OBSERVER

December 2017

Bringing Stars to the eyes of Tulsa since 1937

Members and family gather at the annual club dinner held Nov 18th at the Jenks High School

In this Issue

Astronomy Club Events

Details at http://astrotulsa.com/Events.aspx

ASTRO CLUB MEETING	FRI Dec 8	7:00 PM	JENKS High School Planetarium
PUBLIC STAR PARTY	SAT Dec 9	4:45 PM	ACT OBSERVATORY
SIDEWALK ASTRONOMY	SAT Dec 23	5:00 PM	BASS PRO
Winter Solstice	THURS Dec 21	**Longest Starry Night of the Year !**	

2018

Earth at Perihelion	WEDS Jan 3	**Earth closest to the Sun**	
Telescope Workshop	SAT Jan 6	11:00 to 1:00 PM	See details page 6 to RSVP
PUBLIC STAR PARTY	SAT Jan 6	5:00 PM	ACT OBSERVATORY
MEMBERS' NIGHT**	FRI Jan 12	5:30 PM	ACT OBSERVATORY
ASTRO CLUB MEETING	FRI Jan 26	7:00 PM	JENKS High School Planetarium
SIDEWALK ASTRONOMY	SAT Jan 27	5:00 PM	BASS PRO

Weds Jan 31 PreDawn Lunar Eclipse

**MEMBERS AND FAMILY ONLY PLEASE.

December Planets ;

Venus, Saturn and Mercury are in conjunction with the sun mid-month and not visible
Mercury will reemerge in the morning sky around Christmas.
Mars is still dim at +1.6 mag in Virgo and rises about 3:30 AM
Jupiter dominates the SE sky rising about 4:30 AM
The thin crescent moon passes Mars the morning of Dec 13 and Jupiter Dec 14
The **GEMINID METEOR SHOWER** is now underway **and** reaches its Dec 13 and 14
See article on page 7

2017 DECEMBER

SUN	MON	TUE	WED	THU	FRI	SAT
26	27	28	29	30	1	2
3 FULL MOON	4	5	6	7 PEARL HARBOR REMEMBERANCE DAY	8 GENERAL MEETING 7 PM @ JENKS	9 PUBLIC NIGHT 4:45 PM @ OBSERVATORY
10 THIRD QUARTER MOON	11	12 GEMININID METEOR SHOWER	13 GEMININID METEOR SHOWER	14 GEMININID METEOR SHOWER Peaks 1:30 AM	15 MEMBER NIGHT 5:15 PM @ OBSERVATORY	16
17	18 NEW MOON	19	20	21 WINTER SOLSTICE	22	23 SIDEWALK ASTRONOMY 5 PM 2 BASS PRO
24	25 CHRISTMAS	26 FIRST QUARTER MOON	27	28	29	30

Friday Dec 8 Meeting – Guest Speaker – Pete Kron
7:00 PM at Jenks Planetarium -105 East B St

New Astronomy Products of 2018

Our **Guest Speaker** for our **December General Meeting** will be **Pete Kron** from **Astronomics!** Astronomics is a major online vendor of quality astronomical equipment with headquarters in Norman, OK. https://www.astronomics.com/ Pete plans to bring some of their new line of Refractor telescopes as well as other new products for 2018. So plan to come see the latest and ask questions.

The **Great news** is that Astronomics has new property in Norman and will be **building a new SHOWROOM** where customers can come in and see the products first hand! Their new offices are being relocated to 680 24th Avenue SW, Norman OK 73069. Sounds like it will be Road Trip time for us all to go to the Grand Opening when it's completed!

Their office is open from 9am to 5pm Monday through Friday. They answer the phones, faxes, and emails from 9am to 5pm Monday through Friday. Their extensive website is open 24 hours a day every day of the year.

PRESIDENT'S MESSAGE

BY TAMARA GREEN

Hey Y'all!
I hope this message finds everyone well. I thank you for allowing me this opportunity to serve you as your new President. I will do my best to be a good one!

