

# Sonoma Skies

Newsletter of the Sonoma County Astronomical Society  
A nonprofit scientific and educational organization  
[www.sonomaskies.org](http://www.sonomaskies.org)



October 2004

Volume XXVII No. 10

## Great View of Eclipse October 27

October's total lunar eclipse is ideally placed for North American observers, though the penumbral phases will already be in progress at moonrise. The eclipse occurs at the ascending node of Luna's orbit in southern Aries. The Moon's trajectory takes it deep into the northern umbral shadow, resulting in a total eclipse which lasts 1 hour 21 minutes. Since different parts of the Moon will probe radically different portions of Earth's umbral shadow, a large variation in shadow brightness can be expected. The totally eclipsed Moon will appear to have a bright rim along its northern edge.



Photo: Fred Espenak, [www.MrEclipse.com](http://www.MrEclipse.com)

The penumbral phase of October's eclipse begins at 00:06 UT, but most observers will not be able to visually detect the shadow until about 00:45 UT. A timetable for the major phases of the eclipse (adapted to Pacific Daylight time) is as follows:

Penumbral Eclipse Begins:	5:05:35 PM
Partial Eclipse Begins:	6:14:25 PM
Total Eclipse Begins:	7:23:28 PM
Greatest Eclipse:	8:04:06 PM
Total Eclipse Ends:	8:44:43 PM
Partial Eclipse Ends:	9:53:44 PM
Penumbral Eclipse Ends:	10:02:44 PM

A table predicting umbral immersion and emersion times for twenty well-defined lunar craters is available at <http://sunearth.gsfc.nasa.gov/eclipse/OH/crater/Crater2004.html>. The timing of craters is useful in determining the atmospheric enlargement of Earth's shadow.

—Adapted from an article by Fred Espenak,  
<http://sunearth.gsfc.nasa.gov/eclipse/OH/OH2004.html>

## OMEGA CENTAURI: Globular Cluster or Galaxy? with Prof. Ken Freeman

SCAS October 13 Meeting, Proctor Terrace School

Omega Centauri (NGC 5139), the brightest and largest known globular star cluster, containing well over a million stars, is located in the conspicuous constellation Centaurus in the southern hemisphere. It has old red stars that no longer fuse hydrogen into helium in their core but rather fuse helium into carbon. How will they end up? Also of interest is that ultraviolet imaging reveals hot blue stars.



Ken Freeman is Duffield Professor of Astronomy at the Australian National University in Canberra. He studied mathematics at the University of Western Australia and theoretical astrophysics at the University of Cambridge, followed by postdoctoral year at McDonald Observatory (University of Texas) and a year as a fellow of Trinity College, Cambridge. He researches the formation



© Anglo-Australian Observatory

and dynamics of galaxies and globular clusters, and particularly the problem of dark matter in galaxies—he was one of the first to point out (1970) that spiral galaxies contain a large fraction of dark matter.

For current research he uses the optical and radio telescopes in Australia, the Hubble Space Telescope, and large optical telescopes in Spain, Chile, and Hawaii. An author of 500 research articles and recipient of many honors and distinguishing awards, Ken Freeman is a member of the organizing committee of many international conferences and is division president of the International Astronomical Union. He serves on visiting committees for several major astronomical institutions around the world. Outside of astronomy, interests are family, reading, bushwalking, birdwatching, and classical music.

Learn more about our fascinating universe when visiting Professor Ken Freeman speaks October 13 at 7:30PM. All are welcome!

Young Astronomers: See pages 6 & 7

# 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

**NEW!** SCAS 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, 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 first come, first served basis, space permitting, and may be edited.

**The deadline for submissions is the last Wednesday of each month.**

Mail To: SCAS, P.O. Box 183, Santa Rosa, CA 95402  
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[www.sonomaskies.org](http://www.sonomaskies.org)

# SCAS ELECTED BOARD

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### PUBLIC STAR PARTY COORDINATOR

Bruce Lotz 576-7833 [ablotz@sonic.net](mailto:ablotz@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](mailto:phonyjoanie@earthlink.net)

## SCAS EGROUP URL

Any SCAS member is welcome to join. Hosted by Robert Leyland at [r.leyland@verizon.net](mailto: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.

