



OBSERVER

January 2024

*Bringing Stars to the eyes of Tulsa
since 1937* Editor - John Land



**Images from our
December 2023
guest night**

**Orion & Taurus
over the observatory**

**Don showing guests
view from the telescope**

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Astronomy Club Events Check our website [AstroTulsa.com](https://www.astrotulsa.com) events section for updates

Observatory Stargazing Nights

Our GUESTS & Members nights are open to anyone. We do ask guests to try to RSVP.
Large groups need to make separate arrangements.

Members Only Nights are Open to members and their family
Details, Times and Direction Maps are posted on our Website

<https://www.astrotulsa.com/events>

Observatory Visitation Star Nights

SATURDAY Jan 6 5:00 PM **Guest and** Members Night –
Guest requested to RSVP -

Friday Jan 12 5:00 PM Members Only night
Open to our members and their immediate family

SATURDAY Feb 3 5:15 PM **Guest and** Members Night –
Guest requested to RSVP -

Friday Feb 9 5:30 PM Members Only night
Open to our members and their immediate family

Friday Jan 19 - 7:00 PM Jenks High Planetarium [105 E B St, Jenks, OK](https://www.jenksplanetarium.org)
We invite both members and guests to join us for our In Person meeting.



Our vice president, Jonathan Fussell, will be the guest presenter with a presentation about Exoplanets. Exoplanets are defined as planets orbiting stars other than our Sun.

"What worlds lie just beyond the reach of our solar system? Explore the fascinating subject of Exoplanets with speaker and Vice President Jonathan Fussell as he unpacks how exoplanets are detected, planetary composition, ongoing efforts in exoplanet research, and the future of exoplanet exploration. Jonathan is a recent graduate of Oral Roberts University with a Bachelor of Science in Molecular Biology.

While there, he founded and was President of the ORU Astronomy Club and conducted research on the 'Stellar Nucleosynthesis of Phosphorus as a Biosignature.' As of December 2023, there were 5,557 confirmed Exoplanets.



Telescope 101 Workshop
Saturday Feb 17, 2024



Saturday Feb 17, 2024 from 10:30 AM to 1:30 PM

RSVP Registration Required

Got a New Telescope ? (Or an old one gathering dust)

Want some help learning to use it? Bring your telescope and let us help you.

The Astronomy Club of Tulsa & Tulsa Air and Space Museum are hosting a Telescope Workshop. Participants can sign up for a 30 min individualized hands-on help session. See our events section for registration details.

<https://www.astrotulsa.com/event/2024-Telescope-Workshop>

President's Message

Don Bradford



As I mentioned in my message last month, my goal as your new president is to establish goals for the club (short and long term) and to establish attainable priorities for those goals. To do that we need your ideas for the future as well as your feedback to guide current progress.

So how can you best participate in this process?

We started the process at the last meeting by having an open Q & A with a panel of experienced members to answer your questions. To continue that concept, I want to gather your questions in advance by asking you to submit your questions to me through the contacts page on the club website. We want you to ask any question about any subject related to astronomy or how the club operates. We will select some of the questions to answer at the club meeting next month (January 19).

But answering a few questions at the club meeting is only the tip of the iceberg. We want to encourage a dialogue with members and the general public to get your ideas for the future as well as your feedback on current activity. For now, we want your questions, comments, feedback, complaints, suggestions, etc. through the club website. We plan to expand your ability to communicate with us through other media, so stay tuned for more ways to reach us.

I hope to see you at the January 19 meeting, and we look forward to responding to your messages, either by email or at the meeting.

"Bringing Stars to the Eyes of Tulsa since 1937"

Don Bradford - President

Vice President Message Jonathan Fussell



[Night Sky Network](#) - I am currently exploring avenues to get all current members connected to the Night Sky Network; an information hub full of fantastic resources, articles and downloadable content to satiate your appetites for all things astronomy. Membership in NSN is one of the benefits of membership in our astronomy club.

Can Mars hold the attention of astrobiologists to find life outside of Earth?