I look forward to our having a lot of fun next year, and getting some stuff done! There are plans in the works for some good events, and a few good guest speakers for our upcoming General Meetings. Pete Kron from Astronomics is coming to our December meeting on the 8th, and they wanted specifically to come talk to us then, because they are supposed to get some new astronomy products in that they want to show us and maybe demo for us. So, come to our December 8 General Meeting to get some Holiday gift ideas!

We are also planning the first event we have had in quite a while with Tulsa Air & Space Museum. We have a Telescopes 101 Workshop for new telescope owners planned at the TASM planetarium for Saturday, January 6, 2018, from 11 AM to 1 PM. Details will be coming soon. The more volunteers we have, the better!

The Geminid meteor shower peaks on the early morning of December 14. I know this is in the middle of the week, but for those of you interested in seeing it, it is one of the better meteor showers of the year. If there is a "watch party" scheduled, we will be sure to let all of you know.

I hope all of you have a wonderful holiday season, full of good times and good cheer. Have fun and stay safe!
Clear Skies, Tamara
Our annual club dinner for members and their families was a great success with 57 people in attendance. This was a great time to eat, visit and renew friendships. The food was great !

Bar-B-Que from Two Pops, Fantastic baked potatoes and toppings provided by Teresa Davis and a delicious variety of desserts brought by members. John Newton, Jerry Cassity and others did a great job of planning and organizing the event. The fall themed table decorations made for welcomed door prizes at the end of the dinner. The Silent Auction brought in $ 61 plus $70 in other donations.

Your 2018 Club Officers and Board

Front row – Treasurer Tim Davis, President Tamara Green,
Secretary John Newton, Vice President Jerry Cassity
Back L to R – Skip Whitehurst, Teresa Davis, Richard Brady
Board members – John Land, James Taggart, Sheldon Padawer
Not pictured – James Liley and Jacob Shepherd

2017 Club Dinner Group picture

Telescope 101 Workshop

Got a New Telescope ?
(Or an old one gathering dust)
Want some help learning to use it?

Bring your telescope and let us help you.

The Astronomy Club of Tulsa and Tulsa Air and Space Museum are hosting a Telescope Workshop.

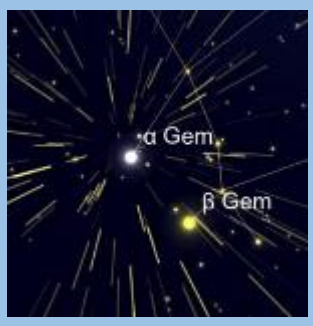
Saturday Jan 6, 2018 from 11 AM to 1 PM
At the Tulsa Air & Space Museum Planetarium
Sign Up Today!
Call 918-834-9900 Ext 219 to reserve your spot.

www.tulsaairandspacemuseum.org
www.astrotulsa.com

***Please bring telescope user manual and accessories if you have them**

A Great Year for the Geminid Meteor Shower

by John Land



Each year in December the sky puts on one of its best meteor showers of the year. The Geminid Meteor shower begins about Dec 4th and extends through Dec 16th so keep an eye on the eastern sky the next two weeks. **In 2017 the peak of shower activity is predicted for the night of Weds Dec 13 into the morning of Thurs Dec 14. The peak rate is just after midnight on the morning of the 14th.** A thin waning crescent moon doesn't rise until 4:00 AM giving us plenty of dark hours to observe.

Meteors showers get their name from the area of the sky they appear to be coming from (the Radiant). In this case they seem to be coming from the NE near the star Castor in Gemini. The charts show its Zenith Hourly Rate **ZHR** at 120 per hour. ZHR is a calculation of what you might see in a very dark sky (mag 6.5) and the radiant directly overhead. From a typical suburban sky you can expect a nice display or 20 to 30 or more an hour. In darker sky away from town 60 or more can be expected.

The Geminid meteors strike the earth's atmosphere at 34.6 km/sec or over 77,000 mph. These millimeter sized bits of dust burn up and also ionized the air around them producing the fast moving streak of light we see as the meteor. If you've ever driven at night into falling snow, it looks like all the flakes are flying directly at you. However when you stop you see they are gently falling down. The same is true of a meteor stream orbiting the sun. The earth is plowing into them as it orbits the sun so more meteors are seen after midnight as earth hits them head on.

