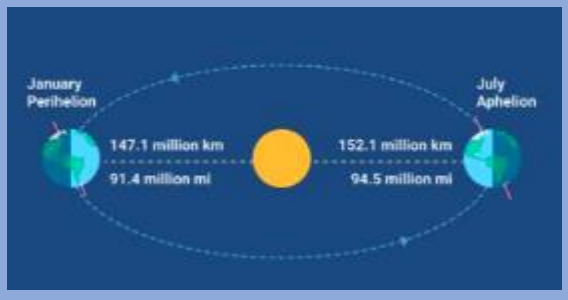
2024 Astronomy Club Highlights

April 8 Total Solar Eclipse, March Messier Marathon, May 10 Aurora in Tulsa, September 17 Partial Lunar Eclipse, Comet C/2023 A3 (Tsuchinshan-ATLAS) February Telescope workshop, Women in Astronomy SIG group, Aug Club Picnic Other activities included
More SIG groups, Public Nights in Sand Springs & Hunter Park, Nov Club Banquet

Friday January 17 - Club Meeting - 7:00 PM
Jenks High School Planetarium **105 East B St, Jenks, OK**

Our January 17th guest speaker is Mike Simmons, the founder and former leader of ***Astronomers Without Borders.*** He now runs ***Astronomy for Equity***. Mike Simmons has spent over 50 years as an amateur astronomer and outreach leader, inspiring countless people to look up and wonder. His journey began in the 1970s with the Los Angeles Astronomical Society and Griffith Observatory, where he operated the Zeiss 12-inch refractor for public viewing. Mike later founded the Mount Wilson Observatory Association, enhancing the visitor experience at the historic observatory.

Mike's passion for astronomy outreach turned global after a trip to Iran for the 1999 solar eclipse, leading to international efforts such as founding *Astronomers Without Borders* in 2006, which unites space enthusiasts worldwide. He has brought astronomy to marginalized communities, led international collaborations, and received numerous honors, including the G. Bruce Blair Award and the Gabrielle and Camille Flammarion Prize. Now an Affiliate Research Scientist with Blue Marble Space Institute of Science, Mike remains dedicated to education and outreach through his latest venture, *Astronomy for Equity.* Though retired from a 36-year biomedical research career, Mike stays active, continuing to share the wonders of the universe from his home in Southern California."



Earth is closest to the Sun, Perihelion, on January 4th at 7:28 AM CST
91,405,993 miles

Stargazing Nights and Observatory 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

Celebrate the New Year with Stars and Planets

Friday January 3 **Time 5:00 to 8:00 PM** **Telescopes begin at 5:00 PM**

Come join in the New Year Winter Blitz fun at the Sand Springs Case Community Center. Indoor activities for the whole family begin a 6:00 PM

1050 W Wekiwa Rd, Sand Springs **More Details at our EVENT PAGE**

Guest and member Observatory nights

Come enjoy an evening of star gazing at our observatory located in dark rural skies SW of Tulsa
See details and directions on our Website Events Page
Guests are requested to RSVP

Saturday Jan 18 - 5:00 PM **Guest & Members Observatory Night**

Saturday Feb 22 - 5:40 PM **Guest & Members Observatory Night**

Astronomy Club Members Nights

Our members are invited to come work on their observing goals, do some Astro imaging and share ideas.

Friday Jan 24 - 5:15 PM **Members Observatory Night**

Friday Feb 28 - 5:45 PM **Members Observatory Night**

If a Friday event must be cancelled due to weather, we will try again on Saturday 30 minutes before sunset
- Always check the website for event updates

In Town Astronomy Club meetings at Jenks High School planetarium

Open to Guests and Members

Friday Jan 17 – 7:00 PM **Jenks High School Planetarium**

Friday Feb 21 – 7:00 PM **Jenks High School Planetarium**

Located at 105 East B St, Jenks, OK

President's Message
Jonathan Fussell

Salutations all!

As the new year rapidly approaches, I'd like to take a moment to reflect on this past year. 2024 has truly been a landmark year in astronomy. From the awe-inspiring Great North American Solar Eclipse that so many of our club members had the chance to experience, to the rare opportunity to see the northern lights right here in Tulsa. Not to mention the historic launch of the Europa Clipper spacecraft bound for Jupiter, 2024 will undoubtedly be remembered as a pivotal year for stargazers and scientists alike.

Closer to home, this past year has been monumental for our club as well. We've had incredible opportunities for outreach, such as our recent evening at Hunter Park. In addition to our regular guest nights and members' nights, we've been all over Tulsa! From Keystone Ancient Forest to the heart of downtown Tulsa at Guthrie Green, I'm immensely proud of the effort we've poured into sharing the wonders of the night sky with our community. Of course, none of this happens on its own—we're always looking for more volunteers to help make these events a success!

Looking ahead, I'm thrilled for what's in store for 2025. The new year promises to be just as exciting and eventful as 2024. You can expect even more opportunities for volunteering and outreach, including our upcoming evening at the Case Community Center on January 3rd for their Winter Blitz. We'll also feature amazing guest speakers, such as Mr. Mike Simmons, founder and CEO of Astronomy for Equity, who will join us at our first meeting of the year on January 17th at the Jenks High School Planetarium.

Here's to another fantastic year of exploration and discovery!

Clear skies!

Astronomy Club of Tulsa

"Bringing Stars to the Eyes of Tulsa since 1937"

Jonathan Fussell - President

Click on these images to links on the Internet

Tulsa National Weather Service

***** The NEW CLEAR OUTSIDE icon above is a link to an extensive site showing cloud cover %, Seeing, Transparency, Moon Phase, Temp in ^{O} 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/

October - Moon Phases - -
1st Q Mon Jan 6 - - Full Mon Jan 13 - - 3rd Q - - Tues Jan 21 - - New Weds Jan 29

Lunar conjunctions – Venus Jan. 3 & Feb 1, Saturn Jan 4 & 31, Jupiter Jan 10

January Parade of Planets

All the planets except for Mercury will be visible in the January evening skies. The yellow **ECLIPTIC** line marks the path of the Sun as we view it from Earth. (a reflection of our own orbital revolution around the sun). The Solar system planets also orbit near this same ecliptic plane.

