto to pop into view a few seconds before the planet (Europa is hidden behind the planet through most of the occultation).

Celestial Events:

- September 3: Moon + M45 pairing
- September 6: Moon and Mars in Gemini
- September 8: Moon, Jupiter, and M44 in Cancer
- September 8: Daytime occultation of Jupiter
- September 13: Moon, Venus, and Spica grouping
- September 22: Venus reaches greatest brightness
- September 22: Autumnal equinox (8:05pm)
- September 25: Neptune opposition
- September 27: Moon and Saturn in Pisces
- September 27: Peak of Daytime Sextantid meteors

Sunset and Twilight:

- Sunset ranges from 7:48pm (1st) to 7:04pm (30th)
- Evening twilight ends from 9:19pm (1st) to 8:30pm (30th)

Lunar Phases and Apsides:

- Perigee: September 6, 4:42pm (228,825 miles)
- Last Quarter: September 7, 3:30pm
- New Moon: September 14, 5:45am
- Apogee: September 18, 11:00pm (251,171 miles)
- First Quarter: September 21, 7:05am
- Full Moon: September 29, 10:37am

Annual Club Dues

From Mallory B. White

It's time to pay our annual membership dues that run from July to July.

- Annual individual and family: $25.00
- Senior individual (over 65) and family: $20.00
- Student: Renew for FREE
- How do you pay? Pay online through PayPal or bring a check or cash to the meeting and I'll get it to the Treasurer, Brian Bone
- For more info about membership benefits, you can visit the RVAS website.

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.

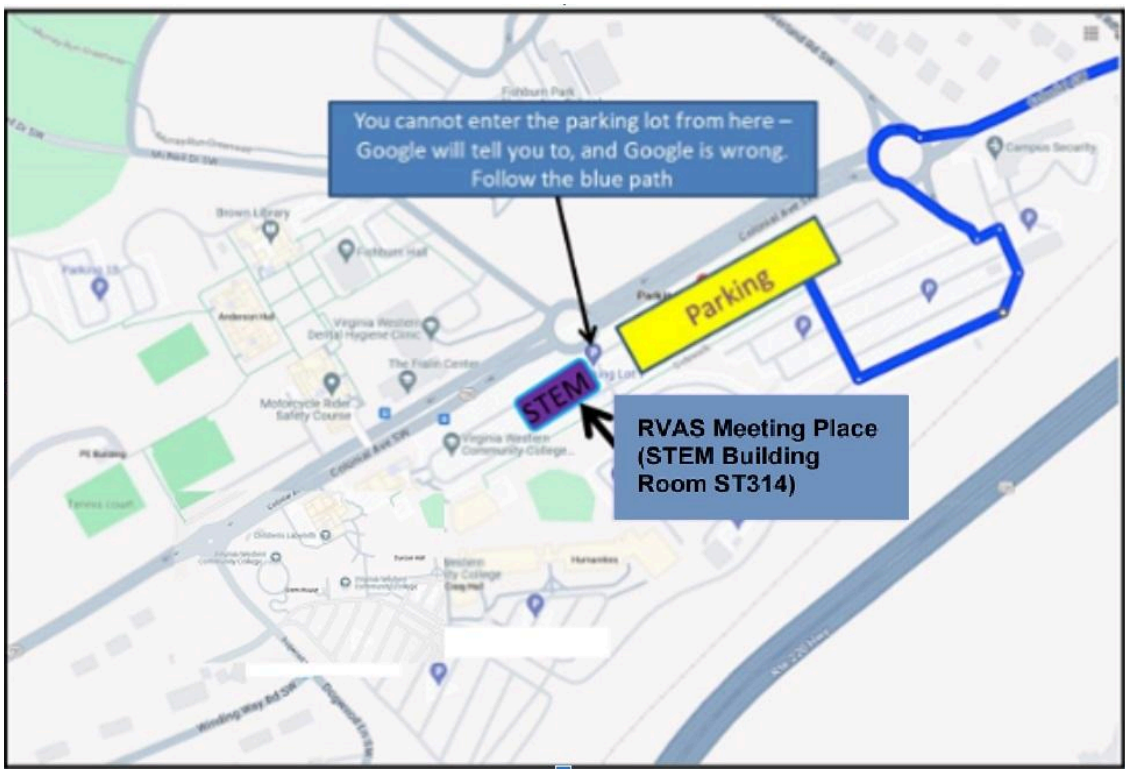
Officers/Executive Committee/Editor/Webmaster

