

Sonoma Skies

Newsletter of the Sonoma County

A nonprofit scientific and

www.sonomaskies.org



Astronomical Society

educational organization

April 2004

Volume XXVII No. 4

Striking Sparks 2004

By Keith Payea

Well, another Striking Sparks Award ceremony is behind us. It was my first, and a thoroughly wonderful experience. Thanks to Len Nelson's organization and hard work, it all went off without a hitch. I don't think I'm exaggerating when I say that Striking Sparks is the finest community outreach program by any astronomy club, regardless of size.

We all arrived a little before 4:00 PM to begin setup. I lost track of all of the volunteers, because so many people were pitching in to help. Everyone set upon their assigned tasks and we were ready well before 5:00. The room looked great, all decorated by June Ferguson and Joan Thornton, and complemented by the row of ten shiny new telescopes which had been delivered and set up by Larry McCune and Mark Hillestad. We then closed the curtain to await the unveiling later in the program.



Len Nelson and Megan Frisch

As soon as our guests began arriving, Len took them over to the "Photo Op" area to take the first of many pictures of the winners, their family, sponsors

and teachers. Meanwhile, Dick Yeager was showing everyone the sun through his filtered telescope out in the parking lot. Other volunteers were chatting with the winners and their families, getting to know them and making them feel welcome.

When the sun went down, hunger took over, and everyone dug into the potluck dinner. After dinner, I said a few words of introduction, and then Gary Jordan and Melissa Downey took over to run the raffle. We had a wonderful selection of items for the raffle—they filled a table, and we had encouraged everyone to check them out before the drawing. I found out later that the Young Astronomers raised \$274 in the raffle.

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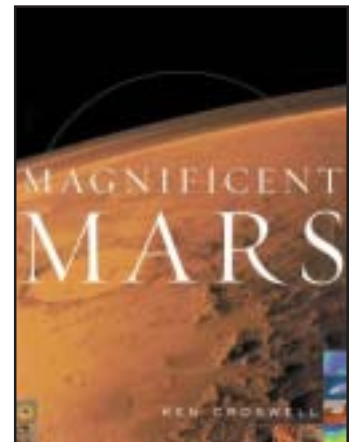
Magnificent Mars

with Ken Crowell

SCAS April 14 Meeting, Proctor Terrace School

Planet Mars has stirred curiosity about life beyond Earth for a long time. Gradually answers are coming. Investigators, Spirit Rover and Opportunity Rover, are on the scene and report their findings to NASA. If the red planet has signs of life, then countless other worlds throughout the universe surely have life.

With great admiration and optimism, talented Ken Crowell presents the red planet's full glory in a beautiful book, *Magnificent Mars*, showing volcanoes taller than Mount Everest, spiral-shaped polar caps of ice, and a canyon system that could stretch from Ohio to California.



"Our little neighbor Mars will be the first New World of the century that has just dawned. Ken Crowell has done a superb job in outlining what is known, and what is suspected, about the next home of mankind beyond the moon."—*Sir Arthur C. Clarke*

Ken Crowell was turned on to astronomy at age six. Harvard educated, he earned his Ph.D. from Harvard for his study of the Milky Way Galaxy. He has written several books and writes for *Astronomy*, *Sky & Telescope*, and "Star Date." He lives in Berkeley and looks forward to an evening with SCAS.

He would be pleased to see a large attendance at the SCAS meeting. Bring friends; bring your questions about the timely subject; learn the latest news and interpretation.

Young Astronomers: See page 11

SCAS MEMBERSHIP

MEETINGS AND STAR PARTIES

Membership Meetings take place at 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.

Star Parties are held monthly on the Saturday nearest the 1st quarter moon at Youth Community Park in Santa Rosa.

Access to Geysers Observing Site: The site is locked to public access. For use during monthly star parties, SCAS members can obtain the combination to the gate lock to the site by contacting any board member listed to the right.

DUES

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

DISCOUNT SUBSCRIPTIONS

SCAS offers discount subscriptions to *Sky & Telescope Magazine*. New subscribers, send a check for \$32.95 payable to "SCAS", along 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 yearly in October. Check *Sonoma Skies* for details.

RENTAL TELESCOPES

SCAS members are eligible to borrow telescopes for a \$5 per week donation. Five telescopes are available: 8" and 5" Celestron SCTs, each complete with clock drive and inverter; 8" and 12.5" Newtonians on Dobsonian mounts; an 80mm refractor on motorized equatorial mount. Contact Joan Thornton at 707-762-0594.

