



Astronomy Club of Tulsa

Observer

July 2014



*Photo: Club Members and Guests at Tulsa Air and Space Museum for International SUNDay, by Tamara Green.*





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## JULY 2014

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		

## AUGUST 2014

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						

### UPCOMING EVENTS:

Independence Day	Fri, Jul 4		
Sidewalk Astronomy	Sat, Jul 12	Bass Pro	8:15 PM
Public Star Party	Fri, Jul 18	ACT Observatory	8:15 PM
Back-Up Night	Sat, Jul 19	ACT Observatory	8:15 PM
Members' Night	Fri, Jul 25	ACT Observatory	8:00 PM
Back-Up Night	Sat, Jul 26	ACT Observatory	8:00 PM
Sidewalk Astronomy	Sat, Aug 9	Bass Pro	8:00 PM
Public Star Party	Fri, Aug 15	ACT Observatory	7:45 PM
Back-Up Night	Sat, Aug 16	ACT Observatory	7:45 PM
Members' Night	Fri, Aug 22	ACT Observatory	7:30 PM
Back-Up Night	Sat, Aug 23	ACT Observatory	7:30 PM



# ***Astronomical League Conference***



*The Stars are Big and Bright, Deep in the Heart of Texas*

*July 10-12, 2014, Hilton San Antonio Airport Hotel*

*Register: <http://alcon2014.astroleague.com>*

## ***Why Attend ALCon?***

By John Goss

Vice President, Astronomical League

### **Meet and learn from the full range of your fellow astronomy enthusiasts, professional and amateur:**

At this year's Astronomical League Convention, July 10-12, in San Antonio TX, you will rub shoulders with, among others, research astronomers, authors, university professors, and amateurs from across the country, as well as officers of the Astronomical League and partnering organizations. You will listen to and speak with people well versed in imaging, outreach, equipment, club improvement, youth in astronomy, the art of observing, and the science of astronomy.

### **The Star BQ is a great time to learn, share and discover!**

Join us for our annual and popular Star-BQ on the evening of Thursday July 10. This relaxed and informal event will be held at the San Antonio Airport Hilton, the same venue as the ALCon talks. We are very fortunate to have as our guest speaker Dr. Mike Endl of the University of Texas, Austin. His research efforts have focused on the search for extra-solar planets, notably those that might possibly be part of the Alpha Centauri star system.

This is a great time to meet other ALCon participants including amateurs, professionals, speakers, and organizers. Learn about their observing interests, find out about their clubs and organizations and how they do things, share your experiences under the night sky. Discover how you can enhance your time under the starry sky. This is a great time to learn, share, and discover while having fun doing it!

### **Awards Banquet Keynote Presentation**

Space challenges our imaginations and beckons exploration. We are very fortunate to have a person who is an astronaut, explorer, inventor, and amateur astronomer as our ALCon 2014 Keynote Speaker, Dr. Don Pettit!

In his three space missions of exploration, he logged 370 days in Earth orbit and 13 hours of spacewalk. His accomplishments are many.

To name a few...

Arriving on the Shuttle Endeavor, he was a mission specialist aboard the International Space Station in 2002 and 2003. He conducted fun science demonstrations that he called *Saturday Morning Science*. One of them showed how fluids, such as water, behave in a low gravity environment.

Another, conducted on an extended mission aboard the ISS in late 2011, used figures from the game *Angry Birds* to illustrate the physics of motion in micro gravity.

One of his more serious science experiments investigated the clumping nature of solid particles less than 6 millimeters in diameter in a micro gravity environment. The results helped clarify the mechanisms, primarily electro-static, behind the beginnings of planet formation.

Dr. Pettit has occasionally assumed the role of inventor during "down time" from his NASA duties. Zero-G coffee cup? Barn door tracker for imaging city lights from the ISS? Don Pettit invented them in his spare time!

Before his last space mission, he explored Earth's south polar region collecting meteorite samples. During periods spent tent-bound due to inclement weather, he continued his *Saturday Morning Science* series, this time to investigate Antarctic ice. Along with conducting photographic surveys of glacial ice crystals, he found magnetic micrometeorites in ice melt used for cooking water.

