January 2010

Inside this Issue

S*T*A*R
P.O. Box 863
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On the web at:
http://www.starastronomy.org

Edited by: Bob Fowler

THE SPECTROGRAM

Newsletter for the Society of Telescopy, Astronomy, and Radio

January's Meeting

The next meeting of S*T*A*R will be on Thursday, January 7th 2010. Our program will be ***"Things to see"*** presented by our own Ken Legal. All are welcome. The meeting will begin promptly at 8:00pm at the Monmouth Museum on the Brookdale Community College campus.

Editor's Corner

Many thanks to Nancy McGuire, Randy Walton, & Steve Fedor for contributing to this month's Spectrogram.

Reminder to pay membership dues $25/individual, $35/family. Donations are appreciated. Make payments to our treasurer Rob Nunn at a club meeting or mail a check payable to S*T*A*R Astronomy Society Inc to:

S*T*A*R Astronomy Society
P.O. Box 863
Red Bank, NJ 07701

February Issue

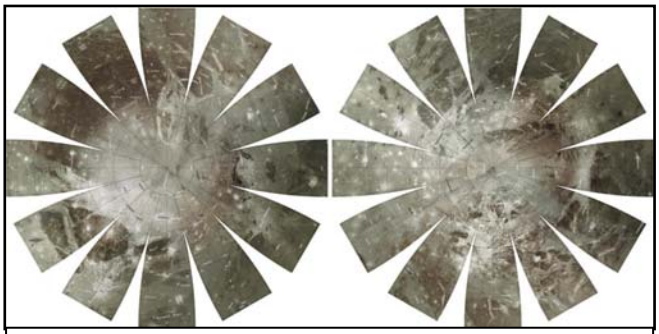
Please submit articles and contributions for the next *Spectrogram* by January 27. Please email to fowler@verizon.net.

Calendar

- ❖Jan 7, 2010 – Ken Legal
- ❖Feb 4, 2010 – ATM Night!
- ❖Mar 4, 2010 - TBA
- ❖Apr 1, 2010 - TBA
- ❖May 6, 2010 - TBA
- ❖Jun 3, 2010 – Annual Business Meeting

Got Pix? Like to Write?

Have you been out observing with your friends? Have you made any great astro-images? How about a story and pictures of your latest ATM project? If you have anything you'd like to share, email fowler@verizon.net and let us know what you've got!



The images used for the base of this Ganymede globe were chosen from coverage supplied by the Galileo solid-state imaging (SSI) camera and Voyager 1 and 2 spacecraft.

December Meeting Minutes

By Steve Fedor

The December 9th, 2009 meeting of S*T*A*R Astronomy club began at 8:05 p.m. and was chaired by president Nancy McQuire. There were 36 members and non-members in attendance.

Nancy began the meeting by discussing the evening's agenda. She then gave a brief presentation on the phenomena of lunar halos.

The evening's lecture "Meteorites" was presented by Derek Yoost. Derek discussed the various types and chemical composition of meteorites and showed slides of major meteor falls throughout the world. He also had many interesting stories regarding some of the falls as well as sharing his personal experiences hunting for meteorites. The presentation ended at 9:36 with Q&A along with Derek displaying his personal meteorite collection. At this time the meeting took a coffee break.

The meeting resumed with Dennis O'Leary discussing S*T*A*R's recent approval to use Dorbrook Park for local observing nights. Members who wish to use the park must fill out an application form and a responsibility waiver. These will be available online in the near future. The park ranger must approve use of the park one day in advance of observing.

V.P. Rich Gaynor appealed to the membership to form an Observing Committee and for someone to lead it. The purpose of the committee will be to hold local, informal observing sessions and to keep the club abreast of celestial events such as meteor showers and eclipses. All agreed that the club should resume these local nights since ther were so popular in the past.

Rich Gaynor discussed the Bayonet star party and stressed we need more volunteers for events such as these.

The 50/50 was drawn. The meeting was adjourned at 10:44.

President's Corner

By Nancy McGuire

I would like to start off 2010 by wishing everyone a Happy New Year. Here's wishing everyone health, happiness, prosperity, and of course clear skies!

