

FIRST LIGHT



Journal of the South Bay Astronomical Society – February 2008
on line at www.geocities.com/sbas_elcamino

Monthly General Meeting: Friday, February 1st, 7:30 PM

Guest Speaker: Gene Rogers, Boeing Space Systems

“The Path Not Taken...Yet”

The January 4 Meeting

Twenty-five members braved a driving rainstorm to come to the El Camino Planetarium, only to find it locked up for the night. By 8:00 it had been determined that the keyholder would not be showing up, and the campus police would not let us in. The members meanwhile had taken refuge inside the nearby engineering building, and Shawn Belveal suggested that his IBM Thinkpad could be used to show the speaker's presentation, if we crowded around closely enough. At 8:24, we were all seated in the common area of the engineering building, and the meeting began.

Steve Edberg of JPL spoke on “Solar Eclipse Observing: Explanation - Advice Anecdotes”. Dr. Edberg, who has been chasing eclipses since 1974, began by noting that the Sun's atmosphere consists of the photosphere (the part we see every day), the thin chromosphere above it and then the corona, which extends as the solar wind beyond the orbit of Pluto. The Moon's shadow usually passes above or below the Earth at the time of new moon, because the plane of the Moon's orbit around the Earth is tilted 5 degrees to the plane of the Earth's orbit around the Sun. When the Moon's shadow does fall on the Earth, a total eclipse will occur only one-third of the time, when the Moon is close enough and the Sun is far enough away to completely block the photosphere. Only then will the faint chromosphere and corona be visible.

A total eclipse will be visible along a thin strip of the Earth's surface called the path of totality. Several factors determine where along this strip you may want to observe. One point on this strip will have the maximum duration of totality, but it may be dangerous, difficult to get to or politically distasteful to visit there. Some other location on the eclipse path may have better accommodations, or have better weather prospects. For that matter, you may have other astronomical interests or other goals as a tourist (the chance to see the southern sky or some famous monument) that may lure you elsewhere.

There are several ways to see the partial phase of an eclipse with no danger of blindness, such as pinhole projection, looking through an eclipse filter to see an unmagnified naked-eye view, or through a telescope with a suitable filter in front of the objective. During the partial phase, you may be able to note that sunspots are not actually dark compared to the blackness of the Moon's near side, and the Moon's profile shows mountains and valleys. As totality nears, shadows have a sharp edge in one orientation, planets and bright stars become visible, shadow bands may appear, and animals (and people!) start to behave strangely. Moments before totality, a flash spectrum will be visible if you look through a diffraction grating, Bailey's beads and then the Diamond Ring may be seen (perhaps with Rubies as well, if prominences are present on the limb of the Sun), and then the ghostly corona appears as your daytime surroundings are plunged into darkness.

After this dramatic rundown of eclipse phenomena, Dr. Edberg reviewed the next five eclipses and answered some questions from the audience. President Ken Rossi thanked the speaker and apologized for the Planetarium reservation (which Ken had confirmed only two days previously) not being honored. The meeting ended at 9:46.

