

SEPTEMBER MEETING MOVED UP TO SEPTEMBER 7TH! MARK YOUR CALENDAR!



M17 was photographed by Bill Hall from Yorba Linda, CA as a test exposure during mount calibration on July 11, 2007. The image was captured through an 6-inch f/4 Newtonian using an ST-402ME imager with a 16-minute exposure (4-minute subs).

OCA CLUB MEETING

The free and open club meeting will be held Friday, August 10th at 7:30 PM in the Irvine Lecture Hall of the Hashinger Science Center at Chapman University in Orange. The scheduled speaker is yet to be announced as of press time.

Next General Meeting:
September 7th

STAR PARTIES

The Anza site will be open this month on August 11th. The Black Star Canyon site will be open this month on August 4th. Members are encouraged to check the website calendar, for the latest updates on star parties and other events.

Please check the website calendar for the outreach events this month! Volunteers are always welcome!

You are also reminded to check the web site frequently for updates to the calendar of events and other club news.

COMING UP

The next session of the Beginners Class will be held on Friday, August 3rd (and next month on September 7th) at the Centennial Heritage Museum at 3101 West Harvard Street in Santa Ana.

GOTO SIG: TBA (contact coordinator for details)

Astrophysics SIG: Aug. 17th, Sep. 21st

Astro-Imagers SIG: Aug. 21st, Sep. 18th

EOA SIG: Aug. 22nd, Sep. 26th

Dark Sky SIG: TBA (contact coordinator for details)

President's Message

By Barbara Toy

Summer is now off and running – the summer Milky Way dominates the sky most of the night, we can do our observing in T-shirts and shorts, if we want, and, barring a few thunderstorms and the possibility of fire, life for those of us who spend time outside under the stars is pretty comfortable. This is a good time to try to inspire friends and family with the joys of astronomy – if they don't get hooked in the summer, they aren't likely to become hooked when the weather turns colder, unfortunately. And there are so many "wow-factor" summer objects to show them – globulars, open clusters and nebulae around Sagittarius and Cygnus, for a start, the Veil, the Ring nebula, M13 in Hercules – and many, many more. And, of course, there's Jupiter most of the night, and even Pluto (for those who enjoy a good hunt in a dim star field)...

I guess the point is, it's summer, the viewing is easy, and let's all enjoy it to the full!

The Starbecue

Our Starbecue in July was a great success, even though the clouds refused to go away as promised by the Clear Sky Clock, so there wasn't much viewing or imaging done that night. The potluck itself was a true community effort. The club's barbecue was a central feature of the event, and it was able to fulfill that role due to the efforts of Gary Schones, who brought it up to the observatory in his truck from where it was stored in the shed down at Anza House after the Starbecue last year with the help of Alan Smallbone, and Ray Stan, who



Satisfied diners at this year's Starbecue - a great time had by all even if the seeing wasn't what we'd hoped!

improvised with whatever was available to bring the grill to an acceptable state of cleanliness. A crew of volunteers pulled the tables out of the storage container, set them up and moved them around as we figured out where they should go (my apologies, I've forgotten who exactly was doing what for a lot of what was going on, but it was all very much appreciated!). Jim Benet brought tablecloths, which made the tables festive instead of institutional-looking, and a folding table that came in very handy.

But the real highlights were the company and the food. There was a lot of socializing throughout the evening, fueled in part by all the great food. Jim Benet brought his famous smoked brisket, the Cokers brought corn on the cob and whole onions they roasted on the barbecue, Rick Guy brought a bag of rib steaks to share, others brought hotdogs, hamburgers, and other things to grill, and there was a variety of salads, chips with dip, fruit, and, of course, desserts. We had pies and cupcakes and cookies, and Tim Hogle and I ended by carrying the leftovers down to Anza house after the party so people could enjoy them further over the course of the evening and I wouldn't be tempted to snack on them myself. I'm glad to say that, by the next morning, all of the desserts appeared to have found happy homes, and Ray had even cleaned off the table so there were no crumbs for the mice.

Tom Munnecke was going to host a college class at the Anza Observatory on the Monday before the Starbecue, and had reserved the Observatory for a special children's program that Friday night. Both of those events were called off because of overcast skies, and Tom came to the Starbecue instead. We had quite a few children at the site that night, and Tom ended by hosting a lively session for the children who visited the observatory and their parents. Even though there wasn't much to see because of the clouds, he was able to show them Venus, Saturn and Jupiter, and any other bright objects he could find in the sucker holes, and, between times, he found other ways to keep them amused and thinking about astronomy. He's been developing a science club for kids that has been a great success with his granddaughter, her friends, and others who have attended, and it was great to see him putting that experience to good use that night.

