



OBSERVER

August 2023

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



**Three galaxies in Draco - NGC 5982 top NGC 5985 center NGC 5981 edge on
by Don Bradford**

**The image was taken on July 18 at the club observing field containing 22 stacked images of 5 min. exposures each, and processed with a few tools in PixInsight, a gradual learning process on my part. Images were taken by my Explore Scientific 102mm AR refractor and ASI294MM Pro camera on a ZWO AM5 mount, guided by 60mm guide scope and ASI290MM guide camera, all controlled by the ASIAIR Pro.
(Cover image is a zoomed in crop of the original wider image)**

- 1 Cover Page – Galaxy Trio in Draco by Don Bradford
- 2 Upcoming Club Events
- 3 President's Message - by John Land
Two Solar Eclipses and Call for Volunteers
- 4-5 *Make your own Solar for Eclipse viewing* by John Land
- 6 What's Up in August Skies
- 7 *Enjoy August Meteor Shower*
- 8 *Astronomy in the NEWS*
- 9 Treasurer and New member report – by Mike Blaylock
- 10-11 *Super Blue Sturgeon Moon*- NSN – by Vivian White
- 12 Map Links to *Where We Meet* * Choice of TWO Routes to the Observatory
- 13 Club Contacts information & Astro Cartoon

Astronomy Club Events Check our website AstroTulsa.com events section for updates

Observatory Stargazing Nights

Two types of Observatory nights. During the Summer Months they are scheduled on a Friday.
If weather is poor on Friday, we will try again on Saturday if the weather improves.

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 Stargazing Nights

Friday August 11 7:45 PM **Guest and Members Night** –
Guest requested to RSVP -

The Night of Aug 11 -12 is the peak of the Perseid Meteor shower
Telescope Observing will go until about 11:00 PM
At 11:00 PM we will just relax, visit and watch the meteor shower
You may bring your own lawn chairs, drinks and snacks



Friday August 18 7:30 PM **Members Only night**

Friday Sept 8 7:00 PM **Guest and Members Night** –
Guest requested to RSVP -

Friday Sept 15 7:00 PM **Members Only night**
Open to our members and their immediate family

Astronomy Club Meeting - Friday Sept 22 - 7:00 PM - IN PERSON club meetings.
At Jenks High School planetarium 105 E B Jenks OK - Guests Welcome

As the school term resumes, we will be looking forward to our members and guests
to resume our Fall in person meetings.



MARK YOUR CALENDARS – Saturday Oct 14 - 78% Partial Solar Eclipse in Tulsa
Eclipse begins 10: 25 AM Maximum 11:51 AM Ends 1:24 PM

We will be looking for volunteers to help us with public eclipse viewing events

You MUST have Proper Solar viewing filters for all phases of the eclipse !!



OKIE-TEX is Early This Year !! Registration Deadline Aug 19 !

<http://www.okie-tex.com>

Get your registrations in by Aug 19
Meals must be prepaid by Aug 25 !!
Nearest café is 34 miles away !!

Each fall amateur astronomers from all over the country gather in the western Oklahoma Panhandle to enjoy a weeklong “Star Feast” under some the darkest Bortle 1 sky on the planet. It’s a memory you will cherish for a lifetime and yearn to go again.

President’s Message John Land



I hope you have all had a pleasant summer and been able to get away from the city lights to enjoy the grandeur of a starry sky. August and September are the best months to enjoy the Milky Way stream up out of the southern constellations of Scorpius and Sagittarius and arch high overhead through the Summer Triangle. If your northern sky is truly dark, you can see it extends on toward the NE constellations of Cepheus and Cassiopeia. As fall arrives, we look forward to the return of Saturn and Jupiter to our observing enjoyment.



On Saturday Oct 14 we have a 78 % solar eclipse. This will be an excellent time to tune up your observing skills or practice some solar photography techniques. For the 95% solar eclipse event Monday April 8, 2024. In fact I’m betting that many of you will be planning to go see the Total Eclipse. The path runs diagonally from SW Texas, through the Dallas area, across Idabel in SE Oklahoma, through central Arkansas and on toward Maine.

