

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 60, No. 2 – February 2012

Wednesday, February 15, 2011 – General Meeting

Randall Museum . 199 Museum Way . San Francisco

7:00 pm Doors Open . 7:30 pm Announcements . 8:00 pm Speaker

SFAA's General Meetings take place on the 3rd Wednesday of each month (except January)

Faride Khalaf

Saturn V - The First 700 Seconds



As we witnessed each launch of the Apollo program, we would forever remember the countdown, ignition sequence, images of the Saturn V rocket engines billowing out vast, fast and furious hot gas, and then lift off. We'll never forget those sheets of ice breaking off the exterior and raining down on the launch pad as the rocket cleared the tower. What we saw, what we remember, and the extent of what was broadcast on the daily news is a very small fraction of all that lead to NASA's greatest achievements.

Highlighting some of the interesting and little known technical aspects of the various missions, Faride Khalaf will take you down memory lane and visit the Apollo program in a unique way. We will focus on some of the details starting from launch preparation to the last rocket blast that sent the gallant crew and their spacecraft to the moon. In this presentation, you'll find answers to questions that Walter Cronkite never thought to ask! Come join us and relive to oldest of human dreams, a dream worth revisiting.

Faride began his aviation career as a skydiver in 1982. He got his FAA A&P licenses from College of Alameda in 1985, and became an IIA in 2001. He was an Aircraft Mechanic Instructor at the late Sierra Academy in Oakland for several years beginning in 1986. He's been a Private Pilot for 27 years. He was a General Mechanic at United Airlines for a decade. During two of those years He was a Mechanic Instructor teaching structural repairs, and for two years was a Fuel Systems Specialist. Faride is the sole owner of a 1947 Cessna 120.

**IMPORTANT DATES
&
UPCOMING SIGNIFICANT VIEWING EVENTS**

SFAA GENERAL MEETINGS & LECTURES

Randall Museum, 199 Museum Way (Near 14th Street and Roosevelt)

Third Wednesday of each month: 7:00 p.m. Doors open. 7:30 p.m. Announcements. 8:00 p.m. Speaker

SFAA BOARD MEETINGS IMMEDIATELY PRECEDE GENERAL MEETINGS AND BEGIN AT 6:00 P.M.

February 15	March 21	April 18	May 16	June 20
July 18	August 15	September 19	October 17	November 21
December 19				

2010 MT TAM SPECIAL USE PERMIT STAR PARTIES - MEMBERS ONLY

GATEKEEPERS NEEDED

Special Use Permit observing nights on Mount Tamalpais are private and open *only* to SFAA members. Please arrive by sunset. A permit is required for each car. We must vacate the mountain by 2:00 a.m. except on specially approved nights (such as Messier Marathon).

Always on Saturday.	February 18	March 24	April 14	May 19	June 16	July 14
	August 11	September 15	October 13	November 10	December 15	

MT TAM PUBLIC STAR PARTIES (May through October)

Public nights on Mount Tamalpais start with a lecture in the Mountain Theatre, followed by public viewing in the Rock Springs parking lot. SFAA members may view privately after crowd departs from approx. 11 pm-2 am.

For more information: <http://www.sfaa-astronomy.org/starparties/>

ANNULAR SOLAR ECLIPSE

May 20, 2012

<http://eclipse.gsfc.nasa.gov/eclipse.html>

TRANSIT OF VENUS

Evening of **TUESDAY, JUNE 5, 2012** through sunset (North America)

<http://www.exploratorium.edu/venus/>

<http://www.transitofvenus.org/>

<http://www.transitofvenus.org/june2012/where-to-be>

<http://eclipse.gsfc.nasa.gov/transit/venus0412.html>

<http://eclipse.gsfc.nasa.gov/OH/transit12.html>

**2012 METEOR SHOWERS
INTERNATIONAL METEOR ORGANIZATION**

2012 Meteor Shower Calendar

<http://www.imo.net/calendar/2012>

President's Message – February

What treats we have in the nighttime skies at the moment. Although I risk making you jealous...I'm currently in Australia soaking up the wonderful night sky from Queensland. For those of you who are considering a trip Down Under and wondering whether or not to bring your telescope...I'd vote YES!

In club news we had a wonderful night in January at our Annual Awards Dinner. If you've never joined us for this event, do consider it next year...we have a great time and honor some of the most special people in our club. This year Kenneth Frank was recognized with a Lifetime Membership Award in honor of his tireless and generous contribution to the club and his wonderful, engaging public outreach.

Coming up, the club is busy planning the destination for the Annular Eclipse trip. Turns out it's quite tough to find a site that has good visibility and facilities, and Jessica Santascoy and Paul Salazar are hot on the trail! We'll let you know firm plans very soon.

We are also planning a Transit of Venus event – more to come on that too!

Righto! I'm off to gaze at my beloved Southern Cross.

Sue-Ellen Speight
President, 2011-2012
San Francisco Amateur Astronomers



Sue-Ellen, President (right), Angie Traeger, Treasurer, and Douglas Smith, Secretary, at Annual Awards Dinner.



