

ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

VOL. 54, No. 3 – MARCH 2006

March 15, 2006 – General Meeting

RANDALL MUSEUM, 199 MUSEUM WAY, SAN FRANCISCO
7:00 PM DOORS OPEN . 7:30 PM ANNOUNCEMENTS . 8:00 PM SPEAKER



DR. PAUL KALAS THE DIRT SURROUNDING EXOSOLAR PLANETS

Dirt is the most detectable component of an exosolar planetary system due to its collectively large surface area. Though the mass is insignificant, this dirt can be seen in reflected light as huge nebulosities resembling disks or belts. I'll show you the observing tricks that are used to uncover these nebulosities, and review the most recent discoveries, including a spectacular ring of material surrounding the bright star Fomalhaut, and a double disk around Beta Pictoris. Whether simple or complex, the architecture of each nebulosity yields solid evidence that some of the stars closest to the Sun may have planets.

Dr. Paul Kalas is a Professor of Astronomy at the University of California at Berkeley. He received his Ph.D. in Astronomy from the University of Hawaii at Manoa. Dr. Kalas' scientific interests are circumstellar matter around main sequence and pre-main sequence stars, extrasolar planet formation, trans-Neptunian objects, stellar and planetary dynamics, optical and near-infrared coronagraphy, high contrast imaging with adaptive optics and the Hubble Space Telescope, mid-infrared and sub-millimeter imaging.

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MEMBERSHIP DUES

The mailing label on the back of this issue shows the month and year through which your membership was paid. If the date has passed, your membership has expired. Members may receive no more than one bulletin after the expiration of membership.

Please renew soon if your membership is expiring.

ONLINE SERVICES FOR SFAA MEMBERS



The SFAA's Secretary's Web Site helps keep SFAA information together and accessible to members. The site URL is <http://www.whiteoaks.com/sfaa/>. At this site you can find such information as minutes from meetings of the Board of Directors, the SFAA official by-laws, and other information. SFAA also offers email lists to supplement the bulletin board offered at the SFAA's official web site. At present there are two email lists – an unmoderated list for use primarily for business and discussion by the Board of Directors (but open to all members), and a moderated announcement list for all SFAA members. If you would like to be added to the

SFAA-announce email list, please contact the secretary (<mailto:secretary@sfaa-astronomy.org>) and let him know. You can also sign up for the list yourself at this URL: <http://www.whiteoaks.com/mailman/listinfo/sfaa-announce>

CLUB TELESCOPES



The SFAA owns 6 club loaner telescopes, Dobsonian/Newtonian reflectors: 6" f/10, 8" f/7, 8.5" f/6 and 10" f/8, a Starblast and a Meade 8" SCT. They are available for extended periods (30 days or more) to SFAA members. These are generally very fine scopes, easy to use and well suited for deep sky, planets, and star parties. The loaner custodians are Pete & Sarah Goldie, located in San Francisco. If you are interested in borrowing a scope, or if you have items you can donate for the loaner program (eyepieces, star maps/books, collimator, etc.) please contact them via email (<mailto:pg@lbin.com>) or phone (415-206-9867). Email communication is preferred and strongly recommended for a quick and accurate reply.

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. Our librarian is Dan Christian.

For information on the course tapes themselves:
<http://www.teach12.com/ttc/assets/coursedescriptions/180.asp>

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 20th day of the month.** Send your articles to Phil Estrin at pestrin@dir.ca.gov.

THROUGH THE FINDER ...

It's back to Land's End for now. After six months of searching for a better (less foggy and more accessible) city observing site, we are returning to the fog-bound NW corner of the city, at least for now.

We thought we found a nearly ideal site in the Presidio at the newly redesigned and landscaped "Inspiration Point" but it was not to be. All sites in the Presidio are administered by the Presidio Trust, the NGO established to make the Presidio economically viable and no drain on the taxpayer. To offer our free service to the public we would have to rent the outdoor space and pay a fee just to make an application. Besides, we discovered that "Inspiration Point" had become a popular night parking site for couples seeking inspiration looking down rather than up. Add in the other negatives like no toilet facilities, drive-by traffic headlights, including a bus turnaround, and we cried "uncle" and decided to return to the known attributes, positive and negative, of Land's End.

