FIRST LIGHT

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

Monthly General Meeting: Friday, November 7th, 7:30 PM

Guest Speaker: Daniel Mousney, Woodland Hills Telescope & Camera

"The Night Sky"

The October 3 Meeting

The meeting began at 7:37 as President Ken Rossi welcomed newcomer Susan Fitpatrick, thanked last month's speakers for their efforts and reviewed last month's observing sessions. Greg Benecke reported on a promising deep-sky observing site that he had come across. President Rossi discussed upcoming observing sessions, and reminded the thirty-five people present that copies of the RASC's Observer's Handbook for 2009 can be ordered through the SBAS. He also asked members to seriously consider running for office, as we need volunteers to keep the Society going.

Ken Munson then presented "The Dark Side of Solar Eclipses" pointing out that eclipse season not only brings the lunar and solar eclipses that amateur astronomers rejoice to see, but also bring an unwelcome darkness to orbiting satellites that rely on solar power to keep going. Ken reviewed the plight of several such satellites, and the difficulties they experience as they travel deeper into the shadow of the Moon.

After a ten-minute social break, Dr. Mark Moldwin presented a lecture on the subject "The Perils of Space: An Introduction to Space Weather". Specifically, his lecture was about the "Space Weather Impacts on Human Exploration of Space". Dr. Moldwin is currently a Professor of Space Physics within UCLA's Department of Earth and Space Sciences, and is rated as a Top Ten Professor by the Associated Students of UCLA. He has published over 100 refereed scientific articles and a textbook on magnetospheric and heliospheric plasma physics. We are very fortunate to have such excellent professors available for our meetings.

NASA is currently attempting to return humans to the Moon by the year 2020, as a steppingstone to Mars. The planet Mars is considered to be a particularly interesting goal because it is known to contain significant amounts of water on its surface, and lots of water will be needed for human survival and development. Some satellites in the outer Solar System also have water, but are too cold and far away for human exploration in the foreseeable future.

There are several grave challenges to NASA's plans, however. The first is political and budgetary; do we as a nation have the political will to make this effort, or shall we leave this to other nations such as China? How can we spend billions of dollars on such lofty goals, given the current parlous state of the US economy? The second challenge to manned space flight is the negative impact it will have on unmanned space exploration and astronomical research; manned spaceflight is so expensive that a great deal of unmanned planetary robotics and space-based astronomy will have to be abandoned to pay for it.

Dr. Moldwin's lecture focused on a third challenge to NASA's plans for manned space exploration; the psychological and physiological difficulties of putting human beings in space. For example, the Earth's atmosphere and magnetic field shield us from much of the high-energy radiation that the Sun produces. Dr. Moldwin showed some dramatic videos of coronal mass ejections from the Sun, as massive amounts of solar material are flung into the Solar System. These solar energetic particles, as well as galactic cosmic rays, will create a dangerous and possibly fatal environment unless enormous amounts of shielding are provided for the astronauts.

The zero gravity of space, and low gravity of the Earth and Mars, will trigger significant bone loss and muscle loss, even with exercise. About 100 tons of extraterrestrial material strike the Earth each day, at speeds of many kilometers per second. These micrometeoroid impacts can prove fatal if they strike an astronaut, or any of the thousands of mission-critical components of a spacecraft. The vacuum of space itself is a constant threat, as humans can survive for a maximum of 90 seconds in vacuum before death occurs.

Of all these threats, radiation damage may be the hardest one to deal with. The average US citizen is exposed to 0.35 rem/year, but this is exceeded in low-Earth orbit mission, even if the Sun is at a period of low activity. We have just entered Solar Activity Cycle 24, and the next several years will see increasing danger for spacefarers.

Dr. Moldwin ended his lecture by answering several questions from the audience. President Rossi presented him with a Certificate of Appreciation, and gaveled the meeting to a close at 9:30.