San Francisco Amateur Astronomers

Upcoming Lectures and Lecturers

Randall Museum Theater . Randall Museum
199 Museum Way
San Francisco

7:30 p.m. . Free & Open to the Public



March 21 - **JEFFREY VAN CLEVE, NASA**
WORLDS IN COLLISION: THE HAZARD AND PROMISE OF NEAR-EARTH ASTEROIDS

My Spitzer work on the Yarkovksy Effect & how thermal properties affect the probability that a NEA will hit Earth, including a brief description of Spitzer (my first and happiest project). Concepts for finding NEAs in the infrared (where they are relatively brighter compared to stars) and deflecting them with something resembling Deep Impact. Mining NEAs for water (as hydrated minerals, or dead comets masquerading as NEOs) and other resources. Redirection of the human space program from the Moon to NEAs by the Obama Administration, and the search for interesting targets.

April 18 - **KIRILL FILIMONOV, PH.D.**

Space Sciences Laboratory, University of California , Berkeley

WORLDS IN COLLISION: THE HAZARD AND PROMISE OF NEAR-EARTH OBJECTS

IceCube is the world's largest particle detector buried a mile deep in the ice of Antarctica and searching for particles called neutrinos. Neutrinos are expected to come from the most violent astrophysical sources—exploding stars, gamma ray bursts, and cataclysmic events happening in black holes and neutron stars. Unlike charged cosmic rays, neutrinos point back to their origin but are very difficult to detect. They travel at the speed of light through space, through the Earth, and all they encounter. Very rarely, one will crash into a single atom and create a cascade of other charged particles. This reaction will produce blue light that can be detected by optical sensors. To find these rare events, a neutrino telescope was built at the South Pole: a 1-cubic kilometer array of optical sensors buried a mile deep in the ultra-clear glacial ice. IceCube will attempt to elucidate the origin of the highest energy cosmic rays and probe the most extreme astrophysical accelerators.

L' Olivier

2012 Annual Awards Dinner



Record attendance of over 40 members gathered for SFAA's 2012 Annual Awards Dinner to acknowledge and celebrate achievements of 2011 and to announce and introduce the 2012 officers and board members.

Election results have determined the following officers and board members for 2012. It is with great appreciation that we welcome these individuals to their posts and extend our appreciation for their service to San Francisco Amateur Astronomers as we embark upon our 60th year of bringing astronomy to our community.

SUE-ELLEN SPEIGHT, President
JOE HEAVEY, Vice-President
ANGIE TRAEGER, Treasurer
DOUGLAS SMITH, Secretary

ANHIL CHOPRA, Loaner Scope Program
MATTHEW JONES, Webmaster
MITCHELL SCHOENBRUN, Webmaster

Board Members

ANIL CHOPRA, MICHAEL FARINO (Alternate)
DAVID FREY, DEAN GUSTAFSON, BOB HABERMAN
MATTHEW JONES, MICHAEL PATRICK (Alternate)
JESSICA SANTASCOY, MITCHELL SCHOENBRUN



AWARDS
SOME SERIOUS
SOME ON THE LIGHTER SIDE
ALL WITH IMMENSE APPRECIATION FOR 'EXTRA MILE(S)' IN SERVICE

KENNETH FRANK
HONORARY LIFE MEMBERSHIP

For years of dedication to the San Francisco Amateur Astronomers. We honor his years of dedication to sharing astronomy within the community and the hundreds of hours spent sharing the wonders of the night sky with both the public and SFAA Members alike.

BEATRICE WAHLBECK
2012 Dedicated Member Award

For her tireless efforts at our monthly General Meetings and her generous support to the club throughout the year.

PAUL SALAZAR
The 'Yes I'll Be There At 4AM' Award

For enthusiastically organizing viewing events that start incredibly early (or crazy late depending on perspective) and road trips chasing cool astronomical phenomena where there's a good chance of having to sleep next to cows.

KEN LUM
2012 Community Connection Award

For expanding the club's horizons and ensuring that SFAA Members remain aware of astronomy and science events throughout the Bay Area.

MATT JONES
The 'WordPress Ninja' Award

For coding until dawn to make the new website possible and for answering every newbie question Sue-Ellen asked without rolling his eyes (too much).

MARIA SWEISS
The 'Grin and Bear It' Award

For bringing smiles along with her every time she is dragged to an event by Sam, where she has to sit and listen to astronomers go on about telescopes...as if she doesn't hear enough about that already!

