



OBSERVER

AUGUST 2020

Bringing Stars to the eyes of Tulsa since 1937

Editor - John Land



Photo taken by Stan Davis near Skiatook Lake
Comet NEOWISE C/ 2020 F 3 put on a Grand Show in July



See our Galley of
Photos on page 7-9



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Astronomy Club Events

All Public SUMMER Events are suspended til further notice

Plans may change based on how the current Health situation evolves.
Check our website www.AstroTulsa.com events section for updates

Members ONLY Events with Social Distancing Guidelines in Effect

August

Member ONLY Observing Nights
Friday, Aug 14, 7:45 PM
Saturday, Aug 15, 7:45 PM (backup)

Friday, Aug 21, 7:45 PM
Saturday, Aug 22, 7:45 PM (backup)

Member ONLY Observing Nights
Friday, Sept 11, 7:00 PM
Saturday, Sept 12, 7:45 PM (backup)

Friday, Sept 18, 7:00 PM
Saturday, Sept 19, 7:45 PM (backup)

Check our website www.AstroTulsa.com events section for updates

Looking for Virtual Sky Events !!

Try the Videos and Facebook Live sessions from Chabot Space & Science Center

https://www.facebook.com/pg/ChabotSpace/videos/?ref=page_internal

OFFICER & BOARD ELECTIONS are coming up this fall.

Our Astronomy Club of Tulsa is made up of people from many different backgrounds who all share a common love and interest in astronomy. The responsibility of keeping things running smoothly is handled by our Officers and Board members. These are made up of people who volunteer their time and talents to make the club better. **If you want to become more involved to ensure the future of the club, send you name and a short paragraph about yourself and why you want to be a nominee for Board or Officer. To astrotulsa.pres@gmail.com & astrotulsa.tres@gmail.com**

Qualifications for the elected position of officer shall be:

- A. The nominee shall be an eligible member in good standing for at least one (1) year.
- B. The nominee must be the minimum legal age

For more information contact one of our officers on the contact page at the end of the newsletter.

Guidelines for Members Only Observing Night

No guests – other than immediate family – no large family groups.

This will be a phased in effort in order to protect our members while also enjoying observing.

These are Guidelines for trial openings for May and June.

Members are asked to cooperate with the following policies.

1. We are asking that A CONTACT PERSON from each group or individuals SIGN IN With a FULL NAME and contact EMAIL or Phone # to facilitate contact should the need arise.
2. Observers are asked to stay in FAMILY UNITS - instead of mixing with other groups (Family Units are persons living in same residential setting regardless of relationship) Kids should be 12 or older and stay with their family.
3. Maintain SIX FOOT Social Distancing between observing groups.
4. Use your OWN OBSERVING EQUIPMENT – instead of sharing telescopes etc
5. MASKS are Optional but RECOMMENDED when in close proximity.
If you have a mask you may wear it if it makes you feel safer.
6. OBSERVATORY CLASSROOM WILL BE CLOSED - Unless on way to the restroom
7. REST ROOM – use good hand washing and hygiene –
We will provide hand Sanitizer. -Clean up all surfaces as you leave the restroom area.
8. OBSERVATORY DOME and TELESCOPE will be CLOSED.

** If you know you have been exposed to persons with Covid-19 or if you are showing symptoms of this or other illness

Please Stay Home until you are fully recovered and Fever and Symptom free for 72 hours or more.

If you have health issues that may put you at added risk, we recommend you stay home for now.

Keep in Mind these hopefully temporary measures as we move forward toward normalcy.

*Okie-Tex Star party for 2020 has been **CANCELLED***



The **August Perseid meteor shower** is probably the most observed shower of the year. It occurs in mid-August when many people are outdoors enjoying an end of summer vacation away from city lights. This year the peak of the shower occurs on the **night of Aug 11–12**. However, members of the shower can be seen a week or so on either side of that date. The best time to view the meteors is after midnight as the Earth is then moving into the meteor stream. It peaks around 4:00 AM This year the 3rd quarter moon rises soon after midnight which will make the sky brighter. The Perseids meteors enter the atmosphere at 133,000 mph which can produce several bright meteors. From suburbs you should be able to see 40+ meteors per hour. Plan to spend

at least 30 minutes observing. There's not room here to cover all the details unfortunately I couldn't find a decent 2020 article online. Guess they are in quarantine too.