Our first return engagement at Land's End is scheduled for Saturday, March 18, at sundown. We will continue to schedule occasional City Star Parties at the Randall Museum as an alternative site – as we did in February for "Saturn Night". Saturn could not be seen through the rain clouds that night, but 50 people still turned out to hear Michael Portuesi and Ken Frank provide a sparkling slide talk in the Randall Theater. The Randall Museum has several advantages for star parties – toilet facilities, free parking, electricity for slide talks, and relative security. The biggest down-side is that it overlooks the light dome of downtown San Francisco. Only the moon and planets are bright enough to compete with the glitter of SF. On the other hand, Land's End is as protected from city lights as we can get and still be subject to city taxes.

But the travail brought out the poetry in two of our Directors. Robert English was moved to retort::

*The site is inspiring it's true,
but it isn't equipped with a loo.
March at Land's End
Save the money we'd spend,
And look for another venue.*

Ken Frank consoled Jorge Morales, who found "Inspiration Point" for us:

*There once was a 'stronmer named Jorge,
who tried better views of the Bay
John dealt with the Trust
'twas only a bust.
Now we're back to Lands End, what the hey?*

See you in the dark,

John Dillon
President
San Francisco Amateur Astronomers

IMPORTANT UPCOMING DATES

Board Meetings

Tuesday, March 14

Tuesday, April 11

Tuesday, May 9

7:00-8:30 p.m.

Randall Museum, 199 Museum Way

(Near 14th Street and Roosevelt)

SFAA General Meetings & Lectures

Wednesday, March 15

Wednesday, April 19

Wednesday, May 17

7:00 p.m. Doors open . 7:30 p.m. Announcements . 8:00 p.m. Speaker

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

City Star Parties

Saturday, March 18, 6:30 p.m. – Telescope Clinic one hour before sunset

Saturday, April 8, 7:30 p.m. – Telescope Clinic one hour before sunset

Map and directions <http://www.sfaa-astronomy.org/sfaa/starparties/cspmap.shtml>

Mt Tam Star Parties – Special Use Permit – Members Only

Saturday, March 25 – 6:30 p.m. (Messier Madness)

Saturday, April 22 – 6:00 p.m.

Saturday, May 27 – 7:00 p.m.

SFAA UPCOMING GUEST SPEAKERS

APRIL 19, 2006

DR. STEVEN STAHLER

ASTROPHYSICIST, UC BERKELEY

HOW STARS ARE MADE



NEW SFAA MEMBERS

Scope City is offering to new members a \$25 credit toward the purchase of telescopes and binoculars.

Obtain a receipt for dues payment from Stephanie Ulrey, Treasurer,
treasurer@sfaa-astronomy.org.

Contact Sam Sweiss at Scope City to arrange for your discount.

EDWINA CHERRINGTON

The San Francisco Amateur Astronomers is saddened by the loss of Edwina Cherrington.

In 1987, Edwina received the Herman Fast Award. Her son, Mark, noted that during Comet Halley's apparition, Edwina mobilized the San Francisco Bay Area and news media. Thousands of people, were trying to get to Rock Springs to view the Comet. Edwina truly made a difference in popularizing amateur astronomy during the 80's and increasing SFAA membership accordingly.

Bill was president of the SFAA in 1986 and he couldn't have had a better "first lady."

On the passing of Edwina, Sergey Karpov, Chief Adviser of the Krasnoyarsk Astronomical Club in Siberia, Russia, commented, "When we visited San Francisco .. in 1998 Edwina and Bill made our travel (experience) unforgettable. Extraordinary kindness and cordiality of Edwina are her main gifts. I will always remember her as such. I keep with care all the souvenirs she gave me and that remind me of her...."

THE EDWINA CHERRINGTON MEMORIAL FUND

THE SFAA BOARD OF DIRECTORS HAS ESTABLISHED AN EDWINA CHERRINGTON MEMORIAL FUND TO HONOR THE MEMORY OF EDWINA CHERRINGTON, THE ENERGETIC AND ENTHUSIASTIC SUPPORTER OF THE SFAA, RECIPIENT OF THE HERMAN FAST AWARD, AND WIFE OF PAST PRESIDENT, BILL CHERRINGTON. DONATIONS TO THE FUND WILL BE USED TO PURCHASE ASTRONOMICAL EQUIPMENT FOR USE IN EDUCATIONAL PROGRAMS FOR CHILDREN AND FAMILIES AT THE RANDALL MUSEUM.