Dr. Don Pettit: astronaut, explorer, inventor, amateur astronomer — and now ALCon 2014 Keynote Speaker.

## **ALCon 2014 Speaker List**

By Robert Reeves

Here are some of the speakers we will have for you at ALCon 2014 in San Antonio:

**Don Pettit:** astronaut, Saturday night keynote speaker, one-year resident of the ISS, amateur astronomer who gets to do astronomy from the space station. He will speak about science and life in space.

**Don Olson:** physics professor at Texas State University and author of Sky & Telescope's articles on astro-forensics and how astronomy has affected history. He will talk about his astro-sleuthing.

**Steve Ramsden:** coordinator of the Charlie Bates Solar Astronomy Project. Steve will talk about the sun and astronomy public outreach.

**Dr. Mike Endl:** Research Scientist, McDonald Observatory, University of Texas. Our Thursday night keynote speaker will discuss the search for extrasolar planets.

**Dr. Amanda Bayless:** Research Scientist from Southwest Research Institute, will talk about stellar binaries.

**Forrest M. Mims, III:** amateur scientist, magazine and newspaper science writer and columnist from San Antonio, will discuss Earth's atmosphere and how it affects astronomy.

**Erika Rix:** Author of two books on astronomical drawing (Springer) and Astronomy Magazine columnist and astronomical artist. She will speak about astronomy from an artist's perspective.

**Dave Moody:** Fellow of the Royal Astronomical Society. Dave will speak about the astronomical literary treasures at the FRAS library in England.

**Larry Mitchell:** Noted amateur from the Houston Astronomical Society, creator of the **Mitchell Anonymous Catalog** available in the databases in Willman-Bell's **MegaStar** high end expert astronomers' planetarium program. He will speak about deep sky wonders.

**Lonnie Wege:** Celestron regional sales representative. Lonnie will discuss how entry level astronomers can get the most bang for their buck.

**Mike Young:** from Southwest Research Institute, will talk about his adventures building instruments for the Juno and Pluto New Horizons missions.

**William Bucklew:** will talk about experiences at Lowell Observatory.

**Lauri Allai:** from Austin will talk about her astrophotography adventures with a Starizona HyperStar.

**Robert Reeves:** Noted astrophotographer and author from San Antonio will talk about observing and understanding the Moon.

**Mike Simmons:** will discuss *Astronomers without Borders*.

**Aaron Clevenson:** will discuss Supernova 2014J.

In addition to the above, there will be a number of speakers from the Association of Lunar and Planetary Observers.

**Don't forget to register for the 31st Annual Okie-Tex Star Party!**

**September 20-28, 2014**

**Camp Billy Joe, Kenton, OK**

**Offering the most wonderful dark skies you'll ever see!**

**Hosted by our friends, the Oklahoma City Astronomy Club**

**With wonderful food by Jody's Catering of Boise City, OK!**



**[www.okie-tex.com](http://www.okie-tex.com)**

**Pre-Registrations must be submitted by no later than September 1, 2014**

**Meal Registrations must be submitted no later than August 29, 2014**

**Both the Star Party registration and the meals registration forms are available on the  
website.**

**Make your registration today, and we hope to see you there!**

## Observatory Update

We recently got internet service at the observatory for free via a very nice donation from AirLink, [airlinkinternet.net](http://airlinkinternet.net). I have setup a wireless access point so any club members can use the connection. The name of the wifi is "ACT" and the password is "NGS549672" and it is using WPA2-Personal AES encryption. With this new resource we can now host experiments at the observatory and have the data posted to the internet. We can do an all-sky camera, weather station or anything else anyone can think up. I am hoping to have two servers setup onsite that club members can host apps on, one linux box and one Windows 2008 server. So if you have any ideas please send me an email and we will see what we can do about get it implemented. So fellow tinkers and hackers send in your ideas.

