



Astronomy Club of Tulsa

Observer

February 2013



Photo: Some Essential Astronomy Gear: Tamara's Sky Atlases, Books and What-Not, by Tamara Green.








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February 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Public Star Party	2 PSP Backup Night/ Groups
3 	4 	5	6	7	8 Members' Night	9 Members' Night Backup
10 	11 	12	13	14	15	16
17 	18 	19	20	21	22 General Meeting	23 Sidewalk Astronomy
24	25	26 	27	28		

UPCOMING EVENTS:

Public Star Party	Fri, Feb 1	ACT Observatory	6:00 PM
Members' Night	Fri, Feb 8	ACT Observatory	6:00 PM
General Meeting	Fri, Feb 22	TCC NE Campus	7:00 PM
Sidewalk Astronomy	Sat, Feb 23	Bass Pro	6:00 PM
Public Star Party	Fri, Mar 1	ACT Observatory	6:30 PM
Members' Night	Fri, Mar 8	ACT Observatory	6:30 PM
MESSIER MARATHON	Sat, Mar 9	TUVA	TBA (See Article)
<i>(Please note: the Messier Marathon is a members-only event.)</i>			
Sidewalk Astronomy	Sat, Mar 23	Bass Pro	6:30 PM
General Meeting	Fri, Mar 29	TCC NE Campus	7:00 PM



2 telescopes for sale:

10-inch Orion push-to Telescope

Never used.

Interested? Call Ron Wood 918-474-3575.

Would you know anyone interested in buying a Celestron NexStar 4 SE telescope? I also have a Powertank battery pack and a 1.25" eyepiece/ accessory

kit. I bought it as a distraction, but just could not get into it. Never even triangulated it. I spent about \$600.00, but will take much less.

Maybe

there's someone out there would put it to use.

Thank You

Fred Straessle fstraessle@cox.net 918 740 5326

PROGRAM FOR OUR FEBRUARY GENERAL MEETING

FRIDAY, FEBRUARY 22, 2013 AT 7:00 PM

TULSA COMMUNITY COLLEGE, NORTHEAST CAMPUS

3727 E. APACHE ST., STUDENT UNION BUILDING 2, ROOM 1603

GUEST SPEAKER!

MR. HENRY BRADSHER, TEACHER, BROKEN ARROW SR. HIGH SCHOOL

Mr. Bradsher recently completed his Master's Degree in Physics from OU, where he served as a graduate assistant to Dr. Richard Henry. He is currently teaching AP Physics classes at Broken Arrow Sr. High School. He will be speaking on his research of the chemical abundances in planetary nebula in the Small Magellanic Cloud. Planetary nebula are expanding spheres of glowing gases that often surround aging sun like stars. The Small Magellanic Cloud is a dwarf galaxy orbiting the Milky Way about 210,000 light-years away. Using spectral data collected by telescopes at Cerro Tololo observatory in the Chilean Andes to study the evolution of these dying stars.

We hope to see you there for this fascinating topic!

OPEN TO THE PUBLIC



TUVA and the Astronomy Club of Tulsa invite all Club members and their families to join us
at our



Annual Messier Marathon!

Saturday, March 9, 2013

Festivities begin around 4:30 –5:00 PM

TUVA Observatory, Mt. Feynman, Checotah, OK



Hosts: Ron and Maura Wood

The Annual Messier Marathon is a fun and challenging event in which we see how many of Charles Messier's famous objects we can find in one night. How many can you find? Come on out and try! Maybe you'll win the coveted David Stine Award!

There will be a caravan going to TUVA. The caravan will meet in the parking lot of the Burger King on Elm Place in Broken Arrow (1600 N. Elm Pl., N. Elm Pl. and W. Queens Cir., West side of street). The caravan will leave Burger King promptly at 3:30 PM. For details contact Owen or Tamara Green at darthnewo@yahoo.com or astronomer.misstamara@yahoo.com.

There will be a pre-marathon pot-luck dinner, so bring whatever favorite dish, snack or dessert to share!

PLEASE NOTE: Due to the limited space available at TUVA and the pot-luck dinner that takes place before the Marathon, this event is for MEMBERS AND THEIR FAMILIES ONLY!!!!

ALSO PLEASE NOTE: This is an all-night event, and it takes place at a time of the year when it might be 73 degrees and sunny that afternoon, but turn freezing cold that night, so plan on bringing cold weather gear, blankets, pillows, etc.

Daylight Saving Time begins at 2:00 AM on Sunday, March 10.

Hope to see you there!





President's Message

By Owen Green

Greetings Fellow Stargazers

I understand that our DVD set we got for Christmas was a rousing success for our January meeting, but for our February meeting the program will be guest speaker Henry Bradsher, a grad from OU who currently teaches Physics at BA High School.

This month the stuff I plan on looking at are the FIVE planets we can see this month. Jupiter and Saturn are going to be fairly high and easy to see, as well as Mercury, Mars and Venus but they are going to be much fainter as well as for Mercury being close to the horizon.

And lastly our Facilities Manager Chris Proctor had to step down due to life and work issues. Our new Facilities Caretaker is James Taggart. Since he lives just a few minutes from the Observatory it is easy for him to get there and do the groundskeeping and all the other wonderful stuff to keep our place looking nice and clean.