NEWSLETTER

Sonoma Skies is the newsletter of the **Sonoma County Astronomical Society (SCAS)** and is published each month. Subscription is included as part of membership to the Society.

Articles, news items and member announcements for *Sonoma Skies* are welcome. Submissions must be typed or, if on computer media, in a commonly used word processing and/or graphics format, and may include graphics (pictures, drawings, etc.) They are published on a FCFS basis, space permitting, and may be edited. **The deadline for submissions is the last Wednesday of each month.**

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Visit our new website at: www.sonomaskies.org

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Bruce Lotz 576-7833 ablottz@sonic.net

LIBRARY

SCAS has a library of astronomy books that may be checked out by members at SCAS meetings. College textbooks donated by Joe Tenn of SSU are available. Books may be borrowed for a period of one month and returned at the next meeting. Videotaped lectures on astronomy are available for rent at \$3 per month. Requirements: SCAS membership and your name and phone number.

For more information, contact Joan Thornton at 762-0594, phonyjoanie@earthlink.net

SCAS EGROUP 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@yahoogroups.com

The Semi-serious Astronomer

by
Herb
Larsen



Rover's amazing! He knows and will fetch any eye piece I ask for. There is, however, a slight problem with slobber.

MEMBERSHIP NEWS

We are pleased to welcome a new member, Francois Cordesse. He has built several telescopes, most recently a 22-inch reflector. We now have 154 dues-paying members, in addition to the ten Striking Sparks telescope winners for 2003, and ten more for 2004.

If you have address or email changes, contact our Membership Director, Harry Linder, at 542-9167 or via email at harry@sonic.net

Thanks to all who have chosen to save us postage and printing costs by receiving only the electronic (email) download. The notification by email is a small file that provides a link to the *Sonoma Skies* download. There are two choices for download—a small file that loads quickly or a larger file for higher quality printing. You only have to deal with the large file if you choose to do so. Thanks again.

FOR SALE

10" F5.6 mirror (56" f.l.)

12" diameter tube; Teflon bearing material

All plywood cut for Dobsonian mount described in Richard Berry's book *Build Your Own Telescope* (book included)

All for \$250. See/call Bud Nystrom at 707/544-8880

President's Column

THE X PRIZE

by Keith Payea

I was in elementary school during the "Golden Age" of space travel—the 1960s, when we were building up to the first Moon landing. It seemed like every day there was a new "first" in the space program. I read everything I could about space and rockets. When we all huddled around the television to watch Neil Armstrong step out on the moon, all of the adults in the room looked to me (all of 12 years old) to answer their questions about what was going on. I really wanted to be an astronaut, but at the time, the only way to get there was through the military. I knew that wasn't for me, not because I'm anti-war, but because I'm anti-authority. I ended up becoming an engineer.



Keith Payea

Despite President Bush's proclamation, I think the next big thing in space is going to come, not from the government, but from industry. The reason for this is the "X Prize" www.xprize.org. The X Prize is a \$10 Million dollar award which will be made to the first team to launch a vehicle carrying three people to an altitude of 100 KM, return them to the Earth safely, and then repeat the trip within 2 weeks with the same vehicle.

The X Prize was announced in 1996 after a man named Peter Diamandis read Charles Lindbergh's *The Spirit of St. Louis* autobiography and realized how aviation contests, like the \$25,000 Orteig prize awarded to Lindbergh for crossing the Atlantic in 1927, helped launch mainstream air travel.

So far, 27 teams have announced their intention to vie for the prize. Nine of the teams have built "serious hardware" and four or five are at the leading edge of the competition. The top competitors include at least two American teams—Scaled Composites of Mojave, California, and Armadillo Aerospace of Mesquite, Texas. Both have applied to the Federal Aviation Administration to attempt space flight. Another company, which is not competing for the prize, has also applied.

George Nield, the FAA's deputy associate administrator for commercial space transportation, said, "We are getting very close to making a licensing determination for one of those."

There is a real possibility that the first privately funded space travel could occur this year. Imagine that – commercial space travel. Maybe I'll be able to be an astronaut after all.

April Observing Notes

Early April: The five bright planets will still be visible, though Mercury passes through solar conjunction on the 17th.