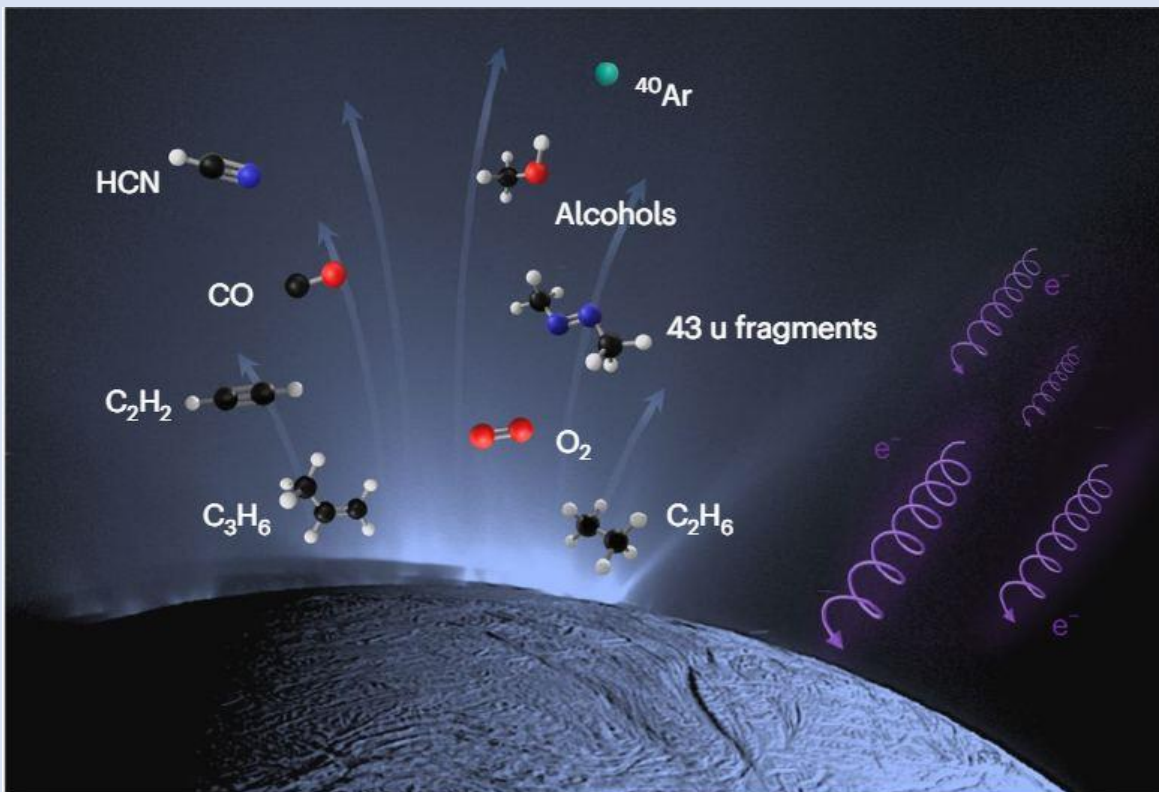
Can Mars hold the attention of astrobiologists in the race to find life outside of Earth's biosphere? A recent paper published by Nature may prove otherwise as astrobiologists turn their attention to the outer solar system, toward Saturn's icy moon Enceladus. The paper offers a deep dive into the telemetry received by the Cassini probe as it dove through a series of water jets given off on the South Pole of Enceladus. Using Cassini's Ion and Neutral Mass Spectrometer (INMS), the team identified H₂O, CO₂, CH₄, NH₃, and H₂ within the ejected material from the plume. However, the identification of minor species continues to challenge researchers with the large number of possible confirmations.

The article delves into the intricate composition of water plumes coming from Enceladus, one of Saturn's moons, challenging prior understandings and expanding the roster of detected compounds. While earlier studies identified H₂O, CO₂, CH₄, NH₃, and H₂, this recent paper utilizes a sophisticated multi-model averaging procedure to address low-velocity flyby ambiguities. Beyond the confirmed compounds, the study provides compelling evidence for the presence of HCN, C₂H₂, C₃H₆, CO, native alcohols, and O₂ in the plumes. Notably, HCN is definitively identified, and the research introduces the intriguing prospect of native alcohols and O₂, adding a layer of complexity to Enceladus's plume chemistry.

Moreover, the study hints at the possibility of moderate evidence for H₂S or PH₃, both of which carry significant astrobiological implications. The comprehensive statistical analysis, incorporating uncertainties arising from model ambiguities, not only refines the understanding of known compounds but also opens new avenues for investigating the nuanced chemical makeup of Enceladus's plumes. The findings provide a robust foundation for future research, prompting the need for further exploration into the astrobiological implications of sulfur and phosphorous compounds in Enceladus's intriguing plume.

Concluding, the authors explore the implications of the findings, highlighting the importance of nitrogen-bearing compounds like HCN, which could play a role in the formation of essential biomolecules. The presence of solid-phase material in the ice shell and the potential synthesis of organic compounds in these environments are considered, raising questions about the role of ongoing synthetic chemistry. The discussion delves into the geochemistry of Enceladus's subsurface ocean, proposing connections to hydrothermal environments, serpentinization

reactions, and metal-bearing minerals. The potential for metabolic pathways to abiogenesis, driven by reducing power from ferrous iron and H₂S, is discussed in the context of the detected compounds. Additionally, the authors consider alternative scenarios for complex organic synthesis, including the possibility of photochemical processing on the surface contributing to prebiotic chemistry. Overall, the discussion provides a comprehensive exploration of the astrobiological and chemical implications of the detected compounds in Enceladus's plume, giving Mars a run for its money.



In other news, I am currently exploring avenues to get all current members connected to the Night Sky Network; an information hub full of fantastic resources, articles and downloadable content to satiate your appetites for all things astronomy.

Clear skies and Godspeed,

Together, Let's reach for the Stars!

Jonathan Fussell - Vice President

Observing Chairman Brad Young



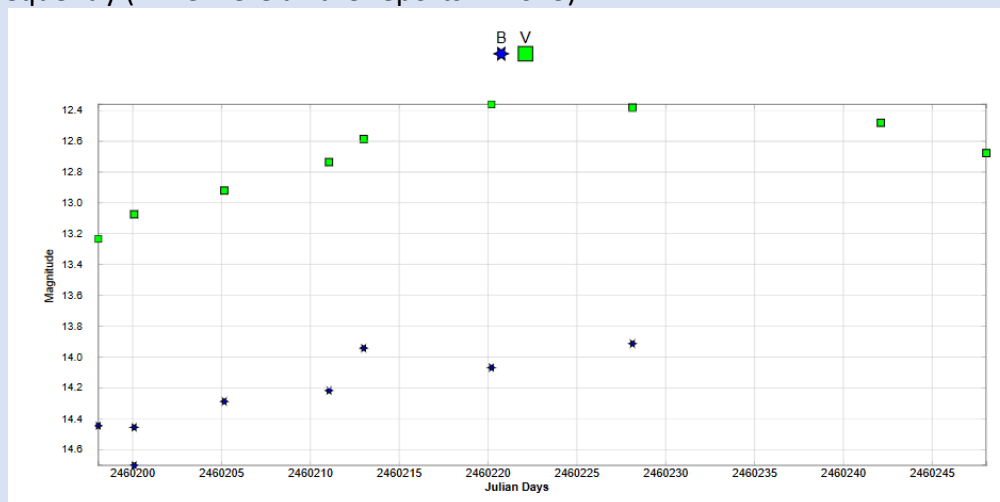
Remote Imaging of Under Observed Variable Stars

