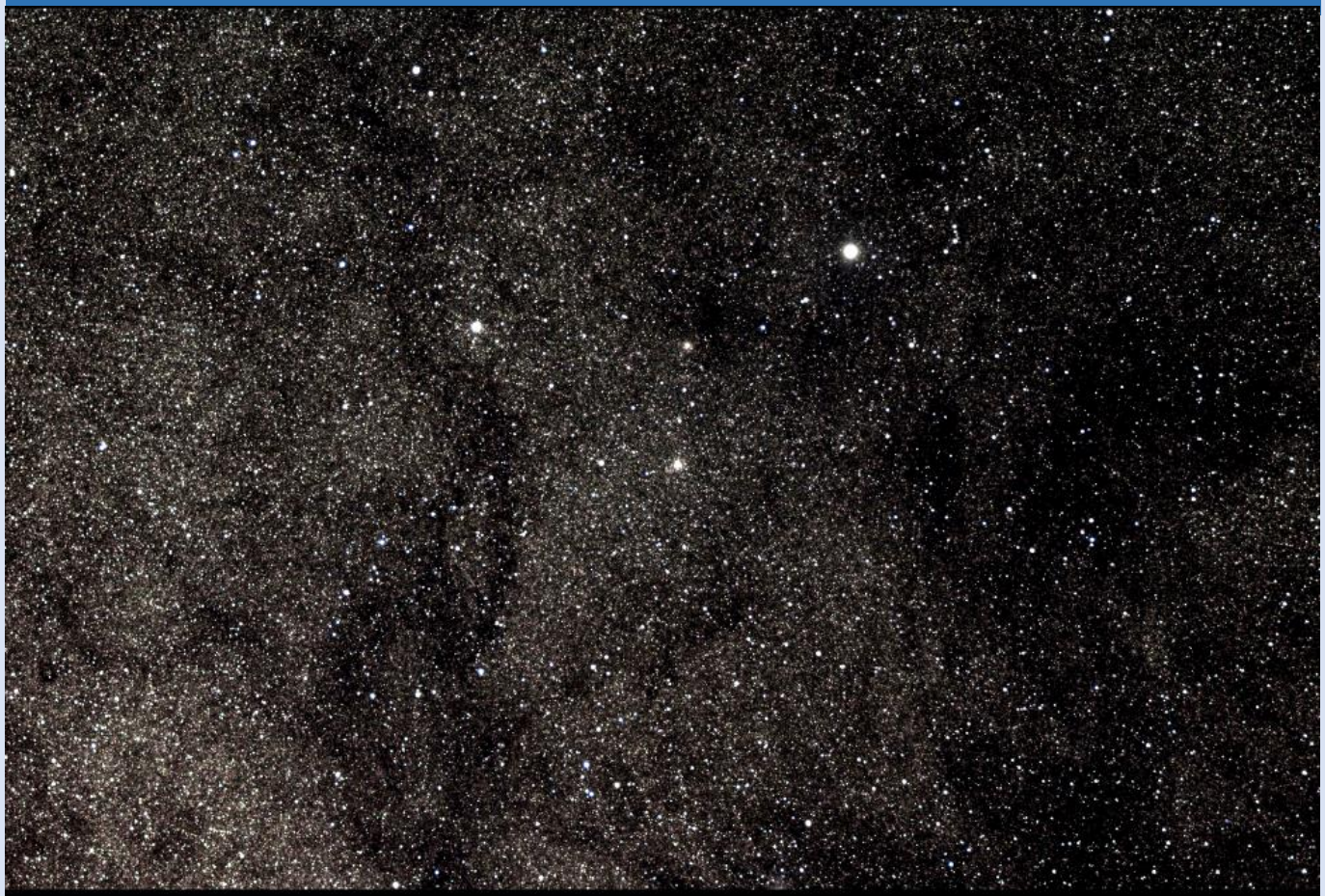




OBSERVER

November 2022

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



Photographer Robbin Jones gives us a “Peephole Peek” into the center of our Milky Way Galaxy.

[Baade's Window](#), an approximately 1° peephole into the Milky Way's galactic bulge, is easy to locate just $1/2^\circ$ northwest of Gamma Sagittarii. Named for Mt. Wilson astronomer Walter Baade who first recognized its significance, this porthole into deep space spans about 1° in diameter centered on the globular cluster NGC 6522 in Sagittarius.



