# FIRST LIGHT

*Journal of the South Bay Astronomical Society - March 2005*
**on line at www.geocities.com/sbas_elcamino**


**Monthly General Meeting: Friday, March 4th, 7:30 PM**

**Guest Speaker : John Hoot (SSC)**

**"Uncooled Imaging"**

## *Montemalaga School Science Night A Success!*

***Pictures Courtesy of Joe Fierstein***

The weather finally gave us a break on Wednesday, **Feb. 23rd** for the Montemalaga School Science Night. It was mostly clear to partly clear as I set up my scope on the lower field. The ground was no where near as soft as I had expected it to be based on the recent rains. Ray Grace arrived and went up to the room where Joe Fierstein was setting up for his presentation on the size of our Universe, the distinction between our Solar system, our Galaxy, and the universe as a whole and an attempt to convey the vast distances involved on the size of the Universe. Tim Moore and Bill Eisele both soon arrived as well. As promised the School provided us with pizza and a generous $150 honorarium. I spent quite a while on Saturn with about 170 power at first while Tim used his goto capability to get in a bit more variety at his scope. The kids and parents alike were surprised at the detail that could be seen. I moved to the Moon at high power for a bit but the low contrast of the nearly full moon did not do well. I changed to a 40 mm eyepiece to get the entire Moon in the field which made for a better view. As I finished up with Comet Macholtz and the Orion Nebula Steve Pedersen arrived. All in all it was a better night than had been feared. In total, I would estimate that up to a couple of hundred people visited the scopes through the evening.

***- Greg Benecke***


# *Two Rocket Launches from Vandenberg*

One of the of the benefits of living in the Los Angeles area is that we can watch rocket launches from Vandenberg Air Force Base, and the next opportunity to do so will occur on Wednesday, **March 2** between 9:35 and 9:42 am PST, when an Orbital Sciences air-launched Pegasus XL rocket will carry NASA's Demonstration for Autonomous Rendezvous Technology (DART) spacecraft into orbit. The DART craft will perform its autonomous operations to locate and rendezvous with the existing MUBLCOM communications test satellite. To see this launch, find a north-west to south-west horizon as free of obstructions as possible. The launch may be visible anywhere in the South Bay, but the closer to the coast you are, the better. The spacecraft will be launched into a polar orbit, so the rocket should be visible traveling from a position north of west, heading southwards (to the observer¹ s left). Even more impressive may be the condensation trail, which may last for half an hour or more. Launches are never certain to occur, and this probe has already been postponed from its scheduled launch dates in 2004 of April 15, Oct. 18, Oct. 19, Oct. 26, Oct. 28, Nov. 4 and Nov. 9. If you want to monitor the posted flight schedule, you may do so at Internet sites such as **http://www.spacearchive.info/vafbsked.htm** or **http://spaceflightnow.com/tracking/index.html**

Another launch that may be visible from the South Bay is the Boeing Delta 2 rocket carrying the NOAA-N civilian weather satellite into polar orbit for NASA and the National Oceanic and Atmospheric Administration. This launch was delayed from its originally-scheduled launch on June 30, 2003, and is currently scheduled for the early morning of Saturday, **March 19** between 02:22 and 02:32 am PST.

***- Steven Morris***

# *Lomita Math & Science Magnet School Star Party*

On Saturday, **March 19th**, we will be supporting a star party for the 3rd Grade students and their parents, so we will need as many scopes as possible since hundreds of participants turnout at their events. The sun will set at around 6:00 PM so the gate should be open at 5:30 PM. The Lomita Math & Science Magnet School, at 2211 W. 247th Street, Lomita, 90717, is located near the intersection of Lomita Blvd. and Narbonne Ave. See you there!

- ***Greg Benecke***

# *Prepare for the April 9th Mt. Wilson Observatory Trip*

SBAS returns to the Mt. Wilson Observatory for al full night of observing with the 60-inch Telescope on Saturday, **April 9th**, with a scheduled **5:30 PM** arrival time at the front gates, since Mt. Wilson staff will let us in the entrance gate about a half hour before sunset. If anyone cannot make the trip, please contact me immediately so that other members on the waiting list can have the opportunity to join the group!