Try this Podcast Aug 2020 Skies- <https://skyandtelescope.org/observing/sky-tour-astronomy-podcast/>

August Planets include **Jupiter**, **Saturn** in all night with **Mars** rising around 11 PM. The planets **Neptune** and **Uranus** rise later at night and are also visible for the diligent searcher. They can be seen in binoculars and small to medium sized telescopes. You'll find detailed finder charts at <https://skyandtelescope.org/observing/ice-giants-neptune-and-uranus/>

Venus rises about 3:30 AM and is well placed for viewing in the predawn sky. The moon passes Mars on after midnight Aug 8 and Venus before dawn on Aug 15. It lies between Jupiter and Saturn on Aug 1st and again on Aug 28th.



Two bright planets, Jupiter and Saturn, are gracing the SE sky as soon as it gets dark. In mid-August they highest due south about 11:00 PM. Look for them near the “Teapot” asterism pattern in Sagittarius.

Jupiter takes 11.8 years to orbit the sun while Saturn takes 29.5 years. Every 20 years Jupiter catches up to Saturn. This event is referred to as their Grand Conjunction. They will draw closer and closer together this fall. On Dec. 21 they will be only 1/10 degree apart low in the SW just after sunset. (1/3 the width of the moon)

You can see Jupiter and its four brightest moons in a small telescope with as little as 25 power. Saturn’s rings and its

brightest moon Titan can be detected at about 50 power. Both Planets look great at 80 to 100 X

There are a few things you need to do to get the best views of the planets in your telescope.

1. **Try to choose a night of GOOD SEEING.** Meaning the air is stable, not windy, lower humidity. The less air turbulence the better the viewing conditions. Rapidly twinkling stars are POOR SEEING.
2. **Your telescope optics need to be the same temperature as the outdoor environment.**
The glass in the optics shrinks or expands causing indistinct images.
If your scope is in an AC cooled house it needs to warm up before you will get good images. Take it outside to warm up for 20 – 30 mins. (In winter cool it down)
Leave its lens or mirror covers ON to avoid fogging up when humidity is high.
3. **Choose an observing site over grassy areas.**
Hot air rising over streets – driveways – roof tops etc. – causes turbulent air patterns.
4. **If possible, wait until the planet is 15 - 20 degrees or more above the horizon.**
The higher the planet’s altitude the less atmosphere you must look through.
5. **Start observing with a medium power eyepiece.** As the seeing improves you can switch to higher magnifications. Some nights the seeing just will not take a higher magnification.
6. **Know your Telescope’s Limits** – The maximum useful magnification for a telescope is about 2X per mm of Aperture. (50X / inch) Thus a 100 mm diameter scope won’t do more than 200 power. Anything more just gets fussy.
Magnification = Telescope Focal Length divided by Eyepiece Focal Length
7. **Atmospheric turbulence typically limits magnification to 250X of less.** So even though an 8” scope has a diameter of 200mm it won’t do 400X unless the air is perfect. But because of its larger size it will reveal more detail (resolution) at a lower magnification.
8. **The apparent size of the planet in the eyepiece is also important.**
1” arc sec is 1/3600 degree Objects smaller than about 5” show little detail in most scopes. In August, Jupiter is 46” & Saturn’s disk is 18” but its rings are 3 times that wide. Both are always good views. Mars on the other hand is only good in opposition years. In August, Mars is 17” but swells to 22.6” at its opposition Oct 13 at a magnitude of -2.6. In Oct 2019 it was only 3.6” and a dim mag 1.8. Venus in the morning sky is 23”
9. **Colored eyepiece filters can help with details on some planet features.**
Light Blue or Green works well on dark features on Mars. I use an old light pollution filter that works great on Mars. If you have different filters, try them out to see what works well.



