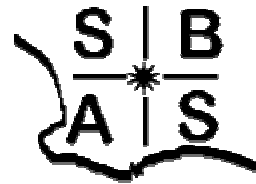


# ***FIRST LIGHT***



*Journal of the South Bay Astronomical Society – July 2007*  
on line at [www.geocities.com/sbas\\_elcamino](http://www.geocities.com/sbas_elcamino)

**Monthly General Meeting: Friday, July 6<sup>th</sup>, 7:30 PM**

**Guest Speaker: Dr. Vince Lloyd**

**“Planetarium Show”**

## ***The June 1 Meeting***

President Ken Rossi opened the meeting at 7:39 with a reminder to everyone to renew their membership, and a request for names of possible future speakers. Craig Gates reported on an observing session under dark skies outside Los Angeles, with students from the ‘Astronomy for City-dwellers’ class.

Several SBAS members attended the recent Riverside Telescope Makers Conference, and reported on their impressions. Apparently, all the speakers did an excellent job, including the keynote speaker Alexei Filippenko. If anyone wants to watch 15 one-hour videotapes of Dr. Filippenko, the Society owns a set and will lend it out free to members. Alan Dyer gave a couple of presentations at the RTMC, including a beautiful set of photos of the Southern-Hemisphere sky. Also, Al Nagler spoke about his work at NASA, developing the concepts used in designing the windows of the lunar landers. Two of our members were recognized at the Conference for their work; Derek Lillie for his 16-inch telescope mounted on the back of a Hummer, and Larry Kinney, who received a 1st-prize merit award.

After a 17-minute social break, I delivered the evening’s lecture, on “Astronomy and Creationism”. I began by noting that modern science has determined that the Earth is about 4.5 billion years old, and the Universe is about 14 billion years old. Over such a vast span of ‘deep time’, it is possible for life to have evolved from simple, self reproducing molecules to single cells, and from single cells to the complexity found in recently-evolved species such as ourselves. The fossil evidence, the modern study of biochemistry and the vestiges of earlier functions in modern plants and animals all demonstrate the fact that biological evolution has occurred. Photographs of deep space by the Hubble telescope show that the Universe itself appeared differently billions of years ago, having evolved into its present form.

Darwin’s theory of evolution by natural selection has done an excellent job of explaining how life has been able to evolve over time. In cosmology the Big Bang Theory, based on Einstein’s General Theory of Relativity, has been just as successful. For example, Penzias and Wilson observed the cosmic microwave background radiation in 1964, without realizing that its existence had been predicted from the Big Bang Theory by George Gamow in 1948. Detailed studies in the last decade have shown remarkable agreement between observations and the Big Bang Theory, which no other theory comes close to matching.

In contrast, Creationists have failed spectacularly to explain the physical evidence that geologists and astronomers provide. Indeed, the Creationists cannot agree among themselves whether the Universe is only a few thousand years old or billions of years old, or whether the number of ‘created kinds’ number in the thousands or the millions. As Creationism is not based on physical evidence the Universe provides, but only on ancient texts that can be interpreted in a variety of ways, it cannot provide a coherent description of scientific reality.

Sadly, the failure of Creationism as a rational explanation of the data has not dimmed its popularity. According to recent polls, two-thirds of Americans say that Creationism should be taught alongside evolution in the public schools, and 38% favor replacing evolution with Creationism. As we do not live in a theocracy, legal defeats have

forced Creationists to change (dare I say evolve?) from Biblical Creationism, to 'Scientific' Creationism, to 'Intelligent Design' Creationism, which claims that it is impossible for the complicated structures of life to have evolved. The number of examples they have proved to be impossible? Zero!