CHECKS SHOULD BE MADE OUT TO "SFAA" WITH A MEMO REFERENCE TO THE EDWINA CHERRINGTON FUND AND MAILED TO:

**SFAA
POB 15097
SAN FRANCISCO CA 94115**

2006 SFAA Messier Marathon

Michael Portuesi



Globular Cluster M13. Photo: Geoffrey Collins, SFAA

The Messier Marathon is based on a list of 110 deep-sky objects discovered or compiled by Charles Messier in the 1700's. While Messier worked hard to discover comets, he compiled his list so that he could avoid mistaking the objects for new comets. Today, the Messier Objects form an introduction to deep-sky observing for countless amateur astronomers.

Due to a fluke in the distribution of the Messier Objects across the sky, it is possible to view all objects on the list in a single night during early spring (usually March or April). Amateur astronomers challenge their abilities, or build their observing skills, by trying to locate all the objects on the list.

The SFAA Messier Marathon will be held the night of Saturday, March 25 at Mount Tamalpais State Park, Rock Springs parking lot. This is the site of our normal Mount Tam Star Parties. **As this is a Special Use Permit (SUP) event, it is open to SFAA Members Only. The general public is not allowed.**

Registration is not necessary. Please dress warmly with several layers—it is cold this time of year, and the Messier Marathon is an all-night experience!

Weather Info

You can call the SFAA hotline (415) 289-6636 (that's 289-NOFOG) the afternoon of the event for cancellation info due to bad weather, or check the SFAA website.

Observing Lists

We've prepared observing lists to help get you started. They include rise, transit and set times for Mount Tam, on March 25, 2006. Transit times indicate when an object is highest in the sky, directly to the south, and generally gives the best view.

The rise, transit and set times were calculated using AstroPlanner astronomical planning software. You can download them from the Internet, and use Adobe Acrobat software to view and print them.

- **Mini Messier Marathon** (25 objects) This list forms a "mini marathon" for beginners. Use it to practice your observing skills. It contains the best, brightest, and easiest-to-find objects. It was taken from *Night Sky Magazine*, March/April 2006 issue, page 38.
 - http://www.jotabout.com/sfaa/Mini_Messier_Marathon.pdf
- **Full Messier Marathon** (110 items) This list is for the diehards. This list is available in two editions:
 - Observing List Only - a two-page list with correct ordering, rise and set times.
 - http://www.jotabout.com/sfaa/Messier_Marathon_List.pdf
 - Observing Forms - 14 pages, with more object information and space for notes.
 - http://www.jotabout.com/sfaa/Messier_Marathon_Forms.pdf

Finder Charts

Here are some sites that offer great, free Messier Finder charts.

- Utah Skies Messier Telrad Finder Charts
 - <http://www.utahskies.org/deepsky/messier/charts/messierTelradFrameSet.html>
- MSAS Messier Telrad Finder Guides
 - http://www.solarius.com/msas/findercharts/messier_objects.html

Photos

It's very useful to have some photos of the Messier Objects to help you verify your findings.

- SEDS Messier Database
 - <http://seds.lpl.arizona.edu/messier/Messier.html>

Star Party Etiquette

IF THIS IS YOUR FIRST STAR PARTY: Please check the following web page for star party etiquette: <http://www.seds.org/billa/psc/etiquette.html>

Above all, bring a red flashlight, or tape red tape over the lens of a white flashlight. (You can get red tape at an auto store—it's the stuff used to cover broken taillights).

Also arrive before dark so you can set up your equipment in daylight, and allow our gatekeepers to lock the gate and get back up the mountain. The Marathon starts as soon as it gets dark, so you won't want to miss it!

Other Resources

- SEDS Messier Marathon Page
 - <http://seds.lpl.arizona.edu/messier/xtra/marathon/marathon.html>
- MessierMarathon.com
 - <http://www.messiermarathon.com/>
- AANC Messier Marathon Page
 - <http://www.aanc-astronomy.org/messiermarathon.html>

CITY STAR PARTY LECTURES

<http://www.sfaa-astronomy.org/sfaa/starparties/cspmap.shtml>

LAND'S END

Please also note that, while City Star Parties WILL ALWAYS be held on Saturdays, some will be closer to the last quarter phase of the moon, while 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 members only events on Mt. Tam.

