



OBSERVER

January 2023

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



The region of Orion's belt star Alnitak is all decorated up for the Holidays

In this deep sky photo by Mike Blaylock we see the dark dust cloud of the Horsehead nebula, the Flame Nebula – NGC 2023 as well as smaller nebula plus an extended background aglow with pink hydrogen gas.

Photo was taken at Okie-Tex with a Canon EOS 600 D camera on a Williams Optics GT102 102 mm Apo Refractor

Image is an integration of Twenty 10 minute exposures (3 hr 20') processed with Photoshop, PixInsight 1.8

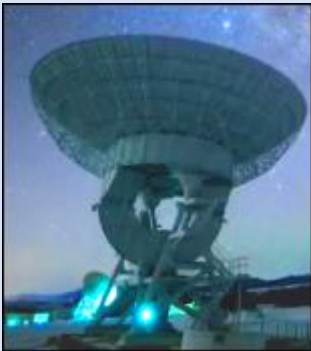
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Astronomy Club Events

Check our website AstroTulsa.com events section for updates

Astronomy Club Meeting - Friday Jan 6 - 7:00 PM - IN PERSON club meetings.
At Jenks High School planetarium 105 E B Jenks OK - Guests Welcome



Our main program on Friday Jan 6 from the Night Sky Network

Deep Space Network – Don't Leave Earth without it !

Dr. Joseph Lazio takes us on a tour of the instruments and many uses of the Deep Space Network of telescopes that track and communicate with the many scientific instruments probing the depths of the Solar System. These giant Radio Telescopes pick up the almost infinitely weak signals for the Voyager I & II spacecraft which are now traveling more than 100 AU's from the Sun. They also communicate with the armada of spacecraft exploring the region of planets in the inner solar system. And can even bounce radar off Near Earth Asteroids as they streak by.

Our Observing Chairman Brad Young's program titled **What are "NOT Planets?"** He will discuss how to observe the many other objects in our solar system. Comets, Asteroids, Meteors, Moons of other planets. The changing face of our sun and even observing the satellites orbit our planet.

Observatory Stargazing Nights

Saturday Jan 14 4:30 to 9:30 PM **Guest and Members Night –**
Guest requested to RSVP - Gates Open near sunset

Friday Jan 20 6:00 PM **Members Only night** * Gate opens after sunset
Open to members and their immediate family

Saturday Feb 25th TELESCOPE 101 WORKSHOP 10:30 AM to 1:30 PM

Registration details will be posted later

We are planning a Workshop for New Telescope owners or those who have one gathering dust and want to know how to use it. You can sign up to bring your telescope for a 30 minute session with one of our experienced Astronomers helping you understand the basics so you can get out and enjoy the stars.

President's Message John Land



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

Welcome to 2023 ! Hoping this New Year will bring you many opportunities to go out and explore the wonderous sights in the night sky. Our club has an active spring ahead of us.

On February 25th many volunteers will be needed for our annual Telescope Workshop at the Tulsa Air and Space Museum. It is always fun to meet new telescope owners and show them a few tips for assembling and learning to observe with their telescope. You can see some images of all the fun in our [March 2021 Newsletter](#).

Our club is hosting the 2023 MidStates Astronomy Convention June 9, 10 & 11. We will want to be welcome to our many guests from the region. The observatory will need some work days to get everything all *Spic-and-Span*. Our committee will be assembling welcome packets to introduce guests to attractions around Tulsa. Snacks and beverage displays will be needed. Decorations for our Keynote speaker banquet. Volunteers to help with registration and welcoming guests as they arrive. Setting up telescopes at the observatory on the opening night. Some I am asking all our members to consider how they can volunteer to make our 2023 Convention a most memorable event for our guests.

On October 14 there is a partial Solar Eclipse with 78% of the Sun hidden by the moon. We will want to promote Safe Techniques for schools and the public to observe the eclipse. And of course we will be looking for opportunities to share our love of astronomy with the Tulsa community.

So you can see it is going to take many dedicated volunteers to pull all this together. To volunteer contact astrotulsa.pres@gmail.com

Let us continue our 85+ years of
"Bringing Stars to the Eyes of Tulsa since 1937"

John Land - President

Note – See the Treasurer report page 12 for new rates and details to make or renew subscriptions to Sky & Telescope or Astronomy Magazine.