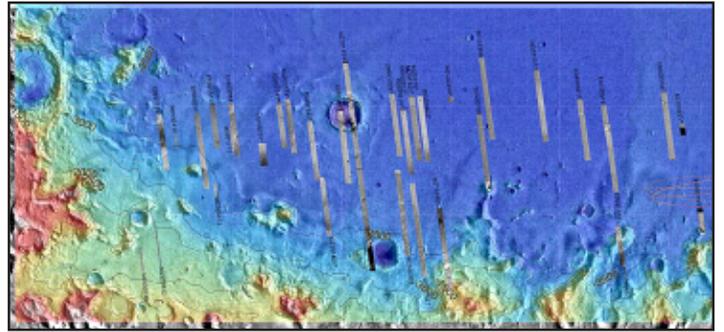
To join, either visit <http://groups.yahoo.com/group/scas> and click the "Join" button, or send an email to [scas-subscribe@yahoogroups.com](mailto:scas-subscribe@yahoogroups.com)

# The Astronomer Semi-Sirius

by  
Herb  
Larsen



*Oh, my! It looks like there have been some layoffs in the Space and Science Industry!*



Isidis Planitia Sites: NASA/JPL

## You Could Help NASA Explore Mars

*NASA/JPL Press Release:* NASA scientists have modified a scientific Web site so the general public can inspect big regions and smaller details of Mars' surface, a planet whose alien terrain is about the same area as Earth's continents. After adding web tools to the Marsoweb Internet site, NASA scientists plan to ask volunteers from the public to virtually survey the vast red planet to look for important geologic features hidden in thousands of images of the surface. The Web site is located at:

<http://marsoweb.nas.nasa.gov/landingsites/index.html>

"The initial reason to create Marsoweb was to help scientists select potential Mars landing sites for the current Mars Exploration Rover (MER) mission," according to Virginia Gulick, a scientist from the SETI Institute, Mountain View, CA. But when the first Mars Exploration Rover landed on Mars in January, more than a half million visitors found the page, and the Web experienced about 26.7 million "hits" in January.

To examine a large number of distinctive or interesting geologic features on the red planet close up would take an army of people because Mars' land surface is so big. Such a multitude of explorers—modern equivalents of America's early pioneers—may well survey details of Mars through personal computers.

Researchers hope volunteers will help with an upcoming Mars imaging experiment. NASA scientists are getting ready for the High Resolution Imaging Science Experiment (HiRISE) that will fly on the Mars Reconnaissance Orbiter (MRO) mission, slated for launch in August 2005. Gulick, co-investigator and education and public outreach lead of the HiRISE team, said that the experiment's super high-resolution camera will be able to capture images of objects on Mars' surface measuring about a yard wide.

User-friendly "Web tools" soon will be available to the science community and the public to view and analyze HiRISE images beginning in November 2006 and to submit image observation requests, according to HiRISE scientists. If all goes according to plan, a request form will be on the Internet for use by scientists and the public about the time of the Mars Reconnaissance Orbiter launch in 2005. Marsoweb computer scientist Glenn Dearnorff, Gulick and other HiRISE team members are now designing Web-friendly software tools to allow the public to examine and evaluate HiRISE images.

*continued page 6*

### MEMBERSHIP NEWS

We now have 134 dues-paying members.

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

### SCOPE CITY New Member Bonus!

Scope City at 350 Bay Street, San Francisco, is offering a **\$25 merchandise discount to new members** when joining SCAS. Sam Sweiss, Manager of Scope City, has been a supporter of SCAS and the Striking Sparks project by donating merchandise for the awards. Scope City offers a huge selection of telescopes, binoculars, microscopes and accessories.

