



Astronomy Club of Tulsa

Observer

September 2013



Photo: Planetary Nebula NGC 6905, in Delphinus, taken with a Canon Rebel, using our Club's Meade 14" RCX, by Lee Bickle.

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Photo: Club members waiting for dark at a Member's Night, by Lee Bickle.

September 2013

October 2013

Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5	6 MN	7 MNBU			1	2	3	4 MN	5 MNBU
8	9	10	11	12	13	14	6	7	8	9	10	11	12
15	16	17	18	19	20 GM	21 SW	13	14	15	16	17	18 GM	19 SW
22	23	24	25	26	27 PSP	28 PSPBU	20	21	22	23	24	25 PSP	26 PSPBU
29	30						27	28	29	30	31		

UPCOMING EVENTS:

Labor Day Mon, Sep 2

Members' Night Fri, Sep 6 ACT Observatory 7:00 PM

General Meeting Fri, Sep 20 TCC NE Campus 7:00 PM

Sidewalk Astronomy Sat, Sep 21 Bass Pro 7:15 PM

Public Star Party Fri, Sep 27 ACT Observatory 6:30 PM

OKIE-TEX STAR PARTY Sat, Sep 28 thru Sun, Oct 6 at Camp Billy Joe, Kenton, OK.

Deadline for registration is Tues, Sep 10, so get yours in now!!!!!!

Members' Night Fri, Oct 4 ACT Observatory 6:30 PM

General Meeting Fri, Oct 18 TCC NE Campus 7:00 PM

This meeting will be the election of Officers and Board for 2014!

Sidewalk Astronomy Fri, Oct 19 Bass Pro 6:30 PM

Public Star Party Fri, Oct 25 ACT Observatory 6:00 PM

Halloween Thu, Oct 31

**SPECIAL REQUEST FROM FACILITIES MANAGER JAMES
TAGGART:**

If any of you have a wi-fi router that you would like to donate to the Club, please contact Facilities Manager James Taggart at act_maint@astrotulsa.com. Mr. Taggart is needing one up at the Observatory.

Thank you very much!

Your Editor





President's Message

By Lee Bickle

Hello all! We have an exciting month ahead - but first, a brief rundown of club activities over the last few weeks. The beginning of August didn't afford a lot of clear skies on the nights we wanted them - such are the periodic difficulties of optical wavelength astronomy. But we did enjoy our regularly scheduled sidewalk observing and our public & members observing nights at the observatory.

The public night observing on the 23rd went very well. I don't want to mention names because I know I'll accidentally leave some people out, but can say it was very nice to see some faces we had not seen in awhile. We also had a large contingent of new faces, and a lot of older kids & younger adults who were there for the first time. I think we had almost 40 first-time visitors. We ran five dome shows if memory serves, and hosted a laser & constellations show. We were also privileged to have help finding the recently discovered 6th magnitude (at the time of the meeting) nova in the constellation Delphinus in addition to many other objects being shown by members of the club in attendance. A big thank you to everyone who participated.

The weather has turned very nice the past week or two - it seems to me that Oklahoma usually gets two or three weeks of fine observing weather near the end of August and beginning of September. Temperature was perfect for members night, and a good time was had by all. I tried my luck with some digital imaging behind the club's 14" Meade RCX, and hope to have a couple photos here and/or on facebook soon depending how they turn out. Again it was good to see some old members and some brand new members attending.

As for coming events: we begin our monthly meetings again on September 20th. In the past, the club has held show & tell style meetings traditionally in January. I'm thinking it might be nice to do that for this meeting as we have had a summer long break. So bring any new or even old gadgets you'd like to share with us. Also if you took any interesting vacations or made any astronomy related trips, it would be great to hear about those as well. We'll also fill everyone in on what did the club as a whole has been doing over the summer. We're planning to have another group purchase of Sky Tools software as we did a couple of years ago - so Stan Davis is going to give us a demonstration of the software during the meeting.

Club elections are scheduled for the October general club meeting. So if you would like to volunteer in a club-elected capacity or know someone who is perfect for a particular role, keep them in mind as we will soon be calling for nominations. Last year we moved the elections to the November dinner meeting for a fuller participation - if you liked that better, please send me your feedback.

The other exciting and maybe most exciting event coming up this month is Okie-Tex! It runs from Sept 28 - Oct 6, and by my count we already have over 20 people from our club signed up to attend. Hope to see you there!

To our official and unofficial volunteers who keep everything running behind the scenes, help both public and members at events, and keep us growing with new ideas and support- on behalf of everyone who benefits, thank you very much.

Wishing everyone success and clear skies,

Lee Bickle



Treasurer's and Membership Report

By John Land

Astronomy Club of Tulsa 115 members, including 31 new members.

New members this month: Keaton Grigsby, Patricia Perkins, Kevin Goodin and Warren Grisby

Club Accounts Aug 5, 2013

Checking: \$3,273.47 Savings : \$ 7,014.89 Investment account: \$18,529.93 (Value Fluctuates with Market)

PayPal: \$0.00



Please Mail in Renewals or new memberships.

At this Time the PayPal feature is NOT WORKING on the website.

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: \$ 45.00 per year includes Astronomical League Membership

Sr. Adults: \$ 35.00 per year for those 65 or older includes Astronomical League Membership

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

Additional Family memberships: \$ 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

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

Sky & Telescope is \$33.00 per year. www.skyandtelescope.com

Sky and 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

Hello Everyone!

There is not much for me to report this month, other than to remind everyone that our first General Meeting after the Summer hiatus will be on Friday, September 20 at our usual room at TCC NE Campus at 7:00 PM.