The much beloved [Guy Ottewell's Astronomical Calendar](#) 2023
is now available in Digital \$ 12 or Print form \$ 21

It has 139 pages, and hundreds of illustrations, including charts and 3-D views of space. For each month there are 6 pages, with about 50 events, sky dome, diagram of where the planets are in their orbits, and 20 of the most interesting sky scenes. Then there are several-page sections on the Sun and seasons; the Moon; eclipses; occultations; each planet; asteroids; meteor showers.



Telescope 101 Workshop

VOLUNTEERS NEEDED



**Saturday Feb 25th
TELESCOPE 101 WORKSHOP
Tulsa Air & Space Museum Planetarium**

We need at least 15 volunteers to help with this event. We will be helping guest learn the basics of how to assemble and use their telescope.

Each Guest will sign up for a 30-minute session to work with one of our volunteers.

We will also need helpers as guests come in to check registration, hand out printed material and direct them to an available telescope helper.

Volunteers arrive at 10:00 AM and stay until last session finishes up after 2:00 PM
To volunteer contact astrotulsa.pres@gmail.com by Feb 3rd

GOT A NEW TELESCOPE FOR CHRISTMAS?

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/>

Still looking for at telescope options?

What to Know Before Buying a Telescope

<https://skyandtelescope.org/astronomy-news/what-to-know-before-buying-a-telescope/>



Click on these images to links on the Internet



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

January - Moon Phases - - Full Jan 6 - - 3rd Q Jan 14 - - New Jan 21 - - 1st Q Jan 28

The first week of January is a busy time astronomically. On **Weds Jan 4 at 10:17 AM Earth reaches** it closest distance from the Sun called **Perihelion**. At that time, it will be only 91,403,034 miles from the Sun. 1,552,773 miles closer than its average distance of 92,955,807 miles in an Astronomical unit.

The [Quadrantid Meteor Shower](#) peaks on the night of Jan 3-4. It gets its name from a now obsolete constellation Quadrans Muralis. The radiant is now located between Bootes and Draco. The full moon on Jan. 6 will hamper observing.

On the mornings of January 5 – 6 - 7 we experience our latest Sunrises of the year at 7:34 AM

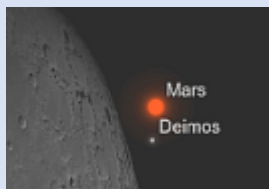
The moon passes near Mars Jan 3, Venus and Saturn Jan 22 & 23, Jupiter Jan 25 & Mars Jan 30

January Planets – This is the last month for observing **Saturn** in the evening sky. Early in the month you will find it about 20 degrees above the SW horizon an hour after sunset. By month's end it will be lost in the twilight passing behind the Sun on Feb 16. **Venus** however is climbing higher in the SW and will be our bright evening star until August. There is a close conjunction of the pair on January 22nd when they pass within 1/3 of a degree of each other easily seen in the same telescope field of view. Jan 20 - Start watching the pair as they approach each other. **Jupiter** still shines brightly high in the SSW sky. Venus and Jupiter will have a close conjunction March 1st. **Mars** still shines brightly between the [Hyades and Pleiades clusters](#) in Taurus. It ends its retrograde motion in midmonth and resumes its eastward motion among the stars. Late on January 30 the moon skims just a hairs width 40" from the planet. **Mercury** will move to the morning sky. More details in the NSN article later in the newsletter.

The **Asteroid 2 Pallas** reaches opposition Jan 16 in the constellation of Canis Major. Binoculars or small telescopes should be able to find it a magnitude +7.6. Explore the [Pallas Finder Chart](#) – Make a sketch of the stars in your view, then come back the next night and see which has moved.



Comet ZTF (C/2022 E3) is falling in from the outer solar system. Perihelion (closest approach to the sun) will occur on Jan. 12, 2023, at a distance of 1.11 AU. Closest approach to Earth follows on February. 1, 2023, at a distance of 0.28 AU. Currently at 7th mag it should reach 5th mag by early February making it accessible in binoculars and possibly naked eye in dark sky. According to the [Finder Chart data](#) the comet can be found east after midnight in the region of Bootes and Corona Borealis. At closest approach in early February, it will be circumpolar in the star poor region of Camelopardalis.



