



Astronomy Club of Tulsa

Observer

January 2014



Photo: Work in Progress at the Observatory, January 2014, by Tamara Green.

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 re-printing. Thank you very much for your cooperation. Please enjoy this edition of the Observer.



INSIDE THIS EDITION:

ITEM	PAGE
“Telescopes 101” Event Announcement	3
Calendar and Upcoming Events	4
<i>President’s Message</i> , by Mandy Nothnagel	5
<i>Treasurer’s and Membership Report</i> , by Tim Davis	6
<i>The Secretary’s Stuff</i> , by Tamara Green	7
<i>A Word on the Astronomical League Observing Programs</i> , by Richard Brady	9
<i>NITELOG</i> , by Tom Hoffelder	11
NASA’S “ <i>The Space Place</i> ” Newsletter	19
Where We Meet	22
Officers, Board, Staff and Membership Info	23

Telescope workshop 101 - Saturday Jan. 11 from 2:00 to 4:00 PM

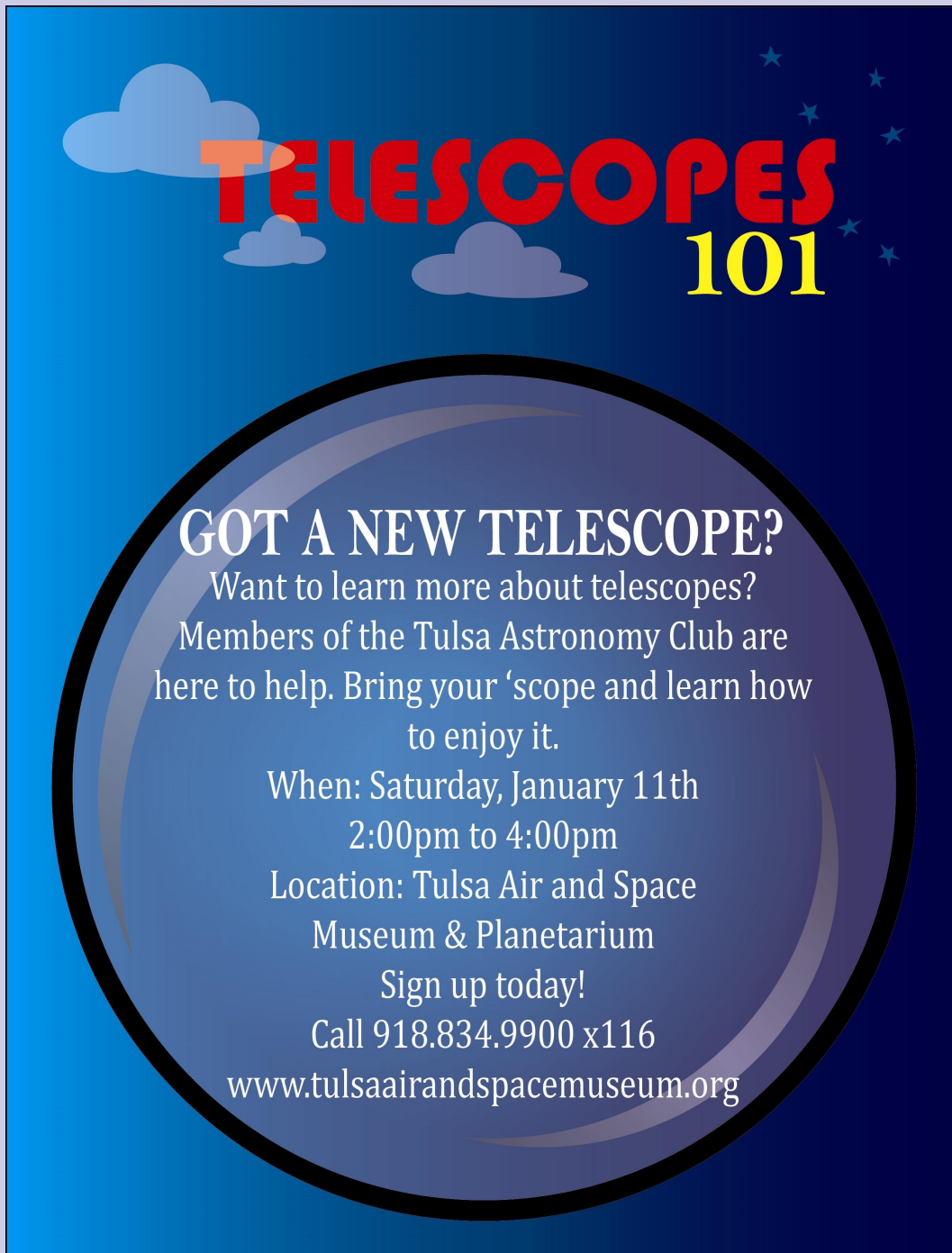
So you got a telescope for Christmas, now what? Tulsa Air & Space Museum (TASM) is here to help!