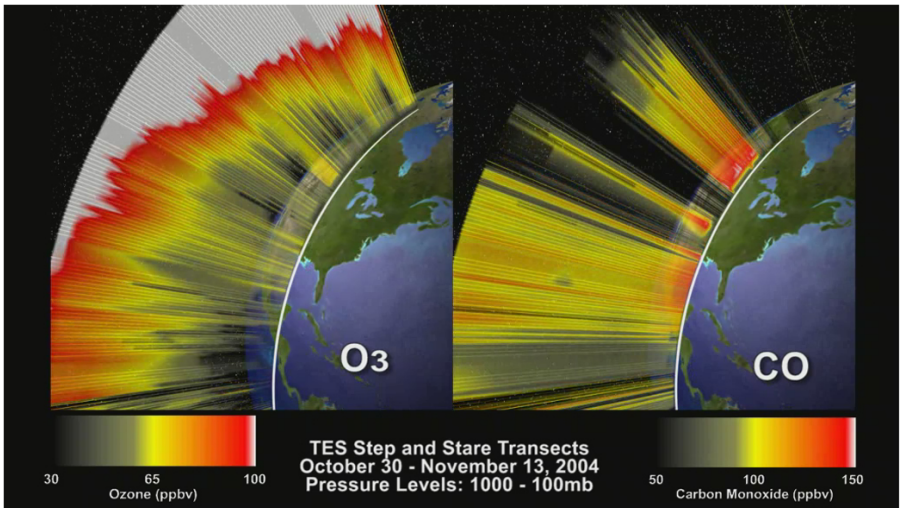
- Dr. Steven Morris

The Chemical Weather Report

"Sunny tomorrow with highs in the mid-70s. There's going to be some carbon monoxide blowing in from forest fires, and all that sunshine is predicted to bring a surge in ground-level ozone by afternoon. Old and young people and anyone with lung conditions are advised to stay indoors between 3 and 5 p.m."

Whoever heard of a weather report like that?

Get used to it. Weather reports of the future are going to tell you a lot more about the atmosphere than just how warm and rainy it is. In the same way that satellite observations of Earth revolutionized basic weather forecasting in the 1970s and 80s, satellite tracking of air pollution is about to revolutionize the forecasting of air quality. Such forecasts could help people plan around high levels of ground-level ozone—a dangerous lung irritant—just as they now plan around bad storms.



Example of visualization of data from the Tropospheric Emission Spectrometer. These frames are from an animation that steps through transects of the atmosphere profiling vertical ozone and carbon monoxide concentrations, combining all tracks of the Aura satellite during a given two week period.

"The phrase that people have used is chemical weather forecasting," says Kevin Bowman of NASA's Jet Propulsion Laboratory. Bowman is a senior member of the technical staff for the Tropospheric Emission Spectrometer, one of four scientific sensors on NASA's Aura satellite.

Aura and other NASA satellites track pollution in the same way that astronomers know the chemical composition of stars and distant planetary atmospheres: using spectrometry. By breaking the light from a planet or star into its spectrum of colors, scientists can read off the atmosphere's gases by looking at the "fingerprint" of wavelengths absorbed or emitted by those chemicals. From Earth orbit, pollution-watching satellites use this trick to measure trace gases such as carbon monoxide, nitrogen oxide, and ozone.

However, as Bowman explains, "Polar sun-synchronous satellites such as Aura are limited at best to two overpasses per day." A recent report by the National Research Council recommends putting a pollution-watching satellite into geosynchronous orbit—a special very high-altitude orbit above the equator in which satellites make only one orbit per day, thus seeming to hover over the same spot on the equator below. There, this new satellite, called GEOCAPE (Geostationary Coastal and Air Pollution Events), would give scientists a continuous eye in the sky,

allowing them to predict daily pollution levels just as meteorologists predict storms.

"NASA is beginning to investigate what it would take to build an instrument like this," Bowman says. Such a chemical weather satellite could be in orbit as soon as 2013, according to the NRC report. Weather forecasts might never be the same.

Learn more about the Tropospheric Emission Spectrometer at tes.jpl.nasa.gov. Kids can learn some elementary smog chemistry while making "Gummy Greenhouse Gases" out of gumdrops at:

spaceplace.nasa.gov/en/kids/tes/gumdrops.

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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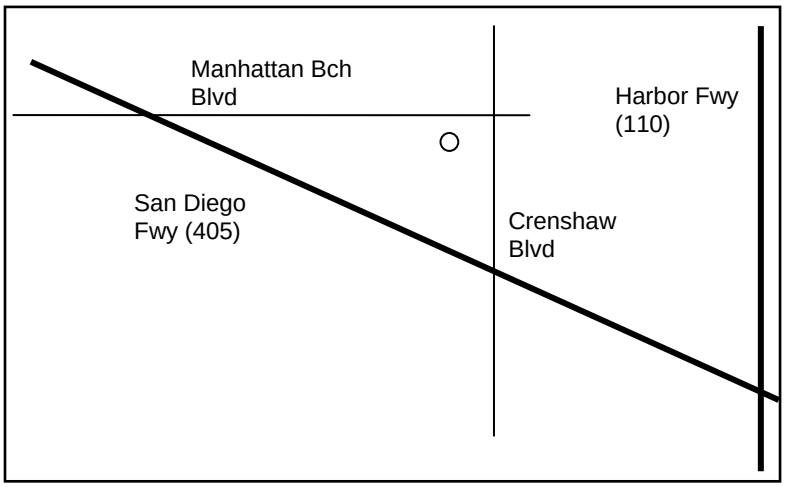
Monthly General Meetings