Please make every effort in arrangements to carpool since parking at the observatory is limited. Traffic is always unpredictable, so allow plenty of time for the drive. ***Directions***: Take the 110 North to the 5 North to the 2 North to the 210 East. Take the Angeles Crest Highway (Highway 2) exit and turn left. Continue up Angeles Crest Highway about 14 miles to Mt Wilson Road. You can only go right. Take Mt. Wilson Road about 5 miles to loop at the end. The gate to the Observatory grounds is at the far end of the loop. Park there and wait for the gate to be opened. If you arrive after the main group has entered, use the pay phone (cell phones do not work due to the interference from the radio towers) to call 793-3065. A docent will come to the gate to let you in. It may take a while - so be patient. Do not arm your car alarm as the interference from the radio towers can prevent you from turning it off.

Wear shoes appropriate for negotiating the stepladders for viewing. It can be cold overnight so bring warm clothing, preferably layered so you can adjust easily. You may bring a sleeping bag, blankets, air mattress and/or a folding chair. There are very few chairs there, so you should bring your own. Hot water is available for you to make hot coffee, tea, or chocolate that you bring along with snacks to keep your energy levels high through the night. Don't forget you flashlight - only **Red** light is allowed in the dome! Smoking is only permitted immediately outside of the dome entrance and subject to further restrictions by the Forest Service. Be very careful as dead leaves and pine needles are extremely flammable! No intoxicants are allowed. Do not bring personal scopes to the observatory. You may leave in the middle of the night, but you must be escorted to the gate by Mt. Wilson staff. ***- Greg Benecke***

# *Our SBAS Committee*

| | | | |
|---|---|---|---|
| **President** | Greg Benecke | 217-1512 | BeneckeRUs@aol.com |
| **Program Chairman** | Joe Fierstein | 377-9834 | Joefiers@aol.com |
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| | Mark Braden | 540-2810 | Bradenm@fnic.com |

# *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). Click on the map to get a display that can be zoomed out for a regional view. The zoom display appears in a separate browser window, which can be closed to return to this page.

The domed roof of the planetarium is visible from the street. 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. Park in northeast corner lot, temporarily, due to the construction project.

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 Meetings*

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 by any member or visitor wishing to attend. All are welcome!

We will meet on Monday, **March 7th** 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 Benefits*

Contact John Collins for magazine subscriptions at club rates: "Sky & Telescope" $32.95 and "Astronomy" $29.00! Make your check payable to SBAS and mail the payment and your subscription / renewal form directly to South Bay Astronomical Society, P.O. Box 1999, Redondo Beach, CA 90278.

Part of your SBAS membership dues goes toward membership in the Astronomical League. All paid members should be receiving the "Reflector", the league's newsletter, four times a year. As a member organization, we can participate in a number of award programs they offer. These are based on completing various observing challenges. Check out the Astronomical League website at **www.astroleague.org**

# *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!

# *March - Comets & Asteroids*

**Comets Visible:**

| Name | Magnitude | Constellation |
|---|---|---|
| 2003 K4 | 8.9 – 10.0 | Eri |
| Macholz (2004 Q2) | 6.2 – 7.6 | Cep-Cam-Cep-Cam-Dra |
| 2003 T4 | 7.6 – 6.4 | Del-Equ-Aqr-Cap |

*Comet Macholz is closest to Earth on 23 March.

**Comets at Perihelion:**

| Date | Identification | Magnitude |
|---|---|---|
| 2 March | Macholz (2004 Q2)* | 6.2 |

**Near-Earth Asteroid Flybys:**

| Date | Identification | Magnitude | Distance |
|---|---|---|---|
| No visible near-earth asteroids. | | | |

**Asteroid Occultations:**

| Date/Time | Identification |
|---|---|
| 7 March 6:09 PM | Belisana occults star SAO 092628 (HIP 8306) |

Refer to the charts on the next page!