PRESIDENT'S MESSAGE

BY TAMARA GREEN



Hey Y'all,

Thank you everyone for keeping me and Owen in your thoughts and prayers. For those of you who have not been made aware of our situation, Owen and I both tested positive for COVID-19 about a month ago. Owen's test results came back on June 27 and mine on July 4. What a way to celebrate the Fourth! Finding out you have Coronavirus! We have had to quarantine all this time due to the 2-week period and being sick with it for even longer! Fortunately, neither one of us ended up in the hospital or worse, and we could treat our symptoms ourselves at home. I am happy to be able to announce that we have both survived Corona and are feeling much better! We hope to get back out to the observatory very soon! That will be a welcome break, considering we have been cooped up at home for a month!

I do have some bad news, however. The first piece of news is that the Oklahoma City Astronomy Club has had to make the very difficult decision to cancel Okie-Tex for this year due to the ongoing pandemic. If you have already registered, you may request a refund, or you can donate to their building fund for the new building at Camp Billy Joe. I do not know what Jody's Catering is doing, so you can check out OKCAC'S website, www.okcastroclub.com for details. They will have a lot more information pertaining to the cancellation.

The next bit of bad news is that we had planned on a club picnic for next month, but, due to health concerns about serving communal food, we have cancelled it. We can try for later in the year for a picnic. We will, however, have two members' nights and two backup nights in August. You are, of course, welcome to bring your own food and drinks, if you want to have your very own little "picnic" either for yourself or your family unit. I look forward to being out at the observatory with you all again!

If you do go to any of the members' nights and/or backup nights next month, please continue to practice social distancing, keep your hands washed, and use common sense. I would like to see everyone wearing masks as well. Trust and Believe that you all do NOT want this Corona business! It was no fun for either me or for Owen! I don't want anyone else to get sick! He and I were lucky. You or anybody else might not be as lucky as we were. So please do what you can to stay safe and well! Also, please no sharing of equipment, no kids under 12, and no guests. These guidelines and rules will continue for the foreseeable future. We as officers and board will continue to meet via Zoom to discuss plans for events as this situation develops,

Keyholders we need you to STEP UP and VOLUNTEER to come to club events to open and close the observatory.

I look forward to seeing you all again and for us to get back to normal as soon as possible.

Clear Skies, Tamara Green

Comet NEOWISE C/2020 F3 put on a grand show.

by John Land



Comet NEOWISE put on a grand show for us during July! No doubt many of you have enjoyed observing the comet or at least looking at the images of it on the Internet. Comet NEOWISE was discovered Mar 27, 2020 by the **N**ear-**E**arth **O**bject **W**ide-field **I**nfrared **S**urvey **E**xplorer Astronomers in the southern hemisphere got the first views of it as hurled toward the sun. It reached Perihelion July 3 inside the orbit of Mercury at a distance of 0.295 AU.

Its closest approach to Earth was July 23 – 0.692 AU from Earth
Its semi-major axis is ~ 364 AU with a period of ~ 6,957 years and Apogee near 715 AU Twenty times farther out than Pluto!



HOW BIG IS IT? NASA images place the size of the nucleus at 5 Km which is 16,400 feet. By comparison Pikes Peak is 14,115 ft above sea level. But the elevation of Colorado Springs at its base is 6,000 ft. So, to place the size of the nucleus in perspective, if the NEOWISE nucleus was to set on the plains nearby it would be a mountain of ices more than twice the height of Pikes Peak.

Having been already been disappointed TWICE this year by predicted bright comets that disintegrated when they passed too close to the sun. We held our breath hoping NEOWISE would survive! Observers in northern latitudes were posting images of it in the morning skies the day after perihelion. Myself and others dragged ourselves out of bed before 5:00 AM to catch glimpses of this golden sword hugging the NE horizon. Due to its highly inclined orbit, it soon began appearing in NW sky in the evening. It was easily visible in binoculars and even a naked eye comet for more than three weeks as it skimmed along the southern region of Ursa Major. It's a telescope object now but should remain visible for a few more weeks as it recedes into the distant frozen regions of the solar system.