Variable stars provide one of the strongest tools we use to determine the structure and behavior of stars. Spectrography and other physical characteristics of stars are crucially important also, but most amateurs cannot afford sophisticated equipment to study stars from spectra, radio signals or other means. However, watching the variation of stars in visual light or in specific wavelengths over a period can result in usable scientific data, and can be gathered from any amateur. Visual observing is useful and exciting, but for this article I will be concentrating on photometry, which is the study of the brightness of stars in specific wavelengths of light, using imaging equipment and various standard filters.

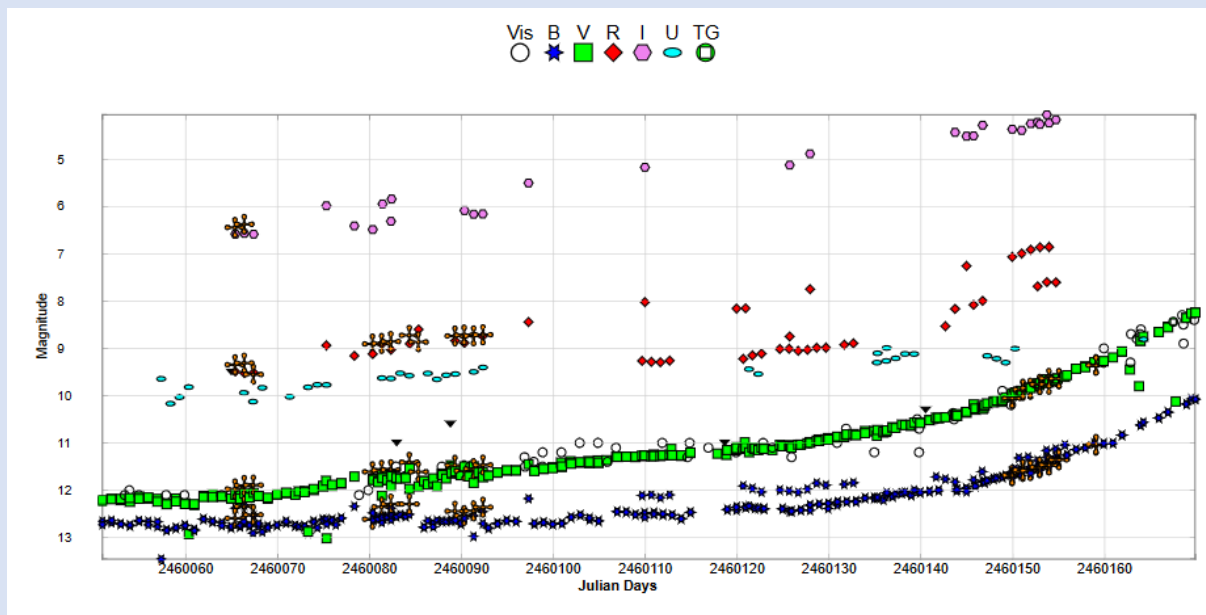
Choosing which variables to investigate allows you to concentrate on areas you find interesting. There are many types of variables, such as eclipsing binaries (e.g. Algol) and long-period variables (e.g. Mira). I chose to observe variables that are understudied due to geography; southern variables that need observation more frequently and/or over a broader spectrum of wavelengths. This data is used by amateurs, educators, and professional astronomers, via my reports to the AAVSO [American Association of Variable Star Observers]. That group is a great resource to learn how to observe variables and then as a support for your efforts:

- You can report brightness there, and have your data available worldwide for use
- You can receive a weekly report showing what use is made of your reports
- They sponsor observing sections that concentrate on specific types of targets, list examples and current priorities, and have forums for help and information
- You can sign up for email alerts calling for observations to support studies performed by both ground-based and space-based observatories
- As a member, you can use their photometry software VPhot

With the underserved variables, I am sometimes the only major contributor, and this helps fill in the gaps where needed. You can see below an example of one of the stars I study (KU Apodis) due to it being observed infrequently (mine were all the reports in 2023).



Here is an example of one of the alert targets (R Aquarii) and how we were able to determine its magnitude and periodicity (my observations are shown as crosses):



Note the key denotes filter used; several other types are supported

There are plenty of other examples at the AAVSO website, just look at the front page of [their site](#) and generate a light curve for one of the stars on my list found on my website [here](#).

Visit the different observing sections on their site to see what might interest you. As a member, you can be on their mailing list of alerts and use VPhot to generate TG reports. You don't have to be a member to report what you see; with your own software, report [here](#).

It's worth noting that the AL [Astronomical League] has several observing programs that deal with variable stars either as the entirety of the program or as one section of the requirements for the program. Many of these allow remote imaging to achieve the required observations.



Earn your **SOLAR ECLIPSE OBSERVING CHALLENGE** certificate

The Astronomical League is offering an Eclipse Observing certificate for any League member who observed the Oct 14, 2023 partial solar eclipse or making plans to observe the April 8, 2024 eclipse.

You can read the requirements for applying for the certificate at <https://www.astroleague.org/solar-eclipse-observing-challenges/>

Our club Observing Chairman, Brad Young, is coordinator of the Eclipse observing program.

