FIRST LIGHT

Journal of the South Bay Astronomical Society - September 2004
on line at www.geocities.com/sbas_elcamino

Monthly General Meeting: Friday, September 10th, 7:30 PM

Guest Speaker : Leon Palmer (Rigel Systems)

"Star Spectrums for Amateurs"

Mt. Wilson Observatory Trip

SBAS returns to the Mt. Wilson Observatory for al full night of observing with the 60-inch Telescope on Friday, **September 17th**, with a scheduled **6:15 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

Lomita Math and Science Magnet School Star Party

SBAS will support the Lomita Math and Science Magnet School's next star party on Saturday, **September 25th**. The gate should be open about 45 minutes before sunset, which is at about 6:45 PM, so plan to arrive at **6:00PM** to set-up. We can expect several hundred people at this star party so we will need as many scopes as possible there. The Lomita Math and Science Magnet School, at 2211 W. 247th Street, Lomita, 90717, is located near the intersection of Lomita Blvd. and Narbonne Ave.

- Greg Benecke

Observing Reports

@Ridgecrest School – On **August 7th**, SBAS was treated to one of those rare, clear nights when the marine layer stays low over the ocean, blocking out most of the city lights, and providing us with dark sky and steady air. The word must have gone around because we had a great turn out of people and scopes. There were at least 7 scopes in service ranging from Jim Madison's 17 in Dob to a 5in Mak guided by Ken Rossi and his son Antoni. Other SBASers in attendance were Greg Benecke, Craig Gates , Garth Magee, Mike Weasner, Bea Collu, Ron Obert and Ken Lehmer with his son Will and Ken's Cub Scout Pack 846 from Silver Spur School. Many of them and their parents joined us for an evening of stargazing. They were treated to views of the planets Uranus and Neptune as well as comets Neat and Linear. Early in the evening, an Irridium Satellite passed over head and caused a great deal of excitement as the sun glinting off its surface caused a bright flare which was visible to the naked eye. The constellations Scorpius, Hercules and Cygnus were among those prominent so there were many interesting things to see including double stars, clusters and nebulae. It was fun having the scouts with us, they asked good questions. We hope they join us again for a night under the stars.

- ***Joe Fierstein***

There were a number of new people from the general public due to the notice that Joe Fierstein had placed in the Daily Breeze and a group of 6 or 7 young Brazilian ladies joined us through an invitation from Garth Magee. One of them is studying astronomy! I tried taking a look at the two brightest comets that were visible that evening. The coma of NEAT Q4 was just barely visible through the sky glow. In fact, some of the less experienced observers could not be certain that they were able to make it out. LINEAR K7 was much more easily seen, being about 1.1 magnitude brighter at about 6.2. One could sense the direction that the tail was leaving the coma. The bright globular clusters were some of the highlights of the night. The Ring Nebula was near the zenith, which made for great viewing. The Andromeda Galaxy was getting high enough to be observed reasonably well and the moon rose rather dramatically about 12:30 A.M. All in all, a good night of viewing!

@Redrock-Inyokern Road – On **August 14th**, for the first time in quite a while, most of our group of die-hards were not able to make it out this weekend, myself included. I hope our schedules will mesh this month.

- ***Greg Benecke***

Our SBAS Committee

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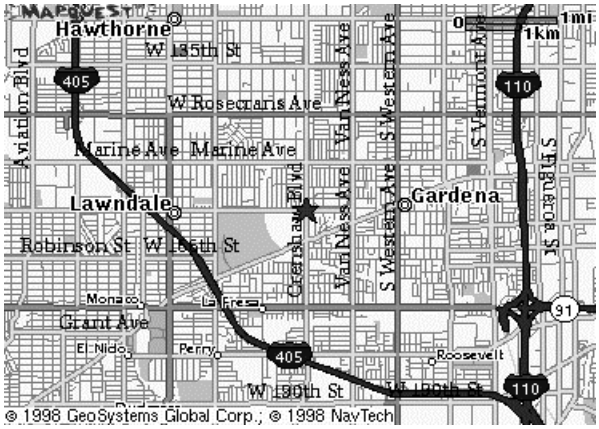
Monthly General Meetings



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). 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, August 9th at 7:30 PM at the home of Greg Benecke. From Crenshaw Blvd., head West on 182nd St. Shortly after going under the 405 overpass you will see a Fire Station on the right. Turn right into the cul-de-sac just after the Fire Station. From Prairie Ave., head East on 182nd St. Go one block past the second traffic light (Yukon Ave.) and make a left into the cul-de-sac just before the Fire Station. You are making the correct turn if you see a sign saying "Park Place" on the white fence on the Northwest corner next to the Fire Station. Greg's house is the first one on the left side of the cul-de-sac 18161 Patronella Ave., Torrance.

