



# OBSERVER

October 2022

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



## October marks the 30th Anniversary of our Observatory Dedication

In July 1991 our club received a \$ 25,000 donation from Ronald McDonald Children's Charity along with other many other donors.

Beginning in the Spring of 1992 Club members volunteered their skills and many days of labor to complete its construction. It originally contained a 16" f 6 reflecting telescope. Viewers had to climb a tall ladder to look into the telescope.

## In this Issue

- 2 Upcoming Club Events
- 3 President's Message - by John Land
- 4 What's Up in October Skies
- 5-8 Club Officer and Board Candidates Bios
- 9 Treasurer's Report and New Members -
- 10 - 12 *Citizen Science - Asteroids, Satellites & Comets* by Brad Young
- 13 - 15 *Fomalhaut: Not So Lonely After All NSN* by David Prosper
- 15 Astro Humor - The EARTH is IN FACT FLAT !
- 16 Map Links to *Where We Meet*
- 17 Enjoy a Jenks Planetarium Show and Club Contacts information

## Astronomy Club Events

Check our website [AstroTulsa.com](http://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.

**Astronomy Club Meeting - Friday Oct 14 - 7:00 PM - IN PERSON** club meetings.  
At Jenks High School planetarium 105 E B Jenks OK - Guests Welcome

**Saturday** Oct 15 6:15 PM **Guest and Members Night** - Guest requested to RSVP

**Friday** Oct 21 6:15 PM **Members Only night**  
Open to members and their immediate family

**TUESDAY** Oct 18 6:30 to 8:30 **Starlight in the [Tulsa Botanical Gardens](#)**  
Open to Public Registration and Admission Fee required  
**We will need volunteers to set up telescopes.** Details later in newsletter

**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**

**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  
Reservation details will be sent later in October

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

## 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.

Personal Hygiene, Social Distancing and Mask wearing are effective means of preventing spread.

## President's Message John Land



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

I hope you are looking forward to pleasant nights observing longer hours under cooler autumn nights. Saturn, Jupiter and Mars make for pleasing targets. The summer sky lingers in the west and autumn constellations are becoming prominent in the east.

I encourage you to come to our Oct 14 meeting. Our observing chairman Bard Young will be giving us a presentation on planet observing. Planetarium director, Dan Zielinski, will let us see his newly revamped seasonal sky shows and preview the Nov 8 Total Lunar Eclipse. During October we hold elections for a new slate of Officers and Board members to serve the coming year. We need a quorum of members present to have a valid election. This year our candidates are:

John Land – President, Don Bradford – Vice President,  
Skip Whitehurst – Secretary Mike Blaylock – Treasurer.  
Board Members – Jerry Cassity, Tamara Green, Cathy Grounds, Bryan Kyle,  
Jack Reeder, Dana Swift, James Taggart

You can see their pictures and learn more about them later in this newsletter.

Saturday Nov 12th is our annual club dinner. Our members and their families enjoy a nice catered dinner, activities and some time visiting with each other. We need volunteers to plan decorations, activities and serve the food line.

We have a couple of off site public viewing events coming up as well as our scheduled Guest nights at the observatory. Volunteers are always welcome to help with these.

Since we will be hosting the MidStates regional astronomy convention in June 2023 we will need to get started planning for it now. 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](mailto:astrotulsa.pres@gmail.com)  
Enter the Subject line: Club Dinner Volunteer or MSRAL Volunteer  
and provide you 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/>

**Sept. - Moon Phases - - 1<sup>st</sup> Q Oct 2 - - Full Oct 9 - - 3<sup>rd</sup> Q Oct 17 - - New Oct 25**

**October Planets –SATURN is in eastern Capricorn.** It is easily visible in the SSE sky at dusk. **JUPITER is now in Pisces shining brightly in the east.** It reached its closest opposition since 1963 on Sept 26. **NEPTUNE lays just 8 degrees to the west of Jupiter.** It was also at opposition on Sept 16 so October will be a good time to locate our Sun's most distant ice giant. Use a finder chart at medium power and look for a pale steely bluish "star". Then boost your magnification to discern its tiny disk. You need to wait until after 10:00 PM to search for **URANUS.** Its current position in Aries makes it difficult to locate due the lack of prominent stars nearby. At 5.7 mag it can be seen in binoculars and identified by its pale green hue. **MARS** rises about 10:00 PM in the NE but you'll likely need to wait until 11:00 to begin viewing. At -0.9 mag it shines brightly in Taurus where it will remain all winter. With steady seeing and magnifications of 100 or more you likely will be able to make out a few surface features on it 14 arcsecs disk. At opposition on Dec 7th it will shine at magnitude -1.9 with an apparent disk of 17.1 arcsecs. Don't miss this Mars observing season. Its next opposition in Jan 15, 2025 **Oct 8 - MERCURY at Greatest Western Elongation 18 degrees from the sun rising in the East before Dawn.** Good time to view Mercury since it will be at its highest point above the horizon in the morning sky. **Venus** is too close to the Sun this month for viewing.