Make you travel plans now. Hotels are already charging premium rates. If its anything like the Aug 2017 eclipse, travel on major roads on that day will be almost at a standstill.



For the October 14, 2023 eclipse, our club will be planning to organize opportunities for public outreach. I hoping several of you will volunteer to come help us greet the public and encourage their interest in astronomy. Or maybe you might want to organize a neighborhood eclipse watch for your friends and family. Our club is selling Eclipse viewing cards.

Our Friday August 11 Guest and Member night falls near the peak of the Perseid meteor shower. We are expecting a large turn out. **Volunteers will be needed** to assist with parking, greeting guests, setting up telescopes in the early evening and organizing meteor watching after 11:00 PM

We also need more volunteers to help out on our observatory nights, opening or closing up, bringing your telescopes for the public. Don Bradford would also welcome volunteers to help in the dome and learn the operation of the telescope and dome system.

Lastly, each October we elect new officers and board members. I would encourage those of you that have been in the club more than a year to consider becoming more involved in the club. Especially our younger members who can bring fresh new ideas and skills to move our club forward **We desperately need one or two social media savy volunteers to take over our Public FaceBook page.** Make regular posting of club events and interesting sky events, astronomy news

Let us continue our 85+ years of

“Bringing Stars to the Eyes of Tulsa since 1937”

John Land - President

Make your own Solar Filter for your Telescope or Camera.

By John Land



While there are many commercial solar filters for telescopes, it is also possible to make your own filter. In order to safely observe the sun with a telescope, you must have a

FULL SPECTRUM FRONT SURFACE SOLAR FILTER.

The filter covers the front of the telescope (or Camera) and reflects / absorbs visible, infrared and UV light. It is important to purchase material that has been tested to meet safety standards.

Placing the filter in front of the telescope blocks all that energy from the light path.

Caution: some small telescopes come with a “Sun Filter” the screws into the eyepiece. **THROW IT AWAY.** They sit at the super-hot focal plane of the telescope and have been known to crack and send an intense hot flash of light directly into the viewer’s eye.

Specially coated polymer films are available that reflect 99.99% of the sun’s light – but retain high resolution when used as a solar filter. In fact, several of the commercial solar filters use these materials. You can buy the material in sheets and make your own filter. I have made several of them from the same sheet. I also made some for my binoculars and camera.

Online line searches may bring up several sources for Solar Filter film. I would recommend caution about those of uncertain origin like Amazon or independent sellers.

These are three that I found from reputable sources. It is by no means a complete list.

Rainbow Symphony - we’ve purchased eclipse glasses and viewers from them several times.

<https://www.rainbowsymphony.com/products/solar-filter>

Thousand Oaks Optical is a company noted for making all kinds of astronomy filters

<https://thousandoaksoptical.com/products/eclipse/>

OPT Telescopes - Mylar & Film Solar Filters

Their site includes a number of premade options as well as solar film

<https://optcorp.com/collections/mylar-and-film-solar-filters>

Getting Started with your solar filter.

Materials:

Safe solar filter film, ** Buy more than you need so you have extra for your finder or binoculars. Some thick Opaque cardboard, painters’ trim tape or double stick tape, scissors, strips of poster board or thick dense Styrofoam, Kleenex or paper towel, and some gloves to keep fingerprints off your material.

You may find some good “How to” Videos on the internet.

Here is a nice pictorial one I found but unfortunately the company is in Germany, so I didn’t find a US source for the film they are using.

https://www.astro-physics.info/tech_support/accessories/solar_acc/baader-astrosolar-how-to-build-2017.pdf

Most examples you will find are round filters a bit larger than the telescope. I prefer to make mine even larger than the telescope diameter. The extra width acts as a shade when you are looking in the scope and you can also make a small hole in it to aid in lining up with the sun.



