

ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 57, No. 11 – November 2009

Wednesday, November 18, 2009 – 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)

Special Screening: BLAST!



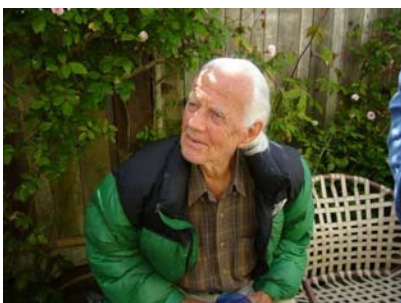
Join the San Francisco Amateur Astronomers on November 18th at 7:30pm for a special screening of BLAST!

Welcome to Astrophysics Indiana Jones style! Filmmaker Paul Devlin follows the story of his brother, Mark Devlin PhD, as he leads a tenacious team of scientists hoping to figure out how all the galaxies formed by launching a revolutionary new telescope under a NASA high-altitude balloon.

Their adventure takes them from Arctic Sweden to Inuit polar bear country in Canada , where catastrophic failure forces the team to try all over again on the desolate ice in Antarctica . No less than the understanding of the evolution and origins of our Universe is at stake on this exciting escapade that seeks to answer humankind's most basic question, How did we get here?

BLAST! is about the crazy life of scientists. Their professional obsessions, personal and family sacrifices, and philosophical and religious questioning all give emotional resonance to a spectacular and suspenseful story of space exploration.
<http://blastthemovie.com/>

"BLAST! helps you see first-hand just how difficult, amazing and rewarding these kinds of scientific efforts can be. You'll laugh, you'll cry, and you'll walk away astounded that people can actually send a telescope to the edge of space and forever change how we see and think about the universe."



PLUS JOHN DOBSON AS HE CELEBRATES HIS 94TH BIRTHDAY

IMPORTANT DATES

SFAA GENERAL MEETINGS & LECTURES - NOVEMBER 18 . DECEMBER 16 . JANUARY 20

*Third Wednesday of each month: 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)*

SFAA BOARD MEETINGS - NOVEMBER 10 . DECEMBER 8 . JANUARY 12

*Second Tuesday of each month: 7:00 p.m. – 8:30 p.m.
Randall Museum, 199 Museum Way (Near 14th Street and Roosevelt)*

CITY STAR PARTIES - NOV 21/5:00 P.M. . DEC 26/5:00 P.M.

TELESCOPE CLINIC ONE HOUR BEFORE SUNSET

Land's End (Point Lobos) - Map and directions:

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

NOTE: While City Star Parties WILL ALWAYS be held on Saturdays, 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.

MT TAM SPECIAL USE PERMIT STAR PARTIES - MEMBERS ONLY

NOVEMBER 14 . DECEMBER 19

GATEKEEPERS NEEDED

Special Use Permit observing nights on Mount Tamalpais are private and open *only* to SFAA members. Please arrive by sunset (times listed below). 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).

MT TAM PUBLIC STAR PARTIES - ***(MAY THROUGH OCTOBER ANNUALLY)***

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 go here: <http://www.sfaa-astronomy.org/starparties/>