Your Tulsa Astronomy Club membership includes membership in the Astronomical League for all full adult memberships and students who choose the AL option. There are many other observing award programs you can explore at <https://www.astroleague.org/alphabeticobserving/>
A chart of observing program ranked by difficulty.



Click on these images to links on the Internet



<https://www.astroleague.org/observing-program-selector-grid/>

*** The NEW **CLEAR OUTSIDE** icon above is a link to an extensive site showing cloud cover %, Seeing, Transparency, Moon Phase, Temp in ° C and many other useful tools

GOT A NEW TELESCOPE? Here are some sites to help you get started with you telescope.

Getting Started with Your New Telescope
<https://skyandtelescope.org/astronomy-news/getting-started-with-your-new-telescope-2/>

Astronomy for Beginners | Night Sky Facts, FAQs & Resources
<https://skyandtelescope.org/astronomy-information/>

What to Know Before Buying a Telescope
<https://skyandtelescope.org/astronomy-news/what-to-know-before-buying-a-telescope/>

See [Website Observation Station](#) for a collection of [Interactive Sky Watching Tools](#)
Moon phases - Sun rise & Set - [Make your own custom interactive sky chart](#) and more
Great website for printable Finder Charts of Solar System objects <https://in-the-sky.org/>

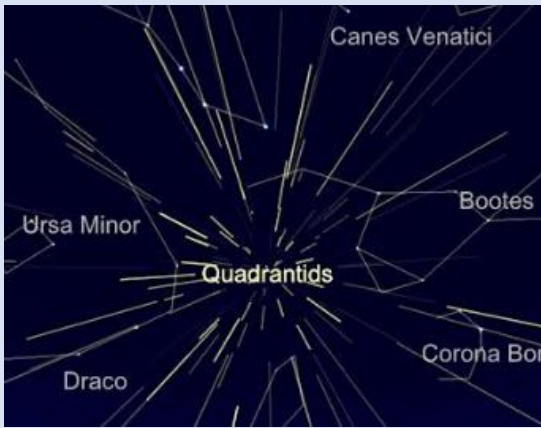
January - Moon Phases - -
3rd Q Weds Jan 3 - - New Thurs Jan 11 - - 1st Q Wed Jan 17 - - Full Thurs Jan 25

JANUARY PLANETS – VENUS is still blazing bright as our morning “star” easily visible in the SE well into the brightening dawn. It reaches its greatest elongation from the Sun on Jan 9th. It will remain in the morning sky until June. **MERCURY** has moved to the morning sky hugging the SE horizon before dawn. **MARS** is slowly emerging into the morning sky. It will likely take binoculars and a clear SE horizon to find it in the morning twilight. Mark your calendar for the morning of **Saturday Jan 27** when Mars and Mercury will be only 1/4 degree apart.

Moving to the evening sky **SATURN** is still visible in the SW but slipping lower each evening. It will slip behind the sun on Feb 28th **JUPITER** is the bright beacon high in the southern sky. It transits the meridian at an altitude of 66 degrees around 7:00 PM in mid-January. The Sky and Telescope App “Jupiter’s Moons” does an accurate job of identifying the positions of it moons. It also gives you a list of events for the evening such as shadow transits of best times to see the Red Spot. **URANUS** is about 13 degrees to the east of Jupiter. Watch as it draws ever closer to Jupiter, lying only 2 degrees north during the April 8th solar eclipse. At magnitude 5.7 it can be seen in binoculars. In a telescope it has a distinctive light green hue. Magnify it over 100x and you can begin to see it as tiny orb. Finally, **NEPTUNE** can be found below the western circlet of Pisces in the SW. Although 8th magnitude it can be identified by its pale bluish tint. Magnify it to see its color better.

The Moon is near Venus the morning of Jan. 8, Mercury Jan 9, Near Saturn Jan 13 & 14, and Jupiter on Jan 18

[Chart of Uranus positions](#) [Chart of Neptune positions](#) [Calculator for Jupiter’s moons](#)



The Quadrantid Meteor show peaks before dawn on January 3rd. It gets its name from a now obsolete constellation *Quadrans Muralis*. They radiate from region in the northern polar sky between Boötes and Draco. Even though members of this shower can be seen from about Dec 28 to Jan 16, it is not well observed due to its mid-winter date. Also, its peak activity of only 8 hours is rather short. In dark skies and well timed it can produce up to 100 per hour.

Geminid Meteor Shower



On the evening of Dec 13 several of our members and guests enjoyed watching the Geminid meteor shower. Most of us saw only a few meteors. Amanda, one of our keen-eyed guests saw 32 meteors. On the [Dec 17, 2023 Astronomy Picture of the Day](#), Astronomer Luo Hongyang shared an amazing composite image of nearly 100 meteor tracks radiating from Gemini. The meteor trails all seem to be streaking out from the two Gemini stars, Pollux and Castor.

I have often compared the Earth moving into a stream of meteoroids orbiting the sun as being similar to what a driver sees when driving his car into a snow flurry. View the large image yourself and see if you get that same impression. It also illustrates that the best area of the sky to see long meteor trails is not looking directly at the radiant.



Comet 12P / Pons-Brooks is putting on a good show this winter. This is a Halley class comet with an orbit of 70.68 years. It continues to outperform the standard prediction models based on its distance. Latest observations place it between 8th & 9th magnitude – within reach of moderate size telescopes. The comet is expected to reach at least 4th magnitude in April and may even be visible near Jupiter during the April 8 Solar Eclipse.