Robbin took this image at the Okie-Tex Star party using his Astronomics AT80 ED Refractor and a DS26CT Mallincam one shot color camera, 30 x 30 Sec exposures, 15 minutes total, 26 million pixels.

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Astronomy Club Events

Check our website AstroTulsa.com events section for updates

Observatory ONLY OPEN for SCHEDULED EVENTS. [Click for Observatory Map](#)

OBSERVING NIGHTS will be scheduled on

Friday with Saturday as a backup night for weather cancellations.

NOTE: Please check our website for Weather Cancellations before heading out.

SUNDAY Nov 6 CST (Central Starlight Time) Begins ☺ End of Daylight Time

TUESDAY Nov 8 Total Eclipse of the Moon 2:30 AM to 7:30 AM

Totality 4:18 to 5:44 AM See Details on website

Friday Nov 11 7:00 to 10:30 PM Guest and Members Night –
Guest requested to RSVP - Gates Open After Sunset

Saturday Nov 12 6:00 PM Annual Astronomy Club Dinner at Jenks Planetarium
Great time to get to know other members and their families
Make your reservations by Nov 8 or earlier

Friday Nov 18 7:00 PM Members Only night
Open to members and their immediate family

Astronomy Club Meeting - Friday Dec 2 - 7:00 PM - IN PERSON club meetings.

At Jenks High School planetarium 105 E B Jenks OK - Guests Welcome

Our guest speaker will be Jonathan Fussell from ORU. Jonathan is finishing up his studies focusing on 'Stellar Nucleosynthesis' The process by which stars form heavier atoms within their cores. You've likely heard the expression "We are made of Star Stuff" His work focused on Phosphorus as a Biosignature for Life', which also links to astrobiology, chemistry and the search for life in space

Friday Dec 16 6:30 PM Members Only night
Open to members and their immediate family

Saturday Dec 17 4:30 to 10:30 PM Guest and Members Night –
Guest requested to RSVP - Gates Open near sunset

OBSERVING NIGHT GUIDELINES

Children and young teens need to stay with adult family members. Temperature drops quickly in Autumn evenings. Jacket and warmer apparel recommended. When approaching a telescope ask it owner if you can look at what they are viewing. We want to keep our guests and members safe. We ask you to please be thoughtful of the health safety of others around you. If you or a person in your household is showing signs of illness, please postpone your visit for another date.

President's Message *John Land*



Greetings to all our Astronomy Club of Tulsa Members and Guests.

Looking forward to visiting with many of our members and families at our Annual Club Dinner Saturday Nov 12th. Our new board member Cathy Grounds and team are planning some fun activities. I am pleased to announce that all of your new Officers and Board candidates were approved at our Oct 14 meeting. In addition the motion to authorize \$ 6000 A-Best roofing to install metal flashing around our dome and shutter was approved. Our observatory manager James Taggart is working with them to arrange a time to begin the work.

You will soon be seeing a whole new look for our website. It will have nice bright background. Easy to read and navigate links. Also the new design will be compatible with mobile phones and tablets. Once it's up and running we may still have a few items that need to be tweaked a bit.

Due to the Moon Phases and holiday season, Guest night is Friday Nov 11 the evening before our club dinner. In December our members observing night on Friday Dec 16 will be followed by the Guest night on Saturday Dec 17. We will be looking for volunteers to help with our Guest night.

Since we will be hosting the MidStates regional astronomy convention in June 2023 we will need to get started planning for it soon. Volunteers will be needed for work days at the observatory. Publicity about the event, Information on Tourist attractions in Tulsa, Planning Box Lunch meals, Securing a Hotel to host our Keynote speaker banquet, contacting astronomy vendors to come to our event and also securing door prizes during the event.

So you can see it is going to take many dedicated volunteers to pull all this together and make this a memorable event for both our own members and out of town guests.

To volunteer contact astrotulsa.pres@gmail.com

Enter the Subject line: Club Dinner Volunteer or MSRAL Volunteer
and provide your contact information.

