FIRST LIGHT

Journal of the South Bay Astronomical Society – December 2005
on line at www.geocities.com/sbas_elcamino

Monthly General Meeting: Friday, December, 2nd, 7:30 PM

Guest Speaker: Kara Knack

"Update on the Griffith Observatory Renovations"

The November 4 Meeting

President Greg Benecke opened the meeting at 7:37 with reports of recent astronomical activities by club members. This included Bill Samuels' description of the recent "Hands on the Sun" conference sponsored by Coronado Instruments in Tucson Arizona, including a memorable meeting with noted amateur (and professional) astronomer David Levy. This conference is an annual event, and apparently well worth attending. Ron Rennie screened a ten-minute video he filmed and edited, called "The SBAS at Goldstone", to show what many SBAS members saw on their visit to NASA¹s Deep Space Communication Complex.

The club's Constitution was also briefly discussed, and the 35 members in attendance voted unanimously to accept it. This is a watershed moment for our club, but the Constitution will work only if enough members volunteer to fill the club positions.

The evening's lecturer was Paul Livio, speaking on the subject of "Choosing Eyepieces". There are many factors to be considered in choosing the best set of eyepieces for your telescope. For one thing, the entrance pupil of the dark-adapted human eye decreases in diameter from 7 mm to 2 or 3 mm as we age, creating different perceptions of the same eyepiece. Different eyepiece designs such as Kellner, Erfle, Orthoscopic and Plossl have different strengths and weaknesses, such as the amount of eye relief (important for those of us who wear eyeglasses), weight and cost. The last twenty years have seen a revolution in eyepiece design, notably in the Nagler eyepieces that give fields of view much larger than previous models.

Paul suggested that for a reflecting telescope, the minimum useful magnification is equal to 3.4 times the diameter of the mirror in inches. A Barlow lens, used in conjunction with any eyepiece, will double or triple the magnification of the eyepiece, and flatten the field as well. Paul recommended buying three eyepieces, for low, medium and high magnification. The best way to check which eyepieces are best for you is to see how well they perform at star parties, examining the eyepieces that others have purchased already.

Audience members then asked several questions about astigmatism, cleaning the eyepiece lens nearest the eye, and the amount of refocusing required as the observer switches from one eyepiece to another. The speaker was thanked, and given a plaque in appreciation of his efforts. The meeting ended at 9:15.

- Steven Morris

ANNUAL SBAS CLUB DUES RENEWAL TIME IS HERE: DETAILS SEE PAGE 3

NASA Space Place

Voices from the Cacophony

By Trudy E. Bell and Dr. Tony Phillips

Around 2015, NASA and the European Space Agency plan to launch one of the biggest and most exacting space experiments ever flown: LISA, the Laser Interferometer Space Antenna.

LISA will consist of three spacecraft flying in a triangular formation behind Earth. Each spacecraft will beam a laser at the other two, continuously measuring their mutual separation. The spacecraft will be a mind-boggling 5 million kilometers apart (12 times the Earth-Moon distance) yet they will monitor their mutual separation to one *billionth* of a centimeter, smaller than an atom's diameter.

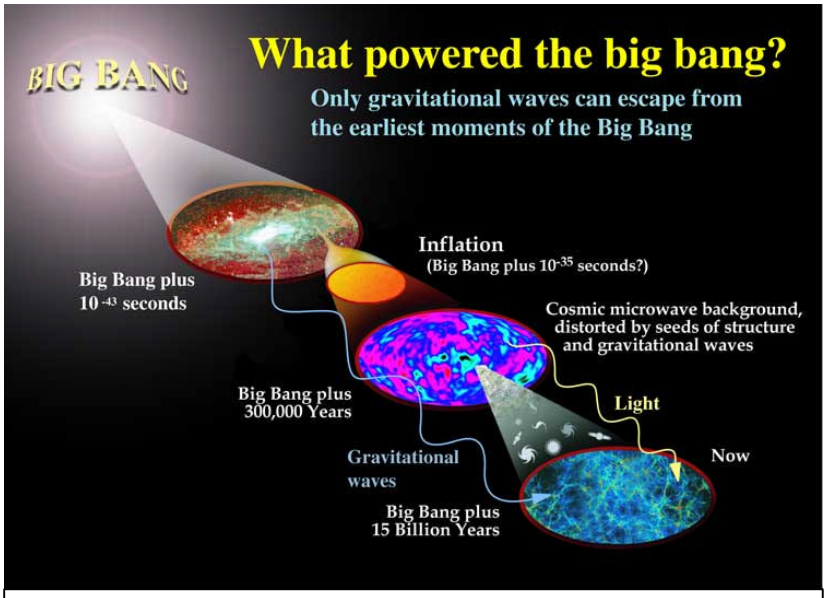
LISA's mission is to detect gravitational waves—ripples in space-time caused by the Universe's most violent events: galaxies colliding with other galaxies, supermassive black holes gobbling each other, and even echoes still ricocheting from the Big Bang that created the Universe. By studying the shape, frequency, and timing of gravitational waves, astronomers believe they can learn what's happening deep inside these acts of celestial violence.