On **Monday January 30th** the planet Mars will just miss the edge of the Waxing Gibbous Moon. Grazing within 40" of the edge of the moon. That's

about the visible diameter of Jupiter's disk. Start looking for the pair about 11:15 PM in the western sky. Closest approach is about 11:42 PM.

Observers south of about Interstate 40 will get to see and [Occultation of Mars](#).



Are your skies cloudy?

Tired of bone chilling wind chills?

During the winter months the Kalamazoo Astronomical Society puts on a Live Two Hour Remote telescope viewing from its observatory in Sky Village Arizona. Using a Wide Field 5" Takahashi

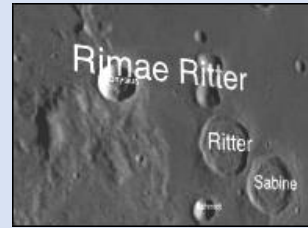
scope and a 20" Plane View RC scope you can watch images develop live. The host, Richard Bell, gives a delightful running commentary on the objects being view and other topics.

To participate you must **sign up in advance for a ZOOM LINK**. (Note the times given are EST so subtract 1 hour for CST) You can watch previously recorded sessions on YouTube anytime.

Future Viewing Sessions

Saturday Jan 14 Jan 28 Feb 11 Cloud out dates on Sunday

Must register of Zoom link <https://www.kasonline.org/schedule.html>



An Introduction to the Astronomical League Observing Programs *By Ben Staton*

I am primarily an astrophotographer and enjoy photographing the night sky immensely. I love to observe the sky in "HD", and share the views with my friends and family. However, as I've taken a deeper dive into the world of astrophotography, I've missed the excitement I used to feel observing the night sky and learning more about what's out there. To get back to that excitement, I went back to my roots of visual observation and tackled a few of the Astronomical League's many observing programs.

The Astronomical League observing programs are a great way to further your knowledge and interest in astronomy, while also providing an incentive to continue observing. Hundreds of different programs are offered that cover many different skill levels and a wide variety of subjects, such as the moon, double stars, Messier objects and many more. Programs involve sketching different targets, charting observations and observing changes over many nights. After completion, you will receive a certificate and a pin to commemorate your effort.

I began with the Lunar observing program, and after thinking of the moon as little more than an obstacle to my deep space photography, it was great to appreciate its many interesting features, from simple targets like the maria and its many large craters, to more niche targets like the moon's various mountains and valleys. I found so many interesting objects to observe on the moon that I deeply regretted ignoring it for so long. I strongly encourage anyone who has been ignoring the moon to tackle this program, as it has given me a newfound appreciation for our nearest neighbor.

If you're looking for ways to further your knowledge on a wide variety of night sky targets and subjects, these observing programs are a fun way to do it. If you want to learn more or have any questions, feel free to contact me at btheo204@gmail.com or our observing chair Brad Young.

Happy Observing!

Ben is one of our young enthusiastic astronomers and volunteers at many club events. He just completed his [Lunar Observing Certificate](#) and is working on some others.

Ben writes:

I am completing my third year of Tulsa Tech's Aviation Maintenance Program and plan to attend college next year pursuing a Mechanical Engineering Aerospace degree. I would love to work in the space industry manufacturing satellites, rockets, or being an engineer for a major space contractor. I've been interested in space for most of my life, in fact my first real word that wasn't the name of a family member was the word "moon". I've loved rockets and space and used to collect and build model rockets. I only recently dove into the world of astronomy when motivated by covid boredom in early 2020. I purchased my first telescope, an 8 Inch Orion Dobsonian. As I progressed through the hobby, I purchased my first DSLR camera and began photographing the night sky self-taught (Mostly by YouTube). I am fascinated by all things space and have thoroughly enjoyed being a part of the Tulsa Astronomy Club!