JILL MACLEAN
The 'You're Trapped in the SFAA Now' Award

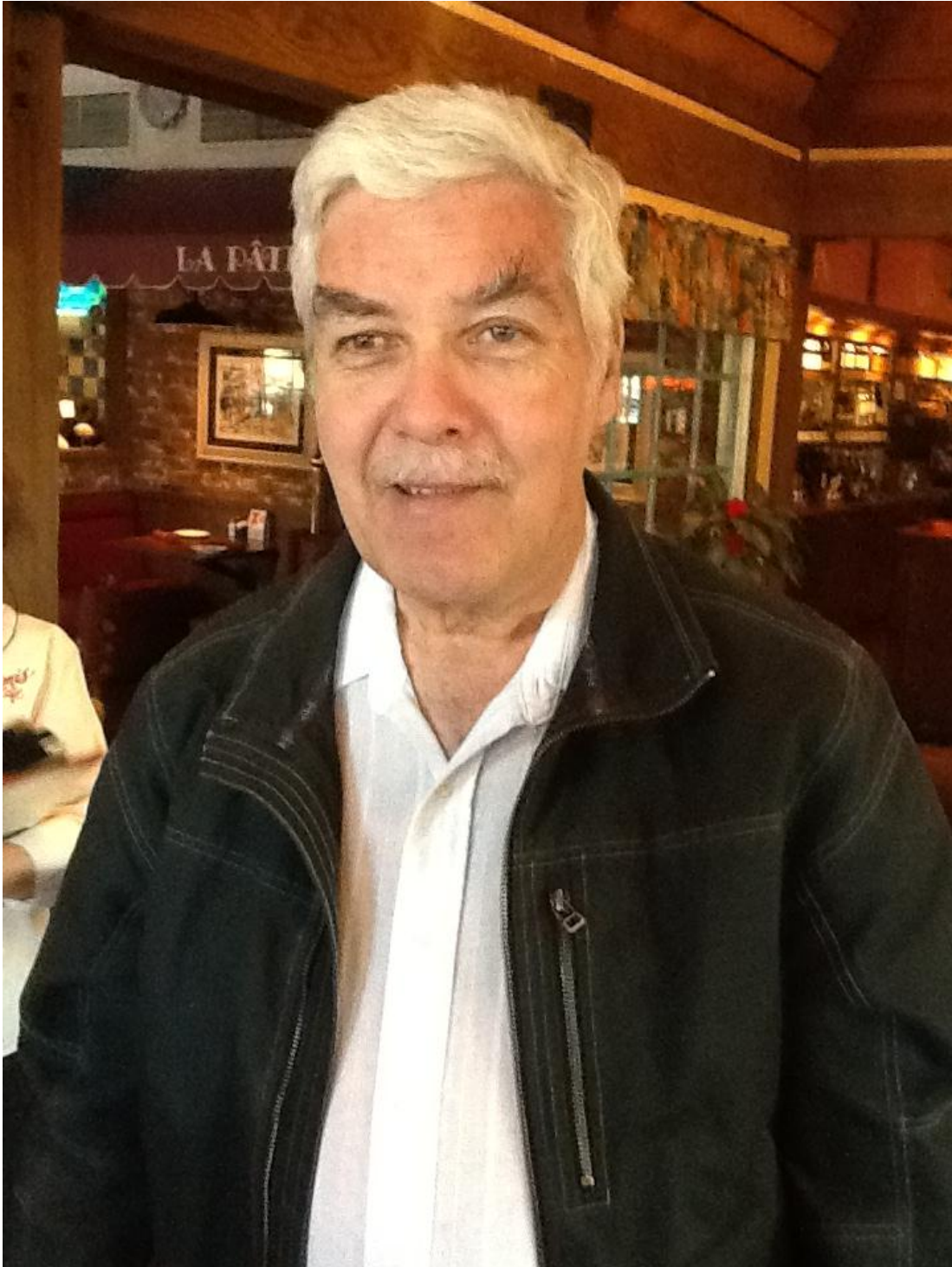
For recently committing to a lifetime of coming out in the dark and freezing cold and smiling politely as we lunatics get all jazzed about seeing a ball of gas a billion miles away. Good times!

ANNETTE GABRIELLI
2012 Golden Pen Award

For her work as editor of club newsletter 'Above the Fog' and her contribution to ensuring club members get the most from the club.

A VISIT WITH RANDY TAYLOR, LONG-TIME SFAA MEMBER

Norman and Linda Mahan, on a recent visit to Tucson, Arizona, paid a visit to SFAA long-time member, Randy Taylor, who, upon his retirement in 2011, relocated from San Francisco to Tucson, Arizona. While a member of SFAA for many years and for much of that time, Randy devoted his energies to coordinating speakers for the City Star Party. He is happy, doing well in his new digs, and has become an active member of the Tucson Amateur Astronomy Association.



Annular Eclipse Roadtrip

May 2012

The SFAA is planning a roadtrip for the May 20, 2012 annular eclipse that will be visible across the western US. We are going to camp in Northern California at a location to be determined along the eclipse track.

