

# ***FIRST LIGHT***



*Journal of the South Bay Astronomical Society - October 2005*  
on line at [www.geocities.com/sbas\\_elcamino](http://www.geocities.com/sbas_elcamino)

**Monthly General Meeting: Friday, October, 7th, 7:30 PM**

**Guest Speaker: Dr. Art Huffman, UCLA**

***“Relativistic Travel to the Stars”***

## ***The September 9 Meeting***

Greg Benecke chaired the meeting, which began at 7:37 with reports on recent society activities such as the trip to Mt. Palomar, and the Ridgecrest observing session. Albert Fader donated a Meade LPI (Lunar Planetary Imager) to the Society, and he was given a round of applause for his generosity. Anyone who wants to place an order for next year's Observer's Handbook of the RASC (the Royal Astronomical Society of Canada) should do so at the next meeting. This worthy tome is a valuable reference guide for observers, and I would heartily recommend its purchase. Four visitors to the Society's meeting were present, and were welcomed. Garth Magee exhibited a glass sculpture of a globular cluster, and pointed out that this and similar works of art, including images of galaxies, are commercially available (see them at <http://www.bathsheba.com/>).

The evening's presentation was a planetarium show given by Dave Vakil, who has been teaching full-time at El Camino College since August 2000. Dave began by reviewing the history of the original planetarium projector, and the history of the recently-purchased Chronos GOTO Space Simulator that replaced it. The new projector then rose dramatically from its lair in the center of the dome, to the strains of Thus Spake Zarathustra (a.k.a. the Monolith theme from 2001: A Space Odyssey). The projector was then put through its paces, showing what the sky would look like from the Northern and Southern hemispheres including views from the North and South Poles. Several objects in the sky such as the Magellanic Clouds, the Andromeda Galaxy and the Orion Nebula were pointed out, and constellation outlines were then projected onto the sky (and the audience).

Dave then projected the planets onto the dome, and illustrated their apparent motions around the Sun as the years went by in a few minutes. He then turned the Earth-based view to a space-based view, watching the planets move as seen from other points in the Solar System. A return to Earth included a look at the sky as seen from Los Angeles thousands of years from now, as precession places the Magellanic Clouds above our horizon.

The sky was then set to its appearance at the birth-date of several members, and each member so honored was asked his or her astrological Sun-sign. Dave then showed that in many cases, the Sun was in some neighboring constellation, as precession has shifted the constellations from where they were two thousand years ago, when the rules of astrology hardened into dogma. As astrology is nonsense anyway, the changes due to precession don't make astrology's errors any worse, but it was instructive to see that people born under the sign of Aries<sup>1</sup> had the Sun in Aries on their birthday millennia ago, but not now.

Dave Vakil ended the presentation with an unconvincing rendition of a large comet in the sky, and much more realistic views of the Aurora Borealis. The lights rose and the meeting ended, at 9:30.

