October 2009

Inside this Issue

S*T*A*R
P.O. Box 863
Red Bank, NJ 07701
On the web at:
http://www.starastronomy.org

Edited by: Bob Fowler

October's Meeting

The next meeting of S*T*A*R will be on Thursday, October 1, 2009. Our program will be ***"Low Energy Routes to the Moon and Beyond"*** with guest speaker Dr. Edward Belbruno of Innovative Orbital Design Inc., Princeton University. 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 Steve Siegel, Randy Walton, Greg Crinklaw, and 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 the September 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

November Issue

Please submit articles and contributions for the next *Spectrogram* by October 25.
Please email to fowler@verizon.net.

HOT NEWS!

Group Purchase of Royal Astronomical Society Items

Deadline to order is October 9th.
See page 5 for complete details.

Calendar

- Oct 1, 2009 - ***" Low Energy Routes to the Moon and Beyond"*** by Dr. Edward Belbruno
- Nov 5, 2009 - ***"The Discovery of Cosmic Microwave Background Radiation and its Role in Cosmology "*** by Dr. Robert Wilson

Spiral Galaxy M81
The magnificent spiral arms of the nearby galaxy Messier 81 are highlighted in this NASA Spitzer Space Telescope image. Located in the northern constellation of Ursa Major, this galaxy is easily visible through binoculars or a small telescope.
Image Credit: NASA

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!

Outreach and You

Editorial by Bob Fowler

Summer is over, cooler weather is here and, with any luck, our seeing conditions should improve over the next few weeks. Considering that we had one of the worst summers in years (observation wise), I doubt that many astronomers will complain about the arrival of autumn. Our "International Year" has been a bit of a washout.

So, what has this got to do with outreach? Well, just because conditions haven't been the best is no reason not to share our passion for the stars with the general public. "Outreach" doesn't have to be an organized event. When conditions are less than ideal for observing your favorite targets and that trip to Coyle is not in the cards, why not go out anyway to a more local spot. I've found a couple of "high traffic" places within 15 minutes of my home where I can set up a small scope to do some casual observing. The bonus of a high traffic spot is that I usually get more than just a few people who stop by for a chat and a look through the scope.

One park in particular that I frequent is popular with folks out with the dog for an evening walk. Every night I'm there, I see and speak with at least a dozen people and give them an opportunity they otherwise wouldn't have, be it seeing the moon, Jupiter, or other interesting sights. There is nothing quite like seeing the look on someone's face their first time seeing the lunar surface, the rings of Saturn, or the moons of Jupiter through a telescope. Without exception, everyone I interact with in this way is fascinated with what they see.

It's easy for us to forget that sense of awe we had when we first turned our attentions skyward. It's possible to recapture a bit of that feeling ourselves when we share our hobby with others.

So, don't be shy. Find yourself a place for those "less than exciting" nights, put down the remote control, walk away from the PC, and go out when you normally wouldn't be bothered. You just might find you'll reignite an old spark inside yourself.

Oh yes, lest I forget… Don't forget to invite people you meet to one of our meetings!

Clear skies!

June Meeting Minutes

By Steve Fedor

The September 3rd, 2009 meeting of S*T*A*R Astronomy Club began at 8:05 pm. There were 37 members and non-members in attendance. President Nancy McQuire chaired the meeting and began by welcoming two first time attendees and discussing the evening's agenda and upcoming events. She also discussed reviving the local group observing sessions and noted that the dues are due. The club also gave our previous president Gavin Warnes a round of applause for his dedication to the club over the last few years.

Beginning at 8:12 S*T*A*R was treated to a lecture by Dr. Charles Keaton who presented *"A Ray of Light in a Sea of Dark Matter."* Dr. Keaton presented many aspects regarding the mysterious nature of the cosmos, particularly dark matter. He discussed his career efforts to detect dark matter by observing the effects of gravitational lensing by galaxies. The talk also included many interesting topics such as the inflationary period of the universe and a simulation of dark matter interaction with normal matter. The talk concluded at 9:19.

