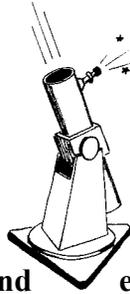


Sonoma Skies

Newsletter of the Sonoma County Astronomical Society
A nonprofit scientific and educational organization

www.sonomaskies.org



October 2007

Volume XXX No. 10

Striking Sparks Telescope Program

Each year the Sonoma County Astronomical Society (SCAS) sponsors the "Striking Sparks" Telescope Awards Program. The purpose of the program is to promote science education and interest in astronomy. The program's name comes from an occurrence related by one of our members: A man and his son built a telescope and this struck a "spark" of interest that contributed to the son's ultimately graduating with a Ph.D. in Astrophysics. Our program's goal is to strike other sparks of interest in Sonoma County students.

This is the 23rd year of the program and over 200 telescopes have been awarded to Sonoma County students. This year we will be awarding the contest winners easy to use, new 6-inch reflecting Dobsonian mount telescopes to students who have been nominated by their teachers or by SCAS members. Applicants must attend one or more SCAS Young Astronomers meetings or the Robert Ferguson Observatory and write an essay about their interest in astronomy.

There is an opportunity for you or your organization to sponsor a telescope and participate in this worthwhile program. The cost to sponsor a "Striking Sparks" telescope is \$200. Contact Larry McCune, Striking Sparks Coordinator, at:

llmccune@comcast.net

WILL EARTH SURVIVE A DYING SUN?

In about 5 billion years, when our sun uses up its nuclear fuel, it will expand to become a red giant star. Its outer atmosphere will swallow Mercury and Venus, the two planets closest to it. But what will happen to Earth, the next planet in line? Scientists aren't sure, but until recently they assumed Earth would burn up as the sun expands. However, recently, scientists found a large planet outside our solar system that survived a similar event. This slightly opens the door to a different fate for our home planet.

"Now at least we know that a giant planet at an Earthlike distance can survive its parent star's red-giant phase", says Roberto Silvotti of the INAF-Osservatorio Astronomico di

(continued Page 3)

The Search for Extra-Solar Planets

SCAS October 10 Meeting, Proctor Terrace School

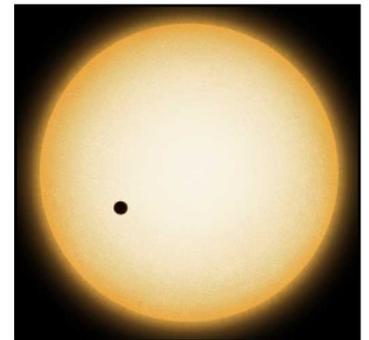
Ed Megill brings to our October 2007 meeting a presentation on one of astronomy's top areas of interest, the search for Extra-Solar Planets. It has seemed probable that planets orbit other stars; however, until recent years our technology has not allowed astronomers to detect these worlds. Here is an example of the problem faced by astronomers: If the brightness of a distant star were represented by an eight-foot diameter arc-light pointing at us from a distance of 6 miles, then a planet orbiting around that star would be represented by a birthday candle just one foot to the side of the arc-light. Not the easiest object to see. In fact, with one possible exception, astronomers still are not able to "see" planets orbiting around other stars.

So how then have astronomer been able to identify more than 200 Extra-Solar Planets? The most successful technique has not been to attempt to detect the planet itself, but rather to detect the planet's effect on the star it orbits.

Ed Megill has been a member of SCAS since 1984. He has held many elected and appointed offices, including five years as the club's president. Ed's long-time interest in astronomy bloomed as the result of the return of Halley's Comet and an article in the Press Democrat by Bob Ferguson on SCAS's activities.

With his background in physics and electronics Ed held engineering and management positions in his 29-year career with AT&T. In 1989 Ed left AT&T and began working part time in SRJC's Department of Earth and Space Science as an adjunct instructor/presenter in the Planetarium. In 1999 he was appointed as full-time Specialist and Director of the Planetarium where he is still responsible for its operation and programming.

To find out more about how an orbiting planet affects its star and how this is seen by astronomers here on Earth, join us Wednesday, October 10th, at our regular second Wednesday SCAS membership meeting. The public is welcome.