Owen Green

President



Treasurer's and Membership Report

By John Land

Astronomy Club of Tulsa 119 members including 10 new members

2013 new members are Carl Sluder, Ian Hudson, Linda Ghali, Hannah Thomas, Corey McCool, Jay Lorton, Renee Jacobs, Edgar Underhill, Ben Collins, and Jim Zyskowski

Club Accounts Feb 5, 2013

Checking \$ 2,631.83 Savings \$ 7,009.68 Investment account \$ 17,664.71

2012 Annual Club Treasurer report on following two pages.

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 2013 as follows:

Adults - \$ 45 per year includes Astronomical League Membership

Sr. Adult \$ 35 per year for those 65 or older includes Astronomical League Membership

Students \$ 30 with League membership **Students \$ 25** without League membership.

Additional Family membership \$ 20 with voting rights and League membership, **\$ 15** with voting rights but without League Membership. The regular membership allows all members in the family to participate in club events, but only ONE Voting Membership and one Astronomical League membership.

Join Online – Add or renew magazine subscriptions.

<http://www.astrotulsa.com/page.aspx?pageid=16>

Magazine Subscriptions: If your magazines are coming up for renewal, try to **save the mailing label** or renewal form you get in the mail. Forms are available on the club website.

Astronomy is \$ 34 for 1 year or \$ 60 for 2 years. www.astronomy.com

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

Sky & Telescope is \$33 / yr www.skyandtelescope.com

Sky and Telescope also offers a 10% discount on their products.

Note: **You may renew your Sky & Telescope subscription Directly Online** without having to mail in the subscriptions to the club. **NEW SUBSCRIPTIONS** must still be sent to the club treasurer.

2012 Annual Club Treasurer Report Page 1

Astronomy Club of Tulsa		Expense Summary 2012		Treasurer - <i>John Land</i>	
	110 Members			12/31/2012	
Closing 2012	76 Long term members - 34 New Members				
Annual Report of Accounts		Dec 31-2012			
Checking		\$	2,253.39		
Savings		\$	7,009.68		
Total Liquid Assets		\$	9,263.07		
Club Investment Accounts		\$	17,130.36		
Regular Club Income					
Membership Dues		\$	3,954.00		
Bank Interest on Savings		\$	10.92		
Monetary Donation		\$	1,165.00		Observatory Donations
Scripps Howard Grant		\$	888.87		Guest Nights \$ 287.89
Garage Sale Fund Raiser		\$	45.00		Group Tours \$ 370.50
Observatory Donations		\$	658.39	< < < <	Total \$ 658.39
Net Events & Sales		\$	(224.25)		
Total 2012 Income				\$	6,497.93
2012 Major Expenses					
Club Operation Expenses			\$	5,086.83	
Observatory Operating Costs			\$	1,301.22	
		Total 2012 Expenses		\$	6,388.05
		Club Income minus Expenses		\$	109.88
Expenses				Paid out	
Philidelphia Ins	Liability			\$	1,544.00
Philidelphia Ins	Board and officers			\$	943.00
Astro League dues - - 115 AL memberships				\$	585.00
Club Meeting costs -- Guest Speakers Etc.				\$	613.14
PO Box Rent				\$	120.00
Club Safety deposit box				\$	45.00
Box of Club checks				\$	21.61
Investment Account annual Fee				\$	60.00
News Letter Printing & Postage & Pamphlets				\$	169.78
AstroTulsa Web Site				\$	41.25
Computer - Projector from Scripps Howard grant				\$	944.05
Club Operation Expenses				\$	5,086.83

		Observatory Operation Costs					
				avg Monthly cost			
	Electricity	\$	451.53	\$	37.63		
	Water	\$	199.40	\$	16.62		
Observatory Maintance & Repairs		\$	650.29	\$	54.19		
Observatory Total cost		\$	1,301.22	\$	108.44		
Events & Sales Paid in Advance by Club members -				Received	Paid out		
Astronomy Magazine Subscriptions				\$	596.00	\$	594.00
Sky & Telescope				\$	396.00	\$	395.40
2013 Astronomy Wall Calendars				\$	480.00	\$	323.75
Canadian Observing Handbooks				\$	54.00	\$	54.44
Annual Club Dinner				\$	541.00	\$	806.01
June Club cookout						\$	123.32
Solar Filters				\$	191.00	\$	185.33
Net Recieved vs Paid Out		\$	(224.25)	\$	2,258.00	\$	2,482.25
Annual Report of Accounts		Dec 31-2012		Dec 30-2011		Dec 31-2010	
Checking	at Bank	\$	2,253.39	\$	3,127.38	\$	1,557.29
Savings	at Bank	\$	7,009.68	\$	5,996.49	\$	6,484.65
Total Liquid Assets		\$	9,263.07	\$	9,123.87	\$	8,041.94
Club Investment Accounts		Dow Jones close Dec 31, 2012 \$ 13,028.11					
		Dec 31-2012		Dec 30-2011		Dec 31-2010	
Cash Balance		\$	874.16	\$	934.04	\$	933.88
Franklin Income Fund		\$10,526.34	minus \$ 60 annual fee	\$	9,317.51	\$	9,110.07
American Balanced Fund		\$2,983.11	at \$ 20.40 / share	\$	2,612.33	\$	2,516.17
Washington Mutual Inv Fun		\$2,746.85	at \$ 31.21 / share	\$	2,441.74	\$	2,280.98
Total Club investments		\$	17,130.46	\$	15,305.62	\$	14,841.10
Net Increase from 2011		\$	1,824.84	11.92%		increase	
2012 reported dividends		\$	690.09				
Investments gain							
Franklin Income fund		\$1,208.83	12.97%	increase			
American Balanced Fund		\$370.78	14.19%	increase			
Washington Mutual Inv Fun		\$305.11	12.50%	increase			



The Secretary's Stuff

By Tamara Green

ASTRONOMY CLUB OF TULSA – MINUTES – GEN. MEETING FRI JAN 25, 2013

PRESENT:

Lee Bickle, Vice President

Tamara Green, Sec'y, OC, NL Editor

John Land, Treasurer

Mandy Nothnagel, Board

Stan Davis, Board

Michael Blaylock, Board

NOT PRESENT:

Owen Green, President, PR, Sidewalk, OC

Jody Ray-Fleetwood, Board

Christopher Proctor, Board, Facilities Manager

Tony White, Board

Catherine Kahbi, Fundraising

Jennifer Jones, Group Director, Webmaster

The meeting was held at Tulsa Community College, Northeast Campus. There were 26 attendees.