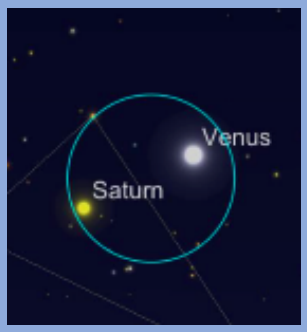
VENUS and **SATURN** can be seen in the western evening sky. Continuing eastward along the ecliptic you can find the telescopic planets **NEPTUNE** and **URANUS**. High in the SE you will find bright **JUPITER** and **MARS** will be low in the NE as is rises. The **MOON** also travels near the Ecliptic moving further eastward about 13 degrees per day playing "Tag" with the planets as it passes each of them. **MERCURY** can be found low in the SE before dawn.

Venus reaches its maximum evening elongation from the Sun on Jan. 12th. **MARS** reaches opposition closest to Earth on Jan 15th. So, this will be a great month for observing the planets. See my notes on Winter observing tips further down. See Astronomy 2025 sky events YouTube video link in the Astronomy in the News section.

Jan 13 Mars Occultation by the Full Wolf Moon

It will Disappear 19:56 Reappear 21:03

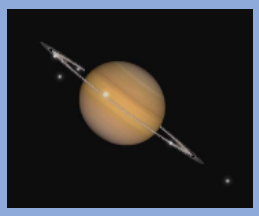
NOTE: Your time will vary a few seconds depending on your location. Set your scope to track Mars & start Observing by 19:15. The two will fit within a 1-degree FOV and you can watch them converge. – Might try using a moon or colored filter to diminish the brilliance of the Full Moon. I have found a light pollution filter to work well to see surface details on Mars. More details on page 8



Venus and Saturn Evening Conjunction

The planets will be seen withing 3 degrees of each other from January 16th to January 19th. The pair will easily fit in the same binocular field of view.

As January opens Venus is a quadrature with the Earth, appearing as the shape of a "1st Quarter" moon. Continue to observe Venus at higher magnification over the next two months. You will see it more than double in apparent size and its shape change into a large crescent. Due to its great brilliance, Venus is best viewed in brighter twilight.



Saturn is slipping lower and lower in the SW each evening. It will pass behind the Sun on March 12. (Superior Conjunction) Our angle to Saturn make it rings appear very thin. The rings are so thin they seem to disappear for a few days as Earth passes through the ring plane on March 15th. Unfortunately, this year it will be too near the Sun for viewing. We will get another chance in November 2025.

When Galileo viewed Saturn in his simple low power telescope. He had misinterpreted the rings to be two moons or ears. It is said that when Saturn's rings disappeared in 1612 as Earth passed through its ring plane he metaphorically suggested "Saturn has swallowed its children" much like its mythological namesake. He later did observe they had reappeared. In 1655 Dutch astronomer Christiaan Huygens using his improved eyepiece design was first to accurately describe Saturn's rings as a disk surrounding the planet.

The Quadrantid Meteor shower 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 Bootes 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.

NOTE: We may see some the evening of Jan 3rd at our Public Telescope night at Sand Springs Community Center.

WINTER OBSERVING TIPS **by John Land**

Common sense tells us that if we are going to be outdoors at the telescope for an extended period of time that warm clothing is essential. Dressing in layers allows flexibility as the temperature drops. Since much of your body heat is radiated from your head and face. A warm sock cap and ear coverings are a great help. If its really cold a face mask or baklava works well. Thick or double socks keep your feet warm. Insulated or layered pants help as well. Gloves present a problem. You need them to keep your hands warm, but they are too thick for fine tuning your scope focus or pressing buttons on a telescope controller. Some glove designs allow you to fold back a section on the fingertips. Sporting stores carry a variety of hand warmers. Take some breaks inside from time to time but in a dimly lite space. Plan an energy snack and something warm to drink. (non-alcohol)

YOUR TELESCOPE NEEDS TO ADAPT TO THE COLD AS WELL.

As the optics in your telescope cool down to the ambient outdoor temperature the images are often poor as the glass and air in the scope cool. This is especially apparent when trying to view planets at higher magnifications. You can actually see the poorly focused image seem to dance around as the scope cools. It can take up to a half-hour or more for the mirrors in a reflecting scope to adapt. Air currents within the also affect the viewing. If possible, store it in a cooler garage or in your car a few hours before you plan to observe. Or set it outside in your observing spot but cover it to prevent condensation on the scope. While you are waiting for the scope you can observe wide field lower magnification objects like star clusters.

Try to observe over grassy or wooded areas. Currents of warm air rising over rooftops or warm roadways can degrade your image as well. Condensation of Dew on your optics can also be an issue as the evening processes. Extended Dew shields on refractors and catadioptric scopes can reduce of slow dew build up. Dew is especially a problem on finder scopes and eyepieces.
Keep them covered when not in use. I keep a microfiber cloth handy to wipe dew off eyepieces.
(Hint – Caps for finder scopes frequently get misplace or lost. Cutting off the toe end of an old sock works well) If you are at home – a few sweeps of a hair dryer on low well help but don't over do it. If you are a serious observer or imager, you can purchase battery powered dew heater bands.

COLORED GLASS EYEPIECE FILTERS can enhance viewing planet surface details.
NOTE: Using a filter will require refocusing your view or image. I got t most on Google
For observing Mars, the best astronomy filters are typically orange or light red filters, like a Wratten #21 (orange) or #25A (red), as they enhance the contrast of the darker surface features on the red planet, allowing for better visibility of details like albedo features and cloud formations; a light blue filter (like a Wratten #80A or #82A) can also be useful for highlighting white clouds on Mars.
I have found my light pollution filter works well on Mars

For Jupiter a Blue filter (Wratten #80A): is the most popular choice for viewing as it highlights cloud belts and the Great Red Spot effectively. Yellow filters (Wratten #8 or #12): Can be used to improve contrast in the polar regions of Jupiter. Orange filter (Wratten #21): May enhance the contrast of equatorial belts on Jupiter.