Artist's Concept of HD149026 and planet. Artwork by Lynette Cook.

Sonoma County Astronomical Society (SCAS)

Membership Information

Meetings: 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School, 1711 Bryden Lane at Fourth Street, 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 pay partial-year dues of \$12.50.

Star Parties: See the Events section for dates and times.

Rental Telescope: Members are eligible to borrow the club's 80mm refractor with tripod. Contact any Board member listed below.

Egroup URL: Connect with other members about going observing, observing reports and chat about astronomy and news items from AANC and *Sky & Telescope*. Hosted by Robert Leyland at r.leyland@verizon.net. Any SCAS member is welcome to join. Visit <http://groups.yahoo.com/group/scas> and click the "Join" button, or send an email to scas-subscribe@yahoogroups.com

Discount Subscriptions: For *Sky & Telescope*, 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.

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 10 days prior to the end of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email publications@sonomaskies.org

SCAS Elected Board

President: John Whitehouse 539-5549 jmw@sonic.net

Vice-President & Program Director: Len Nelson 763-8007
lennelsn@comcast.net

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

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

Membership Director: Walt Bodley 823-5268

membership@sonomaskies.org

Director of Community Activities: Lynn Anderson 433-1154

astroman@sonic.net

Publications Director: Cecelia Yarnell 569-9663

publications@sonomaskies.org

SCAS Appointed Positions

Young Astronomers Advisor: Gary Jordan 829-5288

SieraMolly@comcast.net

Striking Sparks Program Coordinator: Larry McCune

(415)492-1426 llmccune@comcast.net

Amateur Telescope Making: Steve Follett 542-1561

sfollett@sonic.net

Librarian: Joan Thornton 762-0594 johnjoanthornton@sbcglobal.net

Visit us on the web at:

www.sonomaskies.org

October Observing Notes

- 10/1** Venus, Saturn, Regulus in E all month, 5 AM
10/3 Mars near M35, 11:30 PM
10/4 Occultation of kappa Gemini, 2 AM, mag 3.6 kappa Geminorum

Time	Alt/Az	Event
0210	16/071	Disappear, Bright limb
0257	25/078	Reappear, Dark limb
		Watts angle = 228
		Vertex angle = 294
		Position angle = 236

Kap Gem is double (O. Struve 179). IF(!) my calculations are correct, those with adequate aperture may be able to glimpse the 8th mag companion reappearing about 18 sec before the primary. The lunar illumination is 39% and reappearance is 45° from the cusp.

- 10/5** Crescent Moon near M44, 4 AM
10/7 Crescent Moon, Venus, Saturn, Regulus in E, 5 AM
10/9 Venus near Regulus, 4 AM
10/10 New Moon
10/15 Venus near Saturn, 6 AM
10/20 Zodiacal Light in East, 5:30AM, viewable before astronomical twilight in very dark locations for next two weeks.
10/25 Large Tides: The Full Moon occurs at 9:52 PM. If this month's Full Moon appears large it is for good reason. This month's Full Moon occurs when the Moon is at perigee, meaning closest to the Earth in its monthly orbit. This results in a slightly larger-appearing Moon.
10/26 Occultation of epsilon Ari, 9:30 PM, mag 4.7
Epsilon Arietis: Binary: 5.2; 5.5; 1.4"; 29°
Moon: 98% illuminated

Time	Alt/Az	Event
2159	38/092	Disappear, Bright limb (difficult)
2256	49/102	Reappear, Dark limb... eps-B
		Epsilon-A will reappear about 1 second after epsilon-B
		Watts angle = 234
		Vertex angle = 273
		Position angle = 217
2301	50/103	Reappear, Dark limb: mag 6.8
		SAO 75671
		Watts angle = 293
		Vertex angle = 333
		Position angle = 277

- 10/28** Venus at greatest elongation West, 8 AM

- 11/4** Daylight Savings time ends 2AM

—Most of above courtesy of Jack Welch

COMING TO SCAS IN NOVEMBER

Keith Waxman

"Leonid Meteor Showers"

Will Earth Survive? (from Page 1)

Capodimonte in Naples, Italy. This newly discovered extrasolar planet is more than 3 times as large as Jupiter. It used to orbit its star, called V391 Pegasi, at about the same distance that Earth is from the sun.

