

★ ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 59, No. 5 – May 2011

Wednesday, July 20, 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)



MICHAEL PORTUESI

Past-President

San Francisco Amateur Astronomers

Astro-Imaging Without the Camera

We've all seen stunning photos of the cosmos taken by astrophotographers, using sophisticated hardware such as CCD and digital SLR cameras. But there's another way to image the cosmos, using the "camera" that nature provided every one of us — our own eyes!

This talk will show how you can sketch what you see through the eyepiece, for fun and to help you be a better observer. I'll showcase the work of some great astronomical sketchers of the past and present, and outline the many reasons why sketching remains a valuable and meaningful pursuit, even in light of modern digital imaging.

We will explore the tools and techniques you can use to create sketches of astronomical objects in the solar system and beyond. I'll discuss methods for getting the best sketches regardless of the type of telescope or binoculars you might own. And I'll show how I do an astro sketch with a live demo, using an astrophoto as a subject.

We'll wrap up by examining how imaging applications like Photoshop can scan and process your sketches, just like astroimagers with cameras do! And I'll provide a list of resources and websites to help you start creating your own personal sketch gallery.

Join us for a night celebrating the time we spend at the eyepiece!

*Michael Portuesi is past-president of the San Francisco Amateur Astronomers and currently maintains the website for the San Francisco Sidewalk Astronomers (www.sfsidewalkastronomers.org). He is an avid observer, having sketched many celestial objects with his small collection of telescopes and binoculars. He has published articles and sketches in *Sky and Telescope* magazine. When not pencilling faint fuzzies to paper, he works as a software developer at a small company producing educational apps and websites for young children.*

PRESIDENT'S MESSAGE

As Summer is getting into full swing there's a lot to see and do with our club.

Membership Renewal

First order of business is membership renewal. If your membership is due, look for a renewal notice in your email – which contains a simple link to pay via PayPal. Renewing online helps our workload immensely (thank you if you are able to renew this way!) but if you prefer to send us a check, please make it payable to the SFAA, mark your member name on it and kindly send to:

PO Box 15097
San Francisco, CA 94115

Public Outreach

With so many public activities that summer permits, I know how many of our club members are really looking forward to community outreach. It's truly one of the things I love the most about amateur astronomy – showing members of the public heavenly sights many have never seen before. Join us for public viewing on Mt Tam each month and share the wonder, then enjoy as we get the mountain to ourselves from 11pm-2am once the crowds leave.

- Next public event on Mt Tam is July 9th at Rock Springs parking lot.
- Yosemite public event (and camping) is July 8th – 10th at Glacier Point.
- Dominican University 'Big History' – Studying the Universe is being held on September 29th (with a backup planned October 6th).

Another interesting project:

Galaxy Forum USA - July 2, 2011, 9:30am – 11:30am, at the The Tech Museum of Innovation, San Jose, CA. Admission is free; please contact info@iloa.org or call **650-324-3705** to reserve your place.

Featured speakers include Dr. Leo Blitz of UC Berkeley "The Structure of Our Milky Way Galaxy", Dr. Louis Friedman of The Planetary Society "LightSail-1: Solar Sailing The Milky Way", Virgin Galactic Accredited Space Agent Lynda Turley Garrett of Alpine Travel in Saratoga, Steve Durst of Space Age Publishing Company and International Lunar Observatory Association "International Lunar Observatory (ILO) Galaxy First Light Imaging Program."

I hope to see you at our next General Meeting – July 20th at the Randall Museum at 7.30pm.

Wishing you sparkling clear skies!

SUE-ELLEN SPEIGHT
President
San Francisco Amateur Astronomers



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

August 17 -- A New Space Telescope Project - Testing What We Think We Know About The Age Of The Universe

Michael Gregg, Research Astrophysicist, UC Davis

The Hubble Space Telescope uses a traditional astronomy distance indicator, Cepheid variable stars, to measure the distance to the Coma cluster of galaxies. This reaches four times farther out into the Universe than any other precise distance measurement so far. Michael Gregg's talk will explore how astronomers are testing our understanding of the nature of the Universe, and how we can gain insight into the age and evolution of galaxies from the visually stunning images from the Hubble Space Telescope.

September 21 -- Pascal Lee, Ph.D. – Researcher

Dr Pascal Lee is co-founder and chairman of the Mars Institute, a planetary scientist at the SETI Institute in Mountain View, CA, and the Principal Investigator of the NASA Haughton-Mars Project (HMP) at NASA Ames Research Center in Moffett Field, CA. Dr. Lee's research interests focus on Mars, asteroids and impact craters. He is particularly interested in the history of water on Mars and in the geologic and physical conditions allowing life to develop on planets.

October 19 -- Dr. Natalie Batalha – Assistant Professor, Physics and Astronomy, San Jose State University

Dr. Batalha has been affiliated with NASA Ames Research Center since 2000 where she conducts research on extrasolar planet detection and stellar astrophysics. She is a co-Investigator for NASA's Kepler Mission whose objective is to identify and characterize habitable, earth-like planets orbiting sun-like stars. As Director of the Systems Teaching Institute at the NASA Research Park (<http://uarc.ucsc.edu/sti>), Dr. Batalha is responsible for creating programs and resources for students pursuing careers in fields relevant to the mission of NASA Ames Research Center.

November 16 -- PSYCHOLOGICAL ISSUES AFFECTING ASTRONAUTS IN SPACE

Dr. Nick Kanas - Emeritus Professor of Psychiatry, University of California, San Francisco

A number of psychiatric and interpersonal issues can affect astronauts in space. Professor Nick Kanas will review important psychosocial issues, describe his research with astronauts and cosmonauts who have flown on the Mir and International Space Stations, and discuss countermeasures that will improve the psychological well-being of future space travelers.



December 21 -- Erick Young, SOFIA Science Mission and Operations Director

Erick Young, a widely recognized authority on infrared astronomy, is Science Mission Operations Director for SOFIA. Most recently, Young was responsible for developing the far-infrared detector arrays on the Spitzer Space Telescope's Multiband Imaging Photometer for Spitzer (MIPS). The instrument provided both imaging and spectroscopic data at far-infrared wavelengths.

IMPORTANT DATES

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.