Calculate the positions of Jupiter's Moons
https://skyandtelescope.org/wp-content/plugins/observing-tools/jupiter_moons/jupiter.html

Transits of Jupiter's Great Red Spot
https://skyandtelescope.org/observing/interactive-sky-watching-tools/transit-times-of-jupiters-great-red-spot/

Calculate the positions of Saturn's Moons
https://skyandtelescope.org/observing/interactive-sky-watching-tools/saturns-moons-javascript-utility/

A couple of good phone Apps for planet phenomena
JuptierMoons https://apps.apple.com/us/app/jupitermoons/id577009038

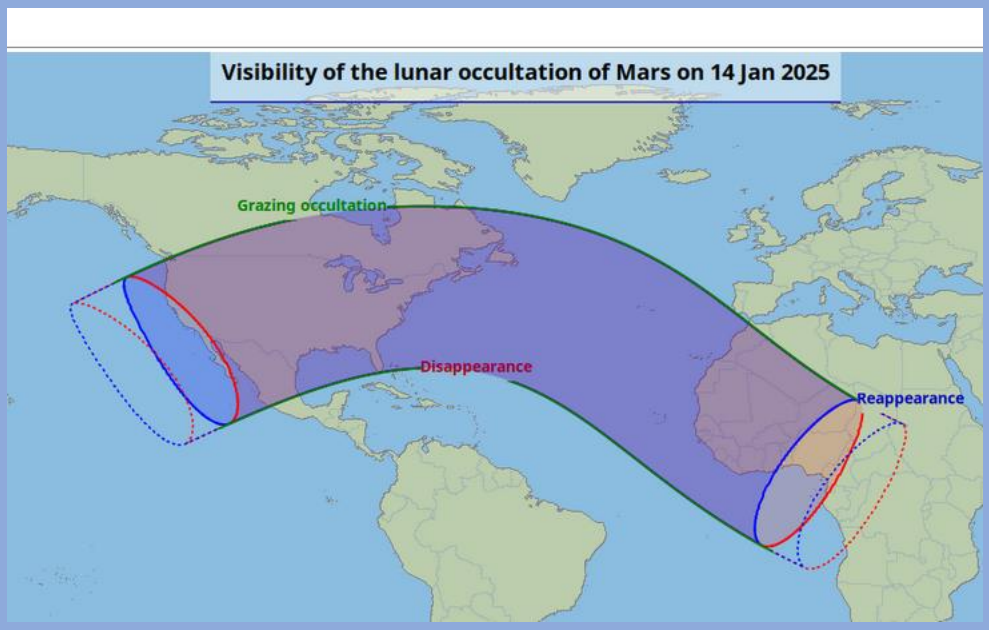
SaturnMoons https://apps.apple.com/us/app/saturnmoons/id606938707

Observing Chairman
Brad Young

Moon Hides Mars, Venus Rides Pegasus

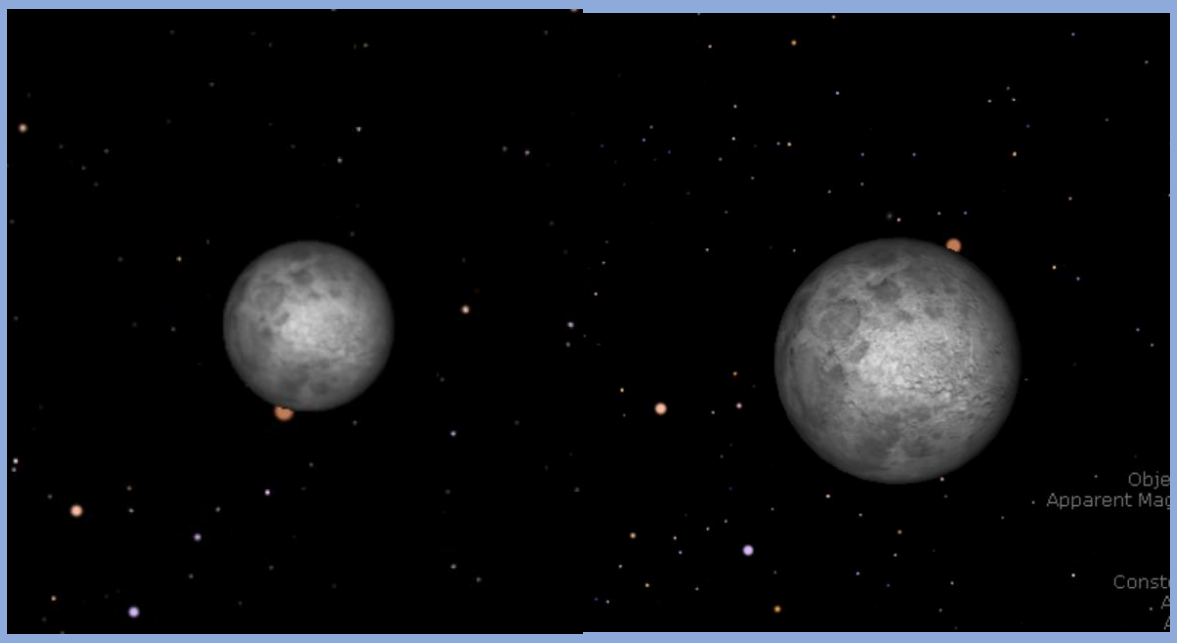
Author's Note: I have nowhere near the talent to draw the Venus scene, you'll just have to imagine it.

Another chemical engineer, this one from Boston not Tulsa, once stated "Don't Look Back". As much as I'd like to review 2024 more than I did last month, 2025 is upon us and it's time to look forward. As we all know, the first few months of the year can be a drag, as the weather is usually poor, or, if it is clear, it's way too cold to do much outdoors. So, events like the occultation of Mars by the Moon, and Venus' upcoming inferior conjunction give us events to look forward to, when we can't spend hours outdoors observing.



