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ASTRONOMY CLUB OF TULSA

OBSERVER

NOVEMBER 2015

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.

PHOTO: The Veil Nebula (NGC 6960) in Cygnus, taken at the ACT Observatory on Tues, Oct 6, using an 8-inch, f3.9 Orion Astrograph; 10 exposures ranging from 150 to 600 seconds. The bright star in the image is 4.2 mag 52 Cygni.

Photo is by Frank Newby.



PHOTO: The Rosette Nebula (NGC 2237) in Monoceros, taken at Okie-Tex Star Party using the same instrument as the above photo.

Photo is by Frank Newby.



THE ASTRONOMY CLUB TULSA
IS A PROUD MEMBER OF



THE ASTRONOMICAL LEAGUE

NOVEMBER 2015

MOON PHASES AND HOLIDAYS:

SUN	MON	TUE	WED	THU	FRI	SAT
1	2	3 	4	5	6	7
8	9	10	11 	12	13	14
15	16	17	18	19 	20	21
22	23	24	25 	26	27	28
29	30					



LAST QUARTER TUES NOV 3
NEW MOON WED NOV 11
FIRST QUARTER THUR NOV 19
FULL (Full Beaver Moon) WED NOV 25
THANKSGIVING THURS NOV 26

UPCOMING EVENTS:



DAYLIGHT SAVING TIME ENDS SUN, NOV. 1.

ANNUAL DINNER MEETING**	SAT NOV 7	6:30 PM	JENKS HS PLANETARIUM
MEMBERS' NIGHT**	FRI NOV 13	6:00 PM	ACT OBSERVATORY
PUBLIC STAR PARTY	SAT NOV 21	7:00 PM	ACT OBSERVATORY
SIDEWALK ASTRONOMY	SAT NOV 28	5:00 PM	BASS PRO
GENERAL MEETING	FRI DEC 4	7:00 PM	JENKS HS PLANETARIUM
MEMBERS' NIGHT**	FRI DEC 11	5:15 PM	ACT OBSERVATORY
PUBLIC STAR PARTY	SAT DEC 19	7:00 PM	ACT OBSERVATORY
WINTER SOLSTICE	SUN DEC 21	6:03 PM	
SIDEWALK ASTRONOMY	SAT DEC 26	5:00 PM	BASS PRO

**MEMBERS AND FAMILY ONLY PLEASE.

DECEMBER 2015

MOON PHASES & HOLIDAYS:

SUN	MON	TUE	WED	THU	FRI	SAT
		1	2	3 	4	5
6	7	8	9	10	11 	12
13	14	15	16	17	18 	19
20	21	22	23	24	25 	26
27	28	29	30	31	25	



LAST QUARTER THUR DEC 3
NEW MOON FRI DEC 11
FIRST QUARTER FRI DEC 18
FULL (Full Cold Moon) FRI DEC 25
CHRISTMAS EVE THUR DEC 24
CHRISTMAS DAY FRI DEC 25
NEW YEAR'S EVE THUR DEC 31

ANNUAL DINNER MEETING AT JENKS PLANETARIUM SATURDAY, NOV. 7, 2015, 6:30 PM

THE ASTRONOMY CLUB OF TULSA INVITES ALL MEMBERS AND THEIR FAMILIES TO OUR ANNUAL DINNER MEETING!

We cordially invite all of our Club members and their families to attend this fun event! The dinner will be catered by Mangiamo's and there will be good food, good friends and good fun! We will also have a planetarium show and group photo!

Due to our not having a quorum at last month's General Meeting, the election of officers and board members for 2016 will also take place at this event. Anybody who is interested in an office or board position, or who would like to nominate someone, please contact Secretary Teresa Davis at astrotulsa.sec@gmail.com so she can get your or your nominee's name on the ballot.

Below is who is running so far:

President: Richard Brady
Vice President: Tamara Green
Secretary: Teresa Davis
Treasurer: Tim Davis
Board: Skip Whitehurst
Christopher Proctor
James Taggart
John Land
James Liley



We will need to have a quorum of members in order to have the elections take place so please make plans to attend.

THANK YOU FOR YOUR PARTICIPATION! WE LOOK FORWARD TO SEEING YOU THERE!

