FIRST LIGHT

Journal of the South Bay Astronomical Society – September 2007
on line at www.geocities.com/sbas_elcamino

Monthly General Meeting: Friday, October 5th, 7:30 PM

Guest Speaker: John Hoot

"Recent Discoveries About Minor Planets"

Ray Grace captured a nice photo of the deeply reddened moon as it hid in the shadow of the earth in the early morning hours of August 28, 2007.

The September 7 Meeting

The meeting began at 7:35 with President Ken Rossi introducing newcomers Tom, George, Derek and Lisa. Ken reviewed the planned October star parties, and the April 5 2008 observing session for the SBAS at the Mt. Wilson 60-inch. Ken also asked for volunteers to form a nomination committee to select candidates for our upcoming elections.

Greg Benecke discussed the next night's dark-sky observing session at Red Rock, and pointed out that he is taking orders for the RASC Observer's Handbook 2008. This Handbook is a wonderful resource for understanding astronomy in general and next year's night sky in particular. Joe Fierstein passed around a couple of pictures he had taken of last month's total lunar eclipse, and Garth Magee described seeing the Shuttle and the International Space Station close to each other in the nighttime sky.

Steven Morris reported seeing seven Aurigid meteors in one hour under poor observing conditions in Torrance, suggesting that the meteor shower was potentially a good one, but had not resulted in the meteor storm that a few researchers had suggested might occur. Matthew Ota then gave a tour of the SBAS Yahoo group, which is an Internet service that SBAS members can join. Matthew logged onto the Internet and demonstrated how to access this group,

A unique eclipse photo by Ray Grace, this time showing the star field of Aquarius that was hidden by the full moon.

displayed on the Planetarium screen. By logging on, any member can read the SBAS message board and look through the photo-album links, among other services.

After a thirteen-minute social break, President Rossi introduced Dr. Gary Peterson, who gave the evening's lecture on "Meteorites and Other Space Debris". Instead of sending rockets out into the Solar System, we can let bits of the Solar System come to us. In fact, each planet (including the Earth) is a large collection of asteroids, formed when the Sun formed 4.5 billion years ago. Since then, asteroids have collided with each other and generated even smaller debris.

The smallest particles are space dust, which can create 'zap pits' when colliding with spacecraft at 40,000 miles per hour. Fused space dust particles are found on the Earth's surface, after they have survived passage through the Earth's atmosphere. At the other extreme, a big chunk of an asteroid can crash into the Earth, such as the meteorite that created Meteor Crater in Arizona.

The study of meteorites tells us a great deal about the early Solar System and its subsequent evolution. Chondrites are primitive meteorites that contain chondrules, which are tiny, fused globules of melted space dust, formed when the Sun first came into existence. Chondrites must have come from small asteroids that never became warm enough to melt. Achondrites are meteorites that came from the crust of large asteroids, which underwent melting that destroyed their chondrules. Stony-iron and iron meteorites came from the interior of these same large asteroids. A few rare and valuable meteorites have come from the surfaces of the Moon and Mars, blasted into space millions of years ago by impacts.

Dr. Peterson noted that thousands of meteorites have been collected over the centuries, but they tend to be iron or stony-iron because they look so out of place among Earth rocks, giving us a false sense of proportion among the meteorite types. A more accurate picture emerges when meteorites are collected in the glaciers of Antarctica or the sands of the Sahara, where any rock is likely to be a meteorite.

Meteor showers are caused by dust from comets, not asteroids, and even a tiny dust grain packs enough kinetic energy to create an ionization trail visible as a 'shooting star'. The Earth sweeps up a surprisingly-large 100 metric tons of space debris every day, and over the ages, this has contributed substantially to the surface of the Earth. Dr. Peterson then answered several questions from the audience, and the meeting ended at 9:32. Several of the 50 audience members stayed late, to examine the meteorites that Dr. Peterson had brought with him.

- ***Dr. Steven Morris***

A Missile in Your Eye

by Patrick L. Barry

Satellite technology designed to catch ballistic missile launches may soon help doctors monitor the health of people's eyes.

For the last 15 years, Greg Bearman and his colleagues at JPL have been working on a novel design for a spectrometer, a special kind of camera often used on satellites and spacecraft. Rather than snapping a simple picture, spectrometers measure the spectrum of wavelengths in the light coming from a scene. From that information, scientists can learn things about the physical properties of objects in the photo, be they stars or distant planets or vegetation on Earth's surface.