**- Steven Morris**

# NASA Space Place:

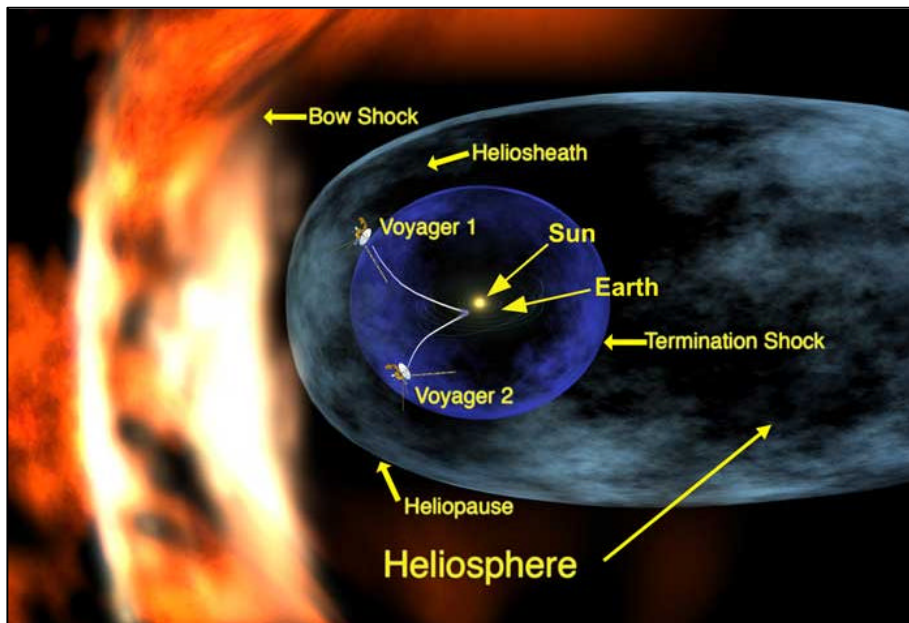
## Where No Spacecraft Has Gone Before

By Dr. Tony Phillips

In 1977, Voyager 1 left our planet. Its mission: to visit Jupiter and Saturn and to study their moons. The flybys were an enormous success. Voyager 1 discovered active volcanoes on Io, found evidence for submerged oceans on Europa, and photographed dark rings around Jupiter itself. Later, the spacecraft buzzed Saturn's moon Titan— alerting astronomers that it was a very strange place indeed! —and flew behind Saturn's rings, seeing what was hidden from Earth.

Beyond Saturn, Neptune and Uranus beckoned, but Voyager 1's planet-tour ended there. Saturn's gravity seized Voyager 1 and slingshot it into deep space. Voyager 1 was heading for the stars—just as NASA had planned.

Now, in 2005, the spacecraft is nine billion miles (96 astronomical units) from the Sun, and it has entered a strange region of space no ship has ever visited before.



“We call this region ‘the heliosheath.’ It’s where the solar wind piles up against the interstellar medium at the outer edge of our solar system,” says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.

Out in the Milky Way, where Voyager 1 is trying to go, the “empty space” between stars is not really empty. It’s filled with clouds of gas and dust. The wind from the Sun blows a gigantic bubble in this cloudy “interstellar medium.” All nine planets from Mercury to Pluto fit comfortably inside. The heliosheath is, essentially, the bubble’s skin.

“The heliosheath is different from any other place we’ve been,” says Stone. Near the Sun, the solar wind moves at a million miles per hour. At the heliosheath, the solar wind slows eventually to a dead stop. The slowing wind becomes denser, more turbulent, and its magnetic field—a remnant of the sun’s own magnetism—grows stronger.

So far from Earth, this turbulent magnetic gas is curiously important to human life. “The heliosheath is a shield against galactic cosmic rays,” explains Stone. Subatomic particles blasted in our direction by distant supernovas and black holes are deflected by the heliosheath, protecting the inner solar system from much deadly radiation.

Voyager 1 is exploring this shield for the first time. “We’ll remain inside the heliosheath for 8 to 10 years,” predicts Stone, “then we’ll break through, finally reaching interstellar space.”

What’s out there? Stay tuned...

For more about the twin Voyager spacecraft, visit [voyager.jpl.nasa.gov](http://voyager.jpl.nasa.gov). Kids can learn about Voyager 1 and 2 and their grand tour of the outer planets at [spaceplace.nasa.gov/en/kids/vgr\\_fact3.shtml](http://spaceplace.nasa.gov/en/kids/vgr_fact3.shtml).

