

Sonoma Skies

Newsletter of the Sonoma County Astronomical Society
A nonprofit scientific and educational organization
www.sonomaskies.org



August 2005

Volume XXVIII No. 7

Hot Time at Yosemite

by Keith Payea

Unlike two years ago when we were rained out at our annual trip to Yosemite, this year the weather was nice—maybe too nice! I left Santa Rosa by 6:00 AM to get to across the hottest parts of the central valley in the cool of the morning. When I stopped for coffee around 8:00, even the locals at Starbucks were remarking about the heat. Sure enough, the temperature climbed steadily as



Photo by Len Nelson

Rachel and Adam Lochman

I headed east, despite the fact that I was also gaining altitude rapidly. I reached Bridalveil Creek Campground at around 11:00 AM. I didn't have a thermometer, but we were all working hard to find the shadiest spot possible. Reports from Yosemite Valley had the temperature at above 100 degrees. It was surely around 90 at our higher elevation.

All afternoon, clouds came and went, fueling speculation about the sky conditions for the coming evening. We all headed out to Glacier Point around 7:00 PM. By then the sky was clear, if a bit hazy. We couldn't see any climbers on Half Dome through our telescopes as we set up, but Nevada Falls was thundering away. It looked great even when seen upside down.

The Moon and Jupiter were our early targets, until the summer triangle appeared when the sky darkened. With the Moon and the hazy skies, most deep sky objects were a bit disappointing. However, the visitors were very happy with the closer, brighter objects we were able to show them. It was warm all evening. I wore shorts and a t-shirt right through until the sky clouded over at around 11:00 PM.

On Saturday, everyone headed off to explore or relax. Larry and Len tried out the swimming holes in Bridalveil Creek nearby—

(continued Page 7)



Folks and scopes from last year's gathering

SCAS Star-B-Que

SCAS August 6 Gathering
at the Robert Ferguson Observatory

Come to the SCAS Annual Star-B-Que at the Robert Ferguson Observatory in Sugarloaf Ridge State Park! Get to know your fellow astronomers and their families in daylight! After dark there will be a sky tour, pointing out the different constellations and many interesting features and names in our Summer Sky.

It's a good time for beginners to get help learning the sky or using a telescope. Striking Sparks winners can get help adjusting their new telescopes. Bring your scope and its instruction manual, your planisphere, and a list of questions you'd like to ask.

Times and what to bring: We are allowed in at noon. Solar viewing will begin at 2 PM. The barbecue fire will be started about 5 PM so we can begin cooking around 6 PM. SCAS will provide the barbecue fire and marshmallows. You bring food to barbecue, a favorite potluck dish to share, other food, drinks, plates and utensils, red cellophane for your flashlight, and a measure of good cheer.

To camp overnight: Immediately around the Observatory is the Group Campground parking area, campsites, running water, large barbecue pits, and outhouses. You may camp overnight (no RV hookups). Everyone must leave by noon Sunday. Please remember the Star-B-Que is for SCAS and YA members, Striking Sparks winners, their families and a few guests.

Directions to Sugarloaf Ridge State Park: Take Hwy. 12 from Santa Rosa toward Sonoma. Turn left onto Adobe Canyon

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Young Astronomers: See page 6

REMINDER

There will be no SCAS Meeting in August
at Proctor Terrace School.

Sonoma Skies

Sonoma Skies is the monthly newsletter of the **Sonoma County Astronomical Society (SCAS)**. Subscription is included as part of membership. Articles and member announcements are welcome and are published on a first come, first served basis, space permitting, and may be edited. **The deadline for submissions is the last Wednesday of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email Editor: Cecelia Yarnell, ceceliay@sbglobal.net

SCAS Membership Information

MEMBERSHIP MEETINGS: 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School on Bryden Lane near Fourth Street in Santa Rosa, unless otherwise announced in this publication. The public is invited.

DUES: \$25, renewable June 1 of each year. New members joining between December 1 and May 31 may pay partial-year dues of \$12.50.

SCAS STAR PARTIES: See the Events section for dates and times. The Geysers observing site is locked to public access. For use during monthly star parties, SCAS members may obtain the combination to the gate lock at the site by contacting any board member listed below.