Obtain a receipt from Harry Linder, Membership Director, to show that you have paid the \$25 SCAS membership dues. To arrange for your merchandise discount at the store, contact Sam at 415/421-8800, or email [sanfrancisco@scopecity.com](mailto:sanfrancisco@scopecity.com)

# Events

## SCAS PUBLIC STAR PARTY

**Saturday, October 23**

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.

**Sunset:** 6:21 PM PDT

**End Astronomical Twilight:** 7:50 PM PDT

**Moonset:** 2:38 AM PDT 10/24

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, [ablutz@sonic.net](mailto:ablutz@sonic.net)

\***NEW!** Rental telescopes listed on Page 2 are *free* each month you participate in a SCAS-related Public Star Party. Join us in introducing the night sky to eager participants.

## MT. TAMALPAIS ASTRONOMY

**Saturday, October 16 - 7:30PM**

“Exploring the Meaning of Life,” Dr. Emma Bakes, SETI Institute/NASA-Ames. There is evidence for the universal formation of life throughout the cosmos.

Presentations are held in Mt. Theatre for about 45 minutes. Viewing afterwards in Rock Springs Parking Area, provided by San Francisco Amateur Astronomers. The Madrone Picnic Area (next to the Mt. Theater) is reserved 1-1/2 hours before each program for informal gathering. Bring your picnic supper and meet the speakers before the talk.

Information: <http://www.mttam.net/>

## MORRISON PLANETARIUM

### DEAN LECTURE SERIES

#### “NASA’s Great Observatories” Series

**October 18—The Spitzer Space Telescope**, Dr. Michelle Thaller, California Institute of Technology

**New Location:** During reconstruction, 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/night. Parking in the JCC garage is \$1.25 per half-hour.

All programs begin at 7:30 PM in Kanbar Hall at the Jewish Community Center. Contact: (415) 750-7141  
<http://www.calacademy.org/planetarium/>

## 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, OCTOBER 9**

**Sunset:** 6:41 PM PDT

**End Astronomical Twilight:** 8:08 PM PDT

**Moonset:** 4:54 PM PDT

**SATURDAY, OCTOBER 16**

**Sunset:** 6:31 PM PDT

**End Astronomical Twilight:** 7:59 PM PDT

**Moonset:** 8:31 PM PDT

Both dates are available to cover the possibility of bad weather. 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](mailto:zelayadesigns@sbcglobal.net)

## ROBERT H. FERGUSON OBSERVATORY

**Public Viewing: October 16**

Solar Viewing: Noon - 4:00 PM

Night viewing: Begins 8:00 PM

**Total Lunar Eclipse: October 27, 6:00 PM**

At RFO, Moon rises at 6:08, enters umbra at 6:14, totality from 7:23 to 8:43, leaves umbra at 9:52, leaves penumbra at 10:59PM. NOTE: Hills east of observatory will block initial viewing.

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 \$6 per vehicle for entry. A \$2 donation is requested from adults 18 and over 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. Automobile access closes at dusk, so arrivals after dusk need to carry their equipment in from the parking area by the horse stables.

### Classes

- Oct. 5 Night Sky Fall Series, 7:00 PM
- Oct. 7 Introduction to Astronomy & Observing, 7:00 PM
- Oct. 12 Night Sky Fall Series, 7:00 PM
- Oct. 14 Using Your Telescope, 7:00 PM
- Oct. 18 Using Your Telescope, 7:00 PM

Classes are held at the Observatory. Reservations required for classes. Contact: (707) 833-6979, or visit <http://www.rfo.org>

# Events

## NOVATO STAR PARTY OCTOBER 23

*Bring your scope!*

The “W” Foundation (<http://thewfoundation.org>) is putting on an event in Novato called “Touch Our History in Space” on October 21-24. They’ve asked The Planetary Society Bay Area Volunteer Network (<http://tpsnavn.org>) to assist by hosting a public star party the evening of Saturday, October 23. TPSBAVN is inviting SCAS members to participate by bringing their telescopes to the event.