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

## **Our SBAS Committee**

<b>President</b>	Greg Benecke	217-1512	BeneckeRUs@aol.com
<b>Program Chairman</b>	Joe Fierstein	377-9834	Joefiers@aol.com
<b>Treasurer</b>			
<b>Newsletter</b>	John Collins	- - -	<a href="mailto:Jcollins@runbox.com">Jcollins@runbox.com</a>
<b>Reproduction</b>			
<b>Astronomical League Rep.</b>			
<b>Astronomical League Liaison</b>	Bill Eisele	542-5070	Astronomy131@aol.com
<b>SBAS Website Webmaster</b>	Alex Athas	- - -	sbas_elcamino@yahoo.com
<b>First Light Editor</b>	Ken Munson	782-0873	kenmunson333@sbcglobal.net
<b>Observing Committee</b>	Greg Benecke	217-1512	BeneckeRUs@aol.com
	Craig Gates	376-6387	- - -
<b>Executive Committee</b>	Mike Mayerchak	831-9188	Mmayerchak@aol.com
	Mark Braden	540-2810	Bradenm@fnic.com

## 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 **October 10th** planning meeting will be held at 7:30 PM at the home of Ray Grace 2706 Spreckels Lane in Redondo Beach (310) 370-1913. Take Hawthorne Blvd to 190th St., turn West to Inglewood Ave., and 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.

## Observing Reports

### Ridgecrest School – August 27

The day was clear and the temperature pleasant as the afternoon drew to a close. As the sun set, though, the wind rose. Unlike typical afternoons, the wind didn't stop shortly after sunset. It continued blowing with occasional strong gusts all through the evening. There was a good turn out of scopes for this session. This turned out to be a very good thing. A troop of boy scouts arrived and were treated to view of different sky objects through the various scopes. With less than ideal observing conditions, most everybody gave up early that evening. A few of us stayed until midnight. Mars remained a watery blob with no real detail. After the last scope was packed up, naturally, the wind finally died.

- Ken Munson

## **Pacific Crest – September 10**

Having missed an opportunity for a dark-sky trip over the holiday weekend due to work, I was hoping to get a chance the next weekend. Luckily, we finished family activities early and late in the afternoon, I decided to go up to my site on the Pacific Crest Highway. It wasn't going to be an optimal night with a half moon in the sky until after midnight but I figured that's when the viewing would be better anyway. The clear sky clock predicted good conditions for the area.

As it turned out, I didn't need to worry about the moon getting in the way of observing. The fog that rolled in just at sunset pretty much blocked any light from the moon from getting in my eyes. That marks the first time I've ever been fogged in at that site. I figured I'd wait until 9:30 or 10:00 to see if the fog cleared. By about 8:30 the sky overhead began to clear. It looked like someone was pulling the curtains down. As the fog descended, I could see the top of it lit by the moon as it receded into the canyon below like some mystical monster.

As expected the sky was none to stable initially and the remaining moisture in the air continued to be a problem all night long. I had to crank the dew heater up to full just to keep the scope from fogging up. While waiting for the moon to set I went hunting for some obscure double stars using the Washington Double Star catalog. After having punched the numbers in wrong a few times, I realized that I'm going to have to find a way to convert this catalog into the format for the Nexstar Observer List program. The best separation I could get was only down to 2.5". Below that, the sky was just too mushy to separate close doubles.

After the moon went down I turned to some photographic work. One of the prime targets for the evening was NGC 7331, a large disk shaped galaxy in Pegasus. The final picture turned out a bit better than I had expected but not nearly as good as more experienced photographers can do. Still, it's nice to be able to show friends a picture that I took. By about 2:30, my battery finally gave up the fight against the due. The hand controller became too dim to read so I shut it all down. As usually happens, after I'd packed everything up, I glanced up to see the sky had suddenly gotten much better. Apparently, the marine layer had finally covered LA and the stars were out by the thousands! I took a few more minutes to do some binocular observing before heading home. It was a fairly successful, although frustrating night.

**- Ken Munson**

## ***Goldstone Tracking Station Tour***

The date of the Goldstone trip has been changed to Fri Oct 14. The tour starts at 1 pm. Every one, especially drivers must have photo ID. We are going on to a military base. Non citizens must identify themselves. Bring water. We will meet in the parking lot of the Alpine Village at 8 am to form car pools. Park in the North East corner closest to the freeway. Maps and directions will be provided at the SBAS meeting on Fri Oct 7 and at Alpine Village. Expect to stop in Barstow for lunch. Passengers should share driving expenses with the driver.