Snakebite Warning

There was a very unfortunate incident during the Starbecue that was a reminder that Anza is still quite rural and we need to be very careful about the local wildlife. Bill Patterson had brought his young golden retriever, a friendly and well-behaved dog who he kept on a leash throughout the evening. While they were walking down to the member observatory level, she encountered a baby rattlesnake, and was bitten on the nose. Bill rushed her to a vet in Temecula who gave her anti-venom and kept her overnight, and, fortunately, she has made a good recovery.

Although baby rattlers are small and look a lot less impressive than adults, they are actually more dangerous because they can't control how much venom they use in a bite and all the venom they have available generally goes into the victim. I've been told that dogs are more resistant to rattlesnake venom than humans are, so, if one of the humans on site was bitten instead of the dog, the damage would have been a lot worse. Ray Stann and Gary Schones eliminated that particular snake, but both our Anza site and our Black Star Canyon site are in rattlesnake country and whoever uses them needs to keep that in mind and exercise reasonable caution.

What should you do if you are bitten? There are a lot of places you can go for direction, and one of the easiest is the Internet. Several reputable medical sites have advice and information, including the Merck site (see <http://www.merck.com/mmhe/sec24/ch298/ch298d.html> for the full article on snakebites, which covers bites from several different types of poisonous snakes). Apparently not all bites from poisonous snakes result in venom being injected. Where rattlesnake venom *is* injected, it damages the tissue in a spreading area around the bite, and also affects clotting of the blood, so you can expect increasing swelling, pain and bruising in the area of the bite as time passes and, in extreme cases, there can be bleeding problems in other parts of the body, including internal bleeding. Merck recommends keeping the victim quiet and as calm as possible, keeping the area of the bite immobilized and below the level of the heart (with people, bites are usually in feet or hands), removing or loosening anything that would constrict the area of the bite because of the expected swelling, and getting the

(continued on page 8)

AstroSpace Update

August 2007

Gathered by Don Lynn from NASA and other sources

Einstein Ring – The most nearly complete Einstein ring has been discovered in recently released data collected by the Sloan Digital Sky Survey. If a massive object lies rather precisely in front of a more distant one, Einstein's General Relativity predicts that the gravity of the foreground object will bend light from the other, resulting in a ring of light appearing around the foreground object. When the objects are nearly aligned, the result is a partial ring or individual images (often 4 of them) arranged in a ring. The newly discovered object consists of about 300 degrees of arc, the most nearly complete ring yet found. It has been nicknamed the Cosmic Horseshoe. Its diameter is about 10 arc seconds. Follow-up observations with the 2.5-meter Isaac Newton Telescope and the Russian 6-meter telescope shows that it is caused by a very massive Luminous Red Galaxy (LRG) with a mass of about 5 trillion times that of the Sun (about 9 times that of our Milky Way) so distant that its light took about 4.6 billion years to reach us. The background object is a blue galaxy undergoing furious star formation and is so distant that its light takes 10.9 billion years to arrive. This is so far that it would be too dim to be seen in the Sloan Survey without the magnification and brightening caused by the gravity of the foreground object. It is hoped that further study will tell us more about dark matter distribution around LRGs and the formation of stars in the very early universe.

Distant galaxies – A team of astronomers using the 10-meter Keck telescopes in Hawaii has found the 6 most distant galaxies known, using gravitational lenses caused by massive galaxy clusters lying in front of the distant galaxies. The lensing magnifies and brightens (by a factor of 20 in these cases) the distant objects. Since they are the most distant galaxies, the light took about 13.2 billion years to get here, and we are seeing the galaxies earlier in the history of the Universe than any others yet seen. Finding 6 distant galaxies in a fairly small survey shows that galaxies were numerous even this early.

Large outer planets rare – Astronomers using adaptive optics and methane-light filters on the 8-meter Very Large Telescope in Chile and the 6.5-meter MMT in Arizona have spent 3 years attempting to image exoplanets about 54 nearby stars that were judged good candidates to have planets, and have come up empty. Any planet considerably larger than Jupiter at the same distance from its star as Jupiter is from the Sun would have shown up. Smaller planets at larger distances also would have shown up. Most of the more than 200 exoplanets known have been found by the radial velocity method, detecting the wobble in a star caused by the gravity of an orbiting planet. That method is most sensitive to very large planets very close to their stars. It has shown that planets larger than Jupiter are common very close to their stars (closer than Mercury to the Sun). This new survey was designed to determine if large planets were common farther from their stars. The answer is they are rare.