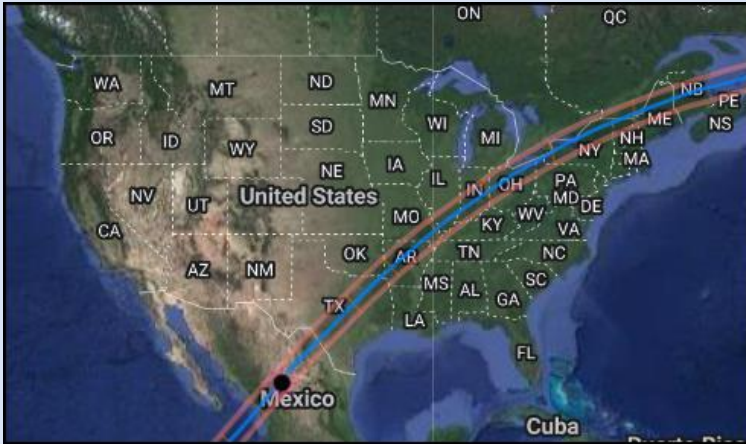
This year it has already been observed to have had at least six outbursts. Some of these have raised it brightness by a factor of 100. Observations indicate these outbursts follow a 15-day rotation period and result from a region of active cryovolcanoes spewing out jets of gases.

You can keep up with the latest magnitude and sky locations at

<https://theskylive.com/12p-info>

<http://astro.vanbuitenen.nl/comet/12>

Getting Ready for the Total Solar Eclipse on Monday April 8, 2024



April 8, 2024 is the last Total Solar Eclipse in the USA until August 12, 2045.

There are many resources – these are a few I have collected. Be sure the ones you use are reliable.

The path of Totality sweeps a long path from SW Texas to Maine.

Tulsa will have a 95% partial solar eclipse, but many people will be seeking to go where they can see the Total Solar Eclipse.

Sky and Telescope has an extensive set of links to pages about the eclipse, planning your trip, safety tips, photography tips and more. (Note: some sites have ads)

<https://skyandtelescope.org/total-solar-eclipse-2024/>

Eclipse Glasses or Viewer Cards are essential to observe the eclipse safely.

Look for the ISO safety certificate - that block 99.99 % of the sun's various kinds of radiation.

One reliable source our club has used is Rainbow Symphony

<https://www.rainbowsymphony.com/collections/eclipse-glasses-safe-solar-viewers>

Be cautious about Ads online – In the 2017 eclipse a number of unsafe “knock off” ones were being sold.

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Resource Maps

Use this Google Map style link to choose a viewing location.

http://xjubier.free.fr/en/site_pages/solar_eclipses/TSE_2024_GoogleMapFull.html

You can Zoom in to any location on the map and then click on the spot to get a detailed Times and Duration of the eclipse at that location. Works for sites both inside and outside of the path of totality You'll probably want to save it in your favorites on your computer and other devices.

This page has links to maps for eclipse events for the next 20 years

If you scroll down the page to a **section showing how to use the maps on your phone to navigate to a good spot to observe on eclipse day.**

http://xjubier.free.fr/en/site_pages/SolarEclipsesGoogleMaps.html

You will need to plan well in advance where you want to go. Many locations are already sold out and camp sites as well. During the 2017 eclipse major highways in the eclipse zone experienced heavy traffic.

Treasurer Report

Cathy Grounds



We have had a very busy year with hosting the MSRAL Conference this past June, in addition to all of our regular activities. I am in the process of reviewing our membership roster and expect the count of 248 to change somewhat as records are updated. I am also in the process of emailing notices for membership renewals, as you may not have received one over the summer months as we focused our attention on having a great conference. So please don't be alarmed (or offended) if you receive one of these emails - if our records don't match yours just send me an email and I will get everything updated.

If you have any other questions or concerns, please email AstroTulsa.Tres@gmail.com

As of December 28, 2023, we had 249 members, 69 New members for 2023

We welcome this month's newest members – Brad Johnson, Austin McCasland, John Cameron, Sophia Watson, Chris Biggs, John Francis, Jan Sartor, Earl Ward Hello and welcome to ACT !

Have you changed you Contact Information? Email, Phone, Postal Address ?

Please help us to maintain our records by sending an email to AstroTulsa.Tres@gmail.com

Accounts as of Dec 15, 2023

Checking: \$ 2,160.96

Savings: \$ 2,793.47

Investments: \$ 33,779.96 (Value tends to fluctuate with markets).

You can JOIN or RENEW memberships or magazine subscriptions ONLINE using ANY MAJOR CREDIT CARD or MAILING in your dues with a check. The transactions are processed through PayPal but you DO NOT need a PayPal account. A modest processing fee is added to online transactions.

Fill out the registration form at <https://www.astrotulsa.com/join>

Membership rates for 2024 are as follows:

Adults: \$ 45 per year, includes Astronomical League Membership.

Sr. Adult: \$ 35 per year for those 65 or older, includes Astro League Membership.

Students: \$ 30 with League membership; Students: \$ 25 without League membership.

Additional Family membership: \$ 20 with voting rights and League membership.

\$ 15 with voting rights but without League Membership.

The regular membership allows all members in the family to participate in club events but only ONE Voting Membership and one Astronomical League membership.

MAGAZINE SUBSCRIPTION RATES 2024 updates

A monthly astronomy magazine subscription is a great way to learn more about many aspects of our hobby. -

Scientific articles, sky events, equipment reviews, imaging techniques and more

Use the links below to make your subscription

To learn about [Sky and Telescope magazine](#) see their home page

Digital \$ 37.05 Print & Digital \$ 45.75 includes a \$ 10 club discount

Use this [Sky & Telescope Subscription Link](#)

To learn about [Astronomy magazine](#) see their home page

Use this [Astronomy Subscription Link](#) Digital \$ 39.95 Print & Digital \$ 49.95 no club discount

Secretary Report Skip Whitehurst



December 7, 2023 Astronomy Club Board Minutes

The Officers and Board of The Astronomy Club of Tulsa met via Zoom call.

