

FIRST LIGHT



Journal of the South Bay Astronomical Society – June 2006
on line at www.geocities.com/sbas_elcamino

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

Guest Speaker: John Hoot

“History of Radio Astronomy”

The May 5 Meeting

President Ken Rossi opened the meeting at 7:41 with announcements of upcoming lectures and events, such as Astronomy Day and the RTMC Astronomy Expo. He also briefly reviewed the successful observing session at Mt. Wilson 60-inch telescope, which we rented for one night. Nora Roberts, a recent graduate of El Camino College and one of our most enthusiastic members, has been accepted to UCLA, and to a summer internship at Kitt Peak National Observatory for solar observing. Way to go, Nora!



**Ken Presents Dr. Glen Rosenthal
with a Certificate of Appreciation
For his Talk On
“Ionospheric Research In Northern Latitudes”**

Ron Rennie then screened his ten-minute video “Total Solar Eclipse”, produced from the footage he shot while in the Libyan desert to observe the four-minute-long eclipse on March 29. As Ron pointed out, the couple of thousand eclipse-goers in this trek were without a doubt a bigger crowd than that stretch of desert had experienced in all of human history. The video of the crowd and the desert, which Ron took while standing on the top of a cherrypicker crane (!), was almost as striking as the eclipse itself.

After a fifteen-minute break to allow the members to socialize, Dr. Glenn Rosenthal of UCLA began his lecture on “Ionospheric Research in the Northern Latitudes”. The Earth’s magnetic field in outer space is distorted by the solar wind streaming past it at a speed of 400 km/s. The solar wind consists of electrons, protons and some ions ejected into space from the Sun’s surface. By the time the solar wind reaches the vicinity of the Earth, it consists of only 6 particles per cubic centimeter, which is a better vacuum than our technology can manufacture here on Earth. Even so, this is still dense enough to create a vast region of electrically-charged particles around the Earth, called the magnetosphere, with the ionosphere below it.

In the magnetosphere, the Van Allen radiation belts contain particles captured from the solar wind and trapped by the Earth’s magnetic field. These particles bounce back and forth between the Earth’s magnetic poles, taking only a few seconds to travel from one pole to the other. These moving charged particles create an electric current of a million amperes, and a large magnetic field as well. The aurora is caused by this electric current flowing along magnetic field lines at high latitude.

Specifically, it is the electrons energizing the oxygen atoms of the Earth's ionosphere that cause the ghostly blue-green curtains of light in the sky, as well as causing the less common red aurorae. Dr. Rosenthal illustrated this with some splendid pictures, taken from the Earth and from space. The protons in the electric current also create aurorae at wavelengths too long to be seen by the human eye, although these have both been detected by scientific instruments. It has taken a large amount of effort to understand the complicated flow of charged particles above our heads, as they interact with the complicated and ever-changing magnetic fields.

We study the ionosphere for other reasons as well. Jupiter, Saturn, Uranus and Neptune also have aurorae, and understanding Earth's aurorae can help us understand what is happening above these other planets as well. Magnetic storms caused by mass ejection from the Sun can disrupt the ionosphere, creating surges and power outages in our electrical grids on Earth. Remarkably, radiation beamed through telescopes can be used to alter the ionosphere, generating ELF (extremely low frequency) radio waves that can be used to communicate with submarines. The federal government used to communicate with submarines with an ELF antenna that stretched across the entire state of Michigan, which is a clumsy (and easily destroyed) transmitter, compared to a military telescope hidden in Alaska sending signals by modulating the ionosphere.

After answering several questions, the 35 people in attendance thanked Dr. Rosenthal for his presentation, and the meeting ended at 9:44.

- Steven Morris



Not a Moment Wasted

By Dr. Tony Phillips

The Ring Nebula. Check. M13. Check. Next up: The Whirlpool galaxy.