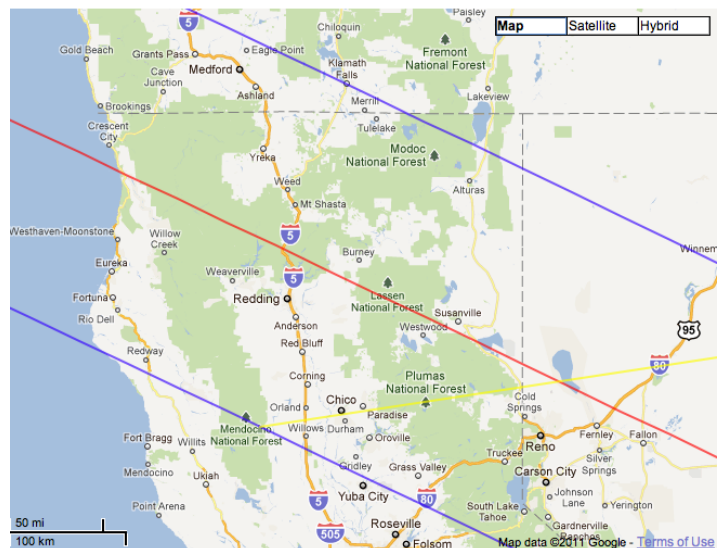
The eclipse takes place near sunset on Sunday 20th. We plan to spend Sunday at the campsite, enjoy the eclipse, and spend the evening having a celebratory star party and overnight camping event. We'll return to the Bay Area on Monday 21st.

If you'd like to join the roadtrip, or if you have questions or ideas, send an email to:

roadtrip@sfaa-astronomy.org

Hope to see you there!

- Paul Salazar and Jessica Santascoy





Astronomical Society of the Pacific

Advancing science literacy through astronomy



PROJECT
ASTRO

Project ASTRO: Astronomers and Educators as Partners for Learning

Project ASTRO™ is a national program that improves the teaching of astronomy and physical science by linking professional and amateur astronomers with local educators. Each astronomer is matched with an educator in a one-on-one partnership and commits to visiting the educator's students at least four times during the school year. Over 500 active educator-astronomer partnerships currently bring the excitement of scientific discovery through astronomy to over 20,000 students annually.

GIVE A CLASS THE UNIVERSE: VOLUNTEER FOR PROJECT ASTRO

Project ASTRO is looking for amateur and professional astronomers to work with teachers and students in 3rd - 9th grade classrooms. This is a great opportunity to share your love of astronomy with a receptive audience and help kids learn about science.

Bay Area Project ASTRO, part of a national program at the Astronomical Society of the Pacific, pairs you with a local teacher at a school convenient for you. Together, you and your teacher partner attend a 2-day summer workshop to learn hands-on, inquiry-based astronomy activities and then you "adopt" a class for a year.

Astronomer and teacher partners will receive "The Universe at Your Fingertips 2.0" -- a rich curriculum resource on DVD-ROM featuring a host of materials on teaching astronomy that you can use in many settings.

Astronomer applications are now being accepted for the 2012 - 2013 school year. There is no cost, but space is limited. All participants are required to attend a 2-day workshop held July 27 & 28th, 2012, at the San Mateo County Office of Education in Redwood City.

APPLY ONLINE by MAY 29th:

<http://www.astrosociety.org/education/astro/bayarea/volunteer.html>

MORE INFORMATION:

<http://www.astrosociety.org/baprojectastro.html>

Project ASTRO emphasizes ongoing partnerships that foster a nurturing environment for students to learn. To accomplish this, astronomers make at least four visits to their adopted classroom at mutually convenient times.

Project ASTRO has been operating since 1993 in the Bay Area. Previous participants often report that it is one of the most satisfying volunteer endeavors they have undertaken.

Graduate students and advanced undergraduate students majoring in astronomy are also encouraged to apply.

If you have questions, please contact Brian Kruse, Project ASTRO Coordinator
Email: bayareaastro@astrosociety.org

NIGHT SKY NETWORK
February 2012 - The Evening Sky
 February Sky Map: <http://www.skymaps.com/skymaps/tesmn1202.pdf>
 February Sky Calendar: <http://www.skymaps.com/articles/n1202.html>

BAY AREA ASTRONOMY EVENTS – Kenneth Lum

<http://tech.groups.yahoo.com/group/bayastro/?v=1&t=directory&ch=web&pub=groups&sec=dir&slk=94>

<p>Wednesday, 2/15 12:00 Noon</p> <p>SETI Institute Colloquium Series 189 Bernardo Ave Mountain View, CA 94043</p>	<p>BOB WAGONER, STANFORD MYSTERIES OF THE OSCILLATIONS OF GAS ACCRETING ONTO BLACK HOLES, NEUTRON STARS, AND WHITE DWARFS</p> <p>Dr. Wagoner will survey the QPOs (quasi-periodic oscillations) seen in the luminosity fluctuation power spectra of compact objects accreting from a binary companion star. There is little understanding of the different frequency relationships in these systems. Dr. Wagoner will focus on the theory and observations of black holes, and compare the predictions of their spin via diskoseismology with those from two other methods.</p>
<p>Wednesday, 2/15 7:30 PM</p> <p>San Francisco Amateur Astronomers General Meeting Randall Museum 199 Museum Way San Francisco, CA</p>	<p>Guest Speaker: FARIDE KHALAF SATURN V – THE FIRST 700 SECONDS</p> <p>See first page of this newsletter for details.</p>
<p>Friday, 2/17 7:00 PM – 10:00 PM</p> <p>Telescope Makers' Workshop</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland, CA 94619-2450</p>	<p>The Telescope Makers' Workshop is held every Friday night from 7pm - 10pm, excluding major holidays (e.g. Christmas Day and New Year's Day) that fall on Fridays. The Workshop is always closed on Memorial Day Weekend. Attendance every Friday night is not mandatory, and members work at their own pace.</p> <p>Contact: E-mail Richard Ozer (rozer@...) or (510) 406-1914</p>
<p>Friday, 2/17 7:00 PM – 10:00 PM</p> <p>Houge Park Twilight Drive San Jose, CA 95124</p> <p>Cost: Free</p>	<p>San Jose Astronomical Association Houge Park Star Party</p>

