

INSIDE THIS ISSUE:

CALENDAR AND EVENTS	2
PRESIDENT'S MESSAGE	3
TREASURER'S AND MEMBERSHIP REPORT	4
MESSIER MARATHON, BY TAMARA GREEN	6
NASA'S "THE SPACE PLACE" NEWSLETTER	7
"COMET CAMPAIGN: AMATEURS WANTED", BY MARCUS WOO	9
WHERE WE MEET	11
OFFICERS, BOARD & STAFF	12



ASTRONOMY CLUB OF TULSA

OBSERVER

FEBRUARY 2017

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.



THE ASTRONOMY CLUB TULSA
IS A PROUD MEMBER OF






PHOTOS: Top: Some winter stars and our observatory building; Bottom: Orion, the Hyades and the Pleiades. Both photos by Tamara Green.

THE ASTRONOMICAL LEAGUE

FEBRUARY 2017

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				

GROUNDHOG DAY	THU FEB 2
FIRST QUARTER	FRI FEB 3
FULL MOON	FRI FEB 10
VALENTINE'S DAY	TUE FEB 14
LAST QUARTER	FRI FEB 18
PRESIDENTS' DAY	MON FEB 20
NEW MOON	SUN FEB 26





UPCOMING EVENTS:

GENERAL MEETING	FRI FEB 3	7:00 PM	JENKS HS PLANETARIUM
SIDEWALK ASTRONOMY	SAT FEB 4	5:30 PM	BASS PRO
PUBLIC STAR PARTY	SAT FEB 18	6:15 PM	ACT OBSERVATORY
MEMBERS' NIGHT**	FRI FEB 24	6:15 PM	ACT OBSERVATORY
GENERAL MEETING	FRI MAR 3	7:00 PM	JENKS HS PLANETARIUM
SIDEWALK ASTRONOMY	SAT MAR 4	6:00 PM	BASS PRO
DAYLIGHT SAVING TIME BEGINS	SUN MAR 12		
PUBLIC STAR PARTY	SAT MAR 18	7:30 PM	ACT OBSERVATORY
VERNAL EQUINOX	MON MAR 20		
MEMBERS' NIGHT	FRI MAR 24	7:30 PM	ACT OBSERVATORY
MESSIER MARATHON**	SAT MAR 25	TBA	TUVA

**MEMBERS AND FAMILY ONLY PLEASE.

MARCH 2017

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	31	

FIRST QUARTER	SUN MAR 5
FULL MOON	SUN MAR 12
ST PATRICK'S DAY	FRI MAR 17
LAST QUARTER	MON MAR 20
NEW MOON	MON MAR 27

PRESIDENT'S MESSAGE

BY RICHARD BRADY



Hi everyone! We cancelled the January General Meeting because of the ice/snow in the area that day. If you've ever gotten an email from Dan Zielinski, he closes with "Always Clear Skies Inside", but that doesn't matter, Dan, when there's ice and snow on the outside. J

February General Meeting

The General Meeting will be at the Jenks Planetarium Friday, February 3rd, at 7:00 PM. Speaking this month will be Skip Whitehurst. He will be talking about imaging software.

Planets this month

Venus is still high in the southwest this month, setting at 9:31 PM on February 1st and 8:59 PM on February 28th. Venus is getting closer to us as we orbit the sun, growing from 31" to 47", but shrinking from 39% to only 17% illuminated. Use binoculars or a telescope to see Venus as a crescent. Even so, it remains around -4.6 magnitude all month, the brightest object in the southwestern sky.

Mars is northeast of Venus all month, about 5½° northeast at the beginning of the month (as close as they will get) but 12° by months end.

Jupiter is still continuing to rise earlier each night. On February 1st it will rise at 11:20 PM, and by the end in the month it will rise at 9:30 PM.

Saturn is in the morning sky at sunrise. At the beginning of February it will rise roughly 3 hours before sunrise, and over 4 hours before sunrise by the end.

Mercury starts off 11° up at sunrise on the 1st but is only 1° up by months end, heading for superior conjunction on March 6th.

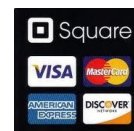
Messier Marathon

Once again we have been invited to Ron Wood's TUVVA observatory down near Checotah for the Messier Marathon. It will be on Saturday, March 25th. We will have more information next month.

Clear skies!
Richard Brady

TREASURER'S AND MEMBERSHIP REPORT

BY TIM DAVIS



Astronomy Club of Tulsa: 170 members, including 1 new member in 2017.