Nancy McQuire then proposed the club offer a 20% student discount for membership. The intent was to make S*T*A*R more accessible to students at Brookdale college. The proposition was put to a vote. All but two people voted against the idea.

Kevin Gallagher then made his debut presenting "Object of the Month." The theme was planetary nebulae. Kevin presented "The Blinking Planetary" NGC-6826. The challenge objects were Abel 61 &71.

At 9:30 the meeting took a coffee break and resumed at 10:00.

Dennis O'Leary, our resident NASA Solar System Ambassador, then gave us an update of current NASA missions including LCROSS and DAWN. He then presented epsilon Aurigae, a mysterious, bright, eclipsing binary variable star. He invited everyone to visit www.citizensky.org and assist in the amateur's effort to understand more the nature of the eclipses.

Nancy raffled off the "Cosmos" book she donated as a door prize for the picnic attendees. It was won by Aneesha Doshi, the daughter of Sam Doshi.

Announcements:
Randy Walton: Indicated there was free literature available. He also mentioned that ASTRA would be doing a group purchase of observing handbooks and calendars.

Bob Fowler: Indicated he needs articles for the Spectrogram.

Steve Siegel: Indicated he needs help at a star party at the Watchung Reservation on November 13th.

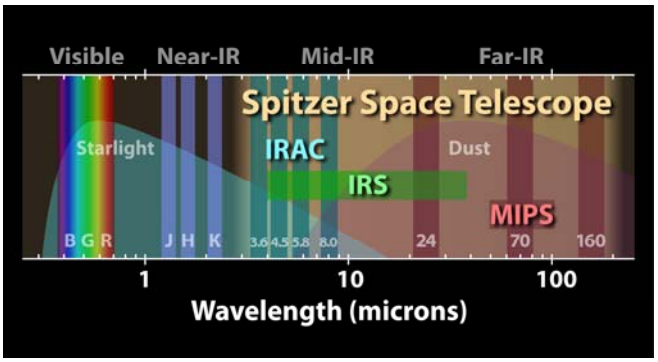
Dennis O'Leary: Solicited for help at a star party at Middle Lake in Monroe Township on Nov. 24th.

Spitzer, the Sequel

The Spitzer Space Telescope is getting a second chance at life.

The liquid helium "lifeblood" that flows through the telescope has finally run out, bringing Spitzer's primary mission to an end. But a new phase of this infrared telescope's exploration of the universe is just beginning.

Even without liquid helium, which cooled the telescope to about 2 degrees above absolute zero (-271°C), Spitzer will continue to do important research—some of which couldn't easily be done during its primary mission. For example, scientists will use Spitzer's "second life" to explore the rate of expansion of the universe, study variable stars, and search for near-Earth asteroids that could pose a threat to our planet.



The "warm mission" of the Spitzer Space Telescope will still be able to use two sensors in its Infrared Array Camera (IRAC) to continue its observations of the infrared universe.

"We always knew that a 'warm phase' of the mission was a possibility, but it became ever more exciting scientifically as we started to plan for it seriously," says JPL's Michael Werner, Project Scientist for Spitzer. "Spitzer is just going on and on like the Energizer bunny."

Launched in August 2003 as the last of NASA's four Great Observatories, Spitzer specializes in observing infrared light, which is invisible to normal, optical telescopes.

That gives Spitzer the power to see relatively dark, cool objects such as planet-forming discs or nearby asteroids. These objects are too cold to emit light at visible wavelengths, but they're still warm enough to emit infrared light.

In fact, all warm objects "glow" with infrared light—even telescopes. That's why Spitzer had to be cooled with liquid helium to such a low temperature. Otherwise, it would be blinded by its own infrared glow.

As the helium expires, Spitzer will warm to about 30 degrees above absolute zero (–243°C). At that temperature, the telescope will begin emitting long-wavelength infrared light, but two of its short-wavelength sensors will still work perfectly.

And with more telescope time available for the remaining sensors, mission managers can more easily schedule new research proposals designed for those sensors. For example, scientists have recently realized how to use infrared observations to improve our measurements of the rate of expansion of the universe. And interest in tracking near-Earth objects has grown in recent years—a task for which Spitzer is well suited.

