

# ***FIRST LIGHT***



*Journal of the South Bay Astronomical Society – August 2006*  
on line at [www.geocities.com/sbas\\_elcamino](http://www.geocities.com/sbas_elcamino)

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

**Guest Speaker: Gary Peterson**

***“The Cryogenic World of Triton”***

## ***The July 7 Meeting***

President Ken Rossi opened the meeting at 7:43 by asking newcomers to introduce themselves, and four did. Ken Munson reported on his observing sessions near Mt. Wilson and in his back yard, and Steven Morris reported seeing the near-Earth asteroid 2004 XP14 with his 24-inch Dobsonian in Torrance. A few members also reported seeing a Delta IV rocket cross the western sky, on June 27 at 8:35 pm. The rocket was launched from Vandenberg Air Force Base after a 15-minute delay due to high winds.

President Rossi read a letter from Manhattan Beach Middle School thanking the SBAS for helping at their recent star party. Although the skies were cloudy, talks by Joe Fierstein, Ron Rennie and Nora Roberts were a big help. He then introduced Steven Morris as the evening's speaker.

The American Astronomical Society held its semi-annual meeting last month in Calgary, Alberta, and Steven Morris presented a slide show to describe it. After the opening reception on the evening of Sunday June 4, the following four days were devoted to a series of lectures and poster presentations describing recent research, and a series of committee meetings to prepare the way for future telescopes and discoveries.

One of the hot topics discussed was the search for planets orbiting around distant stars. A second was the first results from the Suzaku X-ray mission, launched a year ago by the Japanese. Several researchers presented their plans for attacking the problem of dark energy and dark matter. Many astronomers reported on recent improvements to radio and optical telescopes, as well as their plans for future upgrades. For example, Jolien Creighton of the LIGO Scientific Collaboration announced that their gravitational-wave detector is now sensitive enough to study the merging of two neutron stars anywhere in the Virgo cluster of galaxies.

Of particular interest was the lecture by Ingrid Stairs, describing research into the double pulsar PSR J0737-3039A/B. In this system, a 22-millisecond pulsar orbits a 2.7-second pulsar every 2.4 hours, at an inclination of 88.7 degrees. The data provided by the eclipses and accurate radio-wave observations confirm the predictions of Einstein's General Theory of Relativity to within 0.05%. This is by far the most accurate confirmation of the General Theory available; any competing theory of gravity will face a tight set of constraints determined by this system.

NASA sent several delegates to represent its space telescopes, such as Hubble and the Spitzer infrared telescope, as did other groups such as the Sloan Digital Sky Survey Project. Astronomers were encouraged to stop by at their display tables and booths, to ask questions about how to access data or submit proposals. These conversations also gave them a chance to provide feedback and suggestions, which might not be easily produced in a more formal setting. Various companies such as Northrup-Grumman and a few textbook publishers also set up booths, to maintain their visibility in the astronomical community.

By Thursday afternoon, the meeting was over. The committees will publish their minutes in due course, and most of

the research presented will find its way into the peer-reviewed journals. Less obvious will be the results of friendships renewed, quiet discussions as astronomers criticized each other's work, and fruitful collaborations begun over coffee and doughnuts, or perhaps a beer at a local restaurant. Steven Morris ended his presentation by giving a tour of the city of Calgary, and the mountain resort of Lake Louise, nestled in the Canadian Rockies.

The meeting ended at 9:10, and the 35 people in attendance went out to look for the International Space Station and the space shuttle Discovery. They appeared together as a zero-magnitude dot at 9:15 in the west, and vanished in the south three minutes later, after grazing the upper limb of the gibbous Moon.