Exoplanet water vapor – 3 previous attempts to find water vapor in the atmospheres of planets that pass in front of their stars have come up with 2 failures and a trace. This worried experts in planet formation who believed gas giants should always form with substantial water. A new attempt by the Spitzer infrared space telescope has found clear spectra of water vapor in the atmosphere of the planet HD 189773b. It is a hot Jupiter, that is, a planet larger than Jupiter that is so close to its star that it is quite hot (over 1300 degrees in this case). It is 63 light-years away in Vulpecula. The planet is too hot for water vapor to condense into clouds, but other observations have shown there are clouds, so they must be of composition other than water.

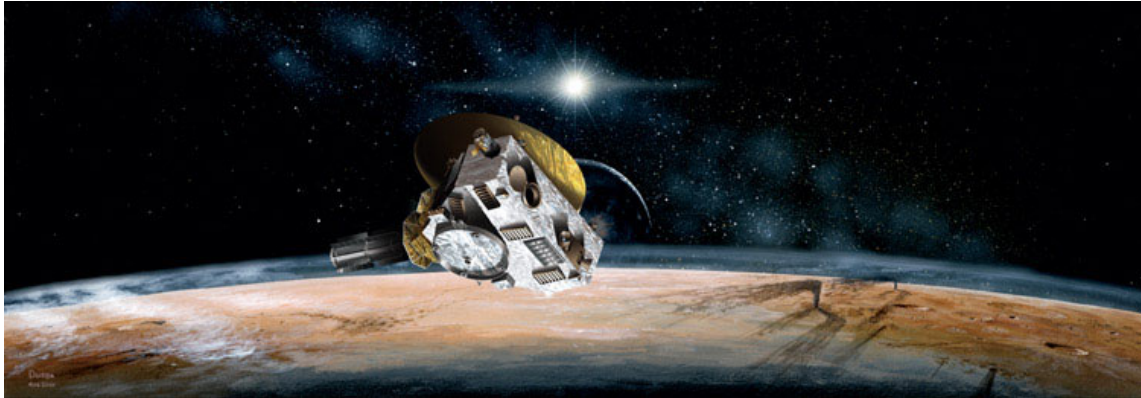
Opportunity (Mars rover) – After spending 9 months surveying much of Victoria Crater from around its rim, Opportunity is being scheduled by its controllers to descend into the crater. It will enter from Duck Bay, a scallop in the rim that has a fairly gentle slope to the bottom and much exposed bedrock, on which wheels slip less than on sand. Descent will allow investigating the compositions and textures of exposed materials in the crater's depths. As the rover travels farther down the slope, it will examine increasingly older rocks in the exposed walls. Controllers expect after exploration to be able to climb the slope to exit the crater, though there is some risk of becoming trapped. The science possible in the walls of the crater justifies the risk in the minds of the spacecraft

(continued on page 6)



Omit Needless Bytes!

by Patrick Barry and Tony Phillips



This artist's concept shows the New Horizons spacecraft during its planned encounter with Pluto and its moon, Charon. The spacecraft is currently using the Beacon Monitor system on its way to Pluto. Credit: Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute (JHUAPL/SwRI)

Now is an exciting time for space enthusiasts. In the history of the Space Age, there have never been so many missions "out there" at once. NASA has, for example, robots on Mars, satellites orbiting Mars, a spacecraft circling Saturn, probes en route to Pluto and Mercury—and four spacecraft, the two Voyagers and the two Pioneers, are exiting the solar system altogether. It's wonderful, but it is also creating a challenge.

The Deep Space Network that NASA uses to communicate with distant probes is becoming overtaxed. Status reports and data transmissions are coming in from all over the solar system—and there's only so much time to listen. Expanding the network would be expensive, so it would be nice if these probes could learn to communicate with greater brevity. But how?

Solving problems like this is why NASA created the New Millennium Program (NMP). The goal of NMP is to flight-test experimental hardware and software for future space missions. In 1998, for instance, NMP launched an experimental spacecraft called Deep Space 1 that carried a suite of new technologies, including a new kind of communication system known as Beacon Monitor. The system leverages the fact that for most of a probe's long voyage to a distant planet or asteroid or comet, it's not doing very much. There's little to report. During that time, mission scientists usually only need to know whether the spacecraft is in good health.