Bring your telescopes to the planetarium on Saturday - January 11 from 2 to 4 pm.

Volunteers from the Astronomy Club of Tulsa will be available for hands-on instruction and help with your telescope. Get started with the astronomy “bug” for a fun and exciting hobby. This is a Telescope 101 class for first time users and those who need to be reacquainted with the scope that’s been hiding in the closet.

Call 918-834-9900 Ext 116 to enroll.

Details at <http://www.tulsaairandspacemuseum.org/index.php>

A vertical poster with a blue-to-dark-blue gradient background. At the top, there are stylized white clouds on the left and several small white stars on the right. The word "TELESCOPES" is written in large, bold, red capital letters, and "101" is written in large, bold, yellow capital letters below it. In the center, a large, dark blue circle with a black border contains white text. The text inside the circle reads: "GOT A NEW TELESCOPE? Want to learn more about telescopes? Members of the Tulsa Astronomy Club are here to help. Bring your 'scope and learn how to enjoy it. When: Saturday, January 11th 2:00pm to 4:00pm Location: Tulsa Air and Space Museum & Planetarium Sign up today! Call 918.834.9900 x116 www.tulsaairandspacemuseum.org".

TELESCOPES
101

GOT A NEW TELESCOPE?
Want to learn more about telescopes?
Members of the Tulsa Astronomy Club are here to help. Bring your 'scope and learn how to enjoy it.

When: Saturday, January 11th
2:00pm to 4:00pm
Location: Tulsa Air and Space
Museum & Planetarium
Sign up today!
Call 918.834.9900 x116
www.tulsaairandspacemuseum.org

JANUARY 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	

FEBRUARY 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	

UPCOMING EVENTS:

New Year's Day	Wed, Jan 1		
Members' Night	Fri, Jan 3	ACT Observatory	7:00 PM
Club Work Day	Sat, Jan 4	ACT Observatory	TBA
Back-Up Night	Sat, Jan 4	ACT Observatory	7:00 PM
Telescopes 101	Sat, Jan 11	TASM	2:00 PM
General Meeting	Fri, Jan 17	TCC NE Campus	7:00 PM
Sidewalk Astronomy	Sat, Jan 18	Bass Pro	6:00 PM
Public Star Party	Fri, Jan 24	ACT Observatory	7:00 PM
Back-Up Night	Sat, Jan 25	ACT Observatory	7:00 PM
Members' Night	Fri, Jan 31	ACT Observatory	7:00 PM
Back-Up Night	Sat, Feb 1	ACT Observatory	7:00 PM
General Meeting	Fri, Feb 7	TCC NE Campus	7:00 PM
Valentine's Day	Fri, Feb 14		
Sidewalk Astronomy	Sat, Feb 15	Bass Pro	6:00 PM
Public Star Party	Fri, Feb 21	ACT Observatory	7:00 PM
Back-Up Night	Sat, Feb 22	ACT Observatory	7:00 PM
Members' Night	Fri, Feb 28	ACT Observatory	7:00 PM



President's Message

By Mandy Nothnagel

So far, we have had a fantastic start to 2014!

This last weekend, Saturday, January 4th, we had about 10+ volunteers out for a successful Observatory Appreciation Day. We rearranged the classroom so that we have a lot more room for our guests, gave it a good cleaning, did some organizing, fixed the gate inside the dome, cut and removed some fallen limbs, and fixed the toilet, among other things. We also discussed some future projects that are also needed, such as repairing the dome itself, and ate some delicious chili and mac 'n cheese. I want to sincerely thank everyone who came out and volunteered their time and energy to help the Club. Without you, it would fall apart (quite literally)!

We have some exciting events coming up this month. First, the Telescope 101 event at the Tulsa Air and Space Museum on January 11th, followed by our General Meeting on the 17th, and Sidewalk Astronomy on the 18th. Of course, Public Night is our biggest event each month and we are looking forward to it on the 24th as well.

The Telescope 101 event is an annual event that allows the public to come and learn about telescopes, the club, and about Astronomy. It is geared toward those that have recently acquired a 'scope and those that are on the market to purchase one. Those who already have one can bring it and we will personally show them how to use it and those who don't yet have one can learn which one will be best for their needs. We will have many knowledgeable members to demonstrate how to operate the telescopes and how to find exactly what they're looking for in the sky. Tamara will be giving a short presentation on Telescopes around 2:15 so make sure you get there on time so you don't miss it! I am really looking forward to this event- we had a good turnout last year and I'm hoping that our use of social media will increase the turnout this year. Please see page 3 for additional information about Telescopes 101.

We have had quite a few new members in the last few months and I believe I can speak for everyone in the club when I say that we are very happy to have you and hope to see you at some of our events this month and in months to come! Please remember that the Club has so many knowledgeable, helpful members that will be happy to answer any questions you may have and show you the ropes! All you have to do is ask!