July 20

August 17
September 21
October 19

November 16
December 21

CITY STAR PARTIES *Land's End (Point Lobos)*

The parking lot at Lands End is currently under construction and will be inaccessible for a few months. SFAA Public Star Party will be held at the multi-tiered parking lot just past the entrance of land's end on Geary Street. We believe the address for this parking lot is 1 Merry Way.

Directions:

If you are heading west on Geary (toward the Ocean), the entrance will be on your right a few hundred feet after the Lands End turn off. It is located above the Cliff House Restaurant.

Map and directions: <http://www.sfaa-astronomy.org/clubarchive/directions-pointlobos.php>

TELESCOPE CLINIC ONE HOUR BEFORE SUNSET

NOTE: While City Star Parties WILL ALWAYS be held on a Saturday, some will be close to the last quarter phase of the moon; others will be close to first quarter. This is so we can work around dates for Mt. Tam public star parties as well as our Mt. Tam members-only events.

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).

August 27
September 24
October 22

November 26
December 24

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/>

SFAA MEMBER BOB DOUGLAS OFFERS THESE TRIPLE STAR CHALLENGES



AQUILA

A Tiny Triple--RA 18:55 DEC 11.3: (10.7, 10.7, 11.2; AB 29.4", BC 26.2", CA 28.4").

From Roger Sinott's March 1999 S&T.

A Tiny Triple with a star in the middle--**RA 19:29 DEC 02.6:** (9.2, 10.6, 11.1; AB 27.6", BC 29.7", CA 22.7"). From Roger Sinott's March 1999 S&T.

CASSIOPEIA

HU 507 (Hussey) = ADS 364 --tiny triple--

RA 0:28 DEC 50.0: A triple forming a triangle (10.2, 10.4, 10.5; AB 1.6", BC 1.6",

CA 1.2"). About 7' WSW is the V = 7th double STF 30.

From Roger Sinott's March 1999 S&T.

CORVUS

STF 1604--tiny triple-- **RA 12:09 DEC -11.9:** Triple (6.8, 9.3, 9.2; AB 9.9", PA 890; AC 19.1", PA 250).

CYGNUS

Lassell's Triple Double [LSL1]--RA 21:34.8 DEC 32.04: It is a small equilateral triangle, each side being about 1.5', in which each star in the triple is a double. Very unusual.

I had mentioned several of the tiny triangles mentioned above and below to SFAA member Steve Gottlieb. He then showed me Lassell's Triple double. I believe he found it in Urania.

DRACO

HU 66 (Hussey) = STT 351--tiny triple--**RA 18:26 DEC 48.6:** A triple forming a very very small triangle (8.2, 8.4, 8.7) with separations on the order of 0.5"!

MONOCEROUS

STF 939--tiny triple (Copeland's Trigon)--**RA 06:36 DEC 5.3:** A triple (8.4, 9.2, 9.4) forming a nearly equilateral triangle (about 35" on a side). STF 939 is about 10 ENE of the Rosette Nebula & OC.

SAGGITARIUS

h2866 = a Tiny Triple--**RA 19:24 DEC -18.0:** (8.6, 8.8, 9.3; AB 35.2", BC 23.3", CA 27.2"). From Roger Sinott's March 1999 S&T. One star is red.

This issue is dedicated to our member and this month's guest speaker

MICHAEL PORTUESI

President, San Francisco Amateur Astronomers, 2003 & 2004

2004 SFAA Herman Fast Award

2004 SFAA Observer of the Year

2004 SFAA Service Award

2006 SFAA Astronomical Art Award

Webmaster, San Francisco Sidewalk Astronomers

and with immense appreciation for his many contributions of extensive energies and efforts to San Francisco Amateur Astronomers over the years, include here are two articles written for past issues Above the Fog ...



of the Year, and second place Art Award

The Observer's Toolkit

Michael Portuesi

April 2004

So, you've bought your telescope, and....now what? You might have taken it out for a few observing sessions, and found that getting going with your new toy was a bit more difficult than you had expected.

Like so many other fields of endeavor, observing is much easier when you have the right set of tools. Here, we will cover the essentials that every observer should have in their toolkit, plus a few tools that are specific to the type of telescope you might own.

Red Flashlight



Observing is done in the dark. You need some sort of light so you can see eyepieces, your telescope controls, and whatever observing notes you might be using. Unfortunately, a standard flashlight emits a blinding white light, which is great for lighting up everything in sight, but also good at blinding you and ruining your dark adaptation. Also, it's very bad form to use a white flashlight at a star party for this reason.

Pictured here are two red flashlights. Telescope stores offer them, or you can make your own. The one on the left is a commercial red LED flashlight. It has a dial to adjust brightness ? this is very important. Normally, you want to use just enough light to see your eyepiece, chart or whatever, but not any more.

At the end of the night, when you pack up, or if you're walking around between telescopes at a star party, you want more light!

The light on the right is a regular Mag-Lite flashlight, with a red plastic filter on the lens. Mag-Lite actually sells a little kit that includes a red plastic filter. But I prefer the LED flashlights because they are brighter, and don't run down the batteries as much as a Mag-Lite. Plus, the Mag-Lite seems to burn out its light bulb rather often.

If you get a red LED flashlight, don't get a model with a white light built in - you don't need it. If it's there, you're likely to change it to white beam by accident ? usually in the middle of a star party when you will blind yourself and everyone else nearby. Instead, get a separate white flashlight that you can use when the circumstances are appropriate (usually when you and everyone else are packing up from a long night's observing!).

Finally, it's helpful if the flashlight has a strap so you can put it around your neck. That makes it easy to find the flashlight in the dark!

Red Dot or Telrad Finder



A "red dot", or Telrad finder, is the best help you will get for finding objects in the sky. Even if you have a GOTO scope, you will want one of these because it makes aligning the telescope to its guide stars so much easier.

These finders (also called "unit power" or "reflex finders") simply project a red ring or dot on the sky when you look through them. Basically, they act as a "gunsight" to allow you to accurately aim

your scope. Wherever the bullseye is pointing, your telescope is too. 7

The Orion red dot finder is pictured on the left; several other manufacturers make similar models. I think the best one is made by StellarVue. The Telrad (pictured on the right) is the original finder from which all others descended. It is kind of bulky next to some of the newer models, but it is quite light and has virtues of its own. For example, it projects nice bullseye rings rather than a single dot, and it suffers less from parallax issues when you move your eye around while looking through it.