March 18, 2006, 6:30 p.m.
TYPES OF TELESCOPES
Speaker: Jorge Morales

MT. TAM MEMBERS ONLY SPECIAL USE PERMIT NIGHTS



**March 25, 2006 – 6:30 p.m. INTO THE EARLY MORNING
Messier Madness**

<http://sfaa-astronomy.org/sfaa/calendar/pubevent.shtml?drawevent:sfaa:564>

April 22, 2006 – 7:00 p.m. – Lyrid Meteor Peak at Midnight

<http://sfaa-astronomy.org/sfaa/calendar/pubevent.shtml?drawevent:sfaa:559>

May 27, 2006 – 8:00 p.m.

ANNUAL SFAA NIGHT
Fremont Peak Observatory
May 19 and 20, 2006



Photo star trails, courtesy of [Art Rosch](#)

Are you photon deprived from the weather we're having? You may be a candidate for an evening with a very large telescope. SFAAer's can get recharged at Fremont Peak on May 19th and 20th. We have reserved the Observatory Friday evening for an exclusive private gathering of members from the SFAA, as we've done the previous years.

The Fremont Peak Observatory features a fine [30-inch f/4.8 Newtonian telescope](#) built by Kevin Medlock of the [Eastbay Astronomical Society](#). The telescope is mounted on an English cross-axis equatorial system. There are also powered observing pads outside the observatory, where visiting astronomers (like [Richard Crisp](#)) can set up to observe in Fremont Peak's dark skies.

FPOA's annual StarBQ is August 26th. It'll be a blast. This is their 20th year anniversary and the AANC will present their [annual awards](#), too.

From [March through October](#), Fremont Peak Observatory conducts programs for the public at least three Saturday evenings a month, excluding the Saturday closest to full moon.

[Fremont Peak State Park](#) is about 100 miles south of San Francisco, and 11 miles southeast of the town of San Juan Bautista. The park features camping facilities which are available either by reservation or first come first served basis. Please be sure and pay the day fee or, if camping, the overnight fee in the green box by the public phone. At the bottom of the hill in San Juan Bautista is the San Juan Inn for those who would like more civilized overnight amenities.

Pat Donnelly, President of FPOA, noted that Fremont Peak, being as popular as a historical stopping place, is also mentioned on page 50 of May + June 2005 issue AAA's Via Magazine! If you'd like to help in maintaining the observatory, there are work parties occasionally. If you're interested contact Pat via: KUNGFUGINA at aol dot com

For SFAA members wanting to enjoy this gorgeous telescope on their own, practically whenever they choose (with a few exceptions) and you're interested in joining FPOA and becoming qualified to use the telescope, contact [Ron Dammann](#), Director of Instruments at FPOA. For more information about Fremont Peak Observatory, including excellent directions, visit their web site at <http://www.fpoa.net>

The FPOA website now has [weather cam](#) for those of you who are rightly paranoid of our unseasonable weather.

[Here](#) are a few pix of our day and night on the Peak last year.

Looking forward to seeing you this year,

Ken



panshot courtesy of Mojo

SFAA Yosemite Star Party at Glacier Point Friday - July 14 and Saturday - July 15, 2006

The annual Yosemite star party will be held at Glacier Point, hosted by the National Park Service (NPS).

Rustic camping is located at the Bridalveil Creek campground group site. There is room for several tents. Cold running water is convenient but sans showers. The camp is 8.5 miles away from Glacier Point.

For those of you unfamiliar with this event, we are given free reserved admission and camping space. In exchange, we do two public star parties at Glacier Point, on Friday and Saturday night. We'll have the public (about 200 - 300 people) from twilight for a few hours, and then the rest of the night (and all day) to ourselves; this is a mighty good deal, considering how some folks come 12,000 miles to see these rocks. We take a maximum of 30 SFAA members. Please do not ask if your friends can come...unless they are SFAA members. You are expected to have at least one public telescope for every two people. Check http://www.wrh.noaa.gov/total_forecast/printable_forecast.php?wfo=hnx&zone=caz096&county=cac043 for up-to-date info on Yosemite Park current weather and conditions. <http://yosemite.org/vryos/sentinelcam.htm> provides a live cam from Sentinel Dome.

