

Sonoma Skies

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

www.sonomaskies.org



December 2004/January 2005

Volume XXVII No. 12

SCAS Annual Review, Plans for 2005

with Len Nelson and Keith Payea

SCAS *January 12 Meeting, Proctor Terrace School*



For the last few years, Len Nelson has entertained us at the January meeting with a look back at what we did the previous year. As you may know, Len has a yen for keeping a photographic record of significant club events during the year, and he'll be presenting them at the meeting. This is also a time to show our appreciation to members who have volunteered for our various events.



Following this, Keith will let you know what we have in store for the coming year, take your feedback about the prior year's events, and listen to your ideas about what you'd like to do in 2005.

By all means, plan to attend. We're sure you'll find it entertaining and informative.

Striking Sparks

By Sparks Coordinator Len Nelson

Once again we come upon that magical time of the year when the Striking Sparks Telescopes are fabricated by Santa's elves and other SCAS volunteers.

This year will be a bit more special than many that preceded it, because we'll be producing our 200th Sparks telescope!! To date, we have awarded 192 telescopes.

At the Striking Sparks celebration planned for Saturday, March 19, we will present eight Scopes so that we arrive at no more than 200 awarded. That way, we can honestly say that each of the eight scopes will be our 200th telescope.

I must tell you that Santa has fewer elves to spare us this year soooohow can you help, you ask?? *Please see Page 6.*

Young Astronomers: See pages 6 & 7

Measuring Things

with Jack Welch

SCAS *December 8 Meeting, Proctor Terrace School*

Several SCAS members have asked questions related to how astronomers measure things, such as distance, size, position, motion, temperature, age, and more. Jack Welch's presentation will look at how some of these measurements are made and will provide information for performing useful calculations from data that are commonly available.

Jack grew up in the remote countryside of San Joaquin County, where there was little light pollution. Becoming informally familiar with the sky, he learned a few of the well-known constellations by name. While he studied chemistry at CalTech, several of his fellow students were studying astronomy. The latest discoveries or theoretical ideas were common topics of conversation. As he learned more physics and quantum chemistry, his appreciation and understanding of these discoveries increased. One of his fellow students was the son of the Director of the Palomar Observatories, and he was invited to spend Christmas of 1976 atop Mount Palomar with its 200-inch telescope.

While working at Baxter-Travenol in Los Angeles, he went on camping trips to the Southern California deserts with a friend who had a strong amateur interest in astronomy. They spent the long winter nights learning as much as they could of the night sky and doing binocular observing.

In 1999, Jack retired from Baxter and moved to Sebastopol. During his first month in Sonoma County, he heard about the Robert Ferguson Observatory on the radio and visited a public night. That winter, he became a docent and started exploring telescope observing for the first time. For the past three years, he has been coordinating and teaching the Observatory's popular Night Sky classes. He also put together the Observatory's new "Observing Lab" programs. Jack says that compiling the materials used for these classes has been a great learning process, and he looks forward to sharing it with you in his presentation.

Special Note: This is a double issue of Sonoma Skies. It includes program announcements, star party schedules, sky events, etc. for both December and January. Monthly issues will resume beginning February 2005. Happy Holidays!

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.

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
Editor: Cecelia Yarnell, ceceliay@sbcglobal.net

www.sonomaskies.org

SCAS ELECTED BOARD

PRESIDENT

Keith Payea 566-8935 kpayea@bryantlabs.net

VICE-PRESIDENT & PROGRAM DIRECTOR

June Ferguson 762-7064 justica809@bigfoot.com

TREASURER

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

SECRETARY

Loren Cooper 525-8737 lorenco@sonic.net

MEMBERSHIP DIRECTOR

Harry Linder 542-9167 harry@sonic.net

COMMUNITY ACTIVITIES DIRECTOR

Len Nelson 763-8007 lennelsn@comcast.net

PUBLICATIONS DIRECTOR

Cecelia Yarnell 569-9663 ceceliay@sbcglobal.net

SCAS APPOINTED POSITIONS

AMATEUR TELESCOPE MAKING

Steve Follett 542-1561 sfollett@sonic.net

YOUNG ASTRONOMERS ADVISOR

Gary Jordan 829-5288 SieraMolly@aol.com

STRIKING SPARKS PROGRAM COORDINATOR

Len Nelson 763-8007 lennelsn@comcast.net

LIBRARIAN

Joan Thornton 762-0594 phonyjoanie@earthlink.net

PUBLIC STAR PARTY COORDINATOR

Bruce Lotz 576-7833 ablotz@sonic.net

LIBRARY

NEW! Jack Cranston has donated a set of videos from the PBS series "The Astronomers." Especially good for school age children with an interest in Astronomy.