April 19: New Moon

April 22 and 23: Venus and Mars will be very near the crescent moon, which should be lovely.

April 21: Lyrid meteors peak.

Mid-April: Great opportunity for observing all those springtime galaxies high overhead. This time of year, our particular northerly latitude causes the Milky Way to seem to disappear as it rings our horizon, with the North Galactic Pole high overhead in Coma Berenices near our zenith. One can imagine one is standing on the disk of the Milky Way (which is then parallel to the Earth's surface under our feet) and seeing the entire hemisphere of the universe that lies on one side of our galaxy.

The center of the galaxy is toward the southeast horizon, and the nearest outer edge to the northwest. Our sun is moving in the direction of the northeast horizon (toward Cygnus) in its journey around the galaxy's center.

Try not to get dizzy!

(Thanks to Jack Welch for the above information).

Sedna Observing:

Sedna is about 20.5 magnitudes in R, considerably fainter than 2004 DW and Quaoar. It is beyond the reach of almost all amateurs astronomers (though, interestingly, the first



confirmation of the existence of Sedna was made at Tenagra Observatory, an extremely high-end amateur telescope run by Michael Schwartz in southern Arizona). Time for a trek to Robert Ferguson Observatory!

The location of Sedna is easily found in the evening sky to the southwest just after sunset. It is almost directly below Mars, and forms a triangle with the very bright Venus."

<http://www.spitzer.caltech.edu/Media/releases/ssc2004-05/ssc2004-05e.shtml>

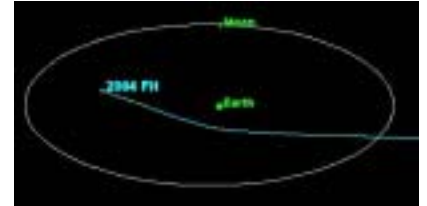
<http://www.spitzer.caltech.edu/Media/releases/ssc2004-05/quickfacts.shtml>

May: Get ready for Comet C/2001 Q4 NEAT and Comet C/2002 T7 LINEAR.

Asteroid Closest on Record

A small near-Earth asteroid (NEA), discovered by the NASA-funded LINEAR asteroid survey, made the closest approach to Earth ever recorded.

The object, designated 2004 FH, is roughly 100 ft. in diameter and passed just 26,500 miles (or about 3.4 Earth diameters) above the Earth's surface on March 18 at 2:08 PM PST. Earth's gravity bent the trajectory of the asteroid by about 15 degrees. The asteroid crossed from one side of the Moon's orbit to the other in 31 hours.



In terms of orbital elements, Near-Earth Objects (NEOs) are asteroids and comets with perihelion distance q less than 1.3 AU. Near-Earth Comets (NECs) are further restricted to include only short-period comets (i.e. orbital period P less than 200 years). The vast majority of NEOs are asteroids, referred to as Near-Earth Asteroids (NEAs). NEAs are divided into groups (Aten, Apollo, Amor) according to their perihelion distance (q), aphelion distance (Q) and their semi-major axes (a).

Potentially Hazardous Asteroids (PHAs) are currently defined based on parameters that measure the asteroid's potential to make threatening close approaches to the Earth. Specifically, all asteroids with an Earth Minimum Orbit Intersection Distance (MOID) of 0.05 AU or less and an absolute magnitude (H) of 22.0 or less are considered PHAs. In other words, asteroids that can't get any closer to the Earth (i.e. MOID) than 0.05 AU (roughly 7,480,000 km or 4,650,000 mi) or are smaller than about 150 m (500 ft) in diameter (i.e. $H = 22.0$ with assumed albedo of 13%) are not considered PHAs. There are currently 583 known PHAs.

This "potential" to make close Earth approaches does not mean a PHA will impact the Earth. It only means there is a possibility for such a threat. By monitoring these PHAs and updating their orbits as new observations become available, we can better predict the close-approach statistics and thus their Earth-impact threat.

To learn more about NEO search programs, see the following links: <http://neo.jpl.nasa.gov/programs/discovery.html>
<http://neo.jpl.nasa.gov/stats>
<http://neo.jpl.nasa.gov/programs/linear.html>
<http://neo.jpl.nasa.gov/programs/neat.html>
<http://neo.jpl.nasa.gov/programs/spacewatch.html>
<http://neo.jpl.nasa.gov/programs/loneos.html>
<http://neo.jpl.nasa.gov/programs/catalina.html>
<http://neo.jpl.nasa.gov/programs/jsnga.html>
<http://neo.jpl.nasa.gov/programs/adas.html>

Striking Sparks 2004 *continued from page 1*

This is their only real source of income for the year, and will help to sponsor a Sparks telescope next year.