Planisphere

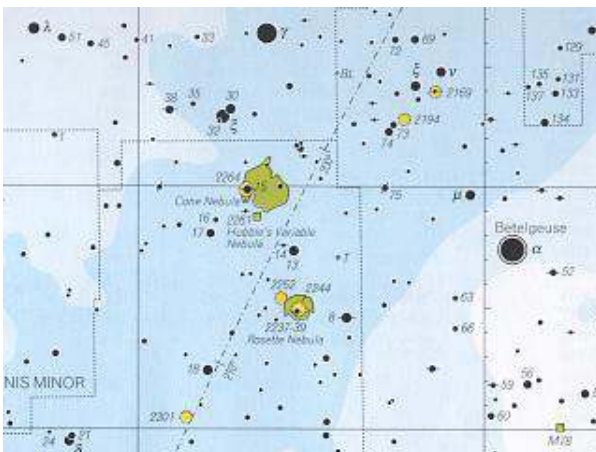


A Planisphere is a compact, rotating star map. You dial up the current date and time, and it shows you a map of which constellations and bright stars are up. This is a great way to learn the constellations, and it's essential if you have a GOTO scope such as the Meade ETX or Celestron Nexstar. The telescope will expect you to center it on specific stars in order to calibrate its GOTO feature ? and it's very helpful to know where in the sky the calibration stars are.

The very best planisphere is called *The Night Sky* by David Chandler (pictured here). This one is unique in that it shows you a northern horizon-facing view on the front, and a southern-facing view on the back. This reduces the distortion that planispheres inevitably exhibit, making it easier to trace

constellations in the sky. You can purchase it online from Sky and Telescope. Make sure to get the model that's specific for the latitude where you live.

Basic Star Atlas



The planisphere is useful for getting your bearings, but eventually you will need a more detailed star map to show you where all the interesting things are. The best basic star atlas currently available is the *Cambridge Star Atlas*, by Wil Tirion and published by Cambridge University Press (a tiny sample is shown here).

The *Cambridge Star Atlas* has a series of 20 charts that cover the entire sky, displaying stars down to magnitude 6.5 (all stars that can be seen with the naked eye). It plots a great deal of deep-sky objects, and each map has an accompanying page listing the objects and providing information on them. It's beautiful, compact, and well-laid out. This atlas should be sufficient to get

you through the bulk of the Messier Objects, and then some.

There are more sophisticated atlases you can buy, and also star charting software. But this is a good place for beginners to start, because it shows you what you need without overwhelming you with detail. Even when you become an experienced observer, you will still find a bright star atlas like this one very useful on a regular basis.

Beginner's Observer's Guide

To accompany your atlas, it's good to have a book that explains the basics of observing - how to find objects in the sky, along with suggestions for observing projects to get you going. The beginner's guides generally start you with things that are easy to see ? which is good because they are also among the prettiest! 8

Here are some recommendations:

- *Turn Left at Orion: A Hundred Night Sky Objects to See in a Small Telescope ? and How to Find Them* by Guy Consolmagno and Dan M. Davis
- *Star-Hopping: Your Visa to Viewing the Universe* by Robert A. Garfinkle
- *Star-Hopping for Backyard Astronomers* by Alan M. MacRobert, Fred Schaaf
- *The Universe from your Backyard: A Guide to Deep Sky Objects from ASTRONOMY Magazine* by David J. Eicher

Bubble Level



If your telescope has an equatorial mount, or if you have a GOTO telescope, this is a handy item to have. It makes it easy to level your scope. For GOTO scopes, this is essential. A GOTO scope wants you to level the tube and point it towards north before it starts locating its alignment stars. The more level and the better pointed you are towards north, the better it will guess as to where the alignment stars are. This translates into easier setup of your scope.

You can find these in any hardware store, for about \$3.

Collimation Tools



If you have a Newtonian reflector telescope (and this includes Dobsonians), you need to collimate (align) the optics, usually every observing session. Collimation is very important, and will dramatically improve the quality of the images you see through your telescope.

Pictured here are a sight tube (left), and a Cheshire eyepiece (right). These go into the focuser, in place of a normal eyepiece. The sight tube is used for aligning the secondary (diagonal) mirror. Once the secondary is aligned, you use the Cheshire to align the primary mirror. You can buy "combo" units that combine both features into one special eyepiece, but they're not as good as separate tools. The separate tools are less confusing, and more accurate.

You can spend lots of money on fancy collimation tools, such as laser collimators and the like. I own a laser collimator myself. But these two tools are all you really need for collimation.

The best collimation tools are made by Tectron Telescopes. You can do a web search to find an FAQ for collimating your Newtonian telescope.

Get your hands on some of these items, and see what a difference they make in the quality of your observing sessions. Armed with these tools, you should be set to take on the entire Universe!

Star Party Etiquette

Michael Portuesi

With the observing season now upon us, and several new observers in the club, now is a good time to cover base rules of etiquette for star parties. Observing is often a group activity, and following these simple rules will make observing more fun for yourself as well as everyone who shares the evening with you.

- **Use red lights only.** Red lights spare everyone's dark adaptation, and allow them to see through their telescope! If you don't have a red flashlight, pick up some red taillight repair tape from the auto supply store, and cover the flashlight lens.
- **Arrive at the star party before sunset.** Turn your headlights off if entering or leaving the observing area after dark. If entering after dark, try to park away from the main area so as not to shine them with light.
- **Get red plastic covering for laptop displays.** Turn screen brightness down to the minimum. If you can, set up your laptop at one end of the observing area.
- **Turn off the interior lights to your car,** and/or cover them with red plastic or tape.
- **Announce your intentions first** if you must do something that will shine a bright light. Give people a chance to cover their eyes or look away.
- **No Pets. Period.** Dogs by nature are uncontrollable, and they pose a threat to people when they get out of control. They also don't realize the equipment they're running around (not yours) can be worth several tens of thousands of dollars. This year, I have seen dogs from different owners fighting and snarling at each other. This has no business at star parties.
- **Do not touch other people's equipment without permission.** This goes back to the "tens of thousands of dollars" some of this equipment is worth. In some cases, equipment can be irreplaceable if something breaks.
- **Supervise your children.** Kids are welcome at star parties – encouraging science and astronomy among youngsters is important, and kids love it. But please keep an eye on them, and make sure they don't touch equipment unless they have permission. Remember, "tens of thousands of dollars".
- **If you are a visitor, do not monopolize people's time.** It's great to look through other's telescopes and ask questions. But star parties are not ideal for extended conversations on astronomy. The Moon eliminates two weeks of every month for deep-sky observing, because it brightens the skies. Of the remaining two weeks, most people can observe only on Saturday evenings. Figure in occasional clouds and bad weather, and that means many deep-sky observers get at most a dozen evenings per year for observing. They want to make the best use of their time they can. During public events, there are usually several people behind you who want a look, too. Give them a chance.
- **If you have no telescope, park away from the main area** so that people with heavy telescopes will not have to carry them far when unloading.
- **If you have a telescope, bring your own eyepieces and equipment.** People love to loan out their equipment so that you can try new things – but you should not depend on other people for your equipment.
- **Generally, people frown upon music.** If you want to listen to music, ask people first, or use headphones.
- **Bring your own food and beverages,** since catered star parties are very rare.
- **Clean up all trash** after you've eaten your food and beverages. Leave no litter at the site.
- **Respect the rules of the facility** which you are using. If you don't, the owners of the facility are very likely to disallow use of the park for astronomical events. We get use of observing sites only through the good grace of others.