- **Dr. Steven Morris**



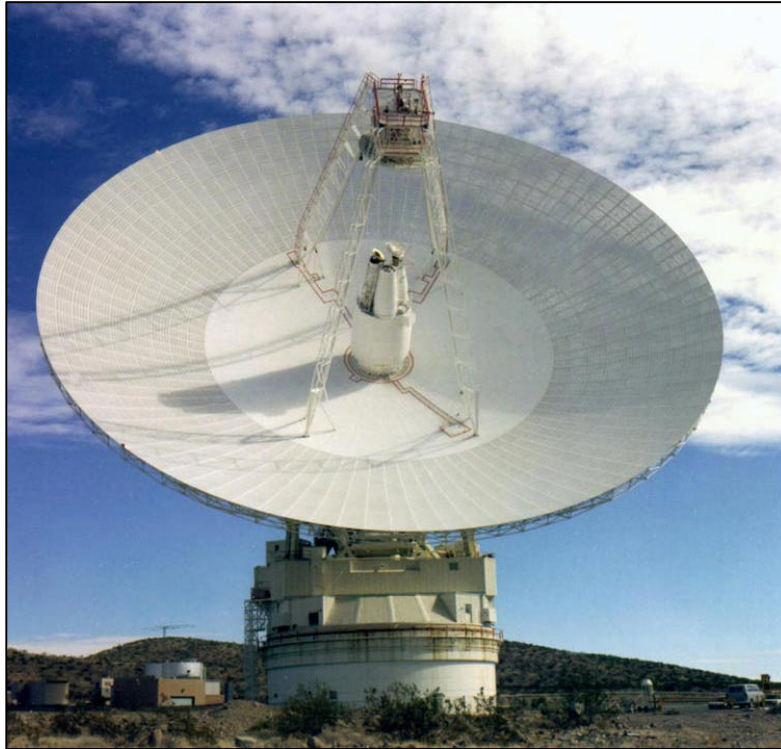
## Celebrating 40 Years of Intent Listening

By Diane K. Fisher

In nature, adjacent animals on the food chain tend to evolve together. As coyotes get sneakier, rabbits get bigger ears. Hearing impaired rabbits die young. Clumsy coyotes starve. So each species pushes the other to "improve."

The technologies pushing robotic space exploration have been like that. Improvements in the supporting communications and data processing infrastructure on the ground (the "ears" of the scientists) have allowed spacecraft to go farther, be smaller and smarter, and send increasingly faint signals back to Earth—and with a fire hose instead of a squirt gun.

Since 1960, improvements in NASA's Deep Space Network (DSN) of radio wave antennas have made possible the improvements and advances in the robotic spacecraft they support.



*For over 40 years, the "Mars" 70-m Deep Space Network antenna at Goldstone, California, has vigilantly listened for tiny signals from spacecraft that are billions of miles away.*

"In 1964, when Mariner IV flew past Mars and took a few photographs, the limitation of the communication link meant that it took eight hours to return to Earth a single photograph from the Red Planet. By 1989, when Voyager observed Neptune, the DSN capability had increased so much that almost real-time video could be received from the much more distant Planet, Neptune," writes William H. Pickering, Director of JPL from 1954 to 1976, in his Foreword to the book, *Uplink-Downlink: A History of the Deep Space Network, 1957-1997*, by Douglas J. Mudgway.

Mudgway, an engineer from Australia, was involved in the planning and construction of the first 64-m DSN antenna, which began operating in the Mojave Desert in Goldstone, California, in 1966. This antenna, dubbed "Mars," was so successful from the start, that identical 64-m antennas were constructed at the other two DSN complexes in Canberra, Australia, and Madrid, Spain.

As Mudgway noted in remarks made during the recent observance of the Mars

antenna's 40 years of service, "In no time at all, the flight projects were competing with radio astronomy, radio science, radar astronomy, SETI [Search for Extra-terrestrial Intelligence], geodynamics, and VLBI [Very Long Baseline Interferometry] for time on the antenna . . . It was like a scientific gold rush."

In 1986 began an ambitious upgrade program to improve the antenna's performance even further. Engineering studies had shown that if the antenna's diameter were increased to 70 m and other improvements were made, the antenna's performance could be improved by a factor of 1.6. Thus it was that all three 64-m DSN antennas around the world became 70-m antennas. Improvements have continued throughout the years.