One of my (and hopefully the Club's) objectives this year is to get more of us out at the eyepiece doing some hands-on observing. We recently held a board meeting and one of the action items was to form an official observing group complete with an official leader. I am happy to announce that Ahmad Jrad has agreed to lead our new observing group. Jay Boyarsky has agreed to help Ahmad and we are still looking for a few more volunteers. So in case being on the Observing Committee was on your list of New Year's Resolutions, please contact Ahmad. With two fine club members on the case and with Dennis O'Leary and John Batinsey having gotten us the use of Dorbrook Park, I say let The Year of Group Observing begin! Ken Legal's talk this month on Things to See" will help relaunch our love of exploring the night sky and bonding with our fellow amateur astronomers (the usual appearance of donuts and coffee at observing nights never hurts either!).

We (the board members) also want to get our finger on the pulse of what club members want, and also enhance the social aspect of our club. To this end, a survey will be coming in the near future. We also thought that a winter social event during one of the meetings would allow the folks who come to the meeting time to actually talk with each other and with newcomers. Next year we might want to do it in December right after Santa squeezes down some folks' chimneys with telescopes that they may not know how to set up or use. But since we already had our January meeting planned, we will do it this year for our February meeting. So dig out any equipment that you want to show off, have help with, or perhaps swap with someone for something else. No offense to our usual coffee, but maybe we can persuade some people to bring in some of their favorite dishes for all of us to try (Steve – you might get to try my famous deviled eggs after all!)

Nancy

Are You A S*T*A*R Member?

Meetings are the first Thursday of each month, except July and August, at 8:00 PM at the Monmouth Museum on the Brookdale Community College campus. Meetings generally consist of lectures and discussions by members or guest speakers on a variety of interesting astronomical topics. S*T*A*R is a member of United Astronomy Clubs of New Jersey (UACNJ), the Astronomical League (AL), and the International Dark Sky Association (IDA).

Memberships: ( )Individual....$25 ( ) Family...$35

Name_____

Address_____

City_____State___Zip_____

Phone_____

Email_____

Make checks payable to: S*T*A*R Astronomy Society, Inc. and mail to P.O. Box 863, Red Bank, NJ 07701

Sunglasses for a Solar Observatory

By Patrick Barry

In December 2006, an enormous solar flare erupted on the Sun's surface. The blast hurled a billion-ton cloud of gas (a coronal mass ejection, or CME) toward Earth and sparked days of intense geomagnetic activity with Northern Lights appearing across much of the United States.

While sky watchers enjoyed the show from Earth's surface, something ironic was happening in Earth orbit.

At the onset of the storm, the solar flare unleashed an intense pulse of X-rays. The flash blinded the Solar X-Ray Imager (SXI) on NOAA's GOES-13 satellite, damaging several rows of pixels. SXI was designed to monitor solar flares, but it must also be able to protect itself in extreme cases.

That's why NASA engineers gave the newest Geostationary Operational Environmental Satellite a new set of sophisticated "sunglasses." The new GOES-14 launched June 27 and reached geosynchronous orbit July 8.

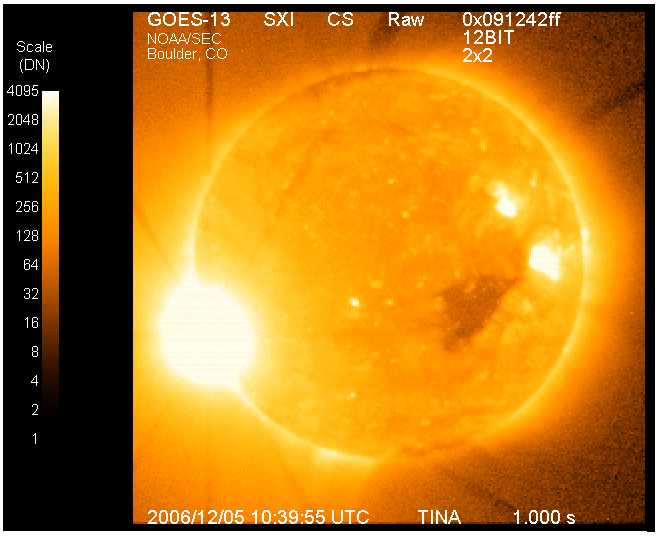
Its "sunglasses" are a new flight-software package that will enable the SXI sensor to observe even intense solar flares safely. Radiation from these largest flares can endanger military and civilian communications satellites, threaten astronauts in orbit, and even knock out cities' power grids. SXI serves as an early warning system for these flares and helps scientists better understand what causes them.