Note the occultation of Mars happens on Tulsa's Jan 13, evening
Adapted from: http://www.lunar-occultations.com/iota/planets/0114mars.htm

The occultation of Mars by the nearly Full Moon will be a wonderful, if slightly difficult thing to observe. In Tulsa, it will begin with the disappearance of Mars behind the Moon at 7:56 p.m. CST, 28 degrees up in the eastern sky. Its reappearance will be visible at 9:02 p.m. CST at an altitude of 41 degrees. The Moon will be nearly 100% lit, which means, although you may be able to watch to some degree the event with naked eyes, using binoculars or a small telescope will make it much easier.

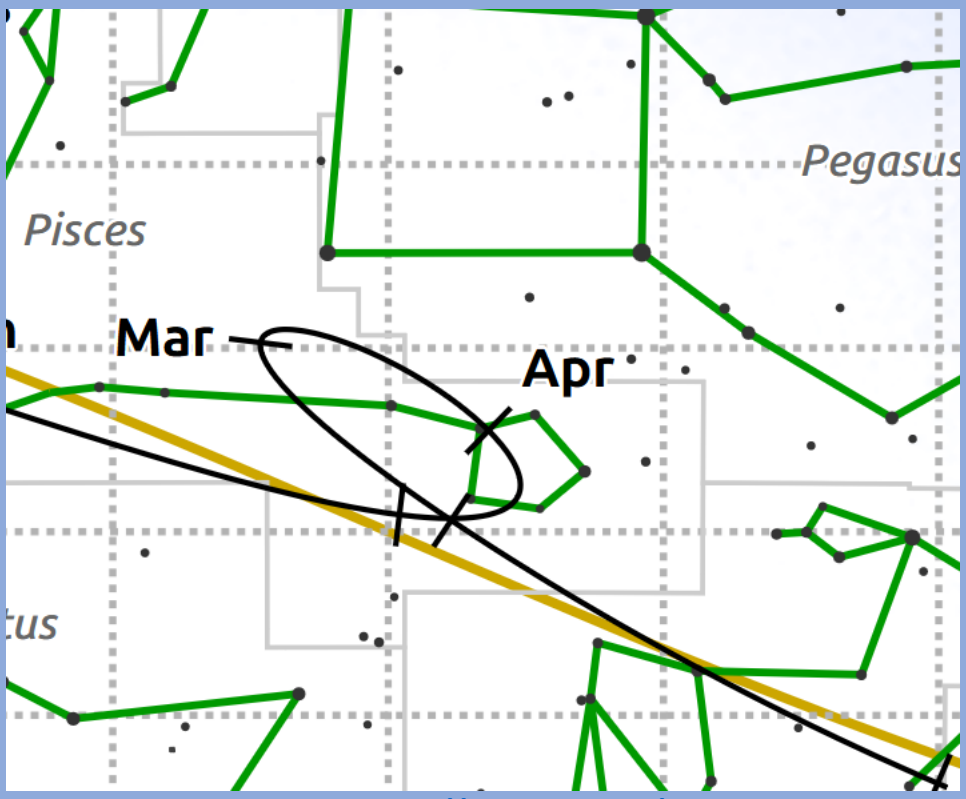


Mars disappearance and reappearance (adapted from Guide 8)

I've noticed a lot of buzz about this already, so you can expect the usual misinformation such as that "Mars will be as big as the Moon", "Mars will impact the Moon and throw off meteors that destroy the Earth" and all the usual claptrap. Please ignore all that and enjoy the show. If it is cloudy where you live, there will be several webcasts online and best of all, it occurs in mid evening, at a decent hour. Bundle up and see if you can catch both the disappearing and reappearing. You might even notice, it doesn't happen instantaneously like with a star; Mars has an appreciable if small disk, and it will take a finite amount of time for the Moon to obscure it completely.

Another particularly interesting sky sight early this year repeats about every seven years but is always worth trying. It usually occurs in mid-March, and you may recognize from the 8-year cycle that it has to do with the planet Venus.

Although Venus is not tipped a lot with respect to the ecliptic (3.4º), it is so close to us at inferior conjunction that it appears to be as much as eight degrees above or below the ecliptic. Its greatest elongation north occurs only a little west of the first point of Aries, therefore it is quite far north during March inferior conjunctions. In fact, in some years, including 2025, it strays so far north that it reaches for about a day into the constellation Pegasus.



Adapted from chart at https://in-the-sky.org/findercharts2.php

It's stay there is more an artifice of man than of the stars. When the official IAU constellation boundaries were drawn up, there was a small corner of Pegasus that reached down south just far enough to catch Venus on part of its path at these March inferior conjunctions. It isn't as if it will be seen in the great square of Pegasus, in fact during this time you probably won't see any other stars in the sky. So, there's a little bit of fanciful thinking going on here but bear with me.

One reason I bring this up now in January is that you may want to follow Venus's path up until that time as it moves from greatest eastern elongation (Jan. 10), dichotomy (varies), greatest brilliancy (Feb. 16), and then begins its retrograde motion March 1 as it approaches inferior conjunction (Mar. 22). This of course is also the best time to look at the planet. Although we were cursed with a very near passing planet that has no surface features we can see, we can at least observe the phases on it and the fun part is around inferior conjunction. It passes through gibbous into a half-moon phase and then becomes a larger and larger size but thinner and thinner crescent as it approaches conjunction. And of course, on the other side of the Sun the reverse will occur. But Venus will be poorly placed for us in the northern hemisphere during that time. Perhaps some of you reading this in the southern hemisphere can watch those phase changes as they occur.

On a sidetrack, I did look to see if the same situation might be repeated in the southern hemisphere. It looks like Venus never quite makes it south enough to get into Hydra, which would be its best chance to escape the ecliptic. I didn't look very far in the future or past so if any of you that want to run a simulation can correct me feel free. And please limit it to less than 100 years, because by that point procession will take effect and we could find Venus in Orion by the time you get done.