V391 Pegasi belongs to a rare class of stars, called B-type subdwarfs. It started out with about as much mass as our sun has now, but after burning through all the hydrogen gas in its core, it swelled into a red giant. When this happened it expanded to about the size of Earth's orbit. Then, an unusual series of events occurred. V391 Pegasi blew away its outer envelope of gas, losing half its mass, keeping just a thin skin of atmosphere around its core. When the star lost that mass, the planet's orbit began to expand, until the orbit was about as big as Mars'. This moved the planet beyond the star's incinerating reach.

When our sun becomes a red giant, it, too, will lose mass and gravity. Its core will collapse and its outer layers will spread, possibly reaching Earth or beyond. Because these opposite pressures will happen simultaneously, it is hard to predict exactly what will happen next in our own solar system. The fate of V391 Pegasi provides us some clues, but there are important differences between that star and ours. When the sun turns from red giant to white dwarf, its transition will probably be brighter and hotter; making it more likely that Earth will get caught up in the explosion. The power of such an explosion would most likely lead to the evaporation of our planet. Still, the knowledge that another planet has avoided such a fate leaves the possibility open that Earth might survive as well. At least we can sleep well, knowing that whatever fate awaits Earth, it still lies billions of years into the future.

—Adapted from an article by Emily Sohn in *Science News*

Community Activities Report

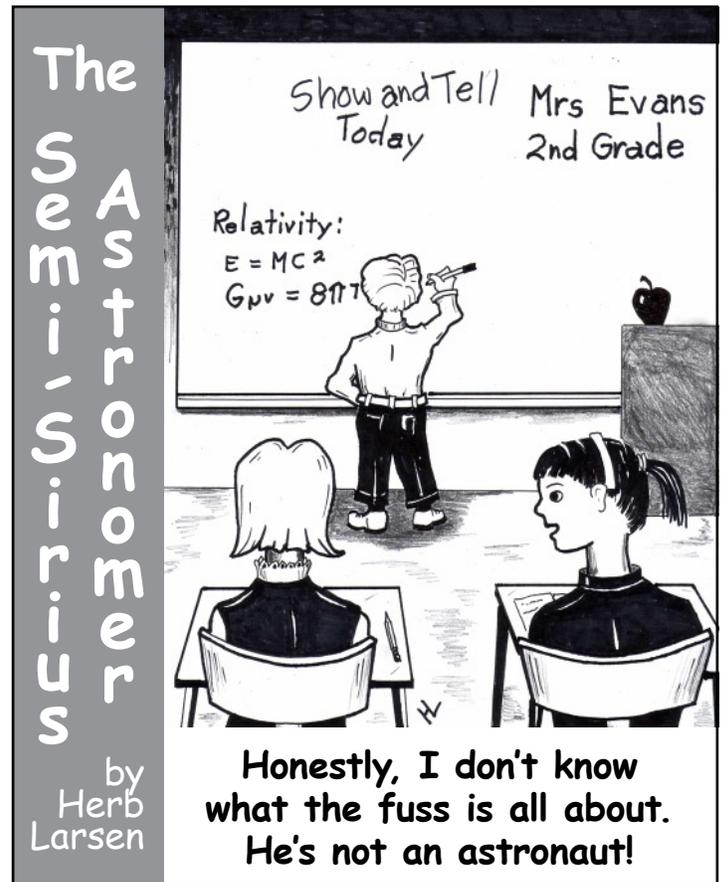
Sept. 10—The late summer/early fall has been fairly active. On Monday, September 10th the City of Healdsburg turned off the town's electricity beginning at 10:00 PM. Merlin Combs, Len Nelson, Walt Bodley, Al Stern, Loren Cooper and myself set up telescopes in the parking lot behind the Hotel Healdsburg and treated about 70 Healdsburg residents and hotel guests to views of the Milky Way and environs until midnight. It wasn't an entirely dark sky as the hotel and the nearby Safeway had generators to keep their lights on. Still, those who came out for the star party seemed to be appreciative and had a good time.