SCAS has a library of astronomy books that may be checked out by members at SCAS meetings. 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



by Herb Larsen

MEMBERSHIP NEWS

The SCAS is pleased to welcome Jessica Kennedy and Judie Coleman as new members, who have joined in the past few months. We now have 137 paying members, plus the ten 2003 Striking Sparks Telescope winners.

So far, 36 members have indicated willingness to receive *Sonoma Skies* via e-mail only. Foregoing the paper copy saves significant mailing costs over time, and there is the convenience of storing issues of *Sonoma Skies* in a computer file where they're less likely to be misplaced. And, they're in color! With hot links!

If you would like to receive only the e-mail version (better in every way, and they never get wrinkled) just send an e-mail to the Membership Director at 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**. Sam Swiss, Manager of Scope City, has supported 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

President's Column

As if you haven't had enough of elections this fall...

by Keith Payea

Every December, the members of SCAS elect a new board of directors for the coming year. All positions are fair game if anyone is interested in one of them. The current board is:

President – Keith Payea
 Vice President & Program Director – June Ferguson
 Treasurer – Larry McCune
 Secretary – Loren Cooper
 Membership Director – Harry Linder
 Community Activities Director – Len Nelson
 Publications Director – Cecelia Yarnell

As you know from last month's newsletter, June and Harry are retiring from the SCAS Board. The rest of the board members are willing to serve another term if you nice people re-elect us.

We have been scouring the membership, looking for folks willing to accept nomination to the two vacancies. So far, Walt Bodley has accepted the nomination for Membership Director, and John Whitehouse has said he will accept nomination for Vice President and Program Director. Of course, these are open elections, and if any member wants to "throw their hat in the ring" they only need someone (even themselves) to nominate them. You don't even have to stand out in front of Safeway asking for signatures!

At the beginning of the December meeting, prior to the vote, I'll ask for nominations. If we still have only one person per position, I'll just ask for one vote to accept the entire slate of candidates.

One other item, related to volunteering—at the last board meeting, we noticed that no one had come forward to take on the Refreshment Coordinator job. We figured that it seemed like a big commitment to do it every month, so we decided to just ask for a volunteer month-by-month. To kick things off, my wife Nikki has agreed to provide refreshments for the December meeting. After that we'll ask for people to sign up for the next meeting. As always, send me your suggestions or comments at kpayea@bryantlabs.net Keep looking up!

GALACTIC SURPRISE

by Patrick L. Barry and Dr. Tony Phillips

Open an old astronomy textbook. The basic sketch you'll find there of galaxy formation is fairly simple: a vast cloud of diffuse hydrogen and helium gas condenses under gravity, and dense spots in the cloud collapse to form stars. Voila! A galaxy.

But real galaxies are much more complex than that. A galaxy is a swirling "soup" of billions of stars and roaming black holes, scattered clouds of gas and dust, random flashes of star birth and exploding supernovas, and an unseen and mysterious substance called "dark matter." Over time, all these ingredients mix and

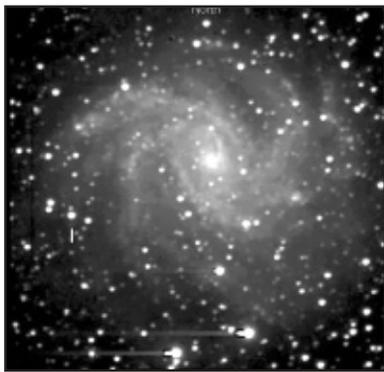
continued Back Cover

Observing challenge: Supernova 2004et

by Phil Sullivan

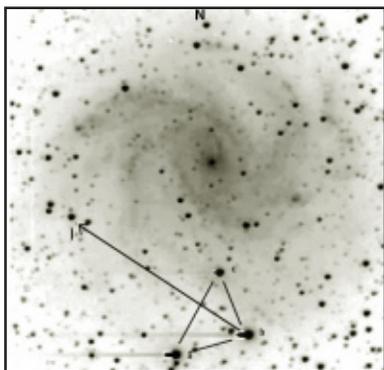
About once or twice per year, a supernova appears in an external galaxy that is bright enough to be visible in medium-sized amateur telescopes. The latest is SN 2004et, discovered September 29 in NGC 6946. It reached magnitude 12.4 in early October.