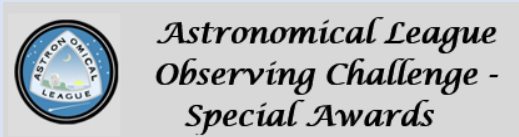
**The MOON** is near Saturn on Oct 4 & 5, Jupiter on Oct 8, and Mars on October 14

**Printable Finder Charts at**

**NEPTUNE - [https://in-the-sky.org/findercharts/10neptune\\_2022\\_1.pdf](https://in-the-sky.org/findercharts/10neptune_2022_1.pdf)**

**URANUS - [https://in-the-sky.org/findercharts/09uranus\\_2022\\_1\\_cmyk.pdf](https://in-the-sky.org/findercharts/09uranus_2022_1_cmyk.pdf)**

**Meteor Showers –** October is a good month for seeing meteors. Several minor showers are sprinkled throughout the month giving you a chance of seeing a meteor most any evening. The **Orionid meteor shower peaks Oct 21** with about 20 per hour but is spread over several days. This meteor stream is formed by fragments of the famous Comet Halley which graced our skies in 1986 and will return again about 2062



**OBSERVING THE MOONS OF THE SOLAR SYSTEM TWO CHALLENGES**

<https://www.astroleague.org/content/al-observing-challenge-special-observing-award>

**Observing a list of 15 features on Earth's Moon during** Observe the Moon week Oct 1 to Oct 9

**Observing Moons of other planets October 1 to November 30**

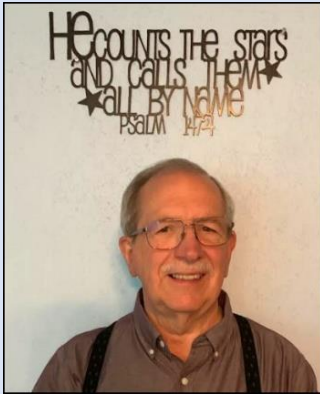
Our moon is an easy observing target for all sizes of telescopes even in bright skies. A great opportunity to learn more about our celestial neighbor. A detailed moon map or the Moon Globe App is a useful tool for identifying features. You may want to extend your study of our moon by completing the Astronomical League's [Lunar Observing Certificate.](#)

Jupiter moons accessible in small telescopes. Moderate size scopes can see several of Saturn's moons.

You will also want to review details about [Rating Seeing and Transparency](#)

Learn more about other [Astronomical League Observing Certificates](#) available

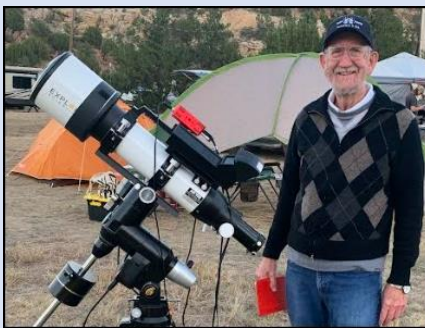
## Astronomy Club Officer & Board Candidates for Oct 2022 to Oct 2023



### JOHN LAND – President

I was blessed to have a mother with a keen scientific mind who encouraged my curiosity about the many wonders of God's creations. I discovered the Tulsa Club in the spring of 1977 and used to drive 70 miles from Okemah to attend their meetings. I had some great mentors who took the time to guide me on my journey of knowledge to discover the treasures of the night sky. One of my greatest joys is to pass that legacy on to others. I am encouraged to see several young adults eager to learn about the night sky and become involved in our club. I hope many of you will be eager to volunteer to help us show off our Astronomy Club and Tulsa community to guests from 5 states at our June 2023 MidStates Convention.

In 1978 began teaching at Broken Arrow High School. Following the Solar Eclipse of Feb 26, 1979, I was asked to start an Astronomy class. For 30 years I was blessed to be able to share my passion for the wonders of God's universe with several thousand students as well as my fellow teachers. I have served in various leadership capacities in the Tulsa Astronomy Club including observing chair, president, treasurer, board member and newsletter editor.



### DON BRADFORD – Vice President

I am proud to offer my candidacy for Vice President of the Astronomy Club of Tulsa. Having worked as an electrical engineer early in my career and as a lawyer for over thirty-five years, I bring a varied professional background to club governance. I have proudly served as a Board Member for the past two years, and have enjoyed working with other Board Members and Officers in promoting the *club's founding purpose: to promote and facilitate the love and practice of astronomy to club members and the general public.*

As a relative newcomer to astronomy, I have benefited greatly by the advice and tutoring from the many experienced observers in the club. When I ask those people how I can repay them, they say "pay it back to others". That is how I view my participation as a board member. I am eagerly learning new and fascinating approaches to viewing the sky, and I look forward to sharing my excitement with others. Your vote for me will be appreciated.

NOTE: Don's Legal Expertise have been a great help clearing up the survey and title descriptions of our newly aquired land.



### SKIP WHITEHURST – Secretary

Skip is a lifelong astronomy enthusiast. He is especially interested in transient events like occultations, satellite tracking, planetary and satellite transits of the sun and moon, and dabbles in astrophotography. He has been a board member since 2014.

Skip has volunteered with public nights, outreach, and "Telescopes 101 workshop" He often helps new members or guests with hands-on teaching at observing nights. His talents have been particularly welcomed with the maintenance of the observatory, operation improvements to the club's 14" telescope and the observatory dome. Over the past year he has lead the way in reassembling a 12 ft observatory dome that had been in storage for many years. He knowledge reading legal land descriptions is helping us resolve working issues with the land that was donated to the club.