Soon, it was time for the Big Event. We unveiled the telescopes and brought the ten winners up on the stage to claim their prizes. Once they were all in place, we gave the families a chance to take pictures for a few minutes. One of the kids said there were so many flashes going off she felt like a real celebrity.

They couldn't wait to get outside to try out their new telescopes on the nice clear skies. Even the bright lights around the parking lot couldn't dampen their enthusiasm. By the time they tired out and headed for home, we had everything cleaned up and put away.

It was a fantastic evening thanks to the help of all of the volunteers and sponsors. Thank you, Thank you, Thank you! I can't wait until next year when we will give out our 200th telescope!

Some of our volunteers and contributors:

Sponsors: Robert Leyland; Bill Kirst; Frank Hejtmanek (Trust); The Young Astronomers in Memory of Bob Ferguson; William Finley, MD; Dickson and B.J. Yeager; The Rev Bev and Anne Barge; Ralph Mansfield, MD; Robert Sanders & Company; The Astronomical Association of Northern California.

Larry McCune for orchestrating the manufacturing of all the telescopes. He works throughout the year to make this happen. He and Bob started the "Striking Sparks" program.

Len Nelson, this year's Striking Sparks Coordinator. It takes many hours and plenty of patience to organize the event and keep all of the volunteers headed in the right direction.

For the grinding and polishing of the mirrors: Steve Follett, Harry Linder and Len Nelson. For coating the telescope mirrors: Bob Fies.

For the cutting, sanding and assembling of the alt-az mounts: Lynn Anderson, Larry McCune, Dick Yeager, Merlin Combs, Al & Rita Stern and Len Nelson.

For painting and assembling the telescopes: Mark Hillestad, Larry McCune, Steve Follett, Cecelia Yarnell, Merlin Combs, Dick Yeager and June Ferguson.

For donations of supplies and raffle items: YardBirds Home Center of Santa Rosa, Scope City of San Francisco, Tony Hallas, Terry Dye, Angelo Parisi, Cecelia Yarnell, Valley of the Moon Observatory Association, and Ed Megill of the SRJC Planetarium.

And finally, the people who helped on "Sparks" Day: Gary Jordan, June Ferguson, Joan Thornton, Alberta Stone, Larry McCune, Mark & Lois Hillestad, Steve Follett, Merlin Combs, Dickson & BJ Yeager, Tom Burrows, Len Nelson, Christine Churchill, Gary Flowers, Al & Rita Stern, Frank Siroky, Eric Chazankin, Ben Pietsch, and Keith Payea.

Steve Follett



Mark Hillestad



Dick Yeager and Mark Hillestad



Larry McCune

Striking Spark



From left: Sean Duckworth, Melissa Munro, Kyle Nahas, Megan Frisch, Eli A



Prize Winners 2004



...say, Cyprien Pearson, Kelsey Dayton, Olivia Turnross, Paisley Kilimann, Suzie Li



Events Around the Empire and Beyond

ROBERT H. FERGUSON OBSERVATORY

Public Viewing: Saturday, April 17 and April 24

Solar Viewing Noon - 4:00 PM

Night viewing Begins 9:00 PM

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.

There is no admission fee for the solar viewing, but donations are appreciated. The Park charges \$4 per vehicle for entry. A \$2 donation is requested for admission to the observatory during the night viewing sessions. SCAS members are welcome to set up telescopes in the observatory parking lot to assist with public viewing. However, automobile access closes at dusk, so arrivals after dusk need to carry their equipment in from the parking area by the horse stables.

Classes

May 6: Using Your Telescope, 7:30 PM

May 10: Using Your Telescope, 7:30 PM

May 11: Night Sky Spring/Summer Series, 7:30 PM

May 13: Using Your Telescope, 7:30 PM

Classes are held at the Observatory. Reservations required for Night Sky Series, recommended for Using Your Telescope classes.