It was a big hit at our July 17 observing night. One of our new members shared his joy about the observing experience. A most memorable evening. I talked to Nancy about two hours this morning about it. It has been so long since I saw the Milky Way so bright. And the comet was dazzling. Great people. I am definitely in. Feeling a bit like I did when I was 12. This is just rejuvenating. Will continue to be in touch. Eric

Naked eye, I estimated its tail to be about 5 degrees long that evening. On July 17 it was 0.76 AU from Earth. Using my limited math abilities that would place the visible length of the comet's tail at least 6.4 Million Miles long! 25 times farther than the moon.

See Comet Finder Chart for August on page

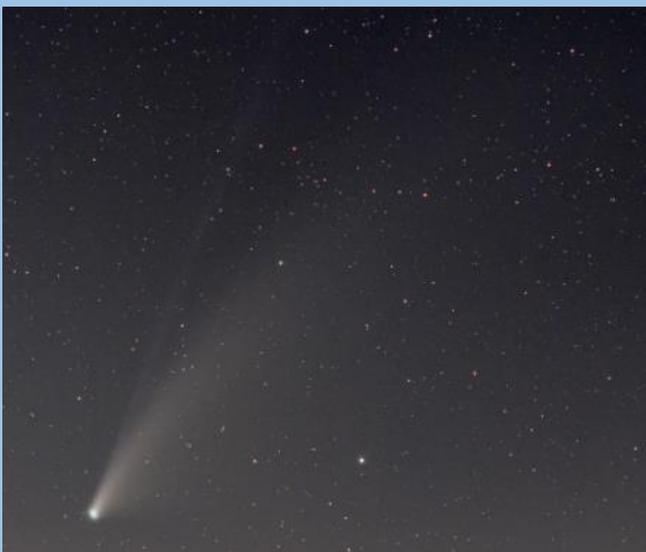
Some Great images of the Comet taken by some of our members.

The originals are much more spectacular than these screen capture versions.



Ryan Wade July 17 Sony a7iii
About 10 X 30 second exposures ISO 1600

Adam Koloff
July 20 Plains near Marfa TX >>



Skip Whitehurst July 24 100mm f/2.8 lens
36 out of 45 Thirty sec images stacked



John Moore July 18 Skiatook OK
Canon 6D DSLR zoom lens at 200mm f/2.8
ISO 800 8 second exposures



Daniel Smith July 23
This was captured with 21 x 20" subs.
EQ6-R Pro
Celestron c9.25 w/Hyperstar v3
ASI533mc Pro ASlair Pro