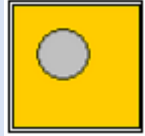
ASSEMBLING YOUR SOLAR FILTER

1. First you need to make a tight-fitting ring to fit over the telescope. I have used a dense square of Styrofoam cut with a hole just smaller than the tube and then pressed over the scope.

Others suggest using 2-inch strips of overlapping poster board wrapped around the tube in several layers that are glued or taped together with double stick tape. It needs to fit snugly, so it won't fall or blow off.



2. Next Cut Two Sheets of thick OPAQUE cardboard to attach the solar film to. Cut a hole in each, the desired size for your filter material. NOTE: If you have a large scope the hole does not need to be the full diameter of you telescope. A 4" to 5" size is more than enough to see the sun. For scopes with a central mirror obstruction make the hole off center but still over the objective area.



3. Next, carefully cut a square of the Solar Filter material at least an inch wider than the lens opening. Put the filter over a tissue to keep it clean and maybe wear gloves
4. Tape the solar material on the inside of the cardboard using painter's tape. The main thing is to tape it all the way around but not have any of the tape overlapping into the visual area.
5. Then place the second sheet of cardboard over the filter one and tape the two sheets together all the way around.
6. Now you must test the filter. Take it outside – hold it in front of your face – look though it at the sun. Move it around and be sure there are no holes in it.
If there are holes, you must start over.

7. Next firmly secure the filter assembly to the tube fitting assembly. If you used Styrofoam just tape it all around. If a poster board ring, make some 3+”s strips and fold them to tape several places around the tube and to the back of the filter assembly.
8. **AIMING** your solar scope presents a problem. You can't look through your finder scope at the sun. In fact, you need to cover or remove any finders (I learned this the hard way – when I forgot and left my hand at the focal plane of the finder on my six-inch scope while viewing the sun. OUCH!) To aim my scope, I took an ice pick and pressed it all the way through the cardboard and Styrofoam - well away from the filter material. I had to twist it some to make a nice hole (a cut-off small straw through the hole also works well). I put the filter over the scope and use the telescope's shadow to line it up closely with the sun. I then moved the scope around so that I saw the sun in the eyepiece. Lastly, I made a folded tab of tape and placed it on the tube, so the sun shining through the hole landed on the tape. Last I made a small circle on the tab to mark where to line up the scope. I also have a reference mark to align the filter when I put it on. This lets me adjust the scope easily if the sun drifts off center or when setting the scope up when starting an observation.



9. Lastly you will want to protect you filter when not in use or traveling. I made two extra layers of thick cardboard to place over the front and back of my filter and use a couple of large rubber bands to hold them over the filter. You may want to make a box to keep yours in.
10. Be sure to inspect your filter for holes each time you use it.
11. Making a Double lens filter for binoculars is a nice handy way to observe sunspot activity without having to set up your telescope. If you plan to do photography, you need filters for your camera AND even your CELL PHONE camera.



Click on these images to links on the Internet



*** 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

[kyandtelescope.org/astronomy-news/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/>

August - Moon Phases - - Full Aug 1 & 30 - - 3rd Q Aug 8 - - New Aug 16 - - 1st Q Aug 24

ONCE IN A BLUE MOON



August has TWO FULL moons this year. The first is on Aug 1st.

It was known by early Native American tribes as the Sturgeon Moon because the large [sturgeon fish](#) of the Great Lakes and other major lakes were more easily caught at this time of year. The complete cycle of phases of the Moon (Synodic period) as seen from Earth, averages 29.530588 mean solar days (i.e., 29 days 12 hours 44 minutes 3 seconds) So August will have a 2nd Full Moon on Aug 30th. The 2nd Full moon in month is popularly called a Blue Moon. (it doesn't actually turn blue) The next one is May 31st 2026.

An older alternate meaning for the "Blue Moon" is when 4 Full Moons occur in the

same quarter of the year.

