

**The Feb 2012 Newsletter did not appear due to technical problems
The following appeared in its place. Posted Feb 28, 2012 By John Land**

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**Friday March 2nd 7:00 PM Meeting at TCC NE Campus
Program Observing the Sun – Counting Sunspots – Solar Activity Cycle –
Making a Safe Solar filter - Details below**

Link to **Campus Map** <http://astrotulsa.com/TCC-NE-CAMPUS-Website-Map.pdf>

Message from President – Ann Bruun

Hello Astronomy Club of Tulsa Members. We have made it to February without too much trouble from the weather so far. It is nice to be able to get outside on these clear nights and take in the winter skies. Some of the most stunning sights are only available during these bitterly cold months. Right now we are also being treated to beautiful views of Venus, Jupiter and Mars in the evening sky.

There are several observatory projects in the works for this year. Two of these projects will involve hiring professionals. We have a team in place that is currently collecting bids from contractors to find the right people. Tony, Teresa and Chris have taken on this not so easy task. If you have any ideas or suggestions please contact one of them. The two repairs we are looking for professional help on are first; the pulley system on the dome hatch needs to be updated and second; there are several cinder blocks that were damaged by water during the time the roof was leaking on the west side of the classroom. These will need to be removed and replaced. Projects we, the members, will handle include painting the building inside and out and finishing the repairs to the stairway. There is also a plan to add more observing pads to the field. As spring gets closer I will keep you updated on when we might hold a painting/repair party. Hopefully we can work in some food and observing after the workday.

Word is getting around about the Astronomy Club of Tulsa. Between the events at TASM, our Sidewalk Astronomy at Bass Pro and the Internet more people are finding out about the club and joining us at our Public Star Parties. It is thanks to the efforts of the membership that we are able to share the wonders of the night sky that many people would never get to experience otherwise. Like any club the more you put into it the more you get out of it. Thanks everyone for your efforts!

Note: Due to Easter the 1st week of April, we will have our 2nd Club meeting at TCC campus
On March 30th

Ann Bruun

Astronomy Club of Tulsa President

Event	Date	Program	Where	Time
March Meeting	3/2/2012	Program Observing the Sun	TCC NE Campus	7:00 PM
SideWalk Astronomy	3/3/2012	Sidewalk Astronomy	Bass Pro	7:00 PM
March Star Party	3/16/2012	Public Observing Night	ACT Observatory	7:00 PM
March Star Party	3/23/2012	Members Observing Night	ACT Observatory	7:00 PM
Special Meeting	3/24/2012	TUVA Messier Marathon	Caravan Departs at	3:30 PM
March Meeting	3/30/2012	Club Meeting & Program	TCC NE Campus	7:00 PM
April Star Party	4/13/2012	Public Observing Night	ACT Observatory	7:30 PM
April Star Party	4/20/2012	Members Observing Night	ACT Observatory	7:30 PM

Friday's Mar. 2nd meeting topic. This month member John Land will be making a presentation about the how to observe our nearest star, the Sun. There is much debate about changes in the climate of our planet Earth. Events on the sun have a profound effect on our planet as well as other planets. The Sun has become more active over the last two years. Solar cycle # 24 is expected to reach its peak in early 2013. Serious scientist want to know how much events on the sun are involved in these changes.



Making a Safe Solar Filter Besides observing sunspots two major solar events are coming this year. On **Sunday May 20th** there is an **annular eclipse of the sun**. For Tulsans the sun will be about 70% covered when sunset arrives. The path of full annularity runs from west Texas to the California coast. This is that same Saros cycle that produced the May 10, 1994 annual eclipse that ran through central Oklahoma.



Venus Transit Tuesday June 5th the planet Venus will cross directly in front of the sun. The transit will start about 5:10 PM CDT and continue until sunset. The next Venus transits will be not until Dec 10, 2117 and Dec 8, 2125. Only the 2125 will be visible from Oklahoma. We will be talking about how to build a safe solar filter to observe these solar events. More details at

<http://www.astrosociety.org/education/publications/tnl/78/78.html>

<http://apod.nasa.gov/apod/ap040615.html>



Messier Marathon Sat March 24th Each year brave astronomers assemble to try to observe 100 or more Messier objects in a single night. This annual event takes place at the TUVA observatory near Checotah, OK. Ron and Maura Wood have welcomed astronomers to their rural Oklahoma

farm. Ann Bruun will be forming a caravan at 3:30 PM at the Burger King in Broken Arrow just south of the Elm place exit on the BA Expressway. We will arrive at TUVVA around 5:30 to enjoy a pot luck supper and set up for a challenging night of observing. Contact Ann for details. More information will follow later. Images from a previous years Marathons can be seen at

<http://astrotulsa.com/Gallery/TUVA/MM2007/TUVAMM2007.html>

Coming March Sky Events

Mars comes to opposition on March 3. The Date of our Sidewalk astronomy event at Bass Pro. On March 5th Mars is closest to Earth Opposition occurs when a planet is directly opposite of the sun as viewed from Earth. Generally this is the best time to observe a planet as it will be it's closest to Earth and be visible all night. During March Mars will rise in the east near sunset in the constellation of Leo, the Lion.

Mercury reaches its greatest evening height on March 5th Although Mercury is fairly bright as planets go, Its always a challenge to observe since it seldom rises high enough to escape the band of twilight. To find Mercury note the position of sunset then start searching the sky about 10 degrees above and a little left of that point 30 minutes after sunset. Binoculars when assist you in locating it. Generally Mercury appears as a yellow golden star. The Messenger spacecraft is currently orbiting Mercury and returning our first high resolution images of its surface.

Look for Mercury about 10 degrees above and to the left of the sun's setting position.