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!

September - Comets & Asteroids

Comets Visible In September:

Name	Magnitude	Constellation
2001 Q4	9.0 – 9.7	Dra-UMi
2003 K4	6.1 – 5.8	Vir
2003 T3 (Tabur)	11.1 – 11.6	UMa
2004 H6	11.1 – 12.9	Aql
78P/Gehrels 2	11.7 – 11.0	Ari

Comets at Perihelion:

Date	Identification	Magnitude

No visible comets at perihelion.

Near-Earth Asteroid Flybys:

Date	Identification	Magnitude	Distance
5 Sep	2002 CE26	12.7	0.10 AU
26 Sep	1998 RO1	15.1	0.09 AU
29 Sep	4179 Toutatis	8.9	0.01 AU*

*Should be >10th magnitude for a couple of nights preceding closest approach and moving rapidly (i.e., 7-8 arcminutes/hour). Toutatis may not be visible from LA area on night of closest approach but will be visible for the preceding week.

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

- ***Ken Munson***

Night Sky Network Messages

NOTICE: The date for club participation in the NOVA Origins miniseries telecon has been changed to Wednesday, **September 8th** at **6 PM** Pacific time. NASA has arranged for Night Sky Network club members to participate in this exclusive Telecon with the producer, Tom Levenson, and the host, Dr. Neil Tyson, of this NOVA series. Anyone from your club may call in!

Here is the call-in information: Wednesday, **September 8th** at **6 PM** Pacific time. Call toll-free: 1-888-791-1856 anytime after 5:45 PM. You will be asked for the passcode: NIGHT SKY NETWORK, the call leader: MICHAEL GREENE and you will be asked to give your NAME and the CLUB you belong to.

Watch your club's mailbox for a free sneak preview DVD, a special mailing only to NSN member clubs, shipped a few days prior to the telecon so you can review this 18-minute preview of the NOVA Origins series before you participate in the conference. FREE DRAWING - From among the clubs with members attending the September 8 telecon, TWO clubs will be drawn at random to receive a FREE copy of Dr. Tyson's soon-to-be-released book, "ORIGINS: Fourteen Billion Years of Cosmic Evolution". Has the universe always existed? How did it become a place that could harbor life? Are we alone, or are there alien worlds waiting to be discovered? NOVA presents some startling new answers in Origins, a groundbreaking four-part NOVA miniseries airing on PBS television stations September 28 and 29, 2004. For more information on the NOVA series, ***www.pbs.org/nova/origins***.

- Marni Berendsen, Night Sky Network Administrator

Scientists Teleport Information Between Atoms

By Malcolm Ritter, AP Science Writer

In a step toward making ultra-powerful computers, scientists have transferred physical characteristics between atoms by using a phenomenon so bizarre that even Albert Einstein called it spooky. Such "quantum teleportation" of characteristics had been demonstrated before between beams of light. The work with atoms is "a landmark advance," H.J. Kimble of the California Institute of Technology in Pasadena, Calif., and S.J. van Enk of Bell Labs in Murray Hill, N.J., declared in an issue of the journal Nature. Two teams of scientists reported similar results. One group was led by David J. Wineland of the National Institute of Standards and Technology in Boulder, Colo., and the other by Rainer Blatt of the University of Innsbruck in Austria. Teleportation between atoms could someday lie at the heart of powerful quantum computers, Wineland said. Although his work moved information about atomic characteristics only a tiny fraction of an inch, that's in the ballpark for what would be needed inside a computer, he said. His work involved transmitting characteristics between pairs of beryllium atoms, while the Austrian work used pairs of calcium atoms. Each atom's "quantum state," a complex combination of traits, was transmitted to its counterpart. Key to the process was a phenomenon called entanglement, which Einstein derided as "spooky action at a distance" before experiments showed it was real. Basically, researchers can use lab techniques to create a weird relationship between pairs of tiny particles. After that, the fate of one particle instantly affects the other; if one particle is made to take on a certain set of properties, the other immediately takes on identical or opposite properties, no matter how far away it is and without any apparent physical connection to the first particle.