"If you don't need to transmit a full data stream, if you only need some basic state information, then you can use a much simpler transmission system," notes Henry Hotz, an engineer at NASA's Jet Propulsion Laboratory who worked on Beacon Monitor for Deep Space 1. So instead of beaming back complete data about the spacecraft's operation, Beacon Monitor uses sophisticated software in the probe's onboard computer to boil that data down to a single "diagnosis." It then uses a low-power antenna to transmit that diagnosis as one of four simple radio tones, signifying "all clear," "need some attention whenever you can," "need attention soon," or "I'm in big trouble—need attention right now!"

"These simple tones are much easier to detect from Earth than complex data streams, so the mission needs far less of the network's valuable time and bandwidth," says Hotz. After being tested on Deep Space 1, Beacon Monitor was approved for the New Horizons mission, currently on its way to Pluto, beaming back a simple beacon as it goes.

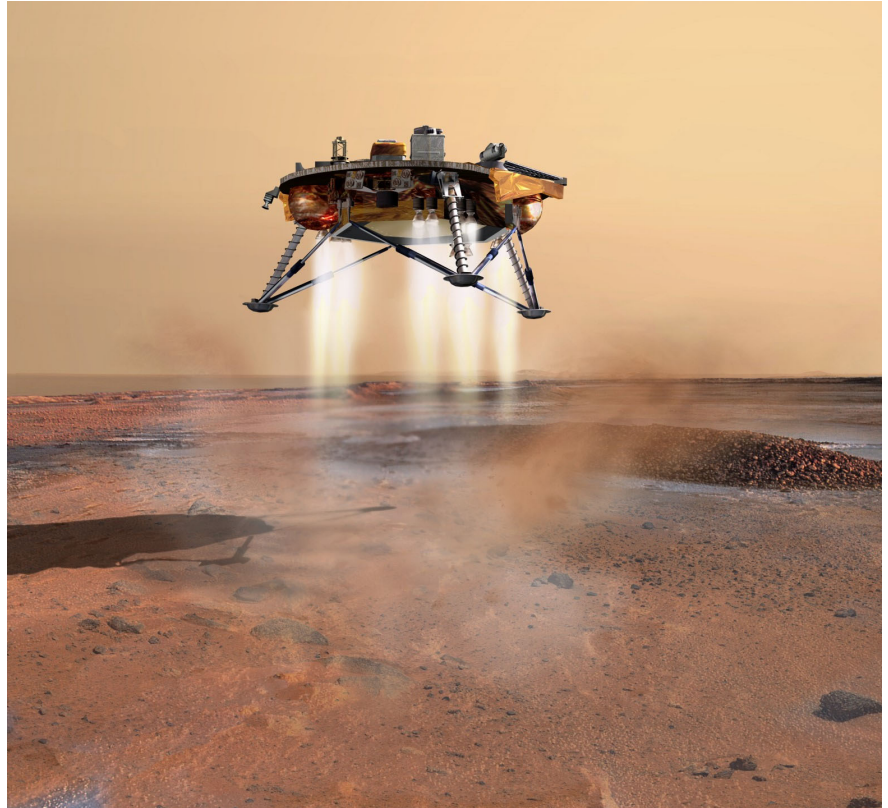
Discover more about Beacon Monitor technology, as well as other technologies, on the NMP Technology Validation Reports page, <http://nmp-techval-reports.jpl.nasa.gov>.

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

(continued from page 4)

managers. Victoria Crater is half a mile across, about five times as wide as Endurance Crater, where Opportunity spent more than six months exploring in 2004. As we go to press, entry into Victoria Crater has been delayed until the current dust storm subsides. It is the thickest atmospheric dust yet recorded by either rover, and has cut the solar panel energy nearly in half.

Phoenix Mars Lander – The launch window for Phoenix is 3 weeks beginning August 3, to land on Mars next spring. Phoenix will land in the northern polar area, but outside the ice cap, and dig in the soil to obtain samples for analysis. Though the analysis instruments are the most sophisticated of any Mars mission, the lander has no wheels, so will sample only within arm's reach (over 7 feet) of where it lands. Data from Mars Odyssey showed that ice lies within digging distance (inches) of the surface in the area where Phoenix will land. Phoenix will measure how water has affected the chemistry and mineralogy of the soil. It will also monitor the weather and take images of the surroundings, both regular and microscopic. Landing will be accomplished using heat shield, parachute, and descent rocket, but not airbags. The mission is nominally scheduled for 3 months of operation on the surface.