- Dr. Steven Morris

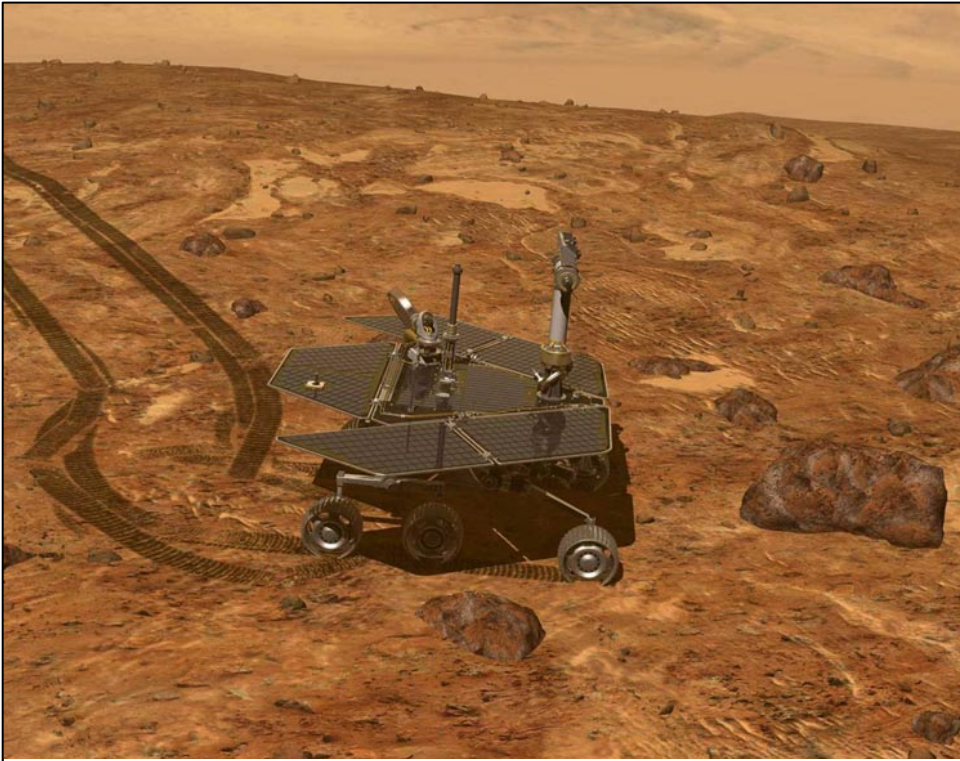


No Mars Rock Unturned

by Patrick L. Barry

Imagine someday taking a driving tour of the surface of Mars. You trail-blaze across a dusty valley floor, looking in amazement at the rocky, orange-brown hillsides and mountains all around. With each passing meter, you spy bizarre-looking rocks that no human has ever seen, and may never see again. Are they meteorites or bits of Martian crust? They beg to be photographed.

But on this tour, you can't whip out your camera and take on-the-spot close-ups of an especially interesting-looking rock. You have to wait for orders from headquarters back on Earth, and those orders won't arrive until tomorrow. By then, you probably will have passed the rock by. How frustrating!



Are these rocks of any scientific interest? With the new AEGIS software, the Mars Rovers, Spirit and Opportunity, will be able to judge for themselves whether a scene is worth a high-resolution image. (Artist's rendering.)

That's essentially the predicament of the Spirit and Opportunity rovers, which are currently in their fourth year of exploring Mars. Mission scientists must wait overnight for the day's data to download from the rovers, and the rovers can't take high-res pictures of interesting rocks without explicit instructions to do so.

However, artificial intelligence software developed at JPL could soon turn the rovers into more-autonomous shutterbugs.

This software, called Autonomous Exploration for Gathering Increased Science (AEGIS), would search for interesting or unusual rocks using the rovers' low-resolution, black-and-white navigational cameras. Then, without waiting for instructions from Earth, AEGIS could direct the rovers' high-resolution cameras, spectrometers, and thermal

imagers to gather data about the rocks of interest.

"Using AEGIS, the rovers could get science data that they would otherwise miss," says Rebecca Castaño, leader of the AEGIS project at JPL. The software builds on artificial intelligence technologies pioneered by NASA's Earth Observing-1 satellite (EO-1), one of a series of technology-testbed satellites developed by NASA's New Millennium Program.

AEGIS identifies a rock as being interesting in one of two ways. Mission scientists can program AEGIS to look for rocks with certain traits, such as smoothness or roughness, bright or dark surfaces, or shapes that are rounded or flat.

In addition, AEGIS can single out rocks simply because they look unusual, which often means the rocks could tell scientists something new about Mars's present and past.