James Taggart  
Facility's Manager  
AstroTulsa.Obs@gmail.com



# Treasurer's and Membership Report

## By Tim Davis

**Astronomy Club of Tulsa: 132 members, including 34 new members in 2014.**

**Welcome to our new members this month:** Martey Quaye, Kelsey Coles, Colleen Thurston, Mary Fuhlhage, Jamei McCutchen, Kim and David Nichols, Mark Wilbur and Austin Rand.

**Club Accounts as of June 30, 2014:**

**Checking: \$ 4,827.93; Savings: \$ 2,769.49; Investment accounts: \$ 19,427.12 (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 now. 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 2014 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 \$ 34.00 for 1 year, or \$ 60.00 for 2 years.** [www.astronomy.com](http://www.astronomy.com)

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

**Sky & Telescope** is \$ 33.00 per year. [www.skyandtelescope.com](http://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 Secretary's Stuff

By Tamara Green

CONGRATULATIONS TO ANN BRUUN!



Please join me in congratulating Ann, who, after seven long years, has completed her HERSCHEL 400 CERTIFICATE REQUIREMENTS!!!!

She received her certificate and pin on June 27, 2014!



## NITELOG - Norway InTErurban Local Observing Group

by Tom Hoffelder

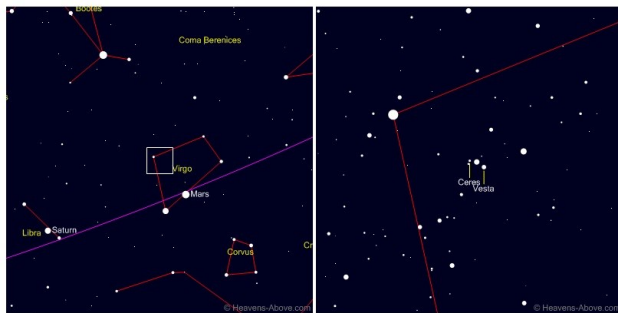
It's July! We (south central Maine) gain 1.5 hours of darkness over the 3.5 hours of last month! Time to observe!

**OBSERVING:** Nothing scheduled for the Twitchell Observatory, but there's always the possibility of an impromptu, even though recent attempts have not been very successful.

**COMETS:** Not listing anything this month. There are three relatively bright ones, but they are all twilight challenged and either have been better or will be better. There is a fourth one which may become relatively bright; if it does later in the month when the moon is out of the way, I will send a July supplement.

### Asteroid 1 Ceres

Year 2014 Month July Day 2 Time 21:30:00 Update Reset to now



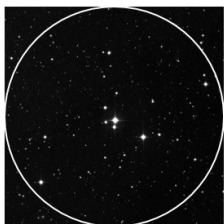
Coarse finder chart  
(Field of view=60°, Limiting magnitude=5)

Fine finder chart  
(Field of view=5°, Limiting magnitude=10)

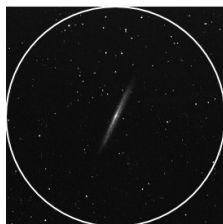
**ASTEROIDS:** During the first 10 days of July, Ceres and Vesta are separated by less than one degree. They are a mag or so dimmer than they were back in April when they were less than 3 degrees apart, they are lower in the sky and the moon will be a problem. But they are near Zeta Vir, so maybe a fun thing to try seeing them together in a low power field. The best option is probably checking your Heavens-Above page for the date and time you will be observing; an example of what you will see there is attached.

**PLANETS:** Not as good as last month, but it's still all Saturn. The ringed planet is on the meridian a half hour after sunset (which is about the time you'll be able to first see it) and 30 degrees high on the 1st, and 27 deg up in the SSW at month's end. The altitudes are for Maine so of course the farther south you are, the higher it will be.

**STARS:** The three carbon stars include the one that I believe to be the darkest red, T Lyrae. Six doubles are included, all of which should show obvious color differences, one triple and one quadruple.



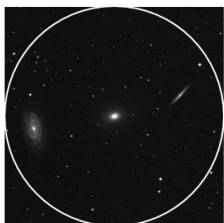
OΣ341 15' FOV



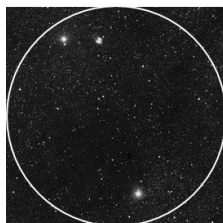
NGC 5907 30' FOV

**THE GOOD STUFF:** Mostly globulars, since we have now moved east of Virgo/Coma, but a few galaxy stragglers are left, one of which may be my favorite. There are 16 Messier Objects and 9 Herschel 400 Objects.