Sept. 15—I was joined by David Simons for a private star party at the home of Gerald Morat, CPA. Gerald was the winning bidder at a fund raising auction for the benefit of the Children's Village. The host's family and about 18 other guests were treated to a PowerPoint presentation, a Q & A, and views of the four-day old moon, Jupiter and typical late summer star party targets.

—Lynn Anderosn

WELCOME NEW MEMBER!

Welcome aboard to Nancy Smith of Santa Rosa.



SOCIAL AMENITIES

Many thanks to Colleen Ferguson for providing refreshments at the September meeting.

ASTRONOMY MAGAZINE DISCOUNTS

Larry McCune reports that *Astronomy Magazine* is offering their annual discounted subscription rate for SCAS members of \$34 per year or \$60 for two years.

To get the discount, send a check payable to SCAS to Larry McCune, SCAS Treasurer, 544 Thyme Place, San Rafael, CA 94903 by October 15.

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 Striking
- Sparks and 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

Events

ROBERT FERGUSON OBSERVATORY

PUBLIC VIEWING

Saturday, October 6

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

Night Viewing begins 8:00 PM

The Observatory features three telescopes: A 14-inch SCT with CCD camera in the East wing, an 8-inch refractor under the dome and a 24-inch Dobsonian in the West wing. 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.

Fees: No admission fee for the solar viewing, but donations are appreciated. The Park charges \$6 per vehicle for entry. A \$3 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions.

NIGHT SKY FALL SERIES

Session #2—Oct. 2 Session #3—Oct. 9

Session #4—Nov. 6 Session #5—Nov. 13

Session #6—Dec. 4

Classes held Tuesdays at 7PM. Each class includes a lecture on the constellations of the season, their history and mythology, and how to find objects within them. **Fees:** \$75 for the series of six presentations. (Single session fee is \$23). 10% discount for VMOA members. Classes are held at the Observatory.

OBSERVING LAB

October 12, 7:00 PM

“Binaries and Multiple Stars”

Observing Labs are one-night events centered around an intensive telescope observing experience based on that session's theme. After an informative presentation of about 40 minutes, attendees will head to various telescopes for a night of docent-guided observing. (Raincheck date is Wed., Oct. 17).

Attendance is very limited in order to assure that everyone can get both significant eye-time on the telescopes and lots of personal docent guidance. We will provide handouts including observing lists of objects selected to illustrate the night's topic. Our goal is for you to see these cosmic wonders in a new way, noticing details that are usually overlooked and appreciating what is actually taking place in the objects you are viewing. We want to “open your eyes and your mind” in these labs!

Fees: \$30 per person per event (\$27 for VMOA Subscribers).

For information or to register: (707) 833-6979,

<http://www.rfo.org> or nightsky@rfo.org

REFRACTOR TELESCOPE FOR SALE

Nearly new, used only 6 times: Televue 102 refractor with case, Televue plossl 20mm, Celestron Ultima 30mm eyepiece, Televue Gibraltar Mount, Televue Starbeam finder and Vibration Suppression pads. \$3000.00 for the whole package. Contact Karen Hacker at 539-1475, karenhacker@comcast.net

SRJC PLANETARIUM

“Gravity and Black Holes” ends Oct. 14

“Exploring Planet Earth”

October 19 to November 18

Earth is our spaceship orbiting the Sun at 67,000 miles an hour, so what about this spaceship Earth? In this show we will tour our planet from its formation and near 12,000 degree core to its frozen Arctic. Along the way we will learn about its magnetic field, continental drift, volcanoes, earthquakes, and composition.



Shows are held at Santa Rosa Campus, Lark Hall, Room 2001, on Fridays and Saturdays at 7:00 PM and 8:30 PM, Sundays at 1:30 PM and 3:00 PM during the Fall and Spring semesters. Admission is \$5 General; \$3 Students and Seniors (60+). Tickets are sold at the door only, beginning 30 minutes before show time. A parking permit is required and is included in the Planetarium admission price. Pick it up at the planetarium when you pay admission. Please arrive early enough to place your permit on your vehicle's dashboard before the show starts. Info: 527-4372, <http://www.santarosa.edu/planetarium/>

MT. TAMALPAIS ASTRONOMY

Oct. 13, 7:30 PM: “How Stars are Made” —Dr. Steve Stahler, UC Berkeley

Stars are the natural out come of processes that occur through out galaxies. Research has led to a good understanding of the basic evolutionary process, but deep mysteries still remain.