"This antenna has played a key role in almost every United States planetary mission since 1966 and quite a few international space missions as well. Together with its twins in Spain and Australia, it has been a key element in asserting America's pre-eminence in the scientific exploration of the solar system," remarks Mudgway.

Find out more about the DSN and the history of the Mars antenna at <http://deepspace.jpl.nasa.gov/dsn/features/40years.html>. Kids (and grownups) can learn how pictures are sent through space at [http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003\\_august.shtml](http://spaceplace.nasa.gov/en/kids/phonedrmarc/2003_august.shtml).

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

## **High Moon**

Hot though it may be in Los Angeles at times, we cannot describe our climate as tropical, because the tropics are more than 700 miles to the south. That's where the Tropic of Cancer is, at latitude of 23.4 degrees. This angle is called the obliquity of the ecliptic, and at this latitude, the Sun is directly overhead for an observer at local noon, at the moment of the summer solstice in late June. In the South Bay, we are between the latitudes of 33 and 34 degrees, so even at its highest the Sun will remain approximately 10 degrees south of the zenith.

But what about the Moon? The orbit of the Moon is tilted 5.1 degrees from the ecliptic plane, so we might expect the Moon to reach much closer to the zenith. However, a complication arises. The two points in the sky where the Moon crosses the ecliptic are called the nodes, and they move westward around the ecliptic, completing a full circuit every 18.1 years.

So in some years, when the Moon's ascending node crosses the First Point of Aries (RA = 0, Dec = 0), the Moon can be 23.4 degrees plus an extra 5.1 degrees above the celestial equator. Two weeks later, the Moon will be 23.4 degrees plus an extra 5.1 degrees below the celestial equator, for a maximum change of 57 degrees. Nine years later the two effects subtract instead of adding, and the total variation in declination is only 36.6 degrees. This year we are in the maximum part of the cycle, and you may have noticed that the Moon is sometimes almost overhead, and sometimes far to the south. The peak of this cycle occurs this September. The table below lists the date and time of each month, for the rest of the year, when the Moon is highest in the sky (nearest the zenith) for that month as seen from Torrance (at least, according to the Macstronomy software on my computer)

August 18, 8:53 am PDT  
September 14, 6:48 am PDT  
October 12, 5:35 am PDT  
November 8, 2:19 am PST  
December 6, 1:01 am PST

So if you desire, you can go out on one of these mornings and commune with nature, seeing the Moon as it appears at our latitudes for one year every generation, within six degrees of the zenith.