Let us continue our 85 years of

"Bringing Stars to the Eyes of Tulsa since 1937"

John Land - President



Click on these images to links on the Internet



See our [website observing page](#) 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/>

November - Moon Phases - - Full Nov 8 - - 3rd Q Nov 16 - - New Nov 23 - - 1st Q Nov 30

November Planets – Rejoice - Central “Starlight“ Time returns Sunday Nov 6. Sunsets occur about 5:15 PM and we can start observing soon after supper. SATURN and JUPITER are still well placed for evening observing. VENUS & MERCURY begin the month at inferior conjunction behind the sun. By month’s end they will be visible in the evening twilight and put on a grand show in December. The moon slips 3 deg below Jupiter Nov 4. On Thursday Nov 10 the Moon and Mars Rise in the NE just 5 degrees apart. When it returns to the western evening sky it lies 6 degrees below Saturn on Nov. 28.

MARS begins the month rising about 7:45 PM appearing as a brilliant orange beacon in Taurus. In order to see some of its surface detail, you’ll need to wait for it to get at least 30 degrees up. Place your telescope outside at least 30 mins ahead of time so that I can cool down to ambient temperatures. Try some color filters to enhance details. It starts the month at an apparent diameter of 15.8 arcsec and Mag -1.4 By it opposition on Dec 7th it reaches 17.1 arcsec and mag -1.9 Patient and persistence are the key to see Mars surface details. Plan several observing sessions now through New Year. Set your calendar for **8:30 PM Dec 7 !** The Full Moon will pass directly over Mars for an occultation. Mars doesn’t reach opposition again until Jan 15, 2025 at a much smaller size 14.6 arcsec.

Meteor Showers – The [Taurid meteor Shower](#) peaks in early November but may be hampered by a bright moon. The shower is noted for it bright meteors. Observations records show we should expect increased activity this year as Earth passes through a more densely populated region of fragments.



Total Lunar Eclipse 3:09 AM To 6:49 AM Tuesday Morning Nov 8th

We will have a Total Eclipse of the Full Moon Tuesday morning. A Lunar Eclipse occurs when the Full Moon slips into the Earth's shadow. You won't need any special equipment or dark sky to watch the eclipse. It can be easily seen naked eye. Binoculars or a low power telescope may enhance the view some. You will want to be outside and locate the moon by 3:00 AM CST. The moon is in the Constellation of Aries so look to the WEST about halfway up in the sky.

The moon will begin to enter the Earth's inner shadow, the UMBRA, at 3:09 AM Look for a small "Bite" on its top left corner. Over the next hour the moon will continue to slip deeper into the Earth's shadow. Totality begins at 4:09 AM when the moon is fully in the Earth's shadow. The moon will take on an orange or reddish hue during totality. This is caused by

our atmosphere bending the light of all the sunrises and sunsets along the Earth's rim. At mid-Eclipse 4:59 AM it may be a bit hard to locate. Look about 20 degrees up in the west. Totality lasts from 4:18 AM to 5:41 AM

If you aren't up to watching the whole event. Be sure to be outside by 3:50 AM so that you can locate the moon before Totality begins. Or you can go out at 5:20 AM and watch until Totality ends. But it will be harder to locate due to its low altitude in the west.

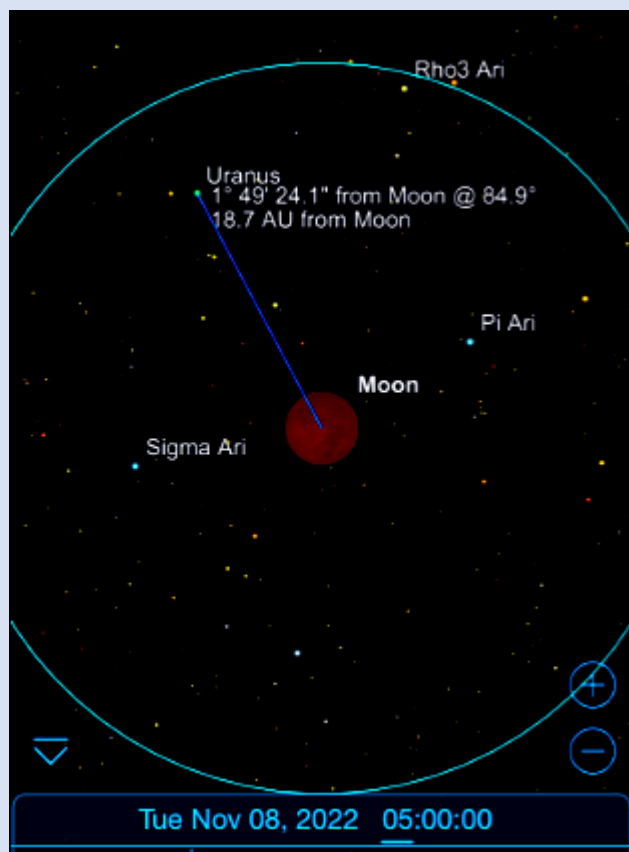
You'll need a good view toward the western horizon to watch the end of the partial phase. The Lunar eclipse ends at 6:50 AM just before the moon sets at 7:01 AM

