

# Sonoma Skies

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

[www.sonomaskies.org](http://www.sonomaskies.org)



February 2007

Volume XXX No. 2

## Striking Sparks 2007 Awards!

by Larry McCune, Striking Sparks Coordinator

The Striking Sparks telescope awards program is moving along right on schedule.

The applicants have attended Young Astronomers meetings or Robert Ferguson Observatory programs and written an essay indicating a strong interest in astronomy. We have six sponsors for the telescopes as follows: AANC and Scope City (cosponsors), Cecelia & Dennis Yarnell, Larry & Erika Koneck, Robert Leyland, Walt Bodley, and the Frank Hejtmanek Fund.

Mentors are needed for two of the sponsored telescopes, so if you'd like to assist one of these talented winners, please contact me at the number below.

Pictured at right is the Orion SkyQuest XT6 Dobsonian Classic. This year it includes a bonus accessory pack with a 6 x 30 right-angle finder scope, LaserMate collimator and DeepMap star chart. We certainly appreciate the generous pricing we received from Orion. Len Nelson and Dickson Yeager have volunteered to assemble the telescopes.

I am glad to see our SCAS members sponsoring the telescopes to carry on this great tradition. This is the 22nd year for the program. We have seen the continued involvement of the kids in science and on to astronomy careers. As John Dobson quoted in his talk last November, most scientists got their start by looking through a telescope.

This year the awards ceremony will be held at the Young Astronomers meeting at 7:30 P.M. on Friday, February 16, 2007, at Apple Blossom School, 700 Water Trough Road, Sebastopol. See the box on page 6 of this newsletter for directions. If you would like to take part in assisting with the awards event, please contact me at (415) 492-1426.

Please join us to celebrate the striking of six new sparks in 2007!



The 2007 Sparks Telescope



## A Home Observatory Project

SCAS February 14 Meeting, Proctor Terrace School

I'm sure most have fantasized, as I have, about having a real life permanent observatory in our backyard. Maybe one with a cool white dome, a "wanna be" Palomar? Well, tucked away in a rural area just north of Petaluma you may have stumbled upon one. It happens to belong to SCAS members Eric and Mary Ann Swanson. Come visit with them at our next meeting to hear them talk about their journey meeting the challenge of building their own astronomical observatory.

After seeing the pictures and hearing their story, I'm sure you will be inspired, impressed and intrigued by their resourcefulness, creativity and courage. They designed and custom built their project, which has become the centerpiece for their lovely property.

We will meet at Proctor Terrace School Wednesday, February 14. Happy Valentine's Day!

—John Whitehouse

Young Astronomers See page 6

# Sonoma County Astronomical Society (SCAS)

## Membership Information

**Meetings:** 7:30 PM on the second Wednesday of each month, in the Multipurpose Room of Proctor Terrace Elementary School, 1711 Bryden Lane at Fourth Street, Santa Rosa, unless otherwise announced in this publication. The public is invited.

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

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

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

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

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

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

**Sonoma Skies** is the monthly newsletter of the Sonoma County Astronomical Society (SCAS). Subscription is included as part of membership. Articles and member announcements are welcome and are published on a first come, first served basis, space permitting, and may be edited. **The deadline for submissions is 10 days prior to the end of each month.** Mail to: Editor, SCAS, P.O. Box 183, Santa Rosa, CA 95402, or email [publications@sonomaskies.org](mailto:publications@sonomaskies.org)

## SCAS Elected Board

**President:** John Whitehouse 539-5549 [jmw@sonic.net](mailto:jmw@sonic.net)

**Vice-President & Program Director:** Open

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

**Secretary:** Loren Cooper, 525-8737 [lorenco@sonic.net](mailto:lorenco@sonic.net)

**Membership Director:** Walt Bodley 823-5268,  
[membership@sonomaskies.org](mailto:membership@sonomaskies.org)

**Community Activities Director:** Lynn Anderson 433-1154  
[penumbra@sonic.net](mailto:penumbra@sonic.net)

**Publications Director:** Cecelia Yarnell 569-9663,  
[publications@sonomaskies.org](mailto:publications@sonomaskies.org)