Hope to see you guys at Okie-Tex! I am SOOOOOO looking forward to it! I cannot believe it is almost here! This year has really flown by.

Our Election Meeting will be on Friday, October 18, so if you wish to nominate someone for an office or a board position, please send me your nominations at astronomer.misstamara@yahoo.com so I can get them on the ballot. I plan to run for Secretary again. I will need to have all nominations at least a week before the meeting so I can get the ballot ready.

Our Annual Dinner Meeting will be on Friday, November 15 at the TASM Planetarium again, starting at 6:30 PM. I believe we are going to enjoy Billy Simms BBQ again, plus a planetarium show, group picture, and some other exciting things in the works! I hope to see all of you there! It will be fun, as always!

Since I am also the Newsletter Editor, I made a couple of changes to the design for next year that I hope you will like. I also have an idea of including an "Image of the Month" section for next year, so if you have any really cool images that you would like to see featured in the newsletter or chosen as "Image of the Month", PLEASE BY ALL MEANS SEND THEM TO ME!!! I always love getting your articles and pictures, which are essential for the success of The Observer.

They can be any kind of astronomy or club-related picture you like, from a nice image of M42 to a cute pic of some of our members at a Club potluck. Any kind of picture pertaining to our Club or our hobby will do!

Don't forget that Owen and I are also the Co-Chairs for Observing, so if you have completed any of the Astronomical League's Observing Clubs, please send either one of us your log work at darthnewo@yahoo.com or astronomer.misstamara@yahoo.com and we will get it submitted to the League for you so you can get your certificate and pin.

Wishing all of you clear skies,

Tamara

Astronomy California Style, by John Land

This summer I had the opportunity to visit San Diego, California. My wife had done some online searches for attractions and discovered there was a Star Party on the night we arrived. The San Diego Astronomy Association (<http://www.sdaa.org/>) holds a Side Walk astronomy event at Balboa park the first Weds of each month. So naturally we had to go check it out. Sunspots, Venus and Saturn were the main attractions. Had a chance to chat with a couple of members. One of them even asked me about Okie-Tex because of the T-shirt I was wearing. They have about 600 members in their club. That's Jennifer Land in the Route 66 cap. Balboa Park is a huge area of gardens and museums as well as the famous San Diego zoo. It was built for the Panama California exposition in 1915 to celebrate the opening of the Panama canal. (And attract business to San Diego)



Mt. Palomar 200 inch f 3.3 Hale telescope

<http://www.astro.caltech.edu/palomar/>

San Diego is about a two hour drive to the Mt. Palomar observatory. We had searched web for information and found that tours were only available on the weekends. Further searching told us we had to arrive early to get tickets since there are only two inside tours per day and they sell out quickly. (There is a glassed off visitor gallery that you can look through to see the scope on weekdays but we wanted to try to get an inside tour.) The 200 inch Hale telescope was the largest in the world from its commissioning in 1948 until the Keck Telescope came online about 1993. It is still an active research telescope. I may be able to tell more about the scope at our Sept meeting.

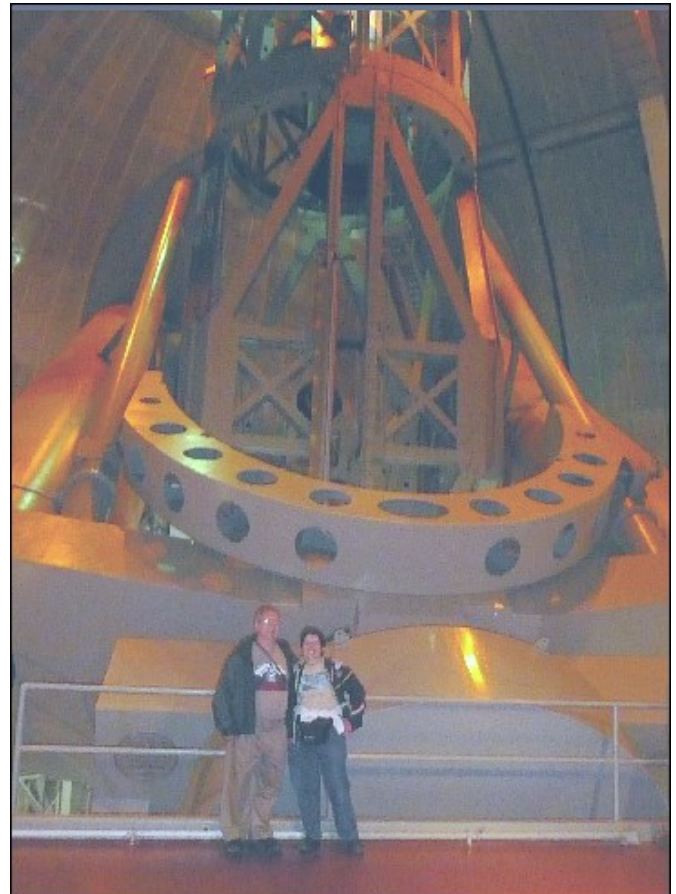
The 137 ft wide 1,000 ton observatory dome on 5,500 ft high Palomar mountain.



Above is Jennifer with the 20 ton concrete mirror double they used during construction to balance the mechanical parts of the scope.

The Telescope is truly astounding. Mirror and mount weigh in at 1 million lbs. The yoke floats on a paper-thin film of high-pressure oil. Yet the scope is so finely balanced that just a few ounces of force is needed to drive the scope.