Most meteor showers occur when the earth passes through debris left behind by comets as they orbit the sun. The Geminids were first observed in 1833 but their source remained a mystery until 1983 when a 3 mile wide asteroid named 3200 Phaethon (FAY-eh-thon) was discovered. Its orbit matched the Geminids - but how does a Rock make a meteor shower? Turns out 3200 Phaethon orbits the sun every 524 days passing within 0.14 AU of the sun. This heats its surface to over 1200 F (lead melts at 800 F) So the asteroid is sort of like the candy "Pop Rocks" shedding showers of tiny fragments each time it orbits the Sun.
Kid Friendly explanation of Meteor Showers https://spaceplace.nasa.gov/meteor-shower/en/

FACEBOOK ALERT – A quick Google search for 3200 Phaethon already comes up with a dozen titles about "Huge – Giant - Massive ! - Asteroid to Shave Earth"
Who knows what crazy scenarios will show up on FaceBook or Media.

You can get the Scientific FACTS plus sky maps that may help you observe it at
http://www.skyandtelescope.com/observing/3200-phaethon/
The asteroid Phaethon will make a very close approach to the earth about sunset on Dec 16th passing within 6.4 million miles. It may reach a magnitude if 10.7 making it within reach of moderate sized telescopes. At its closest approach it will be moving across the sky 15 degrees per day or 1.6 arcmin per min. taking only 20 mins to move the width of the moon. Fast enough that you can see it visibly moving as you watch.

Take a fun Quiz on your Meteor knowledge at
https://www.space.com/23281-geminid-meteor-shower.html
I used a number of resources in writing this section.
https://www.timeanddate.com/astronomy/meteor-shower/geminids.html
https://www.amsmeteors.org/ams-programs/visual-observing/
http://www.skyandtelescope.com/observing/3200-phaethon/

Earn a Meteor Club Certificate !

You can earn your own Meteor Observing Certificate from the Astronomical League.
As a member of the Astronomy Club of Tulsa you also are a member of the Astronomical League
https://www.astroleague.org/al/obsclubs/meteor/metrcl.html

The League has dozens of observing programs to challenge members to sharpen their observing skills. You can earn your Meteor Club certificate by recording 6 hours of observing and additional steps in six hour increments. Observing forms and explanations are found at the website.

To observe meteors select a place with a clear overhead view. A darker sky is preferable but bright meteors can be seen in town. Get a lawn chair or something that leans back so you can comfortably view overhead. Because meteors randomly appear in the sky. All you need for viewing is your unaided eyes. Binoculars and telescopes limit your field of view.
Since this is a winter event be sure to dress warmly. Were a hat. Extra warm blanket to wrap up in as needed. Something warm to drink. Observing with friends makes the time pass smoothly.

To record your observations you'll need a pencil – ever sharps work best. Ink pens tend to get sluggish in cold weather. A clip pad to hold your papers. An accurate clock if you use a bright phone cover it with red film. A red LED light or red flashlight. Some people prefer to use a recording device to call out their observations and time.

Plan to observe in at least 30 minute segments. Meteors are random. You may sit 5 minutes and see nothing and then you may see several in a short span. You don't need to look directly at the radiant area. The longest meteors are often overhead spread away from the area. Try a different section of sky for each 30 min segment.

If you plan to earn a certificate, carefully read the notes about recording observations. Your observations can be of scientific value if done well and sent into the American Meteor Society.

A Fireball is an exceptionally bright meteor -4 mag or greater – as bright as Venus. A Bolide is a fireball that ends is a brilliant explosive flash. These are the kind of meteors we sometimes see on the news.
You can report Fireball Sights at https://www.amsmeteors.org/members/imo/report_intro

Major Meteor Showers and approximate Max date

Quadrantids (QUA)	Dec 28-Jan 12	Jan 03
Lyrids (LYR)	Apr 18-Apr 25	Apr 22
eta Aquariids (ETA)	Apr 24-May 19	May 07
Southern delta Aquariids (SDA)	Jul 21-Aug 23	Jul 30
Perseids (PER)	Jul 13-Aug 26	Aug 12
Orionids (ORI)	Aug 25-Nov 19	Oct 22
Leonids (LEO)	Nov 05-Dec 03	Nov 18
Geminids (GEM)	Nov 30-Dec 17	Dec 13
Ursids (URS)	Dec 17-Dec 24	Dec 22