I took this image October 6 with the Cook CCD telescope at the Ferguson Observatory in Sugarloaf State Park. On the same night several people also viewed the SN using the 25" reflector. On the previous night I saw the SN with a C8 from my home in Occidental, and I saw it again in mid-November with the C8 when it was about magnitude 12.8. It should still be about magnitude 13.0 in early December when this issue of *Sonoma Skies* is published.



If you want to see it for yourself you'll probably need at least an 8" telescope at a fairly dark site and a clear night with no Moon. The galaxy is high in the northwest in the early evening at the foot of Cepheus just on the Cygnus border. You'll need to use high power (I needed 250X on the C8). But most important, you'll need to know exactly where to look. The galaxy, listed as magnitude 9.7, is quite large so its surface brightness is low. The galaxy itself is difficult to see even in a large telescope.

The key is to identify the triangle of 10th and 11th magnitude stars overlying the southern fringe of the galaxy (the stars with the blooming streaks in the image), then use that triangle to guide you to the supernova. I've posted "starhop" instructions and a set of downloadable finder charts here: <http://www.sonic.net/~navillus/SN2004et/> Start with the readme.txt file.



EXPLORATORIUM WEBCASTS

Dec. 21, Noon—Winter Solstice webcast from Chaco Canyon



Chaco Canyon in New Mexico was a major center of Puebloan culture known for the Sun Dagger, an artifact that many people believe was a celestial calendar for the ancient Pueblo Indians. www.exploratorium.edu/chaco

January 14, 15, 22—Saturn/Cassini Spacecraft Webcasts

Events

SCAS SCHOOL STAR PARTIES

Dec. 15 (Wed.) 7:30 PM, Dunbar Elementary, N. Petaluma
Feb. 17 (Thur.) 7:30 PM, Windsor Elementary (18th if rain)

Star parties are given free to any school or organization that requests them. To make arrangements, contact SCAS Community Activities Director, Len Nelson, at 707/763-8007, lennelsn@comcast.net. Get on his volunteer list if you are interested in being notified of upcoming school star parties.

MORRISON PLANETARIUM DEAN LECTURE SERIES

“NASA’S GREAT OBSERVATORIES” SERIES

January 24—“Exploding Stars, Blazing Galaxies and Monstrous Black Holes: The Extreme Universe of Gamma-ray Astronomy”—Dr. Lynn Cominsky, Sonoma State University

New Location: During reconstruction, lectures are held at the 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. All programs begin at 7:30 PM in Kanbar Hall at the JCC. Contact: 415/750-7141 <http://www.calacademy.org/planetarium/>

Dec./Jan. Observing Notes

Dec. 7: Crescent Moon occults Jupiter near dawn

Dec. 12: New Moon, Large tides

Dec. 13: Geminid meteors peak

Jan. 15: Saturn at Opposition, 3:00 PM

Jan. 17: Moon near Mars & Antares, 6:30 AM. Waning crescent near Sigma Sco in predawn SE sky. Venus and Mercury rise together slightly to the north.

Jan. 31: Moon very near Jupiter, 3:00 AM

Feb. 1: Comet C/2003 T4 near Albireo Rising in NE around 04:00, reaches 27° by start of astronomical twilight at 05:44.

Links featured this issue:

Stellar/Nebular Spectra: In-depth explanation, with links and photos, by Jim Kaler: <http://www.astro.uiuc.edu/~kaler/sow/spectra.html#age>

Virtual Moon Atlas: Get your free download here: http://astrosurf.com/avl/UK_index.html

Solar and Heliospheric Observatory (SOHO): See incredible images of the sun from this orbiting telescope <http://sohowww.nascom.nasa.gov/>

NASA’s Comet Sample Mission: <http://stardust.jpl.nasa.gov/>
NASA’s Deep Impact mated flyby and impactor spacecraft <http://deepimpact.jpl.nasa.gov/>

Events

THE GEYSERS STAR PARTIES

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

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

SATURDAY, DECEMBER 11

Sunset: 4:50 PM PST

End Astronomical Twilight: 6:25 PM PST

Moonset: 4:24 PM PST

SATURDAY, JANUARY 8

Sunset: 5:07 PM PST

End Astronomical Twilight: 6:42 PM PST

Moonset: 3:02 PM PST

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

ROBERT H. FERGUSON OBSERVATORY

Public Viewing: Saturday, January 8

Solar Viewing: 11:00 AM - 3:00 PM

Night Viewing: Begins 7:00 PM

Public Viewing: Saturday, February 5

Solar Viewing: 11:00 AM - 3:00 PM

Night Viewing: Begins 7:00 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 \$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 may set up telescopes in the observatory parking lot to assist with public viewing. Automobile access closes at dusk, late arrivals must carry equipment in from the horse stable parking area.