## SCAS Appointed Positions

**Young Astronomers Advisor:** Gary Jordan 829-5288  
[SieraMolly@aol.com](mailto:SieraMolly@aol.com)

**Striking Sparks Program Coordinator:** Larry McCune  
(415)492-1426 [llmccune@comcast.net](mailto:llmccune@comcast.net)

**Amateur Telescope Making:** Steve Follett 542-1561  
[sfollett@sonic.net](mailto:sfollett@sonic.net)

**Librarian:** Joan Thornton 762-0594 [phonyjoanie@earthlink.net](mailto:phonyjoanie@earthlink.net)

Visit us on the web at:  
[www.sonomaskies.org](http://www.sonomaskies.org)

# Seeking School Star Party Volunteers

Greetings all,

As your "new" Director of Community Activities (Yeah, I've taken the liberty of changing the order of words in the title so I won't be a "CAD"), I am looking to expand the star party volunteer roster. I've discovered that one of my greatest joys in astronomy is sharing solar, lunar, and night views with any and everyone who will take the time to look through an eyepiece. Before I retired from teaching, finding time during the week to assist at a school or other public star party was often an overwhelming thought—and I rarely went out on a school night. Yet, if ever there was a star party close to my "neighborhood" I would join in and assist.

Len Nelson has forwarded to me his list of about 20 "core" volunteers, and I have been working on setting up my email address book to inform this core group of upcoming star parties. I think I have finally gotten my Sonic WebMail organized to inform all of these people, but, it is still a work in progress. One of my DCA goals is to set up a regional email list, whereas, if I know that a volunteer lives in Petaluma, he/she might not volunteer to bring a telescope to a star party in northern Sonoma County. That way I would not keep sending repeat solicitations after the first "general" star party announcement.

To that end, I am asking all SCAS members who might be willing to volunteer for a star party (even just once a year) to contact me, if you have not already done so. In an attempt to keep the star party and volunteer correspondences separate from my general email, I have established [astroman@sonic.net](mailto:astroman@sonic.net) as my email address for this purpose.

Besides sending me your email address, let me know where in the county you live and how far you're willing to travel—even if only to your nearest neighborhood school. If there are certain days of the week where you have other commitments, let me know that also. I look forward to hearing from you.

—Lynn Anderson, Director of Community Activities

# Asteroid Belt Discovered Around Another Star?

In our solar system, between the orbits of Mars and Jupiter, a band of rocks and dust orbits our sun. Known as the asteroid belt, it is believed to be made of scraps of rock left over from the time when our planets formed nearly 5 billion years ago. For years astronomers have searched for evidence of similar belts orbiting other stars. Now, new evidence suggests that ours is not the only solar system with this type of asteroid belt. Astronomers from the University of Florida in Gainesville have found the best evidence yet that a belt of warm dust circles fairly close to a star called Zeta Leporis.

Scientists have already found disks of dust around other stars. But most of these disks are cooler, much larger, and much more

*(continued back page)*

# SCAS Community Outreach & Star Party Reports

**Wednesday, January 10—Lynn Anderson:** Lynn went to Piner Elementary School and gave a PowerPoint presentation to the combined fifth grade classes that included several images of objects that were likely to be seen in the January night sky. On the following night he, along with Merlin Combs, Frank Siroky and Dickson Yeager set up telescopes on the playground to give about 100 interested students and parents views of those and other winter objects. One of our 2006 SPARKS telescope winners, Aislin Pickett, brought her scope and set it up also.

Venus and comet McNaught were already too low on the western horizon to be seen as the star party got started. The bitter cold of the evening drove most of the students and parents into the classroom where the cookies and hot chocolate were being shared by 7:15, bringing the star party to an early conclusion. The volunteers were packing up before 7:30. All-in-all, it was a successful (but cold) night of viewing.

**Monday, January 22—Lynn Anderson:** Lynn was the guest speaker at the Cub Scout Pack 333 meeting. He presented his “What is a Constellation” slide show and then had the cub scouts drop meteoroids (small rocks) into a tray of cocoa covered flour to simulate the formation of craters on the moon. Taking the tray outside into the dark, he used a flashlight shining straight down onto the tray to demonstrate that a full moon is not the best time to view the features on the moon, but that light from the side and the shadows created give better contrast.