The “W” Foundation was founded in December 2002 as a nonprofit organization dedicated to space education. TPSBAVN is the Bay Area arm of The Planetary Society’s global volunteer network. They sponsor events such as the upcoming “Mingling Planetary Microbes: Protecting alien ecosystems...and our own” this November in San Jose.

The star party will run from dusk until around 10PM or whenever, and will be held at the Unity Center, 600 Palm Drive (on the former Hamilton AFB) in Novato. If you would like to participate, please contact Walt Bodley by phone (707-823-5268) or email ([wbodley@sonic.net](mailto:wbodley@sonic.net)) for details.

## SRJC PLANETARIUM

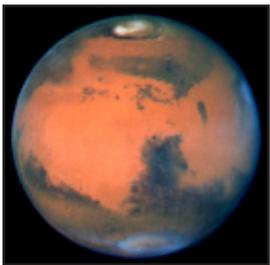
**“The Lives of Stars”**

**Ends October 10**

**“Exploring Mars”**

**October 15 - November 21**

Mars rovers Spirit and Opportunity have now completed months on the red planet Mars. In this show you will see the most recent photos and learn about the newest Mars information. Discover



how Mars is more like the Earth than other planets. See evidence and learn how Mars was once a life-supporting world. Travel with the magic of the planetarium as we find ourselves looking out over the Valley of the Mariner and climb atop the great Martian volcano.

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 \$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 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. Contact: (707) 527-4465 or 527-437 <http://www.santarosa.edu/planetarium/>

## SCHOOL STAR PARTY OCT. 27

**Oct. 27** (Wed.) 7:30 PM Austin Creek Elementary in NE Santa Rosa. Lunar Eclipse this evening.

Star parties are given free to any school or organization that requests them. For information and arrangements, contact the SCAS Community Activities Director, Len Nelson, at 707/763-8007, [lennelsn@comcast.net](mailto:lennelsn@comcast.net). Get on his volunteer list if you are interested in being notified of up-coming school star parties and how to get to them.

## SONOMA STATE UNIVERSITY SERIES “WHAT PHYSICISTS DO”

**Mondays at 4:00 PM**

*Darwin Hall Room 108*

### **Oct. 11—Science on Mars with Spirit and Opportunity**

Dr. Albert Haldemann of the Jet Propulsion Laboratory, Caltech will review the adventures and discoveries made by the twin Mars Exploration Rovers Spirit and Opportunity on Mars.

### **Oct. 18—Climate Control: Reducing the Role of Cars in Global Warming**

Dr. Louise Bedsworth of the Union of Concerned Scientists will discuss currently available technologies to greatly reduce the impact of automobiles on global warming emissions and current policy opportunities to realize them.

### **Oct. 25—Test for Newton’s Law of Gravity at Sub-Millimeter Distances**

Dr. Aharon Kapitulnik of Stanford University will discuss the motivation for testing Newton’s inverse-square law at short distances and will describe novel devices that are used to measure possible deviations from this law.

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

## SSU OBSERVATORY PUBLIC VIEWING

### **Oct. 15, 8PM-10PM: Bubble Nebula, Stephen’s Quintet**

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

## Refreshment Person Needed

A volunteer is needed to gather ingredients and heat water for coffee and tea at the SCAS monthly meetings. For your efforts, SCAS offers one year of free membership as a thank you. If you’d like to help, please contact any Board member.

## Explore Mars *continued from page 3*

“We will ask volunteers to help us create “geologic feature” databases of boulders, gullies, craters—any kind of geologic feature that may be of interest,” Gulick explained. “Scientists or students can use these data bases to propose theories about Mars that could be proven by future exploration.”

Preliminary details about Mars Reconnaissance Orbiter HiRISE’s exploration of Mars are on the World Wide Web at: <http://marsoweb.nas.nasa.gov/hirise/> The current Marsoweb site includes animated “fly-throughs” of some Mars locations. The site also permits users to fine-tune Mars images for brightness, contrast and sharpness as well as make other adjustments.