RENTAL TELESCOPES: Members are eligible to borrow telescopes for a \$10 per month donation, or **FREE** each month you participate in a SCAS-related Public Star Party. Five telescopes are available: 8" and 5" Celestron SCTs, 8" and 12.5" Newtonians on Dobsonian mounts; and an 80mm refractor. Contact Joan Thornton at 707-762-0594.

SCAS EGROUPE URL: Any SCAS member is welcome to join. Hosted by Robert Leyland at r.leyland@verizon.net the majority of traffic is about going observing, observing reports and astronomy-related news. We get news items from AANC and Sky & Telescope and chat about astronomy. To join, either visit <http://groups.yahoo.com/group/scas> and click the "Join" button, or send an email to scas_subscribe@yahoo.com

DISCOUNT SUBSCRIPTIONS: For *Sky & Telescope Magazine*, new subscribers may send a check for \$32.95 payable to "SCAS", with your complete mailing address, directly to: Larry McCune, 544 Thyme Place, San Rafael, CA 94903. For renewals, send him your check with the completed renewal card and return envelope. Discount subscriptions to *Astronomy Magazine* occur annually in October. Check *Sonoma Skies* for details.

LIBRARY: SCAS Librarian Joan Thornton hosts a library of astronomy books that may be checked out by members at SCAS meetings, to be returned at the next meeting. Videotaped lectures on astronomy may be rented for \$3 per month.

SCAS Elected Board

President: Keith Payea, 566-8935, kpayea@bryantlabs.net

Vice-President & Program Director: John Whitehouse, 539-5549, jmw@sonic.net

Treasurer: Larry McCune, (415)492-1426, llmcune@comcast.net

Secretary: Loren Cooper, 525-8737, lorenco@sonic.net

Membership Director: Walt Bodley, 823-5268, wbodley@sonic.net

Community Activities Director: Len Nelson, 763-8007, lennelsn@comcast.net

Publications Director: Cecelia Yarnell, 569-9663, ceceliay@sbglobal.net

SCAS Appointed Positions

Amateur Telescope Making: Steve Follett, 542-1561, stollett@sonic.net

Young Astronomers Advisor: Gary Jordan, 829-5288, SieraMolly@aol.com

Striking Sparks Program Coordinator: Dickson Yeager, 539-2385, deep6@sonic.net

Librarian: Joan Thornton, 762-0594, phonyjoanie@earthlink.net

Public Star Party Coordinator: Bruce Lotz, 576-7833, ablotz@sonic.net

www.sonomaskies.org

Striking Sparks, a New Direction

by Dickson Yeager

The membership present at the July 13 meeting unanimously approved the Board's decision to purchase telescopes for the 2006 and future Striking Sparks programs. The vote occurred after worthwhile discussion on the topic and related issues. One good suggestion was to bring a returned Striking Sparks telescope to School star parties for students to operate on their own with adult guidance. Other ideas included lending returned telescopes to schools. Several expressed interest in a program that would provide guidance to those wishing to grind a mirror. There was concern that it not become a lost skill. I also want to thank the members that emailed me with their comments and ideas.

Since the meeting we have begun the search for a commercially-made 6" reflector for the 2006 Striking Sparks program. Len Nelson and I visited Orion Telescopes in Cupertino and Scope City in San Francisco on July 20. We are finding there is not a lot to choose from. Scope City had a Celestron on display. Sam Sweiss, store manager, said Meade is planning on having a 6" telescope by year-end. Sam is talking to both Celestron and Meade about our program and is certain he can get us a good discount. So far, I believe, Orion has the best scope. Their optics are very good, as are the design and finish. We are discussing pricing with them and are in hopes of getting a good price. We had hoped to include Hardin Telescopes, but they are going out of the telescope business. I will keep the club posted on the progress. I will appreciate membership input as we proceed.

March 2006 sounds like a long way away off right now, but it will be here before we know it. So it's not too early for each of you to consider how you may want to participate in the program, both between now and March and at the event. I'll mention some ideas I have next month.