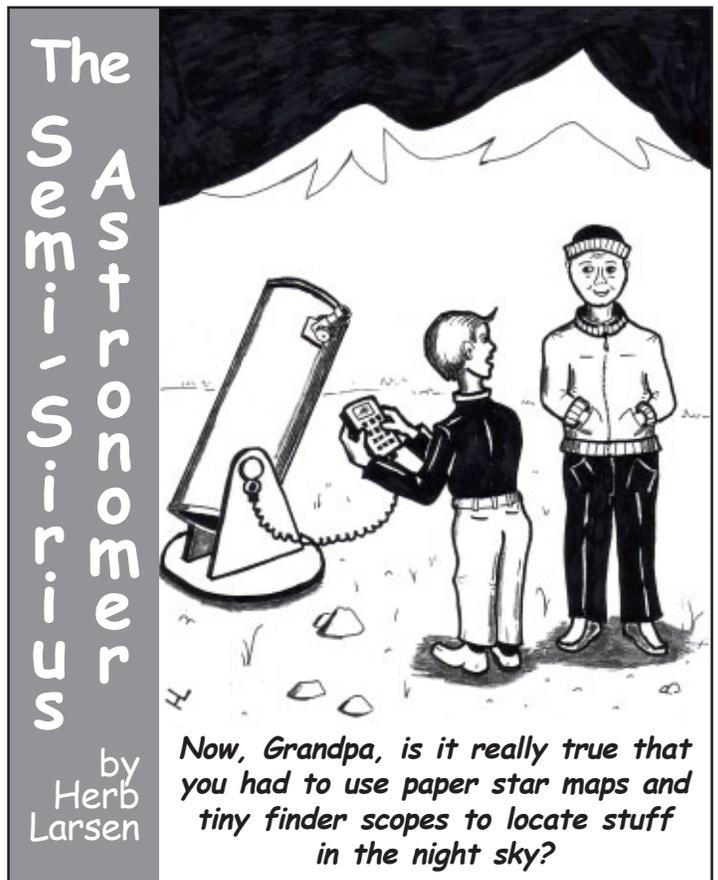
The 24 scouts and their parents were then treated to a view of the four day-old moon through Lynn’s Pronto. One of the pack’s adult leaders, Tim Slater, had set up his Celestron CPC-1100 and gave the group a view of the Orion Nebula. As the crowd thinned out, just before 9:00 o’clock, Lynn focused on Saturn, which got many “Oh WOW!” responses from the few scouts and their parents that had not yet gone home.

**Wednesday, January 24—Len Nelson:** We have had clear skies for so many days that I figured that there was no way that the sky could remain so until our star party tonight in Petaluma, but it did.

Under clear and relatively steady seeing conditions, we viewed the Moon, M42 in Orion, the Double Cluster in Perseus, the Pleiades and finally Saturn where we could also see Titan and 2 more of its satellites. About 100 enthusiastic students and their families attended. All seemed to be quite pleased with what they beheld. When the first group arrived, I tried to draw their attention to Polaris to ask why it was important. But, as soon as I turned my green laser on it, any discussion about Polaris pretty much was blown away with all interest now being on the green laser!

The volunteers for this evening without which these events would be impossible were: Steve Alvarez, Merlin Combs, David Simons, Dickson Yeager and yours truly.

Frank Siroky planned to come too but when the spring on his garage door broke soon before he left—he was stuck at home!



## SOCIAL AMENITIES

Thanks to John Whitehouse for providing coffee and refreshments at the January meeting.

You can sign up to provide refreshments at a meeting, too. It’s easy! Just contact any Board member and choose a month.

## SILENT AUCTION

Bring any astronomy-related items you wish to sell to the February meeting. Another member might be looking for that very thing!