You will be sent entrance fee waver you need to present to the ranger at the park entrance. You may be asked to show the ranger your telescope.

A note for non-members and those not making the list: Yosemite is your national park, and you may come if you arrange your own accommodations. In this case, you would be welcome to join us at Glacier Point for the public star party and the observing afterward; however, you would not be obligated to set up for the public.

Please let Ken Frank know as soon as possible if you decide for some reason you can't come, so others may fill your campsite. Those on the waitlist will thank you for your consideration.

Observing site- The observing area is mostly open, with good views from about NNW to the east, around to due south. The horizon from south around to the west is partly to mostly blocked by tall trees. Still, there's a lot of open sky, and typically, the seeing and transparency are excellent. It's warm (70 to 90) during the day, and cool to chilly (40) at night, due to the elevation of 7200 feet.

Star Party- One of the rangers does a sunset talk, and then delivers the crowd to us. Following that, a member of the club will give an evening talk. Some of the public will have white flashlights, and we need to be tolerant of that. We'll have club members with red brake light tape to cover the offending flashlights. Expect lots of questions from the public. We will supply an object list with corresponding finder charts and some brief information.

Now here's the really fun part; by around 9:30 or so, we'll have the place to ourselves, and can stay until dawn. Scopes must be removed when we quit, then set up again on Saturday. Some of us may set up Sun scopes during the afternoon, show Half Dome, and invite people to come again after sunset.

Gastronomic Astronomic- Early Saturday eve is traditionally pot luck and is always fun. Please provide enough for ~ say 4 or 5. Salads, main course, pu pu's and desserts are all welcome. Let's try again for the best astronomical theme of incredible edibles as we did for last years desserts at our place for the SFAA Star B Q. Prizes will be awarded!

Please remember this repast takes time so it's better to start our own gastronomic party early so there's no need to rush for set up Saturday evening on Glacier Point. Sunset this year will be 8:21 pm.

If you'd like to attend and are a current dues paying member, send an e-mail to kennethfrank@planitarium.net with "Yosemite Reservation" in the subject line; in the text body: your name(s), number of people, type & size of scope(s).

Ken

IAPETUS: EAST IS LEAST AND WEST IS BEST - UPDATED FOR 2006

JANE HOUSTON JONES

Saturn's third largest moon Iapetus is a bright magnitude 10.1 at western elongation and a faint 11.9 magnitude at eastern elongation. This makes Iapetus a challenging but fun observing project when the Saturn system is in our evening skies.

Its 79-day orbit takes Iapetus far outside the usual planetary eyepiece view. Iapetus is 3 times further from Saturn than Titan, or 12 ring diameters from Saturn when it shines the brightest. Iapetus is easier to locate near Saturn at both inferior and superior conjunction, when it is closest to the planet and visible to the north and south of the planet, respectively.

Half of Iapetus appears as dark as asphalt, the other half, as bright as snow. The dark half faces forward as Iapetus moves in its nearly circular, inclined orbit around Saturn. Scientists generally believe that it has swept up the orbiting dark material (perhaps originally from Phoebe) that covers its forward-facing surface. Iapetus' light side is more than five times brighter than its dark side.

We are looking at the light trailing side of tidally locked Iapetus when it is at western elongation, and we are looking at the dark leading or forward side of the moon at eastern elongation. When [Cassini](#) discovered Iapetus in 1671 he noted that he could only see Iapetus on one side of Saturn and not on the other side. On January 1, 2005, Cassini flew by [Iapetus](#) at a distance of 76,000 miles or 123,000 kilometers. The next Iapetus flyby, on September 10, 2007 will be from a distance of 763 miles or 1,227 kilometers.

To find Iapetus at either conjunction or elongation, and compare its brightness to nearby stars, use your favorite planetarium program to calculate the extreme magnitudes of Iapetus, and to compare it to nearby stellar magnitudes.

SOME KEY IAPETUS OBSERVING DATES FROM THE 2006 [RASC OBSERVER'S HANDBOOK](#), PAGE 206. THE HIGHLIGHTED DATES LINK TO FINDER CHARTS FROM [SKYMAP PRO](#).