Venus from Tulsa, about 15 minutes before sunrise, Mar 23, 2025. Note that locations further north will have a slight advantage as Venus will be a bit higher (and opposite for locations to the south).

If you want to try to at least see the planet when it's in Pegasus even if you can't see the stars, the placement of Venus as much as five to six degrees north of the Sun will allow us to see it in both the evening and morning sky from about March 20th to March 26th. The date it is within Pegasus is March 23rd, possibly also March 24th depending on the atlas and planetarium program I use. In this case, it will be slightly easier to see it in the morning sky 5° above the Sun, which means you'll want to look for it within 20 minutes of the Sun rising, very low and you'll need a perfectly flat Eastern horizon. The good thing is since this is very near the vernal equinox, if you look directly east, you'll be looking at the right spot. It will take quite a lot of luck to do this, including clear skies, which are not given in March.

I've done this before, but it's been three cycles ago and I'm itching to try it again. Luckily, now I live near a bridge which allows me to get a very flat Eastern look as I look right down the Eastern running Street from under the bridge. Now I just must hope for a perfectly clear morning sky in mid to late March. Be sure and let me know if you have any luck finding it, or indeed, have any luck seeing Venus around inferior conjunction at all. Seeing it during this time is special because very few people would even know how to look.

A lot of people also like to image or visually observe Venus at that time because it has an extremely thin crescent and is strangely pointed South instead of on the east or west side of the planet. **I can't caution you enough to be very careful if you do this.** One false move even with just your naked eye (which incidentally is hopeless for this kind of observation) and you could have your eyesight damaged or even become blind. **Do not ever look towards the sun with any optical aid or even without unless you have an approved filter or other fail-safe method of making sure your eye never sees the Sun.**

That's just one of the many great things coming up in 2025. Be sure and check your astronomical websites, calendars, etc. and look for many more. I don't know if 2025 can beat 2024, but here's hoping it does.

Astronomy in the News

This is a selection of astronomy related news articles that come to my attention is recent weeks.
I tried to select ones that seem credible but cannot vouch for complete accuracy.
(Not responsible for any Ads that pop up in some of the links)

Astronomy Calendar 2025...Why It's Going to Be an Epic Year! – YouTube
A month-by-month preview of astronomy events for the year.
https://www.youtube.com/watch?v=r4cv5T9BbUo
NOTE: The dates in the video are in Universal Time. Some of the events are the evening before here in Oklahoma. Example – It shows the Mars Occultation on Jan 14 UT but it is 8:00 PM here on Jan 13 CST

Why NASA's Sun-Touching Parker Spacecraft Remains Out of Contact
On Dec. 24 the Parker Spacecraft passed through the Sun's outer corona passing a mere 3.86 million miles from its surface and traveling over 430,000 mph.
At that rate it could reach the moon in 33 minutes !
https://www.forbes.com/sites/jamiecartereurope/2024/12/25/world-holds-its-breath-as-nasas-sun-touching-spacecraft-remains-out-of-contact/

NASA Parker Solar spacecraft attempts closest-ever approach to Sun | YouTube
https://www.youtube.com/watch?v=JB64c2y_sqU

Webb and Hubble snap two views of one galaxy NGC 2090 | Digital Trends
https://www.digitaltrends.com/space/webb-hubble-ngc-2090/

The JWST Looked Over the Hubble's Shoulder and Confirmed that the Universe is Expanding Faster
https://www.universetoday.com/170139/the-jwst-looked-over-the-hubbles-shoulder-and-confirmed-that-the-universe-is-expanding-faster/

Straight Out of a Sci-Fi Movie: For the First Time in History,
We Have a Clear Image of a Star in Another Galaxy
https://dailygalaxy.com/2024/12/straight-out-of-a-sci-fi-movie-for-the-first-time-in-history-we-have-a-clear-image-of-a-star-in-another-galaxy/

NASA's Hubble Celebrates Decade of Tracking Outer Planets - NASA Science
https://science.nasa.gov/missions/hubble/nasas-hubble-celebrates-decade-of-tracking-outer-planets/

Event Horizon Telescope: Moving towards a close-up of a black hole and its jets
https://phys.org/news/2024-12-event-horizon-telescope-black-hole.html

Scientists Are Stunned by Juno's Groundbreaking Discovery Beneath Io's Volcanic Surface
https://dailygalaxy.com/2024/12/junos-discovery-ios-volcanic-surface/

Earth's North Magnetic Pole Has Officially Been Repositioned—Here's Why It Matters for Everyone
https://dailygalaxy.com/2024/12/earths-north-magnetic-pole-has-officially-been-repositioned-heres-why-it-matters-for-everyone/

Curiosity Cracked Open a Rock on Mars And Found a Big Surprise : ScienceAlert
https://www.sciencealert.com/curiosity-cracked-open-a-rock-on-mars-and-found-a-big-surprise

Video shows how fast International Space Station travels
https://supercarblondie.com/animation-youtube-reveals-speed-international-space-station/

Treasurer Report
Cathy Grounds

As of Dec. 19th, 2024, we have 183 members with 54 new members so far this year! Please welcome our newest members Christopher Taylor, Terry McNeill, Hans Kirsch, Moe Daraie and Hayden Scheibe ! The club has had 193 guest website contacts.

Accounts as of Dec. 19, 2024:
Checking: $ 2,998.24
Savings: $ 5,440.15
Investments: $38,082.44 (fluctuates with markets).

Don't forget these EASY METHODS of Joining or Renewing your membership:
ONLINE - JOIN or RENEW memberships using ANY MAJOR CREDIT CARD
Transactions are processed through PayPal, but you DO NOT need a PayPal account.
A modest processing fee is added to online transactions.
MAIL IN a check or money order to Astronomy Club of Tulsa, PO Box 470611, Tulsa, OK 74147
PAY CASH at any club event or swipe a credit card (there is roughly a 3% card service charge).
To start click the JOIN / RENEW TAB -https://www.astrotulsa.com/join and fill out the registration forms. Submit them online, mail them in or bring them in person.