PRESIDENT'S MESSAGE

BY RICHARD BRADY



Hi everyone!

This month it is either feast or famine when it comes to the five naked-eye planets. For us late night folks none of these planets are visible in the evening skies. (Technically, Saturn is still an evening planet, but with it less than 15 degrees above the horizon at sundown, it hardly counts.) For early risers it is a feast. Jupiter, Venus, and Mars are very close together in the east before dawn. The Moon will be close to Jupiter on November 6th and near Venus and Mars on the 7th. Even Mercury might be glimpsed near the horizon. Catch it early in the month before it heads to Superior Conjunction on November 17th.

The annual dinner will be at the Jenks Planetarium on Saturday, November 7th at 6:30-8:30 PM. We can begin setting up an hour before at 5:30, and we have half an hour afterwards for clean-up. We will need some help setting up before and cleaning up after. There is a very nice room with full kitchen facilities on the same floor as the planetarium, just at the other end of the hall. The price will be \$12 per person again this year.

We will have Italian again from Mangiamo's. On the menu is salad, baked ziti, meatballs and sauce, pasta, small Italian sub sandwiches, Garlic bread, cookies and for drinks we will have lemonade, tea and water.

If you didn't RSVP last week, it doesn't mean you can't attend. We are ordering a little extra food just in case.

Since we did not have a quorum (20 members per the by-laws) at the October meeting, we will be having elections for the officers and board at the Annual Dinner on Saturday, November 7. If you are interested in being an officer or on the board, please let our secretary, Teresa Davis, know and she will add you to the ballot (even at this late date). Her email is astrotulsa.sec@gmail.com. To be an officer or on the board you must be a member in good standing for at least a year.

Clear Skies!
Richard Brady

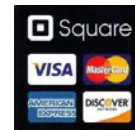
TREASURER'S AND MEMBERSHIP REPORT

BY TIM DAVIS



Astronomy Club of Tulsa: 154 members, including 60 new members in 2015.

Welcome to our new members this month: William Collier, Lantz McClain, Jon Moser, Travis Peder-son, Trinity Colombo and Greg Aren.



Club Accounts as of October 31, 2015 :

Checking: \$5,040.80; Savings: \$3,774.96; Investment accounts: \$18,727.21 (Value Fluctuates with Market); PayPal: \$ 0.00

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 2015 are as follows:

Adults: \$45.00 per year, includes Astronomical League Membership.

Sr. Adult: \$35.00 per year for those 65 or older, includes Astro League Membership.

Students: \$30.00 with League membership; **Students: \$25.00** without League membership.

Additional Family membership: \$20.00 with voting rights and League membership, **\$15.00** 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