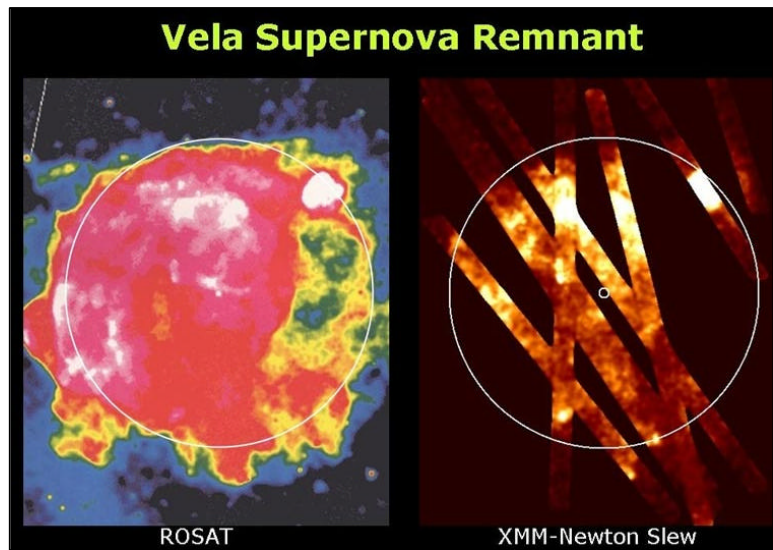
You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn't take so long to slew. What a waste of time!

Don't tell that to the x-ray astronomers.

"We're putting our slew time to good use," explains Norbert Scharfel, project scientist for the European Space Agency's XMM-Newton x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It's now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

For the past four years, whenever XMM-Newton slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. XMM-Newton has slewed across it many times, tracing its changing contours in exquisite detail.



The image on the left is the Vela Supernova Remnant as imaged in X-rays by ROSAT. On the right are some of the slew images obtained by XMM-Newton in its "spare" time.

The slew technique works because of XMM-Newton's great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There *will* be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

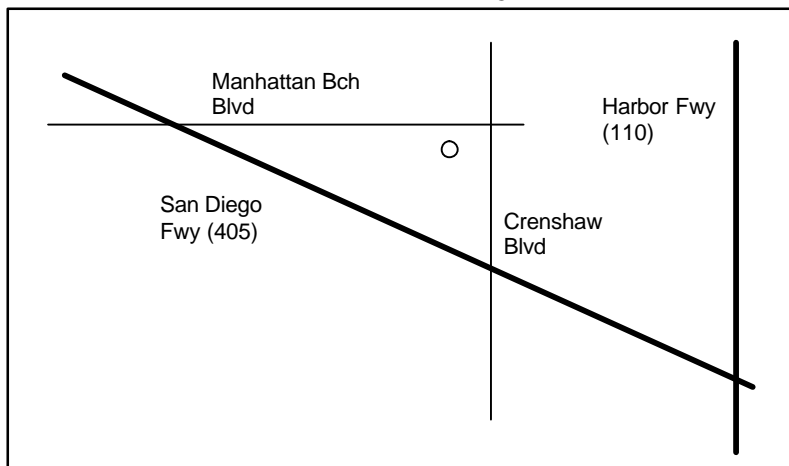
See some of the other XMM-Newton images at <http://sci.esa.int> . For more about XMM-Newton's Education and Public Outreach program, including downloadable classroom materials, go to <http://xmm.sonoma.edu>. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, <http://spaceplace.nasa.gov/>, under "Games."

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

Our SBAS Committee

President	Ken Rossi	515-1586	ken_a_rossi@yahoo.com
Vice-President	Greg Benecke	217-1512	beneckerus@aol.com
Secretary	Deanna Chafe	329-1371	Martin5lynn3@sbcglobal.net
Program Chairman	Greg Benecke	217-1512	beneckerus@aol.com
Astronomical League Rep. & Treasurer	Arnie Stodolsky	937-0220	astodols@ix.netcom.com
Astronomical League Liaison	Bill Eisele	542-5070	Astronomy131@msn.com
Newsletter Reproduction	John Collins	- - - -	westcoast@runbox.com
Publications Committee:			
SBAS Website Webmaster	Alex Athas	- - - -	sbas_elcamino@yahoo.com
First Light Editor	Ken Munson	782-0873	kenmunson333@sbcglobal.net
Observing Committee	Greg Benecke	217-1512	BeneckeRUs@aol.com
	Craig Gates	376-6387	- - -
Membership Committee	Ray Grace	370-1913	Rgrace1@adelphia.net
Publicity Committee	Joe Fierstein	377-9834	Joefiers@verizon.net
	Arnie Stodolsky	937-0220	astodols@ix.netcom.com
Property Committee	Joe Fierstein	377-9834	Joefiers@verizon.net
Outreach Committee	Arnie Stodolsky	937-0220	astodols@ix.netcom.com
	Joe Fierstein	377-9834	Joefiers@verizon.net

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).