If you would be interested in volunteering at any of our events, please let me know. Whether you think you're an expert or you're new to Astronomy, we could use your help! Volunteering is the best way to learn, meet new people, practice your observing, and to share your passion and knowledge about Astronomy. It gives you that nice, fuzzy feeling, too! :)

I am so proud of the great group of people that we have in our club. I want to thank everyone for being so helpful and supportive of me as well as for each other. We make a great team and I am looking forward to a 2014 full of clear, dark skies with bright stars and perfect weather. Maybe we'll get lucky and see a supernova again this year! I'm crossing my fingers!

Happy New Year and Clear Skies,

Mandy Nothnagel
Astronomy Club of Tulsa
President & Group Coordinator
ACT_Pres@AstroTulsa.com



The Secretary's Stuff

By Tamara Green

Hello All!

There was no General Meeting last month, due to it being cancelled due to the bad weather. So, for your enjoyment, here are some pictures I took of our Observatory Appreciation/Work Day that took place on Jan. 4.





A Word on the Astronomical League Observing Programs

by Richard Brady

Happy New Year everyone. I hope everyone had a Merry Christmas and got lots of goodies from Santa. Any new telescopes or other astronomical goodies under your tree? Let us know. You might even bring them to the club meeting for a little bit of show 'n' tell.

I didn't receive any suggestions to write about this month. I don't know if everyone was too busy getting ready for the holidays, or the contact page on the website isn't working, or what. So let's try this. If you have some ideas for a topic, email them directly to me at act_vp@astrotulsa.com, or just tell me about them at the next club event. Otherwise I'll have to come up with something for next month too.

Since I didn't get any suggestions, I decide to write about the Astronomical League and it's Observing Programs. The ACT is a member organization of the League. As such, we are all members and can participate in the various activities of the League. Everyone should receive the "Reflector" newsletter from the League every quarter. The December issue came out a couple of weeks ago. (If you didn't get it, let an officer know and we will be sure you are on the mailing list.) it is also on the League's website, astroleague.org, and can be downloaded.

One of the activities from the League is the Observing Programs. You can see all of the programs with descriptions at the League's website under the "Observe" tab. There are programs for beginner, intermediate, and advanced observers, using telescopes, binoculars, and the naked eye. I've created a table below listing them by type. Looking at the list, there are 11 programs for beginners where you only need your eyes, 12 beginning programs needing binoculars, and 13 for beginners that require a telescope. There are also 14 programs at the intermediate level (2 for naked eye, 3 for binoculars, and 9 for telescopes) and 7 for the advanced programs (all needing a telescope.)

In the past couple of years the number of our members completing these programs has been going down. We need to change this trend and get more of us out there observing! Within our club there is a wide range of interests in what each of us likes to observe, along with a wide range of experience observing different things.

One suggestion I have is to find out what everyone is interested in viewing. Perhaps at the next club meeting we can discuss this and each of us can find other members who want to view the same things. Even if you don't want to work towards completing all the requirements for a specific AL Observing Program, you can still get out and look at our wonderful universe. And share it with your fellow members and friends in the ACT.

If you already are working on one (or more) of the programs, maybe you could share your experiences at one of our club meetings. Our Observing Co-Chairs are Owen & Tamara Green. If you have completed any recently, be sure to let them know so you can receive the recognition you deserve from both your friends here in the ACT and the Astronomical League.

Let's get together and have fun enjoying our hobby with our friends here in the club.

Clear skies!
Richard

	Beginner	Intermediate	Advanced
Naked Eye	Analemma Asterisms Comet Observer Constellation Hunter Galileo Meteor Sky Puppy Stellar Evolution Universe Sampler Variable Star	Earth Orbiting Satellite Solar System Observers	
Binocular	Asterisms Binocular Double Star Binocular Messier Bright Nebula Carbon Star Comet Observers Dark Nebulae Deep Sky Binocular Galileo Occultation Stellar Evolution Variable Stars	Asteroid Observing Earth Orbiting Satellite Observing Solar System Observers	
Telescope	Asterisms Bright Nebula Carbon Star Comet Observers Dark Nebulae Double Star Hydrogen Alpha Solar Lunar Messier Occultation Stellar Evolution Universe Sampler Variable Stars	Asteroid Observing Caldwell Globular Cluster Herschel 400 Lunar II NEO Solar System Observers Sunspotters Urban Observing	ARP Peculiar Galaxies Flat Galaxy Galaxy Groups & Clusters Herschel II Local Galaxy Group and Neighborhood Open Cluster Planetary Nebula