ASTRONOMICAL LEAGUE

Meteor Club Certificate

Presented to

K.C. LOBRECHT

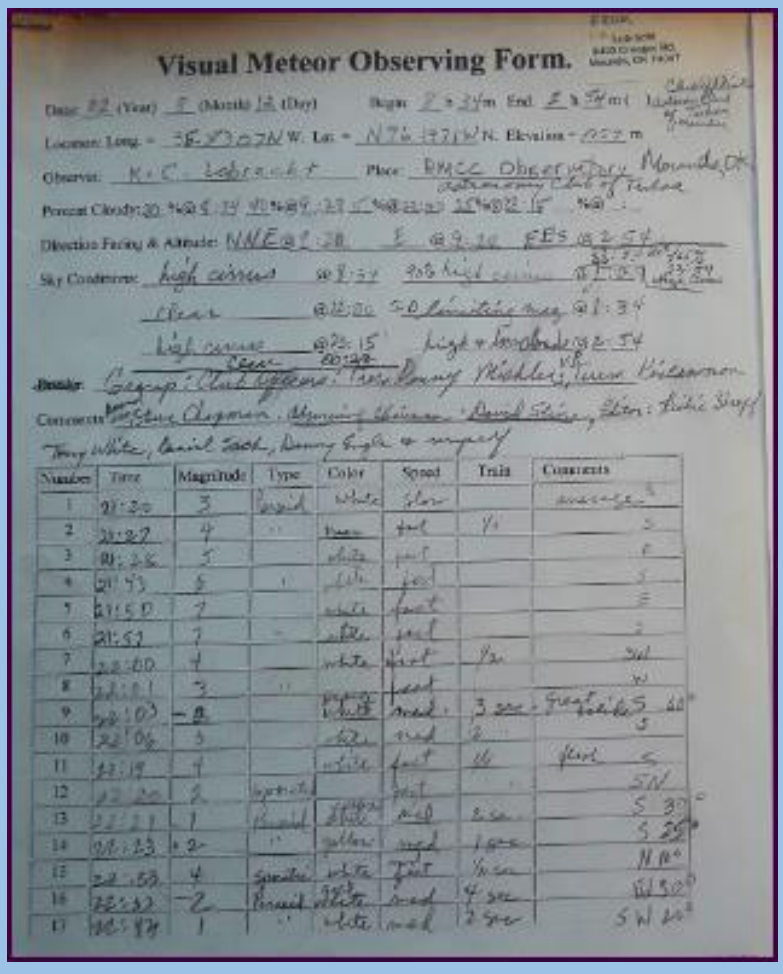
Astronomy Club of Tulsa

for spending at least 10 observing hours in sighting and reporting meteors and is Hereby Recognized on this 18th day of August in the year of 2002

Number 91

Master Observer K.C. Lobrecht shares some of her memories observing meteors. The master observing certificate is awarded to person's who have complete at least 10 observing programs which includes 5 required groups. KC earned Master Award # 17 and was the first woman to complete the challenging Herschel II program.

Shown here is her Meteor Certificate #91 from the Astronomical League. 2002.



Visual Meteor Observing Form.

Observer: K.C. Lobrecht Place: RMCC Observatory, Astronomy Club of Tulsa, Mounds, OK

Number	Time	Magnitude	Type	Color	Speed	Train	Comments
1	21:20	3	rapid	white	slow		
2	21:27	4					
3	21:36	5					
4	21:43	5					
5	21:50	2					
6	21:53	2					
7	22:00	4					
8	22:01	3					
9	22:03	-2					
10	22:06	3					
11	22:19	4					
12	22:20	2					
13	22:21	1					
14	22:23	2					
15	22:53	4					
16	22:57	-2					
17	23:17	1					

For many years club member David Stine would organize a group to come observe meteor showers together.