Your Cell Phone should take some decent pictures if you zoom in a bit and brace it on something stable. Be sure to turn off the Flash mode on your phone.

Here are some Websites about Lunar Eclipses

[Shadow and Substance animations](#)

[Video explaining how a lunar eclipse occurs](#)



DOUBLE OPPOSITION

The Moon is directly opposite the Earth from the Sun during the Total Eclipse on Nov 8. The planet URANUS reaches its opposition on Nov. 9th. During mid-eclipse you should be able to see it in binoculars as a pale greenish "star" less than 2 degrees to the moon's upper left. (your telescope may invert the orientation) Under dark sky conditions Uranus shines at 5.6 magnitude and can be detected without optical aid.

If you are viewing with a telescope increase you magnification to about 100 x to see it as a tiny disc.

Associate Treasurer Report

Mike Blaylock



As of October 24, we had 192 members - 42 New members for 2022

We welcome this month's newest members - Rita Brown, Ross Walker, Karla Kerby, Eugene Harris, Traci DeGraffenreid, David Brown, and Gibson Brasel. 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 October 24, 2022

Checking: \$ 4,358.08 \$ 10,000 was moved from Saving to Checking to cover
Savings: \$ 5,788.78 Payments \$ 7,976.50 Land Survey \$ 2,000 deposit Dome project
Investments: \$ 28,654.42 (Value tends to fluctuate with markets).

You can JOIN or RENEW memberships or magazine subscriptions ONLINE using ANY CREDIT CARD. The transactions are processed through PayPal but you Do Not need a PayPal account.

Fill out the registration form at <https://astrotulsa.com/page.aspx?pageid=16>

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

You may also renew your membership or join at one of our club events using your credit card by seeing one of our officers. We can take payments with the Square card reader. A small fee is also added on to these transactions.

ALSO NOTE: For our current members who are renewing their memberships, you can now go to a new link on the website to start your renewal process. On the home page, hover over the "Member" tab on the ribbon menu near the top of the page. Then select the "Membership Renewal" link and this will take to a page to fill out your information. Fill this out, submit it, then pay your dues by the method you choose.

NEWS NOTE: Both Sky & Telescope and Astronomy have free Digital subscriptions available with print subscriptions, or Digital subscriptions may be purchased separately. Details - Contact their websites

Membership rates for 2022 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/page.aspx?pageid=16>

Magazine Subscriptions: If your magazines are coming up for renewal, try to save the mailing label or renewal form you get in the mail. Forms are available on the club website. Both magazine now include online access with paid subscription.

Astronomy is \$ 34 for 1 year, or \$ 60 for 2 years. www.astronomy.com

To get the club discount you must go through the club group rate.

Sky & Telescope is \$ 33 per year <https://skyandtelescope.org/>

Sky & Telescope also offers a 10% discount on their products.

You can SAVE \$ 10 by renewing Sky & Telescope through our club instead of online.

EAA – Excessively Argumentative Astronomers

By Brad Young



Don't worry, this isn't going to be a technical discussion of Electronically Assisted Astronomy, because I have no idea how it works. But, reading the message boards and eavesdropping at the Okie-Tex Star Party this month, it seems EAA has become a hot topic again. EAA has been around for years; there are posts about it from 2007 on Cloudy Nights. I'm assuming some recent improvements have brought it to the fore again. Of course, anytime you have a new method or technology in amateur astronomy, you will have adopters who jump on it with both feet and haters who also pounce on it with both feet, just in a different way.