We normally meet on the first Friday of each month at 7:30 p.m. in the Planetarium at El Camino College (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 November 10th planning meeting will be held at the home of Joe & Miriam Fierstein. Take Hawthorne Blvd. south past Pacific Coast Hwy. up the hill passing Silver Spur Rd. and Highridge until you get to the light at Eddinghill Dr., then turn right and go downhill to the 'T' intersection at Golden Meadow where you turn left up 2 blocks and turn left on Willow Tree Dr. to 3rd house on the right side from the corner – 7022 Willow Tree Dr., Rancho Palos Verdes.

Membership Dues Schedule

Month Join/Due	Member (Family)		Student	Expires
	USMail	Email		
January	$38.50	$33.00	$22.90	12/2009
February	$35.00	$30.00	$20.85	12/2009
March	$31.50	$27.00	$18.75	12/2009
April	$28.00	$24.00	$16.70	12/2009
May	$24.50	$21.00	$14.60	12/2009
June	$21.00	$18.00	$12.50	12/2009
July	$17.50	$15.00	$10.45	12/2009
August	$14.00	$12.00	$8.40	12/2009
September	$10.50	$9.00	$6.25	12/2009
October	$49.00	$42.00	$29.20	12/2010
November	$45.50	$39.00	$27.10	12/2010
December	$42.00	$36.00	$25.00	12/2010

To simplify the dues, we suggest that all membership expire in December. Dues are $42.00/year for FirstLight via US Mail, or $36.00 via Email notification ($25.00/year for students) and expire on December 31, of the current year. New members use Month Join, and current members select your expiring Month to calculate the amount. Members that expire in October or November may wish to write one check and include next years membership. Make checks payable to the South Bay Astronomical Society. Dues may be paid at the general meeting or mailed to:

South Bay Astronomical Society

Attn: Arnie Stodolsky

P.O. Box 1937

Redondo Beach, CA 90278

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!

Note: S&T subscribers at the club rate renew their subscriptions by mailing their renewal notice and check or calling the 800# on the renewal notice.

Only new subscribers or subscribers converting their subscription to the club rate need to contact Arnie or send a check to the PO Box. Astronomy subscriptions and renewals still go through Arnie or via the PO Box.

Boy Scout Camporee Star Party

Greg Benecke, Ken Rossi, Gerry Stowe and Ken Munson made the trip out to Camp Firestone just off the 57 Freeway to support a star party for a major gathering of LA County Boy Scouts. According to reports, the Camporee was expected to include nearly 300 people so we looked forward to a very busy evening. The weather was warm and comfortable; bottoming out around 70 by the time we finished up. The sky started out clear, but as the sun set, clouds began to form. Fortunately, these slowly faded as the evening wore on and they weren't any trouble for us. Sadly, the turn out of the star party wasn't as big as expected. Only about 30 or 40 kids made it up to the ball field where we were set up. The scout leaders had a lot of activities planned, starting with a large group meeting at 10:30. Those who found us were treated to sights of Jupiter, Uranus, Neptune, the Ring Nebula, the Andromeda Galaxy, NGC 457 (The E.T. Cluster), and various double stars and other star clusters. The scouts we talked to were a lively bunch with many who were very interested in astronomy and careers in science. By 11 PM, with no sign of any other visitors, we packed up and headed for home.

- Ken Munson

Welcome New Members

Welcome to new member Dr. Mark Moldwin.

Local Area Icon

Fifty-three-year Rolling Hills Estates resident and area icon Elmer Wilson Grimes died on Monday, September 1st, after a year of battling pain, said his daughter Sunshine, a Rancho Palos Verdes resident. He was 95.

Grimes is survived by his wife, Sararuth; two sons, Dale Otis Grimes and Bruce Elmer Grimes; two daughters, Sunshine and Ellen Grimes Osborne; four grandchildren and five great-grandchildren.

Sunshine Grimes is an environmental activist who has spoken out for astronomy and the SBAS. When she was on the committee to come up with a 5 year plan for land use in RPV she made a scale model of the Upper Pt Vicente which included a location for an observatory.