Other Awards

Beginner - Dark Sky Advocate Award

Intermediate - Outreach Award

Advanced - Master Observer Award

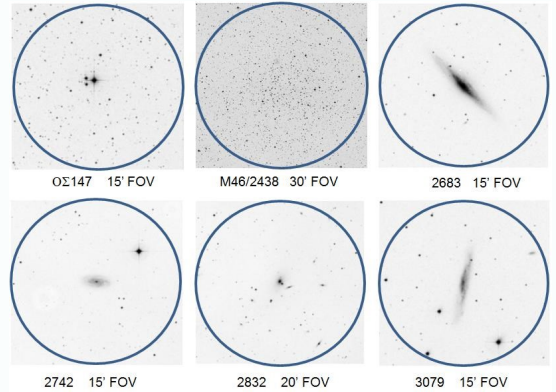
NITELOG - Norway InTErurban Local Observing Group

by Tom Hoffelder

Wow, 2014, so I guess our little blue marble made it around our star yet once again - Happy New Year! And yes, the objects are still running ahead of the evening sky, but I did some checking and that will get corrected once we hit Virgo, as I expected. However, some of the extended objects are high enough to observe by 9 and all the stars can be observed by 7. Plus there is always last month's list!

OBSERVING: Is very iffy for the Norway/South Paris area, the Twitchell Observatory being currently snowed/iced in. It's possible the road will be cleared for the regularly scheduled open house, which would be Monday the 6th, but do not go unless you see an email stating it is actually happening. An impromptu night or two may be added later in the month, once the moon is out of the way.

MOON: This is my kind of month: there are two new moons! A second full moon has a name, but I'm not aware of any for a new moon. I'd call it a super moon, but that name has been applied to something else, something that has no real significance except to the sensationalistic news media. Anyway, the situation allows for three weekends with little interference from the largest source of natural light pollution, as indicated by the sunset info at the top of the objects listing. On the evening of the 2nd when the moon is less than 2 days old, it will be a few degrees above Venus, so look soon after sunset to see!



COMETS: Well, as you know, the ISON hype turned out to be even more different from reality than we realists expected. However, I did see a few articles that warned of exactly what happened, but they were very few, and the warning was buried deep. And suddenly we are back to comet normalcy, more or less, with only two at or brighter than 10th mag. The info for Lovejoy and LINEAR (12X1) are on a separate sheet, as last month; unlike last month the data is complete. At the end of the month they get within less than 4 degrees of each other, but since 12X1 is probably less than 10th mag by then, it isn't very exciting, unless maybe you could sweep from Lovejoy to it, which would be a little less than normal for comets. Therefore that sweep option is listed the last three dates.

PLANETS: Venus is very low in the southwest early in the month. With inferior conjunction on Jan 11th, the crescent continues to wane and is incredibly slim, only a few percent. That's a beautiful sight in any scope - check it out if you can find it before it sets soon after the sun! Jupiter in Gemini has risen high enough in the east for observation starting around 6, so is pretty much in the sky all night, all month. Red spot and shadow transits attached.

STARS: Four carbons with B-Vs around 3.5, which means they SHOULD be very red. All carbon stars are variable, so I have always listed the magnitude range. Note the current approx magnitude based on AAVSO data has been added to the last column. Five doubles and one triple are included; and third times a charm so 40b Eri is there again, because I want you to see the red and white dwarfs together. Also someone recently pointed out that 40 Eri is the location of Spock's Vulcan! All the doubles with spectral classes listed should show notable color difference, based on the classes. And the triple is included in the photos, to show its symmetry since most triples are not symmetrical at all.

THE GOOD STUFF: Eight Messier (6 OC's and 2 well known GX's) and 15 Herschel 400 (5 OC's, 1 PN and 9 GX's) objects, two of which double as M's. You get to see an H400 object in front of an M, plus there is a bunch of little fuzzies in a 20' field of view seen with 300 million year old photons! And interesting how the first nine objects happened to have a negative Dec while the rest are positive.

Supernovae: Nothing currently above 14th mag, my cut off, and there hasn't been for awhile. I'm thinking of making supernova a separate mailing, only whenever there is one that reaches 14th or brighter. I know not everyone is interested in getting that, so all of you who are, please let me know so I can create a distribution list.

Back to comets for a moment, this very cool poem was provided by a friend (obviously somewhere near Muncie IN!) of a NITELOG friend; I'm sure you'll recognize the parody. Also attached, in case there are those who look only there.

Regret for ISON, by Holli Jones

The buildup was momentous; the tabloids in rare form:
The comet of the century would grace our early morn.
Two comets whirl about the sun, with tails long and light -
but there's naught to see in Muncie, for its a cloudy night.

And yet, and yet there still is hope, the experts did proclaim.
For ISON would go round the Sun, and might come out again.
And now the comet nears the Sun, and now it goes behind:
And now, alas no more its seen: our Sun on ISON dined.

Somewhere around some distant star, two comets grace the skies
And silvery beings by foamy seas look up with alien eyes.
But - the Battle of Fire and ISON was but a sorry rout.
There is no joy on Terra; mighty ISON has flamed out.

QUESTIONS: As always, questions and comments are welcome!

tom hoffelder
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.*

Regret for ISON, by Holli Jones

The buildup was momentous; the tabloids in rare form:
The comet of the century would grace our early morn.
Two comets whirl about the sun, with tails long and light -
But there's naught to see in Muncie, for it's a cloudy night.