"We wanted to protect the sensor from overexposure, but we didn't want to shield it so much that it couldn't gather data when a flare is occurring," says Cynthia Tanner, SXI instrument systems manager for the GOES-NOP series at NASA's Goddard Space Flight Center in Greenbelt, Maryland. (GOES-14 was called GOES-O before achieving orbit).

Shielding the sensor from X-rays also reduces the amount of data it can gather about the flare. It's like stargazing with dark sunglasses on. So NASA engineers must strike a balance between protecting the sensor and gathering useful data.

When a dangerous flare occurs, the new SXI sensor can protect itself with five levels of gradually "darker" sunglasses. Each level is a combination of filters and exposure times carefully calibrated to control the sensor's exposure to harmful high-energy X-rays.

As the blast of X-rays from a major solar flare swells, GOES-14 can step up the protection for SXI through these five levels. The damaged sensor on GOES-13 had only two levels of protection—low and high. Rather than gradually increasing the amount of protection, the older sensor would remain at the low level of protection, switching to the high level only when the X-ray dose was very high.

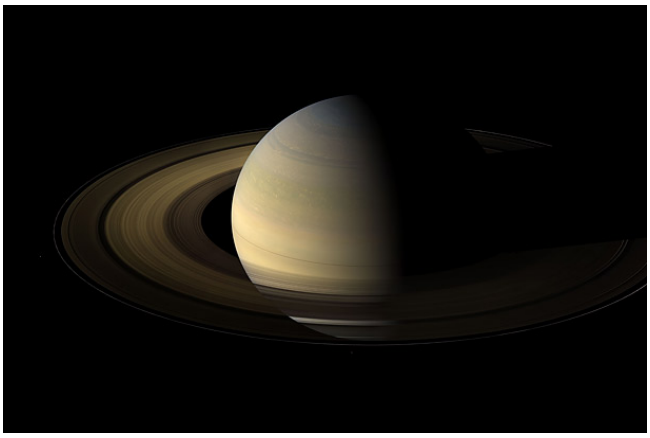


X-9 class solar flare December 6, 2006, as seen by GOES-13's Solar X-ray Imager. It was one of the strongest flares in the past 30 years.

"You can collect more science while you're going up through the levels of protection," Tanner says. "We've really fine-tuned it."

Forecasters anticipate a new solar maximum in 2012-2013, with plenty of sunspots and even more solar flares. "GOES-14 is ready," says Tanner.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Saturn, captured in a photograph taken by the Cassini orbiter.

In the Eyepiece

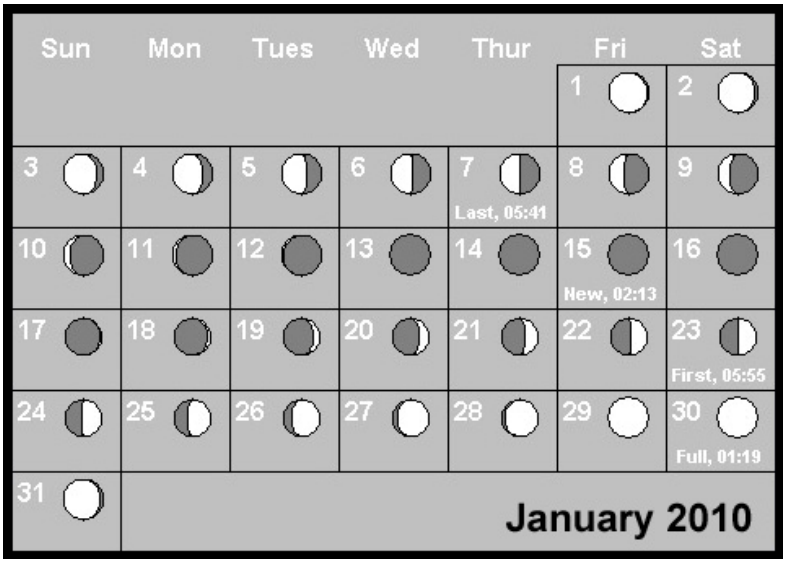
Here is a list of objects for this month. This is reproduced from www.skyhound.com with the kind permission of its creator and author of SkyTools Greg Crinklaw.