The problem is, no one has ever directly detected gravitational waves: they're still a theoretical prediction. So no one truly knows what they "sound" like.

Furthermore, theorists expect the Universe to be booming with thousands of sources of gravitational waves. Unlike a regular telescope that can point to one part of the sky at a time, LISA receives gravitational waves from many directions at once. It's a cacophony. Astronomers must figure how to distinguish one signal from another. An outburst is detected! Was it caused by two neutron stars colliding *over here* or a pair of supermassive black holes tearing each other apart in colliding galaxies *over there*?

"It's a profound data-analysis problem that ground-based astronomers don't encounter," says E. Sterl Phinney, professor of theoretical physics at the California Institute of Technology in Pasadena.

Profound, but not hopeless: "We have lots of good ideas and plans that work—in theory," he says. "The goal now is to prove that they actually work under real conditions, and to make sure we haven't forgotten something."



LISA will be able to detect gravitational waves from as far back as 10-36 second after the Big Bang, far earlier than any telescope can detect.

To that end, theorists and instrument-designers have been spending time together brainstorming, testing ideas, scrutinizing plans, figuring out how they'll pluck individual voices from the cacophony. And they're making progress on computer codes to do the job.

Says Bonny Schumaker, a member of the LISA team at the Jet Propulsion Laboratory: "It's a challenge more than a problem, and in fact, when overcome, a gift of information from the universe."

For more info about LISA, see **lisa.nasa.gov** . Kids can learn about black holes and play the new "Black Hole Rescue!" game on The Space Place Web site at **http://spaceplace.nasa.gov/en/kids/blackhole/** .

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

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 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**

Our SBAS Committee

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Outreach Committee	Joe Fierstein	377-9834	Joefiers@aol.com

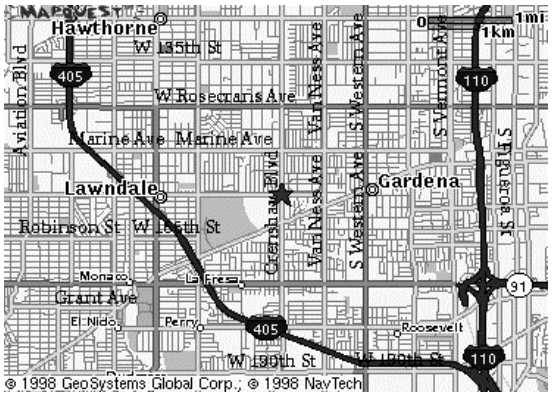
Annual Membership Renewal

Renew your SBAS membership – Keep this amazing newsletter coming plus meetings and observing trips! Renew your membership in the group that brings you great monthly programs, the company of fellow observers, and many chances throughout the year to share the excitement of the night sky with students and new friends. If you just joined us this year, then you can renew your membership on a pro-rated basis to adjust your membership term to the standard calendar-year schedule. Renewal cost as a function of when your membership expires, is as follows:

Membership Expiration	**Renewal Fee Due Now! Individual/Family**	**Student**
Dec. '06 or later	$ 0.00	$ 0.00
Nov. '06	$ 2.50	$ 2.08
Oct. '06	$ 5.00	$ 4.17
Sept. '06	$ 7.50	$ 6.25
Aug. '06	$10.00	$ 8.33
July. '06	$12.50	$10.42
June '06	$15.00	$12.50
May '06	$17.50	$14.58
Apr. '06	$20.00	$16.67
Mar. '06	$22.50	$18.75
Feb. '06	$25.00	$20.83
Jan. '06	$27.50	$22.92
Dec. '05 or before	$30.00	$25.00

To renew, check your membership expiration date in the upper right corner of the mailing label on the back page of this newsletter. This is what our records show for your membership expiration date. Please renew, according to the schedule above, by check to: South Bay Astronomical Society, P.O. Box 1999, Redondo Beach, CA 90278. (Payments will also be accepted at our general meetings!)