Welcome to our new member this month: Lauren Lomax.

Club Accounts as of January 23, 2017:

Checking: \$6,483.04; Savings: \$5,776.40; Investment accounts: \$20,656.88 (*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: \$45.00 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.

2017 Wall Calendar

The 2017 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 \$8.00 each, cash, check or credit cards accepted.

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

MESSIER MARATHON!!

BY TAMARA GREEN



Hello All!

Our Annual Messier Marathon will be on Saturday, March 25. We will be going to TUVa again to have us a marathon!

There will be a caravan to the marathon, and I will be leading it again this year. Details will be in next month's newsletter.

There will be a pot-luck dinner at TUVa before the marathon begins, so if you wish to, you are welcome to bring a dish, dessert or beverage to share.

Tentatively, the back-up date is Saturday, April 22; however, considering how late in the month that is, we will not have a chance at all 100 objects. Details on that will be in next month's newsletter as well.

PLEASE NOTE THAT DUE TO THE LIMITED ROOM AT TUVa, AND THE FACT THAT PARTICIPANTS WILL WANT TO CONCENTRATE ON THEIR MARATHONING, THE MESSIER MARATHON IS FOR CLUB MEMBERS AND THEIR FAMILY MEMBERS ONLY (OUR MEMBERS AND TUVa MEMBERS). THANK YOU FOR YOUR COOPERATION.

More next month!

Tamara





NASA Space Place

Educator Newsletter

National Aeronautics and
Space Administration



January-February 2017 / Vol. 10, Issue 1

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, Earth science, and technology.

Don't forget to subscribe to our monthly e-newsletter, the NASA Space Place Gazette!

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

New!

What is an asteroid?

Asteroids are small, rocky objects that orbit the sun. While there are many asteroids in our solar system, most of them live in the main asteroid belt--a region between the orbits of Mars and Jupiter. But where did they come from, and are they all the same? Find out here!

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



Mathilde

Gaspra

Ida

New!

What's the difference between an asteroid and a meteor?

Both are types of space rocks, but the difference between the two depends on how close they are to Earth's surface.

<http://spaceplace.nasa.gov/asteroid-or-meteor>

New!

Exoplanets

All of the planets in our solar system orbit around the sun. Planets that orbit around other stars are called exoplanets. How do we know they exist? Check out our new article!

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



Be sure to also check out our new video and poster about exoplanets!

<http://spaceplace.nasa.gov/exoplanet-snap>

New!

Moon Cookies

Make our delicious no-bake moon cookies! Follow along with our video for simple instructions.

<http://spaceplace.nasa.gov/moon-cookies>

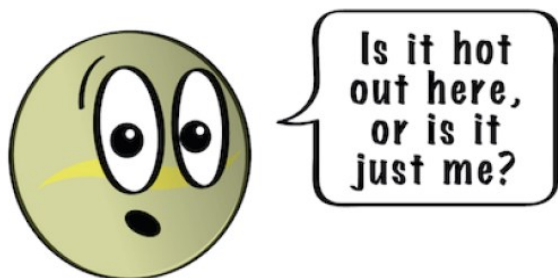


Explore Earth and space at spaceplace.nasa.gov

All About Planets

Our solar system is home to eight amazing planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. No two of them are the same! Some are small and rocky; some are freezing cold. Learn all about each planet and what makes each one unique!

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



What are black holes?

And are they really as scary as they sound? A black hole is an area of such immense gravity that nothing—not even light—can escape from it. Check out our short video and poster to learn more. <http://spaceplace.nasa.gov/black-holes>



Special Days

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

Jan. 7 - In 1610, Galileo discovered several of Jupiter's moons!

Jupiter has many moons. Have you heard of its moon Io?

<http://spaceplace.nasa.gov/io-tides>

Jan. 16 — NASA selected the first U.S. women astronauts in 1978.

See some photos of astronauts in action!

<http://spaceplace.nasa.gov/gallery-technology>

Jan. 24 — Voyager 2 encountered Uranus on this day in 1986.

Did you know that Uranus has faint rings? Learn all about this blue planet here!

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

Jan. 25 — The Opportunity rover landed on Mars in 2004.

Why were Spirit and Opportunity sent to Mars in the first place?

<http://spaceplace.nasa.gov/mars-spirit-opportunity>

Feb. 6 — In 1971, Alan Shepard played golf on the moon.