WELCOME AND INTRODUCTION:

VP Lee called the meeting to order at 7:00 PM and welcomed all attendees. President Owen was absent due to illness.

PROGRAM:

Video: "The Great Courses, Experience Hubble, Understanding the Greatest Images of the Universe"

OFFICERS'/STAFF REPORTS:

PRESIDENT – Not present, no report.

VICE PRESIDENT- Lee just welcomed everyone to the meeting, did not really have any report.

SECRETARY – Tamara announced that the last meeting was the Dinner Meeting back in November, and anyone who wants a copy of the minutes from same can contact her via email. As Tamara is also the Observing Co-Chair and Newsletter Editor, she said that she had no requests lately to send log work to the AL and then put out a call for articles for the February Newsletter.

TREASURER – John went over the Club's financial report.

FUNDRAISING – Catherine not present, no report.

OBSERVING – No report.

GROUPS – Jennifer not present, no report.

FACILITIES – Chris not present, no report.

PR/OUTREACH/SIDEWALK – Owen not present, however, Sidewalk was asked about. Tamara announced that Sidewalk was still on for Saturday, Jan. 26 at Bass Pro, depending on weather. She then announced that her husband Owen would most likely not be there due to his illness.

NIGHT SKY NETWORK – Teresa Davis not present, no report.

OTHER BUSINESS – Lee adjourned the meeting following Officers' and Departmental Reports and thanked everyone for coming. Dinner and Socializing afterwards at Hideaway Pizza.

Conjunction Junction, What's Your Function

By Stan Davis

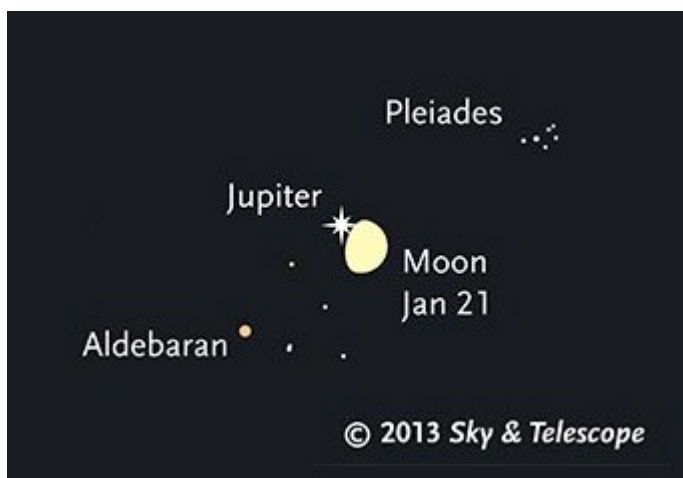
New to astronomy and want to start enjoying it, but haven't made that big purchase yet? Well, there are still lots of things you can do without a scope. I have a telescope, but it takes time and effort to get it out, so I am often looking for sights or events that I can view without getting my telescope setup. These are things you could do to increase your knowledge and enjoyment of Astronomy. You can also do these observations from the convenience of your own backyard.

I like to view and photograph conjunctions. What is a conjunction? Well, in English class if I recall was defined something like this: **A conjunction is a joiner, a word that connects (conjoins) parts of a sentence.** If you are an English teacher and this is not correct, hopefully it is close. You may even remember the Schoolhouse Rock grammar lessons on television many years ago, Conjunction junction, what's your function?

Well, in astronomy, a **conjunction** is an alignment of two celestial bodies as seen from Earth. A superior planet (or other object) is in conjunction when it lies behind the Sun. An inferior planet (or other object) comes to **inferior conjunction** when it passes between the Earth and the Sun; it is at **superior conjunction** when it passes behind the Sun.

Well, that seems rather technical, and may not mean much to a novice like you or me, so I picture it as an alignment of two or more celestial objects that creates a unique pattern in the night's sky. It actually happens quite often. I like to use Sky & Telescope magazine or their web site section "This Week's Sky at a Glance". They of course have an "Iphone App" called SkyWeek. I am sure there are many other sources for determining when a conjunction may occur.

Observing conjunctions keeps you in touch with the planets and monitoring their movement throughout the year. A recent one in January was observed and photographed by club members, but I missed it. Here is sketch taken from Sky & Telescope.



This would have made a great photograph, but I missed that opportunity. This should give you an idea of what I am talking about. Jupiter was close to the moon, along with Aldebaran and Pleiades in a beautiful alignment.



I may have missed that opportunity, but here are a few conjunctions that I did get a chance to observe and photograph. This picture was taken on August 13, 2012, with a Canon EOS Rebel XS, 50mm lens, F3.5, ISO 200, eight second exposure. Edited and cropped with Photoshop CS 5.