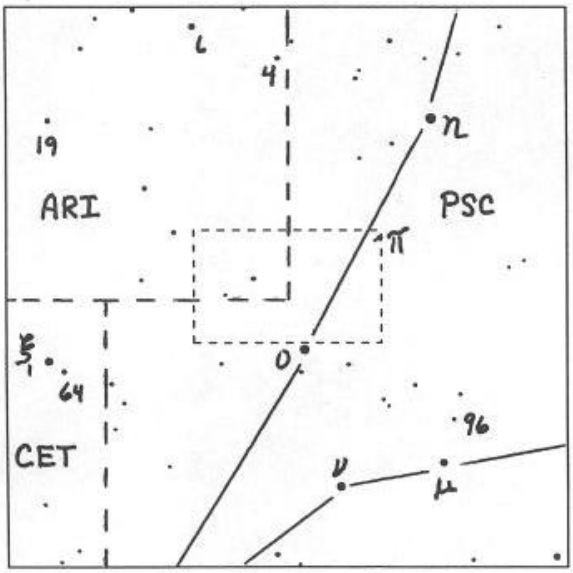
Check the JPL Ephemeris Generator page for coordinates of the objects at: ***http://ssd.jpl.nasa.gov/cgi-bin/eph***

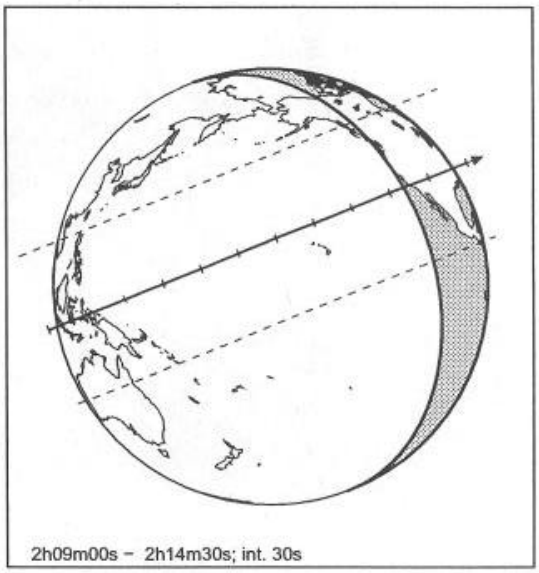
- ***Ken Munson***

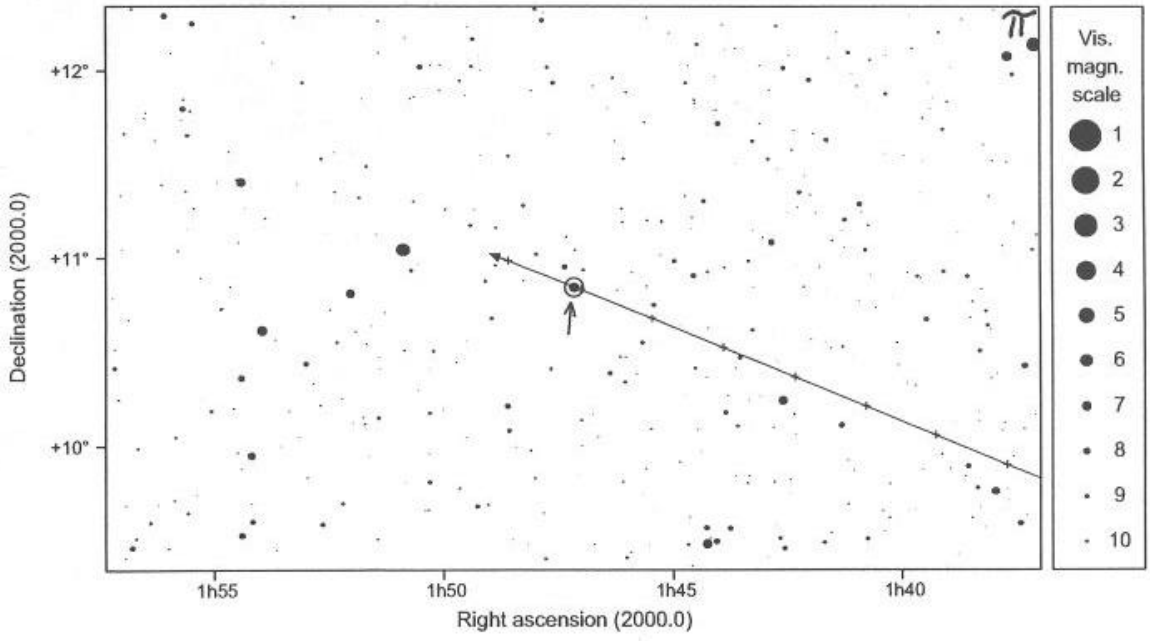
# 178 Belisana – FK6 4163

2005 mar 8 $2^h09^m - 2^h15^m$ UT

| Planet : | | | Star : SAO 092628 | Source cat. FK6 |
|---|---|---|---|---|
| V. mag. = 14.76 | Diam. = 37.8 km = 0.02" | S | $\alpha = 1^h47^m09.109^s$ | $\delta = +10°50'39.20"$ |
| $\mu$ = 62.23"/h | $\pi$ = 2.75" | Ref. = EG2000-079 | V. mag. = 7.05 B9 | Ph. mag. = |
| $\Delta$m = 7.7 | Max. dur. = 0.9s | | Sun : 41° | Moon : 73° , 7% |