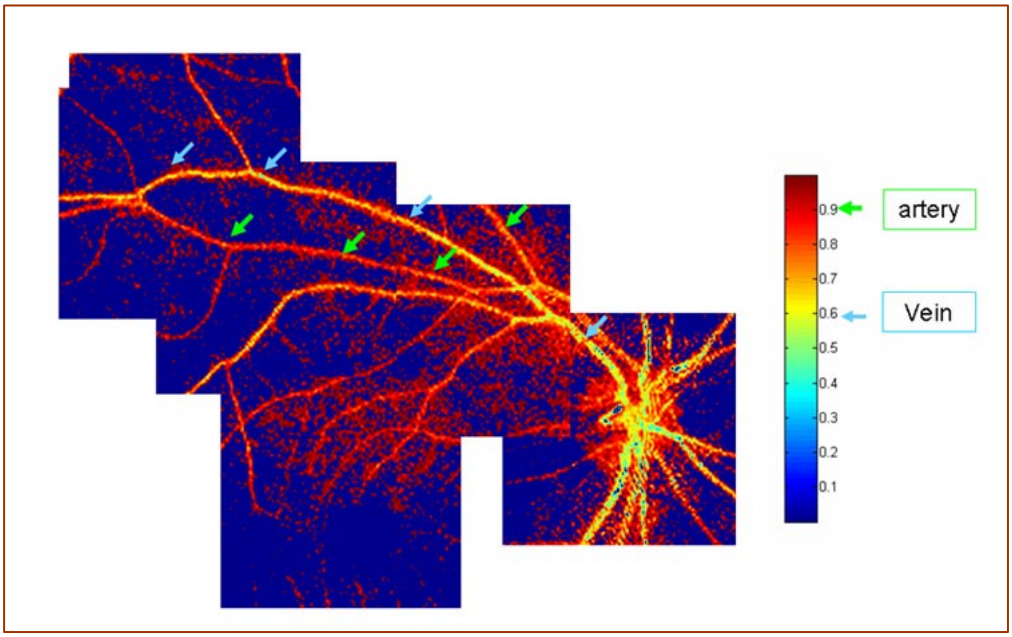
In this case, however, the challenge was to capture snapshots of short-lived events—like missile launches! The team of JPL scientists designed the new spectrometer, called a computed tomographic imaging spectrometer (CTIS), in collaboration with the Ballistic Missile Defense Organization as a way to detect missiles by the spectral signatures of their exhaust.

But now the scientists are pointing CTIS at another fast-moving scene: the retina of an eye.

Blood flowing through the retina has a different spectral signature when it is rich in oxygen than when it is oxygen deprived. So eye doctors can use a spectrometer to look for low oxygen in the retina—an indicator of disease. However, because the eye is constantly moving, images produced by conventional spectrometers would have motion blurring that is difficult to correct.

The spectrometer that Bearman helped to develop is different: It can capture the whole retina and its spectral information in a single snapshot as quick as 3 milliseconds. "We needed something fast," says Bearman, and this spectrometer is "missile-quick."

CTIS is even relatively cheap to build, consisting of standard camera lenses and a custom, etched, transparent sheet called a grating. “With the exception of the grating, we bought everything on Amazon,” he says.



This three-color composite image from the computed tomographic imaging spectrometer shows the oxygenation of the blood in the arteries and veins of a human retina. (Arteries appear red, veins appear yellow.)

The grating was custom-designed at JPL. It has a pattern of microscopic steps on its surface that split incoming light into 25 separate images arranged in a 5 by 5 grid. The center image in the grid shows the scene undistorted, but colors in the surrounding images are slightly “smeared” apart, as if the light had passed through a prism. This separation of colors reveals the light's spectrum for each pixel in the image.

”We're conducting clinical trials now,” says Bearman. If all goes well, anti-missile technology may soon be catching eye problems before they have a chance to get off the ground.

Information about other NASA-developed technologies with spin-off applications can be found at http://www.sti.nasa.gov/tto.