The software has been thoroughly tested, Castaño says, and now it must be integrated and tested with other flight software, then uploaded to the rovers on Mars. Once installed, she hopes, Spirit and Opportunity will leave no good Mars rock unturned.

Check out other ways that the Mars Rovers have been upgraded with artificial intelligence software at nmp/TECHNOLOGY/infusion.html#sciencecraft.

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

Is Time Travel Possible?

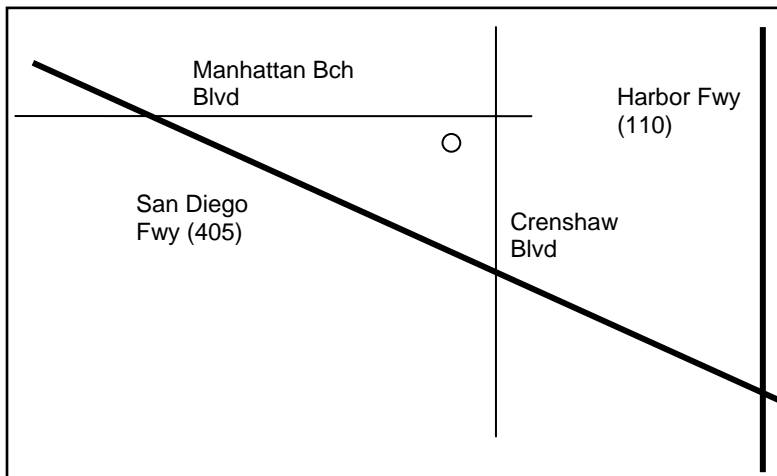
Every science fiction fan has pondered the weird implications of time travel. Can you travel into the future and find out the winning Super Lotto number--then come back and buy a ticket? Would doing so be cheating the laws of physics (to say nothing of ethics)? Astrophysicist Marc Rayman toys with such ideas in this Space Place Musings Podcast. Go to <http://spaceplace.jpl.nasa.gov/en/educators/podcast/> to subscribe to these Podcasts. Or listen now to this and the previous Podcasts on your computer or read the transcripts.

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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 (16007 Crenshaw Bl. In Torrance). 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 February 4th 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.

SBAS Membership News

Annual dues are now due for memberships that expire(d) in 2007 or January 2008.

Reminder: Membership dues increased in November to \$36 for email newsletter delivery and \$42 for regular mail delivery.

SBAS YAHOO GROUP

Join our own YAHOO group for up-to-the-minute club news; see astro photos taken by members and be part of the growing online community of the South Bay Astronomical Society. A YAHOO userid is needed (free) then click on GROUPS and search for SBASTRO. Use the JOIN function and you will get notification from the Group's administrator that your application has been accepted. This group is limited to SBAS members. You can specify to have emails sent to your normal email address when you signup. The Executive Board is working to use this vehicle more and more this coming year to deliver information to our members. 25% of our membership has joined. Don't be left out. If you need assistance or have any questions, contact any Board member.

New Members

Welcome new club member Christopher Bobo of Long Beach and the Jindeel family: Ayad and Leila and their children, Marwa, Mazin, Najeeb and Jubran.

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!

February – Comets & Asteroids

Visible Comets:

Comet	Mag	Constellation(s)
Tuttle 8P	10	Eri-Hor
Wirtanen 46P	11.5	Ari

Asteroid Occultations:

Event Summary for Longitude -118.2918 Latitude 33.8369

Local Time			Durn	Star	Mag-Drop	Star	Planet	
Date	Hr	Min	sec/m	mag	V	No.	No	Name
31-Jan-08	5	53.4	1.0s	10.8	6.9	TYC6229-00787-1u	5316	Filatov
5-Feb-08	0	9.4	2.1s	9.3	8.3	TYC1888-01256-1u	1468	Zomba
9-Feb-08	0	9.6	6.0s	10.4	2.9	TYC2329-00867-1u	602	Marianna
12-Feb-08	1	19.4	6.6s	9.9	2.9	TYC4812-03658-1u	25	Phocaea
22-Feb-08	23	30.4	4.3s	9.2	7.3	TYC1866-00480-1u	2574	Ladoga
28-Feb-08	21	5.7	2.1s	9.8	6.2	TYC1394-01224-1u	2264	Sabrina