John & Jennifer with planning a bit of observing!

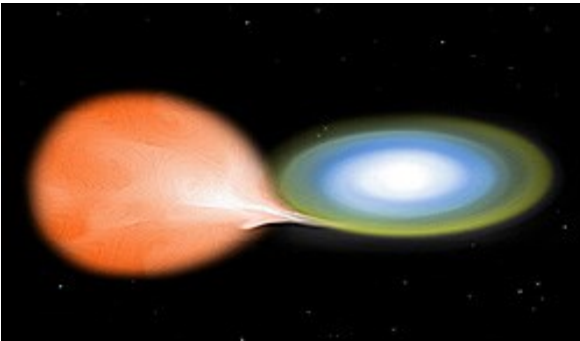


Nova Delphinus 2013, by Stan Davis

Just case you haven't heard a **Nova erupted in the constellation Delphinus**. It was spotted by Koichi Itagaki of Yamagata, Japan on August 14th, 2013.

What is a nova? The word nova is derived from Latin Stella nova (new star) shortened to nova. It is characterized as the sudden brightening of an inconspicuous star.

It is theorized that this is a cataclysmic nuclear explosion in a white dwarf star from a binary system of consisting of a white dwarf with an orbiting companion main sequence star. If these two stars are close enough, material can be pulled off the star by the gravity of the white dwarf. As the material accumulates and reaches the temperature of 20 million Kelvin then a nuclear fusion reaction occurs.

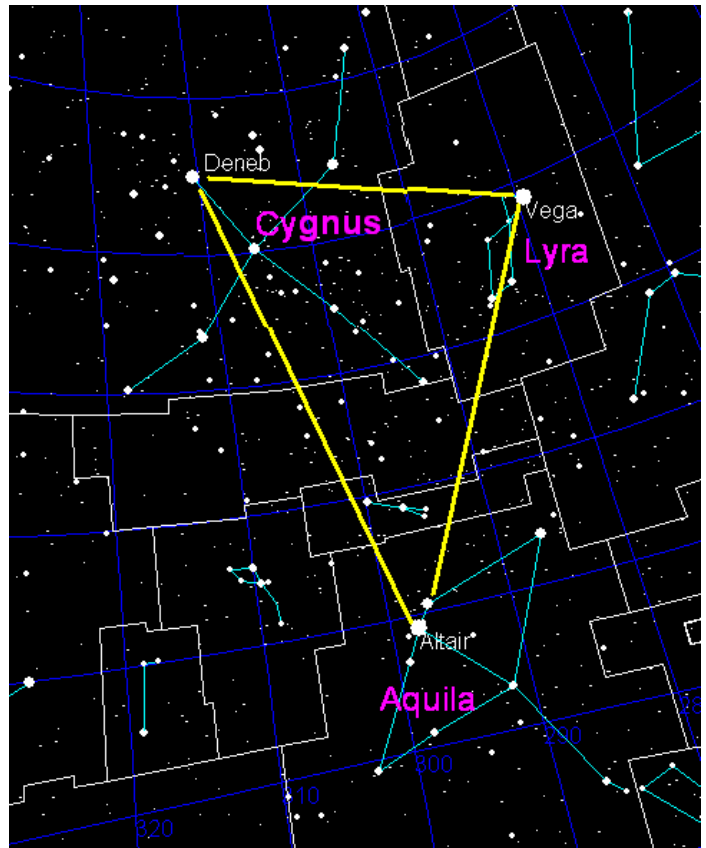


Artist's conception of a white dwarf star [accreting](#) hydrogen from a larger companion

Well, where is it and is it still visible?

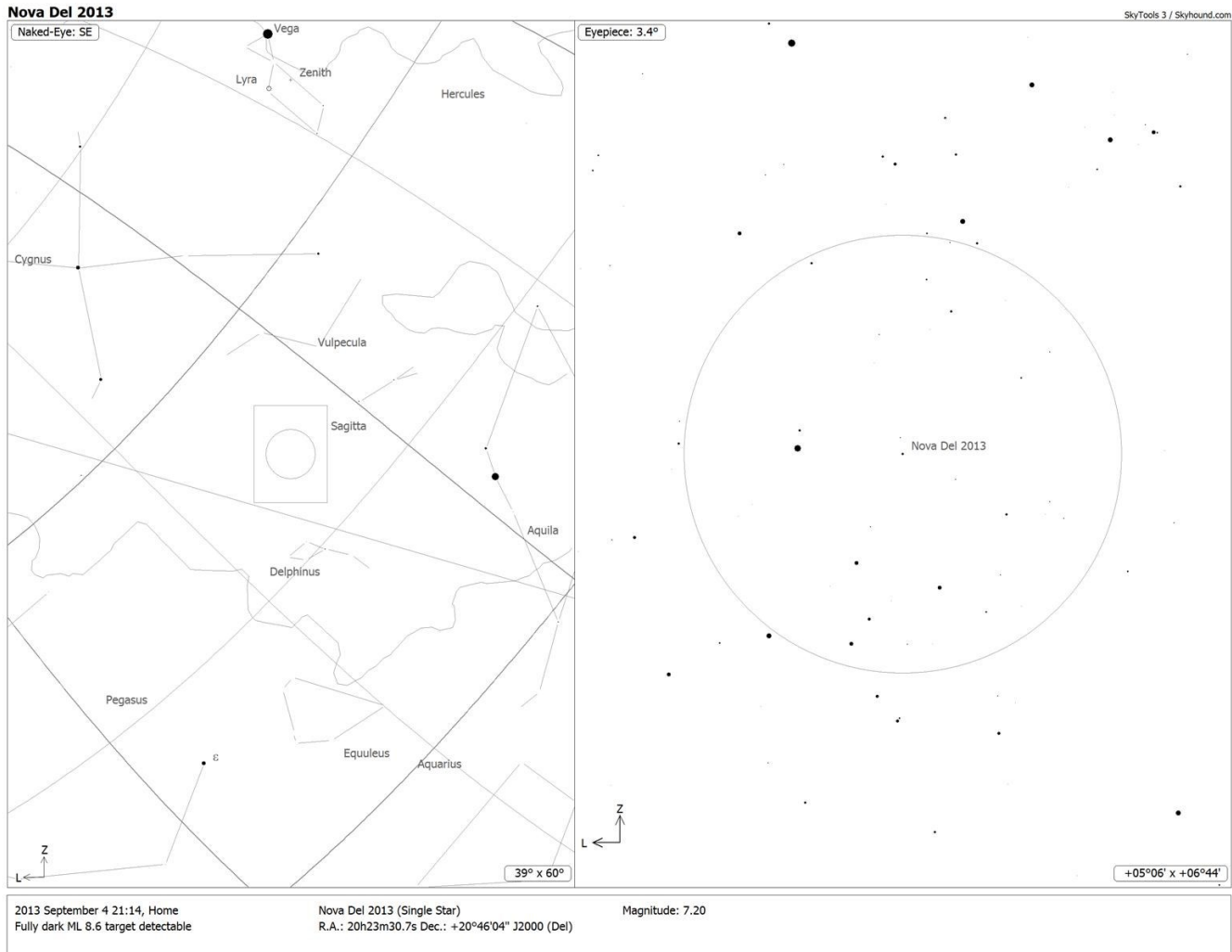
Yes, viewed it a couple nights ago and it has faded from about 4.5 magnitude on August 16th to near 7 magnitude. It is not too late get out there and see if you can locate it.