2011 Mt Tam Astronomy Programs
Mt. Tamalpais State Park - Cushing Memorial Theatre
(aka the Mountain Theatre)
Explore the Wonders of the Universe

Greeting to all Mt Tam Enthusiasts!

Join us for our 23rd series of lectures + star parties on Mt Tam.

All talks take place in the Cushing Memorial Theatre (usually just called the Mountain Theatre) and are followed by observing in the Rock Spring Parking Lot. These programs are sponsored by your state park and are FREE and open to the public. Bring your neighbors and friends for some great evenings on the Mountain. Encourage young people to come and introduce them to the experience of learning some science in a friendly setting followed by a chance to view through telescopes provided by the San Francisco Amateur Astronomers.

If you know others who may wish to receive notices of our programs send email addresses to tinkaross@comcast.net. Or send a reply to this notice if you wish to be removed from this list. Reminder notices are sent the week prior to each event and emails are not shared with anyone else.

You can learn more about our programs by checking out the web site: www.mttam.net or calling our hot line: 415-455-5370. If you still have questions or comments contact Tinka at 415-244-4715.

The schedule is listed below. **MARK YOUR CALENDARS NOW** and join us on the Mountain for some exciting Saturday nights!

- | | | |
|--------|----|--|
| Aug | 6 | Steve Bryson , NASA-Ames Research Center
"Kepler's Vision: Exoplanets and Songs of the Stars" |
| 8:30pm | | Since mid 2009, NASA's Kepler space telescope has been constantly watching about 160,000 stars with the ultimate goal of finding Earth-sized planets in Earth-like orbits around Sun-like stars. |
| Sept | 3 | Dr. Kirill Filimonov , UC Berkeley
"Extreme Astronomy: Eyeing the Cosmos through a Cubic Kilometer of Ice" |
| 8:00pm | | Why physicists are fishing for elusive cosmic neutrinos using Ice Cube, the world's largest telescope located on the harshest continent on the planet. |
| Oct | 17 | Dr. Anne Metevier , UC Santa Cruz/Sonoma State University
"Milky Way Galaxies Across the Universe" |
| 7:30pm | | The universe contains many vast galaxies containing stars, gas and dust. What do we know about the formation and evolution of galaxies most like our own Milky Way. |

Thank you for sharing this information with others.

Looking for a flashlight for the mountain? Check out Visionaryflashlights.com. Use the code astro for a 15% discount

NIGHT SKY NETWORK
The Evening Sky Map

July Evening Sky Map: <http://www.skymaps.com/skymaps/tesmn1107.pdf>

BAY AREA ASTRONOMY EVENTS – Kenneth Lum

<p>Friday, 7/15 and Saturday, 7/16</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450 (510) 336-7300</p>	<p>EXPLORE THE NIGHT SKIES AT CHABOT OBSERVATORIES For more information: http://www.chabotspace.org/</p> <p>FREE TELESCOPE VIEWING Regular hours: 7:30pm -10:30pm Every Friday & Saturday evening, <u>weather permitting</u>. 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 Observatories Open 12pm - 5pm, <u>weather permitting</u>. Come view the sun, moon, or Venus through Chabot's telescopes. Free with General Admission.</p>
<p>Friday, 7/15 and Saturday, 7/16</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450 (510) 336-7300</p>	<p>SKIES! 6:00 PM DINNER, A MOVIE, AND THE UNIVERSE Join us for Chabot's unique evening social rendezvous. Start your night off with dinner and drinks, then cozy up in the planetarium as you're whisked to the edge of the universe and cap off the evening with telescope viewing featuring breathtaking views of the cosmos.</p> <p>ADVANCE TICKETS DINNER: Buy advance tickets to ensure your dinner reservation. Purchase dinner separately at the cafe (\$15). A MOVIE AND THE UNIVERSE: Admission to Chabot includes access to all of our interactive exhibitions, a film in the MegaDome theater AND a show in the Digital Planetarium. Purchase your advance tickets online or call the Box Office at (510) 336-7373.</p>
<p>Friday, 7/15 9PM – 11:00PM Open for public viewing every clear Friday evening</p> <p>Foothill Observatory Foothill Community College 12345 Moody Road Los Altos Hills</p>	<p>COME TO Foothill Observatory AND JOIN US IN THE EXPLORATION OF OUR UNIVERSE!</p> <p>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</p>