Classes

Jan. 11 Night Sky Winter/Spring Series, 7:00 PM

Feb. 4 Observing Lab, 7:00 PM

Feb. 8 Night Sky Winter/Spring Series, 7:00 PM

"Diffuse Nebulae, Star Formation, and Open Clusters." A hands-on telescope observing session with a brief presentation on the night's theme. Handouts/Observing Lists provided.

Classes are held at the Observatory. Reservations required for classes. Contact: (707) 833-6979 or email nightsky@rfo.org

SCAS PUBLIC STAR PARTY

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

SATURDAY, DECEMBER 18

Sunset: 4:52 PM PST

End Astronomical Twilight: 6:28 PM PST

Moonset: 12:54 AM PST 12/19

SATURDAY, JANUARY 15 (TENTATIVE)

Sunset: 5:14 PM PST

End Astronomical Twilight: 6:48 PM PST

Moonset: 11:38 PM PST

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

***Note!** 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.

SRJC PLANETARIUM

"Mithra and the Celestial Sphere"

Through December 19

The ancient pagan religion known as Mithraism has captivated the imaginations of scholars for generations. The constant presence in Mithraic imagery of the night sky and its movement leads us to believe that Mithraism was connected to the end of the astrological "age of Taurus" and the beginning of the "age of



Aries." Key to the Mithraic mysteries are the constellations of the Zodiac, Perseus, and the combined movements of the celestial equator and the ecliptic. Join us as we take you back 4000 years to the "age of Taurus" and reveal the cosmology of the ancient world.

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.

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/>

Striking Sparks: How You can Help *from page 1*

Sponsor a Striking Sparks Scope

Many blessings will be bestowed upon you. Recognition will flow your way. It's all for a good cause and it's tax deductible too! Sponsorship is \$200 and already two sponsors have come forward.

Help Push Glass

The mirror work previously done at Steve Follett's has been moved to Harry Linder's since Steve is busy working on the 40" RFO mirror in his 'optics lab' this time around.

Two of the eight mirrors have already been completed, so that leaves six to go. However, even these six are either into or beyond the fine grinding stage and need to be polished and then, ever so delicately, figured. Are you interested in learning some optics skills and helping? If so, contact Harry Linder at harry@sonic.net

Build the Telescopes

Larry McCune is busy handcrafting various parts for the scopes. Saturday, Feb. 5 is the day we plan to cut and assemble the mounts at Cloverdale High School under Lynn Anderson's able supervision.

Paint the Scopes

This requires a good level of painting skill and if you possess such talents – step forward.

Assemble the Scopes

This task is scheduled for Saturday, March 5, place to be determined.

The Striking Sparks Awards Event

Put Saturday, March 19, on your calendars now. With the awarding of the 200th scope on this date, it will be a major accomplishment for the SCAS!. Many areas require attention at this event: Scope set-up, table arrangements, ticketing, photography, food lay-out, kitchen management, solar viewing, socializing with the new Sparks winners, and the list goes on.

Contact me, Len Nelson at lennelsn@comcast.net and let me know where you would like to get involved.

NOVEMBER YA MEETING RECAP

At the November 12 Young Astronomers meeting, everyone who attended had a lot of fun with the micrometeorites activity. At the start of the meeting, Gary Jordan gave a short power-point presentation about micrometeorites, where they come from, and the impact they can have on spacecraft in orbit around the earth.

Then, everyone rolled up their sleeves and got to work! Members had to drag magnets through rainwater to collect the meteorites and then transfer them to a slide to try and identify them through a microscope. By the end of the meeting, several people had discovered their very own micrometeorites! Duane Bellinger also supplemented the experience by providing information and pictures on the subject and how real scientists collect and observe micrometeorites.