Using binoculars you can find it in the northern part of the constellation Delphinus. No need to travel further than your own back yard, because it can be located in the polluted urban skies. I used the summer triangle to locate it. Delphinus is not visible from my back yard. Find Altair in the summer triangle move up and to the left. It is between Delphinus and Sagitta. Of course I could not see either with naked eye, but they were easily found with binoculars. Using the location area shown from a chart that I printed with the aid of my Skytools 3 program (shown below). I was able to locate it. The chart is split into two parts. The naked eye view and the binocular view.



Using the binocular view and matching up the star pattern I was positive I had the exact location and was viewing the nova.

This chart shows the stars visible from my backyard. As you can see it is not much. The grayed out constellation with circled square gives you the nova's location. Sagitta is pointing right to it. It is not as bright as it was on August 16th but you could still track it as it continues to fade.



The American Association of Variable Star Observers' (AAVSO) web site is a good source of information on variable stars. I downloaded a 10 degree comparison star chart for determining the magnitude. Here is a link to that chart.

<http://www.aavso.org/sites/default/files/Nova%20Del%202013%20Binocular%20chart.png>

N

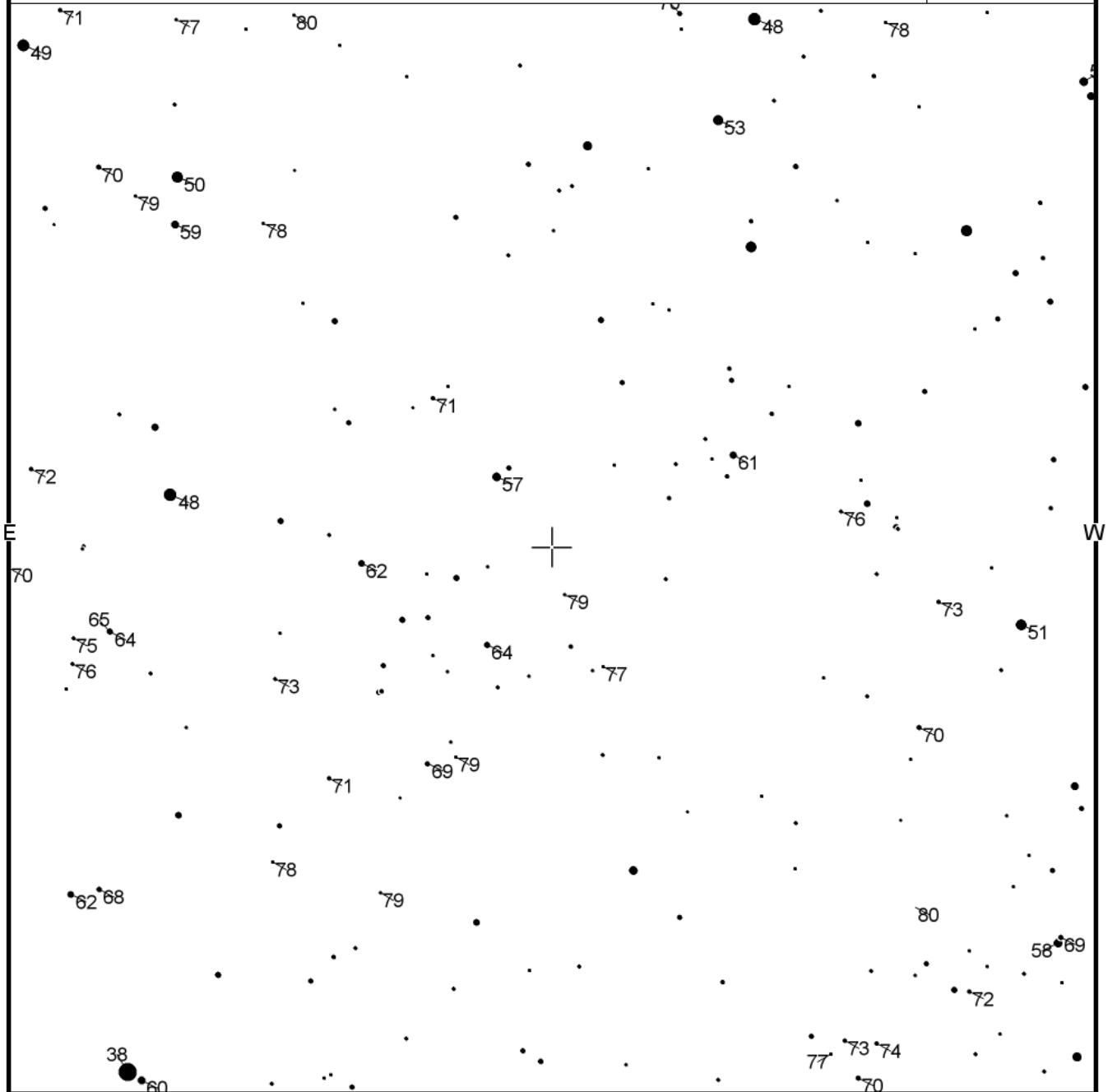
AAVSO
Chart

Nova Del 2013

(2000) 20:23:30.73 20:46:04.1

12508BUL

Magn:
Period:
Type:
Spec:



FOV = 10.0°

Please use the photometry table for CCD observations.

<http://www.aavso.org/vsp/>

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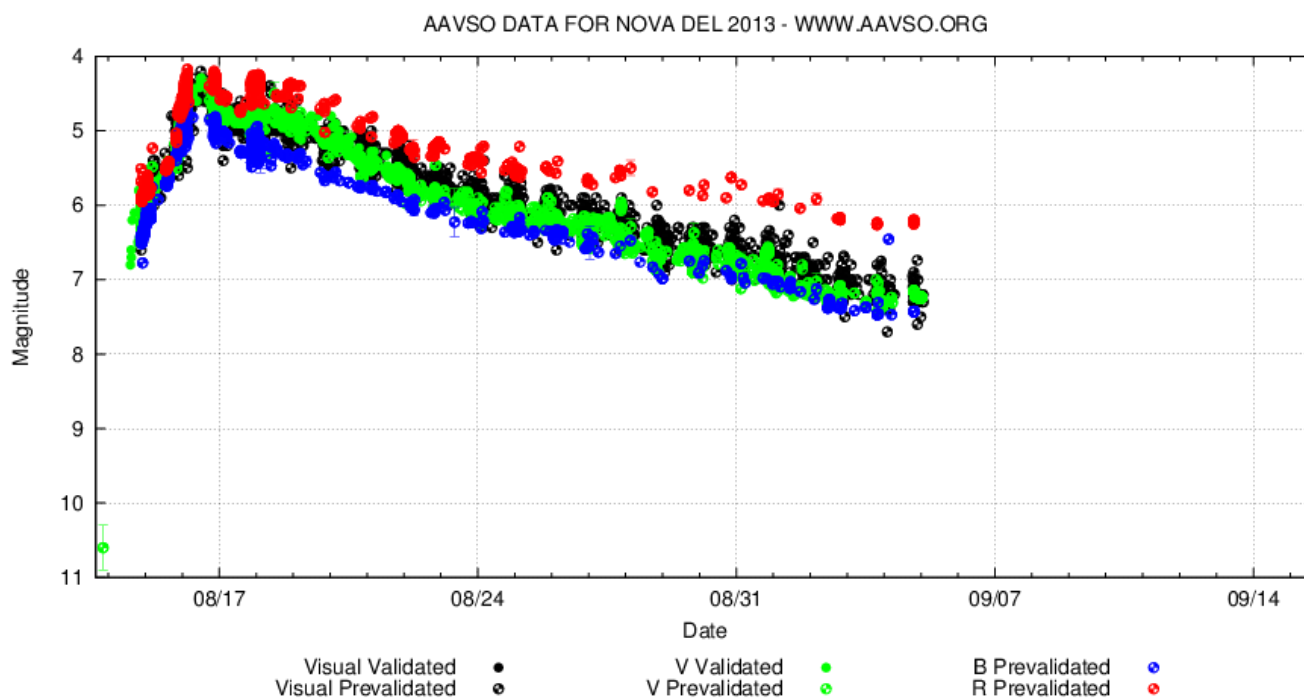
S

The AAVSO site also has a preliminary up-to-date light curve.

http://www.aavso.org/lcg/plot?aid=000-BLC-933&starname=NOVA%20DEL%202013&lastdays=60&start=2456518.157746227&stop=2456551.157746227&obscode=&obscode_symbol=2&obstotals=yes&calendar=calendar&forcetics=&grid=on&visual=on&r=on&bband=on&v=on&pointsize=1&width=800&height=450&mag1=&mag2=&mean=&vmean=

Light Curve Generator (LCG)

- [Plot another light curve](#)
- [Search observations for NOVA DEL 2013](#)
- [Create star chart for NOVA DEL 2013](#)
- [Search VSX for NOVA DEL 2013](#)



I have had a very enjoyable time observing and show any one that will take the time to look. I was at Bass Pro sidewalk event on August 17th and public night August 24th.