It shows Spica, Mars, and Saturn in a near perfect alignment in the western sky. You can see the slight colors of the planets. This was taken in light polluted area of Broken Arrow, so not much else shows up.

I watched this for several days. I followed the faster moving Mars as move between Spica and Saturn. It went from an isosceles to equilateral triangle to a line.

This is one of my favorite shots, taken May 5, 2012. It was partial solar eclipse in the Oklahoma area. This was taken just as the sun was setting and clouds were moving in. I was lucky enough to capture this as the sun moved between the clouds. It was taken looking west from Broken Arrow near Bass Pro. Canon EOS Rebel XS, 300mm lens, F5.6, ISO 100, 1/50 sec exposure, processed with Photoshop CS5. Were you at this club event? It was a great event. Many members and guests were in attendance and we all got a once in life time view of this beauty.





Here we have the moon and Venus and both are over exposed. I am still working on learning how to do this better. If you have any suggestion, please let me know. I am always willing to learn how to do this better. March 26, 2012 taken with a Canon EOS Rebel XS, 50 mm lens, F4.0, ISO 400, 2.5 sec exposure, processed with CS5.

This ring or halo is produced by the refraction of the reflected sunlight off the moon. The refraction is caused by the ice crystals in the high thin cirrus clouds. The crystals usually are six sided and hexagonal in shape. The refraction of the reflected light usually produces a ring with a 22 degree diameter. On this particular evening Jupiter fit within that 22 degrees and adds to the beauty. If you look closely at the halo you can see a reddish tint to the inner ring.

The picture was taken on Dec 27, 2012 around midnight. Not sure if anyone in the club saw this. It was taken with a

Canon EOS Rebel XS, 55mm lens, ISO 1600, F3.5, half sec exposure. It was almost directly overhead. The moon and Jupiter are the two objects inside the halo. It was very beautiful sight. I would have not known this was taking place, except for my granddaughter Kelsie who gave me a call and told me to go outside and look at the moon. I was sound asleep, but decided I should go out and take a look. Was not sure what I was about to see, she only said it was really neat? I took several exposures and went back to bed.



Conjunction Junction, What's Your Function, by Stan Davis, Ct'd.

My grandson also got a call from her. Nick took some pictures with my camera after I had gone back to bed. The one I am sharing with you is one he took. I have processed it in Photoshop CS5. This really needs to be shot with a tripod to steady the camera. I was too lazy to get that out.

I hope you enjoyed my article and now you are inspired and ready to observe or photograph some astronomical conjunctions in the near future. Conjunction junction what's your function?

Keep looking up....

Stan Davis

NITELOG - Norway InTErurban Local Observing Group

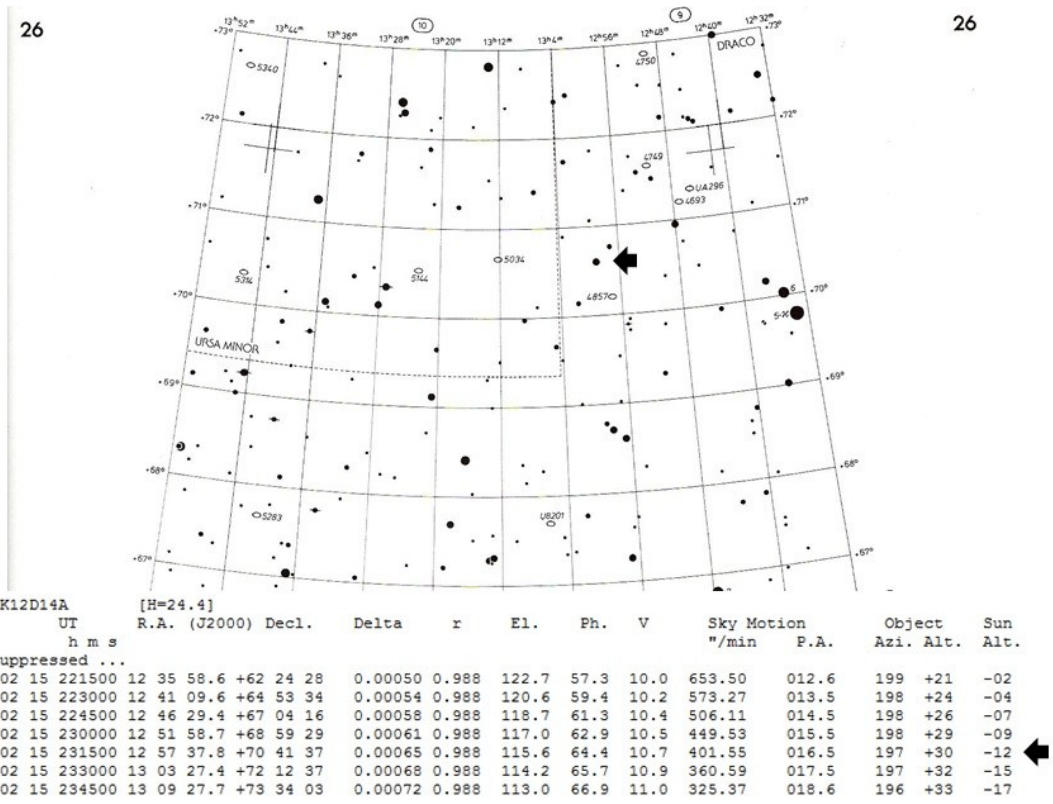
By Tom Hoffelder

OBSERVING: For those in Maine, the Twitchell Observatory will be open on Monday the 4th at 7:30. I plan to be there about an hour before, with the 120 mm and C14 as last month, weather permitting of course. If that is clouded out, I may schedule an impromptu on the 8th or 9th and will let you know.