	<p>note that visitor parking permits are available from the machines in the parking lots for \$2.00.</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, 7/16 10AM-12 Noon IF IT IS CLEAR</p> <p>Foothill Observatory Foothill Community College 12345 Moody Road Los Altos Hills</p> <p>ADMISSION IS 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.</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, 7/16 6:00 PM No-host Cocktails 7:00 PM Dinner</p> <p>San Mateo County Astronomical Society Banquet – Members Only – but join and you can crash the party!</p>	<p>MEMBERS ONLY, BUT JOIN AND YOU CAN CRASH THE PARTY!</p> <p>http://www.smcas.com/</p> <p>2011 S.M.C.A.S. ANNUAL INSTALLATION-OF-OFFICERS BANQUET Waterfront Restaurant, #1Uccelli Blvd, Redwood City. Come for no-host cocktails at 6:00PM dinner at 7:00PM.</p> <p>Members not able to attend the dinner are invited, without charge, to the program, starting about 8:15 p.m in the first-floor meeting room.</p> <p>Astronomy Program to be Announced</p> <p>All meals will be served with a salad, potatoes du jour and vegetables, bread & butter, chocolate sundae for dessert, coffee/decaf, or hot tea. Tax and tip are included in the price. The Society will provide trays of hors d'oeuvres during the no-host cocktail hour. Wines, (chardonnay, white zinfandel, merlot and cabernet) are available starting \$20 the bottle.</p> <p>Entree choices are: Linguini Primavera \$16.95 Chicken Marsala \$23.95 Grilled Salmon \$25.95 New York Steak \$28.95</p> <p>Parents (or grandparents) bringing kids under 13 may buy them a hot dog, burger, sandwich or chicken nuggets, drink, dessert, tax & tip) for \$12, or order a kid's a la carte entrée for \$9.</p>
<p>Saturday, 7/16 7:30 PM</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450</p> <p>(510) 336-7300</p>	<p>SEARCHING FOR EXO-PLANETS Dr. Dave Erskin, Physicist at Lawrence Livermore National Laboratory Hauben Resource Center Room, 2nd Floor, Dellums Building</p>

<p>Cost: Free</p>	
<p>Saturday, 7/16 7:45 PM</p> <p>San Jose Astronomical Association Houge Park Twilight Drive San Jose CA 95124</p>	<p>HISTORY AND PROGRAMS OF THE FREMONT PEAK OBSERVATORY Speaker: Rick Morales Meeting held in the Hall.</p> <p>Cost: Free</p>
<p>Saturday, 7/16 9:00PM 09:00 PM - 11:00 PM</p> <p>Lawrence Hall of Science 1 Centennial Drive Berkeley, CA 94720 USA</p> <p>Cost: FREE</p>	<p>SATURDAY NIGHT STARGAZING See the Moon, Planets, Stars, Galaxies and More</p> <ul style="list-style-type: none"> * Stargaze through astronomical telescopes * Ask questions and talk with amateur astronomers * Learn how to use a star map to find constellations * Share in the wonder of the universe with your friends <p>Stargazing is always weather permitting-be sure to dress warmly. Foggy and overcast skies can cancel stargazing at the last minute.</p>
<p>Tuesday – Thursday 7/19-21 8:30 AM Start Time</p> <p>NASA Ames Research Center Moffett Field Mountain View, CA 94043</p>	<p>NASA Lunar Science Forum The NASA Lunar Science Institute is pleased to announce the 4th annual NASA Lunar Science Forum featuring sessions on the latest scientific results from the Lunar Reconnaissance Orbiter, Lunar Crater Observation Sensing Satellite, a side conference for lunar graduate students and young professionals, as well as the presentation of the annual Shoemaker Medal and associated keynote lecture. As in past years, science sessions are structured to report on both recent results and future opportunities for lunar science, education and outreach.</p> <p>The conference will review the state of knowledge, and opportunities for science: Of the Moon: Investigating the composition, structure and history of the Moon as each relates to the evolution of the Earth, Moon and Solar System. On the Moon: Investigating the effects of lunar material and the environment on terrestrial life and robotic equipment. From the Moon: Exploring science that is uniquely enabled by being on or near the Moon, including celestial and Earth observations.</p> <p>Sessions are structured to report on recent results and anticipate future opportunities for lunar science. Presentations on elements of education and public outreach are included to better understand how lunar exploration can be used to stimulate public interest in space exploration and improve science literacy.</p> <p>Register by June 30. Cost: Free but should register</p> <p>More on this at: http://lunarscience2011.arc.nasa.gov/welcome</p>

<p>Wednesday, 7/20 Noon</p> <p>SETI Institute Colloquium Series 189 Bernardo Avenue Mountain View CA 94043</p>	<p>THE GREAT ARCHEAN BOMBARDMENT, OR THE LATE LATE HEAVY BOMBARDMENT Bill Bottke, Southwest Research Institute</p> <p>The early bombardment history of the Inner Solar System is recorded in a number of interesting places (e.g., the surprisingly high abundance of highly siderophile abundances found in the Earth, Moon, and Mars, the observed impact basins found on Mercury, the Moon and Mars, various properties of main belt asteroids and meteorites, etc.). To date, two dominant scenarios have been used to explain these constraints: (i) most impacts came from the tail end of a monotonically-decreasing impactor population created by planet formation processes, and (ii) most impacts were produced by a terminal cataclysm that caused a spike in the impactor flux starting ~4.1 Gy ago. Interestingly, we find that both scenarios are needed to explain observations. For (i), we will show that leftover planetesimals were long-lived enough to hit various worlds long after the end of core formation. The record left behind can be used in interesting ways to probe the nature of terrestrial planet formation. For (ii), we will explore new applications of the so-called Nice model, which provides a plausible dynamical mechanism capable of creating a spike of comets/asteroid impactors.</p> <p>Dr. Bottke will show that his results suggest that many "late heavy bombardment" impactors came from an unexpected source, and that they possibly continued to hit Earth, Venus, and Mars well after basin formation terminated on the Moon.</p>
<p>Friday, 7/22 7:00PM</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450</p>	<p>TELESCOPE MAKERS' WORKSHOP</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>For more specific details, contact: E-mail Richard Ozer (rozer@pacbell.net) or (510) 406-1914.</p>
<p>Friday, 7/22 8:00 PM</p> <p>SOLD OUT, but check web site for updates</p> <p>Cost: \$5.00</p> <p>Lick Observatory 7299 Mt. Hamilton Road Mt. Hamilton CA 95140</p> <p>Email: giftshop@ucolick.org</p> <p>Phone: 408-274-5061</p>	<p>THE GALACTIC PLANETARY CENSUS - SOLD OUT Greg Laughlin, UCSC</p> <p>Each summer, Lick Observatory hosts a Summer Visitors Program (SVP) where the public is invited to observe through both the 36-inch Great Lick Refractor and Nickel 40-inch Reflecting Telescope. Each evening also features two speakers, who present programs even if clouds or fog prohibit viewing.</p> <p>Lick astronomers present multimedia lectures on their research or topics of current interest. A "History of Lick Observatory" talk is also presented. Amateur astronomer volunteers provide additional outside viewing and informal talks.</p> <p>Program begins with the first talk at sunset. Observing begins when it gets dark and continues until everyone has had the opportunity to view through both telescopes. Because of the late hours and the need for reasonable public behavior, attendance is not advisable for most children under 8 years old.</p> <p>Website: http://www.ucolick.org/public/sumvispro.html</p>