Object(s)	Class	Con	RA	Dec	Mag
M35 & NGC 2158	Open Cluster	Gemini	06h08m51.9s	+24°20'28"	5.6
M38	Open Cluster	Auriga	05h28m39.4s	+35°50'24"	6.8
Sigma Ori	Multiple Star	Orion	05h38m44.8s	-02°36'00"	3.8
M37	Open Cluster	Auriga	05h52m22.3s	+32°32'40"	6.2
The Trapezium	Multiple Star	Orion	05h35m16.5s	-05°23'23"	5.1
NGC 2017/HR 1944	Multiple Star	Lepus	05h39m16.2s	-17°50'58"	6.4
Beta Mon	Multiple Star	Monoceros	06h28m49.1s	-07°01'59"	3.8
NGC 2112	Open Cluster	Orion	05h53m52.2s	+00°23'32"	9.1
IC 418	Planetary Nebula	Lepus	05h27m28.2s	-12°41'50"	10.7
NGC 1931	Open Cluster	Auriga	05h31m24.8s	+34°15'12"	10.1
IC 2149	Planetary Nebula	Auriga	05h56m23.9s	+46°06'17"	11.2
NGC 1893 & IC 410	Open Cluster in Nebula	Auriga	05h22m41.1s	+33°23'49"	7.8
M50	Open Cluster	Monoceros	07h03m12.3s	-08°19'28"	7.2
The Crab Nebula	Diffuse Nebula	Taurus	05h34m30.0s	+22°01'00"	8.4
NGC 2022	Planetary Nebula	Orion	05h42m06.2s	+09°05'10"	12.4
Hubble's Variable Nebula	Reflection Nebula	Monoceros	06h39m12.0s	+08°44'00"	--
H 3-75	Planetary Nebula	Orion	05h40m44.8s	+12°21'16"	13.9
IC 421	Galaxy	Orion	05h32m14.8s	-07°55'01"	12.3
NGC 1999	Diffuse/Dark Nebula	Orion	05h36m24.0s	-06°43'00"	--
The Horsehead	Diffuse/Dark Nebula	Orion	05h41m00.0s	-02°27'00"	--
Abell 12	Planetary Nebula	Orion	06h02m21.4s	+09°39'07"	13.9
IC 443	Diffuse Nebula	Gemini	06h17m48.0s	+22°49'00"	12.0
The Cone Nebula	Open Cluster	Monoceros	06h41m03.2s	+09°53'07"	4.1
NGC 2242	Planetary Nebula	Auriga	06h34m07.4s	+44°46'37"	15.2
K 2-2	Planetary Nebula	Monoceros	06h52m28.4s	+09°58'17"	12.5