**Scope City**  
**New Member Bonus!**

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

Manager Sam Sweiss has supported SCAS and Striking Sparks and offers a huge selection of telescopes, accessories and more. Obtain a receipt from Walt Bodley, Membership Director, showing you have paid the \$25 SCAS membership dues. To arrange for your merchandise discount, contact Sam at 415/421-8800 or at [sanfrancisco@scopecity.com](mailto:sanfrancisco@scopecity.com)

# Events

## ROBERT H. FERGUSON OBSERVATORY

**Public Viewing: Saturday, February 17**

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

Night Viewing begins 7:00 PM

**The Observatory:** Three scopes are operating: The 14-inch SCT with CCD camera in the East wing, the 8-inch refractor under the dome and the 24-inch Dobsonian in the West wing. No admission fee for the solar viewing, but donations are appreciated. The Park charges \$6 per vehicle for entry. A \$2 donation is requested from adults 18 and over for admission to the observatory during night viewing sessions. SCAS members may set up telescopes in the observatory parking lot to assist with public viewing. Auto access closes at dusk; late arrivals must carry equipment from the horse stable parking area.

### CLASSES, LABS

**Feb. 9 Observing Lab, 6:30 PM.** “Binaries and Multiple Stars” (Raincheck 2/12); Fee \$30; Limit 6 attendees

**Feb. 13 Night Sky Spring Series #1, 7:00 PM**

This is the first of the Spring 6-class series. Each class includes a lecture on the constellations of the season, their history and mythology, and how to find objects within them. Learn the bright stars, deep-sky objects, and visiting planets of the spring skies.

After each presentation (sky conditions permitting), you will enjoy a review of the constellations in the actual night sky and learn how to find them for yourself. Viewing through telescopes follows.

Fees: \$75 for the series of six presentations. (Single session fee is \$23.)

**Feb. 20 Night Sky Spring Series #2, 7:00 PM** (see above)

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

### RESERVE THE OBSERVATORY!

Introduce the wonders of the night sky to your family, friends or private group. Gather fellow amateurs to do intensive observing with helpful guides. Give someone you love a night to remember!

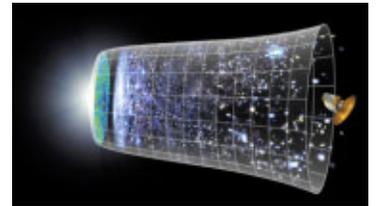
Groups of up to 50 can be accommodated. Astronomer docents provide sky interpretation and operate telescopes. Make your reservation at least two weeks prior to your event. Best times for optimal sky gazing are any time more than a week away from a Full Moon.

In addition to \$111 charged by the RFO for use of the observatory facilities, the State Park System charges \$111 for use of the *Group Campground*. Because it is adjacent to the Observatory, the group camp must be reserved for private events. Total Cost: \$222. For information on how to reserve, visit [www.rfo.org](http://www.rfo.org) and follow the pull-down menu “About/RFO/Reserve RFO” or contact George Loyer at [gloyer@rfo.org](mailto:gloyer@rfo.org).

## SRJC PLANETARIUM

“Space and the Universe” through Mar. 4

When compared to our earthly perceptions; such things as the size and distances to the planets, stars, and galaxies are often hard to conceive. In this show we will give you an astronomical yardstick to help understand space from the Big Bang, to the atom, to the entire universe.



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

Info: 527-4372, <http://www.santarosa.edu/planetarium/>

## SONOMA STATE UNIVERSITY SERIES “WHAT PHYSICISTS DO”

**Mondays at 4:00 PM**

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

**Feb. 5—How Atoms Dance and Join Together in the Ultracold.** Dr. Chris Greene of the University of Colorado will discuss recent studies of the strongly-interacting limit for dilute quantum gases, emphasizing some unusual states just observed within the past year.

**Feb. 12—Secrets in the Ancient Goatskin: Archimedes’ Manuscript Under X-Ray Vision.** Dr. Uwe Bergmann of the Stanford Linear Accelerator Center will present x-ray imaging results of the “Archimedes Palimpsest,” the oldest surviving document of writings by the ancient Greek genius.

**Feb. 26—Islands in the Sky.** Dr. Adam Stanford of the University of California, Davis will describe the way that clusters of galaxies are like cities and what they can teach us about galaxy formation and cosmology.