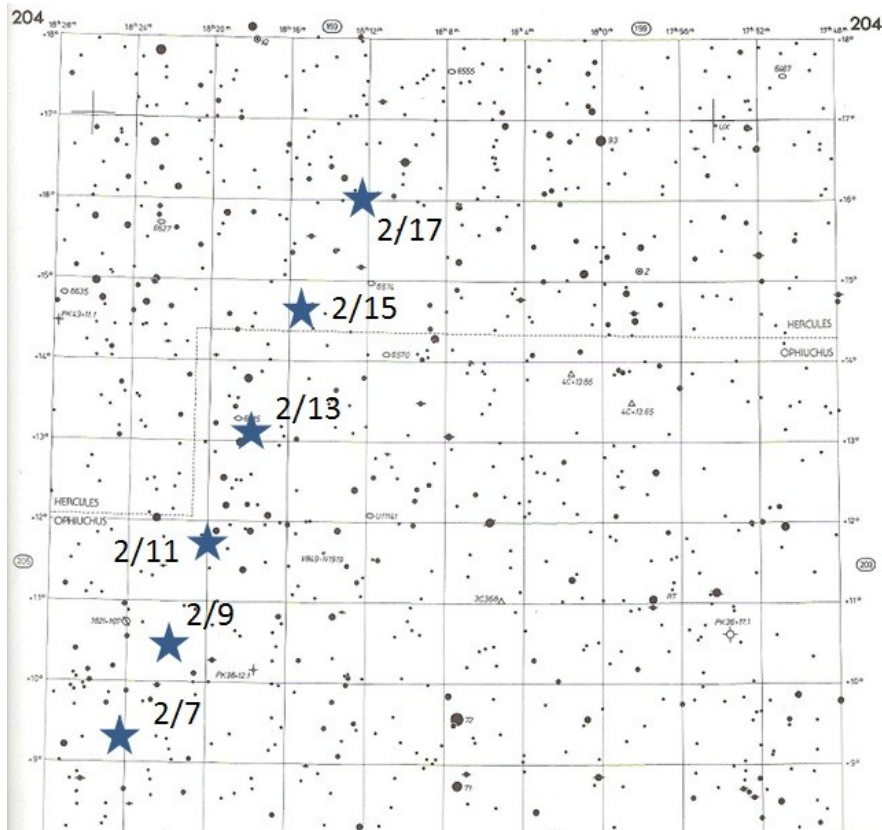
Moon: (To those of you who have been receiving this for years, when's the last time you saw that?!!!) The reason it's here is that I've never seen the Lunar X, which is only visible for about an hour near first quarter, and only happens about every third month at any observing location. This month's predicted time is good for the northeast: the 17th from 5 to 6 PM EST, the center of which is 20 minutes after sunset. For you westerners, I would appreciate hearing if anyone tries it in daylight, since it may be visible then. Here is an interesting article concerning the effect, with two good photos, one of the entire moon and one a closeup: <http://wasociety.us/Lunar-X.pdf>

ASTEROIDS: It would be fun to try for 2012 DA14 as it barely misses us on the 15th, when it will be 8th mag, **BUT** for all the

US, the sun is still in the sky when it is that bright. (Why am I thinking about Comet ISON being as bright as the full moon?) By the time the sun sets, it has dropped to 10th mag, and that is for us on the east coast. By the time it is dark enough to see it, it will have dropped to 10.5 or 11th. The attachment shows the



ephemeris for near Norway, and it looks like 6:15 is our best shot, **IF** it is dark enough to see 10.7, never mind the probability of it being clear at that specific moment. With it being so close, there is a **LOT** of parallax involved, but the numbers are close enough for Twitchell Observatory etc. However, it is off by about three degrees for CT, and of course a whole bunch more for FL, so if any of you in those locations want to try, I can supply your numbers if needed.