<p>Friday, 2/17 & Sat 2/18</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland, CA 94619-2450 (510) 336-7300</p>	<p>EXPLORE THE NIGHT SKIES AT THE CHABOT OBSERVATORIES for more information: http://www.chabotspace.org/</p> <p>Free Telescope Viewing Regular hours are every Friday & Saturday evening, weather permitting: 7:30pm -10:30pm Come for spectacular night sky viewing the best kept secret in the Bay Area and see the magnificence of our telescopes in action!</p> <p>Daytime Telescope Viewing On Saturday and Sunday afternoons come view the sun, moon, or Venus through Chabot's telescopes. Free with General Admission. (weather permitting) 12pm - 5pm: Observatories Open</p>
<p>Friday, 2/17 9:00 PM – 11:00 PM</p> <p>Foothill Community College 12345 Moody Rd. Los Altos Hills</p>	<p>Foothill Observatory is open for public viewing every clear Friday evening from 9:00 p.m. until 11:00 p.m. Visitors can view the wonders of the universe through the observatory's new computer-controlled 16-inch Schmidt-Cassegrain telescope. Views of objects in our solar system may include craters and mountains on the moon, the moons and cloud-bands of Jupiter, the rings of Saturn, etc. The choice of targets for any evening's viewing depends on the season and what objects are currently in the sky.</p> <p>On clear, dark, moonless nights, the telescopes give visitors views into the deeper reaches of space. Star clusters, nebulae, and distant galaxies provide dramatic demonstrations of the vastness of the cosmos.</p> <p>The public viewing programs at Foothill are free of charge and are open to guests of all ages. Please note that the observatory is closed when the weather is cloudy. Also note that visitor parking permits are available from the machines in the parking lots for \$2.00.</p> <p>Come to Foothill Observatory and join us in the exploration of our Universe!</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$2.00.</p>
<p>Saturday, 2/18 10:00 AM – 12:00 NOON IF IT IS CLEAR</p> <p>Foothill Community College 12345 Moody Rd. Los Altos Hills</p> <p>Admission : Free</p>	<p>Solar observing with a Hydrogen alpha solar telescope every clear Saturday morning. This allows spectacular views of solar prominences and unusual surface features on the Sun not otherwise visible with regular white light telescopes. Admission is free.</p> <p>Foothill Observatory is located on the campus of Foothill College in Los Altos Hills, CA. Take Highway 280 to the El Monte Rd. exit. The observatory is next to parking lot 4. Parking at the college requires visitor parking permits that are available from the machines in the parking lots for \$ 2.00.</p>
<p>Saturday, 2/18</p> <p>Chabot Space And Science Center Dellums Building 2nd Floor Hauben Resource Center Room</p>	<p>East Bay Astronomical Society mtg.</p> <p>Guest Speaker: Dr. Stephen J. Asztalos, Nuclear Engineer/Researcher SHEDDING LIGHT ON DARK MATTER</p>

NASA SCIENCE CAST

The Science@NASA team is pleased to announce a new product: the ScienceCast. Every week, we produce a short video highlighting a topic in NASA science news. A complete list of ScienceCast episodes may be found on Science@NASA's Youtube channel: <http://www.youtube.com/user/ScienceAtNASA> . Enjoy!

<http://science.nasa.gov/science-news/>

Solar Eclipse over the USA

[Play ScienceCast Video](#)

[Join Mailing List](#)

Jan. 27, 2012: Mark your calendar. On Sunday, May 20th, the sun is going to turn into a ring of fire. It's an annular solar eclipse--the first one in the USA in almost 18 years.

An annular eclipse occurs when the Moon passes directly in front of the sun, but the lunar disk is not quite wide enough to cover the entire star. At maximum, the Moon forms a "black hole" in the center of the sun.