Membership rates are as follows: All memberships include Astronomical League Membership.
REGULAR: $ 50 per year
SENIOR: $ 40 per year - 65 or older
STUDENT: $ 40 per year
Additional Family membership $ 30 per year

See Full Description of Membership types at ACT Membership Bylaws

As always if you have any questions or concerns or if your contact information (Email, Phone or Postal address) has changed please email me: AstroTulsa.Tres@gmail.com

MAGAZINE SUBSCRIPTION RATES 2024 updates
A subscription to an astronomy related magazine is a great way to learn more about the many aspects of our hobby. -
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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

This article is distributed by NASA's Night Sky Network (NSN). January 2025
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!

Celebrating 20 Years: Night Sky Network

By Vivian White and Kat Troche

NASA's Night Sky Network is one of the most successful and longstanding grassroots initiatives for public engagement in astronomy education. Started in 2004 with the PlanetQuest program out of the Jet Propulsion Laboratory and currently supported by NASA's Science Activation, the Night Sky Network (NSN) is critical in fostering science literacy through astronomy. By connecting NASA science and missions to support amateur astronomy clubs, NSN leverages the expertise and enthusiasm of club members, who bring this knowledge to schools, museums, observatories, and other organizations, bridging the gap between NASA science and the public. Now in its 20th year, NSN supports over 400 astronomy clubs dedicated to bringing the wonder of the night sky to their communities across the U.S. and connecting with 7.4 million people across the United States and its territories since its inception.

International Observe the Moon Night, September 2024. Credit: Oklahoma City Astronomy Club/Dave Huntz

Humble Beginnings

It all started with an idea – astronomy clubs already do significant outreach, and club members know a lot about astronomy (shown definitively by founder Marni Berendsen's research), and they love to talk with the public. How could NASA support these astronomy clubs in sharing current research and ideas through informal activities designed for use in the places where amateur astronomers conduct outreach? Thanks to funding through NASA JPL's PlanetQuest public engagement program, the Night Sky Network was born in 2004, with more than 100 clubs joining in the first year.

Raynham Public Observing Night, February 2004. Credit: Astronomical Society of Southern New England/Mark Gibson

As quoted from the first NSN news article, "NASA is very excited to be working closely with the amateur astronomy community," said Michael Greene, current Director of Communications and Education and former head of public engagement for JPL's Navigator Program and PlanetQuest initiatives. "Amateurs want more people to look at the sky and understand astronomy, and so do we. Connecting what we do with our missions to the sense of wonder that comes when you look up at the stars and the planets is one of our long-term objectives. We have a strong commitment to inspiring the next generation of explorers. Lending support to the energy that the amateur astronomy community brings to students and the public will allow NASA to reach many more people."
Taking off like a rocket, Night Sky Network had over 100 clubs registered on their website within the first year.

The Toolkits

Outreach Toolkits were developed to assist clubs with their endeavors. These kits include educational materials, hands-on activities, and guides for explaining topics in an accessible way. So far, 13 toolkits have been created on topics ranging from the scale of the universe to how telescopes work. To qualify for these free Toolkits, clubs must be active in their communities, hosting two outreach events every three months or five outreach events within a calendar year. Supplemental toolkits were also created based on special events like the solar eclipses and the 50th anniversary of Apollo's Moon landing. A new toolkit is being developed to teach audiences about solar science, and NSN is on track to support clubs well into the future.

Rye Science Day, October 2014. Credit: Southern Colorado Astronomical Society/Malissa Pacheco

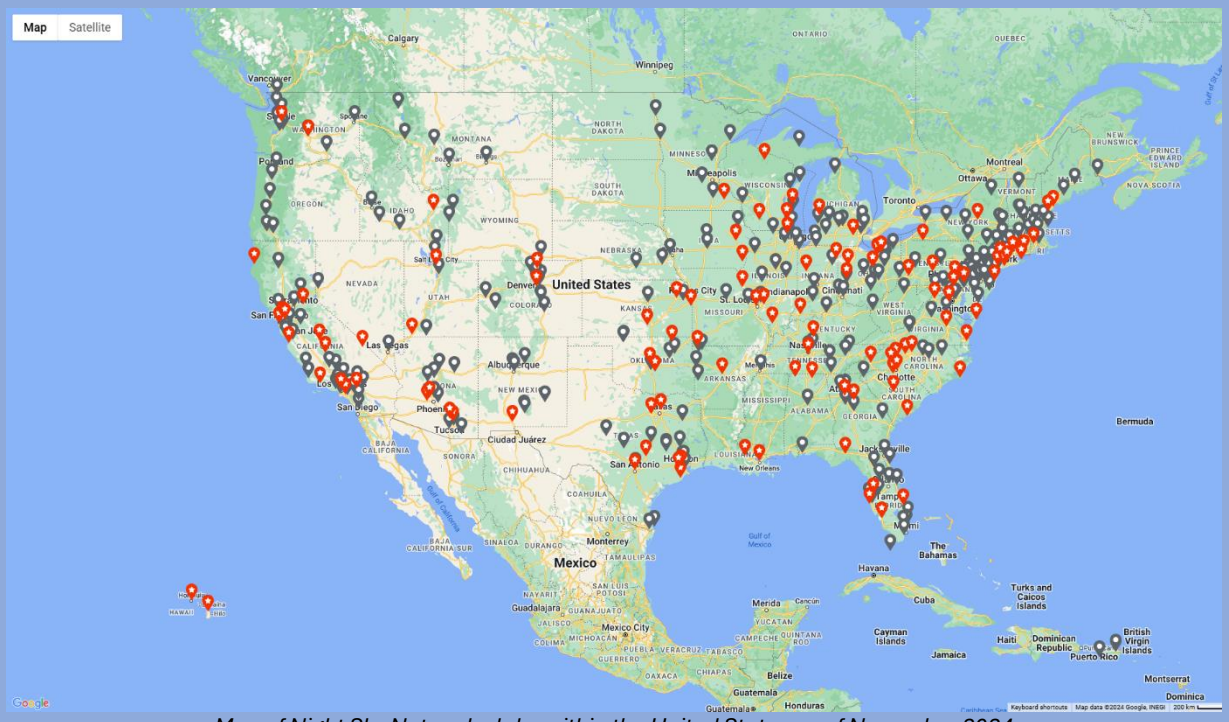
NSN also hosts archived video trainings on these toolkits and other topics via its YouTube channel and a monthly webinar series with scientists from various institutions worldwide. Lastly, a monthly segment called *Night Sky Notes* is produced for clubs to share with their audiences via newsletters and mailing lists.