Contact: (707) 833-6979, or visit <http://www.rfo.org>

SONOMA STATE UNIVERSITY SERIES “WHAT PHYSICISTS DO”

Mondays at 4:00 PM

Darwin Hall Room 108

Apr. 19—Black Holes in the Cores of Nearby Galaxies

Dr. Claire Max of the University of California, Santa Cruz and Lawrence Livermore National Laboratory will describe how adaptive optics removes blurring from turbulence in the Earth's atmosphere and reveals supermassive black holes in the cores of nearby galaxies.

Apr. 26—Nanotechnology: the Art and Science of Making Small Things

Dr. Regina Ragan of Hewlett-Packard Laboratories will describe how the miniaturization of electronic components may reach the length scale of atoms and molecules.

Contact: (707) 664-2267

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

SRJC PLANETARIUM “GALAXIES—CITIES OF STARS”

April 9 - May 16

Santa Rosa Campus, Lark Hall, Room 2001

Galaxies can be thought of as cities of stars. And like cities, galaxies come in many varieties of size and shape. In this program we'll learn about our own Milky Way galaxy and the discovery of galaxies beyond. We'll also learn about the basic types of galaxies and how they gather together into galactic clusters. You'll see many spectacular images of unbelievable galaxies through the eye of the Hubble Space Telescope.



*The Mice Galaxies
Galactic Collision*

Shows are Fridays and Saturdays at 7:00 PM and 8:30 PM, Sundays at 1:30 PM and 3:00 PM during the regular Fall and Spring semesters (No Shows Sunday, April 11). Admission is \$4 General; \$2 Students and Seniors. Tickets are sold at the door only, beginning 30 minutes before show time. No children under five, please.

A parking permit is now required at SRJC and is included in the Planetarium show admission price. Pick up a parking permit at the planetarium when you pay admission. Please arrive early enough to place your permit on your vehicle's dashboard before the show starts. Contact: (707) 527-4465 or 527-437 <http://www.santarosa.edu/planetarium/>

MORRISON PLANETARIUM DEAN LECTURE SERIES

**May 10 Topic:
“Finding Aliens”**

Dr. Seth Shostak, SETI Institute

Efforts to discover other thinking species in the cosmos have not yet succeeded. Novel approaches and new equipment may soon provide proof of such sentient beings. How are researchers planning to broaden reconnaissance for intelligence elsewhere, and what may be the consequences of such a discovery?

New Location: During reconstruction of the Academy, the Dean Lectures have moved to the San Francisco Jewish Community Center at 3200 California Street (at Presidio Avenue). Parking is available across the street in the UCSF Laurel Heights campus parking lot for \$1.25 per night. Parking in the JCC garage is \$1.25 per half-hour.

Contact: (415) 750-7141

<http://www.calacademy.org/planetarium/>

SCAS-Sponsored Star Parties

PUBLIC STAR PARTY

Saturday, April 24

These are public events—all are invited. Members with scopes are encouraged to attend. It is an opportunity to do some planetary astronomy with fellow observers at an easily accessible site.

Sunset: 7:56 PM PDT

End Astronomical Twilight: 9:34 PM PDT

Moonset: 9:19 AM PDT 4/25

Two Locations to Celebrate Astronomy Day: 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

Petaluma—Location to be announced. Contact Len Nelson for information.

SPRING PICNIC & STAR PARTY AT RFO

Saturday, May 22

Mark your calendar for a picnic and evening with the stars at Robert Ferguson Observatory for members and their families only. Details will be provided in the May issue of *Sonoma Skies*.

The moon will be only three days past new, so we should have good dark sky conditions for observing Jupiter, Saturn, and the spring constellations if weather conditions are favorable. Here's a chance to use the big telescopes without the crowds.

THE GEYSERS STAR PARTY

Saturday, April 17

Excellent dark sky observing for members and their guests. Dress warmly, and take your Thermos bottles! Almanac data for April 17-18:

Sunset: 7:50 PM PDT

Moonset: 6:15 PM PDT

End Astronomical Twilight: 9:25 PM PDT

Begin Twilight: 4:56 AM PDT 4/18

Location: Palmieri Observatory, Mercuryville, CA (on the slopes of Geyser Peak near The Geysers)

Altitude: ~2700 feet

Longitude: 122deg 49min

Latitude: 38deg 46min

If you plan to attend, especially if you are going for the first time, please contact our coordinator, Mario Zelaya, at (707) 539-6423, zelayadesigns@sbcglobal.net

YOSEMITE PUBLIC STAR PARTY

Join SCAS and RFO at Glacier Point for a Public Astronomy weekend July 9 and 10. Admission to Yosemite and Bridalveil Creek Campground (about 9 miles from Glacier Point) is free because participants will provide public astronomy to Yosemite visitors. Bringing an appropriate telescope is mandatory.