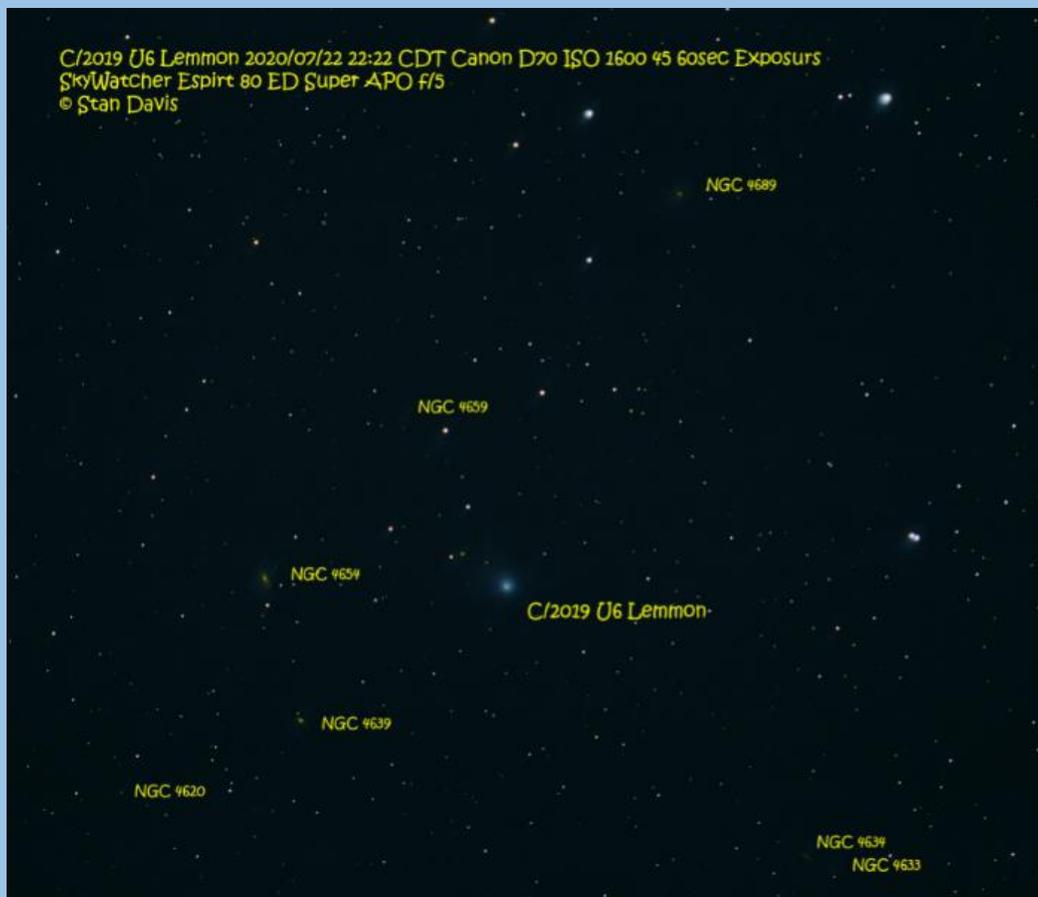
The photo Above is the original image - This one on the Left is result of Image Processing
Both show strands of ions and dust pushed back over 6 million miles by the solar wind.



John Land July 19 afocally
Shooting through a 20mm eyepiece on 400mm Lens
iPhone X w NightCap app