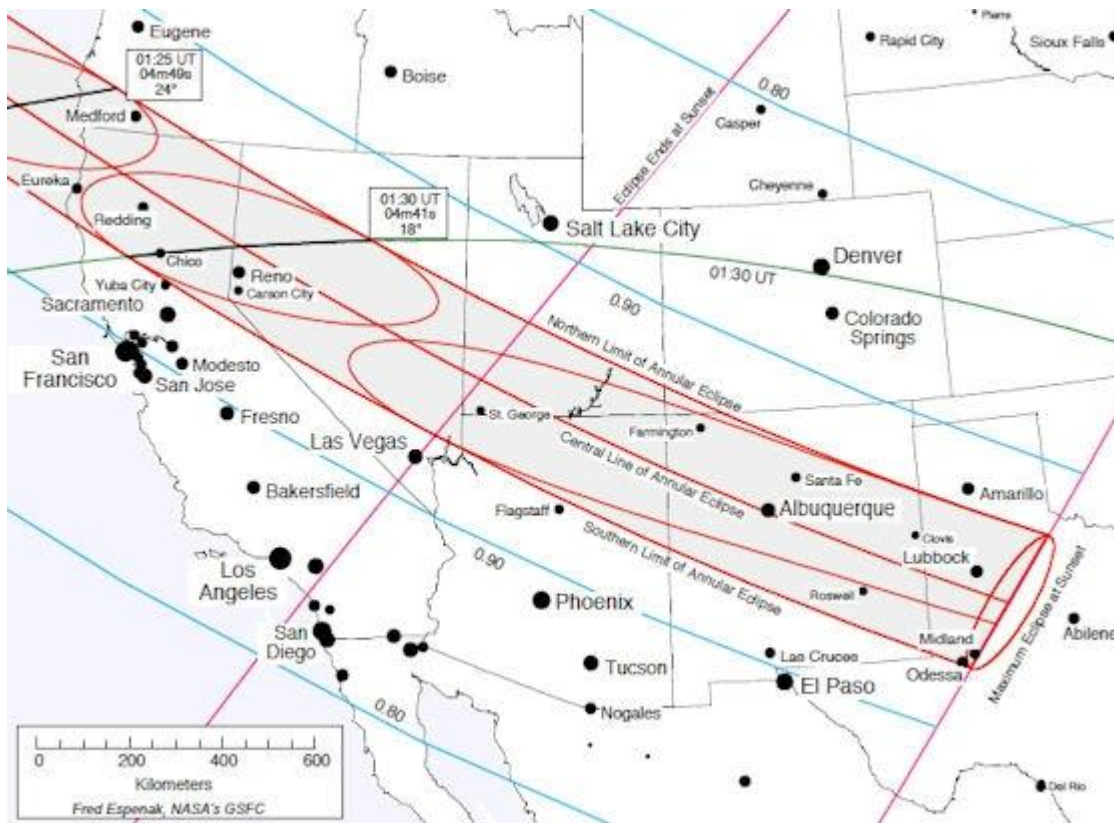


"The ring of fire:" Astrophotographer Dennis L. Mammana photographed this annular eclipse behind palm trees in January 1994. Copyright D. L. Mammana. [\[more\]](#) [\[video\]](#)

The "path of annularity" is a strip about 300 km wide and thousands of km long. It stretches from China and Japan, across the Pacific Ocean, to the middle of North America. In the United States, the afternoon sun will become a luminous ring in places such as Medford, Oregon; Chico, California; Reno, Nevada; St. George, Utah; Albuquerque, New Mexico, and Lubbock, Texas. Outside of this relatively narrow zone, the eclipse will be partial. Observers almost everywhere west of the Mississippi will see a crescent-shaped sun as the Moon passes by off-center.

"I like to compare different types of eclipses on a scale of 1 to 10 as visual spectacles," says NASA's leading eclipse expert, Fred Espenak of the Goddard Space Flight Center. "If a partial eclipse is a 5 then an annular eclipse is a 9." This event should not be confused with a total eclipse. In a total eclipse, the Moon covers the entire surface of the sun, bringing an eerie twilight to observers in the path of totality and revealing the sun's ghostly corona. "On that scale of 1 to 10," he adds, "a total eclipse is 'a million!' It's completely off the charts compared to any other astronomical event." The next total eclipse in the USA is in the year 2017. Until then, May 20th of this year will have to do.

Annular eclipses have a special charm all their own. During an annular eclipse, sunbeams turn into little rings of light. The best place to see this is on the sun-dappled ground beneath a leafy tree. Hundreds of circular shadows can be found [there](#). You can also make a handy solar projector by criss-crossing your fingers waffle-style. Rays of light beaming through the gaps will have the same shape as the eclipsed sun.



The path of annularity cuts across the continental United States at sunset on May 20, 2012. A global map is also available: [click here](#). See also the [ScienceCast video](#).

Be careful when looking directly at the eclipsed sun, cautions Espenak. "The ring of sunlight during annularity is blindingly bright. Even though as much as 94% of the Sun's disk will be covered, you still need to use a solar filter or some type of projection technique. A #14 welder's glass is a good choice. There are also many commercially-available solar filters."

"One of the unique things about this eclipse for watchers in the USA is that the Sun will still be in deep partial eclipse, making for some great photographic opportunities," he continues. "In western Texas around Lubbock, the sun actually sets during the annular phase."

A swollen red sun with a black hole in the middle? Maybe 9 out of 10 isn't so bad, after all.

For more information about this eclipse, including maps and timetables, please visit eclipse.gsfc.nasa.gov.