Thus far, 11 people have signed up. The group campground can accommodate up to 30, so there are lots of spaces left.

Len intends to invite individuals outside of SCAS and RFO in the next few weeks, so if you are interested contact him now at lennelsn@comcast.net

SILICON VALLEY ASTRONOMY LECTURE SERIES

Wednesday, April 14, 7:00 PM

**A Galileo Wrapup: What we have learned about
giant Jupiter and its marvelous moons**

Dr. Claudia Alexander of NASA's JPL will give a nontechnical, illustrated talk. She was Project Manager of the Galileo mission to explore the Jupiter system and supervised the final descent of the spacecraft into the clouds of Jupiter after its 14-year mission of exploration.

In the Smithwick Theater, Foothill College, 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.

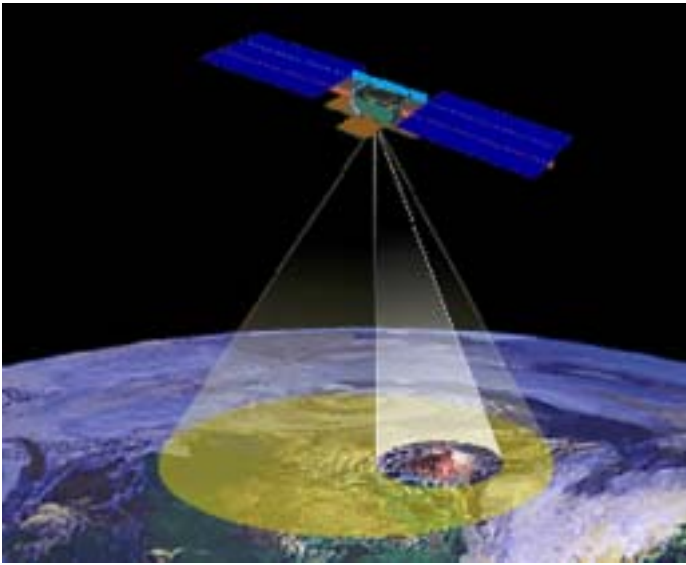
CHABOT SPACE & SCIENCE CENTER

Saturday, May 22, 6:30 PM

Teaching Spaceships: Will We Ever Build One?

Dr. Gibor Basri

Dr. Basri will take us into the future and view whether or not our science fiction fantasies can become reality. Contact: (510) 336-737 <http://www.chabotspace.org>



The Autonomous Sciencecraft technology that will be tested as part of NASA's Space Technology 6 mission will use artificial intelligence to select and transmit only the scientifically significant images.

NASA Space Place

Sciencecraft

by Patrick L. Barry and Tony Phillips

Probes that can distinguish between “interesting” things and “boring” things are vital for deep space exploration, say JPL scientists. Along with his colleagues in NASA's Space Technology 6 Project (ST6), JPL's Steven Chien is working to develop an artificial intelligence technology that does just that. Called the Autonomous Sciencecraft Experiment, it's one of many next-generation satellite technologies emerging from NASA's New Millennium Program.

As humanity expands its exploration of the outer solar system-or even neighboring solar systems-the probes we send suffer from two unavoidable handicaps. First, commands radioed by mission scientists on Earth take a long time to reach the probe: six hours for the planned New Horizons mission to Pluto, for example.

Second, the great distance also means that data beamed back by the probe trickles to Earth at a lower bandwidth-often much less than an old 28.8 kbps modem. Waiting for hundreds or thousands of multi-megabyte scientific images to download could take weeks. And often many of those images will be “boring,” that is, they won't contain anything new or important for scientists to puzzle over. That's certainly not the most efficient way of using a multimillion dollar probe.

Even worse, what if one of those images showed something extremely “interesting”—a rare event like a volcanic eruption or an unexpected feature like glaciers of methane ice? By the time scientists see the images, hours or days would have passed, and it may be too late to tell the probe to look closer.

But how can a probe's computer brain possibly decide what's “interesting” to scientists and what's not?

Indeed, that's what Chien's software does. It looks for things that change. A mission to Jupiter's icy moon Europa, for instance, might zero in on newly-formed cracks in the ice. Using artificial intelligence to set priorities, the probe could capture a complete movie of growing fractures rather than a single haphazard snapshot.