Observing Reports

Ridgecrest School - Although the sun never shined in Redondo Beach Saturday, September 27th, I packed my car and made the trek to Ridgecrest School hoping for the best. Last week had been cool and damp and I was hoping for the viewing to last to 11:00 as it had then. Heading up Hawthorne Blvd I passed through the marine layer and was greeted with sunshine. Arriving at Ridgecrest before sunset I was rewarded with a view of the red setting sun above the marine layer. Looking north and east the entire LA basin was covered. If the marine layer stayed away we could have a warm, dark evening of observing ahead. And it did!

It was one of those wonderful nights we rarely get a Ridgecrest, warm, dry and this time very, very dark. Seeing wasn't great but the transparency was awesome for this site. The Milky Way shined brightly overhead. The southern constellations Sagittarius, and Scorpius were very pronounced. Overhead, Hercules and Draco were fully visible. I saw an arm off Cassiopeia that was new to me. Capricorns, not only visible, was completely outlined. I think you get the picture.

While not as overwhelmingly dark as a true dark site, it was dark enough to show the constellations down to magnitude 5 or so stars. Ken Rossi had joined me right after sunset and Steve Pedersen showed up later.

I'm still working my way through the Messier list and so concentrated on those objects I had not observed and logged previously. The nights viewing log shows:M29, M39, NCG6826, M15, M31, M52,M103, NGC663, M30, M2, M73, M72, M45, M34, M76, DOUBLE CLUSTER, M36, M37, M38, M33. With Orion rising over the trees in the east a final look at M42 with the O3 filter completed the evenings viewing around 2:00 am or so. Car thermometer showed 63F when we left. Thanks to Ken for the companionship and the views through his scope. One of the better nights, if not the best I have experienced at Ridgecrest.

- Arnie Stodolsky

Interesting View

It's been a long time since anyone on earth has seen an earthrise. Here's a link to see an earth rise and earth set from lunar orbit taken by the Japanese Kaguya (Selene) spacecraft. It was filmed in High-Definition Video so expect it to take a few minutes to download.

http://www.jaxa.jp/press/2008/10/20081009_kaguya_e.html

Homemade Tripod Available for Free

A wooden, home made trip with equatorial wedge is available for free to anyone who wants it. It was designed to fit a Nexstar type of telescope. Contact Ken Munson: 310-782-0873.

Schedule of Coming Events

1 November Saturday Evening	**Out-of-Town Dark Sky Observing Session** Contact Greg Benecke to coordinate a location.
4-7 November	**Taurid Meteor Shower Peak** A very old meteor shower, this one has two peaks northern and southern, which last through the first week of November. Zenith hourly rates (ZHR) usually around 7 per hour.
7 November Friday Night 7:30 PM	**Monthly General Meeting** Guest Speaker: Daniel Mousney of Woodland Hills Telescope & Camera Topic: The Night Sky
10 November Monday Night 7:30 PM	**Monthly Planning Meeting** See directions on Page 4.
13 November Thursday 7:00 PM	**JPL's Von Karman Lectures: New Worlds – Exoplanet Discoveries from the Spitzer Space Telescope.** New discoveries streaming back from the Spitzer Space Telescope continue to surprise and amaze everyone. No one could have predicted some of the amazing things we're finding, not even the mission scientists themselves! Spitzer has proved itself to be a true pioneer in the characterization of extrasolar planets, providing the first real, if crude, weather map of a world around another star over 250 light years away. Location: Von Karman Auditorium at JPL 3800 Oak Grove Dr. Pasadena
16-17 November	**Leonid Meteor Shower** The gibbous moon will rise about 9:30 PM, so expect all but the brightest meteors to be washed out by the light of the moon.
19 November Wednesday 6-9 PM	**Crestwood School Star Party** 1946 Crestwood St. RPV. From PCH, go south on Western for about 3 miles. Turn right at Crestwood and go two blocks to the school.
21 November Friday 6-8 PM	**Linwood E. Howe Elementary School Star Party** 4100 Irving Place Culver City, CA 90232. From South Bay, go north on the 405, exit at Jefferson Blvd. Follow Jefferson for about 2 miles. Turn left on Duquesne Ave. Turn right on Lucerne Ave then turn left on Irving Place.
22 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! Or possible Rancho Del Mar High School, Rancho Palos Verdes, if on-going construction at Ridgecrest prevents that site from being used.
29 November Saturday Evening	**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, November 7th, at 7:30 P.M.

Daniel Mousney, Woodland Hills Telescope & Camera

The Night Sky

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P.O. Box 1937
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