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 June 2nd 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.

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 Arnie Stodolsky for magazine subscriptions at club rates: "Sky & Telescope" \$32.95 and "Astronomy" \$34.00! Make your check payable to SBAS and mail the payment and your subscription / renewal form directly to South Bay Astronomical Society, P.O. Box 1937, 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.

June – Comets & Asteroids

Comets Visible in June:

Comet	Mag	Constellation(s)
Honda-Mrkos-Pajdusakova	11.6 – 7.7	Ari-Tau

Asteroid Occultations:

Date	Local Time		Durn	Star	Mag	Star	Planet	
	D M Y	h					m	No
3-Jul-06	3	27.2	4.5s	8.3	8.4	TYC 7399-00179-1	4834	Thoas

Planetary Occultations:

Date	Local Time		Duration	Star	Mag	Star No.	Planet
D M Y	h	m	min	Mag	Drop		
30-May-06	23	43.81428	177m	10.1	0	TYC 5576-00364-1u	Jupiter
27-Jun-06	1	49.71428	604m	11.5	0	2UCAC 27108893	Jupiter

Astronomy Day

Club members Joe Fierstein, Nora Roberts and Ken Munson gathered at the Sunday morning Farmer's Market at the Palos Verdes Shopping Center to bring a little astronomy to the public. The club's 8" Nexstar and Coronado Personal Solar Telescope were setup and ready to go when the market opened. Unfortunately, the sky was less than cooperative, being overcast most of the time. To add insult to injury, for a short while the atmosphere became so heavy with moisture, it even sprinkled a little!



In spite of the weather we stayed the course and talked about the club and astronomy in general to a number of curious visitors. Several people signed up for the newsletter and expressed interest in the club. Finally, at about noon the clouds began to break up. Gradually, the sun began to peak through and we were able to get the Nexstar pointed at the sun. Visitors were then treated to a nice view of several sunspots, one large on the right side and an archipelago of smaller ones on the left side of the sun. Since the scope

wasn't aligned properly, it required constant checking to ensure that the sun stayed in the eyepiece. While checking it at one point, I saw a black shadow dart across the face of the sun. It was oblong in shape with two large 'paddles' extending from either side of the main body. After checking with Starry Night upon getting home, I confirmed my suspicions. I had seen an Iridium satellite, Iridium 51 to be exact, pass between me and the sun!

Meanwhile, Joe worked with the PST and got it on the sun. We then got a view of a huge prominence extending a large distance off the limb of the sun. Bright plages crossed the face of the sun extending from the areas where sunspots were located. In spite of the weather, we had a relatively successful day!

- Ken Munson

Manhattan Beach Middle School Star Party

The Manhattan Beach Middle school is hosting a 2 day science event Wednesday, June 7, and Thursday, June 8th, and invited SBAS to provide a star party and speakers for those dates. They are expecting more than 100 people each night so we need at least 5 scopes per evening. On Wednesday night we will be using the Passport to Space theme that went over big at the Gardena School. Each kid will receive a passport with 3 categories: things in our solar System, things in our galaxy and things outside our galaxy. They must observe something in each category to get a prize. If you have any questions please contact Joe Fierstein at 310-377-9834 or by email at

joeffiers@verizon.net.

The school is doing an entire week devoted to space, where kids will be doing astronomy-related curriculum in all of their classes. The telescope night is part of a larger extravaganza set for that week, which begins at 5:00 and includes a planetarium, solar telescopes, your speakers, and your telescopes. Parents and students will be rotating through the different activities throughout the evening. There will be In-N-Out trucks providing dinner. The school is located at 1501 North Redondo Ave in Manhattan Beach. From El Camino College, head west on Manhattan Beach Blvd, turn right on North Redondo Ave. The school will be on the left side of the street. Turn into the parking lot and head down the ramp (heading west). Park next to the field and set up!