KC Says "*Yes, David Stone had his own Certificate for Meteor logging. He made observing so fun, even when the counts were poor."*

"For many years I'd get up in the early morning hours to catch a few, but was never as fun as it is a the Observatory. So call people and get a group started. Coming up late and sleeping in the truck until the appointed hours of peak was the best way I did it.
We had many years of cloudy to partly cloudy on peak Meteor storms, no problem with a group to rally you on. If you'll notice my log sheet said 20% cloudy.

Some people liked audio and a count clicker. Then record to log next day. My logs are messy, as it was written with red flashlight."

"The Star of Bethlehem" *by John Land*

Christmas is a time of wonder, joy and celebration. For many it is a holy time for giving thanks for the birth of the Christ child and the Hope of Peace and Good Will in the world. A common image we see at Christmas is a brilliant star on cards, our Christmas tree and decorations in the shape of a star.

Whether you are a religious person or not as an astronomer you likely have been asked or will be asked: "What was the "Star" of Bethlehem". It is a popular topic of planetarium shows each December. The story of the star is recorded in the Bible in the 2nd chapter of the book of Matthew? In the story Magi (Wise men) arrive in Jerusalem from an eastern country saying they have come to worship the child born to be King of the Jews. They tell that they have seen his star – a sign in the heavens announcing a king to be born in Israel.

Many countries of the world practiced astrology looking for signs among the stars to foretell the future. While their motivation wasn't scientific, by this period in the Roman Empire astrologers had mapped out most of the Constellations we know today. In the Middle Eastern deserts and on the sea they used patterns of stars to navigate. They carefully recorded the motions of the planets and even accurately predicted eclipses. So like an experienced amateur astronomer of today, these astrologers would have noticed when something special or out of the ordinary was happening among the stars.

No one knows for sure what they saw. It most certainly was not the shiny star with a long tail that is so common in our decorations. There are many opinions as to what these travelers saw. The most popular ones involve planet conjunctions, comets or some sort of Nova type star. Whatever they saw it was of such great importance to them that they made a long journey and brought gifts to worship a new born king.

One of the best articles I have ever read on the subject comes from the Hillsdale College newsletter *"Impirmis"* It goes into great detail about the history of the era attempting to set a date for the nativity. It explores predictable astronomical phenomena of the era but does not address the possibility of a unique one time or miraculous event.
If you are interested in the topic, I would encourage you to read the Matthew account first and then read the article.
https://imprimis.hillsdale.edu/wp-content/uploads/2016/11/The-Star-of-Bethlehem-December-1996.pdf

A less reader friendly article that has sky images for the various conjunctions of planets is at http://www.astronomynotes.com/history/bethlehem-star.html

Link to Story of the Magi in Matthew 2

This article is provided by NASA Space Place. **November 2017**
With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology.
Visit **https://spaceplace.nasa.gov/** to explore space and Earth science!

Studying Storms from the Sky

By Teagan Wall

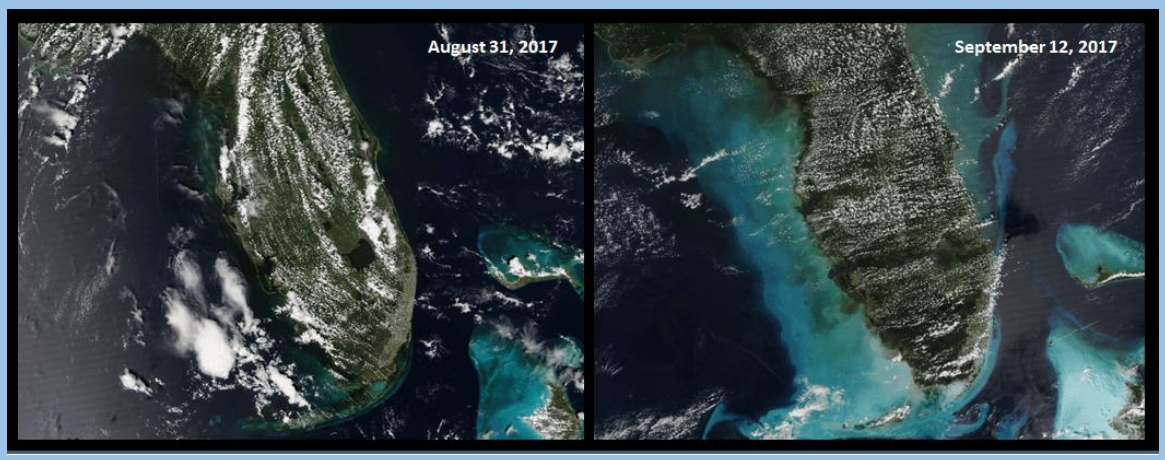
The United States had a rough hurricane season this year. Scientists collect information before and during hurricanes to understand the storms and help people stay safe. However, collecting information during a violent storm is very difficult.

