FIRST LIGHT

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

Monthly General Meeting: Friday, September, 8th, 7:30 PM

Guest Speaker: Michael Harrison

"A Day in the Life of a Rocket Scientist and the James Webb Space Telescope"

The August 4 Meeting

President Ken Rossi opened the meeting at 7:38 by asking any newcomers to introduce themselves, and several did. Joe Fierstein reported on a recent NASA exhibit in Los Angeles, including talks by some Space Shuttle astronauts. Steven Morris gave away six Observer's Handbooks of the Royal Astronomical Society of Canada, and a copy of Macstronomy software. Greg Benecke reported that the mirror of the club telescope has been cleaned and seems very serviceable. Ken Rossi noted that the last Ridgecrest observing session went very well, and several members described their recent observing experiences. Tulita Elementary School at 1520 Prospect Avenue in Redondo Beach is planning a Space Week 2006 at the end of September, and is asking for volunteers. You can contact Ken Strause at: KennTerry@msn.com if you wish to help.

After a thirteen-minute break, President Rossi introduced the evening's speaker, Dr. Gary Peterson, a professor of geology at San Diego State University. Dr. Peterson's lecture was "The Cryogenic World of Triton". 'Cryogenic' (pronounced KRY-o-JEN-ik) refers to the study of objects at low temperatures, and the coldness of the edge of our Solar System is the key to studying the nature of Triton, the largest moon of the planet Neptune.

Dr. Peterson began by noting that when the Solar System formed, volatiles were largely driven from the inner Solar System (the vicinity of the Earth) to the Solar System's outer edges, where Neptune and Triton formed. Volatiles are substances with a low melting point, and Neptune itself is modeled as having a mantle and surface of such volatiles as water, ammonia and methane, with a thick atmosphere of hydrogen and helium.

Triton is the one large satellite of Neptune, and is about the size of our own Moon. Its orbit around Neptune is retrograde (moving in the opposite direction to the planet's rotation), so it is likely that Triton was captured by Neptune after the initial formation of the Solar System. Such captures usually place a moon in an elliptical orbit, and tidal stresses as the orbit became circular likely heated up Triton's interior. Such an episode would have created an atmosphere of the most volatile substances, such as water, ammonia, methane and nitrogen, that would later cool and become deposited on the moon's surface.

Triton's rotational axis is significantly tilted, so each pole spends many years angled towards the Sun, and then many years tilted away, as Triton and Neptune orbit the Sun once every 164 years.

Triton has an atmosphere one-tenth as dense as Earth's, consisting mostly of nitrogen. The Voyager spacecraft sent back some magnificent photographs of Triton's surface many years ago, revealing many curious landforms. At a temperature of only 37 Kelvin, the geology of Triton's surface must be dominated by the behavior of nitrogen as a solid, a liquid and a gas. This is in some ways similar to the geology of Earth, dominated by water as a solid, liquid and a gas. The terrain of Yellowstone National Park, with its silicates deposited by water, look very similar to some

of the landforms seen on Triton, and geysers on Earth produce the same pattern of downwind deposits seen in the Voyager photographs.

The cantaloupe terrain on Triton shows very few craters, indicating that the surface is not ancient, and quite probably has formed by the continued thawing and refreezing of nitrogen as Triton's poles slowly swing towards and away from the Sun. Dr. Peterson pointed out that the Mime Prairie in Washington State shows a similar pattern of dents and ridges. Similarly, the Devils Golf Course in Death Valley shows a rich pattern of polygons due to continued shrinkage and expansion caused by repeated wetting and drying, and looks similar to the polygons on Triton, probably due to the freezing and thawing of nitrogen.

After "a wonderful array" of questions and comments, Dr. Peterson ended his lecture at 9:21. Joe Fierstein noted that this was Dr. Peterson's eighth lecture to our society, and represents a significant commitment by Dr. Peterson to our group, as he has to drive all the way from San Diego to speak to us. After a final round of applause, the meeting ended at 9:25.