When the Full Moon occurs close to the time that the moon is closest to the Earth (Perigee) it appears a bit larger and brighter than average. In recent years the Media has dubbed this a SUPERMOON. Both of the August Full Moons are close to the moon's perigee. The Aug 1 moon will be 226,013 miles from Earth. The Aug 30 full moon will be the closest "Supermoon" of the year at 221,672 miles away. For a comparison of the Moon's Perigee and Apogee size to go <https://apod.nasa.gov/apod/ap161113.html>

AUGUST PLANETS – VENUS, which has been our bright evening planet will soon depart as it passes between Earth and the Sun (Inferior Conjunction) on August 12. Look for it to reappear in the predawn sky in early September. **MERCURY** makes its best evening appearance of the year reaching maximum eastern elongation from the Sun on Aug 9th. Look for it due west about 10 degrees up at sunset. Dim **MARS** is still plodding along near the western horizon as it passes from Leo into Virgo.

SATURN is becoming visible as an evening planet. Rising soon after sunset. It reaches opposition August 27 when it will be closest to Earth. Thus, August and September are good months for observing Saturn. In mid-August **JUPTER** rises near midnight and is well placed for viewing in the morning sky.

The Moon is near Saturn Aug 2, Jupiter Aug 7, Mars Aug 16th



August is a great month of meteor watching. The Delta Aquarid Meteor Shower peaked at the end of July, but activity continues for another week or so. The Perseid Meteor Shower peaks of the weekend of July 11 – 13 but is active for a couple of weeks before and after. Our Guest and members observing night is Friday August 11 so we should a number of good meteors that night. The particles of the Perseid shower are fragments of space debris left behind by the Comet 109P / Swift-Tuttle that orbits the sun once in 133 years. This 16 mile wide comet has been orbiting the sun for thousands of years leaving debris spread along its entire orbit.

The term METEOR SHOWER is often misunderstood by the general public and even amateur astronomers. Time lapsed images like the small insert image give the impression that they are streaming out of the sky. What you really observe is a meteor or two every few minutes. You need to plan on observing at least 30 mins to an hour at a time. Keep a notepad and pencil and make a tally of each meteor you see. Break your tally up into 10- or 15-minute blocks so that you can see how the rate of activity changes during your observing run. Make some notes of the direction of travel and how bright they are. If you're fortunate you may see a bright Fireball that leaves a residual smoke trail behind.

Most meteor showers are associated with debris left behind in the orbit of a comet. These tiny bits of debris continue to orbit the sun. When the Earth passes through a region of space populated by the comet debris. Some of them collide with Earth's atmosphere and produce a trail of light flashing across the sky we call a meteor. The typical particles are no bigger than a grain of sand, but they slam into our atmosphere a tens of thousands of miles per hour. Much of the light we see is not the particle "burning up". As the particle steaks through the upper atmosphere, it ionizes the gases causing them to glow. Meteor showers are more active after midnight to just before dawn. This is because our Earth, traveling at 66,000 mph, is slamming into them head on.

Meteor Showers are usually named for the region of sky that they appear to originate. The Perseid meteors seem to be coming from the area of the constellation of Perseus. The focus area is called its Radiant. If you have ever been driving at night when its snowing, the snow seems to be streaming right into your headlights. When you stop however, you see the flakes are just gently falling down. It's the motion of your car that causes the streaming illusion.

When observing meteors, don't face the area of the radiant. Meteors coming right at you produce short trails. Instead choose a direction with the radiant to your back or side. Then you will more likely see longer trails on the sky. Concentrate on one section of the sky for a period of time instead of trying to look all over the sky. In the case of our Observatory grounds Perseus rises in the NE but that area of sky is bright looking toward Tulsa. You will have more success watching West or Southwest.

The data about the activity of a meteor shower is misleading also. For instance, the Perseid showers is rated at 100 per hour. But that number is a ZENITH HOURLY rate. Meaning that IF you were observing in very dark skies AND the radiant was directly overhead you might see that many.