Hurricanes are constantly changing. This means that we need a lot of really precise data about the storm. It's pretty hard to learn about hurricanes while inside the storm, and instruments on the ground can be broken by high winds and flooding. One solution is to study hurricanes from above. NASA and NOAA can use satellites to keep an eye on storms that are difficult to study on the ground.

In Puerto Rico, Hurricane Maria was so strong that it knocked out radar before it even hit land. Radar can be used to predict a storm's path and intensity—and without radar, it is difficult to tell how intense a storm will be. Luckily, scientists were able to use information from a weather satellite called GOES-16, short for Geostationary Operational Environmental Satellite – 16.

The "G" in GOES-16 stands for geostationary. This means that the satellite is always above the same place on the Earth, so during Hurricane Maria, it never lost sight of the storm. GOES-16's job as a weather satellite hasn't officially started yet, but it was collecting information and was able to help.

From 22,000 miles above Earth, GOES-16 watched Hurricane Maria, and kept scientists on the ground up to date. Knowing where a storm is—and what it's doing—can help keep people safe, and get help to the people that need it.



Caption: These images of Florida and the Bahamas were captured by a satellite called Suomi-NPP. The image on the left was taken before Hurricane Irma and the image on the right was taken after the hurricane. The light color along the coast is dirt, sand and garbage brought up by the storm. Image credit: NASA/NOAA

Hurricanes can also have a huge impact on the environment—even after they’re gone. To learn about how Hurricane Irma affected the Florida coast, scientists used images from an environmental satellite called Suomi National Polar-orbiting Partnership, or Suomi-NPP. One of the instruments on this satellite, called VIIRS (Visible Infrared Imaging Radiometer Suite), took pictures of Florida before and after the Hurricane.

Hurricane Irma was so big and powerful, that it moved massive amounts of dirt, water and pollution. The information captured by VIIRS can tell scientists how and where these particles are moving in the water. This can help with recovery efforts, and help us design better ways to prepare for hurricanes in the future.

By using satellites like GO9
ES-16 and Suomi-NPP to observe

To learn some fun planet facts and make a planet mask, check out NASA Space Place:
https://spaceplace.nasa.gov/planet-masks

Like us on Facebook Follow us on Twitter

Spread the Word
Do you know someone who might like to make a comet on a stick or learn more about Pluto? Tell them to subscribe to the NASA Space Place Gazette, our monthly newsletter
https://spaceplace.nasa.gov/subscribe/en/

How do we weigh a planet?

In real life, we can’t pick up a planet and put it on a scale. However, scientists do have ways to figure out how much a planet weighs. They can calculate how hard the planet pulls on other things. The heavier the planet, the stronger it tugs on nearby objects—like moons or visiting spacecraft. That tug is what we call gravitational pull. To learn more about how to weigh planets, **click this Link**.

TREASURER'S AND MEMBERSHIP REPORT

BY TIM DAVIS

Astronomy Club of Tulsa: 161 members, including 51 new members in 2017.
Welcome to our new members this month:

Emanuel Nascimento, Alan Buker, Adam Mason,
Kimberley Eklund, Jeremiah Brem and David Schwartz

Club Accounts as of November 30, 2017:
Checking: $ 6,102.40
Savings: $ 6,777.58
Investment accounts: $ 22,534.63 *(Value Fluctuates with Market)*

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 http://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. Contact their websites for details.