Sponsored by the Mt Tamalpais State Park and coordinated by volunteers of the Mt Tam Interpretive Association. 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! Info: 415/455-5370; <http://www.mttam.net/>

MUSIC OF THE SPHERES

Oct. 13, 14 & 15—*The Planets* for Orchestra, Bruno Ferrandis, conductor, Wells Fargo Center for the Arts

Experience the universe in music and real-time animation, as the Santa Rosa Symphony performs Gustav Holst's *The Planets* accompanied by magnificent images from NASA, live-sequenced while the orchestra plays. Audience members can “explore” the solar system on their own using special computer stations in the lobby. Saturday and Monday at 8PM, Sunday at 3M. Tickets from \$27. Discovery Rehearsal: Saturday at 2PM Tickets \$10 adults/\$6 youth. Tickets: 707/546-8742 or www.santarosasympphony.com

Events

SONOMA STATE UNIVERSITY SERIES “WHAT PHYSICISTS DO”

Mondays at 4:00 PM

Darwin Hall Room 103 (Coffee at 3:30 PM)

Oct. 1—William H. Pickering: America’s Deep Space Pioneer

Douglas J. Mudgway will discuss America’s response to the 1957 Soviet challenge for preeminence in space and the physicist who made it happen and won the race to explore the planets.

Oct. 8—A Sharper View of the Universe

Dr. Scott Severson of Sonoma State University will describe how astronomers use adaptive optics to gather high resolution images of the universe—from nearby planets to distant galaxies.

Oct. 15—The Search for Planets Around Low Mass Stars

Dr. Holland Ford of the Johns Hopkins University and the Space Telescope Science Institute will explain why low-mass stars may provide our best opportunity to find earthlike planets that could sustain life as we know it.

Oct. 22—Carbon and Metals: The Discovery of Single-Wall Carbon Nanotubes

Dr. Donald S. Bethune of the IBM Almaden Research Center will describe the path that led from experiments looking for buckyballs to the discovery of single-wall carbon nanotubes.

Oct. 29—Nanostructured Organic Solar Cells

Dr. Mark Topinka of Stanford University will describe his research on the possibility of inexpensive, lightweight, flexible solar cells which include a nanostructured blend of C60-buckyballs and conducting polymer.

Contact <http://phys-astro.sonoma.edu/wpd/>

MORRISON PLANETARIUM DEAN LECTURE SERIES

Oct. 29, 7:30 PM: “Black Holes: Space Warps, Time Machines, and the Excruciating Deaths of Stars” —Andrew Fraknoi, Foothill College & the Astronomical Society of the Pacific

What is the science behind the science fiction of black holes? What are black holes, how do astronomers find them, and why would falling into one be a once-in-a-lifetime experience? Analogies, slides, thought experiments, and humor, will show how black holes warp space, act like a real time machine, and grow to be enormous at the centers of most galaxies.

Location: Kanbar Hall, Jewish Community Center, 3200 California Street (at Presidio). Parking in the UCSF Laurel Heights campus parking lot is \$1.25/night. Parking in the JCC garage is \$1.25 per half-hour. Tickets \$4 at the door or by email. Contact: 415/321-8000, <http://www.calacademy.org/planetarium/dean.cfm>

SCAS SCHOOL STAR PARTIES

School has started and I have already received star party requests from several of the teachers we have served before.

As of this writing, we have two events scheduled:

The first is on Thursday, October 18 at Guerneville Elementary. I will probably not be able to attend this event as I will be returning from visiting my grandchildren that day and do not know when I will get back to Sonoma County.

The next scheduled star party is in Petaluma on Thursday, November the 15th—Old Adobe School’s third grade.