Artist's conception of Phoenix Mars Lander arriving at its landing site (Corby Waste/JPL)

Cassini (Saturn mission) – Observations made of the moon Hyperion show that the dark areas within its craters have the spectra of hydrocarbons. The lighter material consists of both water ice and carbon dioxide (dry) ice, with dust mixed in. There is less dry ice, and it is chemically attached to other molecules, which was not expected. The chemical attachment probably prevents the dry ice from being vaporized, which sunlight should have done by now to exposed dry ice. Hyperion's mass was measured, and it is surprisingly small for its size, having only slightly more than half the density of water. Initially the strange sponge-like appearance of the moon was explained as a result of the dark matter in the craters heating and deepening craters. But the new mass and density measurements provide what appears to be a better explanation. The craters probably formed deep at impact due to the very low density of the surface. Also more material blasted out by impacts escapes rather than falling back, due to the low mass and therefore surface gravity, making craters differently shaped than on other moons.

Lunar experiments – NASA has selected 7 proposals to be pursued as instrument packages to be deployed on the Moon when we return astronauts there. They include a retroreflector package (similar to those from the Apollo landings), a mass spectrometer to analyze lunar soil, a seismometer for moonquakes and heat flow analyzer, radiation detection and radiation shielding experiment, lunar soil characterization kit, and lunar dust observation.

Transient Lunar Phenomena (TLPs) are short-lived changes in brightness, sharpness or color seen or imaged in features on the Moon. The existence of TLPs is quite controversial, since the observations are not repeatable and are subject to atmospheric effects near the observer, and the Moon should not be volcanically active enough to cause TLPs. New statistical research has shown that TLP observations correlate strongly with releases of radon gas detected by the Apollo 15 and Lunar Prospector spacecraft. The authors of the research

are building cameras that will automatically monitor the Moon from Earth-based locations to try to prove the existence of TLPs.

Dawn (asteroid mission) has had its launch postponed until September, due to various problems, mostly with weather and availability of the launch site, not with the spacecraft or launch rocket. Dawn will orbit asteroid Vesta for 7 months starting in late 2011, then move on to orbit Ceres starting in early 2015. Orbiting 2 different targets has never been done before, and is only possible due to the use of fuel-efficient ion engines. Telescopic observations of Vesta and studies of meteorites believed to have come from Vesta suggest that the asteroid became partially molten early in its history, allowing heavy elements like iron to sink to form a core. But theoretically formation of a body this size should not have produced that much heat. Possibly radioactive elements from a nearby supernova could have produced such heat. It is hoped that Dawn will help to resolve this and other mysteries about Vesta. Instruments on Dawn will measure minerals and elements on the surface, map the gravitational field, and image the surface. Ceres is by far the largest object in the asteroid belt. Due to its known spherical shape (most smaller asteroids appear to be irregularly shaped), it was promoted to dwarf planet by the same IAU action that demoted Pluto to dwarf planet. From its mass, Ceres probably has a layer of water ice 35-70 miles thick. It is hoped that Dawn will shed light on why Ceres has so much water, while Vesta is bone dry.

Barbara Morgan, who began training to go into space in 1985, is scheduled to finally make it into space on August 7 aboard the shuttle Endeavour. She was backup for Christa McAuliffe and was expected to follow her as the second Teacher in Space. That program was canceled after the Challenger disaster. Morgan later applied to become a mission specialist astronaut and was accepted in 1998. She plans education-related activities during the mission (in addition to regular mission specialist duties, such as running the shuttle arm), in effect carrying out her original Teacher in Space plan.



Astronaut Barbara Morgan (NASA/JSC)

Instant AstroSpace Updates

Spirit (Mars rover) has experienced a cleaning due to a strong gust of wind, raising the daily output of its solar panels from 450 to over 600 watt-hours. Opportunity, the other rover, has experienced lots of wind, and has for some time been running at 850 watt-hours, indicating very clean solar panels.

Two supernovas, 2007 ck (a type II) and 2007 co (a type Ia), have been discovered just 16 days apart in the same galaxy, MCG +05-43-16, which is 380 million light-years away. This is by far the closest in time 2 supernovas have been found in any one galaxy.

Scientists using Polar and other spacecraft have determined that electrons in the Van Allen **radiation belts** about the Earth accelerate to very high speeds only where there are electromagnetic waves (light, etc.) While this does not pin down exactly how this long-unexplained acceleration occurs, it does rule out most theories.