Explore all the Observing Programs at <https://www.astroleague.org/observing.html>

Associate Treasurer Report

Mike Blaylock



As December 28, we had 192 members - 54 New members for 2022

We welcome this month's newest members – Caleb Archambo, Sherri Brallier, Robert Brown, Michael Carlson, David Dunham, Davin Jones, George Pease, Leslie Phillips, Randolph Phillips 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 December 28, 2022

Checking: \$ 4,336.24

Savings: \$ 5,788.78

Investments: \$ 30,843.00 (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.

If you need assistance, contact our club treasurer at astrotulsa.tres@gmail.com



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!

Spot the Messenger: Observe Mercury

David Prosper

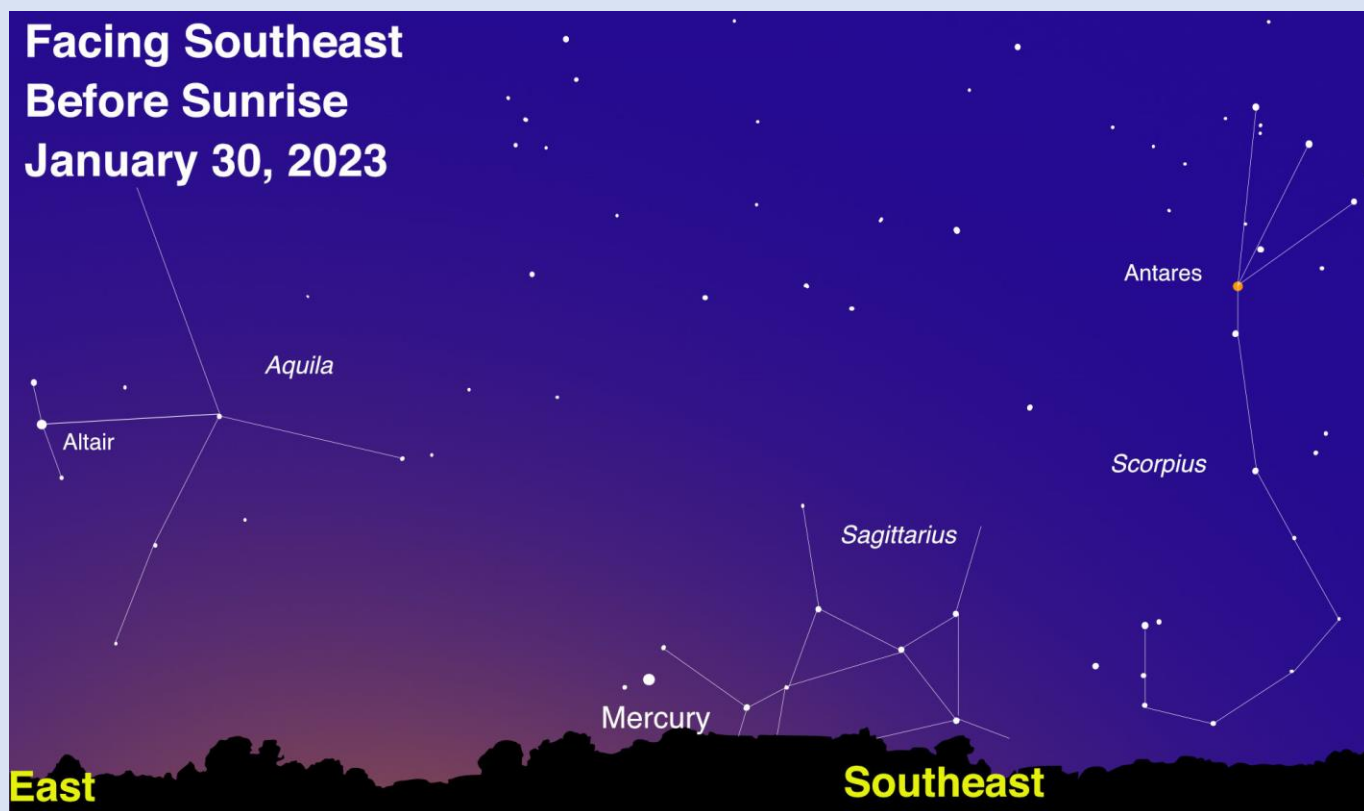
Most planets are easy to spot in the night sky, but have you spotted Mercury? Nicknamed *the Messenger* for its speed across the sky, Mercury is also the closest planet to the Sun. Its swift movements close to our Sun accorded it special importance to ancient observers, while also making detailed study difficult. However, recent missions to Mercury have resulted in amazing discoveries, with more to come.