A05_0301.PS : 2004-07-28 12:21:39 30 Agfa-Gevaert N.V., Mortsel, Belgium

# Astronomy For City Dwellers

Explore the Night Sky Using The Latest In "Go To" Computerized Telescopes. Learn The Constellations, View Planets, Galaxies and Star Clusters
No Experience Required

6 **Wed Evenings 8 to 10 pm**
**April 13 to May 25 (no class May 11)**
To Register Call PV Adult School
(310) 541 7626 Ex 708

*Instructor: Joe Fierstein*

# *"Weather Permitted" Observing Reports*

***@Ridgecrest School*** - It was a clear night on **Jan. 29th**, but very windy when I arrived to set up just before sunset. The wind was from the North so I decided to park my Suburban along side the grass and set up on the down wind side to use the vehicle as a wind block. There was only a moderate turnout for this cold evening. I think there were five scopes in total including Ken Rossi, Mike Rivas, Joe Fierstein and Tim Moore. Even with the wind break I had to be careful as gusts would push my Dob around. I had to hold on to the scope while others were looking through it to keep it in check. The wind did mitigate as the evening went on. The seeing was average and occasionally good. We got some good views of Saturn and a few of its moons. I had one request to look at the Crab Nebula, which we were able to find. We tried a UHC style filter to see if it would help but I can't really say that it did. This seems to be consistent with reports that I have read that filters don't generally help the Crab Nebula. I tried the same filter on the Orion Nebula hoping I would see something more like what Orion looks like at a dark site. While the filter did add some contrast, there is nothing like a dark site to bring out all of its intricate detail. There was a fair amount of moisture in the air so the sky was not as dark as it can be at Ridgecrest School. The Moon was up before 10:00 PM so it was not a late night. After taking in some views of the rising Moon, we packed up for the night. Considering the last couple of months we had been weathered out, all in all it was a good night.

***@Cottonwood Springs*** – On **Feb. 5th**, Craig Gates had already arrived and set up by the time I drove up, just after sunset. As I was setting up Tim Moore arrived. It was cloudy but the Clear Sky Clock web site had predicted clouds for an hour or two after sunset followed by a clear night with average or better seeing. We could see the break in the clouds to the West moving our way. By the time it was fully dark it was clearing as predicted. It would develop into a pretty nice night. Some time after full darkness Jim Madison arrived with his wife Sylvia. It's been quite a few months since Jim has been able to join us on the dark site outing. I took advantage of the dark sky to take what may be my final good look at the Andromeda Galaxy for the season. The view confirmed my earlier impression that the Paracorr was useful on large extended objects like Andromeda and not just for getting pinpoint stars across the field on a fast Newtonian. I am convinced that the dust lanes have noticeably higher contrast with the Paracorr than without. I demonstrated to the others the improvement the Paracorr makes using the Double Cluster. I find myself returning to this view for this demonstration as the increased detail and visibility of much dimmer stars is remarkable.

Comet Macholtz was well positioned in Cassiopeia. I got the best view I had yet seen of the comet. You could make out both dust and ion tails. Later in the night as Orion got higher I spent some quality time with the nebula with and without a nebula filter. It was time to go for the Horsehead again, but tonight I found it even more subtle than last month. There was moisture in the air and the sky was just not as dark as is really needed to see this dark nebula, even with the H-Beta filter. I put the filter to better use on the California Nebula which revealed quite a bit of detail. Six moons could be seen around Saturn and at during moments of really good seeing there was some good detail in the banding on the planet face. When Virgo was high enough we spent some time trying to see how many galaxies we could see in one field of view. The most was 11 as I recall. After a few hours of pretty good seeing the sky started to deteriorate. As the others prepared to turn in for the night I decided to take a quick Messier tour using the digital setting circles and ran though the 30-40 objects that were up at that time. I called it a night at about 4:00 AM to catch a few hours sleep before driving home.