Coordinates are epoch 2000.0

Guides and Calendars

Lunar Phases

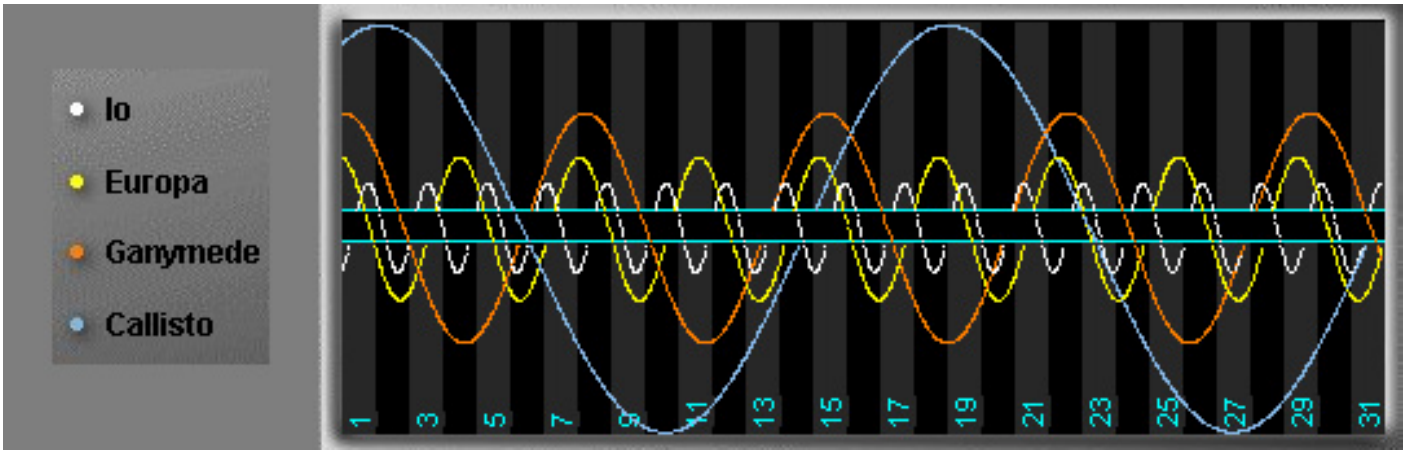


Great Red Spot Transit Times

1	04:16;	14:12;	
2	00:08;	10:04;	20:00;
3	05:56;	15:51;	
4	01:47;	11:43;	21:39;
5	07:35;	17:31;	
6	03:27;	13:22;	23:18;
7	09:14;	19:10;	
8	05:06;	15:02;	
9	00:58;	10:53;	20:49;
10	06:45;	16:41;	
11	02:37;	12:33;	22:28;
12	08:24;	18:20;	
13	04:16;	14:12;	
14	00:08;	10:04;	19:59;
15	05:56;	15:51;	
16	01:47;	11:43;	21:39;
17	07:35;	17:30;	
18	03:27;	13:22;	23:18;
19	09:14;	19:10;	
20	05:06;	15:02;	
21	00:58;	10:53;	20:49;
22	06:45;	16:41;	
23	02:37;	12:33;	22:28;
24	08:24;	18:20;	
25	04:16;	14:12;	
26	00:08;	10:04;	19:59;
27	05:55;	15:51;	
28	01:47;	11:43;	21:39;
29	07:35;	17:30;	
30	03:26;	13:22;	23:18;
31	09:14;	19:10;	

Jupiter Moon Calendar

Here is a graphical depiction of the visible moons of Jupiter for the month of September 2009.



January 2010 Celestial Events

supplied by J. Randolph Walton (Randy)

Day	Date	Time (EDT)	Event
Sat	2	07:22	Sunrise
		16:46	Sunset
		17:20	Mercury Sets
		19:21	Moon Rise
		19:30	Mars Rises
		20:25	Jupiter Sets
		23:25	Saturn Rises
Sun	3	14:00	**Quadrantids meteors (ZHR=120)**
Thu	7	05:39	**Last Quarter Moon**
		11:13	Moon Set
Sat	9	02:27	Moon Rise
		06:15	Mercury Rises
		07:22	Sunrise
		16:53	Sunset
		18:55	Mars Rises
		20:05	Jupiter Sets
		23:00	Saturn Rises
Fri	15	02:06	**Annular solar eclipse** (not visible in US)
		02:11	**New Moon**
		07:31	Moon Rise
Sat	16	05:50	Mercury Rises
		07:20	Sunrise
		17:00	Sunset
		18:15	Mars Rises
		18:32	Moon Set
		19:45	Jupiter Sets
		22:30	Saturn Rises
Sat	23	05:40	Mercury Rises
		05:53	**First Quarter Moon**
		07:16	Sunrise
		10:52	Moon Rise
		17:08	Sunset
		17:20	Venus Sets
		17:30	Mars Rises
		18:00	**Lunar Straight Wall visible**
		19:25	Jupiter Sets
		22:05	Saturn Rises
Wed	27	17:10	Mars Rises
			Mars closest approach
Sat	30	01:18	**Full Moon**
		05:50	Mercury Rises
		07:10	Sunrise
		07:15	Moon Sets
		16:50	Mars Rises
		17:17	Sunset
		17:35	Venus Sets
		19:05	Jupiter Sets
		21:35	Saturn Rises