Directions to Goldstone:

Take the I-15 north towards Las Vegas, exit at Ft. Irwin Road. At the stop sign turn left. Travel approximately 30 miles to the Ft. Irwin visitor's center. At the visitor's center you will be asked to show all the required paperwork to receive a day pass for the base. After proceeding through the military guard gate, turn left at the yellow flashing light onto NASA Rd. Travel approximately 3-4 miles to the Goldstone guard gate. The same paperwork will once again be required to receive a Goldstone day pass. Please note: To enter Fort Irwin, you will need a valid driver's license, vehicle registration and current proof of insurance. All adults on the tour must carry a current photo ID.

## ***A Lesson in Cosmology***

A well-known scientist (some say it was Bertrand Russell) once gave a public lecture on astronomy. He described how the earth orbits around the sun and how the sun, in turn, orbits around the center of a vast collection of stars called our galaxy. At the end of the lecture, a little old lady at the back of the room got up and said: "What you have told us is rubbish. The world is really a flat plate supported on the back of a giant tortoise."

The scientist gave a superior smile before replying, "What is the tortoise standing on?"

"You're very clever, young man, very clever," said the old lady. "But it's turtles all the way down!"

*From: A Brief History of Time by Stephen W. Hawking, p. 1 (1988),  
Bantam Books, New York NY*

## **October – Comets & Asteroids**

<b>Date</b>	<b>Identification</b>	<b>Magnitude</b>	<b>Distance</b>
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No near Earth asteroids visible in October.

### **Comets at Perihelion in October:**

<b>Date</b>	<b>Identification</b>	<b>Magnitude</b>
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No visible comets at perihelion.

### **Comets Visible In September:**

<b>Name</b>	<b>Magnitude</b>	<b>Constellation</b>
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No comets above magnitude 11 in October.

### **Asteroid Occultations**

Event Summary for Longitude Los Angeles

<b>Local Time</b>			<b>Durn</b>	<b>Star</b>	<b>Mag</b>	<b>Star</b>	<b>Planet</b>	<b>Alt</b>
<b>d</b>	<b>m</b>	<b>y</b>	<b>secs</b>	<b>mag</b>	<b>drop</b>	<b>No.</b>	<b>No</b>	<b>Name</b>
2-Oct-05	21	52.9	3.3	10.2	5.7	HIP 107741	2967	Vladisvyat
6-Oct-05	5	10.4	9.5	9.7	2.2	TYC 4690-00832-1u	221	Eos
7-Oct-05	22	36.9	7.2	10.9	5.3	TYC 1784-01004-1u	1512	Oulu
19-Oct-05	4	15.8	21.4	8.9	5.2	TYC 2418-01270-1	665	Sabine
22-Oct-05	23	8.8	9.1	10.2	5.1	TYC 2461-02170-1u	784	Pickeringia

## **Scope Project**

The club has been looking into renovating an old scope that will otherwise be lost. The biggest problem has been finding a place to store it while we work to refurbish it. Dave Vakil, of El Camino College, has raised the idea with the El Camino faculty. It is looking more like we could store the scope there while it is being worked on. To do so, we would need some volunteers from the club to help clean up a room. The date is tentatively set for Sunday, October 9. Anyone wishing to lend a hand to clean the room should contact Greg Benecke.

## ***A Spectacular Rocket Launch***

It's good to have friends! My neighbor, John Kern, called me on Thursday, September 22 and said that a rocket launch from Vandenberg Air Force Base was scheduled for some time in the next twenty minutes, and I should have a look. I had almost given up on rocket launches, as they are canceled so often due to technical glitches, but I decided to have another go.