**To learn more about the techniques of observing meteors, consider earning the Meteor Observing Certificate from the Astronomical League
<https://www.astroleague.org/meteor-observing-program/>**

Solar Cycle 25 is continuing to be active. Large sunspot regions that last for many days are becoming more frequent. Check out <https://spaceweather.com/> daily to watch the sun's ever-changing appearance as well other interesting space phenomena, such as aurora, comets, meteor showers, high altitude clouds, near earth asteroids and more!



SOLAR ECLIPSES are coming to Tulsa – Oct 14 -71 % - April 8 - 95 %
Plus, the April 8, 2024 event will be a **Total Solar Eclipse** over a long path from SW Texas, SE OKLA, Central Arkansas and extending on to Maine.
Our Astronomy Club is selling certified safe Eclipse Viewing Cards – Sets of 5 for \$ 5 at our events

Caution Advised – in 2017 many unsafe glasses were sold online

Astronomy in the News -

Articles of random astronomy interest.

I have not reviewed all these articles – those from general media may contain less accurate information. My apologies for those that include Ads

Where and when to see the October 2023 annular eclipse | Astronomy.com

<https://www.astronomy.com/observing/where-and-when-to-see-the-october-2023-annular-eclipse>

Total solar eclipse: What to expect during the 2024 event | CNN

<https://amp.cnn.com/cnn/2023/06/23/world/2024-total-solar-eclipse-guide-scnn/index.html>

NASA Science in the Shadows: Five Exciting Experiments for 2024 Total Solar Eclipse

<https://scitechdaily.com/nasa-science-in-the-shadows-five-exciting-experiments-for-2024-total-solar-eclipse/>

NSN Webinar Series: The Scientific Magic of Total Solar Eclipses

One of Night Sky Network's hour-long webinars in a YouTube format.

<https://youtu.be/-LXUtMoN6ys>

Explanation of Dark Adaptation: Why does it take so long for our vision to adjust to a darkened theater after we come in from bright sunlight? - Scientific American

<https://www.scientificamerican.com/article/experts-eyes-adjust-to-darkness/>

Earth at Night video from ISS starting over Pacific NW running diagonally to Florida

<https://apod.nasa.gov/apod/ap230617.html>

Parker Solar Probe Detects Source of Solar Wind - Sky & Telescope

<https://skyandtelescope.org/astronomy-news/parker-solar-probe-detects-source-of-solar-wind/>

Exploring Jovian Planets, the Titans of Our Solar System | HowStuffWorks

<https://science.howstuffworks.com/jovian-planets.htm>

Venus in Ultraviolet from Japanese spacecraft Akatsuki – Best image of Venus I've seen in years

<https://apod.nasa.gov/apod/ap230703.html>

Associate Treasurer Report

Mike Blaylock



As of July 25, we had 203 members 28 New members for 2023

We welcome this month's newest members – Austin Smith, John Weed, Mike Lageose, Vincent Legary, John Evans, Michael Harrison 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 July 25, 2023

Checking: \$ 1,189.99 Note: In June we paid our Astronomical League due \$ 1,025
Savings: \$ 2,792.06 and in July Liability Insurance of \$ 2,425
Investments: \$ 32,676.11 (Value tends to fluctuate with markets).

You can JOIN or RENEW memberships or magazine subscriptions ONLINE using ANY MAJOR CREDIT CARD.

The transactions are processed through PayPal but you Do Not need a PayPal account.

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

Click Submit and you will be given the choice of either MAILING in your dues with a check or paying online with most major credit cards. A modest processing fee is added to online transactions.

Membership rates for 2023 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.

Join Online – Add or renew magazine subscriptions. <https://www.astrotulsa.com/join>

MAGAZINE SUBSCRIPTION RATES and PROCESS has CHANGED !