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

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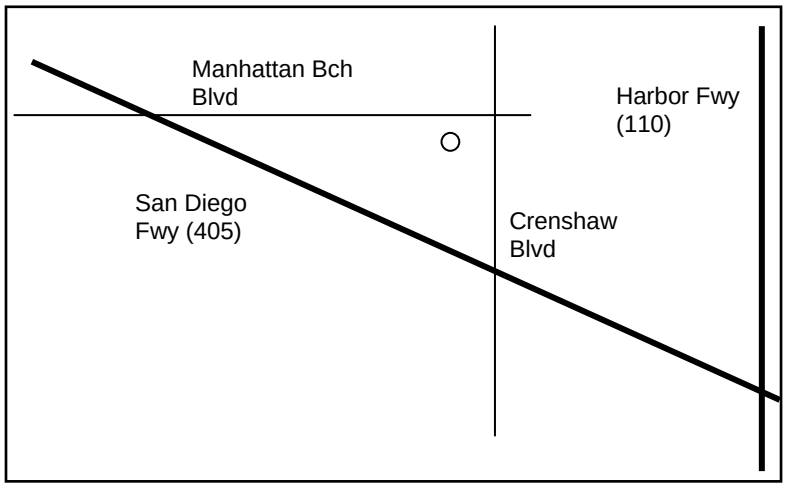

Monthly General Meetings

We normally meet on the first Friday of each month at 7:30 p.m. in the Planetarium at El Camino College. If the first Friday is on or close to a holiday, we usually defer the meeting until the second Friday of the month. The Planetarium is on the south side of Manhattan Beach Blvd., one block west of Crenshaw Blvd. (near the center of the map at left).

The planetarium is the only round, domed building on campus. There is on-street parking, and we can often use campus parking: check inside to see if you need a FREE parking permit for your car.

We enjoy the planetarium facilities through the courtesy of the El Camino College Administration, and have several faculty members of the Astronomy Department as members of our Club. Our meetings always include an informal opening, when new attendees are invited to introduce themselves and let us know about their interests in astronomy. Members share their latest news and observations at this time. The rest of the evening is devoted to guest speakers, who range from amateur astronomers to professional astronomers to representatives from local aerospace companies to college professors. We are fortunate to have all these talented people in our area, willing to come and talk to us.

Monthly Planning Meeting

Committee members (and anyone else with an interest in Society activities) meet each month, usually on the Monday following the general meeting. Meetings are sometimes rescheduled due to travel and other circumstances. Exact date and time of each month's meeting will be announced in the schedule of events in FIRST LIGHT each month, and should also be verified with a committee member. The October 5th planning meeting will be held at 7:30 PM at the home of Ray Grace, 2706 Spreckels Lane in Redondo Beach (310) 370-1913. Take Hawthorne Blvd to 190th St., turn West to Inglewood Ave., then turn North (right) and proceed two blocks to Spreckels Lane and turn Right. If driving South on Inglewood Ave., Spreckels Lane is two blocks south past the light at Ralston Ave., and turn Left, to the 4th house on the right (South side). Parking is available on both sides of the street.

NexStar 8 Available to SBAS Members

All members in good standing (with at least six months of continuous membership) can borrow the club's Nexstar8 for up to 7 days. The fee of $5 for a weekend, or $10 for an entire week, is nonrefundable and will be added to the club's Accessories Fund "Wish List" for future purchases. A fully refundable deposit of $200 cash or check is required. Loss or damage is the responsibility of the borrower. A copy of the complete South Bay Astronomical Society Nexstar 8 Borrowing Rules and Agreement is available upon request. The **Accessories Fund "Wish List"** – Member contributions of any amount or donations will be appreciated, as will any suggestions for new purchases!

SBAS Membership Benefits

Contact Arnie Stodolsky for magazine subscriptions at club rates: "Sky & Telescope" $32.95 and "Astronomy" $34.00/1 year or $60.00/2 years!

SBAS Membership News

Welcome new club members: Cynthia Jackson, George Nestojko and Tom Bash.

The Board will be presenting to the membership the need for a dues increase. The new dues proposed are $36.00 for membership including family membership with First Light by email, $42.00 if you choose postal service delivery, and $25.00 for students. The dues cover the first light mailings, post office box, insurance, various memberships to

national and international astronomy organizations, such as, the Astronomical League, and the International Dark Sky Association. We also give to El Camino College a yearly donation and awards to the top students. Our speakers also receive an honorarium. The dues increase will be presented at the next meeting and a vote taken at the October meeting. If approved, the dues increase will be effective November 1, 2007. Per the club Bylaws, a 2/3 majority is required of those attending the October meeting when it is voted on.

Attention members and prospective members! See the website http://www.geocities.com/sbas_elcamino/membership.htm Membership Application forms, Renewal notices, Dues Schedule and Change of Address.