AKARI (Japanese infrared space observatory) has in the year since its launch surveyed nearly the entire sky in 6 infrared wavelength bands. It has several times better resolution than the last all-sky infrared survey made by IRAS more than 20 years ago.

A preliminary prototype of **Eurobot** has been tested in a water tank to simulate zero-gravity. The final version will be used on the International Space Station to assist spacewalking astronauts and move or repair objects outside on its own, controlled from inside.

(continued on page 11)

(continued from page 3)

person to a medical facility where anti-venom can be administered as quickly as possible, as the faster the person gets the anti-venom the more effective it will be. As the article says, "tourniquets, ice packs, and cutting the bite open are not recommended and are dangerous," so don't try those. Alcohol and caffeine should be avoided. The good news is that the chances of a full recovery are good if the person gets anti-venom treatment promptly.

We have working telephones at Anza House and the club observatory, which you can use to call 911, and there are fire stations in the town of Anza and in Weeping Springs that can provide paramedic assistance. Cellphone coverage tends to be spotty at the Anza site, so it's a good idea to be aware of the location of the two on-site telephones in case of need. As to hospital/Emergency Room facilities, it appears that the ones closest to our site currently are:

Inland Valley Medical Center
36485 Inland Valley Drive
Wildomar, CA 92595
(951) 677-1111

Rancho Springs Medical Center
25500 Medical Center Drive
Murrieta, CA 92562
(951) 696-6000

Prevention, of course, is much better than having to deal with the effects of a bite. Snakes hunt at night, but they also generally will try to get away from you if they have enough warning that you are there. Be aware of the ground around you while you are moving around any dark site, stick to established paths and roadways, which tend to have fewer hiding places for snakes and other critters than adjoining brushy areas, and consider wearing clothing that would provide more protection from a bite, such as closed shoes and long pants.

(continued on page 10)

Viewing Through the Mt. Wilson 60

Hassi Norlen and Dick Greenwald



View and image through the world famous 60-inch telescope on close-by Mt. Wilson! This is one of the largest telescopes in the world that you can still view "live" through the eyepiece. The large aperture and resolving power provide spectacular detail and high magnification. Although high above Pasadena and not as dark as it used to be, Mt. Wilson still enjoys excellent "seeing" because of the very stable air that flows in from the Pacific. The telescope aperture is so large and objects so bright that even "snapshot" cameras can capture spectacular images with hand-held exposures.

The OCA rents the 60-inch telescope from Mt. Wilson for a whole night. Mt. Wilson personnel operate the telescope but objects viewed are the choice of the observers. The cost is divided by the number of people that attend. A small group of 12 observers is \$100/person. A larger group of 20 observers is \$60/person. No down payment is required to make a reservation. Payment by check is due one month prior to the observing session once the number of people is known. There is a full refund if the night is cloudy or if the session is cancelled for some other reason.

Only a limited number of spaces are available so make reservations early. Members may bring guests. Children must be at least 16 years old. For information or to make reservations contact Dick Greenwald at dickgreenwald.astro@earthlink.net.

What have you been doing in the Dark?

Have you been doing a project that other OCA members would be interested in learning about? Have you participated in an astronomical activity that would entertain the other OCA'ers? For example, perhaps you have:

- Taken an astronomically-oriented expedition (stargazing at Lake Titicaca?)
- Made a telescope or an optical instrument (a handicap-friendly telescope?)
- Conducted a research project or astronomical investigation (photometry? double-stars? spectroscopy?)
- Exposed the stars at a unique "outreach" venue
- Made an unusual observation (anyone discover a supernova or asteroid?)
- Participated in a special activity by one of our Special Interest Groups (visited a major observatory? Used a remotely-operated telescope?)

If you have, then it's time to start thinking about your presentation for the "Member's Night" December OCA Meeting. Don't keep it to yourself: Inquiring minds will want to know what you've been doing in the dark!

The OCA is filled with inventive people doing new, intriguing, and wonderful things. We'd be delighted if you would present a 10-15 minute description of one of your astronomical activities at the December OCA meeting. To add your name to the presenter's list, please contact Craig Bobchin by e-mail at ETX_Astro_Boy@sbcglobal.net



Two views of Venus taken from Oceanside, CA using an LX10 at f/18 with a Philips TouCam by Marc Huber, May 31, 2004

FOR SALE: Celestron CR 150hd Dual Axis Drive CG5 Mount. New motors and hand controller; roll-about hard case. Nice condition. \$750.00

Meade LX200 8 inch Schmidt Newtonian. Recent complete service by Meade, new Autostar, etc. Roll-about hard case. Nice condition. \$800.00

Contact Steve Bird 562 234-2157

FOR SALE: Meade 8-inch LX200 GPS w/all factory accessories; aluminum channel tripod w/pneumatic tires. Contact Bob Krause at 949-248-3111



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(continued from page 7)

I don't know of any person who's been bitten at any of our dark sites over the years, so don't let concern about wildlife stop you from enjoying our dark sites. However – please do be careful and attentive to the dangers posed by wildlife in these areas – the danger is real, as Bill's poor dog knows all too well!