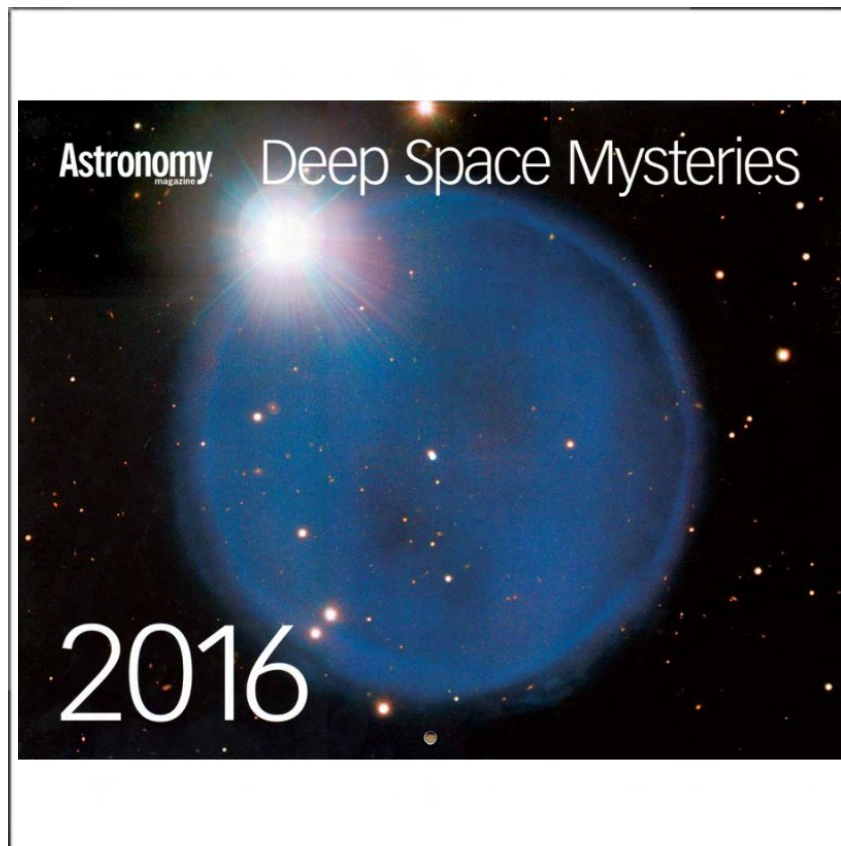


2016 Wall Calendar

The 2016 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. We have 50 available this year for \$10.00 each, cash, check or credit cards accepted. That is a 23% savings off the regular retail price.

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

Get yours while they last!



Tim Davis

Act Treasurer

SECRETARY'S CORNER

BY TERESA DAVIS



ACT Public meeting at Jenks Planetarium

October 3, 2015

Richard started the meeting at 7:15pm as we were waiting and watching for more of our members to show up. He announced that this would be an election event but according to the by-laws we have to have 20 members present to hold the elections. Our president then made the public announcement that we will be holding the elections next month in November during our dinner meeting.

Richard shared his picks of pics this month: Andromeda, Eye on Pluto, Rosetta, Dawn at Ceres Topographic Map and Compositional map, Pluto & Charon, Pluto "snakeskin" topography close-up, Pluto oblique view of mountains and atmosphere, Pluto haze layers, Charon with details of the long crevice as we considered comparing this to the Grand Canyon, a one minute video of the fly-by on Pluto, another short video of a mountain on Charon.

Where is New Horizon going next? Richard explained with a map the Comet, 2014MU 69, to be the next plan for New Horizon. This is the target planed by NASA for this space craft for after the Pluto fly-by. This comet is referred to as PT (Potential Target) of New Horizon. Comet C-G.

The big news that came out this past week is that there is briny water on Mars. Richard gave explanations for images and a slide show of images used to depict the "Water on Mars!!!" We also have a new movie to come out this weekend: "The Martian".

Beautiful image of the Total Lunar Eclipse from last Sunday, September 27, 2015.

John Land had pictures from the Okie-Tex Star Party. He shared several slides. Next, Tamara Green shared several of her pictures taken at the Okie-Tex Star Party.

Upcoming Events were listed on a slide along with warnings to watch for the weather updates to determine if we have to cancel to do weather. Our annual dinner will be at the Jenks planetarium in the conference room opposite of the entry of the planetarium. On November 7th from 6:30pm to 8:30pm. We will all send our RSVPs so we can plan the meals. We will have Italian again from Mangiamo's at the cost of \$12 per person.

Jenks Planetarium Shows will be on going through October, November, and December. The shows will be for young students ages 3 and up. All the dates are on Tuesday.

Dan announced that 5 planetariums from around the U.S. have already purchased the show: "Compass, Calendar, and Clock", the last work produced by Jenks Schools.

Dan gave a show "The Autumn Skies". Meeting was adjourned at 8:30pm.

Our Annual Dinner meeting will be this coming Saturday, November 7, 2015. Hopefully we will have enough of our members to make a quorum. We need at least 20 voting members to hold our elections. The ballots are prepared with available space for write ins.... So if you don't make it to the election meeting and you are a member in good standing for at least one year, we may just write your name in and put you on the board. Okay, maybe not but all members are asked to come out and make your vote count. In addition to the ballots for the election of officers, we will be asking everyone to give us your ideas for the club in the coming year. The survey will be on a separate paper. All members, including associate members will be welcomed to give us your ideas. We will have the results of the survey posted in the next Secretary's corner along with changes that the board may be making due to the survey for 2015.

SECRETARY'S CORNER

BY TERESA DAVIS, CT'D.