- ***Dr. Steven Morris***

Deadly Planets

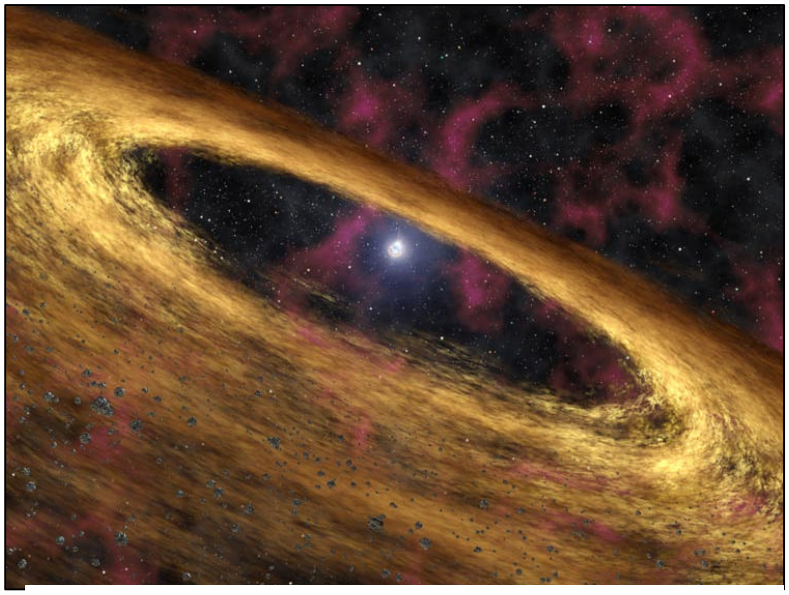
By Patrick L. Barry and Dr. Tony Phillips

About 900 light years from here, there's a rocky planet not much bigger than Earth. It goes around its star once every hundred days, a trifle fast, but not too different from a standard Earth-year. At least two and possibly three other planets circle the same star, forming a complete solar system. Interested? Don't be. Going there would be the last thing you ever do.

The star is a pulsar, PSR 1257+12, the seething-hot core of a supernova that exploded millions of years ago. Its planets are bathed not in gentle, life-giving sunshine but instead a blistering torrent of X-rays and high-energy particles.

"It would be like trying to live next to Chernobyl," says Charles Beichman, a scientist at JPL and director of the Michelson Science Center at Caltech.

Our own sun emits small amounts of pulsar-like X-rays and high energy particles, but the amount of such radiation coming from a pulsar is "orders of magnitude more," he says. Even for a planet orbiting as far out as the Earth, this radiation could blow away the planet's atmosphere, and even vaporize sand right off the planet's surface.



Artist's concept of a pulsar and surrounding disk of rubble called a "fallback" disk, out of which new planets could form.

Astronomer Alex Wolszczan discovered planets around PSR 1257+12 in the 1990s using Puerto Rico's giant Arecibo radio telescope. At first, no one believed worlds could form around pulsars—it was too bizarre. Supernovas were supposed to destroy planets, not create them. Where did these worlds come from?

NASA's Spitzer Space Telescope may have found the solution. Last year, a group of astronomers led by Deepto Chakrabarty of MIT pointed the infrared telescope toward pulsar 4U 0142+61. Data revealed a disk of gas and dust surrounding the

central star, probably wreckage from the supernova. It was just the sort of disk that could coalesce to form planets!

As deadly as pulsar planets are, they might also be hauntingly beautiful. The vaporized matter rising from the planets' surfaces could be ionized by the incoming radiation, creating colorful auroras across the sky. And though the pulsar would only appear as a tiny dot in the sky (the pulsar itself is only 20-40 km across), it would be enshrouded in a hazy glow of light emitted by radiation particles as they curve in the pulsar's strong magnetic field.

Wasted beauty? Maybe. Beichman points out the positive: "It's an awful place to try and form planets, but if you can do it there, you can do it anywhere."