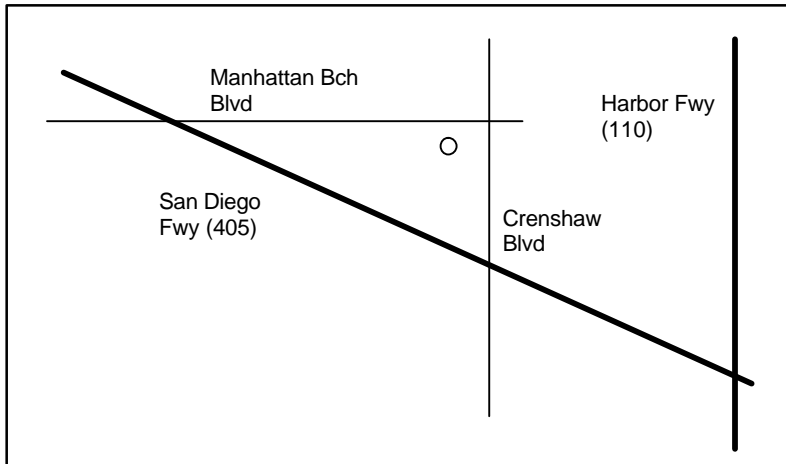
**- Dr. Steven Morris**

## **SBAS Executive Board**

<b>President</b>	Ken Rossi	515-1586	<a href="mailto:ken_a_rossi@yahoo.com">ken_a_rossi@yahoo.com</a>
<b>Vice-President</b>	Greg Benecke	217-1512	<a href="mailto:beneckerus@aol.com">beneckerus@aol.com</a>
<b>Secretary</b>	Deanna Chafe	329-1371	<a href="mailto:Martin5lynn3@sbcglobal.net">Martin5lynn3@sbcglobal.net</a>
<b>Treasurer &amp; Astronomical League Rep.</b>	Arnie Stodolsky	937-0220	<a href="mailto:astodols@ix.netcom.com">astodols@ix.netcom.com</a>

## **SBAS Committees**

<b>Program Chairman</b>	Greg Benecke	217-1512	<a href="mailto:beneckerus@aol.com">beneckerus@aol.com</a>
<b>Astronomical League Liaison</b>	Bill Eisele	542-5070	<a href="mailto:Astronomy131@msn.com">Astronomy131@msn.com</a>
<b>Newsletter Reproduction</b>	John Collins	- - -	<a href="mailto:westcoast@runbox.com">westcoast@runbox.com</a>
<b>Publications Committee:</b>			
<b>SBAS Website Webmaster</b>	Alex Athas	- - -	<a href="mailto:sbas_elcamino@yahoo.com">sbas_elcamino@yahoo.com</a>
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	Craig Gates	376-6387	- - -
<b>Membership Committee</b>	Ray Grace	370-1913	<a href="mailto:Rgrace1@adelphia.net">Rgrace1@adelphia.net</a>
<b>Publicity Committee</b>	Joe Fierstein	377-9834	<a href="mailto:Joefiers@verizon.net">Joefiers@verizon.net</a>
	Arnie Stodolsky	937-0220	<a href="mailto:astodols@ix.netcom.com">astodols@ix.netcom.com</a>
<b>Property Committee</b>	Joe Fierstein	377-9834	<a href="mailto:Joefiers@verizon.net">Joefiers@verizon.net</a>
<b>Outreach Committee</b>	Arnie Stodolsky	937-0220	<a href="mailto:astodols@ix.netcom.com">astodols@ix.netcom.com</a>
	Joe Fierstein	377-9834	<a href="mailto:Joefiers@verizon.net">Joefiers@verizon.net</a>



### **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 August 7th planning meeting will be held at 7:30

PM at the home of Joe & Miriam Fierstein. Take Hawthorne Blvd. south past Pacific Coast Hwy. up the hill passing Silver Spur Rd. and Highridge until you get to the light at Eddinghill Dr., then turn right and go downhill to the 'T' intersection at Golden Meadow where you turn left up 2 blocks and turn left on Willow Tree Dr. to 3<sup>rd</sup> house on the right side from the corner – 7022 Willow Tree Dr., Rancho Palos Verdes.

## **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](http://www.astroleague.org).

## **August – Comets & Asteroids**

### **Comets Visible in June:**

Comet	Mag	Constellation(s)
None		

### **Asteroid Occultations:**

Local Date	Local Time	Durn	Star mag	Mag drop	Star No.	Planet	Alt Name
	h m	sec				No	
27-Jul-06	4	52.5	3.3s	8.6	6.7	TYC 0637-00553-1	904 Rockefellia
5-Aug-06	5	6.3	2.6s	9.6	4.6	TYC 5195-00068-1u	1291 Phryne
26-Aug-06	3	9.5	2.9s	11.9	2.7	2UCAC 29024136	2466 Golson

### **Planetary Occultations:**

Local Date	Local Time	Durn	Star mag	Star No.	Planet
	h m	sec			No
1-Aug-06	4	42	217s	7.6	HIP 34583 Venus

## Manhattan Beach Middle School Thank You

6.26.06

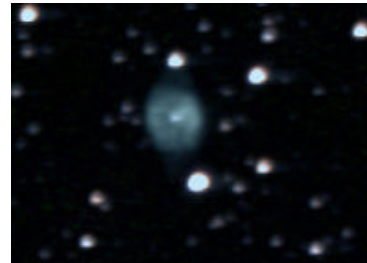
Dear Members

MBMS would like to thank Ron Rennie, Joe Frestein and Nora deMuth for their support of our recent Space Week Celebration. As speakers at our Star Party they helped so much to make the event successful. We had a great time and we hope they did as well.