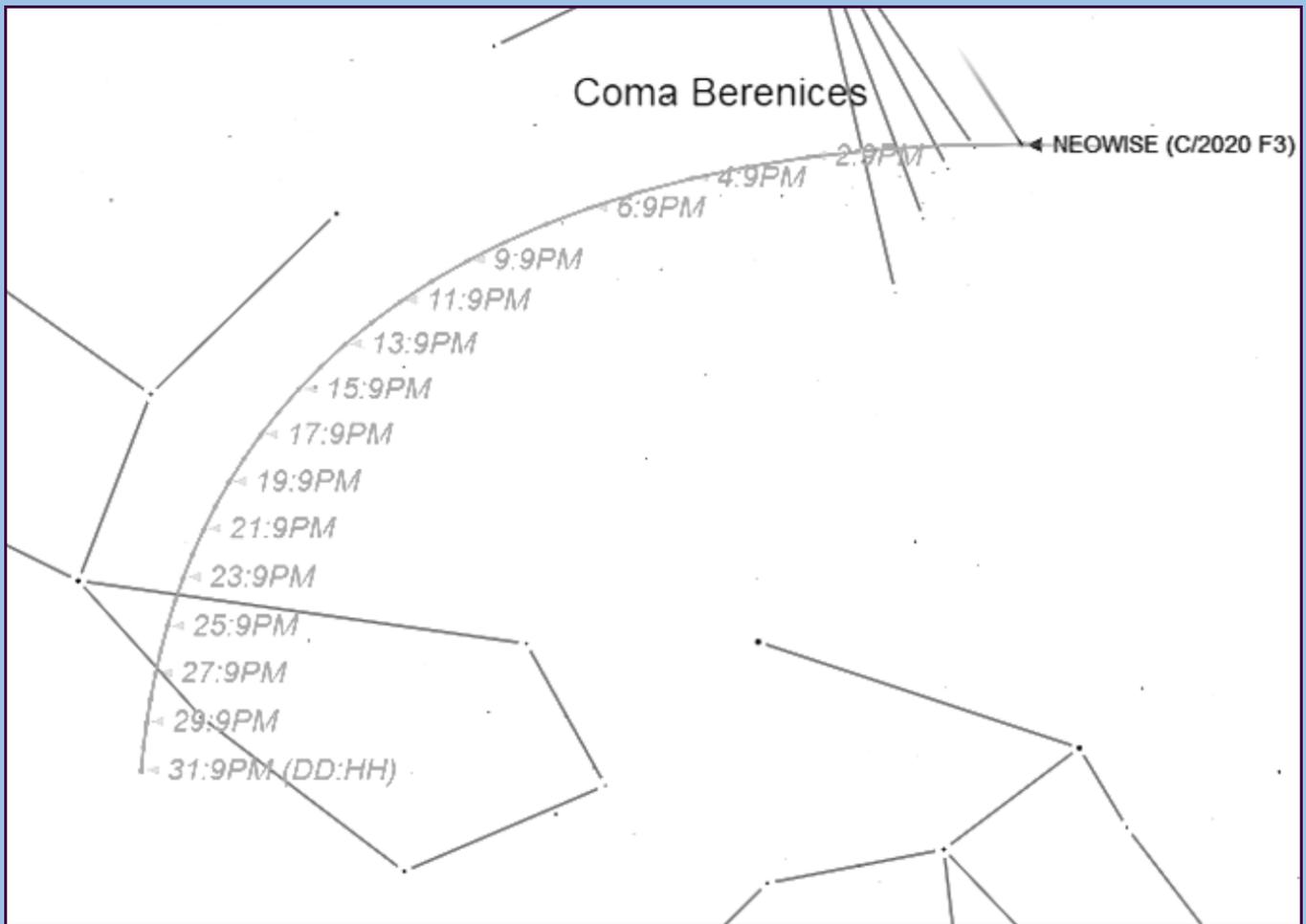
Stan Davis offers these two comet photos from his place near Skiatook Lake
At top is Comet NEOWISE showing both its ion tail and diffuse dust tail
Below is a more typical looking Comet Lemmon surrounded by galaxies



**Path of Comet NEOWISE 2020 F3
August 1 to 31 at 9:30 PM CDT**

**It starts the month high in the west in Coma Berenices
then sinks lower in the WSW
fading from about 6th magnitude to 10th mag**

**For daily updates and positions go to
Gideon van Buitenen's very excellent comet page <http://astro.vanbuitenen.nl/comets>**



Review of new Astronomy video series by Brad Young

Infinity AND Beyond

Presented by Abigail Bollenbach

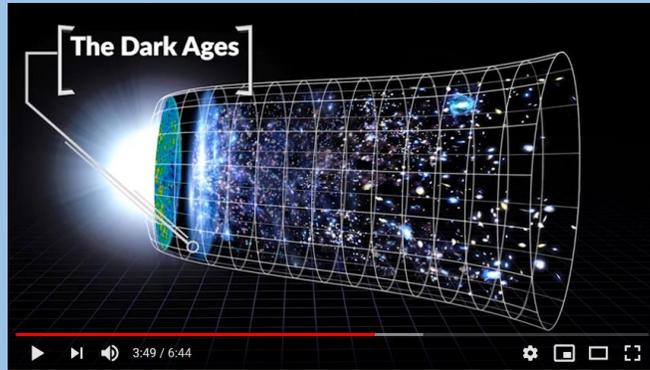


As many Oklahoman amateur astronomers know, Abby Bollenbach is a local young woman who has been a rising star in studying and reporting on astronomy and spaceflight for a few years now. Her impressive resume already includes the 2019 The Mars Generation, 24 Under 24, 2019 Leaders in Space and STEAM award, and the 2018 Astronomical League Horkheimer/Smith Youth Service Award. At 16, she presented a talk on the Cassini-Huygens mission at Mid States Regional Astronomical League Convention for 2018. She has a patent for gamma-ray shielding to make space travel less harmful to biological entities titled “Quantum Locked Fluxon Shielding”. And, she wrote and narrated a show for the Jenks Planetarium – “Earth to Saturn”.