More news and images from Spitzer can be found at http://www.spitzer.caltech.edu/ . In addition, The Space Place Web site features a cartoon talk show episode starring Michelle Thaller, a scientist on Spitzer. Go to http://spaceplace.nasa.gov/en/kids/live/ for a great place to introduce kids to infrared and the joys of astronomy.

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

Grazing Observation Opportunity

There will be an opportunity to observe a lunar grazing occultation of a fairly bright star in late August. On August 31, starting at about 10:50 PM, the moon will graze Tau Scorpii along the southern pole. The moon will be low on the horizon, heading towards moonset, but if one is at a location with a good westerly view, the Santa Monica Mountains appear to be one of the best, and the weather cooperates, the graze should be observable, lasting about 5 minutes or so.

HOTS Conference

Each year for the past five years Coronado Instruments has sponsored an annual gathering of solar observers and imagers. This year for the first time ever, the annual HOTS (Hands on the Sun) event will be held in Irvine California at Meade Instruments! HOTS is the only all solar conference, and attracts premier observers and imagers worldwide. The conference takes place from October 6 through October 8. Regular attendance fees are $175, however, this year HOTS will be open to all 4M Members at a special reduced price of only $99 for all events ($35 per person for extra attendees). To attend at this special price, call Russ Tanton at (949) 451-1450 ext: 384.

In addition, all attendees will have the opportunity to receive a special 10% discount on any Coronado products ordered or purchased at the HOTS conference, savings that can amount to hundreds or even thousands of dollars on top-end Coronado equipment! If you ever wanted to learn more about the Sun and get a great deal on the best equipment to observe it with, then HOTS is for you:

On Friday there will be a visit Mount Wilson's historic solar Observatory for a firsthand guided tour and lectures by Don Nicholson and famous comet hunter, David Levy. The formal start will take place at Irvine Valley College at 7:30 p.m. with a talk by David Levy.

On Saturday, October 7, the keynote speaker will be Dr. Ralph Chou, Professor of Optometry at the University of Waterloo, Canada. Dr. Chou has spoken previously at HOTS and is back by popular demand. This years topic: "These old eyes – They ain't what they used to be!" As the eyes and visual system age, various changes may affect the way we see the world. In this presentation, he will discuss how age related changes in the eye can affect visual observations with Coronado instruments.

In addition to other technical topics, there will be a team of seven amateurs known for their different imaging techniques who will lead sessions on gathering images and processing. This will be hands on followed by a show-and-tell Sunday. Bring your own lap top if possible and archived images in the event of inclement weather. When registering please list your imaging equipment and they will try match you up with a team leader familiar with your set up. If you're not yet into the hobby, come and see the tremendous variety of equipment available.

On Saturday night there will be and observing and imaging session, weather permitting.

On Sunday morning, breakfast will be held at Meade and tours of the Meade and Coronado factories will be offered.

For more information contact: Russ Tanton at russ.tanton@meade.com, (949) 451-1450 xt:384 or check the web at www.coronadofilters.com.

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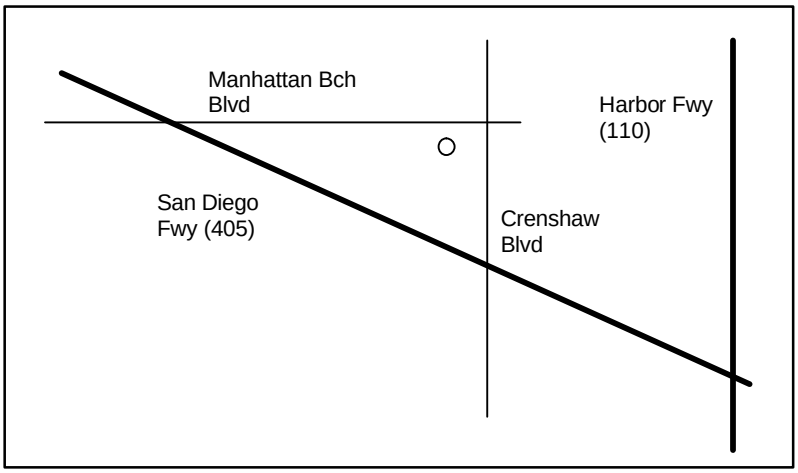

Monthly General Meetings

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 September 11th 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.