UPCOMING GENERAL MEETING LECTURES & EVENTS

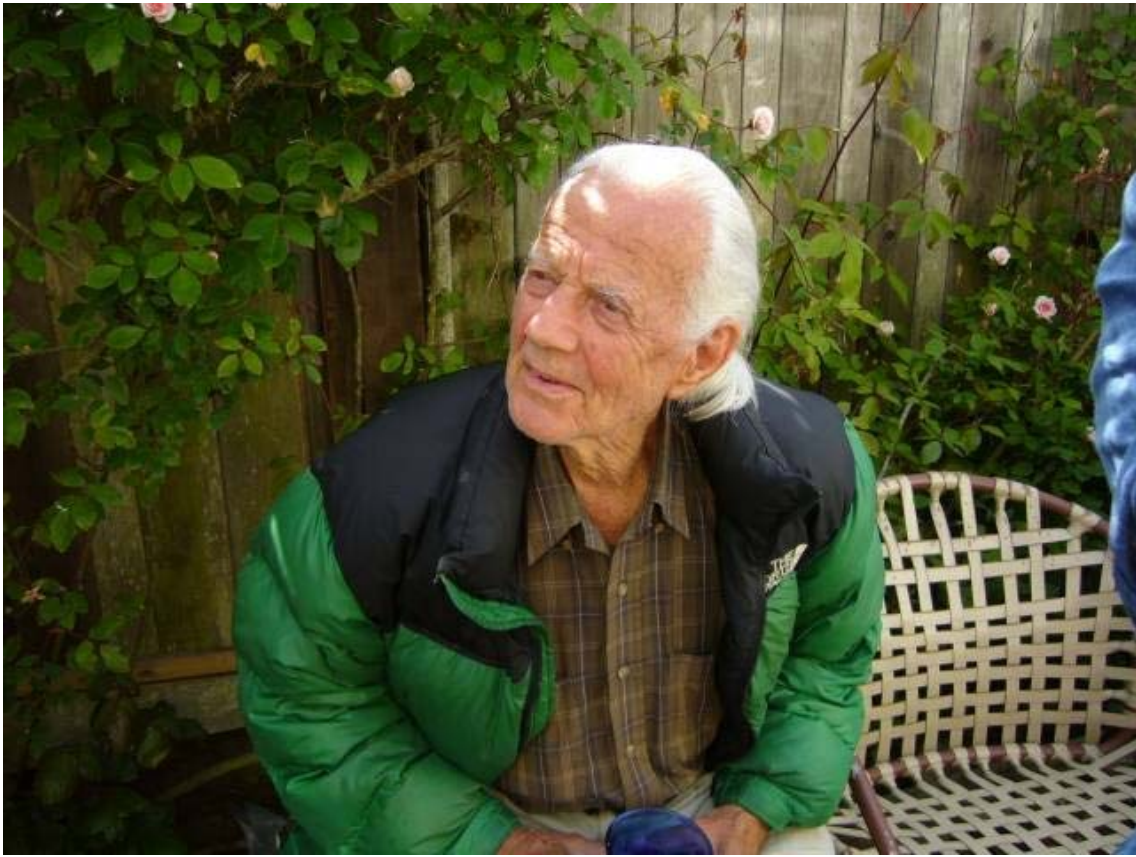
DECEMBER 16: MEMBERS' NIGHT.

MEMBER SPEAKERS STEVE GOTTLIEB AND VIVIAN WHITE

ASTROPHOTOGRAPHY, ASTRONOMICAL ART AND LITERARY CONTESTS.

JANUARY 30: SAN FRANCISCO AMATEUR ASTRONOMERS ANNUAL DINNER

DELANCEY STREET RESTAURANT, SAN FRANCISCO



**NOVEMBER 18, 2009
SAN FRANCISCO AMATEUR
ASTRONOMERS
GENERAL MEETING**





**CAKE CUTTING AND SALUTATIONS FOR
JOHN RIDING SPACESHIP EARTH 94 TIMES
AROUND OUR SUN.**

JOIN US!





November 2009 Almanac for San Francisco (Pacific Standard Time)



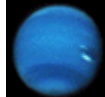
(Source: US Naval Observatory)

Sun and Moon Data:

Date	Astronomical Twilight Begins	Sunrise	Sunset	Astronomical Twilight Ends	Moon	Moonrise	Moonset
7 Nov	5:12 am	6:42 am	5:05 pm	6:34 pm		9:51 pm	11:46 am
14 Nov	5:19 am	6:49 am	4:59 pm	6:30 pm		4:44 am	3:26 pm
21 Nov	5:25 am	6:57 am	4:55 pm	6:26 pm		11:06 am	9:14 pm
28 Nov	5:31 am	7:04 am	4:52 pm	6:24 pm		2:13 pm	3:10 am

Planetary Data:

	Mercury		Venus		Mars		Jupiter	
								
	Virgo 1/Libra 2-17/ Scor 18-21/Oph 22-30		Virgo 1-13/ Libra 14-30		Cancer 1-29/Leo 30		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set	Rise	Set
7 Nov	6:50 am	5:08 pm	5:22 am	4:25 pm	10:46 pm	12:59 pm	1:14 pm	11:34 pm
14 Nov	7:20 am	5:12 pm	5:38 am	4:21 pm	10:31 pm	12:41 pm	12:49 pm	11:10 pm
21 Nov	7:48 am	5:20 am	5:54 am	4:18 pm	10:14 pm	12:21 pm	12:23 pm	10:46 pm
28 Nov	8:14 am	5:32 am	6:11 am	4:18 pm	9:56 pm	12:00 pm	11:58 am	10:24 pm