"Science has progressed, and people always have new ideas," Werner says. In its second life, Spitzer will help turn those ideas into new discoveries.

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

Are you a S*T*A*R Member?

S*T*A*R is the proud owner of a monstrous 25" Dobsonian Obsession reflector – which members can gain access to!

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

Searching The Astro Net Archaeoastronomy

By Steven Siegel

Archaeoastronomy is the study of ancient cultures and how they related to astronomy. How we look and view the heavens today has its roots in this rich history. By exploring the internet in this field, you will come across observatories that are several thousand years old in places such as India and Mexico. There are also great views of ancient observatories taken by GeoEye's Ikonos Satellite. You will learn about people such as, Aryabhata, who was one of the first true astronomers. Aryabhata was born in India in 476AD. Aryabhata was the first to understand our solar system. He understood the reason for eclipses, was able to figure out that the planets revolved around the sun in elliptical orbits, and that our Earth rotated on its axis. Due to his many contributions to astronomy and mathematics, there is a statue of him at the Inter-University Centre for Astronomy and Physics located in India and the Soviets named a satellite in his honor. Archaeoastronomy will help give you a different perspective of the sky.

Want to learn about a particular culture and how they related to astronomy? Try some of these:

Africa: This country is still ripe for archaeological digs and discoveries. For a taste of discoveries in the heart of this ancient land visit:
http://library.thinkquest.org/C0118421/africakenya.html
and http://library.thinkquest.org/C0118421/africazim.html

Please remember to click "next" at the bottom of the page for information regarding astronomy and how it relates to this archeological site.

India: http://www.cloudbait.com/archaeo/india.html This web site focuses on Maharaja Sawai Jai Singh II (1688-1743 AD) who built stone observatories in many parts of India. This web site is complete with photographs and explanations of his fascinating work.

More photos of Maharaja Sawai jai Singh II's work along with general information regarding India and astronomy:
http://www.crystalinks.com/indiastronomy.html

Megaliths as they pertain to astronomy (Example: Stonehenge): http://www.megaliths.net. Numerous countries are represented here. Look at the top of the Home page and click on a country or in some cases, a continent of interest. The "Sky Map" link located at the top of the home page will bring you to a planisphere for the year 3000BC. This will show you what the ancient cultures saw in their sky and how their structures related to their heavens.

The Native American and how they related to astronomy visit:
http://www.windows.ucar.edu/tour/link=/the_universe/uts/amtribes.html&edu=mid This is an easy to understand site with further links on the history of astronomy.

Free Courses/Learning Materials:
http://uk.dir.yahoo.com/Social_Science/Anthropology_and_Archaeology/Archaeology/Archaeoastronomy/

Observing Lists

The internet is filled with many kinds of observing lists designed for small telescopes. The following are some of the lists and observing guides to help get you started.

100 Best Double Stars:
http://www.astroleague.org/al/obsclubs/dblstar/dblstar2.html
This list contains a printable spread sheet with location, brightness, separation, and position angle. The list was compiled by the Astronomical League in Nashville, TN.

Colored Doubles:
This list of double stars and the constellations they are in visit: *http://www.jouscout.com/astro/belmont/belmontd.htm*

Open Star Cluster and Observing Guide (Courtesy of The Astronomical League):
http://www.astroleague.org/al/obsclubs/opencluster/OC_Manual.pdf

Various Observing Lists:
http://www.marksastropix.us/index.html
Have interactive lists which contain lots of information, pictures, and diagrams. Lists coincides with Sky Atlas 2000.0 Click on "Deep Sky" to get a listing of Stars, Planetaries, Nebulae, Open Clusters, Globular Clusters, and Galaxies.

6 Inch and Smaller Telescopes:
http://www.geocities.com/the_150mm_reflector

Binocular Objects:
www.uvaa.org/BinocularObjects.doc
http://www.cloudynights.com/documents/binocular.pdf
Click on the links to get detailed sky charts
http://x.astrogeek.org/observations/list.php?list_id=3 60 best binocular objects

Observation Logs:
Choose your format (PDF or Microsoft Word):
http://www.vega-sky-center.com Scroll towards bottom of the page (stop and take note of the current solar images from SOHO).