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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! 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.

September – Comets & Asteroids

Comets Visible in September:

Comet	**Mag**	**Constellation(s)**
Faye (4P)	11.4 – 10.4	Psc-Ari

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

Astronomy Magazine Subscriptions & Deep Space Mysteries 2007 Calendar

SBAS has received a notice from Kalmbach Publishing Co. that in addition to the 1 year subscription rate of $34.00 for club members, they are now offering a 2 year subscription for $60.00. Existing or new subscribers may take advantage of this offer. A minimum of 5 subscriptions, new or renewal, are required for SBAS to remain eligible for their club discount rates. They would like payment by October 15th. Renew now and extend your subscription by one or two years.

Kalmbach is also offering a 50% discount on their Deep Space Mysteries 2007 calendar which retails for $12.95. Our member price is $6.50.

Please make your check payable to SBAS and mail to PO Box 1937, Redondo Beach, CA 90278

- Arnie Stodolsky

NASA Space Trailer

In case you missed its earlier appearances across California, there's still time to make a visit to the traveling NASA Space Trailer. Its last appearance in California will be at the Antelope Valley Fair from August through September 4.

Purpose of the Exhibit

The Vision for Space Exploration (VSE) Experience trailer exhibit is a fun way to inform people of NASA's plans for space exploration for the next 25 years and about the many ways the space program has benefited life on earth. We target large scale family venues to promote intergenerational learning and enjoyment. The exhibit is educational in its focus. Visitors enter at no charge and receive a free "moon" or "Mars" souvenir photo to commemorate their experience.

Description of the Exhibit

The first section of the trailer features a gaming section with moon and mars globes. Visitors are surrounded by stars and planets. Holographic video screens create floating images, allowing visitors' hand motions to "control" and create bases for human life on the planets. The second section of the trailer has a hexagon-shaped, three-dimensional theater featuring a five-screen presentation on the Vision for Space Exploration. The Dome's interior becomes a seamless floor-to-wall-to-ceiling window for a journey to other-worldly destinations. "Explorers" see themselves in space to fully experience environments in other parts of our Solar System -- giving travelers the illusion of stepping on the surfaces of Earth, the Moon and Mars.

Space Week at Tulita Elementary

SBAS will be supporting Tulita Elementary School's Space Week activities with daytime lectures and a star party to be held on October 4 from 7 to 9 PM. The school is located at 1520 Prospect Avenue in Redondo Beach. Tulita's Space Week runs from September 25 through September 29, with a special visit by NASA astronaut, Paul Harris, on the 22nd. SBAS will provide the star party on October 4. Several members have already signed up to help out with telescopes and talks but more are always welcome. The school is located on Prospect Avenue in Redondo Beach approximately 5 blocks north of Pacific Coast Highway.

North of the Border

Niagara Falls is the most-photographed vista in all of Canada, but Lake Louise in the Canadian Rockies rates a proud second. The Fairmont Hotel on its shore is a huge chateau, typically accommodating hundreds of tourists who come to ski, hike and relax. I stayed there in August of 2004, to see the Perseid meteor shower. The shower didn't disappoint, but the hotel's lighting certainly did. What was I to do, on my return, but sharpen my quill and write the following letter?

"Dear Sir, I have just returned from a very enjoyable stay at your Chateau. In particular, Bruce Bembridge was an excellent guide, and the rafting trip I took on the Kicking Horse River was well-organized and well-run.

