



OBSERVER

JULY 2021

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



Adam Koloff - offers this panoramic image of the observatory eastern sky

Image was taken June 15 using his new Canon EOS R6 camera. This new mirrorless model features many new features with the ability to take 20 meg images in both still and video modes. Taken at ISO 4000 using a ten-frame panorama.

The above image has been cropped and enhanced to bring out the Milky Way extending from Cygnus to Scorpius. Note the dark pipe smoke nebula on the right. Also note the long dark "Great Rift" in the central region. Read more in the NSN article on page 6. You can see Adam's full original 120 degree panorama on page 6.

Want to try to take your own Milky Way photos this summer. Try this article on AstroBackyard <https://astrobackyard.com/how-to-photograph-milky-way/> Lots of other tips on taking sky photos here also.

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Astronomy Club Events

Check our website AstroTulsa.com events section for updates

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

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

We are continuing our Members ONLY Events observing nights in July.

However we are working of plans for limited attendace non-member nights later

PLEASE READ OUR NEW OBSERVING NIGHT GUIDELINES ON PAGE 4

Now that many of our members are vaccinated and the CDC guidelines have eased
We are modifying Guidelines for Members' ONLY Observatory Nights as well.

The goal is to ensure enjoyment of our hobby while keeping each other safe and well.

Friday, July 2, 8:30 PM

Friday, July 9, 8:30 PM

Friday, July 30, 8:10 PM

Friday, August 6, 8:00 PM

Members Annual Picnic Sat Aug 7 - Time to be announced.

Weather Backup observing nights on Saturday

NOTE: If weather conditions are unfavorable or hazardous forecasts predictions
our events may be postponed or cancelled. Please check our website before heading out.

You may watch YouTube recordings of our Spring 2021 club meetings online.
Links to all Five programs may be found in our June 2021 newsletter on page 5

https://www.astrotulsa.com/CMS_Files/2021-06.pdf

January - Search for Meteorites in Antarctica

February - Undersanding & Observing Stellar Spectra

March - Amateur Astronomer Searching for Exoplanets

April - James Webb Infrared Space Telescope

May - Preparing for Artemis: Understanding the Moon's most important resource



ALCON 2021 Thurs Aug 19 thru Sat Aug 21

Register Free at <https://www.alconvirtual.org/>

The National Astronomical League will be conducting its 2021 Conference in a Virtual format this year using the League's YouTube channel. This will give you a great opportunity to hear top notch speakers and presentations from the comfort of your home. Registered participants will be eligible for some great **DOOR PRIZES** donated by astronomy clubs throughout the country.

A Stellar group of guest speakers are already lined up for your enjoyment. Speakers include:

David Levy - famed comet hunter - discovered 22 comets & authored 34 books.

Jocelyn Bell Burnell - discovered pulsars as a graduate student in radio astronomy in Cambridge, opening up a new branch of astrophysics.

David Eicher is an American editor, writer, and popularizer of astronomy and space. He has been editor-in-chief of Astronomy magazine since 2002.

Conal Richards an impressive up and coming astronomy youth. Founder and president of the Abingdon Heights High School Astronomy Club in Pennsylvania

J. Richard Gott is professor emeritus of Astrophysics at Princeton, known for his work in general relativity and cosmology. In 1991 he discovered an exact solution to Einstein's field equations of general relativity for the geometry around two moving cosmic strings.

Dr. Caitlin Ahrens - Dr. Ahrens gave an inspiring talk at or 2018 Midstate's convention telling of her work with data from the New Horizon's spacecraft and laboratory studies of ices on Pluto. She is now turning her interest toward ices on the moon.



Mark your calendars <http://www.okie-tex.com/>
Friday Oct 1st to Saturday Oct 9th
Registration Now OPEN - Sign Up Early

The 38th Annual Okie-Tex Star Party is held each year at the far western tip of the Oklahoma panhandle. Astronomy enthusiasts are drawn from all over the nation to revel in some of the darkest sky on the planet. Rated at Bortle 1 - the Milky Way looks like a river of starlight and the Zodiacal light is easily seen. Check out the details on their website.