Astronomy Magazine has begun a series of bi-weekly videos written and presented by Abby entitled Infinity and Beyond. There have been three episodes so far, discussing the Big Bang, Exoplanets, and the formation of the Moon. There is also an introductory video “Meet the Host” that was a kind of trailer for the series. The videos are available on YouTube, Facebook, and Instagram. Each is about 6 minutes, and consists of Abby discussing the topic, supported by various images and graphics. Total views over the various platforms runs 15-20,000 views per episode.

The subject matter is all of interest to astronomy and space buffs, and is up to date and clearly, she has done her homework on the facts as we know them today. Here is my review of each episode so far.

Episode 1 – The Big Bang



There isn't any bigger subject, so it is fitting as the premiere episode. It would be difficult to have an astronomy series without discussing the beginning of it all, and Abby gets things going right from the start. There was a cohesive timeline approach to discuss the different eras in the aftermath of the Big Bang. I have not seen the eras explained thoroughly in some other videos, and the narrative method makes it much easier on the viewer. The discussion of the space probes involved in acquiring the data to back up these theories was also appreciated. She ties the theory to the practical data gathering very well – not dwelling solely on the physics.

Episode 2 - Exoplanets



This episode caught my eye, as I had recently completed the AAVSO (American Association of Variable Star Observers) course on imaging and measuring these objects. Episode 2 provided a good background on detection methods, including Transit Photometry – the one I had just studied. This subject is ripe for Citizen Science involvement; I highly recommend the (currently free) AAVSO course.

Though exoplanet research is a hot news topic, the science involved can be hard to explain without the risk of MEGO – My Eyes Glaze Over - in the audience. So, Abby added a little comic relief with her discussion of “bachelor” rogue stars and others with “commitment issues.” Presentation, graphics, and scope of the discussion were all spot on – well edited by Hailey McLaughlin and written by Abby to explain our current knowledge – and lack of it.

Episode 3 – How the Moon Formed



Another question we have probably asked since the first man looked up at it. The three main theories are discussed in detail, including their support data and methodology such as isotope comparison, material science, and the orbital mechanics of capture theory. Abby runs through all the evidence and provides a good path to see how the current accepted theory was found (no spoilers here, go watch!)

These videos are informative, current, and suited for a relatively wide audience. Nothing has been watered down such that serious amateurs will learn little, but most readers of the magazine will get the details enough to keep watching or look to other resources and learn more. Here's to many more episodes, and we can all help this happen by watching, liking, and subscribing to Abby and Astronomy Magazine's social media. Keep up the good work, Abby!

Review by Brad Young

Abby's latest episode posted after article submission. Text from Astronomy.com



Episode 4 - NASA's Perseverance Rover

Few worlds have garnered as much attention as Mars. And though astronomers have mapped the planet's surface from afar for hundreds of years, it wasn't until the last half-century that we sent robotic scouts to physically explore and capture close-up views of the rusty world.

In recent decades, scientists have seen dust devils meandering along Mars' barren surface. They've uncovered reservoirs of water ice trapped at its poles and buried just below the ground.

And they've found evidence that liquid water once existed on the now-arid planet, likely forming lakes and other bodies of water well suited for preserving ancient life — that is, if life ever existed there.

Article put together by Brad Young

Links to videos and other resources:

Episode 1 <https://www.youtube.com/watch?v=cRUF3v8-VQ>

Episode 2 <https://www.youtube.com/watch?v=UqMg6DtI5bA>

Episode 3 <https://www.youtube.com/watch?v=nuQF9mGYUNk>

Episode 4 <https://youtu.be/YOSyNOiNkMo>

Twitter: @abastronomy

Instagram: @awillow776

Channel 6 news story: <https://www.newson6.com/story/5e35c6d32f69d76f620132fb/bartlesville-teen-skyrockets-way-into-astronomy-world>



From Treasurer John Newton.