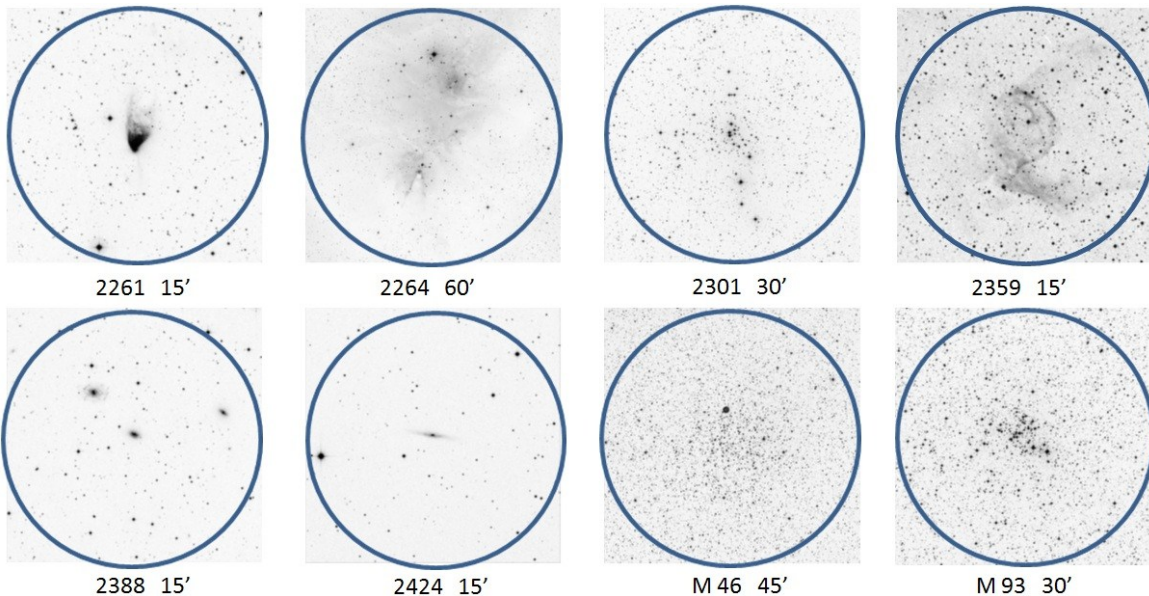


COMETS: 273P/Pons-Gambart might be worth checking if you happen to be out observing early morning around new moon, but I'm not planning on going out just to see if it really is.

PLANETS: Jupiter is high in the south-southeast at the end of nautical twilight and is too low for observation by 2 AM early in the month. You will note there are half as many moon shadows as last month, and only one occasion when a shadow and the GRS can be seen at the same time: the result of Jupiter being further away from opposition. Saturn rises around 12:30 AM on the first and therefore at 10:30 PM at month's end.

STARS: Three carbon stars, B-V ranging from 3.0 to 4.0, two triples and four doubles, three of which should provide some color contrast, the remaining being Castor, a mag 2.5 primary separated by a little over two arc seconds from the 3.5 mag secondary.

THE GOOD STUFF: Feb is Fun in Gem and Mon! Eight open clusters (3 M's), two globulars (small but ones you've probably never seen), four diffuse nebula (one that looks like a comet!), three neat planetaries (the



one in front of M46 is not as easy as it looks in the photo!) and five galaxies, none easy but it's the winter Milky Way!

Jupiter in February table, for Feb. 1-15

JUPITER IN FEB 2013 (EST)

DATE	GRST*	I SHAD	E SHAD	G SHAD	C SHAD
1					
2	21:46				
3	17:37				
4	23:25				
5	19:16				
6					
7	20:55	23:06-			
8		01:17	16:52- 19:16		
9	22:34	17:35-19:46			
10	18:25				
11					
12	20:04				
13					
14	21:43				
15			19:27- 21:52		

NITELOG - Norway InTErurban Local Observing Group , by Tom Hoffelder, Ct'd.

Jupiter in February table, for Feb. 16-28

16	23:22	19:31-21:42			
17	19:13				
18					
19	20:52				
20					
21	22:31				
22	18:22		22:03-	17:45-20:03	
23		21:27-23:38	00:28		
24	20:01				
25					
26	21:40				
27					
28	23:21				
29					
30					
31					

*Time of transit; spot is visible +/- one hour

NITELOG - Norway INterurban Local Observing Group , by Tom Hoffelder, Ct'd.