Planetary Occultations:

Event Summary for Torrance

Local Date & Time			Durn	Star	Mag-Drop	Star	Planet
Date	Hr	Min	sec/m	mag	V	No.	Name
19-Feb-08	21	14.8	18.2m	-0.1	0	TYC1870-00892-1u	Mars
23-Mar-08	0	36.8	433s	0.7	0	TYC1883-01734-1u	Mars

Near-Earth Asteroids:

Date	Asteroid	Mag
Jan 29	2007 TU24	10

Check the JPL Ephemeris Generator page for coordinates of these objects at:

<http://ssd.jpl.nasa.gov/horizons.cgi#top>

See a Polar Sunrise!

January 24th from 2:30-3:30 pm (ET)

<http://dln.nasa.gov>

Our team is headed to the Arctic Circle for the sunrise. NASA's Digital Learning Network (DLN), is making it possible for us to web cast some of the what is being learned and observed during the scientific conference. Learn about the changes in the Earth's polar regions, and the impact to other connected Earth systems, our daily lives, and the future of our planet? Hear about Aurora research, the cultural connections of the residents of Barrow, the majority are Inupiat Eskimos, and the traditional marine mammal hunts and other subsistence practices that are an active part of the culture. Use the following URL for information to connect to the web cast . <http://dln.nasa.gov>

The main conference web broadcast will be accessible through links from the conference home page at www.polargateways2008.org. These presentations are targeted at multi-disciplinary scientists but some talks, e.g. with lots of graphical content, may be of interest to students.

Elaine Lewis
Education Curriculum Specialist
NASA Goddard Space Flight Center

Share Your Astrophotos

With the advent of digital cameras and laptop computers, the ability to get into astrophotography has reached many amateur astronomers. The April General Meeting will be an opportunity for members to share and show their astrophotography skills. Bring your favorite photos on CD and tell other club members about the object or what techniques, skills, equipment, etc. that you used to get the picture.

Observing Reports

Cottonwood Springs – Saturday the 12th of January did not look at all promising. Although the weather reports predicted clear skies, scattered high clouds were all over the place. Since the previous weekend had been rained out, this weekend looked to be the best opportunity since I'd last been out in November. So I packed up and headed out. Traffic was terrible and it took over 3 hours just to get out of the city. I got as far as the turn off to Joshua Tree National Park and the sky was even worse than ever. Frustrated and disappointed, I turned around and headed home, stopping for a few minutes for some dinner. When I came out of the restaurant and looked up, I was amazed to see the sky was completely clear! I quickly headed back towards the Cottonwood Springs campground, finally setting up around 8 PM.

In spite of the clouds that had been filling the sky, the seeing conditions were far better than I had expected or had been predicted. Only along the lower edge of sky around the horizon were there significant thermal effects. Overhead the sky was very stable allowing for some excellent views of Mars and, later, Saturn. The temperature remained in the low 40s all night. It was fairly comfortable and I never even needed gloves.

I seemed to be about the only astronomer out there that night. Eventually I did meet another guy who was there with his CPC-11. Most of the other campers were rock climbers. Three campers next to me had a nice campfire going which they steadily stoked with ever more fuel. Since that wasn't enough they also had bright headlamps so they could see in the dark! Once I was finally setup and had started looking around, one of the first objects I checked out was Comet Tuttle. It was a filmy gray cloud with a slight, dim tail extending off to one side.