	Saturn		Uranus		Neptune	
						
	Virgo		Pisces		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set
7 Nov	3:02 am	3:15 pm	2:44 pm	2:30 am	1:27 pm	0:06 am
14 Nov	2:37 am	2:49 pm	2:16 pm	2:02 am	1:00 pm	11:35 pm
21 Nov	2:13 am	2:23 pm	1:49 pm	1:34 am	12:32 pm	11:08 pm
28 Nov	1:48 am	1:57 pm	1:21 pm	1:06 am	12:05 pm	10:41 pm





November Phenomena:

- 1 November, 2:00 am: Daylight savings time ends (U.S.)
- 5 November, 2:00 am: Southern Taurids meteor shower peak
- 6 November, 11:00 pm: Moon at perigee, 229,225 miles (368,902 km)
- 12 November, 2:00 am: Northern Taurids meteor shower peak
- 17 November, 7:00 am: Leonids meteor shower peak
- 22 November, noon: Moon at apogee, 251,489 miles (404,733 km)





December 2009 Almanac for San Francisco (Pacific Standard Time)



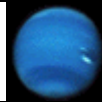
(Source: US Naval Observatory)

Sun and Moon Data:

Date	Astronomical Twilight Begins	Sunrise	Sunset	Astronomical Twilight Ends	Moon	Moonrise	Moonset
5 Dec	5:37 am	7:10 am	4:51 pm	6:24 pm		8:52 pm	10:24 am
12 Dec	5:42 am	7:16 am	4:51 pm	6:25 pm		3:42 am	2:01 pm
19 Dec	5:46 am	7:21 am	4:54 pm	6:28 pm		9:38 am	8:03 pm
26 Dec	5:49 am	7:24 am	4:58 pm	6:32 pm		12:40 pm	1:57 am

Planetary Data:

	Mercury		Venus		Mars		Jupiter	
								
	Ophiuchus 1-3/ Sagittarius 4-31		Libra 1-3/Scorp 3-8/ Ophiuchus 9-23/ Sagittarius 24-31		Leo		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set	Rise	Set
5 Dec	8:35 am	5:48 pm	6:27 am	4:19 pm	9:35 pm	11:38 am	11:34 am	10:01 pm
12 Dec	8:50 am	6:06 pm	6:42 am	4:23 pm	9:12 pm	11:15 am	11:09 am	9:39 pm
19 Dec	8:52 am	6:19 pm	6:57 am	4:29 pm	8:45 pm	10:50 am	10:45 am	9:18 pm
26 Dec	8:31 am	6:13 pm	7:10 am	4:38 pm	8:16 pm	10:23 am	10:21 am	8:57 pm

	Saturn		Uranus		Neptune	
						
	Virgo		Pisces		Capricornus	
Date	Rise	Set	Rise	Set	Rise	Set
5 Dec	1:23 am	1:31 pm	12:53 pm	0:39 am	11:38 am	10:13 pm
12 Dec	0:58 am	1:05 pm	12:26 pm	0:11 am	11:11 am	9:47 pm
19 Dec	0:32 am	12:38 pm	11:59 am	11:41 pm	10:44 am	9:20 pm
26 Dec	0:06 am	12:11 pm	11:31 am	11:14 pm	10:17	8:53 pm

December Phenomena:

- 3 August, 6:00 pm: Moon at apogee, 252,294 miles (406,028 km)
- 4 December, 6:00 am: Moon at perigee, 225,856 miles (363,481 km)
- 13 December, 9:00 pm: Geminids meteor shower peak
- 17 December, 5:00 am: Mercury at greatest illuminated extent
- 18 December, 9:00 am: Mercury at greatest elongation, 20.3° east of Sun
- 20 December, 7:00 am: Moon at apogee, 252,109 miles (405,731 km)
- 21 December, 9:47 am: Winter solstice
- 31 December, 10:52-11:54 am: Partial lunar eclipse

ANNUAL AWARDS

THE CONTEST IS ON DECEMBER 17

MEMBERS WILL CAST VOTES AT THE DECEMBER 17 MEMBERS' NIGHT MEETING. PRIZES FOR FIRST, SECOND AND THIRD PLACE WINNERS WILL BE AWARDED AT THE ANNUAL AWARDS DINNER ON JANUARY 30 AT DELANCEY STREET RESTAURANT.

ASTRONOMICAL ART AND LITERARY SUBMISSIONS RECEIVED WILL BE INCLUDED IN THE DECEMBER NEWSLETTER. WE LOOK FORWARD TO SEEING ASTRONOMICAL ARTS ENTRIES AT THE MEMBERS' NIGHT MEETING.