		2/4				2/9							
		SS	CTE	NTE	ATE	MR	SS	CTE	NTE	ATE	MS		
		16:56	17:27	18:02	18:36	01:37	17:03	17:34	18:08	18:42	16:38		
Comet	ra ¹	dec ¹	star	n/s	e/w	n/s/day	e/w/day	mag ¹	mag ²	uran #	date*		
273P/Pons-Gambart	18 22.2	+10 31	72 Oph	0.8 N	3.8 E	0.6 N	0.4 W	13	9	204	2/9		
											¹ from http://www.aerith.net/comet/future-n.html		
											*at 7 PM		
											² from http://www.minorplanetcenter.net/iau/Ephemerides/Comets/		
Object (Type)	ra	dec	star	n/s	e/w	Mag*/(# of Stars)	Size (")/ Sep (")	Spect/ M# or H#	Dist (ly)	Urano l Page	Comment [B-V] (optimum x)		
TU Gem	06 10.9	+26 01	1 Gem	2.8 N	1.5 E	7.5-8.4		CII		136	B-V=3.2		
UU Aur	06 36.5	+38 27	θ Gem	4.6 N	3.2 W	5.1-7...		CII		99	B-V=3.0		
RY Mon	07 06.9	-07 33	θ CMa	4.5 N	3.2 E	7.7-9.2		N		273	B-V=4.0		
β Mon	06 28.8	-07 02	-	-	-	5, 5.5, 6	7.4, 2.8	B3, B3		272	(170)		
12 Lyn	06 46.2	+59 27	δ Aur	5.1 N	6.1 E	5.5, 6, 7.5	1.7, 8.5			42	(280)		
h3945	07 17.0	-23 15	δ CMa	3.2 N	1.9 E	5, 7	27	M0, F0		319 (ni)	(20)		
δ Gem	07 20.1	+21 59	-	-	-	3.5, 8	6.3	F0, dK6	53	139	(75)		
Σ1108	07 33.0	+22 54	PREV	0.9 N	3.0 E	6.5, 8.5	11	K0, F8		139 (ni)	(45)		
α Gem	07 34.6	+31 53	-	-	-	2.5, 3.5	2.2	A1, A5	45	100	(220)		
NGC 2168 (OC)	06 08.9	+24 20	1 Gem	1.1 N	1.1 E	(120)	25	M35	2575	137			
NGC 2158 (OC)	06 07.5	+24 06	PREV	0.3 S	0.4 W	(40)	5	H17-6	16,300	137			
NGC 2237 (DN)	06 30.3	+05 03	13 Mon	2.6 S	0.2 W		80X50		3,600	182	Rosette		
NGC 2261* (DN)	06 39.2	+08 44	13 Mon	1.6 N	1.6 E		3X1	H2-4	6,525	182	Hubble's Variable		
NGC 2264* (OC/DN)	06 41.1	+09 53	15 Mon	0.2 S	-	(20)	40	H27-5	2850	182	Cone		
NGC 2298 (GC)	06 49.0	-36 00	ε CMa	7.1 S	2.0 W	9.3	5		100K	360			
NGC 2301* (OC)	06 51.8	+00 28	δ Mon	0.9 N	5.0 W	(60)	15	H27-6	2475	228			
NGC 2339 (SBbc)	07 08.3	+18 47	ζ Gem	1.8 S	1.0 E	[13.4]	2.7X2	H769-2	100M	138			
NGC 2360 (OC)	07 17.8	-15 37	γ CMa	-	3.4 E	(50)	14	H12-7	3100	274			
NGC 2359* (DN)	07 18.6	-13 12	PREV	2.5 N	0.2 E		9X6	H21-5		274			
NGC 2371/72 (PN)	07 25.6	+29 29	α Gem	2.5 S	2.0 W	11.2	1	H316-2	11,800	100			
NGC 2388* (S)	07 28.8	+33 49	α Gem	2.0 N	1.2 W	[13.2]	1X0.6	H900-3	200M	100	2385, 2389		
NGC 2392 (PN)	07 29.2	+20 55	δ Gem	1.1 S	2.1 E	9.1	0.9	H45-4	1370	139	Clown Face/Eskimo		
NGC 2419 (GC)	07 38.1	+38 53	α Gem	7.0 N	0.7 E	10.3	4.5	H128-1	225K	100			
NGC 2424* (SBb)	07 40.7	+39 14	PREV	0.3 N	0.5 E	[13.3]	3.6X0.5		150M	100			
NGC 2437* (OC)	07 41.8	-14 49	α Mon	5.2 S	0.2 E	(150)	20	M46	5950	274			
NGC 2438 (PN)	07 41.8	-14 44	PREV	0.1 N	-	10.8	1.3	H39-4	5400	274	M47 0.2 N, 1.2 W		
NGC 2439 (OC)	07 40.8	-31 39	η CMa	2.3 S	3.6 E	(50)	9		5400	361			
NGC 2447* (OC)	07 44.6	-23 52	ξ Pup	1.0 N	1.1 W	(60)	10	M93	3600	320			
*DSS image						*[Surf Brtnss for GX's] - mag per square arcmin			ni=shown but not identified				

SUPERNOVA: None currently brighter than 14th magnitude; should that change a supplement will be sent.

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.*



the Space Place

January - February 2013 / Vol. 6, 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!

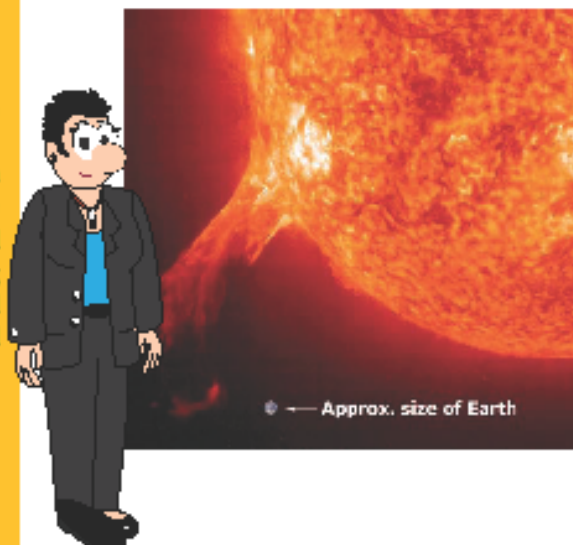
It's informal.
It's meaty.
It's easy to read and understand.
It's also in Spanish.
And it's free!

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.

Earth is in the lucky position to have a love-hate relationship with its star. We say lucky, because obviously we couldn't live without it, but at times it's a little difficult to live with it as well. We call the conditions around our planet, outside of its own atmosphere and magnetosphere, "space weather," but it definitely affects us on Earth too. It's a good thing we are learning to understand and predict the sun's "tantrums."

Let's start here

"Space Place Live!" is a cartoon "talk show" where Space Place characters interview real NASA scientists and engineers. The latest episode stars Merav Opher, astrophysicist. She studies how stars work, including our star. In this 7-minute video, we learn about the solar wind, solar flares, the heliosphere, and the environment the Sun creates for everything in the solar system. Dr. Opher also talks about how she got interested in physics and what else she likes to do for fun. Check it out at spaceplace.nasa.gov/spaceplace-live/#opher.



Space Place en español



La historia de una extraña noche de tormenta (solar)... tells the story of a strange and (solar) stormy night. Along with a story of the severe solar storm of August 1859, where the Northern Lights were seen as far south as Central America, "Shields Up!" (¡Escudos arriba!) is a game in which the player has to protect Earth-orbiting satellites from the wrath of bad space weather. The game and article are available in Spanish and English. See spaceplace.nasa.gov/sp/shields-up.

Spotlight on all things Sunny . . .



Heliophysics, or the physics of the Sun, is one of the four major science thrusts of NASA's Science Mission Directorate. (The others are astrophysics, Earth science, and the solar system.) On The Space Place, these translate to the menu tabs Space, Sun, Earth, and Solar System.