NGC 2903

Frustrated with the neighboring campers and their lights, I finally went over and invited them to check out the comet. They were very excited and eager. For the next hour or so, I took them on a grand tour of the universe showing them such wonders as M42, M79, Mars, Saturn, M41, NGC 2362, M1, double stars, red, stars, asteroids, The tour had the desired effect. After they went back to their campsite, they kept the fire down low and their lamps off!

After doing a brief stint of photography, taking images of NGC 2903, the Ghost of Jupiter (NGC 3242), I went back to visual observing. The Antenna Galaxies (NGC 4038) were faint but, averted vision clearly showed these colliding galaxies. Even though very low on the horizon, NGC 5139, the Omega Cluster, was magnificent as always. I roamed through the galaxies in Leo and Virgo many of which showed remarkable detail. Markarian's Chain in the Virgo Cluster was amazing to sweep across. Rarely were there less than 3 galaxies visible at any time across this roughly 3 degree expanse of sky.

By 3:30 AM Saturn was high in the sky so I swung up to check it out and was amazed at how steady the image was compared to my earlier view. Cloud bands could easily be seen and the Cassini Division showed clearly although the rings are moving ever closer to being edge-on. I was able to use my 6mm eyepiece (460x) and the image was still very sharp. I was even able to spot the tiny, faint moon Enceladus! For that, I had to slew the scope until only part of the rings was in the eyepiece. There, next to the moon Tethys was this faint little twinkle of Enceladus.

The prediction had been for the seeing to deteriorate after midnight. Throughout the night it had only seemed to get better. Finally, though, the prediction came true. At about 4:30 AM, the wind suddenly kicked up. The chill factor made it feel like the temperature had dropped to below zero. At that point, I decided it was better to get some sleep

in the car and called it a night.

- Ken Munson

Schedule of Coming Events

29 January Tuesday	Star Party at Lynwood E. Howe Elementary School 4100 Irving Place, Culver City 90232. From the South Bay area, go north on the 405, exit at Sepulveda. North on Sepulveda, continue on Jefferson Blvd. Turn left on Duquesne Ave. Turn right on Braddock Dr. Turn left on Irving Place and arrive at the school.
1 February Friday Night 7:30 PM	Monthly General Meeting Speaker: Gene Rogers Topic: The Road Not Taken...Yet
2 February Saturday Night	In Town Dark Sky Observing Session at Ridgecrest Middle School – 28915 NorthBay 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 (3rd stop sign from Hawthorne Blvd.), 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.
4 February Monday Night 7:30 PM	Monthly Planning Meeting See directions on page 3.
9 February Saturday Night	Out-of-Town Dark Sky Observing Session Contact Greg Benecke to coordinate a location.
28 February Thursday Evening	Beckman Auditorium at CalTech (Thursday) & Vosloh Forum at Pasadena City College (Friday) “Where in the World Will Our Energy Come From?” By Dr. Nate Lewis. Where in the world will our energy come from? What would it take for the world to get away from fossil fuels and switch over to renewable energy? It takes more than willingness to buy a Prius or to install solar panels on your roof. If we want to use wind, solar thermal, solar electric, biomass, hydroelectric and geothermal energy it will take a lot of planning, and willingness on the part of governments and industry.
1 March	In Town Dark Sky Observing Session at Ridgecrest Middle School – 28915 NorthBay Rd. RPV, Weather Permitting: Please contact Greg Benecke to confirm that the gate will be opened! See directions above
7 March Friday Night 7:30 PM	Monthly General Meeting Speaker: Dr. Michelle Thaller Topic: The Spitzer Space Telescope
8 March Saturday Night	Out-of-Town Dark Sky Observing Session Contact Greg Benecke to coordinate a location.

South Bay Astronomical Society

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*General Meeting at El Camino College Planetarium:
Friday, February 1st, at 7:30 P.M.*

Guest Speaker: Gene Rogers, Boeing Space Systems

“The Path Not Taken...Yet”

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South Bay Astronomical Society
P.O. Box 1937
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