### **MIKE BLAYLOCK – Treasurer**

I first got into astronomy in 2005 and joined the Tulsa club in 2009. I started with Binoculars for the first year. Rick Walker took me under his wings and basically showed me which end of the binoculars to look through. Steve Chapman took up mentoring after that. My next door neighbor gave me a Meade 4” Reflector on a really, really bad department store GoTo Eq mount. That started me into Amateur Telescope Making. Using my woodworking skills I converted the scope to a DOB mount. Had lots of fun building mounts, Binocular parallel-ogram, cases, etc. Steve Chapman joined in on a lot of these building sessions.

After using the 4” for about a year, I of course caught a mild case of aperture fever. That led to buying the then new to the market Orion 14” truss tube Dob. I wanted more mirror, but I liked the practicality of not needing a ladder for viewing. At my first Okie-Tex Star Party in 2001 I became interested in the idea of imaging. Being in the printing trade and growing up around my Aunt and Uncle’s portrait studio, It seemed only natural. Also, being a bit of a closet geek, the technical aspect and somewhat steep learning curve appealed to me. I’m still imaging and still learning. Mike’s amazing astrophotos have been of the cover page of several of our club newsletters. Mike’s other hobbies include Woodworking, N-Scale Train Modeling & Operations and Watch Repair.

## **We are pleased to announce THREE NEW CANDIDATES for our Board**



### **CATHY GROUNDS – Board**

We are pleased to have Cathy returning to our club after stepping aside to raise her three lovely daughters. She was a member for several years and served on our board a couple of terms. Where she was instrumental in helping us get a grant to buy a computer and projector system for the club.

Since returning she has used her creative talents to plan activities for our 2021 club dinner and planning our recent picnic at the observatory. She brought her scope to the well attended Gathering Place event in Dec. 21 She has a generous spirit, Willing to help out wherever she is needed. Cathy says she enjoys general observing and hopes to learn about astro photography in the future.



### **JACK REEDER – Board**

I am an Oklahoma native with an interest in the cosmos from grade school. With the purchase of a Celestron 8” Edge HD and AVX mount about 4 years ago, my interest peaked again. I then set about to learn its operation and the night sky, and have found both to be quite stimulating. Volunteering and participating in ACT events has been very informative and enjoyable. I particularly enjoy the variety of people in the club.

I will bring a new set of eyes to the Board, especially in that I am basically at an early stage of learning. I also bring other outside interests in cycling, writing, photography, and camping. Jack has just published a book of 56 photographic landscape images throughout Oklahoma along with accompanying poetry for each image. Google ***Jackson Reeder “In Light Oklahoma”***

I have made my living for the last 23 years helping about 130 organizations all over this part of the country, mostly manufacturers, adopt the Toyota Production System. This system is known domestically as “Lean.” It has many benefits in efficiency, productivity, cost, and quality. In practice, it involves running a lot of teams, teaching, mentoring, and coaching CEO’s.



### **DANA SWIFT – Board**

**My background in astronomy extends roughly 60 years. I learned the basics of astronomy from my father who delighted in giving "sidewalk tours" of the sky at music festivals. I own several Meade and Celestron telescopes from 4" to 12", and set one up on most clear nights.**

**Later I worked at Aeromet as an astrometer ( positional astronomy measurements ), and developed an instrument to measure atmospheric extinction using a high speed camera mounted in an aircraft window. Because of Aeromet's ongoing need for astrometry data I worked with various members of the Space Science Data Center (SSDC) at the Goddard Space Flight Center.**

**When NASA was converting its 9 track magnetic tape data archive to CD-ROM they needed software to search and retrieve that archive. That led to my CD-ROM browser program distributed by SSDC and JPL. As a byproduct of writing the browser, a copy of all the active data was sent to me for testing. I ended up with a personal copy of a very large archive of astronomy data, literally millions of data files.**

**(All of which is available online now)**

**That led to other things such as computing the "human vision" color images from the Voyager spacecraft, another program distributed by SSDC and JPL.**

**Now retired, and no longer actively working with Aeromet or NASA, I find astronomical image data processing to be a fascinating hobby. My backyard observations usually have a goal such as asteroid detection, earth orbiting satellite detection, etc. Rapid orbit estimation is a particular ongoing interest while astrometry and photometry are still active areas of work.**

## **Returning Board Candidates**



### **JERRY CASSITY – Board**

**I joined the Astronomy Club of Tulsa in 2018. I enjoy amateur astronomy. My favorite part of club activities is sharing the night sky with the public. I have been an active member of the Astronomy Club of Tulsa since 2018. I have served two years as Vice President and two years as Secretary. I would like to continue serving on the Board of Directors for the year 2023.**

**If you come to one of our our Guest Observatory nights you will always find a group of people gathered around Jerry's big 16" Dobsonian Scope at the center pad. They are enthralled by the views and his descriptions of what they are seeing.**



### **TAMARA GREEN – Board**

Tamara and her husband Owen have been in the club since 2004. She started out as an enthusiastic new member, excited for any opportunity to observe and be part of the action. In 2005, she was nominated to the Board and was elected as VP in 2006. When the acting club president had to resign Tamara took over as President and served until 2008. Tamara served as our club secretary from 2009 to 2014. Tamara became VP again in 2014 and became President for the years 2017 to 2021.