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

The Sun-Earth connection is so important in understanding our immediate environment. The Sun menu (spaceplace.nasa.gov/menu/sun) offers activities, games, and fun facts about the Sun and how it affects Earth. The most comprehensive treatment of this relationship is the animated, narrated storybook "Super Star Meets the Plucky Planet: Or, how Earth and Sun come to mutual understanding and respect." It is also available to print and read aloud or have the students read aloud (spaceplace.nasa.gov/story-superstar).



For the classroom







The Gallery of Sun images (spaceplace.nasa.gov/gallery-sun) is just for teachers to print and post in the classroom. They have large, simple captions.


For out of school time

"Satellite Insight" is an absorbing game for all ages that runs on both computer and iPhone or iPad. It is Tetris-like, where six tile colors represent different types of data measured and recorded by the GOES-R satellite. Bonus material explains what each of the tile colors stand for, such as clouds, lightning, and solar energy. A lot of them stand for data related to space weather.

Your mission is to help the GOES-R (for Geostationary Operational Environmental Satellite, Series R) satellite collect data using its six advanced instruments.

Blocks of six different colors represent each instrument's type of data:

-  Clouds (from the Advanced Baseline Imager)
-  Solar energy (from the Solar Ultraviolet Imager)
-  Radiation (from the Extreme UV/X-ray Irradiance Sensor)
-  Magnetic field (from the Magnetometer)
-  Lightning (from the Geostationary Lightning Mapper)
-  Charged particles (from the Space Environment In-Situ Suite)



Special Days

Jan. 7, 1610: Galileo discovered Jupiter's four largest moons.

Explore Jupiter's big moons in the Solar System Explorer game. spaceplace.nasa.gov/solar-system-explorer

Jan. 15, 2006: Stardust mission capsule returned comet samples to Earth.

Learn about comets and how they are different from asteroid with the Comet vs. Asteroids 4-page color brochure. spaceplace.nasa.gov/posters/#asteroids

Jan. 31, 1958: Explorer 1 was the first U.S. satellite launched into orbit.

How do orbits work, anyway? Find out by putting a cannonball into orbit! spaceplace.nasa.gov/how-orbits-work

Feb. 9, 1894: Hershey Chocolate Company founded.

Although made by a different company, celebrate chocolate and the Moon with the Oreo Cookie Moon activity. spaceplace.nasa.gov/oreo-moon

Feb. 19, 1473: Nicolaus Copernicus born

He thought the Sun was the center of the Universe. He was wrong. But just where IS the center? Dr. Marc answers in a short Podcast. spaceplace.nasa.gov/podcasts/#center

Feb. 22: Thinking Day.

The Spitzer memory game will make you think very hard. spaceplace.nasa.gov/spitzer-concentration



Send feedback

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



For Young Stargazers

Check out these fun websites from NASA!



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

<http://scijinks.gov>

<http://spaceplace.nasa.gov>



Where We Meet:

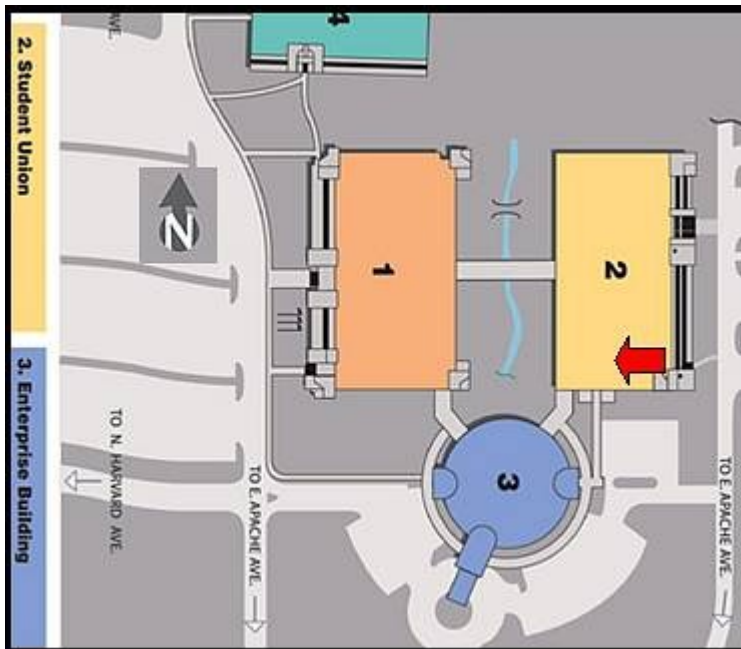
TCC Northeast Campus, 3727 E. Apache St., Student Union Bldg. 2, Room 1603

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/>

We hope to see you there!



Next General Meeting will be on Friday, February 22 at 7:00 PM.

CLUB OFFICERS

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VICE PRESIDENT	LEE BICKLE 918-872-8744
SECRETARY	TAMARA GREEN 918-851-1213
TREASURER	JOHN LAND 918-695-3195

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NIGHT SKY NETWORK	TERESA DAVIS 918-637-1477
WEBMASTER	JENNIFER JONES 918-629-8732
FUNDRAISING CHAIR	CATHERINE KAHBI 918-230-8480

MEMBERSHIP INFORMATION

MEMBERSHIP RATES FOR 2012 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. At this time we do not have an option for credit card payment, but we may explore that at a later time.

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



THE ASTRONOMY CLUB OF TULSA INVITES YOU TO

MAKE PLANS THIS SPRING TO JOIN US AT AN ASTRONOMY CLUB OF TULSA 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.