Side note: **click [AstroBackyard](https://www.youtube.com/watch?v=8uEOukbdyBE) for a great video about Okie-Tex 2022, shot by the guy selling ASI AIR there.** <https://www.youtube.com/watch?v=8uEOukbdyBE>

My Viewpoint

You're probably assuming, since I am a nearly completely visual astronomer, that I think EAA is a bad idea. You wouldn't be wrong, for me. For everyone else, I honestly don't see what the big deal is. For nearly two centuries we have had both tactile and recorded astronomy. You can either look at a picture of something, or you can experience it as it is in the moment. Or, per Young's Law:

Visual Astronomy is a Rock Concert
Imaging is an MP3

EAA is just a different type of experience – perhaps singing along with a Cocomelon video. However, the bile spewed by people who think EAA is vile is clear and in high fidelity.



EAA is OK

Idiocy is the essence of the male mind!

Haters Gotta Hate

One of the complaints I heard was that people using EAA will be diluting the hard work of those who came before and completed astronomy discoveries, projects, or awards without that technology. I don't think Tycho Brahe has been defamed by the invention of the telescope, nor did Herschel fade away after the invention of photography. If a competition is involved, or an award for completing a project, then there should be clear rules on what is allowed. Perhaps different or modified awards should be given for those who use EAA. There will always be new technology bringing the opportunity to increase our knowledge of the universe and foster interest with a larger audience. On both points, it seems EAA could have value.



These kids today with their texting and murder.

Another complaint I have heard is an old one - that "these kids today" aren't learning the sky the way they should by star hopping and memorizing their constellations. This may be true, but mainly because we have allowed our skies to become so light polluted that you can't see the constellations. As for star hopping, that has to do with guiding, not the quality or source of the images provided by the equipment. EAA may help amateur astronomy thrive, while hard nosed thinking may drive off beginners and alienate current observers.

Valid Points

“The Eiffel Tower and the Taj Mahal are mine to see on clear days” – Peter Townshend

Of course, one point I do agree with is that it is dangerous to let people think that the sky in their beginner scope is always just like the pictures they've seen on TV and the internet. EAA isn't there yet (until the James Webb junior model comes out). However, showing a person who's never seen Saturn before a normal view through a small telescope is going to excite them and they will have reasonable expectations. This increases the chances that they may have a good second experience with whatever equipment comes along next. If you show them an image that is enhanced too much by EAA technology, their next view of any object may be so disappointing that there is a risk they will lose all interest.

One use that seems to always slip through the cracks is helping those with visual impairment see things that may have been too faint or difficult before. Again, I'm not an expert on this technology but it would seem like there is a good fit here that could be exploited for useful accommodation for people who might otherwise not get to enjoy the sky.

So, let's see EAA for what it is, a not so new technology that just like other enhancements, has its good and bad points. It shouldn't be banned outright from observing awards, nor should it be your first sight of a celestial object. But it does have its place and should be welcomed into the pantheon of equipment that amateur astronomers use.

Further Reading

There are several websites, videos, and message board folders that discuss EAA more thoroughly if you are interested. The first entry does a good job of itemizing the pros and cons, and the others have details on equipment needed and other facets unique to this branch of observational astronomy.

<https://skiesandscopes.com/electronically-assisted-astronomy/>

<https://www.cloudynights.com/topic/685001-eea-announcements-beginner-guides-other-useful-links/>

<https://agenaastro.com/articles/miscellaneous/agena-beginners-guide-to-choosing-equipment-for-deep-sky-eea.html>

References:

<https://www.youtube.com/watch?v=8uEOukbdyE>

Not part of Brad's article

Planet Photos with iPhone

<https://www.youtube.com/watch?v=Ugs1GRZ5N6k>



**Botanical Gardens
Stargazing Night Oct 18, 2022**

**Nearly 100 people came to enjoy looking
at the planets through telescopes set up
by members of the Astronomy Club of
Tulsa www.AstroTulsa.com**

Several of our Tulsa members enjoyed this year's Okie-Tex Star Party in far western Oklahoma Panhandle which ran from Sept 23 to Oct 1. Mark your calendars for the 40th anniversary of this dark sky event Sept 8 to Sept 16, 2023. It is in September so that astronomers can travel to the Annual Solar Eclipse on Oct 14, 2023

Photos shared by Bob Lieser, Ben Staton M 31 and Robbin Jones – N American Nebula







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!