Happy Birthday to the BORTLE DARK SKY SCALE 2001 - 2021

The Bortle Scale for rating based on 50 years of observing experience gives astronomers and objective way to measure the sky's darkness.

Bortle 1 - 3 Dark rural skies. Magnitude 6.5 to 7.5 or darker

Bortle 4 - 6 Suburban skies Magnitude 6 to 4.5 or darker

Bortle 7 - 9 Urban Skies less than Magnitude 4.0

Great explanation of the c and star charts to measure your own skies.

<https://www.handprint.com/ASTRO/bortle.html>

Find your site on a [Global Dark sky map](#) then click to get a Bortle estimate.

PRESIDENT'S MESSAGE

BY TAMARA GREEN



Hey Y'all!

This one is going to be short and sweet. Our next observing nights will be:

Friday, July 2 at 8:30 PM with Saturday, July 3 as the backup night.

Friday, July 9 at 8:30 PM with Saturday, July 10 as the backup night.

Friday, July 30 at 8:10 PM with Saturday, July 31 as the backup night.

Times for the backup nights on Saturday will be the same as for the member's nights.

We are getting into the hottest part of the year. July and August in Oklahoma are brutal, so please remember to stay cool and stay hydrated. I know from my own personal experience that heat-related illnesses are NOT to be taken lightly. For observing nights, however, you might want to remember to bring a light jacket, hoodie or blanket for up on the hill, as even in August it can get chilly at night at the observatory. The mosquitoes are out at this time of year as well, so bring your bug spray!

We are going to try to have a club members' picnic and will be having a board meeting soon to discuss details. We are also going to discuss plans to reopen the observatory for guests and the public and resume Sidewalk Astronomy. We will be announcing these as soon as we can get the details worked out and come up with a reopening date. As always, we will need volunteers to help out with these events.

Stay tuned and hope to see you all soon! We're almost there!

Cheers, Tamara Green - President

Guidelines for Members' ONLY Observatory Nights have changed as well.

The goal here is to ensure enjoyment of our hobby while keeping each other safe and well.

New Observing Night Guidelines for our members observing nights.

We are still limiting attendance to our membership however you may bring family or a couple of guests with you. - No large groups please.

Masks will not be required when you are outside. However, when you are **INSIDE the classroom or viewing in our dome telescope, we request **those who are not fully vaccinated to respect others health by wearing a mask**. This mask guideline does not apply to younger children. We will leave that to their parent's discretion.**

If you decide to join other members at their telescope, we would still advise that you ask their permission. Our Rest Room and Classroom areas are Open.

Please exercise proper hand washing and other common health hygiene practices.

Dress for weather conditions. This is a rural setting so closed toed shoes are recommended. Temperatures in on our hilltop observing grounds are cooler than city forecasts. Jackets may be useful. Please do not spray insect repellents around our telescopes. Do that at your car.

Be sure to review the map directions carefully. When arriving or departing be aware of people or telescopes on the field.



Congratulations to Abigail (Abby) Bollenbach - On her year anniversary of her popular astronomy video series *Infinity and Beyond*

In 2020, at the invitation of David Eicher, editor of Astronomy magazine, Abby began writing and producing short 5-6 minute videos covering a wide range of astronomical topics in June of 2020. She is a talented communicator. The series has been received very well by the public, as the most popular regular video series Astronomy Magazine has produced to date. In the challenging times of 2020, she has become a “*Shining Star*” inspiring youth and especially young girls to learn more about the infinite wonders of our mysterious universe. Her 20th video, “*What are Quasars*” was released June 2021. Abby hosts, writes, films, re-films and co-edits each segment, spending roughly 20 hours per video. Editors from Astronomy magazine help her refine her scripts and then post the finished presentations on the <https://astronomy.com/> website.