NASA Mission Returns with a Piece of the Sun

"The Genesis mission -- to capture a piece of the Sun and return it to Earth -- is truly in the NASA spirit: a bold, inspiring mission that makes a fundamental contribution to scientific knowledge," said Steven Brody, NASA's program executive. On **September 8th**, the Genesis capsule -- carrying the agency's first sample return since the final Apollo lunar mission in 1972 and the first material collected beyond the Moon -- will enter Earth's atmosphere at 9:55 am Mountain time. Two minutes and seven seconds after atmospheric entry, while still flying supersonically, the capsule will deploy a drogue parachute at 108,000 feet altitude. Six minutes after that, the main parachute, a parafoil, will deploy 20,000 feet up. Waiting below will be two helicopters and their flight crews looking for their chance to grab a piece of the Sun. "What a prize Genesis will be," said Genesis Principal Investigator Dr. Don Burnett of the California Institute of Technology, Pasadena, Calif. "Our spacecraft has logged almost 27 months far beyond the moon's orbit, collecting atoms from the Sun. With it, we should be able to say what the Sun is composed of, at a level of precision that has never been seen before." News and information are available at **http://www.nasa.gov/genesis** and **http://genesismission.jpl.nasa.gov**.

- JPL News Release

4 Inch Backyard Telescope Helps Find New Planet

By Robert Roy Britt, Senior Science Writer for SPACE.com

With the help of a modified backyard telescope, astronomers have discovered a giant planet orbiting another star. It is the first extrasolar world found with such modest equipment. Large observatories pinned down the finding after 16 candidate planets were identified by a 4-inch (10-centimeter) telescope, in a professionally run search effort that uses off-the-shelf parts and complex computer analysis. The technique, now proven to work, promises similar findings ahead. Importantly, the process finds planets whose atmospheres can be probed with the Hubble Space Telescope, paving the way for a greater understanding of giant worlds around other stars. Hubble might even be able to detect a moon if one orbits the newfound planet.

The planet is slightly bigger than Jupiter, circling a star 500 light-years from Earth, astronomers announced today. It is much closer to its star than Mercury is to the Sun, making a high-speed annual trip around the star in just 3.03 Earth-days. The planet is probably about 1,500 degrees Fahrenheit (816 Celsius), scientists said. Dozens of other extrasolar planets have similar tight configurations. The newly spotted object is called a transiting planet: It passes in front if its host star as seen from Earth, causing a slight dip in observed starlight that made the discovery possible. Only four other transiting planets have been discovered, all with large telescopes. "We're really excited about this result, both because it proves the validity of our approach, and because the planet itself has some interesting properties," said David Charbonneau of the Harvard-Smithsonian Center for Astrophysics and a co-leader of the Trans-Atlantic Exoplanet Survey (TrES).

Most of the more than 120 known extrasolar planets have been found by an indirect means -- a slight wobble in the host star induced by the planet's tug -- that allows only a determination of mass and orbital characteristics. With a transiting planet, however, astronomers can learn the diameter and even what's in its atmosphere, by studying the shadow it creates against the star and the light that is altered as it passes through the atmosphere. Three of the known transiting planets are too far away to have their air probed, however. Another, named HD 209458b, was the first planet for which an atmosphere has been detected. The newest known transiting planet, named TrES-1, has not had its atmosphere examined yet, but its diameter has been roughly determined, and the result proved interesting. TrES-1 seems to be "only a smidge larger" than Jupiter, Carbonneau told SPACE.com. "HD 209458b, on the other hand, has been studied by Hubble, and has a very precisely measured size -- which is about 40 percent larger than Jupiter, which is a very significant increase." Theorists have a hard time explaining the large size of HD 209458b, given its known mass. TrES-1, though smaller, is about the same mass, in line with what astronomers would expect of an object made mostly of hydrogen and helium, as is Jupiter. "Finding TrES-1 and seeing how normal it is makes us suspect that HD 209458b is an oddball planet," Charbonneau said.