### **2005 MATERIALS HAVE ARRIVED!**

The 2005 Observer’s Calendars (\$7.70) and the 2005 Observer’s Handbooks (\$15.20) should be available at the SCAS October 13 general meeting. If you want one, please bring cash or a check payable to “SCAS.”

## **Dense Matters: Astronomers Peek Inside Neutron Star**

Astronomers have snatched a peek at the innards of a neutron star, combining a series of observations to pin down the type of matter squeezed into the ultra-dense stellar ball. The approach is expected to enable future astronomers to glimpse the stuff inside other neutron stars, boosting their understanding of matter, energy and the fundamental particles that make up the universe.

“Neutron stars are a sort of cosmic lab in a sense that the material at their centers is so dense it can’t be reproduced on Earth,” said study leader Tod Strohmayer in a telephone interview. “We can’t get a piece of this material and examine it ourselves.”

About the size of a city, a neutron star is the remnant of an exploded star whose matter is so compressed, the protons and electrons within its atoms fuse into neutrons. A teaspoon of the dense stuff would weigh about a billion tons on Earth.

Understanding the internal structure of a neutron star would allow scientists to determine the object’s basic properties, explained Lars Hernquist, an astronomer with the Harvard-Smithsonian Center for Astrophysics. (See more of this article by Tariq Malik at [Space.com](http://Space.com)).

## **SCAS BOARD ELECTIONS COMING!**

Two positions will be open for 2005—Vice President and Membership Director. June Ferguson and Harry Linder will be retiring, and we are very grateful for their wonderful service. If you’ve ever considered becoming an integral part of SCAS decisions and functions, or would like to nominate someone you think fills the bill, contact any Board member listed on Page 2.



## **Comets!**

**with Gary Jordan**

**YA October 8 Meeting, Apple Blossom School**

Learn more about comets. Join us for the October Young Astronomers meeting, when comets will be the topic of a presentation by Gary Jordan, YA adult advisor. Bring your telescope, and a friend!

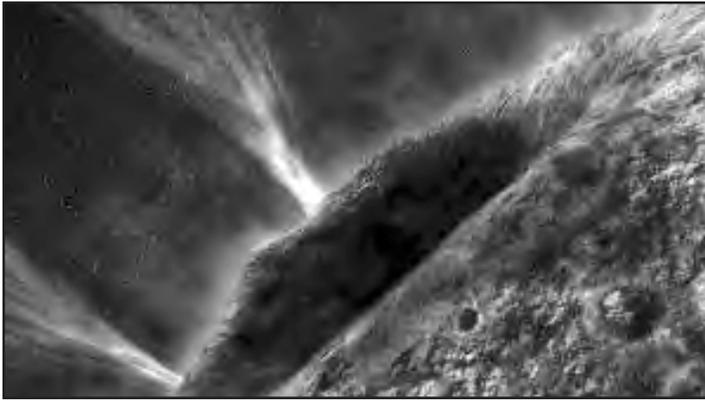
## **Young Astronomers Return: September YA Meeting Notes**

The September Young Astronomers meeting was an outstanding beginning of the new school year for YA members. Close to thirty people attended as returning YA President Melissa Downey welcomed everyone back for another YA “season.” She then introduced Len Nelson, who gave a fascinating presentation about Saturn, beginning with an introduction detailing the history of humankind’s growing knowledge of the ringed planet.

This set the stage for Len’s presentation of an excellent NASA/JPL video about the ongoing Cassini mission to Saturn. There was added excitement when he interrupted the video to take YA members outside to view a flyover of the International Space Station. Sharp eyes soon also discovered additional satellites moving high overhead as we watched the ISS traverse the sky. The ISS flyover was an unexpected treat for all attendees. Len provided YA members with free postcards of Saturn images from the Cassini mission (courtesy JPL), NASA emblem stickers, and inaugural copies of a new publication for young astronomers. Thanks, Len, for an outstanding presentation for our first YA meeting this season!