Sharing the Universe

In 2007, a National Science Foundation grant funded further research into astronomy club needs. From that came three club resources: the Growing Your Astronomy Club and Getting Started with Outreach video series, an updated website with a national calendar, and club and event coordination. Now, you can find hundreds of monthly events nationwide, including virtual events you can join from anywhere.

As of November 2024, NSN has over 400 clubs as far north as Washington State, west as Hawaii, and south as far as Puerto Rico. Astronomy clubs worldwide share the wonder of the day and night sky with their communities, and the Night Sky Network is happy to support US clubs with public engagement tools. Through their outreach efforts, member clubs have reached more than 7 million people to date, and the community is still going strong. Find an upcoming star party near you on our new public website.

Night Sky Network: Current and Future



Map of Night Sky Network clubs within the United States as of November 2024

NOTE to MEMBERS: Our Tulsa Club is a member of NSN. If you are interested in volunteering to develop Outreach Activities with some of the NSN Toolkits contact our President or John Land

This article is distributed by NASA's Night Sky Network (NSN). January 2025
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!

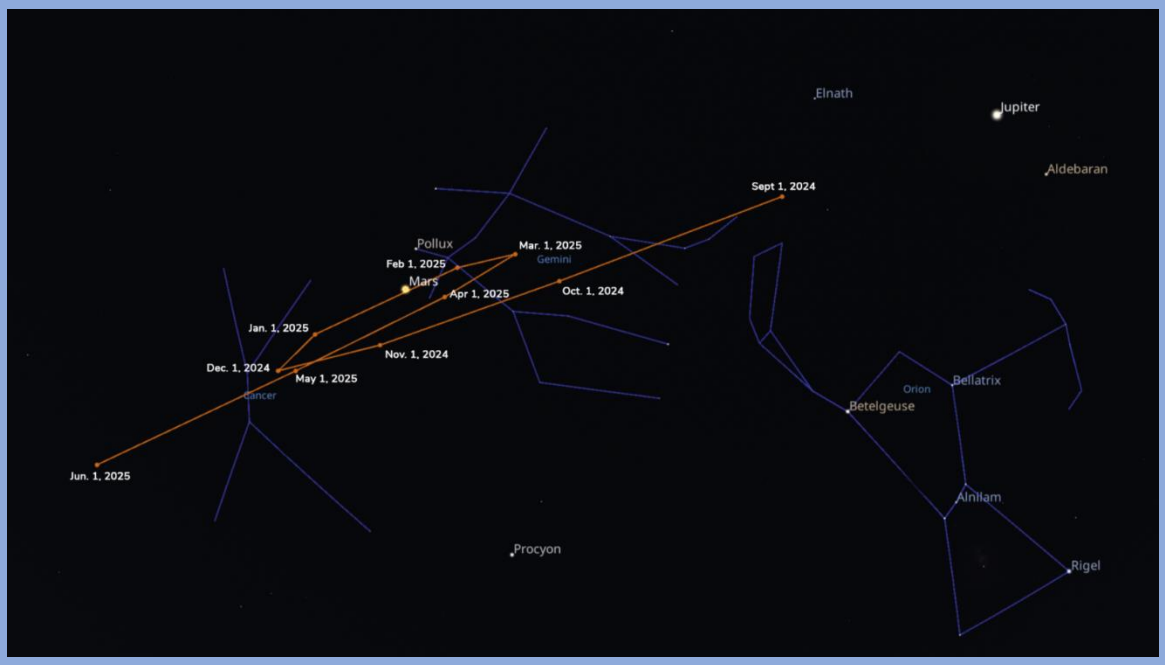
January's Night Sky Notes: The Red Planet

By Kat Troche

Have you looked up at the night sky this season and noticed a bright object sporting a reddish hue to the left of Orion? This is none other than the planet Mars! January will be an excellent opportunity to spot this planet and some of its details with a medium-sized telescope. Be sure to catch these three events this month.

Martian Retrograde

Mars entered retrograde (or backward movement relative to its usual direction) on December 7, 2024 and will continue throughout January into February 23, 2025. You can track the planet's progress by sketching or photographing Mars' position relative to nearby stars. Be consistent with your observations, taking them every few nights or so as the weather permits. You can use free software like Stellarium or Stellarium Web (the browser version) to help you navigate the night as Mars treks around the sky. You can find Mars above the eastern horizon after 8:00 PM local time.



This mid-January chart shows the path of Mars from September 2024 to June 2025 as it enters and then exits in retrograde motion. Mars appears to change its direction of motion in the sky because Earth is passing the slower-moving Mars in its orbit. Credit: Stellarium

Hide and Seek

On the night of January 13th, you can watch Mars 'disappear' behind the Moon during an occultation. An occultation is when one celestial object passes directly in front of another, hiding the background object from view. This can happen with planets and stars in our night sky, depending on the orbit of an object and where you are on Earth, similar to eclipses.