Cepheus: A House Fit for a King

David Prosper

Sometimes constellations look like their namesake, and sometimes these starry patterns look like something else entirely. That's the case for many stargazers upon identifying the constellation of **Cepheus** for the first time. These stars represent Cepheus, the King of Ethiopia, sitting on his throne. However, many present-day observers see the outline of a simple house, complete with peaked roof, instead – quite a difference! Astronomers have another association with this northern constellation; inside its borders lies the namesake of one of the most important types of stars in modern astronomy: Delta Cephei, the original **Cepheid Variable**.

Cepheus is a circumpolar constellation for most observers located in mid-northern latitudes and above, meaning it does not set, or dip below the horizon. This means Cepheus is visible all night long and can be observed to swing around the northern celestial pole, anchored by Polaris, the current North Star. Other circumpolar constellations include Cassiopeia, Ursa Major, Ursa Minor, Draco, and Camelopardalis. Its all-night position for many stargazers brings with it some interesting objects to observe. Among them: the “Garnet Star” Mu Cephei, a supergiant star with an especially deep red hue; several binary stars; several nebulae, including the notable reflection nebula NGC 7023; and the “Fireworks Galaxy” NGC 6946, known for a surprising amount of supernovae.

Perhaps the most famous, and certainly the most notable object in Cepheus, is the star **Delta Cephei**. Its variable nature was first discovered by John Goodricke, whose observations of the star began in October 1784. Slightly more than a century later, Henrietta Leavitt studied the variable stars found in the Magellanic Clouds in 1908 and discovered that the type of variable stars represented by Delta Cephei possessed very consistent relationships between their luminosity (total amount of light emitted), and their pulsation period (generally, the length of time in which the star goes through a cycle of where it dims and then brightens). Once the period for a Cepheid Variable (or **Cepheid**) is known, its luminosity can be calculated by using the scale originally developed by Henrietta Leavitt, now called “Leavitt’s Law.” So, if a star is found to be a Cepheid, its actual brightness can be calculated versus its observed brightness. From that difference, the Cepheid’s distance can then be estimated with a great deal of precision. This revolutionary discovery unlocked a key to measuring vast distances across the cosmos, and in 1924 observations of Cepheids by Edwin Hubble in what was then called the Andromeda Nebula proved that this “nebula” was actually another galaxy outside of our own Milky Way! You may now know this object as the “Andromeda **Galaxy**” or M31. Further observations of Cepheids in other galaxies gave rise to another astounding discovery: that our universe is not static, but expanding!

Because of their importance as a “standard candle” in measuring cosmic distances, astronomers continue to study the nature of Cepheids. Their studies revealed that there are two distinct types of Cepheids: Classical and Type II. Delta Cephei is the second closest Cepheid to Earth after Polaris, and was even studied in detail by Edwin Hubble’s namesake telescope, NASA’s Hubble Space Telescope, in 2008. These studies, along with others performed by the ESA’s Hipparcos mission and other observatories, help to further refine the accuracy of distance measurements derived from observations of Cepheids. What will further observations of Delta Cephei and other Cepheids reveal about our universe? Follow NASA’s latest observations of stars and galaxies across our universe at nasa.gov.

Facing North October Evenings.



The stars of Cepheus are visible all year round for many in the Northern Hemisphere, but fall months offer some of the best views of this circumpolar constellation to warmly-dressed observers. Just look northwards! Image created with assistance from Stellarium: stellarium.org.

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

Check our Events Page of Dates [Link to Events Page](#)



During the school year our club holds a
Monthly General Club meetings at
Jenks Public Schools Planetarium
205 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 individuals and families.
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/>

[New Directions map to Observatory](#)

CAUTION: DO NOT use GPS it will likely send you on some nearly impassible back roads.

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SIDEWALK ASTRONOMY – **Open Position**

PR AND OUTREACH – **Open Position**

GROUP DIRECTOR – **Open Position**

NIGHT SKY NETWORK – **Open Position**

WEBMASTER JENNIFER JONES

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

2022 [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

Do you have ideas for our club In Person or ZOOM Meetings?

Want to share an observing experience or astrophoto.
Know someone willing to be a Guest presenter?

We would also welcome YOU to do a short 5-10
minute section of interest or new equipment you'd
like to review.

Create a Cartoon on a Space Theme

Contact our Editor John Land

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