Group Purchase of Royal Astronomical Society Items

The ASTRA astronomy club is taking orders to try to make a bulk purchase of the Royal Astronomical Society of Canada (RASC) Observer's Handbook and Calendar for the coming year at a discount. The RASC has not set the prices for shipping yet, but the discounted price is expected to be about the same as last year. We will collect the discount price, which includes shipping and handling to ASTRA. If we do not meet the minimum order for discount, the money collected will be refunded.

The ***Observer's Handbook*** is a 320+ page guide published annually. The sections in the ***Observer's Handbook*** are of two kinds: **Sections dealing with astronomical events** that occur during the year, e.g. times of sunrise, sunset, moonrise, moonset, eclipses, meteor showers, star occultations by the Moon and by asteroids and a section called "The Sky Month By Month"; and **Sections dealing with astronomical data** and information that does not change from year to year

The ***Observer's Calendar*** has an astronomical photo for each month, times of sunrise, sunset, moonrise, moonset, phases of the moon, and the most important astronomical events that occur during the year.

Item	Reg. Price & Shipping	Expected Disc. Price & Shipping
Observer's Handbook	$32.45	$21.00
Observer's Calendar	$23.45	$16.00

Name:
Phone: ( )
Member of which astronomy club:

Qty.	Item	Price each	Total
		$	$
		$	$
		Total	**$**

Please use this form to list what you want, make a check out to ASTRA, and give it to Randy Walton at an astronomy club meeting, or mail it to ASTRA, Robert J. Novins Planetarium, Ocean County College, P.O. Box 2001, Toms River NJ 08754-2001 by Oct. 9. Items will need to be picked up from Randy Walton at a club meeting, hopefully in November.

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
Andromeda Galaxy	Galaxy	Andromeda	00h42m44.3s	+41°16'09"	4.3
The Sculptor Galaxy -- NGC 253	Galaxy	Sculptor	00h47m33.1s	-25°17'18"	8.2
NGC 7789	Open Cluster	Cassiopeia	23h57m01.9s	+56°43'42"	7.5
NGC 278	Galaxy	Cassiopeia	00h52m04.4s	+47°33'01"	11.5
NGC 288	Globular Cluster	Sculptor	00h52m38.2s	-26°35'43"	8.9
NGC 247	Galaxy	Cetus	00h47m08.7s	-20°45'38"	9.7
IC 10	Galaxy	Cassiopeia	00h20m23.1s	+59°17'35"	11.8
The Bubble Nebula	Diffuse Nebula	Cassiopeia	23h20m42.0s	+61°12'00"	--
NGC 40	Planetary Nebula	Cepheus	00h13m01.0s	+72°31'19"	10.7
The Blue Snowball	Planetary Nebula	Andromeda	23h25m53.9s	+42°32'06"	9.2
NGC 246	Planetary Nebula	Cetus	00h47m03.3s	-11°52'19"	8.0
NGC 7640	Galaxy	Andromeda	23h22m06.5s	+40°50'45"	11.8
NGC 7606	Galaxy	Aquarius	23h19m04.8s	-08°29'08"	11.7
NGC 128	Galaxy	Pisces	00h29m15.1s	+02°51'51"	12.7
Jn 1	Planetary Nebula	Pegasus	23h35m53.4s	+30°27'36"	15.1
NGC 281	Open Cluster	Cassiopeia	00h52m50.1s	+56°37'17"	7.4
NGC 381	Open Cluster	Cassiopeia	01h08m21.0s	+61°35'00"	9.3
NGC 289	Galaxy	Sculptor	00h52m42.4s	-31°12'22"	11.8
Gamma Cassiopeia Nebula	Diffuse Nebula	Cassiopeia	00h57m30.0s	+61°09'00"	--
Hu 1-1	Planetary Nebula	Cassiopeia	00h28m15.0s	+55°57'54"	13.3
M 2-55	Planetary Nebula	Cepheus	23h31m51.3s	+70°22'11"	--
NGC 7492	Globular Cluster	Aquarius	23h08m28.7s	-15°36'28"	11.2
Hickson 94	Galaxy Group	Pegasus	23h17m18.2s	+18°43'31"	13.1
Gyulbudaghian's Nebula	Variable Reflection Nebula	Cepheus	20h45m54.2s	+67°57'51"	14