Author: [Dr. Tony Phillips](#) | Production editor: [Dr. Tony Phillips](#) | Credit: Science@NASA

More Information

[Solar Eclipse over the USA](#) -- ScienceCast video
 NASA's [Solar Eclipse Home Page](#)
[Maps and Timetables](#) for the May 20th annular eclipse
[Annular eclipse photo gallery](#) --- from spaceweather.com

Mission to Land on a Comet

[Play ScienceCast Video](#)

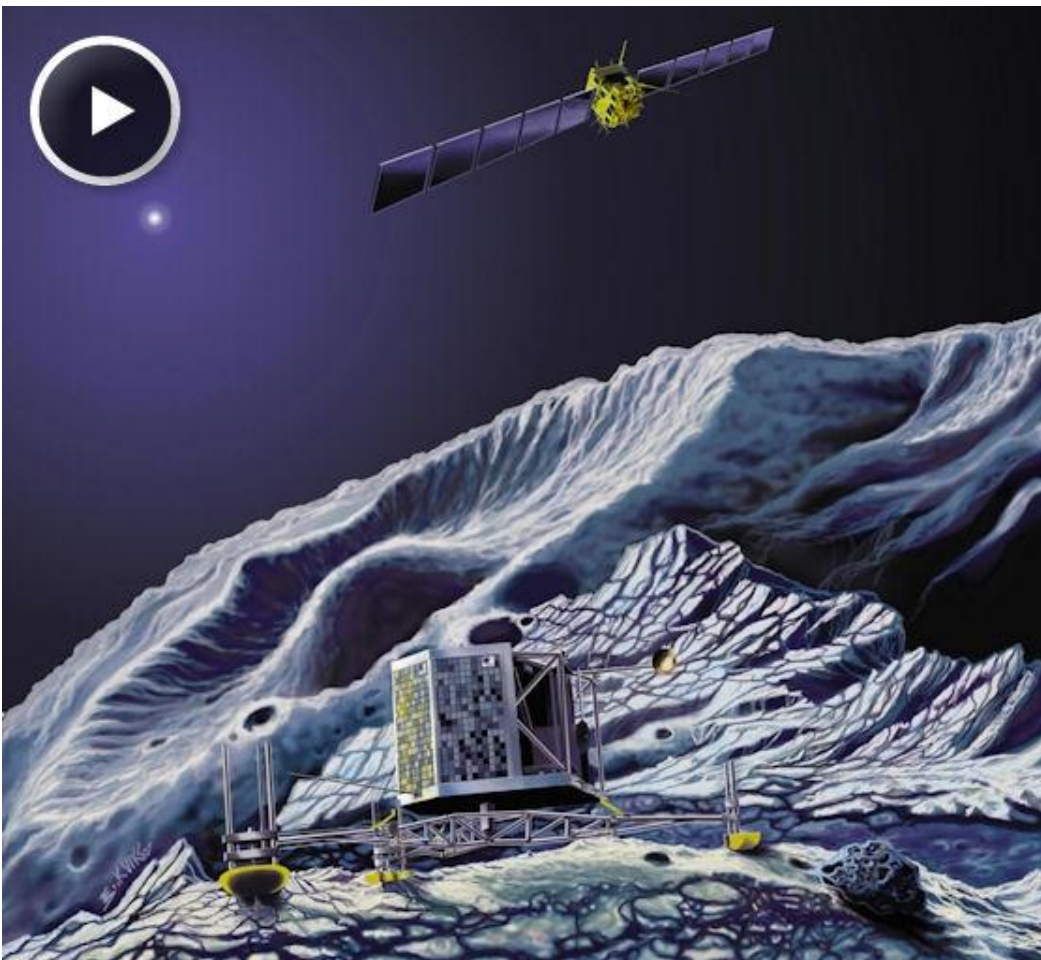
[Join Mailing List](#)

Jan. 31, 2012: Europe's Rosetta spacecraft is en route to intercept a comet— and to make history. In 2014, Rosetta will enter orbit around comet 67P/Churyumov-Gerasimenko and land a probe on it, two firsts.

Rosetta's goal is to learn the primordial story a comet tells as it gloriously falls to pieces.

Comets are primitive leftovers from our solar system's 'construction' about 4.5 billion years ago. Because they spend much of their time in the deep freeze of the outer solar system, comets are well preserved—a gold mine for astronomers who want to know what conditions were like back “in the beginning.”

As their elongated orbits swing them closer to the sun, comets transform into the most breathtaking bodies in the night sky. A European Space Agency mission launched in 2004 with U.S. instruments on board, Rosetta will have a front-row seat for the metamorphosis.



An artist's concept of Rosetta in orbit while the mission's lander explores the comet's surface. [[more](#)]

What we know of comets so far comes from a handful of flyby missions.

"In some ways, a flyby is just a tantalizing glimpse of a comet at one stage in its evolution," says Claudia Alexander, project scientist for the U.S. Rosetta Project at JPL. "Rosetta is different. It will orbit 67P for 17 months. We'll see this comet evolve right before our eyes as we accompany it toward the sun and back out again."

Fierce solar heat will have a profound effect on Rosetta's target. "We'll watch the comet start as just a little nugget in space and then become something poetic and beautiful, trailing a vast tail."

At the moment, Rosetta is "resting up" for the challenges ahead. It's hibernating, engaged in its high-speed chase while fast asleep.

Reveille is on or around New Year's Day 2014, when the spacecraft begins a months-long program of self-checkups.