Scopes for Sale

A classic Celestron 5" SCT scope is being offered for sale. The price is \$400 OBO. It comes as a complete set; scope, tripod, equatorial wedge, AC clock motor, 4 eyepieces, sun/moon/LPR filters, manual, carrying case and more. The scope is in excellent condition. For more information contact: Nancy Roy (310-378-5570).

A Nexstar 11 GPS is also available. It comes with lots of accessories, bobs knobs, Losmandy balance weights with rail attached, Standard finder, Hard Case, a couple of good eye pieces and a lot of other stuff. If interested contact John Pirrone (310-548-5815). He lives in Point Fermin and interested buyers are welcome to come and take a look.



Interesting Websites

Ever wondered what it would be like if a meteor smacked into Los Angeles? Well, now you can find out! Thanks to a website created by Drs. Robert Marcus, H. Jay Melosh, and Gareth Collins of the Lunar and Planetary Lab at the University of Arizona, anyone can do the calculations to demonstrate the effects of various types of cosmic debris that may rain down on the earth. Objects can be modeled from loose, icy, comet debris to heavy iron meteorites ranging in size from the very small to the very large. Their program is easy to use, requiring only a few inputs such as size, density, velocity and angle and distance from ground zero. It will then compute the effects such an object may have. Check out the website at: <http://www.lpl.arizona.edu/impacteffects/>.

Explore the world of black holes in an award-winning Web site created by a team led by Roeland van der Marel, an astronomer at the Space Telescope Science Institute in Baltimore, Md. The interactive web site, called "Black Holes: Gravity's Relentless Pull," rescues black holes from the realm of science fiction and puts them back into the domain of science. Visit the site award winning site at: <http://www.hubblesite.org/go/blackholes/>.

- ***Arnie Stodolsky & Ken Munson***

South Bay Newspaper Needs Writers

The Easy Reader, the South Bay Weekly newspaper, has contacted us looking for persons to write astronomy articles for their science and natural history column. The articles would range in length from 250 to 750 words. The goal is to both educate and entertain the reader. If you are interested and would like more information, please contact Arnie Stodolsky (astodols@ix.netcom.com or 310-937-0220).

Observing Reports

Pacific Crest – Since I wouldn't be able to bring my telescope up to RTMC, I decided to try to get some dark sky time in on the in-town observing weekend. I made the trip up to my old site along the Pacific Crest Highway and setup just before sunset. I was a little surprised to see an RV parked in the parking lot. Apparently, awaiting the return of hikers, I could only hope they wouldn't be lighting the place up when they got back. There was another car also but those hikers returned at sunset and left.

The sky conditions were none too promising. Although clear blue sky was visible, patches of clouds were scudding overhead pretty rapidly. The wind, although not very strong, was very gusty. Seeing conditions weren't predicted to be great. Just before sunset, the people with the RV showed up, not by foot but by car! Two women, Laura and Julie, had arrived to await the return of their hikers and were going to spend the night. They were very interested in the scope and were also avid outdoors persons. They were very courteous and fully appreciated the need for darkness and used few lights and kept the shades drawn.

The wind continued to be a problem, dying down for a few minutes and then gusting back up and shaking the scope. It just wasn't going to be the best of all nights. After their dinner, Laura and Julie came out to talk and I gave them a guided tour. Both Jupiter and Saturn were up and they were thrilled to be able to identify the moons out of the star field. Jupiter's moons were easy to spot but Saturn's were more difficult because of the number of stars. Switching to lower power and re-pointing a bit, I showed them why. Saturn was very close to M44, the Beehive Cluster. This huge open star cluster drew some very appreciative oohs and ahhs!