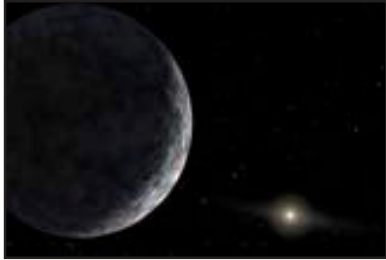
SHINGLETOWN SCENES

Many of you know Sam Sweiss, who runs Scope City in San Francisco and sponsors many astronomy events and clubs in the Bay Area. Upon returning from Shingletown he forwarded these great photos.



TENTH PLANET DISCOVERED

Astronomers have discovered an object in our solar system that is larger than Pluto. It is the first time an object so big has been found in our solar system since the discovery of Pluto 75 years ago. The announcement, made July 29 by Mike Brown of Caltech, came just hours after another newfound object, one slightly smaller than Pluto, was revealed in a very confusing day for astronomers and the media.



The new object, temporarily named 2003 UB313, is about three times as far from the Sun as is Pluto (about 97 AU). "It's definitely bigger than Pluto," said Brown, a professor of planetary astronomy. The object is

round and could be up to twice as large as Pluto, Brown told reporters in a hastily called NASA-run teleconference Friday evening. His best estimate is that it is 2,100 miles wide, about 1-1/2 times the diameter of Pluto.

The object is inclined by a whopping 45 degrees to the main plane of the solar system, where most of the other planets orbit. That's why it eluded discovery: nobody was looking there until now, Brown said.

It was found using the Samuel Oschin Telescope at Palomar Observatory. Backyard astronomers with large telescopes, some experience and a map may be able to spot 2003 UB313. Brown said it will be a very exciting object to explore since professionals and amateurs both have access to it. It will be visible over the next six months and is currently almost directly overhead in the early-morning eastern sky, in the constellation Cetus.

Some astronomers view it as a Kuiper Belt object and not a planet. The Kuiper Belt is a region of frozen objects beyond Neptune. Pluto is called a Kuiper Belt object by many astronomers. Brown himself has argued in the past for Pluto's demotion from planet status, because of its diminutive size and eccentric and inclined orbit.

But now he says: "Pluto has been a planet for so long that the world is comfortable with that," Brown said in the teleconference. "It seems to me a logical extension that anything bigger than Pluto and farther out is a planet."

Offering additional justification, Brown said 2003 UB313 appears to be surfaced with methane ice, as is Pluto. That's not the case with other large Kuiper Belt objects, however. "This object is in a class very much like Pluto," he said.

NASA effectively endorsed the idea in an official statement that referred to 2003 UB313 as the 10th planet.

Alan Boss, a planet-formation theorist at the Carnegie Institution of Washington, called the discovery "a major step." But Boss would not call it a planet at all. Instead, he said Pluto and other small objects beyond Neptune should be called, at best, "Kuiper Belt planets." "This discovery will likely re-ignite a healthy debate about what is and what is not a planet," Boss said.

Alan Stern, of the Southwest Research Institute and leader of NASA's New Horizons mission to Pluto, predicted in the early

The
Semi-
Astronomer
S
S

by
Herb
Larsen



Kinda, looks like
we'll have to revamp our
anti-missile program, doesn't it!

SCOPE CITY New Member Bonus!

Scope City at 350 Bay Street, San Francisco, is offering a **\$25 merchandise discount to new members.**

Manager Sam Sweiss has supported SCAS and the Striking Sparks project by donating merchandise for the awards. He offers a huge selection of telescopes, accessories and more.

Obtain a receipt from Walt Bodley, Membership Director, showing you have paid the \$25 SCAS membership dues. To arrange for your merchandise discount, contact Sam at 415/421-8800 or at sanfrancisco@scopecity.com

1990s that there would be 1,000 Plutos out there. He has also contended, based on computer modeling, that there should be Mars-sized worlds hidden in the far corners of our solar system and even possibly other worlds as large as Earth.

Stern sees the outer solar system as an attic full of undiscovered objects. "Now we have the technology to see them," he said. "We're just barely scratching the surface."

—excerpted from an article by Robert Roy Britt, Senior Staff Writer;
Article and art courtesy Space.com

SOCIAL AMENITIES

Thanks to Matt Gardner for again providing refreshments at the July SCAS meeting. September remains open, so if you'd like to volunteer please call or email Cecelia Yarnell.