She has continued to serve on the board since Oct 2021 and so she strongly believes that she will continue to be a valuable asset for the club in the coming year. Over her nearly 20 years of service and dedication to the club her activities have included her stints as Newsletter Editor, Observing Co-Chair and assisting her husband Owen as Sidewalk Astronomy Coordinator



### **BRYAN KYLE – Board**

My name's Bryan Kyle. I've had a passion for all things space since I was very young but became a backyard astronomer in 2005. In 2018, I became the Planetarium Manager at the Tulsa Air and Space Museum Planetarium. I joined the Astronomy Club of Tulsa the same year. I've been with the club ever since, to lend a hand and a telescope when and where needed. I served as a board member starting in 2020 and served as club vice president for the past year. I would like to serve on the board to help the club any way I can.



### **JAMES TAGGART – Board**

My name is James Taggart, and I am security architect at IBM during office hours where I have worked for over 15 years. I took over as Observatory Manager several years ago and I hope you have seen some of our improvements. I would very much like to be on the board again. This next year should be very exciting. If anyone wants to volunteer to help with building and land maintenance, please email. If there is something that you need changed or added at the observatory, please contact me.

James serves as our Observatory Maintenance Manager. We all appreciate Jame's dedication to keeping our grounds mowed, observatory supplied, upkeep and repairs so we have clean welcoming place to come enjoy stargazing.

Note: James' technical expertise have been a great help allowing the club to implement our virtual meetings using the Zoom platform.



# Associate Treasurer Report

## Mike Blaylock



**As of September 22, we had 184 members - 35 New members for 2022**  
We welcome this month our newest members - **Janet Lenox, Adam Mason, and Christopher Tubbs.** Hello and welcome to ACT!

In addition, we want to recognize our long-term members who continue to renew their memberships.

**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](mailto:AstroTulsa.Tres@gmail.com)

**Accounts as of September 22, 2022**

**Checking: \$ 3,852.80**

**Savings: \$ 15,787.74**

**Investments: \$ 29,128.30** (Value tends to fluctuate with markets).

**The club now has PayPal available for you** to start or renew memberships and subscriptions using your credit or debit cards. 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 PayPal transactions.

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](http://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.

# Citizen Science Using Remote Telescopes

## Part Two: Asteroids, Satellites, and Comets - by Brad Young

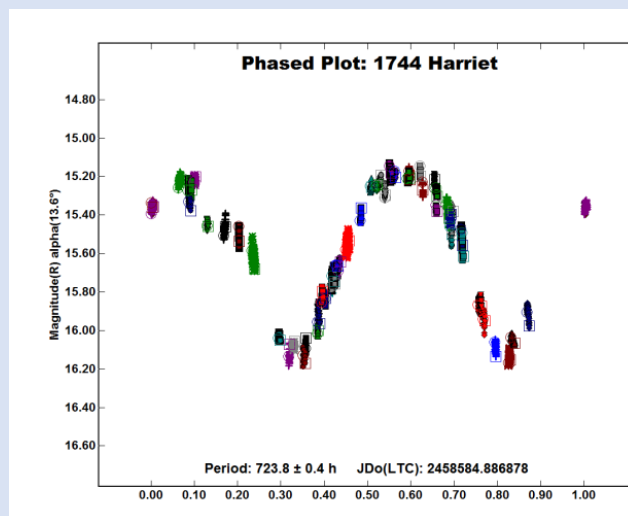
*"To confine our attention to terrestrial matters would be to limit the human spirit." - Stephen Hawking*

As discussed in Part One, there are many ways to pursue citizen science using remote telescopes. If you are not equipped with high-end imaging, visual or radio telescope equipment, using either commercial or academic resources available remotely may be an answer for you. Or, if you tire of long stretches of poor weather with no observing, having access to clear skies may be a welcome relief.

### Asteroids

*"Noise proves nothing. Often a hen who has merely laid an egg cackles as if she laid an asteroid." – Mark Twain*

With asteroids, there are several opportunities open to amateurs using remote imaging. The [Minor Planet Center](#) (MPC) provides orbital data for all known asteroids and comets to use for preparing observations. The MPC also processes both astrometry (positional) and photometry (brightness) data for nearly all minor planets. Information you gather can be reported to them in MPC format, which most software will prepare automatically. [Association of Lunar and Planetary Observers](#) publishes the Minor Planet Bulletin four times a year, a journal of various findings, especially determination of rotational period for asteroids. You can either use their template to write an article for their journal, or if you prefer, you can use data you've gathered and the methodology and determine rotational periods yourself.



*Pilcher, Klinglesmith III, and Oey, MPB VOLUME 46, NUMBER 4, A.D. 2019 OCTOBER-DECEMBER  
Note: I chose example of 1744 Harriet for my wife*

Other useful data in the MPB is the annual list of “Minor Planets at Unusually Favorable Apparitions”, which appears in every Jan-Mar issue of the Bulletin.