How far away is the moon? The answer might surprise you!

<http://spaceplace.nasa.gov/moon-distance>

Feb. 18 — Pluto was discovered in 1930 by astronomer Clyde Tombaugh.

Why is Pluto no longer considered a planet?

<http://spaceplace.nasa.gov/ice-dwarf>



This article is provided by NASA Space Place.

With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology.

Visit spaceplace.nasa.gov to explore space and Earth science!



Comet Campaign: Amateurs Wanted

By Marcus Woo

In a cosmic coincidence, three comets will soon be approaching Earth—and astronomers want you to help study them. This global campaign, which will begin at the end of January when the first comet is bright enough, will enlist amateur astronomers to help researchers continuously monitor how the comets change over time and, ultimately, learn what these ancient ice chunks reveal about the origins of the solar system.

Over the last few years, spacecraft like NASA's Deep Impact/EPOXI or ESA's Rosetta (of which NASA played a part) discovered that comets are more dynamic than anyone realized. The missions found that dust and gas burst from a comet's nucleus every few days or weeks—fleeting phenomena that would have gone unnoticed if it weren't for the constant and nearby observations. But space missions are expensive, so for three upcoming cometary visits, researchers are instead recruiting the combined efforts of telescopes from around the world.

"This is a way that we hope can get the same sorts of observations: by harnessing the power of the masses from various amateurs," says Matthew Knight, an astronomer at the University of Maryland.

By observing the gas and dust in the coma (the comet's atmosphere of gas and dust), and tracking outbursts, amateurs will help professional researchers measure the properties of the comet's nucleus, such as its composition, rotation speed, and how well it holds together.

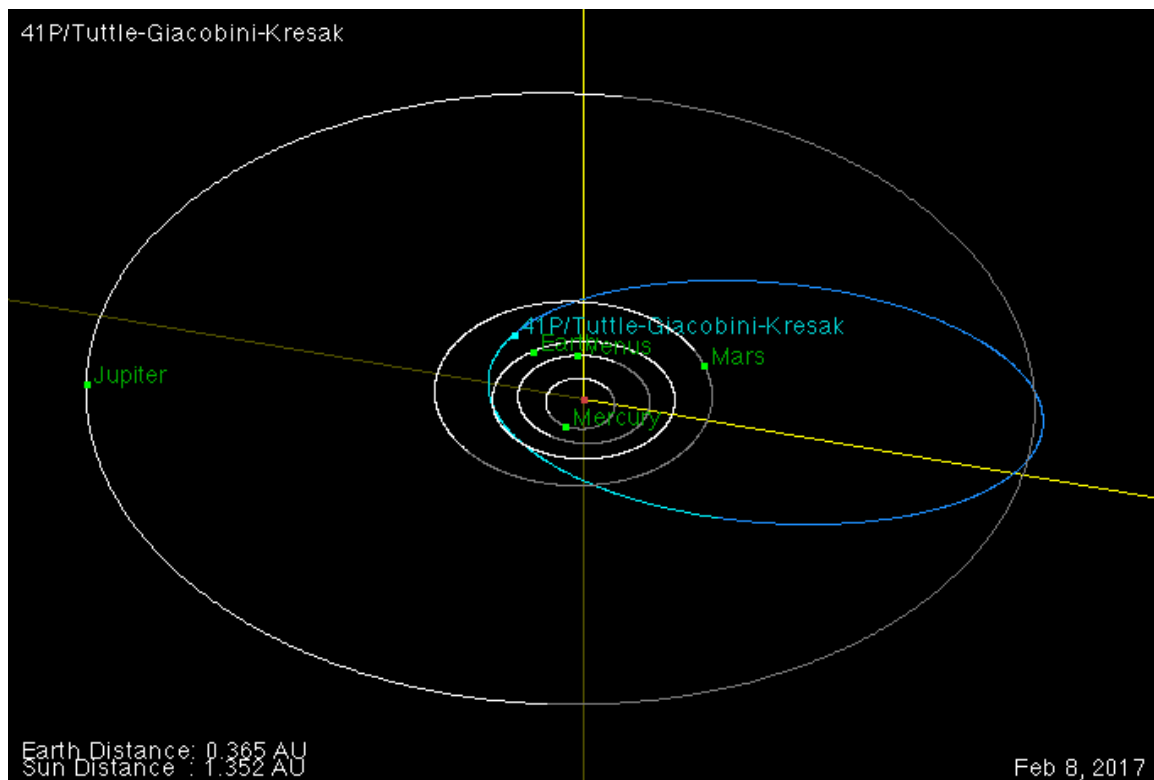
The observations may also help NASA scout out future destinations. The three targets are so-called Jupiter family comets, with relatively short periods just over five years—and orbits that are accessible to spacecraft. "The better understood a comet is," Knight says, "the better NASA can plan for a mission and figure out what the environment is going to be like, and what specifications the spacecraft will need to ensure that it will be successful."