This YA meeting also provided an opportunity for the Young Astronomers to hold a very successful election to fill open officer positions. Returning YA President Melissa Downey presided over the election. Candidates were asked to give a brief explanation of their interest and qualifications for the job. The Young Astronomers would like to welcome Olivia Turnross as Vice-President, Scott Grubb as Newsletter Editor, and Jacob Gaynor as Librarian. The position of recorder is still open.

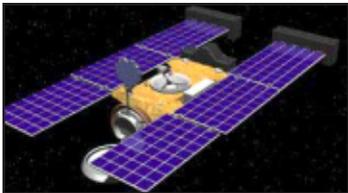
After the elections the meeting was adjourned, and members moved to the upper parking lot for a star party. Skies were clear, and the viewing was great!



This is an artist's concept depicting a view of comet Wild 2 as seen from NASA's Stardust spacecraft during its flyby of the comet on Jan. 2, 2004.

## NASA SPACECRAFT REVEALS SURPRISING ANATOMY OF A COMET

Comets have been objects of fascination through the ages. Many scientists believe they delivered carbon and water, life's building blocks, to Earth. Yet their destructive potential is illustrated by the widely held theory that a comet or asteroid wiped out the dinosaurs. Now, findings from a historic encounter between NASA's Stardust spacecraft and a comet have revealed a much stranger view of comets than previously believed. The comet's rigid surface, dotted with towering pinnacles, plunging craters, steep cliffs, and dozens of jets spewing violently, has surprised scientists. Stardust gathered the images Jan. 2, 2004, when it flew 236 kilometers (about 147 miles) from Comet Wild 2. The flyby yielded the most detailed, high-resolution comet images ever.



"We thought Wild 2 would be like a dirty, black, fluffy snowball," said Stardust Principal Investigator Dr. Donald Brownlee of the University of Washington,

Seattle. "Instead, it was mind-boggling to see the diverse landscape in the first pictures from Stardust, including spires, pits and craters, which must be supported by a cohesive surface. We know Wild 2 has features sculpted by many processes. It may turn out to be typical of other comets, but it is unlike any other type of solar system body. We're fortunate that nature gave us such a rich object to study."

Stardust images show pinnacles 100 meters tall (328 feet), and craters more than 150 meters deep (492 feet). Some craters have a round central pit surrounded by ragged, ejected material, while others have a flat floor and straight sides. The diameter of one large crater, called Left Foot, is one fifth of the surface of the comet. Left Foot is one kilometer (.62 miles) across, while the entire comet is only five kilometers (3.1 miles) across.

"Another big surprise was the abundance and behavior of jets of particles shooting up from the comet's surface. We expected a couple of jets, but saw more than two dozen in the brief flyby," said Dr. Benton Clark, chief scientist of space exploration systems, Lockheed Martin Space Systems, Denver. The team predicted the jets would shoot up for a short distance, and then

be dispersed into a halo around Wild 2. Instead, some super-speedy jets remained intact, like blasts of water from a powerful garden hose. This phenomenon created quite a wild ride for Stardust during the encounter.

"Stardust was absolutely pummeled. It flew through three huge jets that bombarded the spacecraft with about a million particles per second," said Thomas Duxbury, Stardust project manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif. Twelve particles, some larger than a bullet, penetrated the top layer of the spacecraft's protective shield. The violent jets may form when the Sun shines on icy areas near or just below the comet's surface. The solid ice becomes a gas without going through a liquid phase. Escaping into the vacuum of space, the jets blast out at hundreds of kilometers per hour.

The Stardust team theorizes sublimation and object hits may have created the comet's distinct features. Some features may have formed billions of years ago, when life began on Earth, Brownlee said. Particles collected by Stardust during the Wild 2 encounter may help unscramble the secrets of how the solar system formed.

Stardust was launched in 1999. It is zooming back to Earth with thousands of captured particles tucked inside a capsule. The capsule will make a soft landing in the Utah desert in January 2006. The samples will be analyzed at the planetary material curatorial facility at NASA's Johnson Space Center, Houston.