Abby is a member of the Bartlesville Astronomical Society and founding member of their youth group called the **Bartian Youth Astronomers (BYA)**. As a Youth Leader she made presentations on main topics, assisted with meetings, greeted attendees, and helped set up. Abby traces her interest in astronomy to the first time she saw the Hubble Deep Field image of hundreds of galaxies packed into a tiny little corner of the universe. As a Home School student, Abby began her study of astronomy using a home computer online studying lessons and activities at Khan Academy. <https://www.khanacademy.org/> Khan Academy has lesson for all levels of students from 1st grade through college on a wide variety of topics.

In August of 2018, she was awarded the **Horkheimer/Smith Service Award** at the national meeting of the Astronomical League for her enthusiastic efforts at astronomy outreach in her community. In June of 2018 she presented an excellent PowerPoint presentation about the Cassini spacecraft Saturn mission for the Midstates convention held at the Explore Scientific headquarters in Springdale, AR. In April of 2019 she was our Tulsa Astronomy club guest speaker enthusiastically sharing her knowledge of the Cassini mission. She was then invited by Dan Zielinski of the Jenks High School planetarium to transform her Cassini presentation into a planetarium show which has since been shown at other planetariums around the nation.

Now, 19, Abby has completed her first year of college. She is pursuing an undergraduate degree in Physics through OSU and has already been approached about prestigious intern opportunities in future years of her education. Abby says “*It has been absolutely fantastic but also a whirlwind to host the series especially during this pandemic - - - during this entire process of making videos, taking fulltime online college classes, and working on the biochem lab. I've met hundreds of people, scientists, professors, and science communicators virtually from all over the globe*” She is particularly passionate about her support of **PASSAGE**, a fundraising program to buy and send science books and materials to young students throughout South American.

Congratulations Abby, we look forward to watching you lead the next generation of young women forward in the making rich new discoveries in our amazing universe!

To see all her episodes, go to <https://www.youtube.com/c/astronomymagazine/videos>



Here is Adam Koloff's cover page image in its full panoramic view. This is only a screen capture of the 44-megabyte original in its unenhanced uncropped form. Photo extends nearly 120 degrees wide from NNE facing southern Tulsa area to the SSE in the Sagittarius Scorpius region. Note the horizon skyglow from Tulsa to the NE and Beggs to the SE.



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

July Skies. - Summer has arrived. Nights are short but for the determined late-night observer the **Summer Milky Way is beginning its reign in the sky overhead.** This July 4th weekend the rich Milky Way ephemeral river of stars running through the Summer Triangle of Vega, Deneb and Altair is already 40 degrees up in the east at 10:00 PM by month's end it has risen to 60 degrees altitude. Many hidden observing gems lying along its shores. M 57 - the ring nebula in Lyra, M 27 - the dumbbell nebula, and don't neglect the oft forgotten globular cluster M 56 or open cluster M 29. My personal favorite is the rich open cluster M 11 (which I "discovered" as a novice astronomer many years ago)

This would be a great time for you to start earning the **Messier Catalogue observing certificate.** The M Objects include 110 celestial treasures accessible in modest telescopes and many even in binoculars. It's a great way to learn the sky and see many wonders along the way. See all the observing certificate programs at

<https://www.astroleague.org/al/obsclubs/AlphabeticObservingClubs.html>

July Evening Planets -

Venus, our evening star, now shines brightly in the NW as dusk arrives. It passes within 1/2 degree of Mars on the evenings of July 12 & 13. A thin 2 day old crescent moon is nearby on July 11.

Mars at a much dimmer magnitude 1.8 will be slip away into the bright sunset sky by month's end.

Ringed **Saturn** rises before 10:00 PM by mid-July and reaches opposition August 2.

Jupiter rises before 11:00 PM by mid-July and will be up all night as it reaches opposition August 19.

The moon passes Saturn July 23 & 24 and Jupiter on the 25th.

June 12 - Report on Ash Dome Observatory project by Skip Whitehurst.