Another way that remote telescopes are used in minor planet studies is the [Astronomical League's Target NEO program](#) (formerly Target Asteroids program co-sponsored by NASA and University of

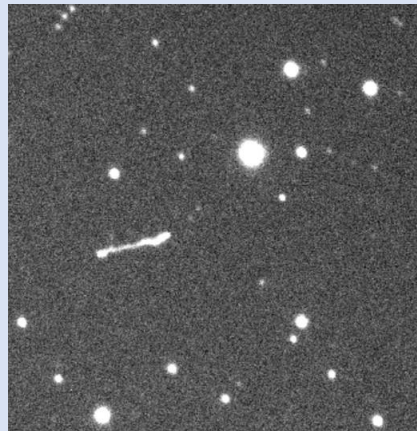
Arizona). This effort is centered on determining characteristics of asteroids that are Near Earth Objects, and others that may be worth visiting, landing on, or even returning samples from such as the [recent success at Benu](#). They accept reports in MPC format so you won't have to do any extra work to provide the data; however, in their case you will need to provide the FITS (image) file in addition to the report.

Although it is probably beyond the reach of most amateurs, you could do image surveys for Near Earth Objects. A better use of your time might be to join a group that processes images from the PanSTARRS or Catalina Sky Survey such as via the [IASC](#) (International Astronomical Search Collaboration).

## Satellites

Satellite tracking is another observing situation where remote telescopes are often useful. There are many satellites that are geosynchronous and will never appear in your sky, as their orbit is designed to stay over one spot on the Earth's surface. These can be imaged or tracked by radio remotely if the equipment is at the proper location.

Another use for tracking satellites are the ones that may be confused with Near Earth Objects because they are in solar or highly elliptical orbits and were often rocket bodies or other debris from early launches. [Project Pluto](#) is an effort to determine and follow some of these very high orbit objects so that they are not using up valuable survey effort and can be discounted as a threat to the Earth.



*Spektr-R was a Russian scientific satellite with a 10 m (33 ft) radio telescope  
Seen here 9 Feb 2022 at 345,000 km from telescope at apogee (Image by Author)*

Remote telescopes have also been useful, at least in my case, in identifying objects that are listed in the [ISON](#) (International Scientific Optical Network) catalog but are not listed in the US Space Command catalog (aka [Space-Track](#)). This goes beyond just the classified satellites - although those do appear in that list. I'm more interested in the ones that are not matched with a classified payload but are indeed tracked by one system and not matched to another. I recently [published my final version of this study](#) which I performed over a period of nearly three years.

## Comets

*"I came in with Halley's Comet (he was born in 1835). It is coming again next year. The Almighty has said, no doubt, 'Now there are these two unaccountable freaks; they came in together, they must go out together.' " He died on April 21, 1910— one day after the comet had once again reached its perihelion.*

Comets are notorious for being on the other side of the world from where you are when they're at their best. Or they will be here, just as soon as they round the sun...



This is another way that remote imaging may be useful to you, as you may be able to find a telescope that has a better view of the comet you can't see well or at all. As a bonus, you can always report data on the comet to the [COBS](#) (Comet Observation Data Base) and add to our general knowledge of comets through citizen science.

I hope that these two articles have shown you that remote imaging can be useful across a variety of astronomical targets and scientific studies.

References:

<https://minorplanetcenter.net/iau/mpc.html>

<https://alpo-astronomy.org/>

<https://www.astroleague.org/node/4017>

<https://www.nasa.gov/osiris-rex>

<http://iasc.cosmosearch.org/>

[https://www.projectpluto.com/sat\\_eph.htm#start](https://www.projectpluto.com/sat_eph.htm#start)

[https://en.wikipedia.org/wiki/International\\_Scientific\\_Optical\\_Network](https://en.wikipedia.org/wiki/International_Scientific_Optical_Network)

<https://www.space-track.org/auth/login>

<https://hafsnt.com/index.php/recent-articles/>

<https://cobs.si/>

**Editor Note:** Brad Young have been accepted provisionally as an Affiliated Member of the IAU ( International Astronomical Union ) Centre for the Protection of the Dark and Quiet Sky from Satellite Interference (CPS). My focus will be on training observers to report the brightness of Starlink and other megaconstellation satellites. <https://cps.iau.org/sathub/>

Also see at <https://hafsnt.com/index.php/2022/09/19/iau-center/>

Hopefully I can encourage others to observe and report satellite brightness using repeatable and accurate methods. The data will then be used to support engineering and policy decisions worldwide.



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](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