Again, our appreciation  
and our thanks,  
Iktae Park ASB President

## Observing Reports

**Pacific Crest and Backyard Observing**— Having been frustrated by bad weather at both the Ridgecrest School session and the out-of-town dark sky trip, I decided to take a day off from work and take advantage of a brief interlude of good weather in the middle of the week. Wednesday night, June 28, I headed up to the Angeles Forest to my observing site along the Pacific Crest highway. The conditions were excellent with a nice comfortable temperature all night long, not a wisp of clouds and very steady seeing conditions. I managed to get some visual observations in during the night, easily spotting the Network Nebula, the Crescent Nebula, M13, M8, M20, M11,



**NGC 6905**



M92 and several other nice deep-sky objects as well as Jupiter. Most of the night was devoted to more photographic efforts with the Meade DSI. This night was incredibly successful as I discovered a feature that allowed me to capture more detail in fainter sky objects than I ever had before. The feature, called shadow enhance, seems to work very well in dark sky conditions to increase the ability to bring out faint nebulosity. With a 20 minute total exposure time, limited to 10 seconds of exposure per image, I managed to get some very nice detail on NGC 6905, a faint 12<sup>th</sup> magnitude planetary nebula in Aquila. I also got a nice shot of NGC 6207, a 12<sup>th</sup> magnitude galaxy located next to M13. M13 came out looking rather nice as well. Thanks to the very stable skies, I got one of the best images of Jupiter I've ever had with the DSI, using a Barlow lens to increase the magnification

capability. Unfortunately, the GRS wasn't visible that night until Jupiter had nearly set.

The next weekend, with the sky still relatively clear, I set up in the backyard again. Being 6000 feet deep in the murk of LA certainly reduced the quality of my planetary imaging. No matter how many shots I tried or stacked, I couldn't get much more than a fuzzy image of the planet. I did some experiments with the moon, using it as a target to practice the techniques for doing large area mosaics. Within a very short time, I was able to use the DSI, coupled with a Meade 3.3 focal reducer to create a mosaic composed of a total of over 600 images. Surprisingly, though, I did manage to get a couple of great images of deep-sky objects. Due to the light pollution I had to keep exposure times down



***M57 from backyard***

to about 4-8 seconds but the ability of the Meade software to subtract out the light pollutions really helped. M57, the Ring Nebula, came out looking really nice. Even M17, the Swan Nebula came out good even though it was very low in the sky.

On July 15, it was back to the Pacific Crest for another attempt at getting above the marine layer. Conditions weren't predicted to be the best and the prediction was fairly accurate. It started out really good but deteriorated after sunset as high clouds passed through the area. The temperature was very warm, being short-sleeve weather all night but the insects proved to be very annoying. I managed to do a little more photography with the DSI, this time capturing images of the Box Nebula in Ophiuchus and the Cat's Eye Nebula in Draco. The Box Nebula was interesting in that, to my eye, it looked distinctly rectangular, but the photo shows two small balls of material. Presumably these are globules of stellar matter that were ejected in opposite directions in a supernova blast, similar to SN1987A. Next chance I get, I'll have to try using the Barlow lens to see if I can get any more detail. I continued to try to get some deep sky images after the moon rose, but the high temperatures and high altitude clouds just provided to much scattered light and I finally had to give up at about 3:00 AM. All in all, I'm getting to be very pleased with the capabilities of the Meade DSI.

