

FIRST LIGHT



Journal of the South Bay Astronomical Society – March 2009
on line at www.geocities.com/sbas_elcamino

Monthly General Meeting: Friday, March 6th, 7:30 PM

Guest Speaker: Steve Levin, JPL

“Juno Mission to Jupiter”

The February 6 Meeting

President Ken Rossi began the meeting at 7:38 by letting first-time visitors Victoria, Maggie, Sandy, Millie, Dennis and Bruce introduce themselves. Two successful outreach programs were held this past month, with the Girl Scouts at Hollywood Park and with the students at Silver Spur Elementary School. Joe Fierstein described the Night Sky Network’s efforts to interest the public in astronomy, including his own efforts to produce a display at the Palos Verdes Public Library. Seven SBAS members were presented with certificates of appreciation for their work, and Joe Fierstein was given a round of applause for his organizing efforts. Ken Munson read out a letter of thanks from Linwood E. Howe Elementary School for a star party organized by the SBAS last November.

Craig Gates described the recent successful monthly dark-sky observing session. Ron Rennie reported on a book published by TravelQuest containing descriptions of various tours organized around last summer’s solar eclipse, including one article written by Ron himself. Ron then showed a short video of the Hollywood Park outreach, centered on solar observing. Ken Munson described his own observing session at Red Rock Canyon under excellent skies, including a sighting of Comet Lulin.

After a fifteen-minute break, Dr. Dave Doody of JPL gave the evening’s main presentation, on “Cassini’s Discoveries at Saturn”. When Galileo first observed Saturn on January 7 1610, he thought he saw three ‘stars’, not one. The two extra stars were Saturn’s rings, one on each side of the planet, and these rings have fascinated astronomers ever since. The Cassini spacecraft, which was launched on October 15 1997 and performed flybys of Venus, Earth and Jupiter before reaching Saturn on July 1 2004, greatly expanded our knowledge of this system.

Cassini obtained spectacular pictures and videos of Saturn’s rings, atmospheric storms and the planet’s remarkable moons. Dr. Doody gave us a tour of the rings, including an explanation of why the rings appear different under various lighting conditions, and why density waves and spokes appear. We were privileged to see these images, occasionally interrupted by the ‘Blue Screen of Death’ as a loose connection interrupted the signal. The Huygens lander passed through Titan’s atmosphere and landed on the surface, and the video of this accomplishment was the highlight of the evening.

Dr. Doody answered questions from several of the 55 people in attendance. We are quite fortunate to have such fine speakers and excellent researchers come to our meetings, thanks to the hard work and persistence of our Program Chair Ron Rennie. President Rossi presented Dr. Doody with a plaque to thank him for his efforts, and the meeting ended at 9:47.

- ***Dr. Steven Morris***



Where did all these gadgets come from?!

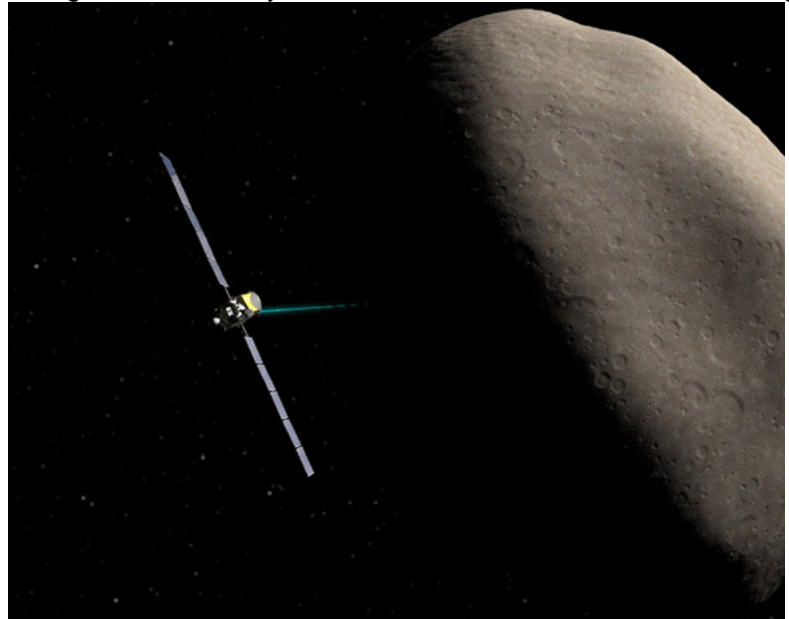
Ion propulsion. Artificial intelligence. Hyper-spectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey.