And yet, and yet there still is hope, the experts did proclaim.
For ISON would go round the Sun, and might come out again.
And now the comet nears the Sun, and now it goes behind:
And now, alas no more it's seen: our Sun on ISON dined.

Somewhere around some distant star, two comets grace the skies
And silvery beings by foamy seas look up with alien eyes.
But- the Battle of Fire and ISON was but a sorry rout.
There is no joy on Terra; mighty ISON has flamed out.

1/3		1/24 (1/25)			1/31				
SS	NTE	MS	SS	NTE	MR	SS	NTE	ATE	MS
16:16	17:25	19:29	16:41	17:48	01:34	16:51	17:56	18:30	18:16

Object (Type)	RA	Dec	Star	N/S	E/W	Mag*/(#)	Size (")	Spect/	Dist (ly)	Urano I	Comment, [B-V],
R Lep (CS)	04 59.6	-14 48	μ Lep	1.4 N	3.2 W	5.9-11...		C		269	[3.5] {~7}
W Ori (CS)	05 05.4	+01 11	π^5 Ori	1.2 S	2.8 E	6.5-10...		C		224	[3.6] {~6}
V431 Ori (CS)	05 16.0	+11 59	λ Ori	2.0 N	4.7 W	9.3-11.1		C		180	[3.6] {~10}
Y Tau (CS)	05 45.7	+20 42	ζ Tau	0.4 S	1.9 E	7.1-9.5		C		136	[3.4] {~7.5}
40 Eri (σ^2) (MS)	04 15.3	-07 39	γ Eri	5.8 N	4.2 E	4.5, 9.5	83	K1	16	268	(6)
40b Eri (MS)	---	---	---	---	---	9.5, 11	7.6	dA, dM4	16	268	(65)
β 87 (MS)	04 22.4	+20 49	κ Tau	1.5 S	0.6 W	6, 9	2.0	gM0, A0		133 (ni)	(375)
ω Aur (MS)	04 59.3	+37 53	ι Aur	4.7 N	0.4 E	5, 8	5.4			97	(140)
Σ 644 (MS)	05 10.3	+37 18	prev	0.6 S	2.2 E	6.5, 7	1.5	B2, K3		97 (ni)	(500)
O Σ 147* (MS)	06 34.3	+38 05	θ Aur	0.9 N	6.8 E	7, 8, 5, 9, 5	43, 46			99 (ni)	(20)
NGC 2421 (OC)	07 36.2	-20 37	ξ Pup	4.2 N	3.1 W	(50)	8.0	*H67-7	3100	319	
NGC 2423 (OC)	07 37.1	-13 52	α Mon	4.3 S	1.0 W	(60)	12	*H28-7	5900	274	
NGC 2422 (OC)	07 36.6	-14 29	prev	0.6 S	0.1 W	(50)	25	M47	3750	274	
NGC 2437* (OC)	07 41.8	-14 49	prev	0.5 S	1.2 E	(150)	20	M46	5900	274	
NGC 2438 (PN)	07 41.8	-14 44	prev	0.1 N	---	10.8	1.2	*H39-4	5400	274	"In" M46

NGC 2447 (OC)	07 44.5	-23 51	ξ Pup	1.0 N	1.1 W	(60)	10	M93	3600	320	
NGC 2548 (OC)	08 13.7	-05 45	ζ Mon	2.8 S	1.6 E	(80)	30	M48	3100	230	also *H22-6
NGC 2571 (OC)	08 18.9	-29 45	ρ Pup	5.5 S	2.5 E	(25)	7.0	*H39-6	3100	362	
NGC 2567 (OC)	08 18.5	-30 38	prev	0.1 W	0.9 S	(50)	11	*H64-7	4100	362	
NGC 2632 (OC)	08 40.4	+19 40	γ Cnc	1.5 S	0.8 W	(75)	70	M44	500	141	Beehive
NGC 2655 (SB0-a)	08 55.6	+78 13	d Uma	8.4 N	1.7 W	[13.2]	4.9X4.1	*H288-1	78M	7	
NGC 2681 (SB0-a)	08 53.5	+51 19	f Uma	0.3 S	2.4 W	[12.7]	3.6X3.3	*H242-1	43M	44	13m GX 2693 0.5 E
NGC 2682 (OC)	08 51.3	+11 48	α Cnc	0.1 S	1.8 W	(65)	25	M67	2700	187	
NGC 2683* (Sb)	08 52.7	+33 25	ι Cnc	4.5 N	1.2 E	[12.8]	9.3X2.1	*H200-1	32M	102	
NGC 2742* (Sc)	09 07.6	+60 29	ο Uma	0.2 S	4.6 E	[12.9]	3.0X1.5	*H249-1	75M	44	
NGC 2768 (E6)	09 11.6	+60 02	prev	0.5 S	0.5 E	[13.2]	6.4X3.0	*H250-1	65M	44	
NGC 2775 (Sab)	09 10.3	+07 02	ζ Hya	1.1 N	3.8 E	[13.1]	4.3X3.3	*H2-1	65M	187	
NGC 2832* (E2)	09 19.8	+33 45	α Lyn	0.7 S	0.2 W	[13.8]	3.0X2.0	---	300M	103	+ 8
NGC 3034 (Sd)	09 55.9	+69 41	d Uma	0.1 S	1.9 E	[12.7]	11X4.3	M82	12M	23	also *H79-4
NGC 3031 (Sb)	09 55.6	+69 04	prev	0.7 S	0.1 W	[13.0]	25X11	M81	12M	23	
NGC 3077 (Sd)	10 03.3	+68 44	prev	0.3 S	0.8 E	[13.3]	5.2X4.7	*H286-1	12M	23	
NGC 3079* (SBc)	10 02.0	+55 41	υ Uma	3.3 S	1.6 E	[13.2]	8x1.3	*H47-5	62M	45	3073 0.2 W