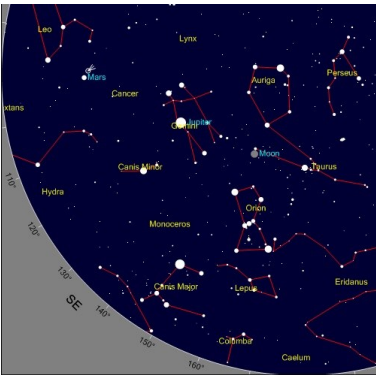
If you haven't taken the time to observe Nova Delphinus 2013, I encourage you to go to your backyard and take a look at this rare event.

Keep looking up....

Stan Davis

This is your second installment of all the M's in 12 months and the H 400's in 24. Sometime between when I completed the 400 (<http://www.astroleague.org/award/search/results/0/0/T.%20C.%20Hoffelder/>) and now, NGC 7814 was apparently added to make the H400 actually add up to 400* objects, so it will be included here (in Oct of 2014). However, please note there will not be a total of 510 objects when we are finished, due to the fact that 16 Messier objects are also on the Herschel 400 list, M20 last month being the first example.

OBSERVING: Summer is over in Maine and the monthly observing schedule is back in swing at the Twitchell Observatory! **Monday Sept 2nd, Labor Day, at 8 PM!!!**



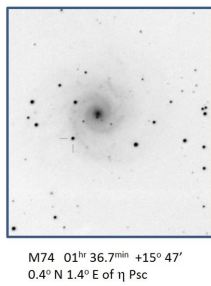
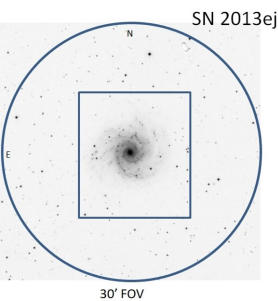
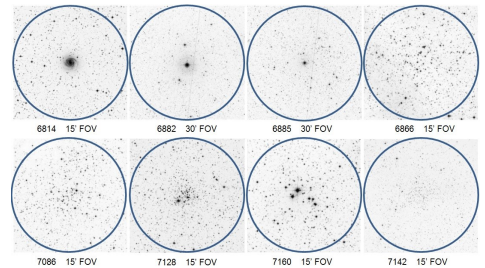
COMETS: A three-comet night? That question was part of the original draft of this issue, but then ISON was observed and found to be lagging estimates by about 2 magnitudes, so I deleted it from the spreadsheet. That does leave Encke and Lemmon though. However, should ISON suddenly brighten to around 10th mag, the three mornings centered on Sept 26th could provide an interesting view in a wide field scope as the comet will then be within about two degrees of Mars. The moon will be nearby, per attached, but if ISON does have an outburst (I'll let you know), the view is probably worth a try since a comet with a planet in the eyepiece is rather unusual; I've only seen it once in 40 years with 120 comets (Utsunomia and Mercury, 5/3/02).

Time
 Year 2013 Month 9 Day 26 Hour 5 Minute 0

PLANETS: Other than the Mars/comet possibility, not much excitement here, except maybe Neptune (just to say you've seen it), which is 3.0 S, 1.8 E of Theta Aqr on the 2nd and 3.2 S, 1.0 E on the 28th. The planet is in steady retrograde, so you can extrapolate for any date between. (For go-toers, RA 22 23.8 and Dec -10 36 on the 2nd; 22 21.3 and -11 00 on the 28th.)

STARS: Two very good carbons, two nice doubles and two triples, one with all components being the same magnitude.

THE GOOD STUFF: Twelve M's and nine H400's, consisting of 10 open clusters, 8 globulars, 2 planetaries and one diffuse nebula. Also included is the Veil and one lonely galaxy. Not many DSS negatives this month due to their globular and planetary photos not providing much information - unlike galaxy and diffuse nebulae - in regard what you might see in your scope.



SUPERNOVAE: SN 2013ej in M74 is hanging in there at mag 12.8 making it an easy target for medium sized scopes. Perhaps the reason I'm so intrigued by supernovae is the fact that we wouldn't be here without them. Of course the ones responsible for us are long gone and happened much closer, but still....

QUESTIONS: As always, questions and comments are welcome!

*Some sources say NGC 6885 is actually part of 6882, which means the H400 would be back to 399, but others say the two clusters are as I have listed them on the spreadsheet.

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.*

9/7						9/28		
SS	CTE	NTE	ATE	MS	SS	CTE	NTE	MR
19:07	19:37	20:12	20:48	19:50	18:28	18:57	19:31	01:12

Comet	RA ¹	Dec ¹	Star	N/S	E/W	N/S/day	E/W/day	Mag ²	Mag ¹	Urano	Date*
Lemmon C2012 F6	19 01.8	+65 04	δ Dra	2.6 S	1.1 W	0.3 S	0.2 W	10	16.4	31	9/7
2P Encke	04 26.1	+35 46	ξ Per	0.1 S	5.6 E	0.3 N	0.8 E	10	14.2	96	9/7
Lemmon C2012 F6	18 40.4	+59 09	ο Dra	0.2 S	1.3 W	0.3 S	0.1 W	10	17.1	54	9/28
2P Encke	06 31.4	+43 04	β Aur	1.8 S	5.8 E	0.2 N	1.8 E	10	11.7	67	9/28

¹from <http://www.minorplanetcenter.net/iau/Ephemerides/> ²from <http://www.aerith.net/comet/future-comets/>