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1.

The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

The results of all NMP's technology validations are online and the list is impressive: nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with

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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 January 12th planning meeting will be held 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.

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

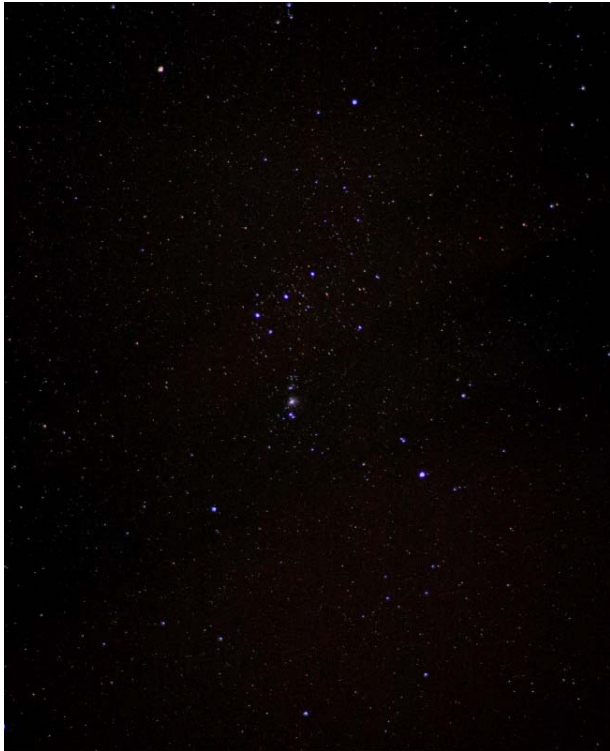
Contact Arnie Stodolsky for magazine subscriptions at club rates: "Sky & Telescope" \$32.95 and "Astronomy" \$34.00/1 year or \$60.00/2 years!

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.

Astronomical League Observing Clubs

All SBAS members in good standing are also members of the Astronomical League and are eligible to participate in the League's Observing Clubs. The Astronomical League provides many different observing programs (clubs). These programs are designed to provide a direction for your observations and to provide a goal. The programs have certificates and pins to recognize the observers' accomplishments and for demonstrating their observing skills with a variety of instruments and objects. For more information go to:



Observing Reports

Here is a photo I took on January 23 of M42. I was at my place in Maui, and for the second night the clouds, wind and rain opened to clear sky conditions.

M-42 to the Hawaiians is know as Ka Heihei o na Keiki. Growing up in Hawaii we always played the string game where you work a round string into patterns, patterns that don't tangle, or come off your fingers. To the Hawaiians, Orion reminded them of the string game. The four corner stars were the islands and the three stars in the belt were the spider that travels along the celestial equator. Mintaka rises due East and sets due west, providing a winter navigational reference to the Hawaiians. The four stars on the outline of Orion are, (L-R,Top-Bottom) Kauluakoko, Bellatrix,Pu'uhonua and Puanakau. Orion arrives in December and departs in early May. The exposure is 3 frames, top 6-sec 70mm f/2 ISO1600, middle 6-sec 70mm f/2 ISO 1600, bottom 8-sec 70mm f/2 ISO 1600. PhotoShop Elements 5.0, Saturation -40. 3-part vertical panaorama view in PSE 5.0.

- Ray Grace

Schedule of Coming Events

6 March Friday Night 7:30 PM	Monthly General Meeting Guest Speaker: Steve Levin, JPL Topic: Juno Mission to Jupiter
9 March Monday Night 7:30 PM	Monthly Planning Meeting See directions on Page 4.
19 March Thursday Night 7:00 PM	JPL's Von Karman Lectures: Advanced Propulsion for JPL Space Missions Dr. Dan M. Goebel. JPL's Dawn mission is en route to rendezvous with the main-belt asteroids Vesta and Ceres, and is using ion propulsion to get there. Similar thrusters have been used by communications satellites to control their orbits around Earth, but Dawn is one of the first NASA missions to use this technology. Using electricity from solar panels, the system accelerates ionized xenon gas to very high velocities, resulting in a gentle but steady thrust over many days, weeks or months. Such "ion beams" pushing the spacecraft through the solar system greatly increases the amount of thrust available from each kilogram of propellant carried by the spacecraft Location: Von Karman Auditorium at JPL 3800 Oak Grove Dr. Pasadena
21 March 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! Alternate site: Rancho Del Mar High School -
28 March 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, March 6th, at 7:30 P.M.*

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P.O. Box 1937
Redondo Beach, CA 90278