## Fomalhaut: Not So Lonely After All by David Prosper

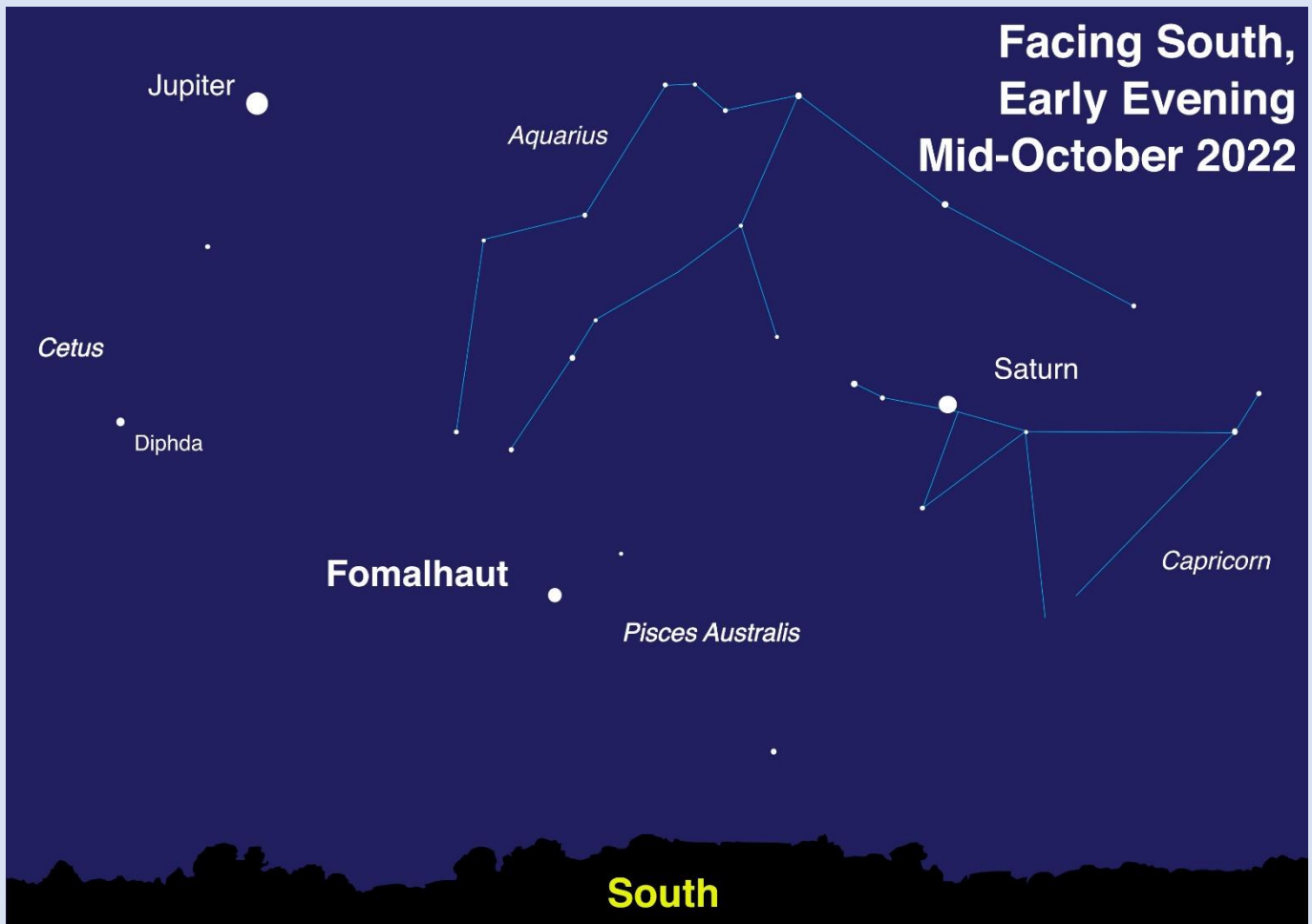
Fall evenings bring a prominent visitor to southern skies for Northern Hemisphere observers: the bright star **Fomalhaut**! Sometimes called “The Autumn Star,” Fomalhaut appears unusually distant from other bright stars in its section of sky, leading to its other nickname: “The Loneliest Star.” Since this star appears so low and lonely over the horizon for many observers, is so bright, and often wildly twinkles from atmospheric turbulence, Fomalhaut’s brief but bright seasonal appearance often inspires a few startled UFO reports. While definitely out of this world – Fomalhaut is about 25 light years distant from us – it has been extensively studied and is a fascinating, and very identified, stellar object.

Fomalhaut appears solitary, but it does in fact have company. Fomalhaut’s entourage includes two stellar companions, both of which keep their distance but are still gravitationally bound. Fomalhaut B (aka TW Piscis Austrini, not to be confused with former planetary candidate Fomalhaut b\*), is an orange dwarf star almost a light year distant from its parent star (Fomalhaut A), and Fomalhaut C (aka LP 876-10), a red dwarf star located a little over 3 light years from Fomalhaut A! Surprisingly far from its parent star – even from our view on Earth, Fomalhaut C lies in the constellation Aquarius, while Fomalhaut A and B lie in Piscis Australis, another constellation! – studies of Fomalhaut C confirm it as the third stellar member of the Fomalhaut system, its immense distance still within Fomalhaut A’s gravitational influence. So, while not truly “lonely,” Fomalhaut A’s companions do keep their distance.