How about receiving the FirstLight via email? It will help reduce the cost of postage and printing. If you would like to receive the FirstLight via email, call or E-Mail to Ray Grace, Membership Committee.

RASC Handbook

We will be collecting monies at the September and October meetings for individuals who wish to purchase the 2008 edition of the Royal Astronomical Society of Canada's (RASC) handbook. The cost is $17.95. Individuals who cannot attend these meetings should send a check, made payable to SBAS, for $17.95 to the PO Box. All monies must be received by October 15th when the order will be placed.

HOTS Conference

Meade Instruments/Coronado, in conjunction with Irving Valley College will be hosting the 7th annual Hands On The Sun (HOTS) conference October 4 - 6. HOTS is a 3 day conference for solar observers and imagers. The program this year consists of a trip to the Mount Wilson Observatory for a tour and night time viewing (at last report, the Mt. Wilson trip was fully booked), a Symposium, Beginners and Advanced Imaging Classes, Hands-on Training Workshops with Coronado telescopes, Fiesta Under the Stars with Meade Telescopes, Door-Prizes, a Tour of the Meade/Coronado Facility and a Day of Public Outreach. The keynote speaker this year is Dr. Tony Phillips of Spaceweather.com. Other Expert Speakers include: Mike Simmons, Gary Palmer, Stephen J. Edberg, Paul Hyndman, Bill Rich, Russ Tanton, and Scott Roberts. Topics will include: SOLAR/CELESTIAL IMAGING, PROCESSING, TECHNIQUES AND TRAINING. On Saturday, there will be a tour of the Coronado facilties.

Direct all Registrations and questions on the program to Colette Lopiccolo at colette.lopiccolo@meade.com or call at (800) 626-3233 ext 6254. The REGISTRATION FORM is available on the Meade 4M Community website.

ISS Transit Predictor

We've probably all seen the International Space Station pass overhead a few times by now. No doubt, anyone's who's spent some time with an eye glued to a telescope has seen the occasional orbiting spacecraft pass through the field of view. Wouldn't it be neat, though, to know exactly when the ISS or Space Shuttle, was going to pass directly between you and the sun or moon? Well, now you can! The following website allows a user to predict exactly when one of these spacecraft will pass across the direct line between a point on the ground and the sun or moon.

http://pictures.ed-morana.com/ISSTransits/predictions/

All you need to know is your exact latitude and longitude. The more accurate one can get, the better the prediction. Remember, that this is a very fleeting event so don't blink! To increase one's chances of catching one of these transits, the alert radius can be increased. This is the range the observer is willing to travel in order to see a transit. Once the webpage loads, just click on the picture showing the ISS transiting across the moon. A Java applet will download and run in your computer's RAM.

Science Educators Under the Stars

The Astronomical Society of the Pacific, a Meade 4M Community Alliance Organization, is announcing a new book, Science Educators Under the Stars: Amateur Astronomers Engaged in Education and Public Outreach. This book is the first comprehensive treatise of the amateur astronomer's role in communicating knowledge and passion about astronomy to the public. The book reviews the topic from many angles: it characterizes the nature of education and public engagement with astronomy that amateur astronomers are currently doing; it features projects and

organizations that support and aid these practices; it discusses the potential impact on the public and on astronomy and amateur astronomers; and it embeds these pieces into a larger framework of astronomy education as a whole. The book also provides a summary of research conducted on amateur astronomers engaging in education and public outreach along with presenting new research findings on women in astronomy. The book is $10 plus postage and is available in September through the ASP's ASTRO Shop located online at www.astrosociety.org/aspbook.html (product number BO 432). One hundred percent of the proceeds from the book will be donated to support the ASP's mission-based programs.

October – Comets & Asteroids

Visible Comets:

Comet	**Mag**	**Constellation(s)**
2007 F1	9.3 – 3.0	Com-Boo-Vig-Sep

Asteroid Occultations:

Planetary Occultations:

Event Summary for Torrance, CA

Date	Local Time		Durn	Star	Star	Planet
D-M-Y	Hr	Min	m/sec	mag	No.	No
12-Oct-07	4	7.6	836s	8.5	HIP 50470	Venus

Check the JPL Ephemeris Generator page for coordinates of these objects at:
http://ssd.jpl.nasa.gov/horizons.cgi#top

Observing Reports

Inyokern Road - "There are billions and billions of stars", that's what my son Jonathan said when he saw the night sky on our first trip to Red Rock Canyon State Park on August 8th. I couldn't agree with him more. There didn't seem to be a spot in the sky where there weren't any stars. Not to mention the Milky Way flowing from one side of the horizon to the opposite side. I can't recall ever seeing the sky so beautiful in all my life. Wow!