The following is a copy of what to expect on this year's election ballot:

Officers:

President (vote for one)

Richard Brady

Vice President (vote for one)

Tamara Green

Treasurer (vote for one)

Tim Davis

Secretary (vote for one)

Teresa Davis

Board Members:

John Land

James Liley

Chris Proctor

James Taggart

Skip Whitehurst

We will catch up next Saturday,

Teresa Davis

ACT Secretary



National Aeronautics and
Space Administration



NASA Space Place

Educator Newsletter

November-December 2015 / Vol. 8, Issue 4

NEWS AND NOTES FOR FORMAL AND INFORMAL EDUCATORS

Space Place is a NASA website for elementary school-aged kids, their teachers, and their parents.

It's colorful!
It's dynamic!
It's fun!

It's rich with science, technology, engineering, and math content!

It's informal.
It's meaty.

It's easy to read and understand.
It's also in Spanish.
And it's free!

It has over 150 separate modules for kids, including hands-on projects, interactive games, animated cartoons, and amazing facts about space and Earth science and technology.

There are always new and exciting things happening at NASA Space Place. To keep up with all the latest, follow us on Facebook and Twitter @nasaspaceplace. If you'd like to be added to our e-newsletter, email us at info@spaceplace.nasa.gov.

New!

Dark matter... and dark energy too!

This might be a surprise, but we don't know what most of the universe is made of. Seriously, we don't!

<http://spaceplace.nasa.gov/dark-matter>



New!

Why does the sun burn us?

The sun keeps our planet warm enough for living things to thrive. It gives us light so we can see. But it can also burn us. What causes these burns?

<http://spaceplace.nasa.gov/sunburn>



New!

What is a lunar eclipse?

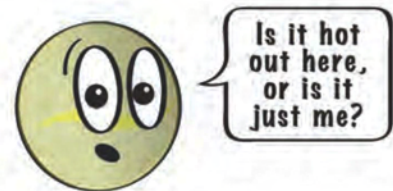
And how is it different from a solar eclipse? And why are these so rare?

There are so many questions!

<http://spaceplace.nasa.gov/eclipses>

Planet Pages

Learn more about Venus, the hottest planet in our solar system. But don't stop there; explore all of our solar system's eight amazing planets.



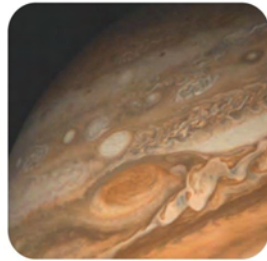
Every planet page features planet merit badges that showcase each planet's unique characteristics, as well as beautiful photos.

<http://spaceplace.nasa.gov/all-about-venus>

Explore Earth and space at spaceplace.nasa.gov

Printable Content

Did you know we have **six galleries** with images of space, the sun, Earth, our solar system, and NASA people and technology? These high-resolution images have large captions and are perfect for printing and putting on bulletin boards and other classroom displays.



<http://spaceplace.nasa.gov/search/galleries>

Games for Mobile Devices

Take some NASA Space Place games with you on your iPad, iPhone, iPod touch, or Android device! <http://spaceplace.nasa.gov/ios>

Space Place Prime

Read the latest from NASA Space Place.



OFFSET!

Save the world from carbon emissions!

Satellite Insight

Process all that satellite data, and quick!

Rescue 406

A SARSAT game from NOAA and NASA.

Comet Quest

Control Rosetta as it lands on a comet.

Special Days

Noteworthy days in NASA and space history you can observe in your classroom.

November 8 — X-rays were discovered in 1895.

See how telescopes see the universe with X-rays and other energy waves.
<http://spaceplace.nasa.gov/cosmic-colors>

November 15 — First computer microprocessor invented in 1971.

How do we humans talk to machines?
<http://spaceplace.nasa.gov/binary-code3>

November 20 — Edwin Hubble’s birthday

Find out how Hubble noticed that the universe is expanding.
<http://spaceplace.nasa.gov/big-bang>

December 4 — Pioneer 10 flew past Jupiter in 1973.

Learn all about our solar system’s largest planet.
<http://spaceplace.nasa.gov/all-about-jupiter>

December 6 — The microwave oven was invented on this day in 1945.