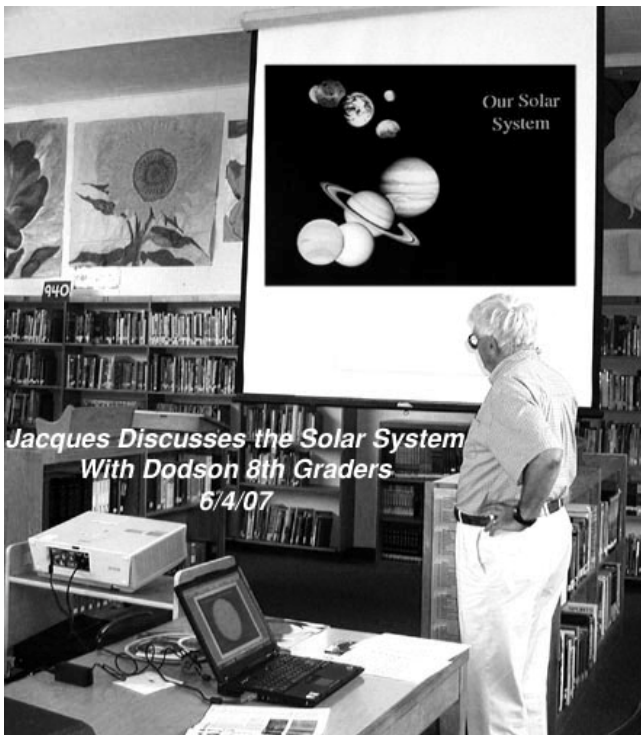
There was time after the lecture for a few questions and comments. Craig Gates noted that it seems impossible for something as complicated as a cell to have evolved. It may seem that way, indeed, but science is not based on intuition and comfortable feelings; it is based on physical evidence and reason. Over the wide world, as billions of years passed, no one can have an accurate feel for what self-replicating molecules could become. For myself, it feels impossible that something as massive as the Earth could move, or that snowflakes show order but not design, but the Universe doesn't care about my feelings. And if a god is necessary to create something as complicated as a cell (or a snowflake), then who created God?

Another comment was that the Second Law of Thermodynamics prevents entropy (a measure of disorder) from increasing, disallowing the evolution of orderly systems such as life. Ah, but local decrease of entropy is indeed allowed, if entropy on a larger scale increases. For every photon of sunlight that falls on the Earth, approximately 20 photons of infrared radiation are emitted by the Earth into space, increasing the entropy of the Universe. The Earth is an entropy factory for the Universe, and as long as the entropy of life on Earth decreases at the same rate (or slower) as the entropy of the Universe increases due to the Earth's radiation, no laws will be broken. How much time would it take for a completely-lifeless Earth to generate all the life on Earth today, without breaking the Second Law? Twelve days! Interestingly, the flaw in the thermodynamics\ argument against evolution has been carefully explained many times to the Creationists, but they have not abandoned it. And why should they, if it tricks the uninformed?

The meeting ended at 10:10. Afterwards, a few of the 35 members present congratulated me for my courage on taking on this subject. Thanks, but I am probably safe from the bonfires and pitchforks in Torrance. Besides, I feel we have an obligation to speak out when others distort what we know about the Universe.

- Dr. Steven Morris

## ***SBAS at Dodson Middle School***



SBAS club members Joe Fierstein, Jacques Linder and Ken Munson did presentations and set up scope for daytime solar viewing for an astronomy party at Rudicenda Sepulveda Dodson Middle School in San Pedro, California. The 8<sup>th</sup> grade students in the School for Advanced Studies had been studying a section on astronomy recently and their teacher had asked if our club could do some daytime presentations. The day started out heavily overcast with the whole of the Palos Verdes Peninsula, where the school is located, wrapped in thick fog. Just as we finished setting up the scopes, a 6 inch home-built Dobsonian, a Meade 8 inch and a Celestron 11 inch Nexstar, the sky suddenly began clearing and we were treated

to clear blue sky.

While Joe and Jacques did presentations to the students in the library, I worked the scope for the students. The obvious main target was the sun. For once, we had some nice sunspots to show. The students were treated to an explanation of how scopes worked and why some scopes could see the whole sun and others could only see most of the sun due to the varying fields of view at different magnifications.

Conveniently, Venus had just emerged from behind a nearby tree and the students were treated to the amazing sight of a distant planet in broad daylight. That really amazed them to see the tiny, white, half-moon shape of distant Venus in the eyepiece even though they could not see it with their own eyes in the sky. Attempts were made to find both Saturn and Mars but were unsuccessful.

With pizzas, sandwiches, cake and sodas, plus some really excellent views of the Sun and Venus, a great day was had by all.

- Ken Munson



## Chew on This

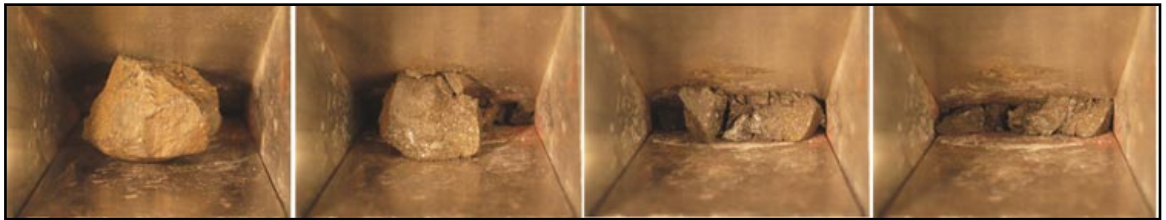
The Mars robotic rovers, Spirit and Opportunity, are equipped with RATs, or Rock Abrasion Tools. Their purpose is to abrade the surface patina off the Mars rocks so that the alpha x-ray spectrometer can analyze the minerals inside the rocks, rather than just on the surface.