*[Surf
Brtnss
for GX's]

*DSS image

*H400

ni=shown but

* current for CS

mag per
square
arcmin

not
identi-
fied

JUPITER IN JAN 2014 (EST)

DATE	GRST*	I SHAD	E SHAD	G SHAD	C SHAD
1	23:16		16:21-19:02		
2	19:07				
3	05:03	03:44- 05:59			16:04-19:26
4	00:54 & 20:45	22:12-		01:12-04:22	
5		00:28			
6	02:32 & 22:23	16:41- 18:56			
7	18:14				
8	04:10		18:57-21:39		
9	00:01 & 19:52				
10					
11	01:39 & 21:30				
12		00:07- 02:22			
13	03:17 & 23:08	18:35- 20:51			
14	18:59				
15	04:55		21:34-		

16	00:46 & 20:37		00:16		
17					
18	02:24 & 22:15				
19	18:07	02:01-04:17			
20	04:02 & 23:54	20:30-22:45			
21	19:45				
22					
23	01:32 & 21:23		00:10-02:52		
24					
25	03:10 & 23:01				
26	18:52	03:56-06:11			
27	04:48	22:24-			
28	00:39 & 20:30	00:40			
29		16:53-19:09			
30	02:17 & 22:08		02:46-05:28		
31	18:00				

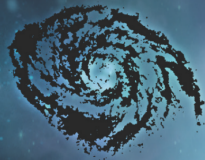
*Transit, visible +/- 50 min

Comet	RA	Dec	Star	N/S	E/W	Mag ¹	Urano I	Alt ²	Date	EST
Lovejoy 2013R1	17 29.2	+20 02	δ Her	4.8 S	3.3 E	5.8	158	25	1/1	05:30
LINEAR 2012X1	16 30.1	+11 01	29 Her	0.5 S	0.7 W	9.5	201	29	1/1	
Lovejoy 2013R1	17 31.1	+19 33	δ Her	5.3 S	3.8 E		158	25	1/2	
LINEAR 2012X1	16 33.1	+10 49	29 Her	0.7 S	0.1 E		201	29	1/2	
Lovejoy 2013R1	17 33.0	+19 04	δ Her	5.8 S	4.3 E		158	25	1/3	
LINEAR 2012X1	16 36.2	+10 37	29 Her	0.9 S	0.9 E		201	29	1/3	
Lovejoy 2013R1	17 34.8	+18 35	δ Her	6.3 S	4.8 E		158	25	1/4	
LINEAR 2012X1	16 39.2	+10 25	29 Her	1.1 S	1.7 E		201	29	1/4	
Lovejoy 2013R1	17 38.3	+17 39	α Oph	5.0 N	0.8 E		203	25	1/6	
LINEAR 2012X1	16 45.3	+10 01	ι Oph	0.2 S	2.2 W		202	29	1/6	
Lovejoy 2013R1	17 41.6	+16 45	α Oph	4.1 N	1.6 E		203	25	1/8	
LINEAR 2012X1	16 51.4	+09 37	ι Oph	0.6 S	0.6 W		202	29	1/8	
Lovejoy 2013R1	17 44.7	+15 52	α Oph	3.2 N	2.3 E		203	26	1/10	
LINEAR 2012X1	16 57.5	+09 13	κ Oph	0.2 S	-		202	29	1/10	
Lovejoy 2013R1	17 47.7	+15 01	α Oph	2.4 N	3.0 E	6.8	203	26	1/12	
LINEAR 2012X1	17 03.6	+08 50	κ Oph	0.6 S	1.3 E	10	202	29	1/12	