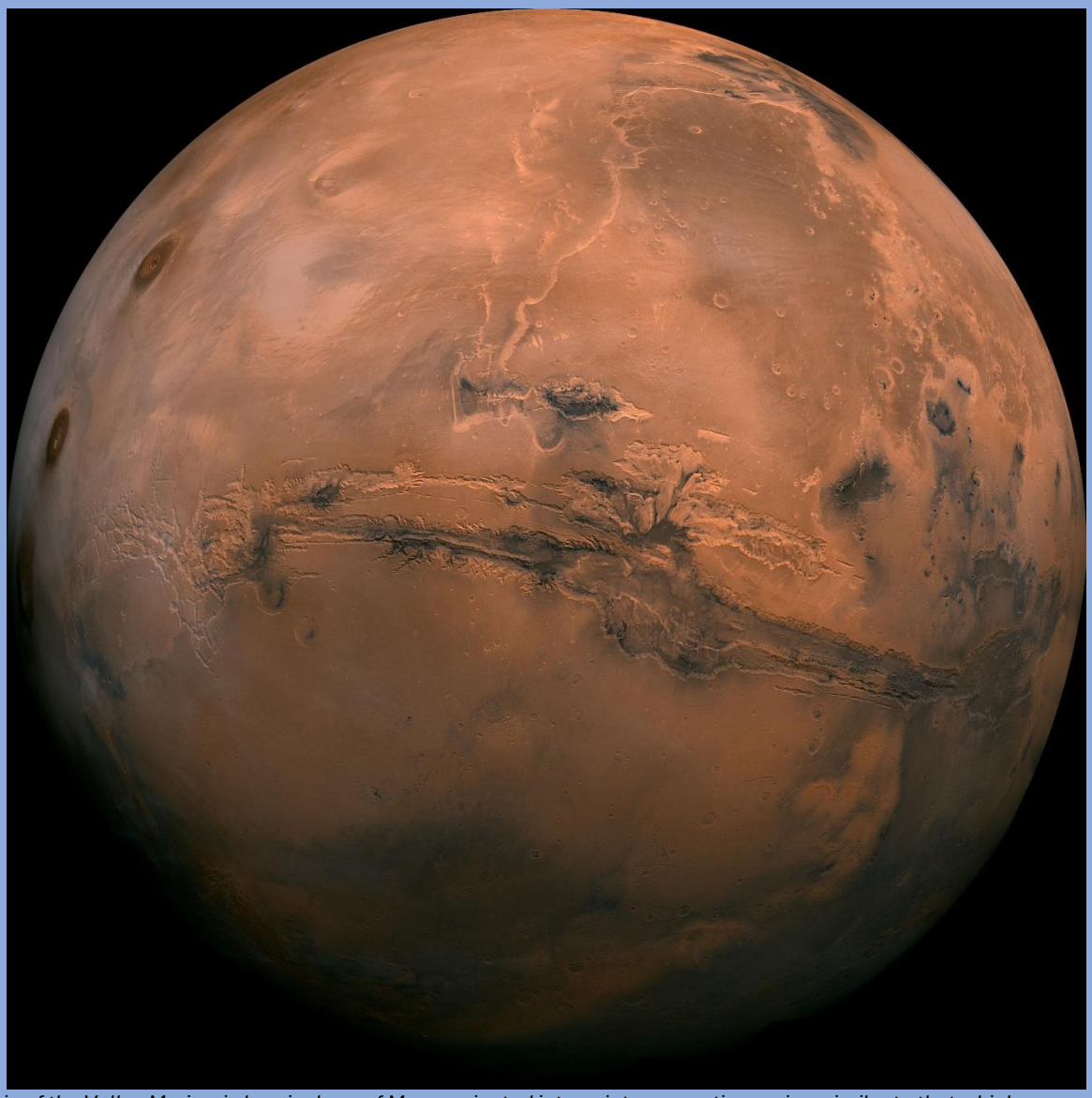
A simulated view of the Moon as Mars begins its occultation on January 13, 2025. Credit: Stellarium

Depending on where you are within the contiguous United States, you can watch this event with the naked eye, binoculars, or a small telescope. The occultation will happen for over an hour in some parts of the US. You can use websites like Stellarium Web or the Astronomical League's 'Moon Occults Mars' chart to calculate the best time to see this event.

Closer and Closer

As you observe Mars this month to track its retrograde movement, you will notice that it will increase in brightness. This is because Mars will reach **opposition** by the evening of January 18th. Opposition happens when a planet is directly opposite the Sun, as seen from Earth. You don't need to be in any specific city to observe this event; you only need clear skies to observe that it gets brighter. It's also when Mars is closest to Earth, so you'll see more details in a telescope.

Want a quick and easy way to illustrate what opposition is for Jupiter, Saturn, Mars, or other outer worlds? Follow the instructions on our Toolkit Hack: Illustrating Opposition with Exploring the Solar System page using our Exploring Our Solar System activity!



A mosaic of the Valles Marineris hemisphere of Mars projected into point perspective, a view similar to that which one would see from a spacecraft. The mosaic is composed of 102 Viking Orbiter images of Mars. Credit: NASA/JPL-Caltech

Mars has fascinated humanity for centuries, with its earliest recorded observations dating back to the Bronze Age. By the 17th century, astronomers were able to identify features of the Martian surface, such as its ice caps and darker regions. Since the 1960s, exploration of the Red Planet has intensified with robotic missions from various space organizations. Currently, NASA has five active missions, including rovers and orbiters, with the future focused on human exploration and habitation. Mars will always fill us with a sense of wonder and adventure as we reach for its soil through initiatives such as the Moon to Mars Architecture and the Mars Sample Return campaign.

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

ASTRONOMY CLUB OFFICERS:

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PR AND OUTREACH – Open Position
GROUP DIRECTOR – Open Position

NIGHT SKY NETWORK – Jonathan Fussell

Enjoy at Planetarium Show at Jenks High School

JENKS PLANETARIUM

Jenks High School Campus
205 East B Street, Jenks

TICKETS are $7

See our Current Shows Schedule and ticket purchase links at
Shows and Ticket Link

Shows take place on Tuesday evenings or Saturday mornings
Must purchase tickets online in advance
Shows and Ticket Link