But future robotic missions to Mars will be asked to go even further below the surface. Scrapers and corers will gather rock samples of substantial size, that, in order to be analyzed by a spectrometer, will need to be crushed into a fine powder.

Crushing rocks on Mars? Now there's a problem that brings to mind a multitude of possible approaches: Whack them with a large hammer? Squeeze them until they explode? How about just chewing them up? It was with this latter metaphor that the planetary instrument engineers struck pay dirt—so to speak.

Thanks to NASA's Planetary Instrument Definition and Development Program, a small group of NASA engineers came up with the Mars Rock Crusher. Only six inches tall, it can chew the hardest rocks into a powder.

The Mars Rock Crusher has two metal plates that work sort of like our jaws. One plate stays still, while the other plate moves. Rocks are dropped into the



**Looking down on the jaws of the Mars Rock Crusher, we see a magnetite rock get crushed into smaller and smaller particles.**

jaw between the two plates. As one plate moves in and out (like a lower jaw), rocks are crushed between the two plates. The jaw opening is larger toward the top and smaller towards the bottom. So when larger rocks are crushed near the top, the pieces fall down into the narrower part of the jaw, where they are crushed again. This process repeats until the rock particles are small enough to fall through a slit where the two plates are closest.

Engineers have tested the Mars Rock Crusher with Earth rocks similar to those expected to be found on Mars. One kind of rock is hematite. The rusted iron in hematite and other rocks help give Mars its nickname "The Red Planet." Another kind of rock is magnetite, so-called because it is magnetic. Rocks made by volcanoes are called basalts. Some of the volcanoes on Mars may have produced basalts with a lot of a mineral called olivine. We call those olivine basalts, and the Rock Crusher chews them up nicely too.

Visit [www.jpl.nasa.gov/technology](http://www.jpl.nasa.gov/technology) to read the latest about other NASA technologies for exploring other planets and improving life on this one.

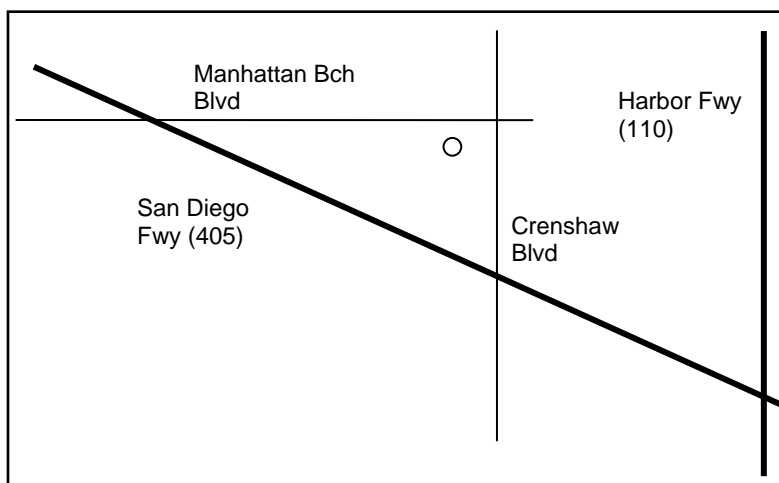
This article was written by Diane K. Fisher and provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

## **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>	Steve Pedersen	378-6479	<a href="mailto:epsonstlyusc82@earthlink.net">epsonstlyusc82@earthlink.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	- - - -	- - - -
<b>Publications Committee:</b>			
<b>SBAS Website Webmaster</b>	Alex Athas	- - - -	- - - -
<b>First Light Editor</b>	Ken Munson	782-0873	<a href="mailto:kenmunson333@sbcglobal.net">kenmunson333@sbcglobal.net</a>
<b>Observing Committee</b>	Greg Benecke	217-1512	<a href="mailto:BeneckeRUs@aol.com">BeneckeRUs@aol.com</a>
	Craig Gates	376-6387	- - -
<b>Membership Committee</b>	Ray Grace	370-1913	<a href="mailto:Rgrace1@roadrunner.com">Rgrace1@roadrunner.com</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>	Arnie Stodolsky	937-0220	<a href="mailto:astodols@ix.netcom.com">astodols@ix.netcom.com</a>
<b>Outreach Committee</b>	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 July 9<sup>th</sup> planning meeting will be held at 7:30 PM at the Ray Grace, 2706 Spreckels Lane in Redondo Beach (310) 370-1913. Take Hawthorne Blvd to 190th St., turn West to

Inglewood Ave., then turn North (right) and proceed two blocks to Spreckels Lane and turn Right. If driving South on Inglewood Ave., Spreckels Lane is two blocks south past the light at Ralston Ave., and turn Left, to the 4th house on the right (South side). Parking is available on both sides of the street..