Fomalhaut’s most famous feature is a massive and complex disc of debris spanning many billions of miles in diameter. This disc was first detected by NASA’s IRAS space telescope in the 1980s, and first imaged in visible light by Hubble in 2004. Studies by additional advanced telescopes, based both on Earth’s surface and in space, show the debris around Fomalhaut to be differentiated into several “rings” or “belts” of different sizes and types of materials. Complicating matters further, the disc is not centered on the star itself, but on a point approximately 1.4 billion miles away, or half a billion miles further from Fomalhaut than Saturn is from our own Sun! In the mid-2000s a candidate planetary body was imaged by Hubble and named Fomalhaut b. However, Fomalhaut b was observed to slowly fade over multiple years of observations, and its trajectory appeared to take it out of the system, which is curious behavior for a planet. Scientists now suspect that Hubble observed the shattered debris of a recent violent collision between two 125-mile-wide bodies, their impact driving the remains of the now decidedly non-planetary Fomalhaut b out of the system! Interestingly enough, Fomalhaut A isn’t the only star in its system to host a dusty disc; Fomalhaut C also hosts a disc, detected by the Herschel Space Observatory in 2013. Despite their distance, the two stars may be exchanging material between their discs - including comets! Their co-mingling may help to explain the elliptical nature of both of the stars’ debris discs. The odd one out, Fomalhaut B does not possess a debris disc of its own but may host at least one suspected planet.

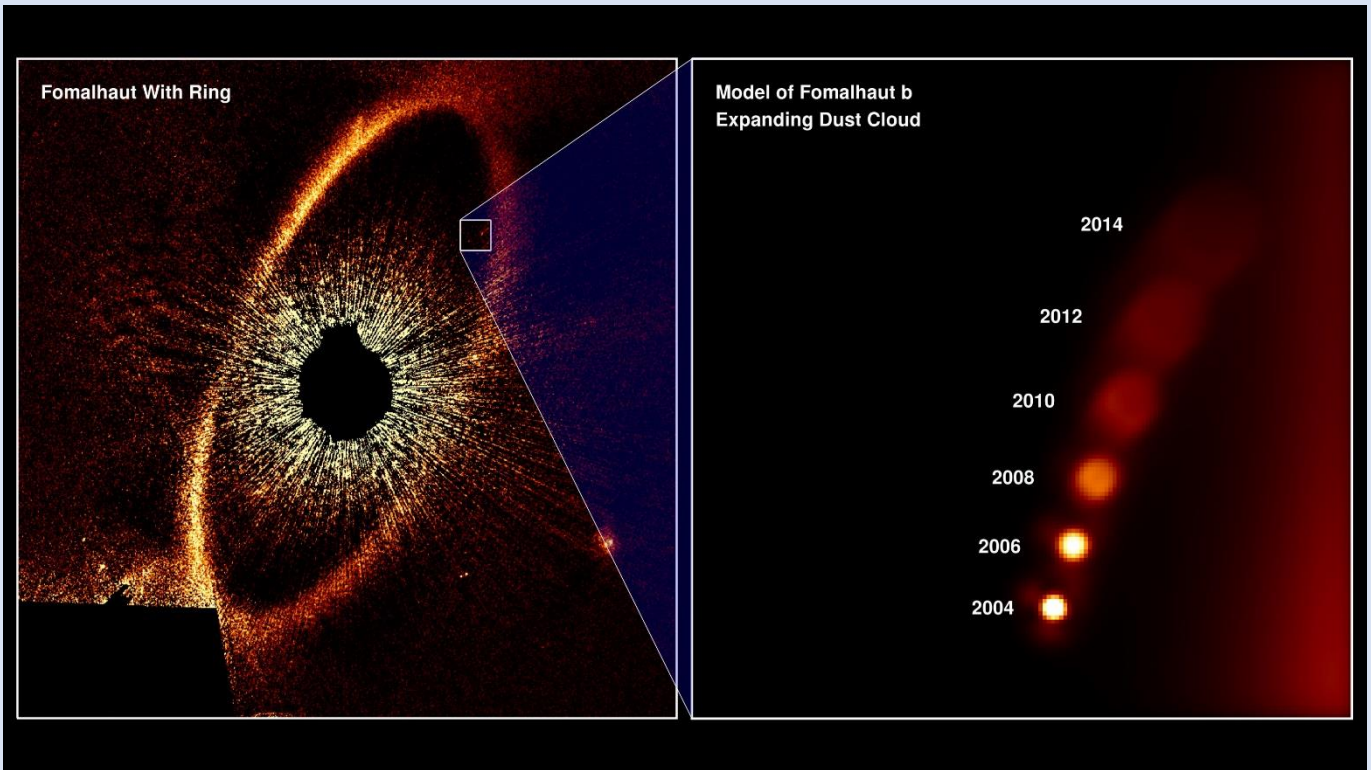
While Hubble imaged the infamous “imposter planet” of Fomalhaut b, very few planets have been directly imaged by powerful telescopes, but NASA’s James Webb Space Telescope will soon change that. In fact, Webb will be imaging Fomalhaut and its famous disc in the near future, and its tremendous power is sure to tease out more amazing discoveries from its dusty grains. You can learn about the latest discoveries from Webb and NASA’s other amazing missions at [nasa.gov](https://nasa.gov).