Dr. Mallory White, President (president@rvasclub.org)
Dr. Hetzal Hartley, Vice President (vicepresident@rvasclub.org)
Michael Good, Secretary (secretary@rvasclub.org)
Brian Bone, Treasurer (treasurer@rvasclub.org)
Nancy Vogelaar, Officer at Large #1 (officeratlarge1@rvasclub.org)
Caleb White, Officer at Large #2 (officeratlarge2@rvasclub.org)
Michael Good, Past President (pastpresident@rvasclub.org)
Dr. Ed Dixon, Newsletter Editor (newsletter@rvasclub.org)
Dr. 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.

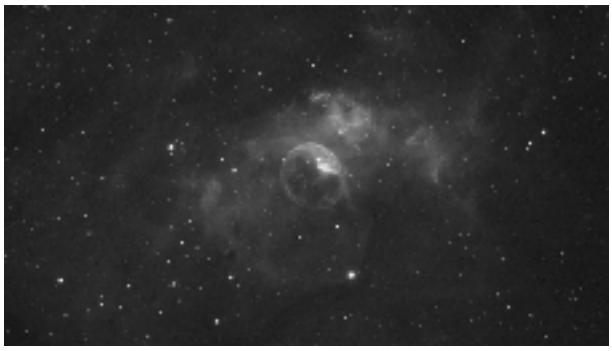
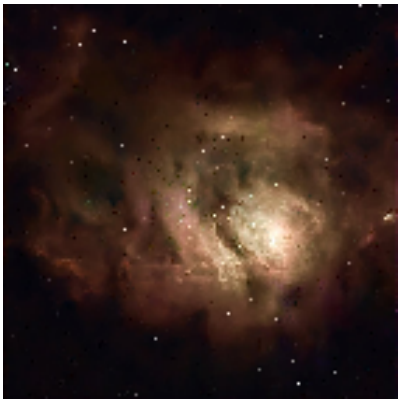


Note: Google provides incorrect guidance to access the parking lot from the roundabout at McNeill Drive. That roundabout **does not** provide an entrance to the parking lot.

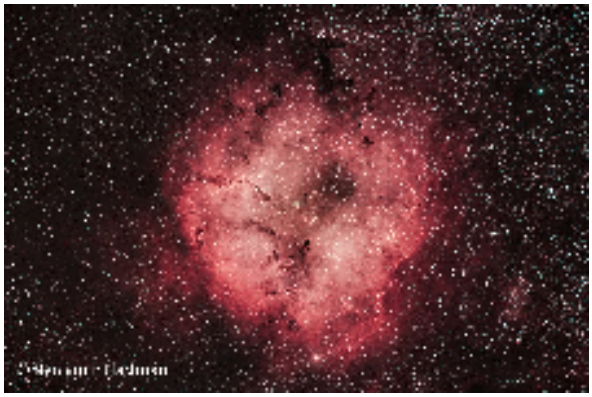
The RVAS Club Astro-photographers

August 2026

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

Gina Gina 	**Gina Gina** 
Harry Kessler 	**Ed Dixon**
Ed Dixon 	**Ed Dixon** 

Ben Hartman



Davis Thomas

Moon entering the Penumbra of the Lunar shadow at 10:20 PM on the evening of the Lunar Partial eclipse of August 27, 2026