<p>Friday, 7/22 9:30 PM – 12:00 AM</p> <p>San Jose Astronomical Association Houge Park Twilight Drive San Jose CA 95124</p> <p>Cost: FREE</p>	<p>JULY STAR PARTY</p>
<p>Saturday, 7/23 1:00 PM – 4:00 PM</p> <p>SETI Institute Colloquium Series 189 Bernardo Avenue Mountain View CA 94043</p> <p>Phone: 650.961.6633</p> <p>Cost: FREE</p>	<p>CELEBRATING SCIENCE AT THE SETI INSTITUTE</p> <p>Join us for a celebration of science and the imagination! Celebrating Science 2011 is an interactive science fair for the entire family. Meet scientists and learn more about the Institute's pioneering exploration for life, both in our solar system and beyond. Learn about NASA's Kepler Mission at Year Two, talk with the father of SETI, Dr. Frank Drake, and "tour" the Saturn System with NASA's Cassini Spacecraft. You can even try to stump one of the scientists with questions while learning the secrets of our universe.</p> <p>We'll also have fun, interactive science-based activities for ages 8-15 on a first-come, first-serve basis, so visit the event website at www.seti.org/celebratingscience2011 to register and learn more.</p> <p>Email: info@seti.org Website: http://www.seti.org/csc/lectures</p>
<p>Friday, 7/22 and Saturday, 7/23</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450 (510) 336-7300</p>	<p>EXPLORE THE NIGHT SKIES AT CHABOT OBSERVATORIES For more information: http://www.chabotspace.org/</p> <p>FREE TELESCOPE VIEWING Regular hours: 7:30pm -10:30pm Every Friday & Saturday evening, <u>weather permitting</u>. 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 Observatories Open 12pm - 5pm, <u>weather permitting</u>. Come view the sun, moon, or Venus through Chabot's telescopes. Free with General Admission.</p>
<p>Friday, 7/22 and Saturday, 7/23</p> <p>Chabot Space and Science Center 10000 Skyline Boulevard Oakland CA 94619-2450 (510) 336-7300</p>	<p>SKIES! 6:00 PM DINNER, A MOVIE, AND THE UNIVERSE</p> <p>Join us for Chabot's unique evening social rendezvous. Start your night off with dinner and drinks, then cozy up in the planetarium as you're whisked to the edge of the universe and cap off the evening with telescope viewing featuring breathtaking views of the cosmos.</p> <p>ADVANCE TICKETS DINNER: Buy advance tickets to ensure your dinner reservation. Purchase dinner separately at the cafe (\$15). A MOVIE AND THE UNIVERSE: Admission to Chabot includes access to all of our interactive exhibitions, a film in the MegaDome theater AND a show in the Digital Planetarium. Purchase your advance tickets online or call the Box Office at (510) 336-7373.</p>

Saturday, 7/23
Sunset: 8:25 PM

San Mateo County
Astronomical Society
Star Party

Crestview Park
San Carlos

STAR PARTIES AT CRESTVIEW PARK, SAN CARLOS

Come out and bring the kids for a mind expanding look at the universe

The City of San Carlos Parks and Recreation Department and the San Mateo County Astronomical Society has open Star Parties twice a month. These events are held in Crestview Park, San Carlos California.

Note that inclement weather (clouds, excessive wind and showers) will cause the event to be canceled without notice.

For more information call Bob Black, (650)592-2166, or send an email to SMCAS@live.com or call Ed Pieret at (650)862-9602.

Reasons to Attend

If you have kids interested in space or planets bring them here for a real life view of planets, nebula, star clusters and galaxies.

If you are thinking of buying a telescope or want help using a telescope you own, come here to talk with experienced users.

If you think you might have an interest in astronomy come and talk to experienced amateur astronomers.

Cautions

Dress warmly and wear a hat.

Visitors should park on the street and walk into the park so your headlights don't affect the observer's dark adaptation.

Only park in the parking lot if you are arriving before dark and plan to stay until the end of the event.

You shouldn't need lights but if you feel you do, only bring a small flashlight with the lens covered using red cellophane or red balloon.

Please respect the telescopes and ask permission from the owner if you wish to touch. Parents, please watch your children.

The park is residential, and adjacent to homes and backyards, please keep noise to a minimum.

Schedule/Time - Astronomers arrive to set up at around sunset. Observing starts at about one hour after sunset and continues for two to three hours.

Sat. 7/23 8PM

Lick Observatory
7299 Mt. Hamilton Road
Mt. Hamilton CA 95140

Cost: \$35-\$150

Email:

giftshop@ucolick.org

Phone: 408-274-5061

Website --

[http://www.ucolick.org/
public/sumvispro.html](http://www.ucolick.org/public/sumvispro.html)

MUSIC OF THE SPHERES: TWO VIEWS OF THE MOON

Each summer Lick Observatory hosts the Music of the Spheres concert series. Program for each includes the concert, a talk by a University of California astronomer about current research and, weather permitting, viewing with the historic 36-inch Great Lick Refractor and the Nickel 40-inch telescope. A knowledgeable group of local amateur astronomer volunteers provide additional viewing of the sky and informal discussion of astronomy.

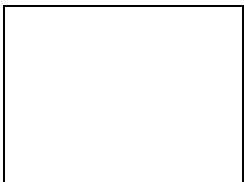
America Bound: During 30 years of touring, Golden Bough mined Europe's Celtic regions for their best music. Now, Margie Butler, Paul Espinoza, and Kathy Sierra return to the Music of the Spheres with a new repertoire: the songs of the Irish and the Scottish as they left their homeland for the new world.

In America Bound, Golden Bough performs the music of dreaming about and coming to America, and the Celtic melodies that became America's best-loved folk songs. Join us for an evening of harp, fiddle, accordion, guitar, penny-whistle, percussion, and song as Golden Bough celebrates America's Celtic heritage.

Speaker: Graeme Smith, UC Santa Cruz

<p>Friday, 7/22 9:00 PM</p> <p>Foothill Community College Observatory 12345 Moody Road 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>Friday, 7/22 10:00 AM IF IT IS CLEAR</p> <p>Foothill Community College Observatory 12345 Moody Road 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.</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>

NASA WHAT'S UP PODCAST FOR APRIL – BY JANE HOUSTON JONES



P [What's Up for July](#)

July 2011

This month you can learn about asteroids, and see Vesta, as the Dawn spacecraft closes in.