I brought along my son's Orion 80ED refractor on my Meade LXD55 mount. It would be first light for this scope at a dark site. While we waited for sunset we saw a couple of bats flying around. Slowly the stars started to appear, of course Jupiter was the first to shine through dusk. Since I did not have a list of objects that I wanted to view I used Autostar's Tonights Best tour. Most of the star clusters didn't seem majorly different to me compared to when I view them at home or at Ridgecrest other than the darker background and more visible stars. I spotted the usual clusters as well as many more that I had never seen before.

Now the nebulas and galaxies, that's a different story. To begin with several of these items were brighter and easier to see including M57 - The Ring Nebula and M27 - The Dumbell Nebula. I tried out my narrowband and oxygen III filters. These objects were enhanced by the filters and made the surround sky darker. Objects that I had not seen before were: the Helix Nebula, M8 - The Lagoon Nebula, M51 - The Whirlpool Galaxy.

\After my son had gone to sleep I took out my new toy. It was first light for my SV102ED refractor. I went back to review several of the objects I had just viewed. The extra inch sure made a difference. Object were brighter and showed more detail. I saw M81 & M82 in the same field of view. I'd never seen them before. NGC 891 was barely visible using averted vision. Now what impressed me the most was the Andromeda Galaxy. Back home all I see was a small, faint patch. Here it was so large and I could even see it's companion M32, double wow! This scope sure is worth every penny.

I can't wait to go back. Next time besides my SV102ED, I'll take either my Meade SC8 or AR6.

- Freddy Limas

Schedule of Coming Events

6 October Saturday Night	**In Town Dark Sky Observing Session at Ridgecrest Middle School–** 28915 NortbBay Rd. RPV, Weather Permitting**:** Please contact Greg Benecke to confirm that the gate will be opened! Take Hawthorne Blvd. south across Pacific Coast Hwy.; continue up the hill past Silver Spur and turn left at Highridge. Go one mile and turn left on Whitley Collins, up one block and turn left on Northbay Rd., the new parking lot is at the end on the left. Enter parking lot and turn left, the gate is at the east end (it should be open about 15 minutes before sunset) and a paved road leading into the playground where we have traditionally set up. If at all possible, drop your equipment off and park your car in the new parking lot (less than 200 feet away). If you are absolutely certain that your vehicle does not drip anything you can park with your equipment. *Drive with care* to avoid steel pillars supporting basketball nets**. Note: If you a visitor, not bringing a scope, it is requested that you park in the small parking lot on Northbay Rd.**
5 October Friday Night 7:30 PM	**Monthly General Meeting** Speaker: John Hoot Topic: Recent Discoveries About Minor Planets
13 October Saturday Evening	**Out of Town Dark Sky Observing Session** Contact Greg Benecke to coordinate a location.
8 October Monday Night 7:30 PM	**Monthly Planning Meeting** Location: See Page 4.
18 October Thursday Evening	**Von Kármán Auditorium (Thursday) & Vosloh Forum at Pasadena City College (Friday)** "Predicting Climate Change: by Duane Waliser. This talk will discuss fundamentals and challenges associated with building climate models, and how new satellites, instruments, and supercomputers are combining to improve climate models and their predictive capabilities.
20 October Saturday Night	**El Segundo Star Party** Will be held at either Hilltop Park or El Segundo Recreation Park.
2 November Friday Night 7:30 PM	**Monthly General Meeting** Speaker: Dr. Mike Gruntman Topic: The Road to Space
3 November Saturday Night	**In Town Dark Sky Observing Session at Ridgecrest Middle School–** 28915 NortbBay Rd. RPV, Weather Permitting**:** Please contact Greg Benecke to confirm that the gate will be opened! See directions above.
5 November Monday Night 7:30 PM	**Monthly Planning Meeting** Location: TBA.

South Bay Astronomical Society

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General Meeting at El Camino College Planetarium:
Friday, October 5th at 7:30 P.M.

Guest Speaker: John Hoot

"Recent Discoveries About Minor Planets"

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South Bay Astronomical Society
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