Lovejoy 2013R1	18 07.9	+09 04	72 Oph	0.5 S	0.2 E		204	29	1/28
LINEAR 2012X1	17 51.3	+05 47	γ Oph	3.1 N	0.8 E		249	30	1/28
Lovejoy 2013R1	18 09.0	+08 45	72 Oph	0.8 S	0.5 E		204	30	1/29
LINEAR 2012X1	17 54.3	+05 36	γ Oph	2.9 N	1.5 E		249	30	1/29
Lovejoy 2013R1	18 10.0	+08 25	72 Oph	1.1 S	0.8 E		204	30	1/30
LINEAR 2012X1	17 57.2	+05 25	prev	3.0 S	3.2 W		204	30	1/30
LINEAR 2012X1	17 57.2	+05 25	γ Oph	2.7 N	2.2 E		249	30	1/30
Lovejoy 2013R1	18 11.1	+08 06	72 Oph	1.4 S	1.1 E		204	30	1/31
LINEAR 2012X1	18 00.1	+05 15	prev	2.9 S	2.7 W		204	30	1/31
LINEAR 2012X1	18 00.1	+05 15	67 Oph	2.3 N	0.2 W		249	30	1/31
Lovejoy 2013R1	18 12.1	+07 48	72 Oph	1.7 S	1.4 E	8.3	204	30	2/1
LINEAR 2012X1	18 03.0	+05 04	prev	2.7 S	2.3 W	10.5	204	30	2/1
LINEAR 2012X1	18 03.0	+05 04	67 Oph	2.1 N	0.5 E	10.5	249	30	2/1

¹<http://www.aerith.net/comet/future-n.html>

²Maine, at time noted



the Space Place

January – February 2014 / Vol. 7, Issue 1

NEWS AND NOTES FOR FORMAL AND INFORMAL EDUCATORS

The 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!

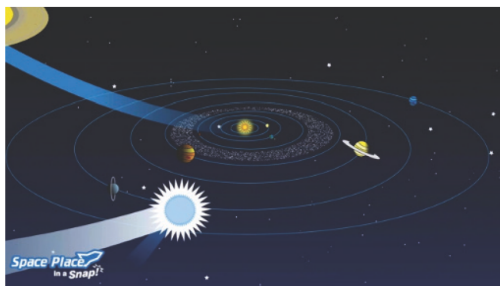
It's informal.
It's meaty.
It's easy to read and understand.
It's also in Spanish.
And it's free!

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.

NASA's Space Place doesn't just bring you great educational material across a wide range of topics; it also presents that material in many different formats. From games and activities to articles and illustrations, we make it easy for students to learn in whatever format suits them best. This philosophy is the driving force behind our latest product—Space Place in a Snap. These pages combine animated videos with posters and reading material for a cross-disciplinary learning experience.

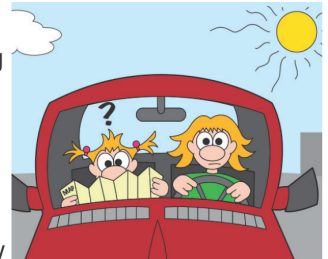
What's New? Space Place in a Snap!

Space Place is pleased to announce an entirely new and totally exciting product—Space Place in a Snap! These short animations provide quick narrated explanations of some of the most interesting science questions by taking you on a guided tour of an infographic. The best part: You can download a poster of the infographic after you watch the animation. We have already released our first "Snap"—How did our Solar System Come to Be? Check it out at <http://spaceplace.nasa.gov/solar-system-formation>. Stay tuned for more "Snaps" in the very near future!



Space Place en Español: Loopy Legends

Why limit yourself to telling stories in only one language? Our popular mad-libs-style activity, "Loopy Legends," is now available in both



English and Spanish. Kids get to create their own zany adventures in this web activity. You might find yourself traveling toward the center of a black hole. Or maybe you'll become lost because an angry sun's space weather knocked out some GPS satellites. Who knows, you might even go surfing on Jupiter's moon Titan! Check it out at <http://spaceplace.nasa.gov/loopy-legends/sp>.

Spotlight on a Solar Mystery

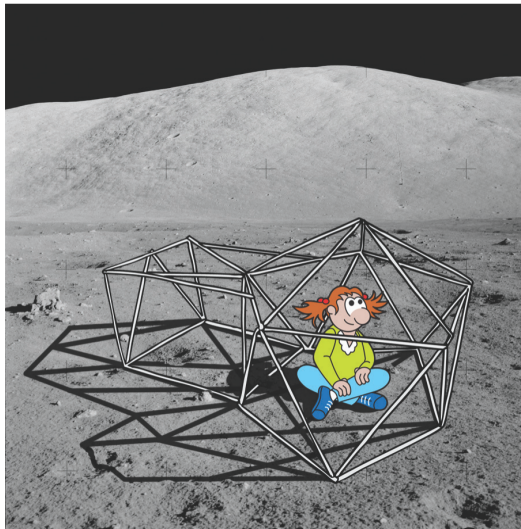


The surface of the sun is a scalding 10,000 degrees Fahrenheit. But the sun's atmosphere can reach millions of degrees. That doesn't make too much sense, does it? Why would the stuff around the sun be warmer than the sun itself? And if the atmosphere were so hot, then why doesn't it warm the surface up to a temperature closer to the atmosphere? Check out one of Space Place's newest articles to learn more about this solar mystery. <http://spaceplace.nasa.gov/sun-corona>.