A BIG THANK YOU! to the moving and assembly crew: James and Scout Taggart, Adam Koloff, and Larry Smith helped move it from Owasso to Mounds. James, Don Bradford, Ken Weikel, Larry, Jack Reeder, and Dana Swift all worked and contributed ideas to the assembly project. Y'all did a great job! The outstanding support from Ash Manufacturing Co., and suggestions from some members of the Observatory group on the Cloudy Nights forum were crucial to the success.

With the installation of the shutters, shutter drive, top & bottom weather seals, and hard stops (to keep the shutter from going off the end of the tracks) last Saturday, the major assembly tasks are finished. **It works!** We devised a good way to work with the main shutter (which weighs 130 pounds) while assembling it on a flat floor; that technique will have limited applicability to assembling it while working on scaffolding, but at least we know what needs to be done to attach the shutter sections to their rails.

The dome rotates, the shutter opens and closes, and the lower shutter can be latched to the main shutter and raised, to see from horizon almost to the zenith, or left in the lowered position to view the zenith at the expense of the horizon.

Both rotating the dome and operating the shutter are harder to do than I remember from back in the 1960s and early '70s; this could be due to the old grease in the moving parts, some adjustments that still need to be made, or the fact that I was 50 years younger then. Most likely it's some combination of these. Or faulty memory, but I don't think that's as big a part of the difference.



While it's assembled, I want to take measurements, make adjustments, and catalog parts. James and Dana will be looking into the feasibility of motorizing the rotation. This will be done over the next few weeks. These tasks will not require a lot of manpower or orchestrated workdays, but anyone interested is welcome to participate.

Meanwhile, we will be looking into repairing one of the shutter rails, which appears to have had a chunk cut off, probably during disassembly based on the condition of the cut edges (not rusty like nearby cuts) and evidence of an attachment point that exists on the other rail but was cut away on this one. I'm bouncing some ideas for patching it up off the guys at Ash Manufacturing and will see what they say. It does work, but that side is not as strong where it attaches at the back of the dome as it was originally.



< View of closed shutter from inside.

After we are finished with that (or sooner if James needs his garage bay back), we will disassemble it, documenting and cataloging as we go. We will need to have organized workdays to take it back apart, but I do not expect that to take as many days. After it's disassembled, we will make additional repairs to parts, remove rust, and clean and prep parts needing it.

I am looking into the cost and feasibility of having the whole dome powder coated, or, if doing the whole thing is too costly, just the structural parts and not the dome skin. We need to find a good way to inhibit further rusting, especially on those heavy parts that rusted before.

Land Title Update by Don Bradford

Since membership approval of expenditures to correct title issues of our recently acquired property, we have corrected typographical errors in the initial deed and recorded the deed in Okmulgee County. This solidifies the club's ownership of property described in the deed, even though the description has fundamental errors requiring correction as described in the motion approved by members at the May Zoom meeting. We have contacted the surveyor and are waiting to complete a written contract for the initial correction of the legal description. Following completion of that project, we will obtain an abstract of title to be used to present to the court for final reformation of the deed. We expect more delay in conducting the survey due to the high volume of survey work demanded by the recent real estate sales boom.



This article is distributed by NASA Night Sky Network July 2021

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Observe the Milky Way and Great Rift

David Prosper

Summer skies bring glorious views of our own Milky Way galaxy to observers blessed with dark skies. For many city dwellers, their first sight of the Milky Way comes during trips to rural areas - so if you are traveling away from city lights, do yourself a favor and look up!

To observe the Milky Way, you need clear, dark skies, and enough time to adapt your eyes to the dark. Photos of the Milky Way are breathtaking, but they usually show far more detail and color than the human eye can see – that’s the beauty and quietly deceptive nature of long exposure photography. For Northern Hemisphere observers, the most prominent portion of the Milky Way rises in the southeast as marked by the constellations Scorpius and Sagittarius. Take note that, even in dark skies, the Milky Way isn’t easily visible until it rises a bit above the horizon and the thick, turbulent air which obscures the view. The Milky Way is huge, but is also rather faint, and our eyes need time to truly adjust to the dark and see it in any detail. Try not to check your phone while you wait, as its light will reset your night vision. It’s best to attempt to view the Milky Way when the Moon is at a new or crescent phase; you don’t want the Moon’s brilliant light washing out any potential views, especially since a full Moon is up all night.