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

## SSU OBSERVATORY PUBLIC VIEWING

**Feb. 9, 7-9PM: Orion Nebula, The Other Orion, The Crab** Observatory located inside the stadium area at the SE corner of campus (E. Cotati Ave. and Petaluma Hill Rd., two miles east of US 101 at Cotati). Follow signs to campus. Parking Lot F is most convenient. Call 707/664-2267 before coming if it appears weather may force cancellation. <http://www.phys-astro.sonoma.edu/observatory/pvn.html>

# Events

## SCAS SCHOOL STAR PARTIES

If you would like to volunteer, please contact Lynn Anderson at [astroman@sonic.net](mailto:astroman@sonic.net). Upcoming dates are as follows:

- Feb. 8** Willowside Middle School, western Santa Rosa  
**Feb. 22** Windsor Creek Elementary

## SCAS YOSEMITE STAR PARTY

The annual SCAS application for the Yosemite Star Party has been sent to, and received by, the National Parks volunteer coordinator. As of this writing, no date has been assigned by the NPS Coordinator. With the exception of the full moon weekends, there are no BAD weekends. All of the new, first and third quarter moons occur on or near the weekends. We'll keep you posted.

## MORRISON PLANETARIUM DEAN LECTURE SERIES

**Feb. 20, 7:30 PM:** "Stardust: First samples from the Kuiper Belt and from Interstellar Space"—Dr. Andrew Westphal, University of California, Berkeley

In 2006, Stardust returned the first solid sample return since the 1970's, and the first ever from beyond the Moon. This talk will summarize preliminary results of the cometary sample, and give an update on the search for contemporary interstellar dust in the interstellar dust collector, using >15,000 highly sophisticated image processors—human eyes and brains.

Co-Sponsored by The Planetary Society

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

## UC BERKELEY ASTROPHYSICS CLUB

**Institute for Particle Astrophysics Journal Club Seminars**

**Feb. 2—Cecile Roucelle** (LBNL/INPA): Status and first results of the Pierre Auger Observatory

**Feb. 9—Vincent Desjacques** (Hebrew University, Jerusalem): The Probability Distribution of the Flux in the Lya Forest

**Feb. 16—Rychard Bouwens:** Galaxy Buildup During the First 1.5 Billion Years of Cosmic History

**Feb. 21—Daniel Grin** (Caltech): TBA (Note special day and place: Bldg. 50A, Room 5132)

**Feb. 23—Matt Francis** (Univ. Sydney): Cosmological Structure: The Effects of Dark Energy

Lectures: 12:00 Noon. Location: Bldg. 50, room 5026, Lawrence Berkeley National Laboratory, 1 Cyclotron Rd., Berkeley. Contact Vitaliy Fadeyev [VAFadeyev@lbl.gov](mailto:VAFadeyev@lbl.gov). Information: <http://stokstad.lbl.gov/INPA/journalclub.html#aboutjclub>

Sonoma Skies, February 2007

## SHINGLETOWN AND MT. LASSEN STAR PARTIES IN JULY

*Editor's Note:* Two star parties are planned for 2007 due to the split-off by the Shingletown Activities Council. Following are announcements and website information from both groups:

### Shingletown Star Party July 9 - 16, 2007

Hosted by the Shingletown Activities Council (SAC) at the Shingletown Airport. Registration will start in March. Their website suggests checking back for more information: <http://www.shingletownstarparty.net/>

### Announcing the 1st Annual Golden State Star Party July 11 - 14, 2007

Dear Friends: During the last six years the Bay Area Astronomy Connection (<http://www.observers.org>) has, through its voluntary Summer Star Party Committee, organized most aspects of the Shingletown Star Party. The Shingletown Activities Council has acted as our nonprofit in-town host, graciously sponsoring the event, organizing the Saturday night public festivities, and of course providing access to the Shingletown Airport. In return for SAC's sponsorship, we became partners in an event which would financially benefit SAC and the community of Shingletown, while allowing the TAC star party organizers to create an event by and for amateur astronomers.

In January 2007, SAC announced that they are taking over all aspects of the star party including the planning and organizing, and that they will establish a new organizing committee "to take better advantage of their local resources." The TAC Summer Star Party Committee does neither endorse nor dismiss the SAC's decision to take over the event, but we acknowledge our removal from the planning process, and thus the continuity of TAC's formal participation.