The TrES program has a handful of specially designed 4-inch telescopes operating at different locations around the world, generating 10 Gigabytes of data every night. Graduate student Roi Alonso of the Astrophysical Institute of the Canaries, off the coast of Africa, first identified 16 possible planet candidates in a survey of 12,000 stars. The 16 planet candidates were then observed by others, including the 33-foot (10-meter) Keck Observatory in Hawaii. Most are stellar pairs, but a few require additional observation to learn what they are. Meanwhile, Charbonneau and his colleagues hope to use Hubble to examine TrES-1 more closely. Hubble might find water in TrES-1, and it would "give us a much more precise measurement of the planet's size, and even allow us to search for moons," he said. A satellite is unlikely, however, given the likely history and current orbital configuration for the planet, the research team concluded. No moons have ever been detected beyond our solar system. A Jupiter-sized planet causes the light from its host star to dip by about 1/100th as it transits in front of it.

SPACE.com asked David Charbonneau, who helped develop the setup, to explain the technical details of the telescopes: "The mount is taken from a Meade LX200GPS telescope; we bought the complete system, and then removed the optical tube assembly," Charbonneau explained. "We then built our own instrument to go between the forks, consisting of an off-the-shelf 280mm camera lens (made by Leica), a filter wheel and shutter, and a CCD camera that was constructed at NASA's Jet Propulsion Laboratory. Although this camera was not commercially available at the time of construction, you can now purchase a camera with similar capabilities (notably, with the same number of pixels) from manufacturers such as Apogee Instruments; such camera are used by amateur astronomers. We also use an amateur guide camera, made by Santa Barbara Instruments Group. "The system that first identified the TrES-1 planet is named STARE, and is the node located in the Canary Islands. Although it is largely constructed from similar components, it is important to note that this is a "Schmidt camera" design, which is not a simple lens, but rather an assembly of mirrors and corrector plates, which yields a similarly wide field-of-view."

Schedule of Coming Events

4 September 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! 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…
8 September Wednesday 5:45 P.M.	**NOVA Origins Miniseries Telecon** Refer to page 6 for the call-in information. Any club member may call in!
10 September Friday 7:30 P.M.	**Monthly General Meeting:** The scheduled speaker for this evening, Leon Palmer, presents "Star Spectrums for Amateurs".
11 September Saturday Evening	**Out-of-Town Dark Sky Observing** – New Moon September 14th Contact Greg Benecke to confirm site location.
13 September Monday 7:30 P.M.	**Monthly Planning Meeting** Refer to page 3 for directions.
16 JPL 17 PCC September 7:00 P.M.	**Von Karman Auditorium Lecture Series** – FREE "Catching a Piece of the Sun: The Genesis Sample Return Mission", presented by Donald Sweetnam, JPL, Genesis Project Manager. For more information call: (818) 354-0112. Current and archived webcasts can be viewed at **http://www.jpl.nasa.gov**
17 September Friday Evening	**Mt. Wilson Observatory Trip** – New Moon September 14th Refer to page 1 for detailed instructions.
25 September Saturday Evening	**Lomita Math and Science Magnet School Star Party** Refer to page 1 for detailed instructions.
1 October Friday 7:30 P.M.	**Monthly General Meeting:** The speaker for the evening will be announced in the October Newsletter.
4 October Monday 7:30 P.M.	**Monthly Planning Meeting** The location of this meeting will be announced in the October Newsletter.
9 October Saturday Evening	**In-Town Dark Sky Observing at Ridgecrest School** – Weather Permitting. Refer to September 4th entry for directions to the site & instructions on weather conditions.
16 October Saturday Evening	**Out-of-Town Dark Sky Observing** – New Moon October 14th Contact Greg Benecke to confirm site location.

South Bay Astronomical Society

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General Meeting at El Camino College Planetarium:
Friday, September 10th at 7:30 P.M.

Guest Speaker: Leon Palmer (Rigel Systems)

"Star Spectrums for Amateurs"

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South Bay Astronomical Society
P.O. Box 1999
Redondo Beach, CA 90278