Membership rates for 2017 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.
http://www.astrotulsa.com/page.aspx?pageid=16

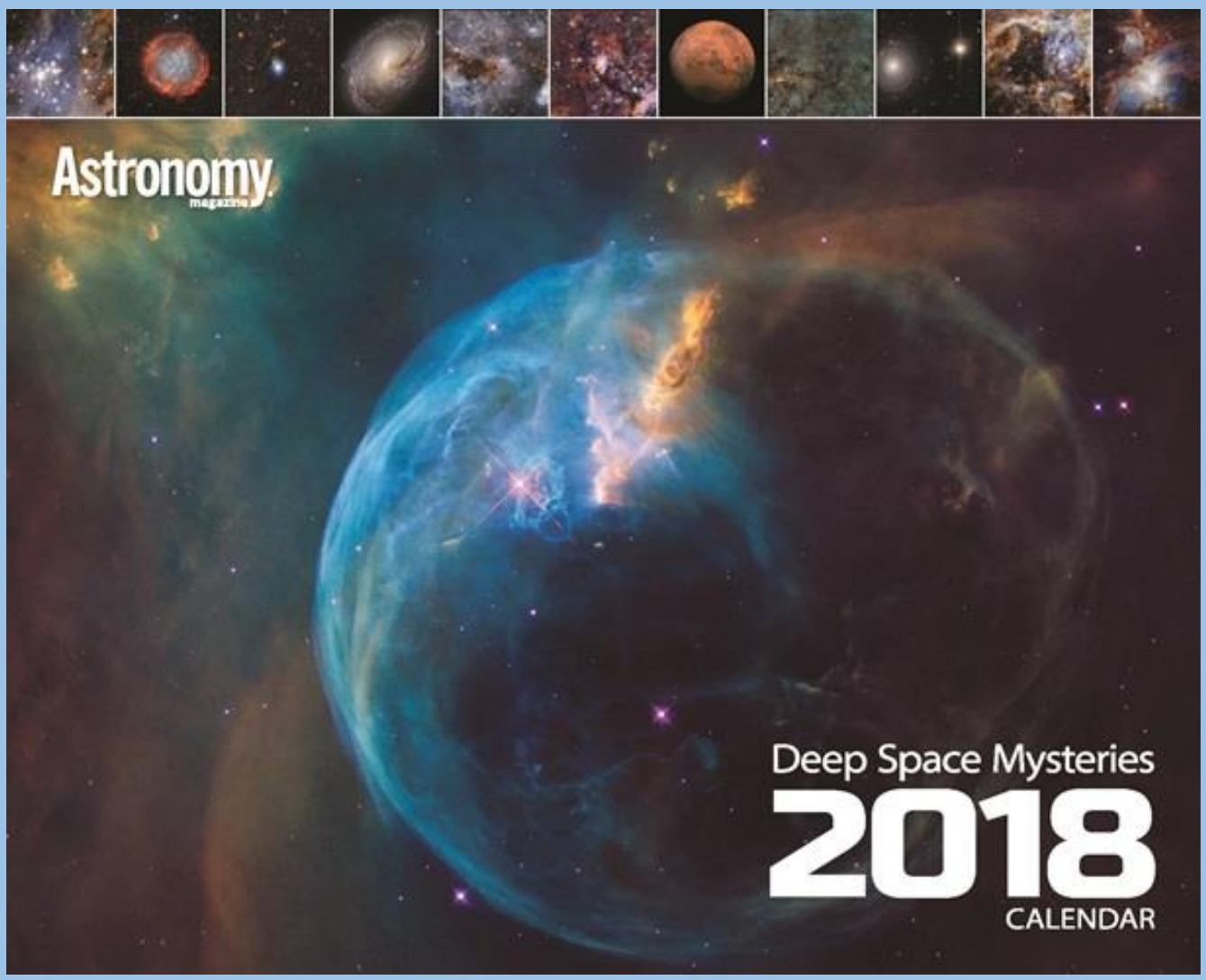
Magazine Subscriptions: If your magazines are coming up for renewal, try to save the mailing label or renewal form you get in the mail. Forms are available on the club website.
Astronomy is $ 34 for 1 year, or $ 60 for 2 years. **www.astronomy.com**
To get the club discount you must go through the club group rate.
Sky & Telescope is $ 33 per year **www.skyandtelescope.com**
Sky & Telescope also offers a 10% discount on their products.
Note: You may renew your Sky & Telescope subscription directly by calling the number on the renewal form, **be sure to ask for the club rate.**
NEW SUBSCRIPTIONS must still be sent to the club

The 2018 Astronomy Magazine Wall Calendars

are here and are now available. If you would like to reserve one, send me an email at astrotulsa.tres@gmail.com , or call me at 918-665-8134 and let me know how many you would like. Otherwise, they will be available on a first come, first served basis at our upcoming events. Calendars are available for $10.00 each, cash, check or credit cards accepted.