"I am writing to let you know of a simple way to make the Lake Louise experience even better. I was outside at 3 o'clock in the morning of August 12, to see the Perseid meteor shower. I saw plenty, but I had to travel far away from the Chateau because of inappropriate lighting. For example, an unshielded light at the boathouse sprayed far too much light into the air, lighting up the sky to no purpose. Indeed, as I looked at the boathouse from the Chateau, I realized that if anyone were stealing or vandalizing the canoes, I would not be able to see it happening, because the light blinded anyone who looked in that direction. This light decreased the security of the canoes! A downward-pointing, full-cutoff fixture of appropriate wattage would provide better security, and a pleasant appearance.

"Similarly, the fluorescent lights on the top floor of the Chateau, as well as a few other bright unshielded lights near the roof of the building, made the Chateau look ugly at night. These locations are presumably unoccupied, and motion sensors could be installed to\ turn them off when the space is unused and lighting would be an expensive waste. The flags between the Chateau and Lake Louise are illuminated by a beacon that also lights up the sky. It would be more respectful of the flags to bring them in at night, and the beacon could be kept permanently off. More than once, I found that my eyes had wandered to these lights, dazzling my vision and making it difficult to see where I was walking.

"I am an amateur and a professional astronomer, as well as a life member of the International Dark-Sky Association, but I am not asking you to make changes just to suit me. I have often heard city-folk gasp in wonder when, for the first time in their lives, they see the dark night sky. This could be experienced by your clientele, if only a few lights were turned off or modified on the lake-side of the Chateau.

Yours Respectfully,

Steven Morris"

A few weeks later, a letter showed up in the mail, from the Fairmont's Director of Operations:

"Dear Dr. Morris ...I am very pleased to learn of your positive experiences. We are fortunate to have the quality of staff we do. Thank you for your comments with regard to our outdoor lighting. We are continually reviewing our situation and we are currently planning initiatives to improve our night skies. Your remarks have been forwarded to our Environmental Systems Manager for follow up..."

I returned to Lake Louise a couple of months ago, and was delighted to see many light-abatement practices that hadn't been there on my previous visit. Naturally, another letter was in order:

"Happy summer solstice! I was a guest at your hotel a couple of weeks ago and quite enjoyed myself. I particularly liked Michael Vincent's one-hour history tour along the lakeside.

"I am writing to let you know that I was particularly pleased to see that you are installing full-cutoff outdoor lights, to help bring back the dark night sky for your guests. The boat-house light is still uncovered, but it is a lower wattage than I remember from my last visit in 2004, and it seems to be on a timer that turns it on for 55 seconds, then off for

115 seconds. The fluorescent lights on the top floor have been shielded from view, and I noticed several other efforts to make the night sky visible.

"I am an amateur astronomer, and appreciate seeing the dark night sky. I'm sure that many of your guests will find it an unexpected reward for staying at the Chateau as well.

Yours Sincerely,

Steven Morris"

Naturally, this generated a response:

"Dear Mr. Morris ...It was with great pleasure that I read your comment regarding the initiatives we have implemented in protecting and enhancing our surrounding environment. We are committed to reviewing the beautification and naturalization of our area and the changes to the lighting is one small step we have taken to do just that!

"Mr. Morris, once again, thank you for your recognition. We look forward to the opportunity of welcoming you back to our diamond in the wilderness..."

Of course, these improvements might have been made without my making a fuss, but who knows? A friendly, tactful letter may open someone's eyes, and thank you's are always welcome. Such opportunities may come your way, and I hope you will take advantage of them when they do.

- ***Dr. Steven Morris***

Dues for the Calendar year: 2007

If your have just joined us this year, or if your membership expires on December 31, 2006, you can renew with the following schedule.