The Moon!

with Olivia Turnross and Len Nelson

YA December 10 Meeting, Apple Blossom School

Plan to attend the December Young Astronomers meeting because it is sure to be awesome! Our own Vice-President Olivia Turnross will be giving a presentation on her Lunar 100 project, using the list of 100 observable features on the moon put out by Sky and Telescope Magazine. The list is intended to provide Moon lovers with a selection of telescopic sights and to ignite interest and enhance understanding of our closest neighbor.

Some years ago, the SCAS received a \$500 grant from Dr. William Finley to award to Young Astronomers who did an astronomy-related project which would include a write-up and presentation. Olivia is the first person to step forward to take advantage of this grant. Her work has been reviewed and unanimously approved by the SCAS Board. She will be the first to receive an award from the Finley Grant for her outstanding work.

Len Nelson will be presenting additional information about the Moon. Because the Moon is the most easily observable object in the night sky, this meeting is sure to intrigue and enlighten everyone!

Meteorites!

with Duane Bellinger

YA January 14 Meeting, Apple Blossom School

The January meeting will be a hands-on presentation by Duane Bellinger on meteorites. Duane has an extensive collection of meteorites and he will be talking about the different types, how they are found and collected, and their composition. There will be plenty of samples to pass around and look at, so be sure to come and learn about this fascinating subject. Also, remember that this meeting will be held in one of the upper classrooms of Apple Blossom School. YA members should drive straight up the driveway (past the lower parking lot) to the upper parking lot where we usually meet for our telescope viewing.

YA OFFICER POSITION OPEN

The position of recorder is still open who any YA member who is up to the challenge! The recorder is responsible for taking notes at the monthly YA board meetings, and issuing minutes to serve as an official record. If you are interested in having some fun in the YA, come to the December meeting and get involved!

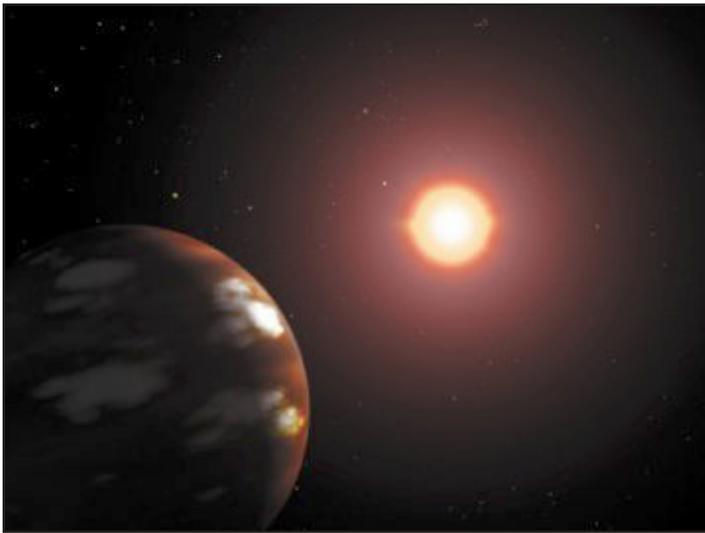


Photo: NASA

This illustration by an artist shows a newly discovered Neptune-size planet orbiting the red dwarf star Gliese 436, which lies 30 light-years from Earth.

PLANET HUNTERS NAB THREE MORE

There are other planets around other stars in other solar systems. That's the old news.

Now, new observations have turned up the three smallest, most Earthlike planets ever found outside our solar system. Each one weighs between 14 and 25 times the mass of Earth. That makes them about the size of Neptune.

Until now, none of the extrasolar planets discovered so far has looked anything like Earth. Out of about 135 such planets, nearly all are roughly 300 times Earth's mass. That's the same size as Jupiter, the biggest planet in the solar system. And like Jupiter, they're all big balls of gas around a solid core of rock and ice. Smaller, rocky planets like Earth are much harder to detect.

With advances in technology, however, the view is getting better. The new planets are so small and far away that astronomers still can't see them directly. Instead, they look for tiny wobbles in the motion of a planet's star, caused by the planet's gravity.

Using this technique, researchers from the University of California, Berkeley, found one of the planets around a star called Gliese 436. The planet appears to be between 21 and 25 times the size of Earth. It speeds around its planet once every 2.64 days.

The second planet orbits a star called 55 Cancri, which is similar to the sun. It's probably 18 times the mass of Earth, and its "year" is just 2.81 days long, say researchers from the University of Texas in Austin. Their discovery adds to three Jupiter-size planets already known to orbit the same star.