Keeping your eyes dark adapted is especially important if you want to not only see the haze of the Milky Way, but also the dark lane cutting into that haze, stretching from the Summer Triangle to Sagittarius. This dark detail is known as **the Great Rift**, and is seen more readily in very dark skies, especially dark, dry skies found in high desert regions. What exactly is the Great Rift? You are looking at massive clouds of galactic dust lying between Earth and the interior of the Milky Way. Other “dark nebulae” of cosmic clouds pepper the Milky Way, including the famed Coalsack, found in the Southern Hemisphere constellation of Crux. Many cultures celebrate these dark clouds in their traditional stories along with the constellations and Milky Way.

Where exactly is our solar system within the Milky Way? Is there a way to get a sense of scale? The “Our Place in Our Galaxy” activity can help you do just that, with only birdseed, a coin, and your imagination: bit.ly/galaxyplace. You can also discover the amazing science NASA is doing to understand our galaxy – and our place in it - at nasa.gov.



The Great Rift is shown in more detail in this photo of a portion of the Milky Way along with the bright stars of the Summer Triangle. You can see why it is also called the “Dark Rift.” Credit: NASA / A.Fujii



If the Milky Way was shrunk down to the size of North America, our entire Solar System would be about the size of a quarter. At that scale, the North Star, Polaris - which is about 433 light years distant from us - would be 11 miles away! Find more ways to visualize these immense sizes with the Our Place in Our Galaxy activity: bit.ly/galaxyplace

TREASURER'S and MEMBERSHIP Report

BY JOHN NEWTON



As of June 22, we had **224 members** - **47 New members for 2021**

We welcome this month our newest members - Richard Kotarsky, Dustin Brown, Kent Monroe, Nicholas Kuhn, Rob Tett, Laura Robertson, Amber Rieger, Maria Brittle, Gary Davis, Thomas Yerton, Joshua Atwood and Joan Gausvik Hello and welcome to ACT!

In addition, we want to recognize our long-term prominent and well-respected members who continue to renew their memberships with the club, even during these restricted times. We look forward to seeing you all at meetings, even if virtual by Zoom, and at club events throughout the year when possible.

Accounts as of May 25, 2021

Checking: \$ 4,736.29

Savings: \$ 13,785.96

Investments: \$ 30,974.69 (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 2021 are as follows:

Adults: \$ 45 per year, includes Astronomical League Membership.

Sr. Adult: \$ 35 per year for those 65 or older, includes Astro League Membership.

Students: \$ 30 with League membership; Students: \$ 25 without League membership.

Additional Family membership: \$ 20 with voting rights and League membership.

\$ 15 with voting rights but without League Membership.

The regular membership allows all members in the family to participate in club events but only ONE Voting Membership and one Astronomical League membership.

Join Online – Add or renew magazine subscriptions. <https://www.astrotulsa.com/page.aspx?pageid=16>

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

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

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

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

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

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

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WEBMASTER JENNIFER JONES



*John Blaesí -
BAS -Bartlesville Club*

I spy I spy with my little eye,
With binoculars to the sky.
What's up this July?
My brain is bone dry!

Jokes on you, you see.
Your turn to tell me!

Please go out and see,
with your very own

June's Riddle answers.
Bees Bees Bees flying high,
M 44 - the Beehive cluster in Cancer.

What do I see
But a snake.
**The constellation Serpens
- on either side of Ophiuchus**

Near that snake, is a cluster.
Quack, Quack, Quack, makes a fusster.

**M 11 - The Wild Duck open cluster
In Scutum**

Do you have ideas for our club 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
Tulsaastrobiz@gmail.com

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