What are microwaves, though?
<http://spaceplace.nasa.gov/magic-windows>

December 13 — The peak of the Geminid meteor shower.

Why are meteor showers predictable?
<http://spaceplace.nasa.gov/meteor-shower>



WHERE WE MEET

JENKS HIGH SCHOOL PLANETARIUM

105 E. B ST. JENKS, OK

DIRECTIONS TO THE JENKS HIGH SCHOOL CAMPUS:

FROM THE WEST: (MARKED IN RED ON MAPS)

TAKE US 75 TO THE MAIN ST. - JENKS EXIT

FOLLOW MAIN ST. APPROXIMATELY 2 MILES AND CROSS THE RAILROAD TRACKS

TURN LEFT ON 1ST ST.

FROM CENTRAL PART OF TULSA: (MARKED IN GREEN ON THE MAPS)

TAKE RIVERSIDE DRIVE TO THE 96TH STREET BRIDGE

TURN RIGHT AND GO OVER THE RIVER

FOLLOW A ST. APPROXIMATELY 7 BLOCKS

TURN RIGHT ON 1ST ST.

FROM THE EAST: (MARKED IN BLUE ON THE MAPS))

TAKE THE CREEK TURNPIKE TO S. ELM ST. IN JENKS

FOLLOW ELM ST. NORTH TO MAIN ST.

TURN RIGHT ON MAIN ST. AND CROSS THE RAILROAD TRACKS

TURN LEFT ON 1ST ST.

FOR EACH:

PARK IN THE LOT AT THE END OF 1ST ST.

USE THE DOORS AT THE NORTH SIDE OF THE BUILDING

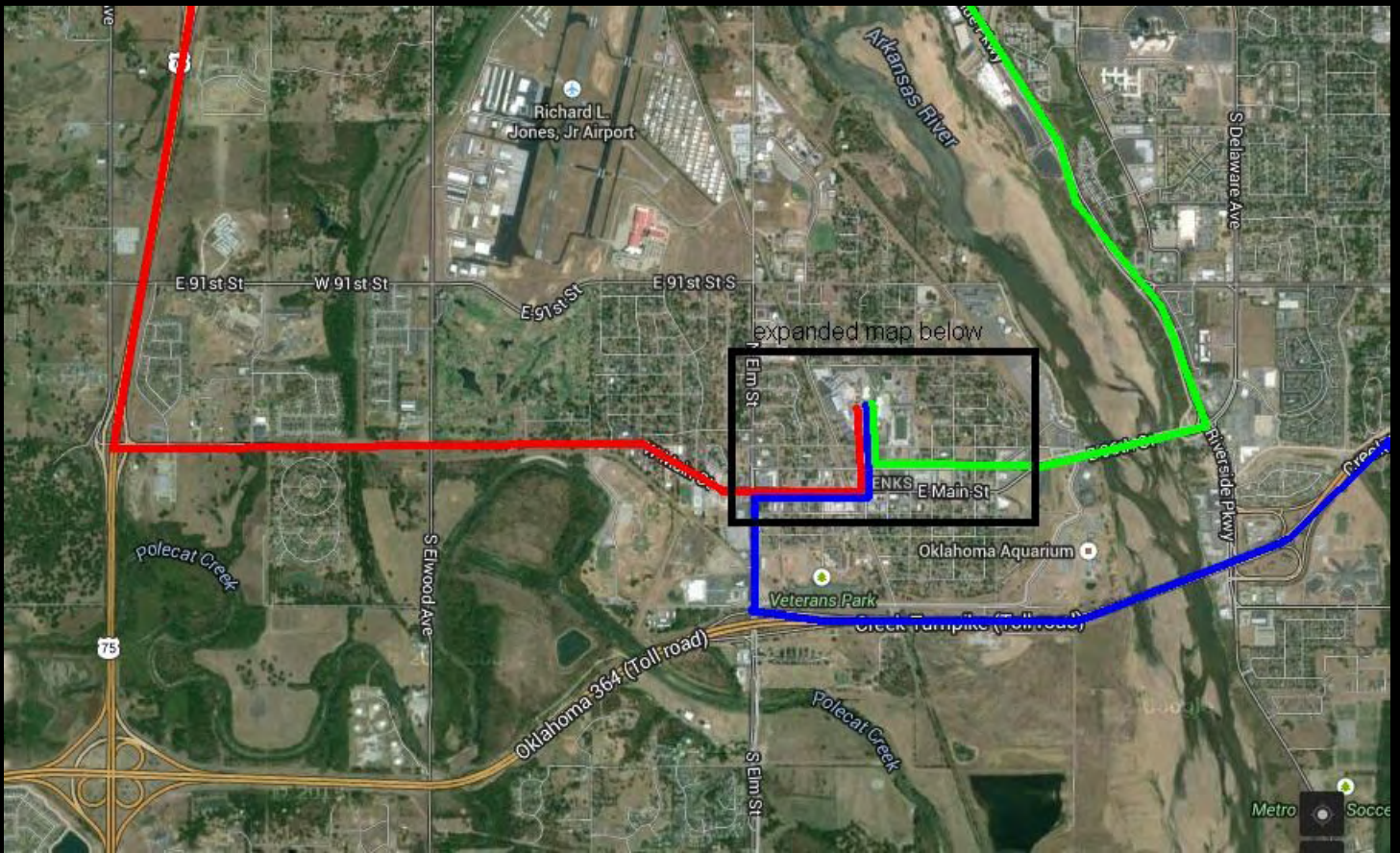
GO UP THE STAIRS TO THE 3RD FLOOR (THERE IS AN ELEVATOR FOR THOSE WHO NEED IT)