Calendars must be picked up in person at a club event, we cannot ship these to you. If you reserve one, just let me know at which event you will pick it up.

Tim Davis



Wanted
Astrophotos



Jenks Planetarium is seeking local Astro-Photographers to contribute to decorating the hallways entering the planetarium. We'd like images that are clear enough for general audiences to enjoy and, with a small write-up posted with it to learn from.
I'd like as many different objects as possible...
Nebulae, Galaxies, Planets, Moons even sky effects like Sunsets, Auroras, Eclipses etc.

I'd love to be an outlet to show off your work to our audiences. Credits will be given with each image within the write up that will accompany them.

Images and brief write-ups can be summited to Dan Zielinski at
Dan.zielinski@jenksps.org Make sure the write includes:

- Name of the person credited with taking the picture
- Date, time and location of picture
- Equipment used
- Details on what the image is.

Thanks for being part of improving Jenks Planetarium!



Images by Frank Newby & John Land

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

Meetings begin at 7:00 PM

When you enter the building lobby,
take the elevator to the 3rd floor.
Click for Google Map Link

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

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
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.

PLANETARIUM EVENTS 2017
FALL SHOWS

Jenks High School Campus
205 East B Street, Jenks

TICKETS
$5 online or $7 at the door
Purchase online at jenkscommunityed.com
or call 918-298-0340

JENKS PLANETARIUM
Explore the night sky with engaging, awe-inspiring shows at the Jenks Planetarium. The 50-foot dome provides the ultimate screen for seeing planets up close, flying to distant galaxies, and even rediscovering our own earth in ways never thought possible.

THE SUMMER SKY
Summer nights are short, but the skies are the busiest of the year. From swans to eagles to scorpions to centaurs, the summer sky is filled with constellations and fascinating stories. Weather permitting, we will also stargaze on the rooftop deck. (Ages 8 & up)

ANIMALS OF THE SKY
A young girl, Delphina, finds herself in an unfortunate incident and gets unexpected help from the animals of the sky. Come experience her story and discover how the stars can create animals! (Ages 3-10)

THE SISTINE CHAPEL
The Planetarium isn't just for astronomy anymore! Join us for a tour of the Sistine Chapel in Rome. Learn the meanings behind the paintings and see the scenes come together in an amazing retelling of the Bible. A must-see for all art lovers! Notice: this show displays the real paintings as seen in the Sistine Chapel, which contain some artistic nudity. (Ages 10 & up)

MY HOUSE HAS STARS
People all over the world live in many types of houses--from houseboats to mud huts. No matter where you live though, your house has stars! Based on the book, this story introduces both houses and stars from places and cultures all over the planet. (Ages 6 & up)

COMPASS, CALENDAR, CLOCK
As our ancients learned, the sky is not just a thing of beauty, it's the ruler for the position of our planet. Understanding how our planet is aligned with distant stars allows anyone to use the sky as a compass, a calendar and a clock. (Ages 12-adult)

For the 2018 schedule

Go to Shows

Then click the Date Column to sort them By show date

The Summer Sky
(Ages 8 and up)

Animals of the Sky
(Ages 3-10)

Sistine Chapel
(Ages 12 and up)

My House Has Stars
(Ages 6 and up)

Compass, Calendar, Clock
(Ages 10 and up)

ASTRONOMY CLUB OFFICERS:

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JACOB SHEPHERD
TERESA DAVIS
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Dennis Berney sends these images of the “Lunar X” he took at Sidwalk Astronomy Nov 25th, The “X” can be seen for a few hours near 1st Quarter moon. It is formed by the rims of craters catching the rising sun. For a detailed explanation of the “Lunar X” see http://wasociety.us/Lunar-X.pdf