If all goes well, in August of the same year, Rosetta will enter orbit around 67P's nucleus and begin scanning its surface for a landing site. Once a site is chosen, the spacecraft will descend as low as 1 km to deploy the lander.

The lander's name is "Philae" after an island in the Nile, the site of an obelisk that helped decipher—you guessed it—the Rosetta Stone.

Touchdown is scheduled for November 2014, when Philae will make the first ever controlled landing on a comet's nucleus.

"When we land, the comet could already be active!" says Alexander. Because a comet has little gravity, the lander will anchor itself with harpoons. "The feet may drill into something crunchy like permafrost, or maybe into something rock solid," she speculates.

Once it is fastened, the lander will commence an unprecedented first-hand study of a comet's nucleus. Among other things, it will gather samples for examination by automatic onboard microscopes and take panoramic images of the comet's terrain from ground level.

Meanwhile, orbiting overhead, the Rosetta spacecraft will be busy, too. Onboard sensors will map the comet's surface and magnetic field, monitor the comet's erupting jets and geysers, measure outflow rates, and much more. Together, the orbiter and lander will build up the first 3D picture of the layers and pockets under the surface of a comet.

The results should tell quite a story indeed.

Author: [Dauna Coulter](#) | Editor: [Dr. Tony Phillips](#) | Credit: [Science@NASA](#)

More Information

[Rosetta at a Glance](#) -- from the European Space Agency

[European Space Agency](#) -- home page

[Comet Corpses in the Solar Wind](#) -- Science@NASA

[Some Comets Like it Hot](#) -- Science@NASA

2010 CLUB OFFICERS & CONTACTS

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<i>1st Alternate</i>	Michael Farino	
<i>2nd Alternate</i>	Michael Patrick	
<i>Webmaster</i>	Matthew Jones	

CLUB TELESCOPES

The SFAA owns eight very fine, easy to use, loaner telescopes well-suited for deep sky, planets, and star parties. All scopes are available to any SFAA member. The loaner custodians for the majority of our fleet are Pete & Sarah Goldie. Please contact them at telescopes@sfaa-astronomy.org for details if you are interested in borrowing a scope or if you have items you can donate for the loaner program (eyepieces, star maps/books, red flashlights, collimator, etc.). Please contact the appropriate member indicated below if you are interested in borrowing one of the telescopes.

- 1) 6" f/10.3 Dobsonian/Ken Frank ken@sfaa-astronomy.org
- 2) 8" f/7 Dobsonian/Pete Goldie
- 3) 8.5" f/6 Dobsonian/Pete Goldie
- 4) 10" f/8 Dobsonian/Pete Goldie
- 5) 114mm f/4 Newtonian StarBlast/Pete Goldie
- 6) 8" f/10 Celestron SCT/Annette Gabrielli/ annette@sfaa-astronomy.org
- 7) 8" f/10 Meade SCT/Stefanie Ulrey/treasurer@sfaa-astronomy.org
- 8) 9.5" f/5.6 Celestron Newtonian/Ken Frank/ ken@sfaa-astronomy.org

CLUB ASTRONOMY VIDEOS

The SFAA owns a series of astronomy videotapes featuring Alex Filippenko, a world-renowned professor of astronomy at UC Berkeley. The videotapes provide an introduction to astronomy and cover topics such as the Solar System, the lifecycles of stars, the nature of galaxies, and the birth of the Universe. The SFAA loans the tapes free to all members. If you are interested in viewing these tapes, you may check them out at any of the SFAA General Meetings. These tapes were kindly donated to the SFAA by Bert Katzung. For information on the course tapes themselves:

<http://www.teach12.com/ttc/assets/coursedescriptions/180.asp>

MEMBERSHIP DUES

Membership is billed for each upcoming year on June 30. Members may receive no more than one bulletin after the expiration of membership.

SFAA WEBSITE AND ONLINE SERVICES

The SFAA web site at sfaa-astronomy.org is provided to our members and the general public for the sharing of club information and services. The web site contains links for club [star parties](#), [events](#), [newsletters](#), [lectures](#) and [meetings](#). If you wish to interact with other people who are interested in astronomy, the SFAA web site offers public and members only [bulletin board forums](#). If you wish to remain up-to-date on club activities, then we encourage you to subscribe to one or both of our public [mailing lists](#), which will allow you to receive our newsletter and/or club announcements via email. Other useful and interesting information and services are available on the site such as [observing location reviews](#), member [astronomy photos](#), and [members only telescope loans](#). Information about SFAA's membership, organization and by-laws are available at the club's online public document [archive](#). If you need to contact a representative of the SFAA, then please visit our [contacts](#) page to help in finding the right person to answer your questions.

Above the Fog is the official bulletin of the San Francisco Amateur Astronomers. It is the forum in which club members may share their experiences, ideas, and observations. We encourage you to participate by submitting your articles, announcements, letters, photos and drawings. We would also like to hear from our new members. Tell us about yourself – what you have done in the past and what other clubs you have joined. **The deadline for the next issue is the 25th day of the month.** Send your articles to Editor@sfaa-astronomy.org

San Francisco Amateur Astronomers
POB 15097
San Francisco CA 94115

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