## ***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" \$34.00/1 year or \$60.00/2 years!

### ***IN MEMORIAM – MIKE MAYERCHAK***

Mike was one of the early members of SBAS. He was on the board when I first joined in 1992 and was active with the club for many years; he acted as observing chairman for several. Mike got into astronomy as a youngster and his love and skills in the hobby grew with him. He was an expert astro photographer and anyone who has seen his photos would agree that his work was of professional quality. In fact he counted among his friends several professionals, among them Terance Dickinson author of "Night Watch" and other astronomy books. Together they made several trips to Australia and were hosted on the grounds of the Anglo Australian Observatory where they photographed the southern sky. Mike was mentor to many SBASers especially those interested in photography. He taught the course "Astronomy for City Dwellers" at the PV Adult School for 5 years. He was so popular that many of the students repeated the course several times including one who came back every year. He was not only a good astronomer and photographer he was a good friend and a contributor to SBAS. He will be missed.

## ***SBAS Membership News***

Welcome new club members:

### ***July – Comets & Asteroids***

#### **Comets Visible in April:**

<b>Comet</b>	<b>Mag</b>	<b>Constellation(s)</b>
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None

#### **Asteroid Occultations:**

None

#### **Planetary Occultations:**

None

Check the JPL Ephemeris Generator page for coordinates of these objects at:

<http://ssd.jpl.nasa.gov/horizons.cgi#top>

# Observing Reports

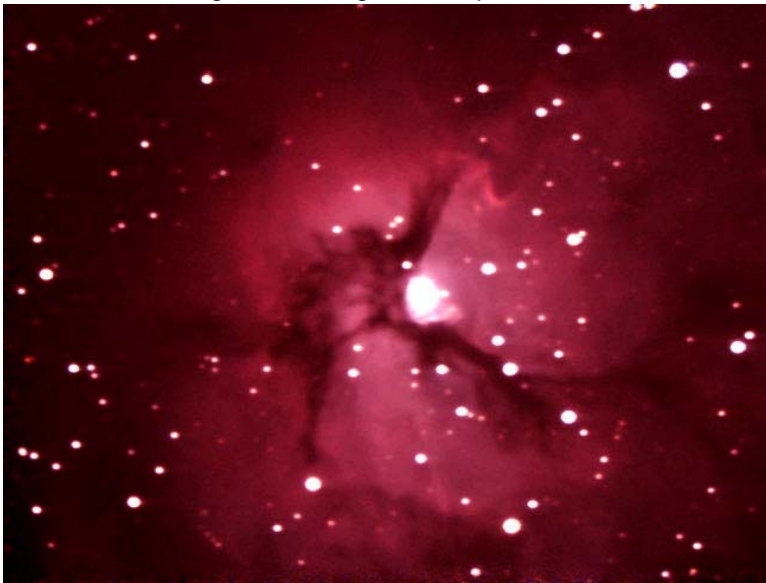
**Ridgecrest** – The in-town observing session began rather inauspiciously with the marine layer slowly drifting in, bringing fog and damp conditions. Despite the ill omens, a large crowd of observers with, at least 10 – 12 telescopes showed up for the evening. After a long wait of about an hour, Joe Fierstein, made the brave decision to be the first to shut down. Sure enough, not five minutes after he left, the fog suddenly cleared and we had clear skies for at least a couple of hours.

The sky was none too stable but still, it was pleasant to be able to see some things again. Early visitors were treated to a nice view of Venus and Saturn. Jupiter showed off its Great Red Spot, although it was tough to see under the sky conditions. The atmospheric moisture prevented seeing a lot of deep sky objects, but I did check out a fair number of the Messier Objects among the Virgo Cluster. I was even able to trace a good portion of Markarian's Chain of galaxies in the Virgo Cluster.

After a couple hours of fairly good seeing, the fog began to return so I called it a night and headed for home.

- Ken Munson

**Cottonwood Springs** – Greg Benecke, Craig Gates, Steve Lindsey, Arnie Stodolsky and I made the trek out to Cottonwood Springs Campground on the south side of Joshua Tree National Park. The weather prediction was for clear skies although the seeing was not predicted to be the best. As it turned out the prediction was right.