- ***Greg Benecke***

## *60 Nations Sign Earth Observation System Agreement*

***Excerpt from an Article by Peter de Selding, Space News Staff Writer***

BRUSSELS -- Nearly 60 nations signed a 10-year program to tighten international coordination on Earth observation to include common standards and improved maintenance for ground-based sensors and reduced duplication of satellite capacity. Meeting on Feb. 16 as part of the Third Earth Observation Summit, these countries have committed themselves to work harder to assure that technologies already available and operating in many places are extended worldwide. Uppermost on the minds of many government representatives was the Dec. 26 tsunami in the Indian Ocean, which killed an estimated 240,000 in Indonesia, Thailand and elsewhere. Had ocean buoys already in place in the Atlantic and Pacific ocean regions been installed in the Indian Ocean, the number of casualties could have been much lower, officials said. The 10-year implementation plan for what is called the Global Earth Observation System of Systems (GEOSS) establishes a small secretariat to be housed by the World Meteorological Organization in Geneva. The developed nations that launch Earth observation satellites will coordinate among themselves to fill in any gaps in the availability of specific types of needed sensors following the advice of an international advisory board. The GEOSS signatories agreed to set timetables at regular intervals in the 10-year implementation period to assess progress. The first one comes in two years. Among the first goals is to establish and maintain a predetermined number of sites for in-situ measuring networks.

# *NASA Spacecraft Help Solve Saturn's Mysterious Auroras*

Scientists studying data from NASA's Cassini spacecraft and Hubble Space Telescope have found that Saturn's auroras behave differently than scientists have believed for the last 25 years. The researchers, led by John Clarke of Boston University, found the planet's auroras, long thought of as a cross between those of Earth and Jupiter, are fundamentally unlike those observed on either of the other two planets. The team analyzing Cassini data includes Dr. Frank Crary, a research scientist at Southwest Research Institute in San Antonio, Texas, and Dr. William Kurth, a research scientist at the University of Iowa, Iowa City.

Hubble snapped ultraviolet pictures of Saturn's auroras over several weeks, while Cassini's radio and plasma wave science instrument recorded the boost in radio emissions from the same regions, and the Cassini plasma spectrometer and magnetometer instruments measured the intensity of the aurora with the pressure of the solar wind. These sets of measurements were combined to yield the most accurate glimpse yet of Saturn's auroras and the role of the solar wind in generating them. The results will be published in the February 17 issue of the journal Nature.

The findings show that Saturn's auroras vary from day to day, as they do on Earth, moving around on some days and remaining stationary on others. But compared to Earth, where dramatic brightening of the auroras lasts only about 10 minutes, Saturn's can last for days. The observations also show that the Sun's magnetic field and solar wind may play a much larger role in Saturn's auroras than previously suspected. Hubble images show that auroras sometimes stay still as the planet rotates beneath, like on Earth, but also show that the auroras sometimes move along with Saturn as it spins on its axis, like on Jupiter. This difference suggests that Saturn's auroras are driven in an unexpected manner by the Sun's magnetic field and the solar wind, not by the direction of the solar wind's magnetic field. "Both Earth's and Saturn's auroras are driven by shock waves in the solar wind and induced electric fields," said Crary. "One big surprise was that the magnetic field imbedded in the solar wind plays a smaller role at Saturn."

At Earth, when the solar wind's magnetic field points southward (opposite to the direction of the Earth's magnetic field), the magnetic fields partially cancel out, and the magnetosphere is "open". This lets the solar wind pressure and electric fields in, and allows them to have a strong effect on the aurora. If the solar wind's magnetic field isn't southward, the magnetosphere is "closed" and solar wind pressure and electric fields can't get in. "Near Saturn, we saw a solar wind magnetic field that was never strongly north or south. The direction of the solar wind magnetic field didn't have much effect on the aurora. Despite this, the solar wind pressure and electric field were still strongly affecting auroral activity," added Crary. Seen from space, an aurora appears as a ring of energy circling a planet's polar region. Auroral displays are spurred when charged particles in space interact with a planet's magnetosphere and stream into the upper atmosphere. Collisions with atoms and molecules produce flashes of radiant energy in the form of light. Radio waves are generated by electrons as they fall toward the planet.