[Download Video](#)

NASA SCIENCE NEWS

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. This

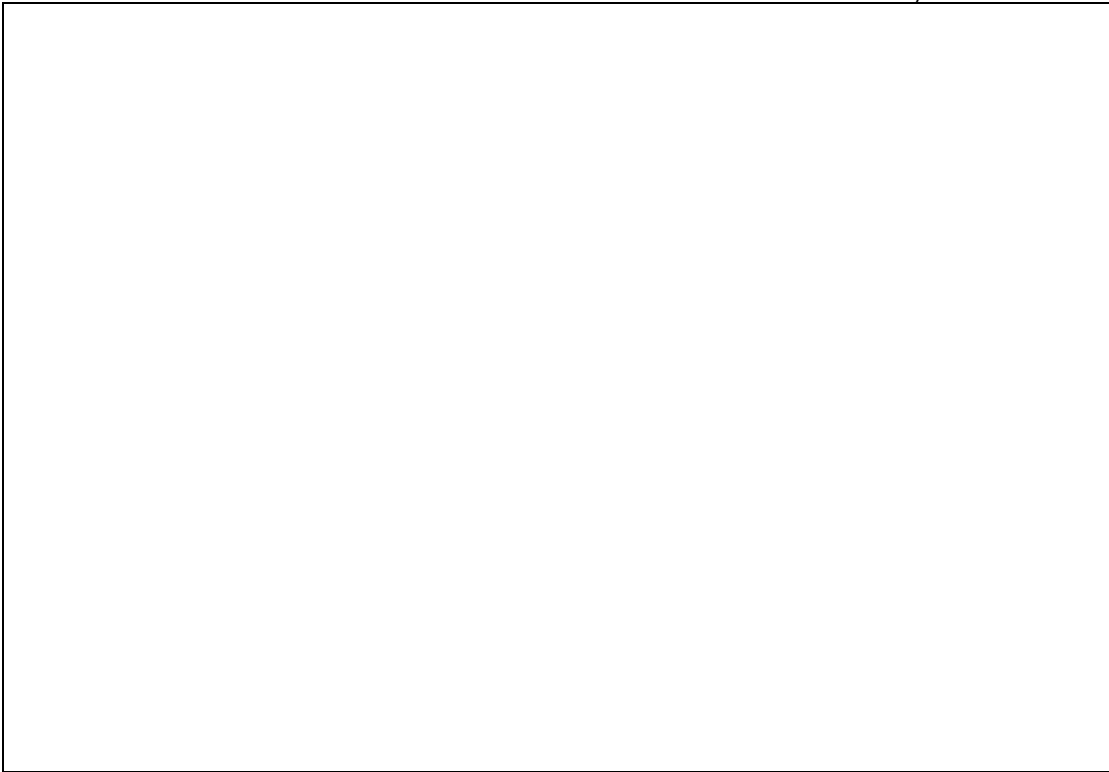
week's episode is about the night sky. Check out "Spring is Fireball Season" on Youtube: <http://www.youtube.com/watch?v=ssMdlTbvHJk>
A complete list of ScienceCast episodes may be found on Science@NASA's Youtube channel: <http://www.youtube.com/user/ScienceAtNASA> . Enjoy!

NASA SCIENCE NEWS

July 11, 2011: On June 7, 2011, Earth-orbiting satellites detected a flash of X-rays coming from the western edge of the solar disk. Registering only "M" (for medium) on the Richter scale of solar flares, the blast at first appeared to be a run-of-the-mill eruption--that is, until researchers looked at the movies.

"We'd never seen anything like it," says Alex Young, a solar physicist at the Goddard Space Flight Center. "Half of the sun appeared to be blowing itself to bits."

NASA has just released new high-resolution videos of the event recorded by the Solar Dynamics Observatory (SDO). The videos are large, typically 50 MB to 100 MB, but worth the wait to download. Click on the arrow to launch the first movie, then scroll down for commentary:

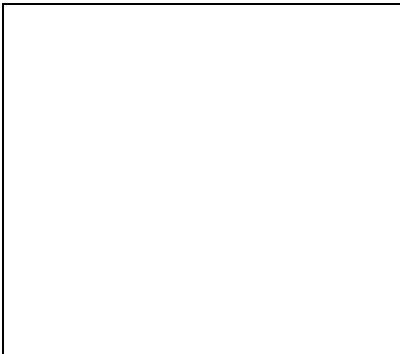


A close-up of the June 7th eruption shows dark blobs of plasma falling ballistically toward the surface of the sun. [\[99 MB Quicktime\]](#) [\[more\]](#)

"IN terms of raw power, this really was just a medium-sized eruption," says Young, "but it had a uniquely dramatic appearance caused by all the inky-dark material. We don't usually see that."

Solar physicist Angelos Vourlidas of the Naval Research Lab in Washington DC calls it a case of "dark fireworks."

"The blast was triggered by an unstable magnetic filament near the sun's surface," he explains. "That filament was loaded down with cool plasma, which exploded in a spray of dark blobs and streamers."



Plasma blobs are funneled toward sunspots by magnetic fields. [\[67 MB Quicktime\]](#) [\[more\]](#)