Because all matters related to facilities, scheduling, astronomy, and logistics will be planned by a different committee, we cannot predict how the 2007 SSP event will compare to previous years.

Because we and others wish to continue holding an annual midsummer "TAC organized" event, the Summer Star Party organizing committee is pleased to announce the first annual "Golden State Star Party" to be held July 11 - 14 at Mt. Lassen National Park. Please visit our web site at <http://www.goldenstatestarparty.org> to learn more about what is planned and how to register. Registration is now open.

There are still a limited number of spaces available at the GSSP group campsite. The only fees for this star party are campsite fees and park entrance fees. If you wish to stay at a different campsite at Mt. Lassen, or outside of the park altogether, there are no additional fees for attending GSSP and you need only inform us that you are planning to attend.

We wish everyone well, and hope to see you this summer at Mt. Lassen—The 2007 GSSP organizing committee ([www.goldenstatestarparty.org](http://www.goldenstatestarparty.org))

# Young Astronomers



## Meet the New Striking Sparks Winners!

YA February 16 Meeting,  
7:30 PM at Apple Blossom School

Please join us on Friday, February 16<sup>th</sup> as we celebrate the 2007 Striking Sparks Telescope winners! Not only will winners of this year's SCAS Striking Sparks Contest receive their telescopes, but as part of the meeting, all attendees will have the opportunity to learn about the care and maintenance of reflector telescopes, the use of planispheres, and other stargazing skills. Don't miss this fun and informative meeting!

After the general meeting, please join us in the upper parking lot for a star party, weather permitting.

### SOME FUN WEBSITES

Here's the place to get the best of the Hubble's images, wallpaper, and videos: [www.hubblesite.org](http://www.hubblesite.org)

Find some wonderful photos of astronomical phenomena from earthbound observers at [www.icstars.com](http://www.icstars.com)

And enjoy spectacular images taken from observatories atop the Mauna Kea volcano in Hawaii: <http://www.cfht.hawaii.edu/HawaiianStarlight/>

## YA INFORMATION

**Meetings:** 7:30 PM the second Friday of each month of the school year, at Apple Blossom School, 700 Water Trough Road, Sebastopol, in the Multipurpose Hall. Open to all Sonoma County students.

**Telescope viewing** is held in the upper parking lot after the meeting. **Directions:** From Hwy. 116 in Sebastopol, go west onto Bodega Ave. Continue almost two miles to Water Trough Rd. Turn left and go about 1/3 mile to the school, on your right.

### YA ELECTED OFFICERS

**PRESIDENT:** Melissa Downey 632-5661

**VP/PROGRAM DIRECTOR:** Open

**RECORDER:** Open

**NEWSLETTER EDITOR:** Max Eliaser

**LIBRARIAN:** Rachel Loughman, [stop\\_rachel\\_4\\_insanity@yahoo.com](mailto:stop_rachel_4_insanity@yahoo.com)

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

## JANUARY 18 YA MEETING REVIEW

Unfortunately, our club president could not be here for our first meeting of the New Year, due to a schedule conflict. As a result, her topic, "Extreme Astronomy," has been rescheduled. Be sure not to miss it at a future meeting!

Instead we saw an excellent presentation on the various interplanetary robotic probes and the discoveries they have been making, delivered by Gary Jordan, the YA adult advisor. He started out telling us about the Cassini-Huygens project in general, then about the Huygens project specifically, then about the Cassini project. The slide show was well-equipped with stunning pictures of Saturn and its rings and moons.

After that, he started talking about various Mars programs, including the orbiters and the rovers, and even the orbiters' pictures taken of the rovers and of each other. All of us were impressed by the amazingly clear blow-ups of pictures taken in orbit of a rover, trundling along the edge of Victoria crater. I don't think anyone was disappointed.

—Max Eliaser

## Cassini Discovers Mountain Range on Titan

On October 25, the Cassini Spacecraft, flying within 12,000 km of Titan, discovered the largest mountains yet on Saturn's smog-shrouded moon. A combination of infrared detectors and penetrating radar recorded images of the 1.5-kilometer-high mountains, planetary scientists announced Dec. 12 at a meeting of the American Geophysical Union in San Francisco. The infrared images show the shadows cast by the mountains, while the radar gives details about their shape.