Events

ROBERT H. FERGUSON OBSERVATORY

Perseid Meteor Shower, August 11

General Observing beginning 9 PM. Waxing crescent moon sets 11:16 PM. Meteors peak between 2:00 and 5:00 AM

Public Viewing: Saturday, August 27

Solar Viewing: 12:00 AM - 4:00 PM

Night Viewing: Begins 9:00 PM

The Observatory: Three scopes are operating: The 14-inch SCT with CCD camera in the East wing, the 8-inch refractor under the dome and the 24-inch Dobsonian in the West wing. No admission fee for the solar viewing, but donations are appreciated. The Park charges \$6 per vehicle for entry. A \$2 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions.

SCAS members may set up telescopes in the observatory parking lot to assist with public viewing. Auto access closes at dusk, late arrivals must carry equipment from the horse stable parking area.

Classes

- Aug. 28 Observing Lab, 8:00 PM
- Aug. 30 Night Sky Summer Series, 7:30 PM
- Sept. 1 Intro to Astronomy & Observing, 7:00 PM
- Sept. 8 Intro to Astronomy & Observing, 7:00 PM

Classes are held at the Observatory. Reservations recommended. Info: (707) 833-6979, <http://www.rfo.org> or email nightsky@rfo.org

MT. TAMALPAIS ASTRONOMY

Saturday, August 13, 8:00 PM

Is there any evidence for the universal formation of life throughout the cosmos? Dr. Emma Bakes from NASA-Ames Research Center and the SETI Institute will present "Exploring the Meaning of Life" at our August 13 event sponsored by the Mt Tamalpais State Park and coordinated by volunteers of the Mt Tam Interpretive Association. All programs are FREE and open to the public. Families and students encouraged to come.

Presentations held in the Mountain Theatre. Viewing afterwards in Rock Springs Parking Area, provided by San Francisco Amateur Astronomers. Dress warmly and car pool if possible. Bring a flashlight!

Weather hotline: 415/289-6636; Info: <http://www.mttam.net/>

SSU OBSERVATORY PUBLIC VIEWING

August 26—9 PM: Lagoon, Trifid and Bubble Nebulae

Observatory located inside the football field at the SE corner of campus (E. Cotati Ave. and Petaluma Hill Rd., two miles east of US 101 at Cotati). Follow signs to campus. Call 707/664-2267 before coming if it appears weather may force cancellation. <http://www.phys-astro.sonoma.edu/observatory/pvn.html>

SCAS PUBLIC STAR PARTIES

These are public events—all are invited. Members with scopes are encouraged to attend.* Great for planetary astronomy with fellow observers at an easily accessible site.

SATURDAY, AUGUST 13

Sunset: 8:07 PM PDT

End Astronomical Twilight: 9:46 PM PDT

Moonset: 12:26 AM PDT 8/14

SANTA ROSA: Youth Community Park in Santa Rosa, on the west side of Fulton Road, between Guerneville Road and Piner Road, just opposite Piner High School. Contact: Bruce Lotz, Coordinator (707) 576-7833, ablotz@sonic.net

HEALDSBURG: Corner of Healdsburg Ave. and North St., one block north of the Plaza, between 8:00 and 11:00 PM. Contact Bob Schalck at bob.schalck@jdsu.com

***Note!** The Healdsburg group has been getting 200 people and needs help! Bring your scope, or borrow one listed on Page 2 for *free* each month you participate.

ASP ASTRONOMICAL TOURS

Join the ASP on astronomical tours to points around the world.

Sept. 25 - Oct. 6, 2005: Annular Eclipse from the Sahara Sands.

12-day trip to the Sahara where clear dark skies will present perfect night time viewing and a spectacular viewing of the Annular Eclipse. Travel highlights include the Oasis of Gabes, 14th century town of Tozeur, the Great Mosque in the 9th century capital Kairouan, the Bardo Museum in Tunis, and more.

Mar. 21 - Apr. 1, 2006: The Great Caravanserais Total Solar Eclipse. Tour through Istanbul, along the Old Silk Road, and experience the total eclipse as it passes across the Homeric coastline at the ancient archeological site of Side. Dr. Chris McKay, noted astronomer and Mars scientist, joins us as lecturer. Marvel at the lunar landscape of Cappadocia and the shrine of the Whirling Dervishes in Konya (Iconium).