*at 8 PM EDT

Object (Type)	RA	Dec	Star	N/S	E/W	Mag*/(# of Stars)	Size ('/)" Sep ('")	Spect/ M# or	Dist (ly)	Urano Page	Comment [B-V] (optimum x)
X Sge (CS)	20 05.1	+20 39	γ Sge	1.2 N	1.6 E	8.7-9.7		CII		163	B-V=3.3
RT Cap (CS)	20 17.1	-21 19	π Cap	3.1 S	2.4 W	6.5-8.1		CII		343	B-V=3.9
Σ2703 (MS)	20 37.0	+14 45	β Del	0.1 N	0.2 W	8, 8, 8	25, 74			209 ni	(30)
γ Del (MS)	20 46.7	+16 07	-	-	-	4.5, 5	10			209	(75)
12 Aqr (MS)	21 04.1	-05 49	ε Aqr	3.7 N	4.1 E	5.5, 7.5	2.8	gG4, A3		299	(270)
Σ2816	21 39.0	+57 30	μ Cep	1.3 S	0.6 W	6, 8, 8	12, 20			57 ni	(60)
NGC 6779 (GC)	19 16.6	+30 11	β Cyg	2.2 N	3.0 W	8.4	8.8	M56	45K	118	
NGC 6809 (GC)	19 40.0	-30 58	ζ Sgr	1.1 S	8.1 E	6.3	19	M55	19K	379	
NGC 6814* (SBbc)	19 42.7	-10 19	57 Aql	2.0 S	3.0 W	[13.5]	3.0	H744-3	75M	297	
NGC 6818 (PN)	19 44.0	-14 09	α ¹ Cap	1.6 S	8.2 W	9.3	0.8	H51-4*	2850	297	GX 6822 is 0.7S/0.2E

NGC 6838 (GC)	19 53.6	+18 47	γ Sge	0.8 S	1.2 W	8.4	7.2	M71	18K	162	
NGC 6853 (PN)	19 59.6	+22 43	γ Sge	3.2 N	0.2 E	7.4	6.7	M27	1000	162	
NGC 6882* (OC)	20 11.8	+26 49	prv	4.1 N	2.7 E		10	H22-8*	3800	163ni	includes 19 Vul
NGC 6885* (OC)	20 12.0	+26 29	prv	0.3 S	0.2 E	(35)	20	H20-8*	3800	163	
NGC 6864 (GC)	20 06.1	-21 55	β Cap	7.1 S	3.5 W	8.6	6.8	M75	78K	343	
NGC 6866* (OC)	20 03.9	+44 10	δ Cyg	1.2 S	3.4 E	(50)	7.0	H59-7*	3100	84	
NGC 6913 (OC)	20 24.0	+38 30	γ Cyg	1.7 S	0.3 E	(20)	10	M29	3100	84	
NGC 6960 (SNR)	20 45.7	+30 43	ϵ Cyg	3.2 S	0.1 W	-	70X6	H15-5	1300	120	+6992 0.9N/2.3E = Veil
NGC 6981 (GC)	20 53.5	-12 32	ϵ Aqr	3.0 S	1.5 E	9.2	6.6	M72	59K	299	
NGC 6994 (OC)	20 58.9	-12 38	prv	0.1 S	1.3 E	(4)	1.4	M73		299	
NGC 7000 (DN)	20 59.3	+44 31	α Cyg	1.0 S	3.0 E		120x10				
NGC 7078 (GC)	21 30.0	+12 10	ϵ Peg	2.3 N	3.5 W	6.3	18	M15	49K	210	North American
NGC 7089 (GC)	21 33.5	-00 49	β Aqr	4.8 N	0.5 E	6.6	16	M2	52K	255	
NGC 7092 (OC)	21 31.7	+48 25	α Cyg	3.2 N	8.5 E	(25)	31	M39	820	86	
NGC 7086* (OC)	21 30.5	+51 36	prv	3.2 N	0.2 W		12	H32-6*		57	
NGC 7128* (OC)	21 44.0	+53 43	prv	2.1 N	2.1 E	(20)	4.0	H40-7*	9400	57	
NGC 7099 (GC)	21 40.4	-23 11	γ Cap	6.5 S	-	6.9	12	M30	41K	346	
NGC 7160* (OC)	21 53.7	+62 36	α Cep	-	4.1 E	(25)	5.0	H67-8*	4500	33	
NGC 7142* (OC)	21 45.2	+65 46	prv	3.2 N	0.8 W	(35)	12	H66-7*	7600	33	

*[Surf
Brtnss
for GX's]

*DSS image

*H400

ni=shown but

mag per
square
arcmin

not
identi-
fied



the Space Place

September – October 2013 / Vol. 6, Issue 4

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

The National Science Teachers' Association has recently published the Next Generation Science Standards. From the NSTA website, these K-12 standards "... establish learning expectations for students that integrate three important dimensions—science and engineering practices, disciplinary core ideas, and crosscutting concepts ...” After reviewing these new standards carefully, we have found that many of the modules on The Space Place website support one or more. Stay tuned for a helpful index page that will allow you to search for Space Place content by each of the three dimensions in the NGSS.



What's new?

Kids end up with their own wacky, loopy stories in our new "Loopy Legends" activity. As with "Mad-Libs," they fill in requested words with whatever they can imagine. Then, their words are folded into a story about an interesting science-related event. For example, a meteor falls through a boy's roof and lands on his bedroom floor in the middle of the night . . . or some loopy variation thereof. The student's version of the story is followed by a short explanation of the science. Earth science and physical science (astronomy and heliophysics) topics are included. Check it out at spaceplace.nasa.gov/loopy-legends.