Pro-rated Schedule <---------- PLUS----------> 2007 standard year						
Membership Expires	Individual Rate/ Family Rate	Student Rate	Year 2007 Rate	Individual Rate/ Family Rate	Student Rate	New Expiration Date
Dec 06	$0.00	$0.00		$30.00	$25.00	12/31/0
Nov 06	$2.50	$2.08		$30.00	$25.00	12/31/07
Oct 06	$5.00	$4.17		$30.00	$25.00	12/31/07
Sep 06	$7.50	$6.25		$30.00	$25.00	12/31/07
Aug 06	$10.00	$8.33		$30.00	$25.00	12/31/07
Jul 06	$12.50	$10.42		$30.00	$25.00	12/31/07
Jan/Jun 06	$15.00	$13.50		$30.00	$25.00	12/31/07

You can renew your membership on a pro-rated schedule to adjust your membership term to the standard calendar year. Your expiration date is shown on the monthly First Light mailing label. Please renew by check to the South Bay Astronomical Society, PO Box 1937, Redondo Beach, CA. 90278. Payments are also accepted at our general meetings.

- Ray Grace, Membership Committee
310-370-1913

Observing Reports

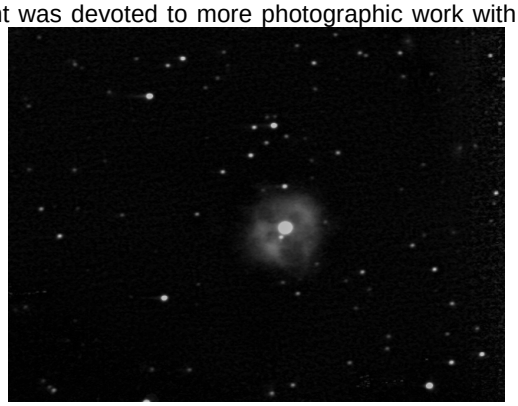
Angeles Crest – Since I would be out of town on a family trip, I had to forgo the in-town session and headed up to my observing site along the Angeles Crest. Conditions were very good that Saturday evening, with clear skies and comfortable temperatures. Although clear, the skies were not quite as stable as I would have liked but it did improve a little bit during the night. As the night progressed, I wished I had brought along more clothing! The temperature bottomed out at around 53^{o} F and a single light jacket definitely wasn't quite enough! At least the bugs weren't bad though.

Early on, as I waited for the sky to improve, I worked my way through the deep-sky wonders list from the August issue of Sky and Telescope. While Nu Serpentis was easily found and made a nice easy double star system to spot, being widely separated, Theta Serpentis was another matter entirely. For some reason, Theta Serpentis could

not be found on my Starry Night Software. Fortunately, the table listed its RA/Dec so I was able to find it by punching in the coordinates. Sharpless 2-46 is listed as a 'bright nebula' although I never did managed to find it. The list did contain one of my favorite gems from Ophiuchus, NGC 6633 which is a large, loose open cluster of fairly bright stars. M16 was surprisingly spectacular considering I was looking south through the light pollution of LA. Using the 35mm Panoptic made with a OIII filter really heightened the visibility of the nebulosity. I checked out a couple of faint comets as well, Faye (4P) and Clarke (71P). Clarke was too low on the southern horizon to make out through all the LA glow but Faye was pretty easy too see at 10th magnitude. It turned out to be slightly off from the position shown in Starry Night but it had a slight tail. Since this one is supposed to brighten through next month, it should be a lot nicer to see during next month's in-town or even the dark-sky session.

Arp 29

The rest of the night was devoted to more photographic work with the Meade Deep Sky Imager. I decided to go for some less well-known objects. Arp 29 (NGC 6946) turned out to be a beautiful spiral galaxy in Cepheus. Arp 135 was an elliptical galaxy with a very bright core and a much fainter halo around it. Although I hadn't visually sighted Comet Clark, I was able to get an image of it. It shows as a faint, fuzzy 13th magnitude object, located very close to where Starry Night showed it to be. Comet Faye turned out a little better and I was even able to capture some of its tail in an image. M74 made another nice spiral galaxy image. My best image of the night turned out to be one of a planetary nebula I'd long wanted to get a picture of. NGC 1514, in Perseus, can be a real challenge to spot visually as it is a thin, faint cloud of gas around a pretty bright star. Even with an OIII filter, the brightness of the star tends to overwhelm the eye. The photo, even without an OIII filter turned out really well.