The third planet, detected by astronomers in Portugal, is at least 14 times as massive as Earth. It orbits a star called mu Arae. Because the new planets are so small and close to their stars, astronomers suspect that the planets are rocky.

The discoveries may help astronomers figure out how planets form. And with Earthlike planets within our reach, the chances of finding life outside our solar system have improved a bit. Someone might be out there, after all.

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

Baby Star

In Hollywood, a hit movie can make an actor a big star overnight. In outer space, star birth takes a bit longer. Astronomers have now observed what they suggest is a baby star in the process of being born. If they're right, it'll be the earliest twinkles ever picked up from a newborn star.

Through a telescope in outer space, the object looks like a faintly glowing body. Astronomers from the University of Texas in Austin spotted it with the Spitzer Space Telescope.

The object lies 6,000 light years from Earth in a thick cloud of gas and dust called L1014. In the past, L1014 has appeared totally dark. When the Spitzer team recently pointed the telescope at the cloud's center, though, they were surprised to see a spot of infrared light that looked like "a big, red, bloodshot eye." Infrared light isn't visible to the human eye, but all objects absorb and give off this form of radiation.

At such an early stage in its life, the object has a tiny mass. Compared to our sun, it weighs in at less than one-thousandth the sun's mass. No one is sure what will happen next. One possibility is that the glimmering body will gather together enough gas and dust to become a true star. It's also possible that the object will run out of steam and instead turn into a faint, cold object known as a brown dwarf. In the star nursery, only time will tell.

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

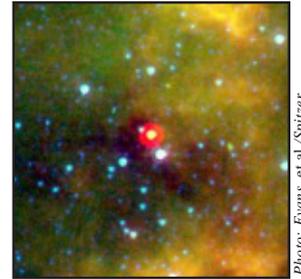


Photo: Evans, et al./Spitzer

The red disc in the center of this infrared image may be the least massive, youngest newborn star ever recorded.

YA INFORMATION

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 fivegees@sonic.net

LIBRARIAN: Jacob Gaynor

ADULT ADVISER: Gary Jordan 829-5288

Sonoma County Astronomical Society

P.O. Box 183
Santa Rosa, CA 95402



Sonoma Skies

December 2004/January 2005

DECEMBER 8

Jack Welch
Measuring
Things

JANUARY 12

Len Nelson,
Keith Payea
Then & Now

Galactic Surprise *from page 3*

interact—pulling and compressing and colliding—and somehow that interplay leads to the galaxies we see today. No wonder it's such a hard problem to solve!

Just over one year into its three-year mission, GALEX is already shedding some new light on the problem.

“Some of the discoveries GALEX has made will change our understanding of how galaxies develop and when, where, and why stars form in galaxies,” says Peter Friedman, a researcher at Caltech and Project Scientist for GALEX.

This small space telescope, called the Galaxy Evolution Explorer (GALEX for short), makes its discoveries by taking pictures of millions of galaxies scattered over the whole sky. Some of these galaxies are close by (at least by astronomical standards of “close”), while others are as much as 10 billion light-years away. Because light takes time to travel through space, we see these distant galaxies as they appeared billions of years ago. Comparing young galaxies from the distant past with older, modern galaxies will teach scientists about how galaxies change over time.

Looking at these pictures, scientists were surprised to find many newborn stars in the outer parts of old, mature galaxies. Scientists had assumed that as a galaxy ages, the clouds of gas needed to form new stars in these outer reaches either got used up or blown away. Finding so many new stars



M81 is 10 million light years away. The image on the left was made from GALEX data and shows UV light from hot, new stars. These star forming regions are not detectable in the visible light image on the right (McGraw-Hill Observatory, Kitt Peak, Arizona, Greg Bothum, Univ. of Oregon.)

in these regions of old galaxies (such as Centaurus A, Messier 101, and Messier 81) shows that, apparently, they were wrong. Friedman says that astronomers don't know yet how to explain these new findings. Rethinking and improving theories to explain unexpected discoveries has always been the way science makes progress—and GALEX is certainly making progress. One thing is certain: It's time to re-write some old textbooks.

For more information, see <http://www.galex.caltech.edu/>. Kids can do a galaxy art project and learn more about galaxies and GALEX at <http://spaceplace.nasa.gov/en/kids/galex/art.shtml>