Mar. 23 - Apr. 6, 2006: The Great Desert Total Solar Eclipse & Nile Voyage. Experience a total solar eclipse and the wonders of ancient Egypt in a memorable two-week trip. Excellent weather prospects and a mid-day eclipse lasting nearly four minutes. Includes visits to



Photo Courtesy of Melita Thorpe

Cairo and the National Museum, the Pyramids of Giza, and Alexandria, plus a 4-day luxury cruise up the Nile River. Dr. Alex Filippenko and Mike Bennett will keep you fully informed about both modern eclipse watching and ancient astronomy.

Book soon—space is limited. Info: <http://www.astrosociety.org/events/tours.html>

Events

THE GEYSERS STAR PARTIES

Excellent dark sky observing at ~2700' for members and guests.

Location: Palmieri Observatory, Mercuryville (near The Geysers). Longitude: 122deg 49min., Latitude: 38deg 46min.

SATURDAY, AUGUST 6

Sunset: 8:15 PM PDT

End Astronomical Twilight: 9:57 PM PDT

Moonset: 9:26 PM PDT

NOTE: Hunting season begins August 13 through Sept. 25. This year it doesn't interfere with the August star party, but there will be NO Geysers star party in September.

Dress warm. If it's your first time to the Geyser site, go with someone who has gone before, or contact Mario Zelaya at (707) 539-6423, zelayadesigns@sbcglobal.net

SQUAW VALLEY

Perseid Meteor Shower Overnight Camp-Out August 12

Camp under the stars and watch the night sky light-up at the best viewing location in Lake Tahoe, Squaw Valley USA's High Camp el. 8,200' at the top of the cable car. This is an extremely dark location, so bring warm clothing, blankets, telescopes, binoculars, chaise lounges, and enjoy the show. If you don't have an instrument, not to worry, as they will be available for viewing. There will be a professional astronomer to answer questions.

Reservations required by August 5. \$30 adults, \$25 juniors, \$15 children, limited to 50 guests maximum. No dogs. Info: <http://www.squaw.com/summer/html/meteorcampout.html> or call 530/581-7110 to register

LICK OBSERVATORY

August 12 & 13, 8:00 PM—Public viewing through 36-inch refractor and 40-inch reflector. Two speakers. 408-274-5061

Music of the Spheres Concerts: Lick Observatory presents a summer concert series to benefit the Lick Observatory Visitors Program. Seating begins 1/2 hour before the concert. Talks by our famous research astronomers begin right after the music. Viewing through the 36-inch telescope follows. Amateur astronomer volunteers provide additional outside viewing. Not advisable for children under ten years old.

Aug. 26 (Friday) 7:30 PM: "Great Guitars" - Franco Morone plays fingerstyle guitar. **Talk:** Laurance Doyle, "Remote Detection of Life in the Universe"

Aug. 27 (Saturday) 7:30 PM: "Great Guitars" - Chris Proctor, U.S. Fingerstyle Champion plays steel string. **Talk:** Greg Laughlin, "The Future of the Solar System"

Tickets: Only 160 seats are available each night. Concerts sell out quickly. Information : <http://www.ucolick.org/public/music.html> See all Lick programs at www.ucolick.org

AANC-CON 2005

Conference and Workshops August 27, beginning 10 AM

Randall Museum, 199 Museum Way, San Francisco

This year's theme is "Celebrating Bay Area Astronomy" with an impressive lineup of speakers and activities. We will also be celebrating John Dobson's 90th birthday!

Speakers include Timothy Ferris, Lynette Cook, Steve Gottlieb and Richard Crisp; with additional presentations by Bob Schalck and ASP's Marni Berendsen. The \$25 registration fee includes all speakers, workshops and lunch. At the evening Star Party the 2005 awards will be presented. Since lunch is included, please register soon so your hosts can prepare!

Hosted by the San Francisco Sidewalk Astronomers, and sponsored by AANC and the Western Amateur Astronomers. Info and registration: http://www.planitarium.net/aanc/aanc-con2005/program_guide/ or aancregistration@pacbell.net

UC BERKELEY ASTROPHYSICS CLUB

Institute for Particle Astrophysics Journal Club Seminars

The following Journal Club schedule for the Institute for Nuclear and Particle Astrophysics is tentative. The seminar becomes final usually a few days before the Friday of the talk!