Eastern elongation (dark side of Iapetus faces earth, magnitude 11.9)	Inferior conjunction (Iapetus is north of Saturn)	Western elongation (bright side of Iapetus is facing earth, magnitude 10.1)	Superior conjunction (Iapetus is south of Saturn)
			Jan 10
Jan 31	Feb 20	Mar 10	Mar 30
Apr 19	May 10	May 29	June 18
July 9	July 30	Aug 18	Sep 7
Sep 29	Oct 19	Nov 8	Nov 27
Dec 18			

RECENT ARTICLES BY JANE HOUSTON JONES FOR THE NASA WEBSITES:

Mars viewing tips for 2006
<http://mars.jpl.nasa.gov/allabout/nightsky/viewing-tips-2006.html>

Saturn Viewing tips for 2006
<http://soc.jpl.nasa.gov/viewing.cfm>

SFAA 2006 Calendar of Events

Mount Tam Public Events

Public nights start with a lecture, followed by public viewing. SFAA members may view privately after crowd departs approx. 11 pm-2 am. Note that access to SUP private events is contingent on our participation in the public events.

April 1
April 29
June 3
July 1
July 29
August 26
September 23

Mount Tam SUP Events

SUP (Special Use Permit) observing nights on Mount Tam are open *only* to SFAA members. Please try to arrive by sunset (times listed below). We must be off the mountain by 2 am except on specially approved nights (such as Messier Marathon).

January 28, 5:29 pm
February 25, 5:59 pm
March 25 (Messier Marathon night), 6:26 pm
April 22, 7:52 pm
May 27, 8:22 pm
June 24, 8:35 pm
July 22, 8:27 pm
August 19, 7:57 pm
September 16, 7:16 pm
October 21, 6:24 pm
November 18, 4:56 pm
December 23, 4:55 pm

City Star Party

CSP events start at sunset (times listed below) with a public lecture, followed by public viewing. Inspiration Point in the Presidio and the Randall Museum are the new locations for the CSP this year. Locations for specific dates are TBA.

February 18 (Randall Museum), 5:52 pm
March 18, 6:20 pm
April 8, 7:39 pm
May 6 (Astronomy Day @ Cal Academy of Sciences), 8:05 pm
June 17, 8:34 pm
July 16, 8:31 pm
August 5, 8:14 pm
September 30, 6:54 pm
October 14, 6:33 pm
November 25, 4:53 pm
December 16, 4:52 pm

Board Meetings

2nd Tuesday of every month, at the Randall Museum. 7 pm. All SFAA members are invited.

February 14
March 14
April 11
May 9
June 13
July 11
August 8
September 12
October 10
November 14
December 12

General Meetings

3rd Wednesday of every month, at the Randall Museum. Doors open 7 pm, announcements 7:30 pm, guest speaker 8 pm.

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

Other SFAA Events

Messier Marathon, March 25
Astronomy Day @ California Academy of Sciences, May 6
SFAA Annual Picnic, TBA
Yosemite Weekend, TBA

Other Astronomy Events

- Riverside Telescope Maker's Conference
May 26-28
www.rtmcastronomyexpo.org
- Grand Canyon Star Party
June 17-24
www.tucsonastronomy.org/gcsp.html
- Shingletown Star Party
June 21-26
www.shingletownstarparty.org
- Stellafane
July 28-29
www.stellafane.com
- Fremont Peak Star-B-Q
August 26
www.fpoa.net
- Calstar (Lake San Antonio)
September 21-23
www.sjaa.net

Founded in September 1952, the San Francisco Amateur Astronomers (SFAA) is an association of people who share a common interest in astronomy and other related sciences. Our membership consists of people from all walks of life, educational backgrounds and ages. Many SFAA members own their own telescopes; some have been made by hand in local telescope-making classes and vary in size from 6 to 25 inches.

Treasurer, SFAA, POB 15097, San Francisco CA 94115

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

- \$10 enclosed, youth/student membership
- \$25 enclosed, individual membership
- \$30 enclosed, family or foreign membership
- \$40 enclosed, institutional membership
- \$75 enclosed, supporting membership

Select one category:

Email address:

Address:

Name: Telephone:

San Francisco Amateur Astronomers Membership Application

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



Information Hotline: (415) 289-6636

Web Page: www.sfaa-astronomy.org

Sharing the Wonders of the Universe

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.