Although I didn't have any observing visitors, it was a night for odd requests. Apparently some large party or concert was going on up the road as I'd passed some trucks hauling sound equipment as I went up the mountains. One set of visitors asked if I could spare water as their car was overheating. Another pair of visitors stopped to ask if I had any gas to spare and to check my GPS map software to see if they had enough gas to get to the nearest station!

***- Ken Munson***

***Ridgecrest School*** – There was an excellent turnout for the in-town observing session at Ridgecrest School on July 15. Several members showed up with their telescopes, among them, Ken Rossi, Greg Benecke, Ken Lehmer, Jim Madison, Craig Gates, Tim Moore and a few others. Several visitors were also in attendance, including Freddy Limas and his son Jonathan. The sky conditions were not the best, being somewhat unstable, but at least it was warm. Among the objects observed during the evening were: 2 Iridium flares, Jupiter, a number of the Messier Objects (M8, M13, M21, M22, M28, M57) ranging from globular clusters to planetaries to emission nebulae. Even the Milky Way was faintly visible. The moon rose at about 11:30 but didn't get above the trees until after 12:00. High clouds began moving in at around that time as well, reducing the seeing conditions. Everyone finally packed up about 1:00 AM.

***- Ken Rossi***

## ***Schedule of Coming Events***

<b>4 August Friday Evening 7:30 PM</b>	<p><b>Monthly General Meeting</b></p> <p>Guest Speaker: Dr. Gary Peterson Topic: The Cryogenic World Of Triton</p>
<b>6 August Sunday Evening 10:00 PM</b>	<p><b>Double Shadow Transit on Jupiter</b></p> <p>Shadows of Europa and Io will be cast on the face of Jupiter as the GRS also transits.</p>
<b>7 August Monday Evening 7:30 PM</b>	<p><b>Monthly Planning Meeting</b></p> <p>See directions on Page 4.</p>
<b>13 August (Saturday Evening to Sunday Morning)</b>	<p><b>Perseid Meteor Shower Peak.</b></p> <p>The peak of the shower is predicted to occur at about 5 PM PDT so Californians will likely miss the densest part of the shower. However, lots of meteors will probably still be seen throughout the night.</p>
<b>19 August Saturday Evening</b>	<p><b>In Town Dark Sky Observing Session – Weather Permitting:</b> Please contact Greg Benecke to confirm that the gate will be opened!</p> <p>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. <b>Note: If you a visitor, not bringing a scope, it is requested that you park in the small parking lot on Northbay Rd.</b></p>
<b>17 August Thursday Evening 7:00 PM</b>	<p><b>Von Kármán Auditorium (Thursday) &amp; Vosloh Forum at Pasadena City College (Friday)</b></p> <p>“How Satellites Have Revolutionized Oceanography” by Dr. Jorge Vazquez. With the launch of the NASA SEASAT altimetric satellite on June 26, 1978 and the NOAA TIROS-N on October 13 of the same year a new area in oceanography was born. This revolution must be defined as both a scientific and technological advancement, where each step has led to new understandings of the world's oceans.</p>
<b>26 August Saturday Evening</b>	<p><b>Out-of-Town Dark Sky Observing Session</b></p> <p>Contact Greg Benecke to coordinate a location for the dark-sky trip.</p>
<b>1 September Friday Evening 7:30 PM</b>	<p><b>Monthly General Meeting</b></p> <p>Guest Speaker: Michael Harrison</p> <p>Topic: A Day in the Life of a Rocket Scientist and The James Webb Space Telescope</p>
<b>4 September Monday Evening 7:30 PM</b>	<p><b>Monthly Planning Meeting</b></p> <p>Location TBA</p>

# South Bay Astronomical Society

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*General Meeting at El Camino College Planetarium:  
Friday, August 4<sup>th</sup> at 7:30 P.M.*

*Guest Speaker: Gary Peterson*

*“The Cryogenic World of Triton”*

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