**The Trifid Nebula – M20**

A light variable breeze plagued us for the first couple of hours. Any less than rigid mount was being bounced a bit which made the initial observing problematic. Combined with really fuzzy seeing, especially close to the horizon this made observing a challenge. Craig and Arnie were doing visual observation while Steve Lindsey was doing photography and Greg and I were doing a bit of a mix of both.

Because of the wind, I started out doing visual, checking out the moon, Venus, Saturn and Jupiter. Unfortunately, at the time, the planets were a watery mess. The GRS was transiting that night but was barely seeable in the conditions that prevailed. I then turned to deep-sky objects, first catching a glimpse of the Omega Cluster. Even with the seeing conditions, this huge cluster was still magnificent. Next on my list was Centaurus A (NGC 5128). This galaxy appears to the eye as a faint smudge with

a dark band across its mid-section. Apparently this galaxy has consumed another galaxy in the last few billion years and, judging by the huge radio emissions, has a super-massive, very active black hole in the center. This was my first time to see this fascinating object!

Around 11 PM, the wind finally died down and I switch to doing some photography with the Meade DSI. Apparently, my earlier efforts to get a polar alignment had been very successful. The performance of the scope was phenomenal this night and I was able to get upwards of an hour of exposure time on several objects without the use of any guiding. My first object was the Trifid Nebula (M20). I managed to get the best photo I've ever done of this one. Since that turned out so good, I went after an object that has eluded me for a couple of years, the Crescent Nebula (NGC 6888) a faint supernova remnant in Cygnus. I've tried many times to photograph this object but have never been able to get the exposure time necessary to bring it out. At last, I got nearly an hour of exposure time and not only captured the object but also picked up color! Another interesting object was NGC 3718, a faint barred spiral in Ursa Major. This one is interesting because it appears to have been warped in an encounter with another galaxy which has left a twisted dark strand through its nucleus. This one is also a very active black hole.

After a couple more photographs, the eastern sky was beginning to brighten so I put the DSI away and returned to visual mode. After checking out some ore globulars and planetaries, I swung the scope to Mars which had risen. Still low on the horizon, Mars was just another watery mess with no detail visible. I began packing up but left the scope aimed at Mars as I wanted to see if it was visible after sunrise. By 5:30 AM the sky was very bright and the stars were all gone but Mars was still visible but faint. At that point I called it a night (well, actually a day by that time) and packed up and headed home.

- Ken Munson

I was not up to the drive to Cottonwood springs, so I ended up at Mt. Pinos for the evening. The parking lot was filled with 50+ scopes, but I managed a spot on the perimeter with a view of the sky from NNE to SW. My view of Venus and Saturn were blocked by trees, but Jupiter was a very steady view at 160 power. The moons were strung out to one side and the surface revealed detail in the bands as well as the Great Red Spot. I viewed Many Messier objects in Ophiuchus, Sagittarius, Scorpius, Andromeda, Sagitta, Lyra, Hercules, Aquarius, Capricornus, Scutum, Corvus, etc. The Milky Way was clearly visible. Conditions: seeing was 3.5 to 4, transparency 3.5, calm with the temperature dipping to the mid 40's. Around 1:30 AM a breeze picked up and fatigue set in sending me into the back of the Jeep for the balance of the night.

- Ken Rossi

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

<b>6 July Friday Night 7:30 PM</b>	<b>Monthly General Meeting</b> Speaker: Dr. Vince Lloyd Topic: Planetarium Show
<b>7 July Saturday Evening</b>	<b>In Town Dark Sky Observing Session at Ridgecrest Middle School</b> – 28915 Northbay Rd. RPV, 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. <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>
<b>9 July Monday Night 7:30 PM</b>	<b>Monthly Planning Meeting</b> Location: See Page 4.
<b>14 July Saturday Evening</b>	<b>Out of Town Dark Sky Observing Session</b> Contact Greg Benecke to coordinate a location.
<b>19 July Thursday Evening</b>	<b>Von Kármán Auditorium (Thursday) &amp; Vosloh Forum at Pasadena City College (Friday)</b> "Launching Science into Space" Erik Conway. In 1952, a group of American scientists decided the world scientific community should undertake a third International Polar Year (IPY), building on those carried out in 1882–1883 and 1932–1933. The idea of launching an artificial scientific satellite during the IPY took hold and the event was renamed the International Geophysical Year, or IGY.

# South Bay Astronomical Society

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*General Meeting at El Camino College Planetarium:  
Friday, June 1<sup>st</sup> at 7:30 P.M.*

*Guest Speaker: Dr. Vince Lloyd*

**“Planetarium Show”**

\* \* \* \* \*

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