From there it was on to Leo and M65 and M66. It took a while for the realization that they were looking at two entire galaxies to sink in. Then we swung over to M51 to show off a pair of galaxies in collision. Considering the sky conditions, I was amazed to see M51 shown out very brilliantly. The disk of the main galaxy was very visible. Then we swung over to the Ghost of Jupiter, the Eskimo Nebula and the Ring Nebula to demonstrate the end of stars. Then finally, just for a little dessert, I swung it up to M13. In the 10mm eyepiece, it filled the entire field of view. It made a truly spectacular finish to this little mini-tour of the universe. With that they went back to the RV and to bed.

The wind continued to plague me and the clouds, which had been splitting up and passing around my site were now beginning to get a little thicker. About the time I was trying to decide whether to shut down or not, a whole line of cars suddenly pulled into the parking lot. I was pleasantly surprised to find they were the Pasadena Audubon Society out for a night of owl watching. Their outing had been none too successful either because of the wind. When they saw the scope, they were all very excited and asked if they could have a look. I was more than happy to show them the sky. I had swung it back to M57 to try some imaging but quickly reconfigured for visual observing. There were about 20 people and they all lined up to take a look. As they waited, the leader of the group, who turned out to be a professional astronomer, took out his green laser and pointed out where we were looking and described for them how this object was formed. After they'd all gotten a look, I swung back to M13. There is nothing like a showing off a really big globular cluster to impress people! The exclamations of wonder and beauty were really neat to hear. Once they'd all had a look they thanked me and got in their cars and left.

By this time, the clouds had covered nearly two thirds of the sky and the clear patches were getting smaller. I decided to give it up and go home. Strangely, in spite of the uncooperative weather, the night had not been disappointing at all.

- Ken Munson

Ridgecrest School – Four club members, Ken Rossi, Greg Benecke, Tim Moore and Jim Madison, gathered at the Ridgecrest School for the in-town observing session. Early evening cloud cover gave way to clearing skies and they were treated to moments of good seeing. Seeing conditions were very unstable. Moments of clarity would be replaced with long periods of fuzziness. Along with Jupiter and Saturn, objects observed included M57, M13 and the Omega Centauri globular cluster. Unfortunately, the marine layer closed in around midnight and further viewing was terminated. Sadly, that was just a short while before Jupiter's moon, Io, was to transit and cast its shadow on the face of the planet. Considering how many observing sessions have been canceled due to weather in the last six months, this was one of the best since last November!

- Greg Benecke, Ken Rossi

Schedule of Coming Events

2 June Friday Evening 7:30 PM	Monthly General Meeting Guest Speaker: John Hoot Topic: History of Radio Astronomy
5 June Monday Evening 7:30 PM	Monthly Planning Meeting See directions on Page 4.
7 & 8 June	Manhattan Beach Middle School Star Party See details on page 5.
15/16 June	Lyrid Meteor Shower Peak This shower is active during June 10 to 21, producing predominantly blue and white meteors at a maximum hourly rate of 8 per hour on June 15 (Solar Longitude=84.5 deg). At maximum the radiant is located at RA=278 deg, DECL=+35 deg. The average observed magnitude of this shower is near 3, while about 32% of the meteors leave trains.
22 June Thursday Evening 7:00 PM	Von Kármán Auditorium (Thursday) & Vosloh Forum at Pasadena City College (Friday) “Moon, Mars and Beyond- Apollo on Steroids” by Michael J. Sander. On January 7, 2004 President Bush announced the visionary next step for human space flight. NASA has spent two years defining, refining, and starting down the implementation trail for the systems that will take us back to the Moon, this time for a much longer time with more exploration tools and a purpose to use the Moon to prepare to move out much further.
17 June 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 <u>not</u> drip anything you can park with your equipment. <i>Drive with care</i> 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.
24 June Saturday Evening	Out-of-Town Dark Sky Observing Session Contact Greg Benecke to coordinate a location for the dark-sky trip.
7 July Friday Evening 7:30 PM	Monthly General Meeting Guest Speaker: TBA
10 July Monday Evening 7:30 PM	Monthly Planning Meeting Location TBA

South Bay Astronomical Society

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*General Meeting at El Camino College Planetarium:
Friday, June 2nd at 7:30 P.M.*

Guest Speaker: John Hoot

“History of Radio Astronomy”

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South Bay Astronomical Society
P.O. Box 1937
Redondo Beach, CA 90278