The mountains are coated with what scientists speculate to be multiple layers of organic material, and are mostly blanketed by clouds. According to Cassini scientist Larry Soderblom of the U.S. Geological Survey in Flagstaff, Ariz., the very tops of the mountains appear to be covered with a bright, white material that could be methane snow. He believes that some of the layers might be made of material that has fallen out of Titan's atmosphere as rain, dust, or smog. Of course, on Earth such snow would simply consist of frozen water.

The mountains might have formed when tectonic forces pulled apart Titan's crust, allowing material to rise from below, similar to the way the midocean ridges arose on Earth. Another possibility is that Titan's mountains formed as the result of the moon's crust squeezing together.

The Cassini spacecraft has been touring Saturn and its moons since 2004. This was the mission's 22nd flyby of Titan. Cassini is scheduled to make 23 more passes above Titan during the next two years.

*Adapted from an article by Ron Cowen of Science News*



This GALEX UV image of the colliding Antennae Galaxies shows areas of active star formation, which is not in the tidal tails as one might expect.

## A Great Big Wreck

by Dr. Tony Phillips

People worry about asteroids. Being hit by a space rock can really ruin your day. But that's nothing. How would you like to be hit by a whole galaxy?

It could happen. Astronomers have long known that the Andromeda Galaxy is on a collision course with the Milky Way. In about 3 billion years, the two great star systems will crash together. Earth will be in the middle of the biggest wreck in our part of the Universe.

Astronomer John Hibbard isn't worried. "Galaxy collisions aren't so bad," he says. A typical spiral galaxy contains a hundred billion stars, yet when two such behemoths run into each other "very few stars collide. The stars are like pinpricks with lots of space between them. The chance of a direct hit, star vs. star, is very low."

Hibbard knows because he studies colliding galaxies, particularly a nearby pair called the Antennae. "The two galaxies of the Antennae system are about the same size and type as Andromeda and the Milky Way." He believes that the Antennae are giving us a preview of what's going to happen to our own galaxy.

The Antennae get their name from two vast streamers of stars that resemble the feelers on top of an insect's head. These streamers, called "tidal tails," are created by gravitational forces—one galaxy pulling stars from the other. The tails appear to be scenes of incredible violence.

But looks can be deceiving: "Actually, the tails are quiet places," says Hibbard. "They're the peaceful suburbs of the Antennae." He came to this conclusion using data from GALEX, an ultraviolet space telescope launched by NASA in 2003.

The true violence of colliding galaxies is star formation. While individual stars rarely collide, vast interstellar clouds of gas *do* smash together. These clouds collapse. Gravity pulls the infalling gas into denser knots until, finally, new stars are born. Young stars

*(continued back page)*

## February Observing Notes

- 2/1 The Full Moon occurs at 9:45 PM.
- 2/3 Moon occults Regulus 7 AM: Mag 1.4 Regulus disappears behind dark limb of nearly full moon at about 0707. Alt/Az = 11/277
- 2/4 Zodiacal Light in West 7:30 PM. Zodiacal Light viewable in west after astronomical twilight in very dark locations for next two weeks.
- 2/6 Venus near Uranus 6:30 PM (see below)
- 2/7 Mercury greatest elongation East 9:00 AM (see below)
- 2/10 The Last Quarter Moon occurs at 12:51 AM; Saturn (see below)
- 2/17 The New Moon occurs at 8:14 AM
- 2/23 The First Quarter Moon occurs at 11:56 PM; Moon passes N of Pleiades
- 2/28 Moon passes 1.5° N of M44 (the Beehive).

### Observing Treats

**Zodiacal Light:** February and March are good times to attempt to view the Zodiacal Light (reflected sunlight from fine debris in the plane of our solar system) in the sky after sunset. If you can find a location with a very dark western view (no light pollution), then the Zodiacal Light should appear as a tall, tapering, glowing, triangular region of light in the sky that follows the path of the Ecliptic in the western sky, visible around the end of astronomical twilight. (It looks somewhat like the glowing swath of the Milky Way, though dimmer.) Try looking at around 7:30 PM or so from 2/4 to 2/18 or at about 8 PM from 3/3 to 3/20. Note: During March, the glow of Venus will interfere somewhat with the view of the Zodiacal Light.