NGC 1514

I had planned to try to catch Venus early in the morning but the cold proved a little too much and I finally packed up and headed for home about 4:30 AM.

- Ken Munson

Mt. Pinos - Garth Magee and I headed up to Mt. Pinos on Tuesday, Sept.22. We were a bit concerned when we arrived as there was a bank of cirrus clouds overhead, but we hoped for the best. As twilight was fading we observed Jupiter through the thin clouds. Io was transiting and its shadow could be seen on Jupiter's face, but the seeing was not good enough to make out Io itself. Europa was in eclipse and Ganymede moved into Jupiter's shadow starting a few minutes after 8:00. The conditions continually improved as the night progressed and for a few hours were excellent. It was time to try for some challenging observations. Among these, Mu Hercules, which is a Mag 3.4 and 10.1 pair. The challenge is that the dimmer star is actually a close double separated by only 1 arc second. At times it was easy to split these, but it only took slight degradation of the seeing for them to merge into a single slightly elongated object. We were able to find Pluto, but you had to identify the star pattern to be sure of what you were looking at. Next was Triton, largest moon of Neptune at Mag 13.5. It could be clearly seen fairly close to the planet's disk. And the final challenge was two moons of Uranus. Believe it or not, we were able to positively observe Oberon and Titania, both Mag 16.5. They would come and go, but there were moments where they were unmistakable. This is right at the limiting magnitude for a 15 inch telescope. The conditions started to deteriorate and you could smell the moisture increase in the air. It was time to call it a night by 2:00 A.M.

- Greg Benecke

Schedule of Coming Events

7 September **Thursday** **8:00 PM**	**Double Shadow Transit on Jupiter** Shortly after sunset Io, and Europa will be seen casting their shadows across the face of Jupiter.
8 September **Friday** **Evening** **7:30 PM**	**Monthly General Meeting** Guest Speaker: Michael Harrison Topic: A Day in the Life of a Rocket Scientist and The James Webb Space Telescope
11 September **Monday** **Evening** **7:30 PM**	**Monthly Planning Meeting** See directions on Page 4.
14 September **Thursday** **Evening** **7:00 PM**	**Von Kármán Auditorium (Thursday) & Vosloh Forum at Pasadena City College (Friday)** "Beyond Pluto: The Discovery of the 10th Planet". Dr. Michael Brown. This lecture will discuss the recently found 2003 UB313 (currently named at the time of printing), an object larger than the planet Pluto and with an orbit at least twice as large.
16 September **Saturday** **Evening**	**In Town Dark Sky Observing Session –** Weather Permitting**:** Please contact Greg Benecke to confirm that the gate will be opened! Take Hawthorne Blvd. south across Pacific Coast Hwy.; continue up the hill past Silver Spur and turn left at Highridge. Go one mile and turn left on Whitley Collins, up one block and turn left on Northbay Rd., the new parking lot is at the end on the left. Enter parking lot and turn left, the gate is at the east end (it should be open about 15 minutes before sunset) and a paved road leading into the playground where we have traditionally set up. If at all possible, drop your equipment off and park your car in the new parking lot (less than 200 feet away). If you are absolutely certain that your vehicle does not drip anything you can park with your equipment. *Drive with care* to avoid steel pillars supporting basketball nets**. Note: If you a visitor, not bringing a scope, it is requested that you park in the small parking lot on Northbay Rd.**
23 September **Saturday** **Evening**	**Out-of-Town Dark Sky Observing Session** Contact Greg Benecke to coordinate a location for the dark-sky trip.
4 October **Wednesday** **Evening** **7 – 9 PM**	**Tulita Elementary School Star Party** 1520 S. Prospect Ave, Redondo Beach.
6 October **Friday** **Evening** **7:30 PM**	**Monthly General Meeting** Guest Speaker: TBD Topic: TBD
9 October **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, August 4th at 7:30 P.M.

Guest Speaker: Michael Harrison

"A Day in the Life of a Rocket Scientist and the James Webb Space Telescope"

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