The first comet to arrive is 41P/Tuttle-Giacobini-Kresak, whose prime window runs from the end of January to the end of July. Comet 45P/Honda-Mrkos-Pajdusakova will be most visible between mid-February and mid-March. The third target, comet 46P/Wirtanen won't arrive until 2018.

Still, the opportunity to observe three relatively bright comets within roughly 18 months is rare. "We're talking 20 or more years since we've had anything remotely resembling this," Knight says. "Telescope technology and our knowledge of comets are just totally different now than the last time any of these were good for observing."

For more information about how to participate in the campaign, visit <http://www.psi.edu/41P45P46P>.

Want to teach kids about the anatomy of a comet? Go to the NASA Space Place and use Comet on a Stick activity! <http://spaceplace.nasa.gov/comet-stick/>



An orbit diagram of comet 41P/Tuttle-Giacobini-Kresak on February 8, 2017—a day that falls during the comet's prime visibility window. The planets orbits are white curves and the comet's orbit is a blue curve. The brighter lines indicate the portion of the orbit that is above the ecliptic plane defined by Earth's orbital plane and the darker portions are below the ecliptic plane. This image was created with the Orbit Viewer applet, provided by the Osamu Ajiki (AstroArts) and modified by Ron Baalke (Solar System Dynamics group, JPL). <http://ssd.jpl.nasa.gov/sbdb.cgi?orb=1;sstr=41P>

WHERE WE MEET

JENKS HS PLANETARIUM



**Our Club General meetings are held at the
Jenks Public Schools Planetarium
105 East B St, Jenks, OK**

When you enter the building lobby, take the elevator to the 3rd floor.

Meetings begin at 7:00 PM

Printable Detailed map available at http://astrotulsa.com/cms_files/Directions_JenksPlanetarium.pdf

We hope to see you there!

MEMBERSHIP INFORMATION

ASTRONOMY CLUB OF TULSA OFFICERS:

PRESIDENT RICHARD BRADY

astrotulsa.pres@gmail.com

VICE PRESIDENT TAMARA GREEN

astrotulsa.vp@gmail.com

SECRETARY JOHN NEWTON

astrotulsa.sec@gmail.com

TREASURER TIM DAVIS

astrotulsa.tres@gmail.com

BOARD MEMBERS-AT-LARGE:

JOHN LAND

CHRISTOPHER PROCTOR

JAMES TAGGART

SKIP WHITEHURST

JAMES LILEY

TONY BLAKESLEY

JERRY CASSITY

TERESA DAVIS

STAFF:

NEWSLETTER EDITOR TAMARA GREEN

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 OWEN GREEN

darthnewo@yahoo.com

NIGHT SKY NETWORK RICHARD BRADY

astrotulsa.pres@gmail.com

FACILITIES MANAGER JAMES TAGGART

astrotulsa.obs@gmail.com

MEMBERSHIP RATES FOR 2017 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.

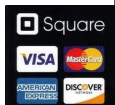
IF YOU ARE AN EXISTING S&T SUBSCRIBER, YOU CAN RENEW DIRECTLY WITH S&T AT THE SAME CLUB RATE. BOTH S&T AND ASTRONOMY NOW HAVE DIGITAL ISSUES FOR COMPUTERS, IPADS AND SMART PHONES.

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.

THE OBSERVER IS A PUBLICATION BY
THE ASTRONOMY CLUB OF TULSA. THE
ASTRONOMY CLUB OF TULSA IS A 501C
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 MEM-
BER.



Also find us on Facebook!



[https://www.facebook.com/
AstronomyClubofTulsa](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
THIS ISSUE:

MARCUS WOO
RICHARD BRADY
TIM DAVIS
TAMARA GREEN



Above photo: Orion, Hyades and Pleiades, taken in February 2014.

Below, The Big Dipper Tipped on its Handle, taken in February 2013.

Both photos by Tamara Green.