We recognize that our long-term members continue to be the foundation of the of our club. Such dedicated members have kept the club going strong since its beginnings in the summer of 1937! We look forward to seeing new members and old at our meetings and at club events throughout the year when they resume.

This is an unprecedented time in our lives, but your continued support makes you all pillars of our establishment, thanks to all for your continued commitment to this club.

Finally, a special 'Thank You!' to Dr. Roger West, a past member who has enriched our club with his donation of a 20-inch Dobsonian telescope. Dr. West hand ground and polished the mirror for this fine instrument.



Go to www.astrotulsa.com to learn about event and links related to astronomical resources

Large Collection of Used Quality Scopes for Sale

Our club was contacted by a person in Caney, KS downsizing a family collection, who had approximately 40 telescopes and accessories for sale. Some have already been sold but about 20 remain as of Aug 1. Brands include Celestron, Meade, Explore Scientific, Antares & others.

Contact Debbie 620-605-3083 EMAIL : Misskatesmercantile@gmail.com



TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As of close of business on July 24th, the Astronomy Club of Tulsa had 171 members, thanks partially to comet NEOWISE for the sudden spike in membership in July. 29 Since March 12

Our newest members David Down, Randy Nix, Matthew Patrick, Megan Brown, Elizabeth Larson, Gano Perez, Penelope Ballew, Meghan Hurley, Stephanie Cornelius, James Simmons, Michal Maybello, Ricardo Moreno, Carly Jennemann, Bruce Marriner and Gabriel Graveline. Hello and welcome to ACT!

Accounts as of July 26, 2020

Checking: \$ 5,760.10 * Our Annual Liability Insurance is paid each July

Savings: \$ 7,784.53

Investments: \$ 24,669.93 (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 whatever 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 2020 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.

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

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

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

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

You may renew Sky & Telescope subscriptions directly by calling their number -**be sure to ask for the club rate.**

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
105 East B St, Jenks, OK
Located North of the intersection of
1st and B St
Meetings begin at 7:00 PM

Take the elevator to the 3rd floor.

[Click for Google Map Link](#)

2020 See the [Fall Planetarium Show Schedule](#)
Then click the **Date Column** to sort them by show date



Sidewalk Astronomy Night

East side of Bass Pro in Broken Arrow near the lake.
101 Bass Pro Drive, Broken Arrow, OK

[Click Map Link here](#)

SIDEWALK ASTRONOMY is SUSPENDED due to pandemic

On a Saturday evening near the 1st Quarter moon Astronomy Club volunteers set up telescopes to share views of the moon, planets and other bright objects. It's a come and go event where shoppers and restaurant goers get a chance to experience glimpses of the universe with their own eyes.



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.

PUBLIC OBSERVING NIGHT on a Saturday

SUSPENDED due to pandemic

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**. [Link to Events Page](#)

[Click for Observatory Map](#)

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

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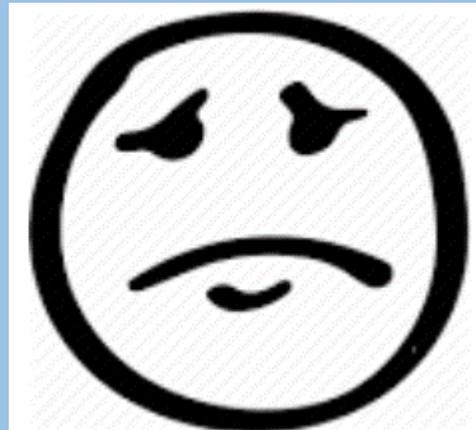
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NIGHT SKY NETWORK –
Open Position

WEBMASTER JENNIFER JONES



I'm all out of Cartoons and Astro Jokes

**Maybe I should start posting members faces
with Funny Hats or Glasses Drawn on them**

**Seriously –
Create a Cartoon or Funny line
with an Astronomy theme
and Send in your Best Ones !**

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