Parking at Chapman University

In case you haven't yet gotten the word, Chapman University has changed its rules on parking during our general meetings. While they may be a bit more relaxed about enforcing the new rules during summer break, we fully expect that they will actively enforce them once the new school year starts.

To park on campus, you now need to display a permit on your dashboard. These are free, and the current permit is good for the rest of the year. You can download a copy from our website or pick one up at the next general meeting – thanks to Charlie Oostdyk, we have copies available at the table down at the front of the auditorium with maps showing where we can park on the back, because we are also now restricted as to where we can park on campus.

There are two parking structures we can use, the closer of which is located under the athletic field near the corner of Center Street and Walnut, very close to the surface lot where many members have parked in the past. You enter that lot from Walnut – the entrance is well-marked and easy to find. If you park near the south end of the lot by the stairs, you will find that the walk to the auditorium is about the same as from the surface lot next to the athletic field.

If you park on the street on the side next to the campus, you don't need a permit, but that parking is very limited. If you have a "handicapped" sticker, you can park in the handicapped spots next to the auditorium, but you still need to put the permit on your dashboard so the parking people know you have permission to be there.

Several people have expressed distress over this change, but the main difference for most of us is that we will be parking in a well-lighted underground area instead of a well-lighted aboveground area for the meetings. The people who will find it least convenient are those like Karen Schnabel and Charlie Oostdyk who generally bring a lot of bulky or heavy items to the meetings. Fortunately, there doesn't seem to be a problem with parking temporarily in the lot next to the auditorium to load and unload, which will help.

We are truly grateful to Chapman University for allowing us to use the Irvine Auditorium and their equipment for our meetings. One way we can show our gratitude is by graciously complying with the few requests that the university makes of us, even if we don't understand the reasoning behind them and even if we notice that the lots where we parked in the past are empty during many of our meetings.

Plea for Return of a Beige Towel

Visitors to the club Observatory at Anza may have noticed that we have actual cloth towels in the restroom, which is our partial answer to the problem of reducing trash in an area with no trash service. As the Observatory Custodian, I maintain the sets of towels used for this – there are four sets, one in light blue, one in dark blue, and two that are beige/light brown. Each set has two bath towels and a hand towel, and the combination has been working well to meet the needs of those using the observatory restroom, even on busy weekends. I also have some miscellaneous towels that don't match any of the sets and are pretty well worn, which I use for emergency backups. My general practice is to change out whatever set is in the restroom with fresh towels on the morning after the star parties as well as at the end of any other weekend when I am out at Anza, and I change them during busy nights if I see that they are getting dirty – so I do need all four sets.

Well, I'm sorry to report that someone "borrowed" one of my beige bath-sized towels sometime during the June star party, which I discovered when I went to change the towels the following morning. I hoped that this was a temporary oversight, and that the person responsible would return the towel, ideally in a clean condition, but so far that has not happened. So I'm issuing a plea for return of the missing towel, which is fairly nondescript on its own, but which matches the other towels in that set and whose absence is very much felt. Whoever has it

can return it anonymously, and it doesn't even have to be clean – I just need the towel back for the observatory.

And, if anyone knows anything about what happened to the towel, please do let me know. If I have to hunt it down, that just might be the topic of a future column...

Happy August, and clear skies to all of you!