October 2009 Celestial Events

supplied by J. Randolph Walton (Randy)

Day	Date	Time (EDT)	Event
Sat	3	00:25	Mars Rises
		02:40	Jupiter Sets
		04:55	Venus Rises
		05:30	Mercury Rises (best view in 2009)
		05:50	Saturn Rises
		06:58	Sunrise
		18:03	Moon Rise
		18:39	Sunset
Sun	4	02:10	**Full Moon**
		07:24	Moon Set
Sat	10	00:15	Mars Rises
		02:05	Jupiter Sets
		05:10	Venus Rises
		05:25	Saturn Rises
		05:40	Mercury Rises
		13:53	Moon Set
		18:28	Sunset
		18:42	Io casts shadow on Europa
Sun	11	04:56	**Last Quarter Moon**
		14:38	Moon Set
Tue	13	5:15	Saturn Rises 0.5 Deg. left of Venus Rise
Fri	16	06:05	Moon, Saturn, Mercury, & Venus group
Sat	17	00:07	Mars Rises
		01:40	Jupiter Sets
		05:05	Saturn Rises
		05:25	Venus Rises
		06:10	Mercury Rises
		06:15	Zodiacal light in E before morning twilight for next two weeks
		07:13	Sunrise
		17:38	Moon Set
		18:17	Sunset
Sun	18	01:33	**New Moon**
		07:45	Moon Rise
Wed	21	06:00	Orionid meteors (ZHR=20)
Sat	24	01:10	Jupiter Sets
		04:40	Saturn Rises
		05:40	Venus Rises
		06:40	Mercury Rises
		18:07	Sunset
		23:02	Moon Set
		23:55	Mars Rises
Sun	25	14:00	Moon Rise
		20:42	**First Quarter Moon**
Sat	31	00:45	Jupiter Sets
		04:15	Saturn Rises
		06:00	Venus Rises
		07:28	Sunrise
		16:30	Moon Rise
		17:59	Sunset
		23:45	Mars Rises

Guides and Calendars

Moon Phase

Sun	Mon	Tues	Wed	Thur	Fri	Sat
				1	2	3
4 Full, 02:12	5	6	7	8	9	10
11 Last, 04:57	12	13	14	15	16	17
18 New, 01:34	19	20	21	22	23	24
25 First, 19:44	26	27	28	29	30	31

October 2009

Great Red Spot Transit Times

1	08:50;	18:46;	
2	04:42;	14:37;	
3	00:33;	10:29;	20:25;
4	06:20;	16:16;	
5	02:12;	12:07;	22:03;
6	07:59;	17:54;	
7	03:50;	13:46;	23:42;
8	09:37;	19:33;	
9	05:29;	15:24;	
10	01:20;	11:16;	21:12;
11	07:07;	17:03;	
12	02:59;	12:54;	22:50;
13	08:46;	18:42;	
14	04:37;	14:33;	
15	00:29;	10:25;	20:20;
16	06:16;	16:12;	
17	02:08;	12:03;	21:59;
18	07:55;	17:50;	
19	03:46;	13:42;	23:38;
20	09:33;	19:29;	
21	05:25;	15:21;	
22	01:16;	11:12;	21:08;
23	07:04;	16:59;	
24	02:55;	12:51;	22:47;
25	08:42;	18:38;	
26	04:34;	14:30;	
27	00:25;	10:21;	20:17;
28	06:13;	16:08;	
29	02:04;	12:00;	21:56;
30	07:52;	17:47;	
31	03:43;	13:39;	23:34;

Jovian Moon Calendar

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