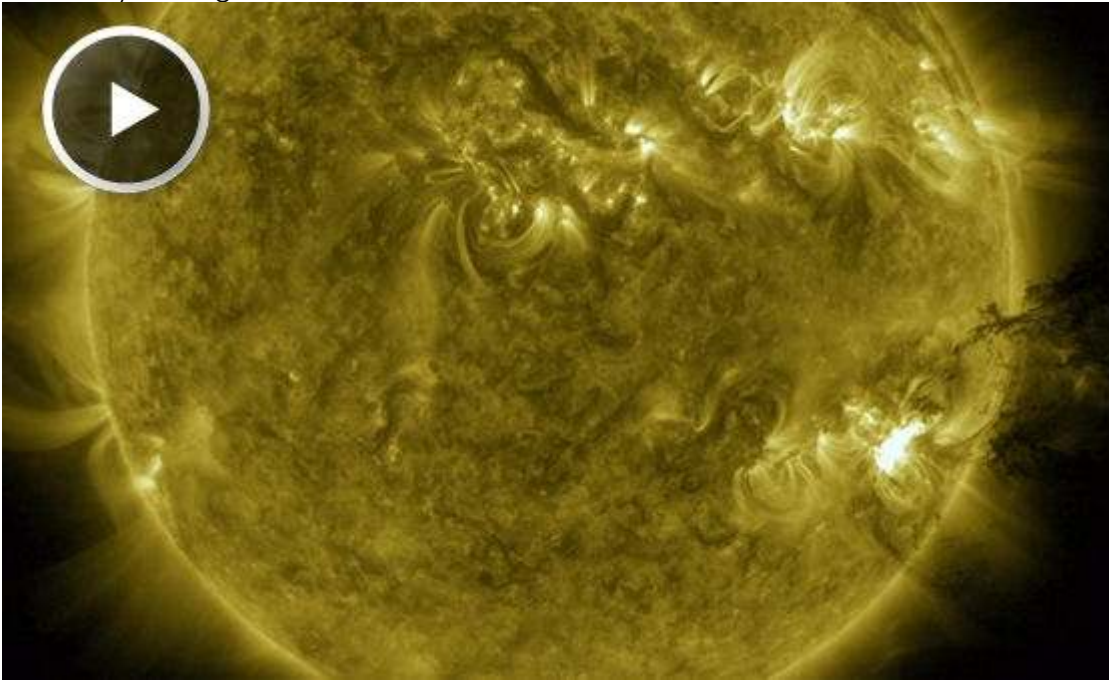
The plasma blobs were as big as planets, many larger than Earth. They rose and fell ballistically, moving under the influence of the sun's gravity like balls tossed in the air, exploding "like bombs" when they hit the stellar surface.

Some blobs, however, were more like guided missiles. "In the movies we can see material 'grabbed' by magnetic fields and funneled toward sunspot groups hundreds of thousands of kilometers away," notes Young.

SDO also detected a shadowy shock wave issuing from the blast site. The 'solar tsunami' propagated more than halfway across the sun, visibly shaking filaments and loops of magnetism en route. [\[91 MB Quicktime\]](#)

Long-range action has become a key theme of solar physics since SDO was launched in 2010. The observatory frequently sees explosions in one part of the sun affecting other parts. Sometimes one explosion will trigger another ... and another ... with a domino sequence of flares going off all around the star.

"The June 7th blast didn't seem to trigger any big secondary explosions, but it was certainly felt far and wide," says Young.



This 13 MB extreme ultraviolet movie of the explosion shows a 'solar tsunami' wave billowing away from the blast site. [\[13 MB Quicktime\]](#) [\[more\]](#)

It's tempting to look at the movies and conclude that most of the exploded material fell back--but that wouldn't be true, according to Vourlidas. "The blast also propelled a significant coronal mass ejection (CME) out of the sun's atmosphere."

He estimates that the cloud massed about 4.5×10^{15} grams, placing it in the top 5% of all CMEs recorded in the Space Age. For comparison, the most massive CME ever recorded was 10^{16} grams, only a factor of ~2 greater than the June 7th cloud.² The amount of material that fell back to the sun on June 7th was approximately equal to the amount that flew away, Vourlidas says.

As remarkable as the June 7th eruption seems to be, Young says it might not be so rare. "In fact," he says, "it might be downright common."

Before SDO, space-based observatories observed the sun with relatively slow cadences and/or limited fields of view. They could have easily missed the majesty of such an explosion, catching only a single off-center snapshot at the beginning or end of the blast to hint at what actually happened.

If Young is right, more dark fireworks could be in the offing. Stay tuned.

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

2010 Club Officers & Contacts

<i>President</i>	DAVE FREY	davef@SFAA-Astronomy.org
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<i>Secretary</i>	Douglas Smith	
<i>Treasurer</i>	Dave Wilton	treasurer1@sfaa-astronomy.org
<i>Speaker Chair</i>	Linda Mahan	speakerchair@sfaa-astronomy.org
<i>City Star Party</i>	Stephanie Ulrey	csp@sfaa-astronomy.org
<i>Bulletin Editor</i>	Annette Gabrielli	editor@sfaa-astronomy.org
<i>Telescope Loans</i>	Pete Goldie	telescopes@sfaa-astronomy.org
<i>Honorary Director and Board Member Emeritus</i>	John Dobson	
<i>Board Members</i>	Jim Cottle	jimc@sfaa-astronomy.org
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	Elan Morpurgo	elan@sfaa-astronomy.org
		415 383-2247
	Doug Smith	
	Stephanie Ulrey	csp@sfaa-astronomy.org
<i>1st Alternate</i>	Joe Amato	wbmstr@sfaa-astronomy.org
<i>2nd Alternate</i>	Dave Goggin	daveg@SFAA-Astronomy.org
<i>Webmaster</i>	Joe Amato	wbmstr@sfaa-astronomy.org

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

2011 Club Officers & Contacts

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<i>Vice President</i>	Vivian White	vicepresident@sfaa-astronomy.org
<i>Secretary</i>	Douglas Smith	
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	Matthew Jones	sfaa@strider.com
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	Mitchel Schoenbrun	
<i>1st Alternate</i>	Chris Coffin	
<i>Webmaster</i>	Mitchell Schoenbrun	webmaster@sfaa-astronomy.org
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Sharing the Wonders of the Universe

Web Page: www.sfaa-astronomy.org

Information Hotline: (415) 289-6636

Has your membership expired? Your mailing label includes the month and year through which your membership is paid. If it is past, your membership has expired and this may be your last issue.



San Francisco Amateur Astronomers
P.O. Box 15097
San Francisco, CA 94115

MEMBERSHIP APPLICATION

Membership is billed for each upcoming year on June 30. Between January 1 and June 30, new members pay one half the amount listed below

Membership Categories (*Check one*):
 \$10 Youth/Student \$40 Institutional
 \$25 Individual \$75 Supporting
 \$30 Family

Information: Name(s) _____
Address _____
City _____
State _____ Zip _____
Home Phone _____
E-Mail _____

You can choose E-Mail (Recommended) or hard copy delivery for *Above the Fog* (*Check one*)

E-Mail Hard Copy

Please make checks payable to San Francisco Amateur Astronomers and mail to:

San Francisco Amateur Astronomers
POB 15097
San Francisco CA 94115