A letter I submitted to the Sonoma County Office of Education (SCOE) describing our service was distributed to all public school teachers via the SCOE e-bulletin. I have already received one inquiry as a result of that announcement. I will have more confirmed star party dates to announce at the October 10th SCAS meeting.

AND finally, if you are not already on my list of volunteers and would like to be (even if you only want to travel less than 10 or 15 miles from your home) please email me, Lynn Anderson, at astroman@sonic.net.

SILICON VALLEY ASTRONOMY LECTURE SERIES

Oct. 3, 7:00 PM: “Taking a Hit: Asteroid Impacts and Evolution”—Astronomer David Morrison of NASA’s Ames Research Center

Asteroids have hit the Earth many times in the past, and they will continue to hit in the future, whether we are prepared or not. Collisions with our planet over 4.5 billion years have profoundly influenced the evolution of life. In fact, were it not for the impact of a 15-km wide asteroid 65 million years ago, it is likely humanity would not be here.

Impacts are important for our future as well as our past. In the last two decades we have learned not only how to evaluate the impact hazard but also (in principle) how to defend ourselves. The astronomers operating the Spaceguard Survey of Near Earth Asteroids have already reduced the risk of fatality from unknown asteroids by at least 75%.

Unlike other natural hazards, we now have the capability of removing most of the impact risk within the next generation. However, the government still does not have a plan of action for when an asteroid is discovered heading our way or when an impact happens without any warning.

Location: Foothill College’s Smithwick Theater, El Monte Road and Freeway 280, Los Altos Hills. Free and open to the public. Parking on campus costs \$2. Call the series hot-line at 650-949-7888 for more information and driving directions.

Young Astronomers




Aliens! Life Beyond Earth?

*YA Meeting Friday, October 12, 7:30 PM
Apple Blossom School, Sebastopol*

The thought of life on other worlds always sparks the imagination, raising questions that strike to the heart of astronomy, biology, and, yes, science fiction. Does life exist beyond Earth? If so, where might it be found? Where should we look first? What form will it take: That of the stereotyped oval-eyed humanoid, or tiny microbes lurking in ice, rocks, or soil? Will we even recognize alien life if we find it (or if it finds us?) Join us for the October Young Astronomers meeting when YA president Melissa Downey presents “Aliens” (not the movie!). Be prepared to open your mind to the possibilities of life beyond Earth!

As always, bring your telescope for a star party in the upper parking lot after the general meeting, weather permitting.

YA INFORMATION

Meetings: 7:30 PM the second Friday of each month of the school year, at Apple Blossom School, 700 Water Trough Road, Sebastopol, in the Multipurpose Hall. Open to all Sonoma County students. Telescope viewing is held in the upper parking lot after the meeting. Directions: From Hwy. 116 in Sebastopol, go west onto Bodega Ave. Continue almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right.

YA ELECTED OFFICERS

PRESIDENT: Melissa Downey 632-5661

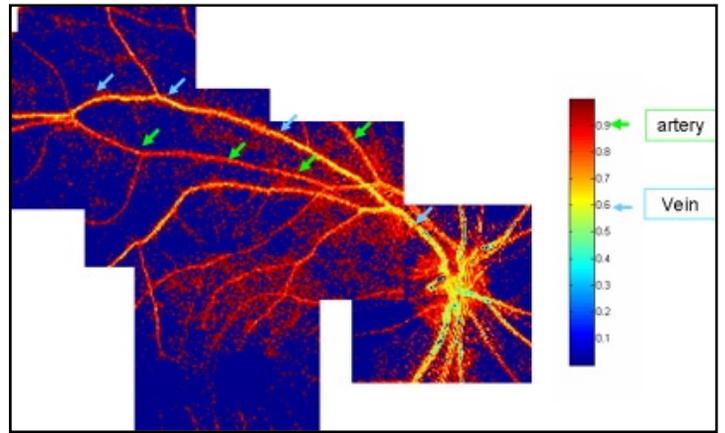
VP/PROGRAM DIRECTOR: Open

RECORDER: Open

NEWSLETTER EDITOR: Max Eliaser

LIBRARIAN: Open

ADULT ADVISOR: Gary Jordan 829-5288, Sieramolly@comcast.net



This three-color composite image from the computed tomographic imaging spectrometer shows the oxygenation of the blood in the arteries and veins of a human retina. (Arteries appear red, veins appear yellow.)