**QUESTIONS:** As always, questions and comments are welcome!



NGC 5985/82/81 20' FOV



NGC 6445/40 30' FOV

tom hoffelder  
[rocksnstars@gmail.com](mailto:rocksnstars@gmail.com)

*Come with me now, Pilgrim of the stars,  
For our time is upon us and our eyes  
Shall see the far country*

*And the shining cities of infinity ~ Robert Burnham, Jr.*

7/19 (7/20)				7/26 (7/27)				
SS	NTE	ATE	MR	SS	CTE	NTE	ATE	ATB
20:20	21:39	22:32	00:32	20:14	20:47	21:30	22:20	03:18

Object (Type)	RA	Dec	Star	N/S	E/W	Mag*/ (# of Stars)	Size (')/ Sep ('')	Spect/ M# or H#	Dist (ly)	Ura- no I Page	Comment, [B- V], {~crnt mag} (opt x)
V CrB (CS)	15 49.5	+39 34	$\beta$ Boo	0.8 S	9.3 E	7-12		N		79	[4.4] {10}
SU Sco (CS)	16	-32	$\epsilon$ Sco	1.9 N	2.0 W	8.0-		CII		375	[4.4] {???
T Lyr (CS)	18 32.3	+37 00	$\alpha$ Lyr	1.8 S	0.9 W	7.5- 9.3		C		117	[3.7] {9}
$\epsilon$ Boo (MS)	14	+27	-	-	-	2.5, 5	2.9	K0,	250	153	color (260)
$\Sigma$ 1916 (MS)	15 10	+38	$\beta$ Boo	1.3 S	1.5 E	7, 9.5	10			112	color (75)
$\alpha$ Her (MS)	17 14.6	+14 23	-	-	-	3, 5.5	4.6	M5, G5	360	202	color (165)
$\mu$ Her (MS)	17 46.5	+27 43	-	-	-	3.5, 9.5	34	G5		158	(25)
$\mu_b$ Her (MS)	-	-	-	-	-	10, 10	1	dM3		-	(700)
*O $\Sigma$ 341 (MS)	18 05 50	+21 27	PRV	6.2 S	4.5 E	7,9,9, 9	28,38 ,63			159 (ni)	(25)
39 Oph (MS)	17 18.0	-24 17	$\theta$ Oph	0.7 N	0.9 W	6, 7	11	K1, F6		337	color (70)
S694 (MS)	17 52	+01 05	$\beta$ Oph	3.5 S	2.2 E	6.5, 7	82	K2, A0		248 (ni)	color (10)
o Dra (MS)	18 51.2	+59 23	$\kappa$ Cyg	6.0 N	3.2 W	4.5, 7.5	34			54	color (25)
NGC 5866	15	+55	$\iota$ Dra	3.1 S	2.5 W	[13.0]	6.5X3	M102	43M	50	*H215-1
NGC 5904 (GC)	15 18.6	+02 05	$\alpha$ Ser	4.3 S	6.4 W	5.7	23	M5	24K	244	
*NGC 5907 (Sc)	15 15.9	+56 20	$\iota$ Dra	2.6 S	1.2 W	[13.4]	12X1. 4	*H759 -2	50M	50	
*NGC 5982 (E3)	15 38.7	+59 21	$\iota$ Dra	0.3 N	1.7 E	[12.8]	2.6X1 .9	*H764 -2	130M	51	GX *5981 0.1 W
*NGC 5985 (SBb)	15 39.6	+59 20	PRV	-	0.1 E	[14.0]	5.5X3 .0	H766- 2	130M	51	
NGC 6121	16	-26	$\alpha$ Sco	0.1 S	1.3 W	5.4	36	M4	7.2K	336	