TURN RIGHT AND GO DOWN THE HALLWAY TO EITHER SIDE OF THE PLANETARIUM

MAPS ON NEXT PAGE

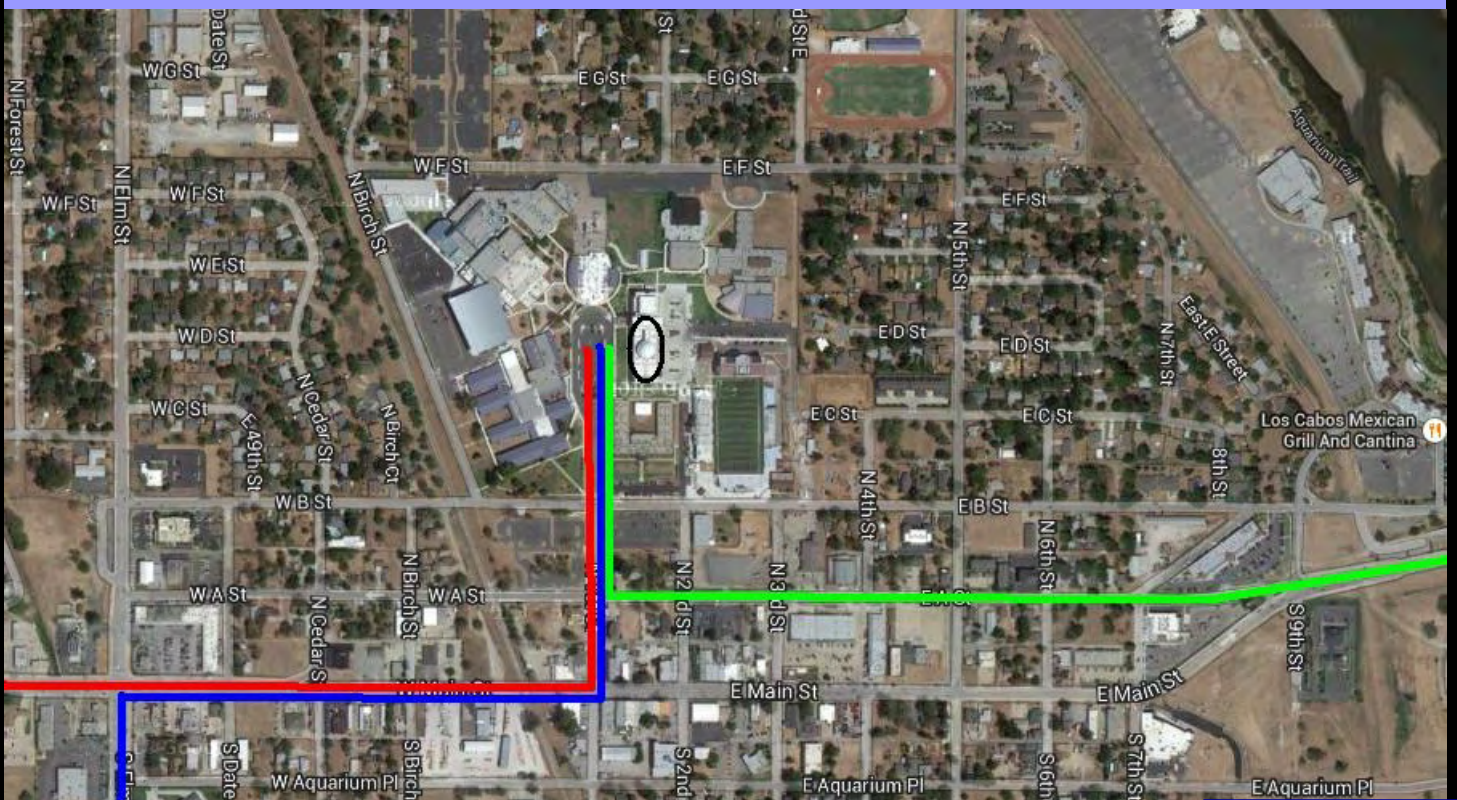
THE GENERAL MEETINGS ARE FREE AND OPEN TO THE PUBLIC.