NASA SpacePlace

A Missile in Your Eye

by Patrick L. Barry

Satellite technology designed to catch ballistic missile launches may soon help doctors monitor the health of people’s eyes. For the last 15 years, Greg Bearman and his colleagues at JPL have been working on a novel design for a spectrometer, a special kind of camera often used on satellites and spacecraft. Rather than snapping a simple picture, spectrometers measure the spectrum of wavelengths in the light coming from a scene. From that information, scientists can learn things about the physical properties of objects in the photo, be they stars or distant planets or vegetation on Earth’s surface. In this case, however, the challenge was to capture snapshots of short-lived events—like missile launches! The team of JPL scientists designed the new spectrometer, called a computed tomographic imaging spectrometer (CTIS), in collaboration with the Ballistic Missile Defense Organization as a way to detect missiles by the spectral signatures of their exhaust.

But now the scientists are pointing CTIS at another fast-moving scene: the retina of an eye. Blood flowing through the retina has a different spectral signature when it is rich in oxygen than when it is oxygen deprived. So eye doctors can use a spectrometer to look for low oxygen in the retina—an indicator of disease. However, because the eye is constantly moving, images produced by conventional spectrometers would have motion blurring that is difficult to correct. The spectrometer that Bearman helped to develop is different: It can capture the whole retina and its spectral information in a single snapshot as quick as 3 milliseconds. “We needed something fast,” says Bearman, and this spectrometer is “missile-quick.”

CTIS is even relatively cheap to build, consisting of standard camera lenses and a custom, etched, transparent sheet called a grating. “With the exception of the grating, we bought everything on Amazon,” he says. The grating was custom-designed at JPL. It has a pattern of microscopic steps on its surface that split incoming light into 25 separate images arranged in a 5 by 5 grid. The center image in the grid shows the scene undistorted, but colors in the surrounding images are slightly “smeared” apart, as if the light had passed through a prism. This separation of colors reveals the light’s spectrum for each pixel in the image.

“We’re conducting clinical trials now,” says Bearman. If all goes well, anti-missile technology may soon be catching eye problems before they have a chance to get off the ground.

Information about other NASA-developed technologies with spin-off applications can be found at <http://www.sti.nasa.gov/tto>

—Article provided by JPL/NASA



Group photo at dusk August 31, 2007. Photo by Bryan Murahashi

How I Got to Fly with Meteors

by Jane Houston Jones

Young Astronomers, now that you have your own telescope, you can *really* see the Moon, and the planets are incredible. Clusters, nebulae and objects in our own Milky Way Galaxy offer fantastic views through your telescopes.

But some of you might want to learn more or do more with your new hobby. We have a lot in common. I wanted more, too! I wanted to be a researcher, but I didn’t think I had the experience. I was very lucky that within my amateur astronomy club was a professional astronomer who asked for volunteers to be meteor scientists. He was looking for people to join him to learn how to count meteors and he was willing to train us.

I joined immediately. Soon several amateur astronomers gathered on a hillside. We set up in a circle. Each of us looked up. Nearby, we had also set up cameras pointing to the sky, and we had to change the film or the cassettes. Sometimes it was really cold, especially for the Leonids in November. While the cameras recorded the meteors overhead, we watched the sky and counted how many meteors we saw.

Does this sound boring? It was not boring at all. It was the most exciting thing I had ever done! And afterwards we counted meteors on the video tape (on our televisions) to compare to our visual meteor counts.

Being with others interested in science was really fun! We all wanted to learn and do our best. Meteor showers occur several times during the year so this was an excellent way to bridge my amateur astronomy hobby with the professional meteor observing discipline. Staying out late is really fun, too—tell your parents I said so!

Fast forward to September 1, 2007. Here I am in a flight suit preparing to count meteors from an airborne NASA mission. How did that happen? It happened because I went to my astronomy

club meeting many years ago when that professional astronomer I mentioned—his name is Dr. Peter Jenniskens—asked for amateur astronomers who would be willing to learn how to count the meteors in a meteor shower. Since that time I have flown on 3 airborne meteor missions, and participated in 10 ground based missions. The airborne ones were really cool—I have a flight suit and mission patches to prove it. But my very first meteor observing practice night, with other new amateur astronomers, was almost as memorable. On that night, I really learned how to be a scientist.