Until scientists can actually travel to deep space and explore distant worlds in person, they'll need spacecraft “out there” that can do some of the thinking for them. Sciencecraft is leading the way.

Learn more about Sciencecraft at nmp.nasa.gov/st6. Kids can make a “Star Finder” for this month and learn about another of the ST6 technologies at spaceplace.nasa.gov/st6starfinder/st6starfinder.htm

Speaker and Program Ideas Wanted

If you have a special interest you'd like to see addressed at a SCAS meeting, June Ferguson would enjoy hearing from you. Contact her at 762-7064, or email at justica809@bigfoot.com

YOUNG ASTRONOMERS CALENDAR

April 9: Topic: **Hubble Space Telescope**
Presenter: Gary Jordan

Meetings start at 7:30 PM at Apple Blossom School, 700 Water Trough Road, Sebastopol. The multipurpose hall is the large building on the right side of the school that one sees from the main parking lot.

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Young Astronomers



Eye on the Universe

The Hubble Space Telescope



APRIL 9 MEETING

Come to the Young Astronomers April meeting and learn about the remarkable Hubble Space Telescope (HST). Released into orbit in 1990 by the Space Shuttle

Discovery, the HST has provided astronomers with discoveries of fundamental importance to our understanding of the Universe. Free from the distorting effects of Earth's atmosphere, the HST continues to provide spectacular images and data for study by earthbound astronomers. With its ability to look deep into space (and therefore, far back in time), the HST has helped astronomers capture images from very early in the history of the Universe.

Gary Jordan will give a presentation about the history, discoveries, and accomplishments of this scientific wonder, the Hubble Space Telescope. Join us and, if skies are clear, bring your telescope for a star party in the upper parking lot after the presentation.



MARS UPDATE:

Evidence of a Sea on Mars?

Standing Body of Water Left Its Mark in Mars Rocks

NASA researchers announced on March 23 that the Opportunity rover has found evidence some rocks on Mars probably formed as deposits at the bottom of a body of gently flowing saltwater. "We think Opportunity is parked on what was once the shoreline of a salty sea on Mars," said Dr. Steve Squyres, principal investigator for the science payload on Opportunity and its twin Mars Exploration Rover, Spirit.

Close examination by Opportunity of some rocks has found telltale patterns, called crossbedding and festooning—layers within a rock that lie at angles to the main layers. Shifting of loose sediments under a current of water most likely made these "ripples" in the rock. The environment at the time the rocks were forming could have been a salt flat, or playa, sometimes covered by shallow water and sometimes dry. Such environments on Earth, either at the edge of oceans or in desert basins, can have currents of water that produce the type of ripples seen in the Mars rocks. The ripples and patterns in the rock indicate that the water must have been at least 2 inches deep—and possibly much deeper. Evidence of chlorine and bromine in the rocks, also suggests this type of environment.



Surface water increases the chances of finding fossils of organic chemicals during future Mars missions. "If you look at what kinds of rocks on Earth best preserve evidence of microbial life, they are the rocks that precipitated from liquid water," Squyres said.

Clues gathered so far don't tell how long, or how long ago, liquid water covered the area. To gather more evidence, the rover's controllers plan to send Opportunity out across a plain toward a thicker exposure of rocks in the wall of a crater. If all goes well, engineers at NASA's Jet Propulsion Laboratory expect Opportunity and Spirit to operate several months longer than their initial three-month prime missions on Mars.

(Adapted from a NASA press release)

March 12 YA Meeting Update

At our March 12th meeting, SCAS president Keith Payea gave the Young Astronomers group a fascinating presentation about radio astronomy. YA members not only learned the history and science behind this "younger" branch of astronomical study, but Keith also took us on a behind-the-scenes and up-close PowerPoint tour of a radio astronomy facility.

We learned about the wide range of radio frequencies used by radio astronomers to study virtually every type of astronomical object, and saw incredible images of astronomical objects taken by radio telescopes.

Significant astronomical discoveries have been made by both amateur and professional radio astronomers, such as the background radio "noise" leftover from the "big-bang" at the creation of the Universe. We learned that amateur astronomers include many that study and observe the Universe in the radio spectrum, and not just the range of visible light. Thanks, Keith, for a great presentation!



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April 2004 Sonoma Skies

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