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 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 7th** planning meeting will be held 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.

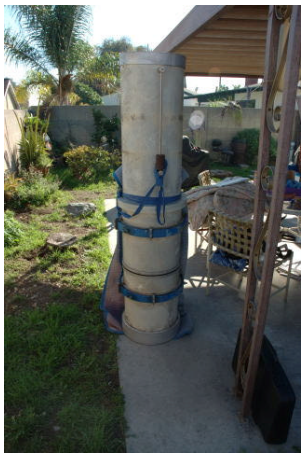
December – Comets & Asteroids

No near-earth asteroids or comets visible in December

Occultation Predictions for Los Angeles:

Date d m y	Local Time Hr	Min	Durn secs	Star mag	Mag drop	Star No.	Planet No	Alt Name
5-Dec-05	0	0.4	3.3	9.4	7.3	TYC 3407-01355-1	3368	Duncombe
13-Dec-05	4	30.4	3.4	8.8	6.4	TYC 5545-00604-1	365	Corduba
20-Dec-05	6	43.1	4.7	8.4	4.6	HIP 23613	516	Amherstia
24-Dec-05	5	43	4.7	9.7	5.4	TYC 2947-00950-1u	806	Gyldenia
30-Dec-05	18	13.9	4.2	8.1	5.8	HIP 2482	213	Lilaea
4-Jan-04	1	55.3	5.8	9.9	2.9	TYC 1917-02019-1u	598	Octavia

Telescope Moved to El Camino



Club member Greg Benecke, Joe Fierstein, Ray Grace, Arnie Stodolowski and Bill Eisele and Dave Vakil of the El Camino staff spent a Sunday afternoon disassembling the 13 inch telescope and moving it from its old home in Carson to a storage room at ECC.

Observing Reports

Pacific Crest – November 5

I wasn't able to make the out-of-town trip this weekend so, late in the afternoon, I decided to make the trip up to my observing site on the Pacific Crest. I figured I'd rather face the cold clear air at 6000 feet rather than risk another fogged in night at Ridgecrest School. The evening didn't get off to a very good start as a large band of clouds moved very slowly overheard just at sundown. Fortunately, the clouds started to clear by 7 and by 8, the sky was pretty clear and stable.

There was one other car in the parking lot when I arrived . As the sky was clearing, its owner came back from running the mountain trails. I showed him Venus and the moon. He was amazed that Venus seemed to be lit from the opposite side as the moon was. He was relieved to find the world worked properly after I'd explained how the telescope reverses the image.

After last month's success, this was another night devoted to using my Meade Deep-Sky Imager. It seems to be working a lot better since I started ignoring the basic instructions that come with it and just experiment with the various control settings.

This night's primary target was Mars, of course, still being very near to closest

approach. I nailed a near perfect polar alignment in my initial setup before sunset so the software had an easy job of aligning and adding the images together. Initially, the DSI wanted to overexpose the images for Mars and I had to manually adjust the settings to stop it. Once I did, it started taking some nice pictures and gradually the image got better and better. During the photo run, a small band of cloud came over and passed in front of Mars. I debated whether to stop the photo taking but decided to let it continue. As I'd hoped, the software just threw out the images taken while the cloud was there and resumed adding to the stack once the cloud was gone. In the end, I got the best picture of Mars I've ever taken.

Another target for the evening was NGC 1514. It's a bright star off the foot of Perseus that is surrounded by a faint cloud of nebulosity. It's very hard to see visually, even with an OIII filter. I managed to get about 70 frames of it (with my OIII filter installed on the DSI) before more clouds began moving in again. In the final composite image, one can just make out the haze of nebula. I think I need to get more exposure time on this one.

I tried a few other DSO's, including the Crab Nebula. Didn't get enough exposure time on that one either. Interestingly enough, the image I got shows why it got the name it has. It very much resembles a drawing that I saw from a 19th century observer which looks a bit like a crab.