NGC 6093 (GC)	16 17.0	-22 58	PRV	3.5 N	1.5 W	7.3	10	M80	33K	336	
NGC 6171 (GC)	16 32.5	-13 03	ζ	2.5 S	1.2 W	7.8	13	M107	21K	291	*H40-6
NGC 6205	16	+36	η Her	2.5 S	0.2 W	5.8	20	M13	22K	114	GX 6207 0.5
NGC 6218 (GC)	16 47.2	-01 57	δ	1.7 N	8.2 E	6.1	16	M12	16K	246	
NGC 6254 (GC)	16 57.1	-04 06	PRV	2.2 S	2.3 E	6.6	20	M10	14K	247	
NGC 6266 (GC)	17 01.2	-30 07	τ Sco	1.9 S	5.5 E	6.4	15	M62	22K	375	
NGC 6273 (GC)	17 02.6	-26 16	α Sco	0.2 N	7.5 E	6.8	17	M19	29K	337	
NGC 6235	16	-22	PRV	4.1 N	2.1 W	8.9	5.0	*H584	51K	337	
NGC 6333 (GC)	17 19.2	-18 31	η Oph	2.8 S	1.2 E	7.8	12	M9	26K	337	
NGC 6341 (GC)	17 17.1	+43 08	π Her	6.3 N	0.4 E	6.5	14	M92	27K	81	
NGC 6402 (GC)	17 37.6	-03 15	β Oph	7.8 S	1.5 W	7.6	11	M14	30K	248	
NGC 6426 (GC)	17 44.9	+03 10	β Oph	1.4 S	0.4 E	10.9	4.2	*H587 -2	80K	248	
NGC 6475 (OC)	17 53.8	-34 48	G Sco	2.3 N	0.8 E	3.3	75	M7	980	377	
NGC 6405 (OC)	17 40.3	-32 15	PRV	2.5 N	3.0 W	4.2	33	M6	1600	377	
NGC 6494 (OC)	17 57.1	-18 59	μ Sgr	2.0 N	4.0 W	5.5	25	M23	2150	339	
*NGC 6440 (GC)	17 48.9	-20 22	PRV	1.4 S	1.9 W	9.3	4.4	*H150 -1	15K	339	
*NGC 6445 (PN)	17 49.3	-20 01	PRV	0.3 N	0.1 E	11.2	0.7	*H586 -2	13K	339	

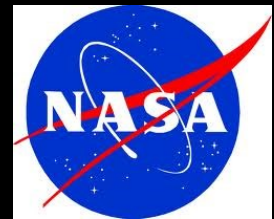
\*DSS image

\*[Surf  
Brtnss  
for  
GX's]  
-  
mag  
per  
squar  
e  
arcmi  
n

\*H400

ni=shown,

not identified



And For The Young Stargazers:

Check out these fun websites from NASA!

<http://climate.nasa.gov/kids>

<http://scijinks.gov>

<http://spaceplace.nasa.gov>



## Where And When We Meet:

Date and Location for next General Meeting To Be Announced.

Check our website, [www.astrotulsa.com](http://www.astrotulsa.com) or our Facebook page, [https://www.facebook.com/AstronomyClubofTulsa?ref\\_type=bookmark](https://www.facebook.com/AstronomyClubofTulsa?ref_type=bookmark) for details.

The General Meetings are free and open to the public.

We hope to see you there!



## CLUB OFFICERS

President	Mandy Nothnagel	act_pres@astrotulsa.com
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Facilities Manager	James Taggart	AstroTulsa.Obs@gmail.com

## MEMBERSHIP INFORMATION

### MEMBERSHIP RATES FOR 2014 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.*

### MAGAZINES:

Astronomy is \$34 for one year or \$60 for 2 years.

[www.astronomy.com](http://www.astronomy.com)

Sky & Telescope is \$33 per year.

[www.skyandtelescope.com](http://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>



# Astronomy Club of Tulsa





*Wishing You and Yours a Safe and Happy 4th of July Weekend!*







Photo: Parade of The Stars of the Summer Milky Way,, by Tamara Green.

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

OPEN TO THE PUBLIC

For more information please visit [www.astrotulsa.com](http://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](http://www.astrotulsa.com) where you will find all the information necessary to become a member.