WE HOPE TO SEE YOU THERE!



ABOVE: DIRECTIONS TO JENKS HIGH SCHOOL FROM CENTRAL TULSA, WEST OF TULSA AND EAST OF TULSA

BELOW: MAP SHOWING ROUTE INTO PARKING LOT



MEMBERSHIP INFORMATION

ASTRONOMY CLUB OF TULSA OFFICERS:

PRESIDENT RICHARD BRADY
astrotulsa.pres@gmail.com

VICE PRESIDENT TAMARA GREEN
astrotulsa.vp@gmail.com

SECRETARY TERESA DAVIS
astrotulsa.sec@gmail.com

TREASURER TIM DAVIS
astrotulsa.tres@gmail.com

BOARD MEMBERS-AT-LARGE:

JOHN LAND
CHRISTOPHER PROCTOR
JAMES TAGGART
SKIP WHITEHURST
ED UNDERHILL

STAFF:

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astrotulsa.vp@gmail.com

WEBMASTER JENNIFER JONES
jjones@seedtechnologies.com

MEMBERSHIP CHAIRMAN JOHN LAND
astroclubbiz@windstream.net

OBSERVING CHAIRS OWEN AND TAMARA GREEN
darthnewo@yahoo.com, astrotulsa.vp@gmail.com

SIDEWALK ASTRONOMY OWEN GREEN
darthnewo@yahoo.com

PR AND OUTREACH OWEN GREEN
darthnewo@yahoo.com

GROUP DIRECTOR TERESA DAVIS
actgroupscheduling@gmail.com, astrotulsa.sec@gmail.com

NIGHT SKY NETWORK RICHARD BRADY
astrotulsa.pres@gmail.com

FACILITIES MANAGER JAMES TAGGART
astrotulsa.obs@gmail.com

MEMBERSHIP RATES FOR 2015 WILL BE AS FOLLOWS:

ADULTS - \$45 PER YEAR. INCLUDES ASTRONOMICAL LEAGUE MEMBERSHIP.

SENIOR ADULTS - \$35 PER YEAR. **FOR THOSE AGED 65 AND OLDER.** INCLUDES ASTRONOMICAL LEAGUE MEMBERSHIP.

STUDENTS - \$30 PER YEAR. INCLUDES ASTRONOMICAL LEAGUE MEMBERSHIP.

STUDENTS - \$25 PER YEAR. **DOES NOT INCLUDE ASTRONOMICAL LEAGUE MEMBERSHIP.**

THE REGULAR MEMBERSHIP ALLOWS ALL MEMBERS OF THE FAMILY TO PARTICIPATE IN CLUB EVENTS, BUT ONLY ONE VOTING MEMBERSHIP AND ONE ASTRONOMICAL LEAGUE MEMBERSHIP PER FAMILY.