A few minutes before 7:30 p.m., a fast-moving dot appeared through the clouds in the north-west, heading southwards. As the rocket climbed above the coastal fog, a very bright and dramatic exhaust trail made its appearance, brightly lit by the Sun which had set half an hour before. Even more remarkable was a wide plume surrounding the exhaust trail, filling up a large part of the western sky. The rocket motor shut off as it headed past due west, but was replaced by the second-stage motor a few seconds later, creating another trail and plume as bright as the first.

Two minutes after it had begun, the rocket vanished from sight and the plume soon dissipated. The exhaust trail remained, and was already starting to twist into spirals as the winds of the upper atmosphere blew it in various directions. Over the next twenty minutes, the trail slowly faded and disappeared.

As I found out later, this was a Minotaur rocket carrying a DARPA (Defense Advanced Research Projects Agency) payload for the Pentagon. If you want to try to see such events, you can monitor the launch schedule at <http://www.spacearchive.info/vafbsked.htm>. Be prepared for disappointments, in return for the occasional reward.

- **Steven Morris**

## ***2006 Observer's Handbook***

The 2006 issue of the Observer's Handbook of the Royal Astronomical Society of Canada will be \$16.95 this year. Those interested in ordering this highly informative, very useful compendium of astronomical information should get their orders in as soon as possible. Orders will be taken at the October Monthly Meeting.

## ***Another Scope Donation***

We had a Meade Model 1266 12.5 Inch Newtonian telescope donated to the club. The telescope is mounted on a very heavy German Equatorial Mount. The scope was donated by Lon Caracappa, who used to live in Santa Monica and attended a few SBAS meetings. The scope was received largely dismantled with everything stripped from the optical tube assembly. But all the parts seem to be there. The tube itself is in pretty bad shape. It appears to be made of something like a wrapped masonite material that has sustained a couple of major hits on either end. In addition the wrapping seams are cracking. A new tube may be in order. Other than that the mount just needs cleaning, assuming the Right Ascension drive works. The optics are separately boxed but appear to be clean. It looks like we have another restoration project on our hands.

- **Greg Benecke**

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

<b>1 October Saturday Evening</b>	<b>Out-of-Town Dark Sky Observing</b> Please contact Greg Benecke to confirm the location
<b>7 October Friday 7:30 PM</b>	<b>Monthly General Meeting</b> Dr. Art Huffman of UCLA will be the guest speaker.
<b>8 October Saturday Evening</b>	<b>Lomita Magnet School Star Party</b> The Lomita Math & Science Magnet School, at 2211 W. 247th Street, Lomita, 90717, is located near the intersection of Lomita Blvd. and Narbonne Ave.
<b>9 October Sunday  10 AM – 4 PM</b>	<b>Solar Viewing at El Camino College Observatory</b> Hosted by Dave Vakil.
<b>10 October Monday Evening 7:30 PM</b>	<b>Monthly Planning Meeting</b> Refer to page 4 for details.
<b>13 October Thursday Evening 7:00 PM</b>	<b>Von Kármán Auditorium (Thursday) &amp; Vosloh Forum at Pasadena City College (Friday)</b> "Looking at Clouds from Both Sides: Clouds in Art and Science" On a December evening in 1802, Luke Howard presented his ideas about naming clouds to a small gathering. It heralded the era of meteorology as we know it today.
<b>14 October Friday 1 PM</b>	<b>Goldstone Tracking Station Tour</b> See page 5 for details.
<b>October 29 Saturday Evening</b>  Mars Viewing for the Public	<b>In Town Dark Sky Observing Session – Weather Permitting:</b> 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>October 29 Saturday Evening</b>	<b>Out of Town Dark Sky Observing Session</b> Please contact Greg Benecke to confirm the location
<b>4 November Friday 7:30 PM</b>	<b>Monthly General Meeting</b> Monthly General Meeting: Guest Speaker – Paul Livio
<b>5 November Friday</b>	<b>Ridgecrest School - More public Mars viewing.</b>

# South Bay Astronomical Society

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

*Guest Speaker: Dr. Art Huffman, UCLA*

*“Relativistic Travel to the Stars”*

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