**Venus near Uranus Feb. 6:** A clear western horizon and binoculars are essential for this observing challenge. Begin observing by 18:30. First, try to spot Mercury (about mag -0.5) slightly north of and well below Venus before Mercury sets. Next, look for the mag 3.8 star lambda Aquarii very near Venus, slightly lower and to the north (right). Finally, try to spot mag 5.9 Uranus above Venus and slightly north (right), forming a triangle with lambda Aqr. Patience is necessary as the sky darkens. However, Venus will drop to less than 5° altitude by the end of astronomical twilight at 19:08.

**Mercury at greatest elongation Feb. 7:** Mercury's maximum apparent separation from the Sun is 18°. It will be mag. -0.5 and in telescopes its 7"-wide disk is just over half-lit. Mercury sets more than 1-1/2 hours after the Sun.

**Saturn reaches opposition Feb. 10:** At magnitude 0 this is our best view for the next few decades! Its disk measures 20.3", and the rings are tilted about 15° from edge-on. That angle will diminish over the next several years until all we see of the rings is a straight line, so drink it in while you can. Saturn is about 7.5° from Regulus in Leo, and your editor likes to think of it as being in the mouth of the Lion.

—Much of above info courtesy of Jack Welch

## ***Asteroid Belt*** (continued from Page 2)

distant—as far away from their stars as Pluto and the comet-filled Kuiper belt are from our sun. These bands of distant dust are also cool in temperature. The fact that the disk around Zeta Leporis is warm and fairly close to the star is what makes it so special.

Astronomers first became interested in Zeta Leporis in the 1980s. That's when a satellite showed the star was emitting an unusually large amount of infrared light. High levels of infrared radiation near a star suggest that the star is surrounded by dust. The dust absorbs visible light from the star and, in turn, gives off infrared radiation, which can be detected by our satellites as heat.

In February 2005, the University of Florida team used the Gemini South telescope in Chile to measure the size of Zeta Leporis' disk more accurately. They discovered that most of the dust orbits at a distance of 3 AU from the star. (One AU equals the average distance of Earth from the sun.) Our solar system's asteroid belt is at a similar distance, stretching between 2.1 and 3.3 AU from the sun.

So how did this debris belt form? Researchers believe that numerous asteroids continually bumped against each other near Zeta Leporis, creating a fine spray of rocky particles that became the planet's dusty asteroid belt. However, it's also possible that the dust came from a single collision between two large asteroids, which broke up both objects.

Zeta Leporis is just 70 light-years from Earth. At only 230 million years of age, the star is much younger than our 4.6-billion-year-old sun. But it's still old enough for planets to have formed around it. The fact that Zeta Leporis has an asteroid belt similar to ours suggests that the star might also have rocky planets like Earth, providing new inspiration to astronomers who are searching for smaller, Earth-like planets orbiting other stars.

—Adapted from an article by Emily Sohn in Science News

## ***A Great Big Wreck*** (continued from Page 7)

are difficult to be around. They emit intensely unpleasant radiation and tend to “go supernova.”

GALEX can pinpoint hot young stars by the UV radiation they emit and, in combination with other data, measure the rate of star birth. “Surprisingly,” Hibbard says, “star formation rates are low in the tidal tails, several times lower than what we experience here in the Milky Way.” The merging cores of the Antennae, on the other hand, are sizzling with new stars, ready to explode.

So what should you do when *your* galaxy collides? A tip from GALEX: head for the tails.

To see more GALEX images, visit [www.galex.caltech.edu](http://www.galex.caltech.edu). Kids can read about galaxies and how a telescope can be a time machine at [spaceplace.nasa.gov/en/educators/galex\\_puzzles.pdf](http://spaceplace.nasa.gov/en/educators/galex_puzzles.pdf).

—Article provided by JPL/NASA for SpacePlace

**Sonoma County  
Astronomical Society**

P.O. Box 183  
Santa Rosa, CA 95402



***Sonoma Skies***

**February 2007**

FEBRUARY 14

**Eric & Mary Ann  
Swanson  
Home Observatory  
Project**