Aug. 12—John Orrell (PNNL) Topic TBA

Aug. 19—Nikolai Tolich (LBNL/INPA) Speaking on a new measurement by KamLAND of geologically produced neutrinos (geoneutrinos)

Seminars are on Fridays (unless otherwise noted) and start at 12:00 Noon with a brief presentation of the weekly scientific news. Talks end by 13:00. Location: Bldg. 50, room 5026 (the INPA common room), Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., Berkeley. Info: Vitaliy Fadeyev VAFadeyev@lbl.gov. To read abstracts on the talks, visit: <http://stokstad.lbl.gov/INPA/journalclub.html#aboutjclub>

CHABOT SPACE & SCIENCE CENTER

August 6, 7:00 PM—The Grand Tour—A Traveler's Guide to the Solar System



William K. Hartmann, internationally known scientist, writer, painter, and winner of the first Carl Sagan Medal from the American Astronomical Society, will take you on a dazzling journey that combines lush art and up-to-the-minute science. His book features over 150 new, breathtaking, paintings that put you

where no human has gone before. Combined with the latest satellite photographs, they provide the most complete and colorful portrait ever of our immense solar system.

Lectures are held in the Tien MegaDome Theater. Tickets are \$7 nonmember/\$6 member. Call 510/336-7373. Advance purchase recommended. <http://www.chabotspace.org>

Young Astronomers



In this illustration, an artist imagines what the view might be like if a newly discovered planet in a system containing three stars happened to have a moon.

World of Three Suns

Astronomers have discovered a planet in the Milky Way galaxy that has three suns. It's weird enough trying to imagine three suns in the sky at once. Scientists are having a hard time explaining how such a planet could exist in the first place.

Astronomers from the California Institute of Technology recently spotted the planet, which is similar in size and composition to Jupiter. The new object orbits one star that lies close to two other stars. Together, the sun trio is called HD 188753. There are lots of star groups in the galaxy, but scientists have long thought it impossible for planets to form near groups in which stars are bunched very close together. Huge planets, such as Jupiter (which is about 300 times heavier than Earth), normally form out of swirling disks of gas, dust, and ice. However, the heat and strong gravity of three nearby suns would probably prevent such a process from occurring.

The Caltech researchers initially hypothesized that the newly discovered planet formed as much as three times farther away from its sun as Earth is from our sun. This theory runs into problems, however. The stars in HD 188753 lie so close together (about as far apart as Saturn and our sun) that their gravity wouldn't allow room for the planet. Now, scientists are looking for other ways to explain this odd phenomenon. As they do, astronomers are getting ready for a new search. There might be many more planets out there near pairs, trios, or even larger star systems long thought to be without planets.—*E. Sohn*

Editor's Note: See an animation of three suns setting at http://planetquest.jpl.nasa.gov/pq_movies/trinary_sunset-low.mov



NOAA-18, the newest in a long line of weather and environmental satellites, launched May 20, 2005.

Newest Weather Sentry Takes Up Watch

by Patrick L. Barry

Today, we've become accustomed to seeing images of the Earth's swirling atmosphere from space every night on the evening news. Before 1960, no one had ever seen such images. The first-ever weather satellite was launched that year, kicking off a long line of weather satellites that have kept a continuous watch on our planet's fickle atmosphere—45 years and counting! The high-quality, extended weather forecasts that these satellites make possible have become an indispensable part of our modern society, helping commercial aircraft, recreational boaters, and even military operations avoid unnecessary risk from hazardous weather. But satellites don't last forever. Parts wear out, radiation takes its toll, and atmospheric drag slowly pulls the satellite out of orbit. Many weather satellites have a design life of only 2 years, though often they can last 5 or 10 years, or more. A steady schedule of new satellite launches is needed to keep the weather report on the news each night. In May 2005, NASA successfully launched the latest in this long line of weather satellites. Dubbed NOAA-N at launch and renamed NOAA-18 once it reached orbit, this satellite will take over for the older satellite NOAA-16, which was launched in September 2000. "NOAA always keeps at least two satellites in low-Earth orbit, circling the poles 14 times each day," explains Wilfred E. Mazur, Polar Satellite Acquisition Manager, NOAA/NESDIS. "As Earth rotates, these satellites end up covering Earth's entire surface each day. In fact, with two satellites in orbit, NOAA covers each spot on the Earth four times each day, twice during the day and twice at night," Mazur says.