More clouds began moving in and the sky deteriorated so I shutdown and went home at 3 AM.

- ***Ken Munson***

Oct. 29 Ridgecrest Observing Session

It was clear at sunset and promised to be a nice night to get a look at Mars a day away from its closest approach to earth for this opposition. A group of YMCA Indian Princesses gathered as we set up our scopes. As twilight faded scopes were aimed at Venus, which showed a slightly gibbous phase. I brought both my scopes intending to use the C8 Deluxe initially to take advantage of its clock drive for the crowd. I would set up the 15 inch Dob later if conditions warranted. Mars was not yet up high enough to be more than a swirling blob, so we moved onto other objects to keep the kids occupied. Just as I was getting ready to show the Ring Nebula, the marine layer moved in. But

it wasn't time to give up. There were many holes in the fog and it was clear that we were almost above it. But it was sure getting everything wet. The crowd was thinning as the fog rolled back and observing began again. Mars was high enough to see some detail thought the seeing was only average. I took down the 8 inch and set up the Dob. By then Mars was high enough to identify a few features, among them Hellas and Syrtis Major. I also took a look and Uranus and Neptune. Though the Fog had moved out there was still a lot of moisture in the air and we were starting to loose the battle in the fight against the dew. As we packed up the fog started coming back in.

Nov. 5 Cottonwood Spring Campground

Join Fierstein joined me for the drive out to Cottonwood Spring along with the club's Nexstar 8. It had been a few months since I have been able to get out to a dark site and I was looking forward to it. We arrived just about sunset and drove around the two loops looking for a site to set up. There were many campers as the fall is one of the prime seasons for campers in the desert. We found a large group of Stelarvue Scope owners on the end of the B loop and set up across the road from them. Craig Gates arrived as twilight had nearly faded. I decided to spend some time looking at object that benefited

from the use of my Nubustar (UHC type), OIII, and H-Beta filters. I started with the Ring Nebula, which works well with both the OIII and Nebustar. These also work well with the Veil, North American, and Pelican Nebulas. The H-Beta was used to view the California Nebula. By this time Orion was getting up high enough to warrant a look. The seeing was steady enough to see the fifth star in the Trapezium. I spent a fair amount of time looking at the Orion Nebula with various filters and without. It was now time to go for the big observing challenge for the night, the Horsehead Nebula using the H-Beta filter. We were clearly able to see the darkening in the faint nebulosity of IC434. But it is subtle. I suspect it would show up better at an even darker site. As Mars reached its height for the night some pretty good detail could be seen. By 3:00 A.M. clouds were starting to move in from the West. I was in my sleeping bag by 4:00 and up and packing by 6:30. Just enough sleep to make the drive home comfortable.

- Greg Benecke

Schedule of Coming Events

26 November Saturday Evening	**In Town Dark Sky Observing Session –** 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, 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.**
2 December Friday 7:30 PM	**Monthly General Meeting** Guest Speaker: Kara Knack will give an update on the renovations at Griffith Observatory.
3 December Saturday Evening	**Out-of-Town Dark Sky Observing Session** Contact Greg Benecke for location.
3-4 December	**JPL Educator Conference: Comets, Asteroids and More – The Solar System's New Zoo** Takes place at JPL in Pasadena. See the website for details: http://education.jpl.nasa.gov/events/comets10-11-05.html
5 December Monday Evening 7:30 PM	**Monthly Planning Meeting** Refer to page 5 for details.
8 December Thursday Evening 7:00 PM	**Von Kármán Auditorium (Thursday) & Vosloh Forum at Pasadena City College (Friday)** "The Spitzer Space Telescope: Exploring the Infrared Universe": If we had infrared eyes, the heavens would look different. We would see cold material between the stars, peer through dense clouds at the mysteries within, and have a clearer view of the distant universe. The Spitzer Space Telescope, launched in 2003, has provided those infrared eyes to us.
14 December	**Geminid Meteor Shower Peak**
23 December Friday **NOTE: This is a special Friday session**	**In Town Dark Sky Observing Session –** 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, 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.**
30 December Saturday Evening	**Out-of-Town Dark Sky Observing Session** Contact Greg Benecke for location.

South Bay Astronomical Society

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

Guest Speaker: Kara Knack

"Update on the Renovations at Griffith Observatory"

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