To view Stardust images on the Internet, visit <http://stardust.jpl.nasa.gov> or <http://photojournal.jpl.nasa.gov/>

—Adapted from a NASA press release

## YA CALENDAR

### October 8 — Comets, Gary Jordan, YA

**Meetings** start at 7:30 PM at Apple Blossom School, 700 Water Trough Road, Sebastopol in the Multipurpose Hall—the large building on the right side of the school. Meetings are open to all students in Sonoma County, and are held the second Friday of each month. **Telescope viewing** is held in the upper parking lot after the meeting.

**Directions:** From Hwy. 116 (Gravenstein Hwy.) in Sebastopol, turn west onto Bodega Ave. Continue on Bodega Ave. almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right. From Hwy. 12, go straight through Sebastopol, past Main Street, and continue as above.

### YA ELECTED OFFICERS

**PRESIDENT:** Melissa Downey 632-5661

**VICE-PRESIDENT/PROGRAM DIRECTOR:** Olivia Turnross

**RECORDER:** Open

**NEWSLETTER EDITOR:** Scott Grubb

**LIBRARIAN:** Jacob Gaynor

**ADULT ADVISER:** Gary Jordan 829-5288

**Sonoma County  
Astronomical Society**

P.O. Box 183  
Santa Rosa, CA 95402



**October 2004 *Sonoma Skies***

OCTOBER 13

**Ken Freeman**

**Omega  
Centauri**

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## October Observing Notes

**Oct. 12:** Zodiacal Light visible in East before morning twilight the next two weeks.

**Oct. 14:** New Moon, partial solar eclipse

**Oct. 21:** Orionid meteors peak

**Oct 27:** Total Lunar Eclipse (Hunter's Moon) begins 5:05PM

**Oct. 31:** Daylight Saving Time ends

**Late Oct:** Saturn rises in ENE by 11PM

**Agol** visible in Perseus

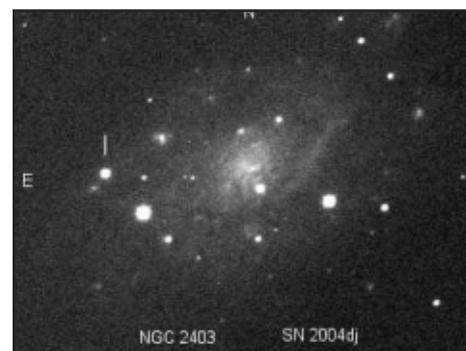
### *Links featured this month:*

Ever wonder what "Algol at Minimum" means? As regular as clockwork, every 2.87 days, Algol's brightness plummets from mid second mag. to dim third, to less than a third normal, the whole event (including recovery) taking only a few hours. Algol is a close double star whose components orbit and partially eclipse each other every 2.87 days. Algol is famed as a prototype of the class of eclipsing variable stars. Visit Jim Kaler's Star of the Week site for the rest of Algol's story plus 341 other stars (so far): <http://www.astro.uiuc.edu/~kaler/sow/sowlist.html>

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## BRIGHT SUPERNOVA

The AAVSO announced that a bright supernova was discovered by K. Itagaki, Teppochō, Yamagata, Japan on July 31 and confirmed on August 1. The supernova is near the NE edge of



NGC 2403 and well placed for visual and CCD observations. The location is: R.A. = 7h37m17s.02, Decl. = +65°35'57".8. It's circumpolar and observable with a medium-sized telescope if you have a clear northern horizon. It's about 17 degrees above the horizon at 9:30PM PST.

Thanks to Phil Sullivan for providing observing hints above and for modifying Itagaki's discovery image, shown here. The image is about 9.5 arcmin wide. The two brightest stars are approximately magnitude 9.9 and 10.3. You can download a chart with magnitude sequence from AAVSO:

[www.aavso.org/cgi-bin/searchcharts3.pl?name=sn%202004dj](http://www.aavso.org/cgi-bin/searchcharts3.pl?name=sn%202004dj)