Venus and Jupiter will be within 5 degrees of each other from March 8 to March 17 Finally Saturn makes opposition on April 15th - so pay your taxes early so you can go observing !

Finally some Astronomy Videos you might enjoy

This is an excellent 10 minute You Tube video about raising awareness of light pollution... It was made by a Norman OK student for her environmental science class.

http://www.youtube.com/watch?src_vid=8pAlblSFD6o&feature=iv&annotation_id=annotation_125595&v=UdIGJNVUwmE

International Space Station – full color images of cities at night

Resolution down to 60 meters and narrative documentation of each city

<http://www.youtube.com/watch?v=U7WuSP663uU&feature=fvwp&NR=1>

To shorten the video listen to the first two minute Then skip to Minutes 7:20 for USA cities

This one doesn't have near the resolution but does show OKC and Tulsa

<http://www.americaspace.org/?p=13913>

Below is a blog by Astronaut Don Pettit describing the difficulties of photography the earth while flying at 17,300 mph and a funny story about an errant peanut butter sandwich careening through the space station.

Earth Photography: (From Space) It's Harder Than It Looks

a Blog by ISS Astronaut Don Pettit Feb 24, 2012

<http://blogs.nasa.gov/cm/newui/blog/viewpostlist.jsp?blogname=letters>



From my orbital perspective, I am sitting still and Earth is moving. I sit above the grandest of all globes spinning below my feet, and watch the world speed by at an amazing eight kilometers per second (288 miles per minute, or 17,300 miles per hour). This makes Earth photography complicated.

Even with a shutter speed of 1/1000th of a second, eight meters (26 feet) of motion occurs during the exposure. Our 400-millimeter telephoto lens has a resolution of less than three meters on the ground. Simply pointing at a target and squeezing the shutter always yields a less-than-perfect image, and

precise manual tracking must be done to capture truly sharp pictures. It usually takes a new space station crewmember a month of on-orbit practice to use the full capability of this telephoto lens.

Another surprisingly difficult aspect of Earth photography is capturing a specific target. If I want to take a picture of Silverton, Oregon, my hometown, I have about 10 to 15 seconds of prime nadir (the point directly below us) viewing time to take the picture. If the image is taken off the nadir, a distorted, squashed projection is obtained. If I float up to the window and see my target, it's too late to take a picture. If the camera has the wrong lens, the memory card is full, the battery depleted, or the camera is on some non-standard setting enabled by its myriad buttons and knobs, the opportunity will be over by the time the situation is corrected. And some targets like my hometown, sitting in the middle of farmland, are low-contrast and difficult to find. If more than a few seconds are needed to spot the target, again the moment is lost. All of us have missed the chance to take that "good one." Fortunately, when in orbit, what goes around comes around, and in a few days there will be another chance.

It takes 90 minutes to circle the Earth, with about 60 minutes in daylight and 30 minutes in darkness. The globe is equally divided into day and night by the shadow line, but being 400 kilometers up, we travel a significant distance over the nighttime earth while the station remains in full sunlight. During those times, as viewed from Earth, we are brightly lit against a dark sky. This is a special period that makes it possible for people on the ground to observe space station pass overhead as a large, bright, moving point of light. This condition lasts for only about seven minutes; after that we are still overhead, but are unlit and so cannot be readily observed.

Ironically, when earthlings can see us, we cannot see them. The glare from the full sun effectively turns our windows into mirrors that return our own ghostly reflection. This often plays out when friends want to flash space station from the ground as it travels overhead. They shine green lasers, xenon strobes, and halogen spotlights at us as we sprint across the sky. These well-wishers don't know that we cannot see a thing during this time. The best time to try this is during a dark pass when orbital calculations show that we are passing overhead. This becomes complicated when highly collimated light from lasers are used, since the beam diameter at our orbital distance is about one kilometer, and this spot has to be tracking us while in the dark. And of course we have to be looking. As often happens, technical details complicate what seems like a simple observation. So far, all attempts at flashing the space station have failed.

Jelly on Both Sides a Blog by ISS Astronaut Don Pettit Feb 17, 2012

<http://blogs.nasa.gov/cm/newui/blog/viewpostlist.jsp?blogname=letters>



When your slice of bread falls on the floor, everyone anxiously looks to see if it landed jelly side up or jelly side down. Simple probability gives a 50-50 chance either way, but it seems more correlated to the difficulty of cleaning that particular section of flooring.

On space station the probabilities are still the same, but the results are different. I fumbled my bread after spreading a generous layer of my favorite concoction, peanut butter and honey. It sped toward the overhead panel and hit it before I could intervene. Fortunately, it landed jelly side out (it's interesting how many figures of speech have gravity-oriented references), so the 50-50 odds were in my favor this time.

Unfortunately, it ricocheted and sped off in a different direction. I noticed that the angle of incidence equaled the angle of reflection. My earth-honed intuition anticipated a different motion, so I was not able to keep up with the errant slice. Like a real-life version of the game "asteroids," it went on to hit a second panel. Jelly side was out again, so the 50-50 statistics were still in my favor. One more time my hand was lagging the trajectory. Like failing to flip heads three times in a row, the third collision was jelly side in, which immediately halted all motion. And just like on Earth, the outcome seemed related to the difficulty of cleaning the landing zone. After having hit two easy-to-clean aluminum panels, it landed on a white fabric covering on a patch of Velcro pile.

The fatalist in me accepts the inevitable Zero-G result of landing jelly side "down," so I decided to make sure the probability would always be 100%. Realizing that the bread is merely a vehicle for conveying peanut butter and honey, I decided to spread it on both sides. In weightlessness, it's easy to balance your slice on its edge so that it can be parked on the galley table without any fuss. And the result is pure tastebud heaven. I do it this way because I am in space, and I can.