By orbiting close to Earth (NOAA-18 is only 870 km above the ground), these "low-Earth orbit" satellites provide a detailed view of the weather. The other type of weather satellite, "geosynchronous," orbits much farther out at 35,786 km. At that altitude, geosynchronous satellites can keep a constant watch on whole continents, but without the kind of detail that NOAA-18 can provide. In particular, low-Earth orbiting satellites have the ability to use microwave radiometers to measure temperature and moisture in the atmosphere—two key measurements used for weather prediction that, for technical

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Hot Time at Yosemite from Page 1

they said it was very “refreshing” I think that’s marketing-speak for “cold”. Tim and Chad took off pretty early with the goal of climbing Half Dome and returning in time to set up at Glacier Point.

I just relaxed in the shade with a good book and enjoyed the solitude. It warmed up again that afternoon, but there were no clouds, so I think the humidity was lower. The sky definitely looked clearer than it had the previous day.

Sure enough, the sky was clearer that evening, but the seeing wasn’t any better because the moon was a day larger and brighter. Tim and Chad arrived just around sunset after having made it to the top of Half Dome. They told us all about it as we got ready for darkness.

We all had a great time. The visitors are so enthusiastic and appreciative that you can’t help but enjoy the evening. We didn’t get clouded out that evening, but we were all back in the campground by midnight or so.

Sunday morning, we all broke camp and headed for home—some early like Larry, Len, and me; others took their time and lingered before leaving paradise behind. I always get home tired and happy, and wondering if I could join a couple more clubs so I could go more times in a year.

Many thanks to all of you that came with us and made the Yosemite Star Party a big success. And maybe we can convince a few of you to join us next year!



Eli Asay
Photo by Len Nelson

SCAS Star-B-Que from Page 1

Road just before Kenwood. It is 8.6 miles from Fourth and Farmer’s to the Adobe Canyon Road turnoff. From Sonoma, it’s a right turn after Kenwood. The Park is 3.4 miles farther.

Fees and Parking: At the Park entrance kiosk, identify yourself as part of the Sonoma County Astronomical Society headed for the Star-B-Que at the Observatory. There will be no individual fees. Pets must be kept on a leash, with a \$1.00 charge for each animal. Parking is limited, so carpool if possible. To minimize jarring white light from backup lights after dark, please park by backing in. Park close together, with just enough room to open your door. Parking on pavement is prohibited. If you arrive after 8:30 PM, or if campground parking is full, park next to the group campsite entrance gate, about 100 yards away.

Call Len Nelson at 763-8007 or email lennelsn@comcast.net if you have questions. Hope to see you there!

reasons, cannot be sensed by distant geosynchronous satellites. With NOAA-18 successfully placed in orbit, the 45-year legacy of high-tech weather forecasts that we’re accustomed to will go on.

Find out more about NOAA-18 and the history of polar-orbiting weather satellites at <http://goespoes.gsfc.nasa.gov/>. For kids and anyone else curious about the concept, the difference between polar and geosynchronous orbits is explained at http://spaceplace.nasa.gov/en/kids/goes/goes_poes_orbits.shtml

—Article provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with NASA

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August Observing Notes

- August** Mars coming closer, rising around 11PM, reaches opposition late October
- Aug. 7** Venus passes close to crescent Moon. Watch as they draw closer from early twilight until they set.
- Aug. 8** Neptune at opposition, mag. 7.8 in Capricornus
- Aug. 12** First Quarter Moon 7:38 PM, Perseid Meteor Shower
- Aug. 19** Full Moon 10:53 AM. Expect large tides again.
- Aug. 25** Last Quarter Moon 0.4° S of Pleiades near midnight, Mars 6° S of Moon

OBSERVING TREATS

Perseid Meteor Shower: At this time of year, the Earth passes through a path previously taken by Comet 109P/Swift-Tuttle. Debris from the comet, left in its wake, rips into the Earth’s upper atmosphere at 60,000 km per hour (roughly 37,000 miles per hour). This debris is made up of tiny particles of dust and none of it ever reaches the ground — it’s incinerated in a bright flash we see as a “shooting star”.