In attendance:

Officers

Don Bradford, President, presiding.
Jonathan Fussell, Vice President
Cathy Grounds, Treasurer
Bryan (Skip) Whitehurst, Secretary

Board members at Large

Michael Blaylock
Jerry Cassity
John Land
Jack Reeder
James Taggart
Absent: Bryan Kyle

The meeting was called to order at approximately 7:05 PM.

Agenda item 1: Skip Whitehurst made, and Michael Blaylock seconded a motion to reimburse Don Bradford \$282.00 to for the TV monitor and cables used in the dome for live imaging during public showings, and \$50.00 for travel expenses paid to Lauren Herrington, speaker for the December 1 general meeting. All in favor, motion carried.

Item 2: Discussion of the proposed calendar for the remainder of 2023 through May, 2024.

The “Telescopes 101” workshop is scheduled for 10:30 AM – 1: 30 PM Saturday, Feb 17 at TASM. On-line registration is being set up.

Don Bradford has confirmed proposed meeting dates through May with Dan Zielinski.

No official observatory Member Nights will be scheduled for March or April due to conflicts with other events.

(*Editor Note: The Messier Marathon will be held on March 9 in place of a member’s night on March 8*)

Still need to schedule an observatory workday for the spring. Cut trees to the SW of the dome.

Michael Blaylock volunteered to coordinate Messier Marathon at the observatory.

We have 80 to 100 solar eclipse filters remaining. Many members will be out of town for the April 8th eclipse, so Don will email the membership to gauge interest in holding local event(s) for the eclipse. Tim Gilliland has expressed interest in an event in Sand Springs, as well as other Sidewalk Astronomy events going forward.

Item 3 was deferred until later in the meeting. After discussion, John Land made and Jerry Cassity seconded a motion to approve expenditure of up to \$400 for preliminary work to automatically sync dome position to telescope position and simplify dome operation. All in favor, motion carried.

Item 4 was deferred until later in the meeting. When discussed, James Taggart estimated material cost for 6' x 6' x 4" concrete pads to be about \$150 each. James will check rental cost for a concrete mixer, which will affect the cost estimate. Discussion of the number of pads to be added settled on approximately four.

Item 5: Jonathan Fussel volunteered to be responsible for seeing that general inquiries from the website are handled. He will delegate others to reply to specific emails as needed. The Treasurer will be responsible for new and renewed membership correspondence.

Item 6: Don Bradford will take the lead in arranging for speakers at meetings. Others are welcome to make suggestions. Emphasis should be placed on securing live programs.

Item 7: John Land will coordinate Telescopes 101 workshop this year but intends for this to be the last year. He will look for someone to designate for next year's event and would like for that person to shadow him this time.

Item 8: was omitted from the agenda.

Item 9: Largely discussed as part of item 2. Don Bradford will coordinate with Tim about dates and times.

Added to this item, John Land nominated and Michael Blaylock seconded Jonathan Fussell to be the club's Night Sky Network coordinator. Jonathan will manage membership activities with NSN. Motion carried.

Item 10: Motion by Michael Blaylock (**who seconded?**) to name the Treasurer, President, and Trustee (not tied to an elected position for continuity – currently Skip Whitehurst) as authorized to transact business in our investment account on behalf of the club. These assets are being transferred from Wells Fargo to a no-fee Schwab account since we had been paying a service charge to WF, and they no longer have an office in the area.

Item 11: The idea of using a bulk email service for large mailings was discussed. Don Bradford will investigate further and report back.

Meeting adjourned at 8:55 PM

Bryan Whitehurst

Bryan Whitehurst
Secretary, Astronomy Club of Tulsa



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

The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach.

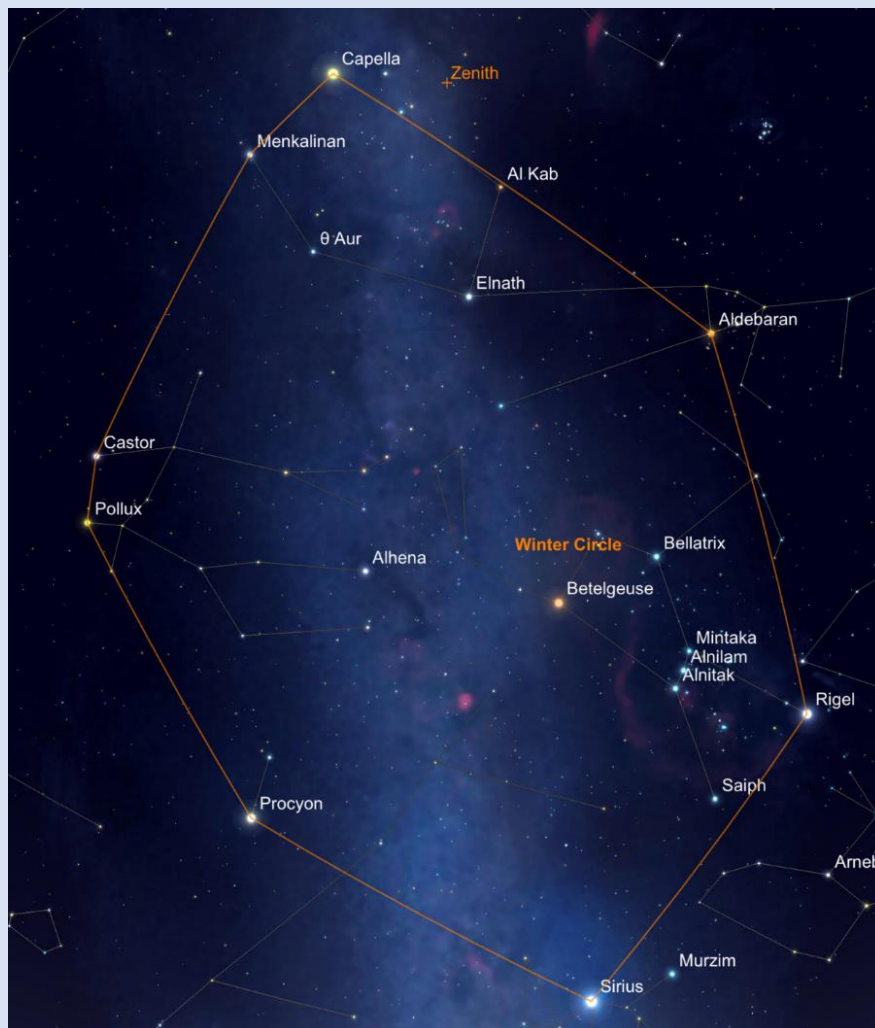
Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Connecting the 'Dots' with Asterisms