I now work at NASA Jet Propulsion Laboratory. I am sure my amateur astronomy background, writing and speaking skills, and the fact that I totally love astronomy got me my job at NASA.

There are local resources for you too. Ask your local college or planetarium for some ideas. Maybe we will observe a meteor shower together, soon!

Link to the 2007 Aurigids Airborne Mission:

<http://aurigids.seti.org/>

Seeing in the Dark Website

Among the many things you can do at the web site are:

1. View or print “Your Sky Tonight”, a chart of any part of the sky, showing planets, stars, and deep space objects, as seen from any location and time you wish to set.
2. Watch introductory “how-to-videos” with Timothy Ferris on getting started with the hobby of astronomy.
3. Take a photo of any object in the northern sky using the *Seeing in the Dark* Internet Telescope and have it sent to you by e-mail (restricted to students).
4. Explore a series of classroom tested, hands-on activities for students in grades 2 through 12, ready for teachers to use (even if they don’t have a strong background in astronomy)
5. Browse through a gallery of beautiful color images of the cosmos, taken by the astronomical photographers who contributed to the show.
6. Find a star whose light left on its journey toward us in the year you were born.
7. Watch the amazing special effects videos from *Seeing in the Dark* on your computer.

...And much more. Visit <http://www.pbs.org/seeinginthedark/>

USEFUL LINKS

Geologic Atlas of the Moon, Published by the U. S. Geological Survey: <http://www.lpi.usra.edu/resources/mapcatalog/usgs/>

Last Month’s Lunar Eclipse—4 full pages of photos: http://www.spaceweather.com/eclipses/gallery_28aug07.htm

NASA MAPS THE MOON WITH GOOGLE

MOFFETT FIELD, Calif. - New higher resolution lunar imagery and maps including NASA multimedia content now are available on the Google Moon Web site.

Updates include new content from the Apollo missions, including dozens of embedded panoramic images, links to audio clips and videos, and descriptions of the astronauts' activities during the missions. The new content is overlaid on updated, higher-resolution lunar maps. Also added are detailed charts of different regions of the moon suitable for use by anyone simulating a lunar mission.

"NASA's objective is for Google Moon to become a more accurate and useful lunar mapping platform that will be a foundation for future web-based moon applications, much like the many applications that have been built on top of Google Maps," said Chris C. Kemp, director of strategic business development at NASA's Ames Research Center, Moffett Field, Calif. "This will make it easier for scientists everywhere to make lunar data more available and accessible."

Google Moon's visible imagery and topography are aligned with the recently updated lunar coordinate system and can be used for scientifically accurate mission planning and data analysis. The new site is designed to be user-friendly and encourage the exchange of data and ideas among scientists and amateur astronomers.



Above: Geologic chart example
Below: Topographic chart



This announcement closely follows the release of new NASA content in Google Earth, including photographs taken by NASA astronauts and imagery from NASA's Earth observing satellite sensors, such as the Sea-viewing Wide Field-of-View Sensor, Landsat and the Moderate Resolution Imaging Spectrometer.

Astronaut photography was developed in collaboration with the Crew Earth Observations team, part of the Image Science and Analysis

Laboratory at NASA's Johnson Space Center, Houston. Satellite imagery of Earth was developed in partnership with the Earth Observatory team at NASA's Goddard Space Flight Center, Greenbelt, Md.

The alliance was accomplished under a Space Act Agreement signed in December 2006 by Google and NASA's Ames Research Center. Google is headquartered near Ames in northern California's Silicon Valley.

For more information on Google Moon, visit:

<http://moon.google.com>

For more information on Google Earth, visit:

<http://earth.google.com>

**Sonoma County
Astronomical Society**

P.O. Box 183
Santa Rosa, CA 95402



Sonoma Skies

October 2007

OCTOBER 10

Ed Megill

**The Search for
Extra-Solar Planets**