The Perseid Meteor Shower, (named for the constellation Perseus, where the shower’s radiant is located) has a very long duration: most years it starts around July 15 and peaks around August 12. The first quarter Moon will set around 12:30 AM 8/13. The number of meteors typical for the peak of the Perseid Shower is 30-70 per hour. Judging by what we saw at RFO’s July 30 Public Night, this one will be spectacular!

FEATURED LINKS

Astronomy News: Newsgroup, with interesting photos and topics. If you have a lot of horsepower (takes a while to load on DSL) go for it! <http://dunstan-times000.tripod.com/id21.html>

NASA photos of our solar system planets: <http://photojournal.jpl.nasa.gov/index.html>

Deep sky guides from “Flinthill Astronomy” in Texas—66 individual viewing lists in PDF format. The lists are designed for all experience levels and viewing sites, from light polluted to dark sky. <http://www.intergate.com/~flinthill100/>

Jane and Mojo’s account of observing Comet Tempel 1 in the August SJAA *Ephemeris*: <http://ephemeris.sjaa.net/>

YA INFORMATION

Meetings: None held during the summer. Meetings will resume in the Fall when the next school year begins. In the meantime, you are welcome to participate in SCAS events announced in this newsletter. You’ll receive an email announcement in mid-August to remind you of the Fall YA schedule as the new school year resumes.

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TELEPORTATION: EXPRESS LANE SPACE TRAVEL

Think Star Trek: You are here. You want to go there. It's just a matter of teleportation. Thanks to lab experiments, there is growth in the number of "beam me up" believers. Over the last few years, researchers have successfully teleported beams of light across a laboratory bench. Also, the quantum state of a trapped calcium ion to another calcium ion has been teleported in a controlled way.

In his new book, *Teleportation— The Impossible Leap*, writer David Darling contends that "One way or another, teleportation is going to play a major role in all our futures. It will be a fundamental process at the heart of quantum computers, which will themselves radically change the world."



Darling suggests that some form of classical teleportation and replication for inanimate objects also seems inevitable. But whether humans can make the leap, remains to be seen. Teleporting a person would require a machine that isolates, appraises, and keeps track of over a trillion trillion atoms that constitute the human body, then sends that data to another locale for reassembly—and hopefully without mussing up your physical and mental makeup. "One thing is certain: if that impossible leap turns out to be merely difficult—a question of simply overcoming technical challenges—it will someday be accomplished," Darling predicts. The quantum computer "is the joker in the deck, the factor that changes the rules of what is and isn't possible."

Just last month, in fact, scientists at Hewlett Packard announced that they've hammered out a new tactic for creating a quantum computer—using switches of light beams rather than today's transistor-laden devices—hardware capable of making calculations billions of times faster than silicon-based computers.

Given quantum computers and the networking of these devices, Darling senses the day may not be far off for routine teleportation of individual atoms and molecules. That would lead to teleportation of macromolecules and microbes...with, perhaps, human teleportation to follow.

What could teleportation do for future space endeavors? In the future it might be possible to assemble spacecraft "on-the-spot" using local materials. "That would be a further step along the road to true teleportation, That's when nanotechnology enters the scene." When nanotechnology is mature, an automated assembly unit could be sent to a destination. On arrival, it would build the required robot explorer from the molecular level up.

"Bona fide quantum teleportation, as applied to space travel, would mean sending a supply of entangled particles to the target world then use what Einstein called 'spooky action at a distance' to make these particles assume the exact state of another collection of entangled particles back on Earth," Darling speculated. Doing so opens the prospect for genuinely teleporting a robot vehicle—or even an entire human crew—across interplanetary or, in the long run, across interstellar distances, Darling said.

"Certainly, if it becomes possible to teleport humans," Darling said, "you can envisage people hopping to the Moon or to other parts of the solar system, as quickly and as easily as we move data around the Internet today."

—Excerpted from an article by Leonard David, Senior Space Writer. *Space.com*

Sonoma County Astronomical Society

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Sonoma Skies

August 2005

AUGUST 6

Robert Ferguson
Observatory
STAR-B-QUE