By Kat Troche

In our [December Night Sky Notes](#), we mentioned that the Orion constellation has a distinct hourglass shape that makes it easy to spot in the night sky. But what if we told you that this is not the complete constellation, but rather, an [asterism](#)?

An asterism is a pattern of stars in the night sky, forming shapes that make picking out constellations easy. Cultures throughout history have created these patterns as part of storytelling, honoring ancestors, and timekeeping. Orion's hourglass is just one of many examples of this, but did you know Orion's brightest knee is part of another asterism that spans six constellations, weaving together the Winter night sky? Many asterisms feature bright stars that are easily visible to the naked eye. Identify these key stars, and then connect the dots to reveal the shape.



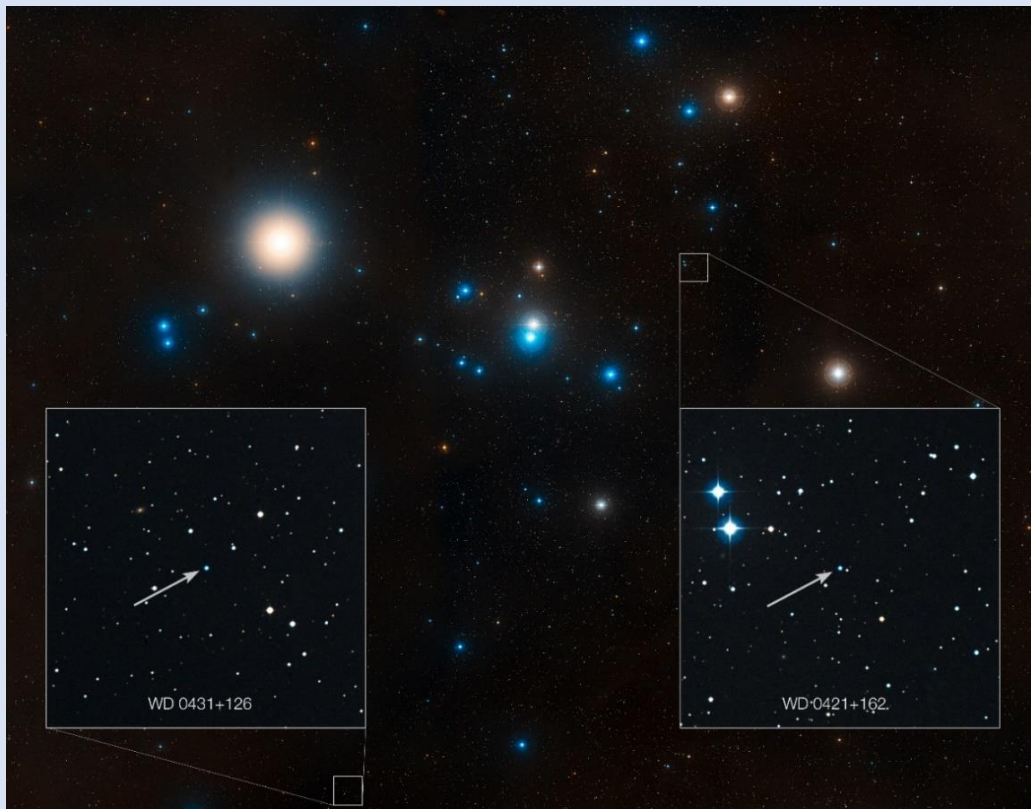
Asterisms Through the Seasons

Stars that make up the Winter Circle, as seen on January 1, 2024

Sky Safari

Try looking for these asterisms this season and beyond:

- **Winter Circle** – this asterism, also known as the Winter Hexagon, makes up a large portion of the Winter sky using stars Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius as its points. Similarly, the **Winter Triangle** can be found using Procyon, Sirius, and Betelgeuse as points. **Orion's Belt** is also considered an asterism.
- **Diamond of Virgo** – this springtime asterism consists of the following stars: Arcturus, in the constellation Boötes; Cor Caroli, in Canes Venatici; Denebola in Leo, and Spica in Virgo. Sparkling at the center of this diamond is the bright cluster **Coma Berenices**, or Bernice's Hair – an ancient asterism turned constellation!
- **Summer Triangle** – as the nights warm up, the Summer Triangle dominates the heavens. Comprising the bright stars Vega in Lyra, Deneb in Cygnus, and Altair in Aquila, this prominent asterism is the inspiration behind the cultural festival [Tanabata](#). Tanabata is a Japanese fable about two star crossed lovers, represented by Vega and Altair, that can only reunite across the Milky once a year. Also found is Cygnus the Swan, which makes up the **Northern Cross** asterism.
- **Great Square of Pegasus** – by Autumn, the Great Square of Pegasus can be seen. This square-shaped asterism takes up a large portion of the sky, and consists of the stars: Scheat, Alpheratz, Markab and Algenib.