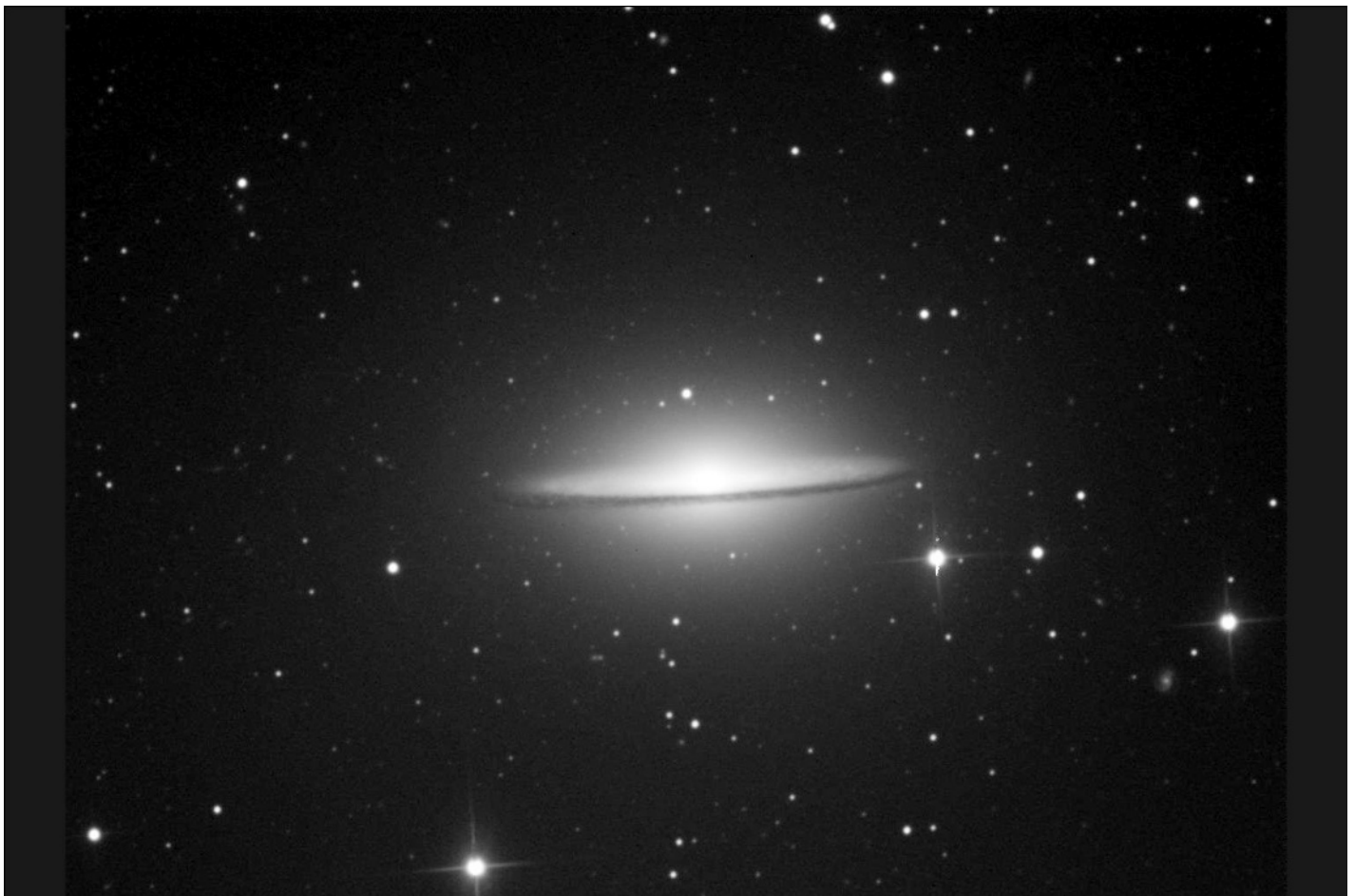
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Space Shuttle Atlantis landed June 22 at Edwards in California after weather delays at the primary Florida landing site, and was a few days later returned to Cape Canaveral by its modified 747 carrier aircraft. Did you hear the double sonic boom announcing Atlantis's arrival about 12:45?

NASA signed a contract with Energia in Korolev, Russia, to supply various software and hardware items for the **International Space Station**, including a Russian zero-gravity toilet, deemed necessary for the planned crew of 6, rather than the present crew of 3.

NASA has created a new office to administer programs to study such exotic phenomena as dark energy, black holes and the cosmic microwave background. It is known as the **Beyond Einstein** Program Office, and will handle the planned LISA gravitational wave spacecraft, Constellation-X to study material falling into black holes, and others.

Bigelow Aerospace company has successfully launched **Genesis II**, a scaled-down prototype of an inflatable space hotel. They hope to house space tourists by 2015.



The Sombrero Galaxy, M104, as taken by Dan Bonis during the January 2006 Anza star party. Dan used a 16-inch f/5.5 Newtonian with an ST8E imager and 40 minute exposure.

**NEWSLETTER OF THE
ORANGE COUNTY ASTRONOMERS
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