ADDITIONAL FAMILY MEMBERSHIP - \$15 WITH ASTRONOMY CLUB OF TULSA VOTING RIGHTS, \$20 WITH CLUB VOTING RIGHTS AND ASTRONOMICAL LEAGUE MEMBERSHIP.

THOSE WISHING TO EARN ASTRONOMICAL LEAGUE OBSERVING CERTIFICATES NEED TO HAVE A LEAGUE MEMBERSHIP.

MAGAZINE SUBSCRIPTIONS:

ASTRONOMY IS \$34 FOR ONE YEAR OR \$60 FOR 2 YEARS.

WEBSITE: www.astronomy.com

SKY & TELESCOPE IS \$33 PER YEAR.

WEBSITE: www.skyandtelescope.com

SKY & TELESCOPE OFFERS A 10% DISCOUNT ON THEIR PRODUCTS.

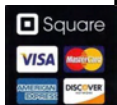
IF YOU ARE AN EXISTING S&T SUBSCRIBER, YOU CAN RENEW DIRECTLY WITH S&T AT THE SAME CLUB RATE. BOTH S&T AND ASTRONOMY NOW HAVE DIGITAL ISSUES FOR COMPUTERS, IPADS AND SMART PHONES.

ONLINE REGISTRATION

WE NOW HAVE AN AUTOMATED ONLINE REGISTRATION FORM ON THE WEBSITE FOR NEW MEMBERSHIPS, MEMBERSHIP RENEWALS AND MAGAZINE SUBSCRIPTIONS. JUST SIMPLY TYPE IN YOUR INFORMATION AND HIT "SEND" TO SUBMIT THE INFORMATION. YOU CAN THEN PRINT A COPY OF THE FORM AND MAIL IT IN WITH YOUR CHECK, OR USE OUR CONVENIENT PAYPAL OPTION. .

LINK: <http://www.astrotulsa.com/Club/join.asp>


OR, IF AT A STAR PARTY OR MEETING, SIMPLY FIND A CLUB OFFICER TO ASK ABOUT JOINING OR RENEWING WITH YOUR DEBIT OR CREDIT CARD THROUGH OUR CONVENIENT SQUARE OPTION!



THE ASTRONOMY CLUB OF
TULSA INVITES YOU TO MAKE
PLANS THIS WINTER TO JOIN US
AT A STAR PARTY!

OPEN TO THE PUBLIC
FOR MORE INFORMATION
PLEASE VISIT
WWW.ASTROTULSA.COM.

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THE ASTRONOMY CLUB OF TULSA. THE
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3 NON-PROFIT ORGANIZATION OPEN TO
THE PUBLIC. THE CLUB STARTED IN
1937 WITH THE SINGLE MISSION TO
BRING THE JOY AND KNOWLEDGE OF
ASTRONOMY TO THE COMMUNITY OF
TULSA, OK AND THE SURROUNDING
AREA. TODAY OUR MISSION REMAINS
EXACTLY THE SAME. WE TRAVEL TO
LOCAL SCHOOLS, CHURCHES AND
MANY OTHER VENUES WITH SCOPES
AND PEOPLE TO TEACH. OUR
OBSERVATORY IS LOCATED IN MOUNDS
AND MANY PUBLIC PROGRAMS ARE
OFFERED THERE. TO JOIN THE
ASTRONOMY CLUB OF TULSA, PLEASE
VISIT WWW.ASTROTULSA.COM WHERE
YOU WILL FIND ALL THE INFORMATION
NECESSARY TO BECOME A MEMBER.

 Also find us on Facebook!

<https://www.facebook.com/AstronomyClubofTulsa>



WE ALSO ARE A PROUD PARTICIPANT IN
NASA'S NIGHT SKY NETWORK.

THE EDITOR WISHES TO THANK THE FOLLOWING FOR
THEIR CONTRIBUTIONS TO "THE OBSERVER" FOR

RICHARD BRADY

TIM DAVIS

TERESA DAVIS

FRANK NEWBY

TAMARA GREEN



PHOTOS: More Winter Stars. Top, Orion and Canis Major, taken at the
ACT Observatory; Bottom, Capricornus and other Winter stars, taken at
OTSP 2015.

Both photos by Tamara Green.