This image shows the region around the Hyades star cluster, the nearest open cluster to us. The Hyades cluster is very well-studied due to its location, but previous searches for planets have produced only one. A new study led by Jay Farihi of the University of Cambridge, UK, has now found the atmospheres of two burnt-out stars in this cluster — known as white dwarfs — to be “polluted” by rocky debris circling the star. Inset, the locations of these white dwarf stars are indicated — stars known as WD 0421+162, and WD 0431+126.

Tracing these outlines can guide you to objects like galaxies and star clusters. The Hyades, for example, is an open star cluster in the Taurus constellation with [evidence of rocky planetary debris](#). In 2013, Hubble Space Telescope's [Cosmic Origins Spectrograph](#) was responsible for breaking down light into individual components. This observation detected low levels of carbon and silicon – a major chemical for planetary bodies. The Hyades can be found just outside the Winter Circle and is a favorite of both amateur and professional astronomers alike.

How to Spot Asterisms

- **Use Star Maps and Star Apps** – Using star maps or stargazing apps can help familiarize yourself with the constellations and asterisms of the night sky.
- **Get Familiar with Constellations** – Learning the major constellations and their broader shapes visible each season will make spotting asterisms easier.
- **Use Celestial Landmarks** – Orient yourself by using bright stars, or recognizable constellations. This will help you navigate the night sky and pinpoint specific asterisms. Vega in the Lyra constellation is a great example of this.

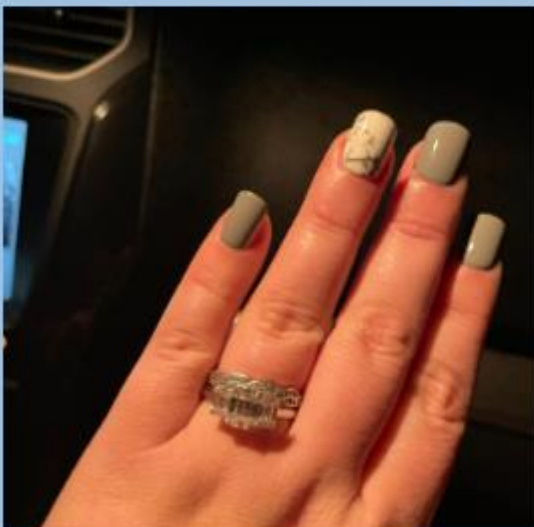
Learn more about how to stay warm while observing this Winter with our upcoming mid-month article on the [Night Sky Network page](#) through NASA's website!

Love under the Stars.

Love smiled on a young couple who came to our December guest night.

Easily the best night of my life! Garrett took me to the [Astronomy Club of Tulsa's](#) guest night at the observatory to see Saturn, but I left with the best ring ! 😊

Congratulations to Garrett and Shelby



You are invited to come join us to learn more about
Astronomy and view the wonderful sights in the night sky.

Check the **EVENTS** section at <https://www.astrotulsa.com/>



During the school year our club holds a
Monthly General Club meetings at
Jenks Public Schools Planetarium
105 East B St, Jenks, OK
Located North of the intersection of
1st and B St

Meetings begin at 7:00 PM

When you enter the building lobby,
take the elevator to the 3rd floor.

[Click for Google Map Link](#)



ASTRONOMY CLUB OBSERVATORY

Located on a hilltop about 25 miles SW of Tulsa
Features: classroom, restroom, dome with 14-inch telescope
and an acre to set up your telescopes.

Weather permitting, we host two types of observing nights.

GUEST OBSERVING NIGHT – RSVP requested

This event is open to our Guests – both individuals and
families as well as our regular members. Several of our club
members set up telescopes for public viewing.

* Groups need to make separate arrangements.

MEMBERS OBSERVING NIGHT usually on a Friday near new moon

Reserved for club members and their families to allow them to pursue observing projects.
The Observatory is **ONLY OPEN** for **SCHEDULED EVENTS**.

Check the **EVENTS** section at <https://www.astrotulsa.com/>

Follow our map directions **DO NOT USE GPS**

Two Options for travel to the observatory

MOSTLY PAVED ROADS – Hwy 75 to 201st St S – through Mounds OK

Most **DIRECT ROUTE** – Hwy 75 to 241st St S – some coarse gravel & dirt roads

Enjoy at Planetarium Show at Jenks High School

JENKS PLANETARIUM



Jenks High School Campus
205 East B Street, Jenks

TICKETS are \$7

Purchase online at
jenkscommunityed.com
or call 918-298-0340

2024 Spring Shows [Go to Show Schedule](#)
Click the Date Column to sort them by show date

Most Shows take place on Tuesday evenings
from 7:00 PM to 8:00 PM- a few on Saturday

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You may also contact club officers or
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CONTACT tab on our website

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SIDEWALK ASTRONOMY – **Open Position**

PR AND OUTREACH – **Open Position**

GROUP DIRECTOR – **Open Position**

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