Mercury can be one of the brightest planets in the sky – but also easy to miss! Why is that? Since it orbits so close to the Sun, observing Mercury is trickier than the rest of the “bright planets” in our solar system: Venus, Mars, Jupiter, and Saturn. Mercury always appears near our Sun from our Earth-bound point of view, making it easy to miss in the glare of the Sun or behind small obstructions along the horizon. That's why prime Mercury viewing happens either right before sunrise or right after sunset; when the Sun is blocked by the horizon, Mercury's shine can then briefly pierce the glow of twilight. Mercury often appears similar to a “tiny Moon” in a telescope since, like fellow inner planet Venus, it shows distinct phases when viewed from Earth! Mercury's small size means a telescope is needed to observe its phases since they can't be discerned with your unaided eye. Safety warning: If you want to observe Mercury with your telescope during daytime or before sunrise, **be extremely careful**: you don't want the Sun to accidentally enter your telescope's field of view. As you may already well understand, this is extremely dangerous and can not only destroy your equipment, but permanently blind you as well! That risk is why NASA does not allow space telescopes like Hubble or the JWST to view Mercury or other objects close to the Sun, since even the tiniest error could destroy billions of dollars of irreplaceable equipment.

Despite being a small and seemingly barren world, Mercury is full of interesting features. It's one of the four rocky (or terrestrial) planets in our solar system, along with Earth, Venus, and Mars. Mercury is the smallest planet in our solar system and also possesses the most eccentric, or non-circular, orbit of any planet as well: during a Mercurian year of 88 Earth days, the planet orbits between 29 million and 43 million miles from our Sun – a 14-million-mile difference! Surprisingly, Mercury is **not** the hottest planet in our solar system, despite being closest to the Sun; that honor goes to Venus, courtesy its thick greenhouse shroud of carbon dioxide. Since Mercury lacks a substantial atmosphere and the insulating properties a layer of thick air brings to a planet, its temperature swings wildly between a daytime temperature of 800 degrees Fahrenheit (427 degrees Celsius) and -290 degrees Fahrenheit (-179 degrees Celsius) at night. Similar to our Moon, evidence of water ice is present at Mercury's poles, possibly hiding in the frigid permanent shadows cast inside a few craters. Evidence for ice on Mercury was first detected by radar observations from Earth and follow up observations from NASA's MESSENGER mission added additional

strong evidence for its presence. Mercury sports a comet-like tail made primarily of sodium which has been photographed by skilled astrophotographers. The tail results from neutral atoms in its thin atmosphere being pushed away from Mercury by pressure from the nearby Sun's radiation.

NASA's Mariner 10 was Mercury's first robotic explorer, flying by three times between 1974-1975. Decades later, NASA's MESSENGER first visited Mercury in 2008, flying by three times before settling into an orbit in 2011. MESSENGER thoroughly studied and mapped the planet before smashing into Mercury at mission's end in 2015. Since MESSENGER, Mercury was briefly visited by BepiColombo, a joint ESA/JAXA probe, which first flew by in 2021 and is expected to enter orbit in 2025 - after completing six flybys. Need more Mercury in your life? Check out NASA's discoveries and science about Mercury at solarsystem.nasa.gov/mercury/, and visit the rest of the universe at nasa.gov.



Mercury reaches maximum western elongation on the morning of January 30, which means that your best chance to spot it is right before sunrise that day! Look for Mercury towards the southeast and find the clearest horizon you can. Observers located in more southern latitudes of the Northern Hemisphere have an advantage when observing Mercury as it will be a bit higher in the sky from their location, but it's worth a try no matter where you live. Binoculars will help pick out Mercury's elusive light from the pre-dawn glow of the Sun. Image created with assistance from Stellarium

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**
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 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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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

2023 [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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