You can get a discount rate as a Astronomy Club member. **However, you will need to do so directly using their discount rate web links.** Both Sky & Telescope and Astronomy have options for DIGITAL as well as PRINT subscriptions.

For club member's Discount subscription rates to [Sky and Telescope magazine](#)
go to [this page](#)

For club member's Discount subscription rates to [Astronomy magazine](#)
go to [this page](#)

Use the DISCOUNT RATE LINKS above instead of their regular subscription pages to MAKE or RENEW your subscription.



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!

Super Blue Sturgeon Moon

Vivian White

On August 1st, catch a **full Moon** rising in the east just 30 minutes after sunset. We are seeing the entire sunlit side of the Moon as it is nearly (but not quite) in line with the Sun and Earth. The *Farmers' Almanac* calls this month's Moon the "Sturgeon Moon", for the time of year when this giant fish was once abundant in the Great Lakes. Cultures around the world give full Moons special names, often related to growing seasons or celebrations.

As the Moon rises later and later each night, the bright sunlit part appears to get smaller or "wane" - we call this a waning **gibbous Moon**. About a week later, on August 8th, we see only one half of the Moon alight. At this phase, the Moon rises around midnight and sets around noon. Have you ever seen the Moon in the daytime? You may notice this phase towards the southwest in the morning sky. Hold up a ball or egg beside it and see how the Sun lights up the same part.

By August 16th, the Moon has gone through its crescent phase and is now only showing its dark side towards the Earth. Did you know the **dark side** and the **far side** of the Moon are different? The Moon always shows the same face towards Earth due to the gravitational pull of Earth, so the far side of the Moon was only viewed by humans for the first time in 1968 with the Apollo 8 mission. However, the dark side is pointed at us almost all the time. As the Moon orbits the Earth, the sunlit side changes slowly until the full dark side is facing us during a **new Moon**. When the Moon is just a small crescent, you can sometimes even see the light of an **Earthshine** reflecting off Earth and lighting up the dark side of the Moon faintly.

Then as the Moon reappears, making a waxing (or growing) **crescent Moon**, best seen in the afternoons. By the time it reaches the first quarter on August 24th, we see the other half of the Moon lit up. At this point, the Moon passes through Earth's orbit and marks the spot where the Earth was just 3 hours prior. It takes the Earth about 3 hours to move the distance between the Moon and Earth.

The Moon on August 30th is referred to as a blue moon. **Blue moons** are not actually blue in color of course; it refers to the second full Moon in any month. Since it takes 29.5 days to complete the cycle from full to new and back to full, most months will see only one. But occasionally, you'll fit two into one month, hence the phrase "once in a blue moon." We see a blue moon about once every 3 years on average - next in May 2026. In addition, this full Moon appears larger in the sky than any other full Moon this year - an unofficial **supermoon**. A supermoon appears larger than average because it is closer in its slightly elliptical orbit. The difference in apparent size between the smallest and largest full Moon is about the size difference between a quarter and a nickel. Even at its largest, you can always cover the whole Moon with your pinky extended at arm's length.

Follow the Moon with us this month and keep a Moon journal if you like - you may be surprised what you discover! moon.nasa.gov/moon-observation



Image of waning crescent Moon shown next to a ball on a stick that is lit by the Sun on the same side as the Moon, with trees and a blue sky in the background. Try this with an egg or any round object when you see the Moon during the day! Credit: Vivian White



[Earthshine as seen from the International Space Station](#) with the sun just set - Astronaut Photograph ISS028-E-20073 was taken on July 31, 2011, and is provided by the ISS Crew Earth Observations Facility and the Earth Science and Remote Sensing Unit, Johnson Space Center

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 Guest – both individuals and families as well as our regular members. Several of our club members set up telescope 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

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PR AND OUTREACH – **Open Position**

GROUP DIRECTOR – **Open Position**

NIGHT SKY NETWORK – **Open Position**

WEBMASTER JENNIFER JONES

Meanwhile on Mars :



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

2023 Summer 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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