Where kids and grown-ups have fun with space science and technology

For the Classroom

Looking for a hands-on activity that reinforces engineering concepts? Look no further than Space Place's moon habitat activity. Have you ever wondered what it would take for humans to have an extended stay on the Moon? Surely they would need some sort of place to live. But how would such a structure make the long journey through space? Learn all about what astronauts might want in their moon habitat. Then build your own! <http://spaceplace.nasa.gov/moon-habitat>.



For Out-of-School Time

How about an exciting web game to teach students all about solar weather in their out-of-school time? The sun is a scorching mass of hot gas that is constantly shooting energy and particles out into space. In "Shields up!" you must use a GOES-R weather satellite to detect the first signs of any crazy solar weather and warn other satellites to protect themselves before it is too late. <http://spaceplace.nasa.gov/shields-up>.



Special Days

January 1: New Year's Day. Galileo saw Saturn's rings through a telescope in 1610. Could a spaceship land on Saturn's rings? <http://spaceplace.nasa.gov/dr-marc-solar-system>.

January 11: Amelia Earhart is the first woman to fly solo across the Pacific in 1935. How did her airplane stay up? <http://spaceplace.nasa.gov/dr-marc-technology>.

January 13: Galileo discovers Jupiter's moon Ganymede in 1610. Jupiter and Ganymede play tug o' war with little moon Io. <http://spaceplace.nasa.gov/io-tides>.



January 25: Mars rover Opportunity landed on Mars in 2004. Get the inside story on the latest Mars rover—Curiosity. <http://spaceplace.nasa.gov/mission-chronicles/#milkovich>.

February 6: Apollo 14 astronauts played golf on the Moon in 1971. See astronauts at work and play: <http://spaceplace.nasa.gov/gallery-technology/#astronauts>.

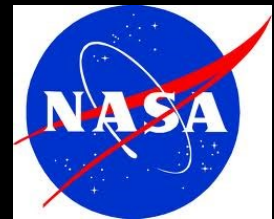
February 12: Charles Darwin born this day in 1809. You will understand evolution of species after playing with the "Emoticonstructor." <http://spaceplace.nasa.gov/emoticonstructor>.

February 20: Introduce a Girl to Engineering Day. Watch Space Place Live! and meet a woman engineer. <http://spaceplace.nasa.gov/space-place-live/#douglas>.

February 25: Quiet Day. Did you know the most violent events in space make no sound? Make a "Super Sound Cone," and listen for very tiny sounds. <http://spaceplace.nasa.gov/sound-cone>.

Send Feedback

Please let us know your ideas about ways to use The Space Place in your teaching. Send to info@spaceplace.nasa.gov.



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 We Meet:

TCC Northeast Campus, 3727 E. Apache St., Student Union Bldg. 2, Room 1603

There is PLENTY of parking, lighting and security on this campus.

To get to TCC NE Campus, take the Harvard Exit off of Hwy. 11 (Gilcrease Expressway). Go south for about 1/2 mile to the campus located at the corner of N. Harvard and Apache. Turn east on Apache and take the entrance in front of Bldg. 3 (the large round building). Then turn right and park in front of Student Union Building #2. Room 1603 is just off of the lobby.

Google-type driving direction map at <http://www.tulsacc.edu/13273/>



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
Vice President	Richard Brady	act_vp@astrotulsa.com
Secretary	Tamara Green	astronomer.misstamara@yahoo.com
Treasurer	Tim Davis	act_tres@astrotulsa.com

BOARD MEMBERS AT LARGE

Lee Bickle	blotobeast@gmail.com
Michael Blaylock	mblaylock535@gmail.com
Stan Davis	stan.home@cox.net
John Land	astroclubbiz@windstream.net
Christopher Proctor	bishop@busoutoshi.net
James Taggart	act_maint@astrotulsa.com
Skip Whitehurst	skip.whitehurst@gmail.com

APPOINTED STAFF

Newsletter Editor	Tamara Green	astronomer.misstamara@yahoo.com
Webmaster	Jennifer Jones	jjones@seedtechnologies.com
Membership Chairman	John Land	astroclubbiz@windstream.net
Observing Co-Chairman	Owen Green	darthnewo@yahoo.com
Observing Co-Chairman	Tamara Green	astronomer.misstamara@yahoo.com
PR/Outreach	Owen Green	darthnewo@yahoo.com
Sidewalk Astronomy	Owen Green	darthnewo@yahoo.com
Group Director	Mandy Nothnagel	act_pres@astrotulsa.com
Night Sky Network	Mandy Nothnagel	act_pres@astrotulsa.com
Facilities Manager	James Taggart	act_maint@astrotulsa.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

Sky & Telescope is \$33 per year.

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





Photo: Winter Stars over the Microwave Tower, taken December, 2012 by Tamara Green.

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 member.