*\*Astronomers use capital letters to label companion stars, while lowercase letters are used to label planets.*



*Sky map of the southern facing sky for mid-latitude Northern Hemisphere observers. With Fomalhaut lying so low for many observers, its fellow member stars in the constellation Piscis Australis won't be easily visible for many without aid due to a combination of light pollution and atmospheric extinction (thick air dimming the light from the stars). Fomalhaut is by far the brightest star in its constellation, and is one of the brightest stars in the night sky. While the dim constellations of Aquarius and Capricorn may also not be visible to many without aid, they are outlined here. While known as the "Loneliest Star," you can see that Fomalhaut has two relatively close and bright visitors this year: Jupiter and Saturn!*

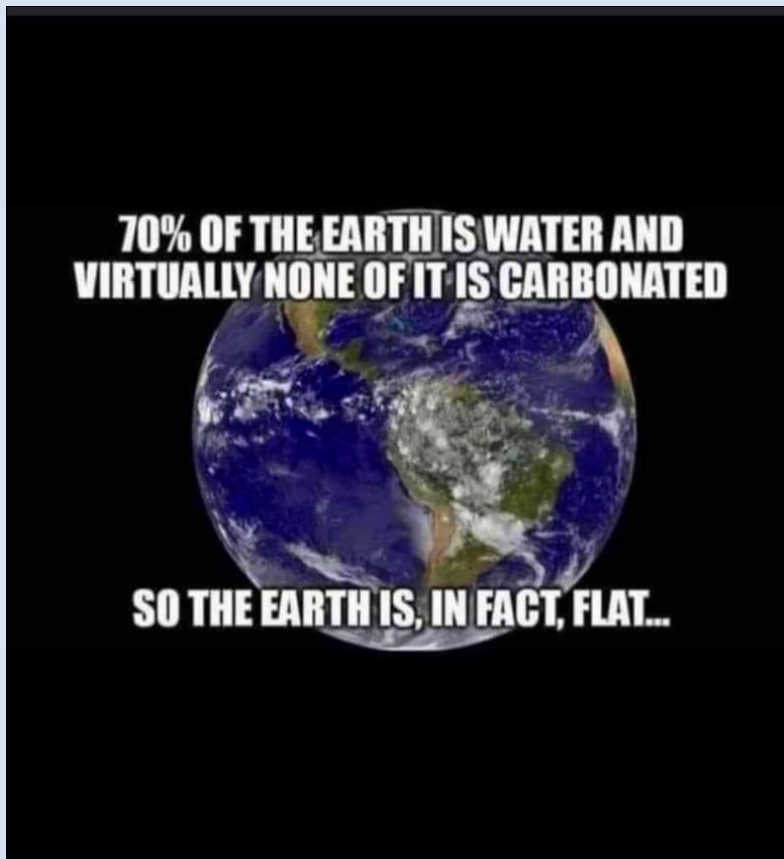
*Illustration created with assistance from Stellarium*



The magnificent and complex dust disc of the Fomalhaut system (left) with the path and dissolution of former planetary candidate Fomalhaut b displayed in detail (right).

Image credits: NASA, ESA, and A. Gáspár and G. Rieke (University of Arizona) Source:

<https://www.nasa.gov/feature/goddard/2020/exoplanet-apparently-disappears-in-latest-hubble-observations>



Thanks to Don Sailing  
for sharing  
this humorous image

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 3<sup>rd</sup> 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.



## ASTRONOMY CLUB OFFICERS:

PRESIDENT – JOHN

[astrotulsa.pres@gmail.com](mailto:astrotulsa.pres@gmail.com)

VICE PRESIDENT – BRYAN KYLE

[astrotulsa.vp@gmail.com](mailto:astrotulsa.vp@gmail.com)

SECRETARY – JERRY CASSITY

[astrotulsa.secy@gmail.com](mailto:astrotulsa.secy@gmail.com)

TREASURER – JOHN NEWTON

[astrotulsa.tres@gmail.com](mailto:astrotulsa.tres@gmail.com)

ASSOCIATE TREASURER – MIKE BLAYLOCK

[astrotulsa.tres@gmail.com](mailto:astrotulsa.tres@gmail.com)

## BOARD MEMBERS-AT-LARGE:

DON BRADFORD

JIM DANFORTH

TAMARA GREEN

ADAM KOLOFF

JAMES TAGGART

SKIP WHITEHURST

## STAFF:

FACILITIES MANAGER –

JAMES TAGGART

[astrotulsa.obs@gmail.com](mailto:astrotulsa.obs@gmail.com)

EDITOR - JOHN LAND

[tulsaastrobiz@gmail.com](mailto:tulsaastrobiz@gmail.com)

PROGRAM CHAIR - JOHN LAND

[tulsaastrobiz@gmail.com](mailto:tulsaastrobiz@gmail.com)

Public FaceBook Page Coordinator

Adam Koloff -

[akoloffuso@gmail.com](mailto:akoloffuso@gmail.com)

OBSERVING CHAIR - BRAD YOUNG

[allenb\\_young@yahoo.com](mailto:allenb_young@yahoo.com)

**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](http://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**

PERMISSION TO REPRINT ANYTHING FROM THIS NEWSLETTER IS GRANTED, **PROVIDED THAT CREDIT IS GIVEN TO THE ORIGINAL AUTHOR AND THAT THE ASTRONOMY CLUB OF TULSA "OBSERVER" IS LISTED AS THE ORIGINAL SOURCE.** FOR ORIGINAL CONTENT CREDITED TO OTHERS AND SO NOTED IN THIS PUBLICATION, YOU SHOULD OBTAIN PERMISSION FROM THAT RESPECTIVE SOURCE PRIOR TO REPRINTING. THANK YOU VERY MUCH FOR YOUR COOPERATION. PLEASE ENJOY THIS EDITION OF THE OBSERVER.