Spotlight on The Space Place Calendar



Have you discovered The Space Place Calendar? It's at spaceplace.nasa.gov/calendar. Each month is its own page, with a beautiful space- or Earth-related image. The images, plus 10 or 12 "special days" for each month are highlighted with links to relevant pages on the website. It is a valuable resource to help you make connections with history, science, and just plain silliness, in some cases. For example, September 5 is "National Cheese Pizza Day." That means you can use the round cardboard from the take-out pizza to make our beautiful [Galactic Mobile](http://spaceplace.nasa.gov/galactic-mobile). Other real-life events may connect with science articles. September 22 is the Autumnal Equinox. What does that mean? What causes the seasons, anyway? That date links to spaceplace.nasa.gov/seasons.

Spotlight on cool subjects—birds and radar

As the Sun sets in late Fall, migratory birds all across North America take to the skies for a long journey. Direct your students to the latest Space Place article so they can find out how NASA radar helps scientists better understand these birds' travels. When they are done, be sure they check out our fun new hands-on activity—make your own bird-feeder wreath! Kids can use their bird feeders to see what birds are in their neighborhood. Check it out at spaceplace.nasa.gov/birds.



For out-of-school time

Board games are in. Of course, so are video games. What we have, though, is a hybrid of the best of both, plus it's educational! The Wild Weather Adventure game is an online board game for 1 to 4 players. If there's only one player, the computer is the opponent, its skill level selectable. Two or more players take turns, as in any other board game. There are playing pieces (Research ships with different colors and names), a spinner (in lieu of dice), a map of the world for a playing "surface," and blocks and boosts along the way. To advance, players must answer weather and Earth science related multiple choice questions. They can choose whether their question will be easy, medium, or hard. Of course, right answers to harder questions are rewarded proportionally. Decision points present unknown risks and rewards. Check it out at spaceplace.nasa.gov/wild-weather-adventure.

www.nasa.gov

Make these days special

September 6: Read a Book Day.

There are several fun books on the Space Place at spaceplace.nasa.gov/menu/storybook/.

September 11: Make Your Bed Day.

Ask students, "How would your bed look through an infrared camera if you had just gotten out of it?" The Infrared Photo Album will give a clue. spaceplace.nasa.gov/ir-photo-album.

September 23, 1846: Neptune discovered.

Students can find Neptune's place in the solar system and play mini-games with the planets at the Solar System Explorer, spaceplace.nasa.gov/solar-system-explorer.

October 1-31: Computer Learning Month.

Introduce the simple on/off language of computers at spaceplace.nasa.gov/binary-code2.

October 4, 1957: Sputnik, the first satellite, was launched by the Soviet Union.

All sputnik did was beep! Show your students what satellites can do now by directing them to the Missions to Planet Earth Card Game at spaceplace.nasa.gov/earth-card-game.

October 21: Orionids Meteor Shower.

Check out spaceplace.nasa.gov/meteor-shower. Then look for "shooting stars" in the part of the sky near constellation Orion the Hunter.

A personal note...



As webmaster and writer of The Space Place for 14 years (and 30 years at NASA's Jet Propulsion Lab), it was with mixed feelings that I retired this summer. Being part of this creative team has been challenging, grueling, and more fun than any job I could have ever imagined for my English major self. It has been a joy to create resources intended to help students and educators to enrich their experience and, I hope, make learning more fun.

Our new writer and webmaster is Alex Kasprak, a young man with glowing credentials, great new ideas, and a lot of enthusiasm. He will bring his own unique touch to The Space Place.

We wish you a wonderful year, and remember to smile and laugh.

Diane K. Fisher



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:

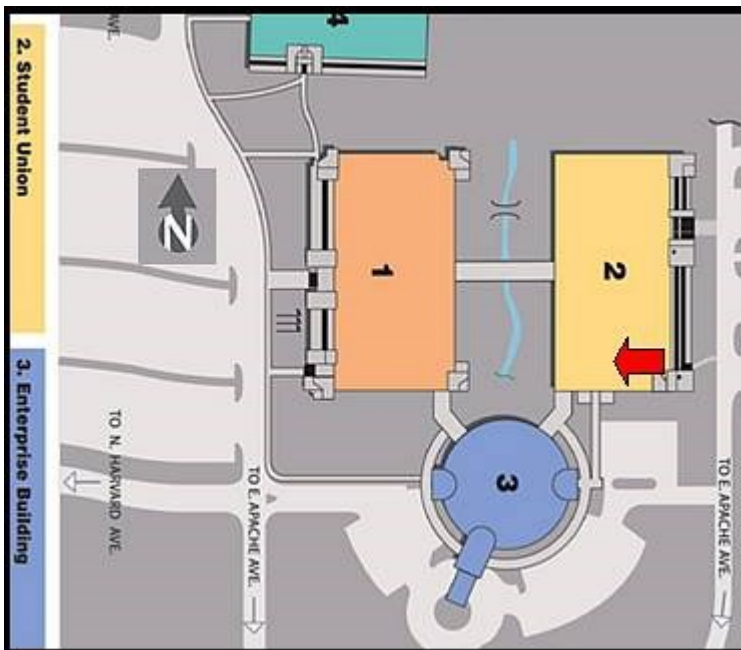
TCC Northeast Campus, 3727 E. Apache St., Student Union Bldg. 2, Room 1603

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/>

We hope to see you there!



Our next General Meeting will be on Friday, September 20 at 7:00 PM.

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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 FALL 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.