The team observed that even though Saturn's auroras do share characteristics with the other planets, they are fundamentally unlike those on either Earth or Jupiter. When Saturn's auroras become brighter and thus more powerful, the ring of energy encircling the pole shrinks in diameter. At Saturn, unlike either of the other two planets, auroras become brighter on the day-night boundary of the planet which is also where magnetic storms increase in intensity. At certain times, Saturn's auroral ring is more like a spiral, its ends not connected as the magnetic storm circles the pole. The new results do show some similarities between Saturn's and Earth's auroras: Radio waves appear to be tied to the brightest auroral spots. "We know that at Earth, similar radio waves come from bright auroral arcs, and the same appears to be true at Saturn," said Kurth. "This similarity tells us that, on the smallest scales, the physics that generate these radio waves are just like what goes on at Earth, in spite of the differences in the location and behavior of the aurora."

Now with Cassini in orbit around Saturn, the team will be able to take a more direct look at the how the planet's auroras are generated. They will next probe how the Sun's magnetic field may fuel Saturn's auroras and learn more details about what role the solar wind may play. Understanding Saturn's magnetosphere is one of the major science goals of the Cassini mission. For the latest images and information about the Cassini-Huygens mission, visit **http://saturn.jpl.nasa.gov** and **http://www.nasa.gov/cassini**.

***- NASA News Release***

# *Schedule of Coming Events*

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|---|---|
| **4 March Friday 7:30 P.M.** | **Monthly General Meeting:**<br><br>John Hoot, of Software Systems Consulting, will be our speaker on the topic "Uncooled Imaging" the theory behind the DSI and use of the Digital Still Cameras to make astronomical images. |
| **5 March Saturday Evening** | **In-Town Dark Sky Observing at Ridgecrest School** – Weather Permitting: If the weather conditions are marginal, contact Greg Benecke to confirm that he will be opening the gate!<br><br>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… |
| **7 March Monday 7:30 P.M.** | **Monthly Planning Meeting**<br><br>Refer to page 3 for directions. |
| **12 March Saturday Evening** | **Out-of-Town Dark Sky Observing** – New Moon March 10th<br><br>Make your plans now for **SBAS' 5th Annual Messier Marathon**. |
| **17 JPL 18 PCC March 7:00 P.M.** | **Von Kármán Auditorium (Thursday) & Vosloh Forum at Pasadena City College (Friday)**<br><br>"Big Things Come in Small Packages: Mission Concepts Potentially Enabled by Small-RPS Technology", presented by Robert Dean Abelson, JPL Near Earth Mission Architecture Group. The increased use of smaller spacecraft and studies of potential science applications suggests the need for radioisotope power systems yielding much lower power levels than 100-watt-scale devices used in the past. Admission is free. For more information, call (818) 354-0112. |
| **19 March Saturday Evening** | **Lomita Math & Science Star Party**<br><br>Refer to page 2 for directions. |
| **1 April Friday 7:30 P.M.** | **Monthly General Meeting:**<br><br>The speaker for the evening will be announced in the next newsletter. |
| **2 April Saturday Evening** | **In-Town Dark Sky Observing at Ridgecrest School** – Weather Permitting.<br><br>Refer to March 5th entry for directions to the site & instructions on weather conditions. |
| **4 April Monday 7:30 P.M.** | **Monthly Planning Meeting**<br><br>The location of this meeting will be announced in the next Newsletter. |
| **9 April Saturday Evening** | **Mt. Wilson Observatory Trip & Out-of-Town Dark Sky Observing** – New Moon April 8th<br><br>Scheduled attendees - see page 3 for detailed instructions on Mt. Wilson Observatory Trip. Alternatively, if you plan to meet other SBAS members at the out-of-town dark sky site, please contact Greg Benecke to confirm the location. |
| **17 April Sunday Morning** | **Astronomy Day – Solar Observing**<br><br>Join Joe Fierstein at the Farmers Market in the Peninsula Center for early morning solar viewing! Joe has also set up an Astronomy Display at the Peninsula Library for viewing **April 18-23**. |

# South Bay Astronomical Society

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***General Meeting at El Camino College Planetarium:***
***Friday, March 4th at 7:30 P.M.***

***Guest Speaker: John Hoot (SSC)***

## *"Uncooled Imaging"*

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**South Bay Astronomical Society**
**P.O. Box 1999**
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