Astrophotography



Members are encouraged to submit astrophotographs (up to three entries per member) for judging. All entries will be accepted and exhibited at the December meeting and voted upon by the general membership. Entries must have been taken this year (2008) and be of an astronomical theme. Size should be reasonable (11' x 14' or less), mounted or unmounted.

Astronomical Arts

This contest is open to all members and will be judged by the membership at the December General Meeting. Any art related to astronomy is welcome. Your drawings of astronomical objects are worth sharing with other club members, as well as craftwork, sculpture, jewelry, and paintings -- there are almost no restrictions here. Size is a consideration since we have to fit all entries, and club members, in the museum, alongside the Astrophotography Award entries. Also, no living critters, please. The museum may frown upon any living, breathing things that are not part of official exhibits. Live acts are restricted to the human kind. Please bring your entries to the December meeting. Any questions can be directed to club officers listed on page two in this bulletin.

Literary



Submissions may be fact or fiction, humor or opinion. You may have a favorite story about an observing experience, a trip, or about people who have crossed your astronomical path in one memorable way or another. Share the stories of your astronomy observing and/or travel experiences, maybe an article you have written, and enable us to appreciate them with you.

The 2009 Leonid Meteor Shower

November 10, 2009: This year's Leonid meteor shower peaks on Tuesday, Nov. 17th. If forecasters are correct, the shower should produce a mild but pretty sprinkling of meteors over North America followed by a more intense outburst over Asia. The phase of the Moon will be new, setting the stage for what could be one of the best Leonid showers in years.

"We're predicting 20 to 30 meteors per hour over the Americas, and as many as 200 to 300 per hour over Asia," says Bill Cooke of NASA's Meteoroid Environment Office. "Our forecast is in good accord with independent theoretical work by other astronomers."¹

Right: A Leonid meteor at dawn, photographed in 2002 by Simon Filiatrault of Quebec, Canada. [[larger image](#)]

Leonids are bits of debris from Comet Tempel-Tuttle. Every 33 years the comet visits the inner solar system and leaves a stream of dusty debris in its wake. Many of these streams have drifted across the November portion of Earth's orbit. Whenever we hit one, meteors come flying out of the constellation Leo.



"We can predict *when* Earth will cross a debris stream with pretty good accuracy," says Cooke. "The intensity of the display is less certain, though, because we don't know how much debris is in each stream." Caveat observer!

The first stream crossing on Nov. 17th comes around 0900 UT (4 a.m. EST, 1 a.m. PST). The debris is a diffuse mix of particles from several old streams that should produce a gentle display of two to three dozen meteors per hour over North America. Dark skies are recommended for full effect.

"A remarkable feature of this year's shower is that Leonids will appear to be shooting almost directly out of the planet Mars," notes Cooke.

It's just a coincidence. This year, Mars happens to be passing by the Leonid radiant at the time of the shower. The Red Planet is almost twice as bright as a first magnitude star, so it makes an eye-catching companion for the Leonids: [sky map](#).

The next stream crossing straddles the hour 2100-2200 UT, shortly before dawn in Indonesia and China. At that time, Earth will pass through a pair of streams laid down by Comet Tempel-Tuttle in 1466 and 1533 AD. The double crossing could yield as many as 300 Leonids per hour.



Above: This side of Earth will be facing the Leonid debris stream at the time of the Nov. 17th outburst. Observers in India, China and Indonesia are favored with dark, pre-dawn skies. Image credit: Danielle Moser of the NASA Meteoroid Environment Office.

"Even if rates are only half that number, it would still be one of the best showers of the year," says Cooke.

The Leonids are famous for storming, most recently in 1999-2002 when deep crossings of Tempel-Tuttle's debris streams produced outbursts of more than 1000 meteors per hour. The Leonids of 2009 won't be like that, but it only takes one bright Leonid streaking past Mars to make the night worthwhile.

Enjoy the show.

Footnote: ¹Leonid forecasters use computer models to track the location of debris from Comet Tempel-Tuttle and to predict Leonid meteor rates when Earth crosses one of the debris fields. That is the basis for Cooke's predictions. Here are some others: Jérémie Vaubaillon of the Institut de Mécanique et de Calcul des Ephémérides in France predicts 25 meteors per hour over North America and ~200 per hour over Asia. Another forecaster with a proven track record, Mikhail Maslov of Russia, predicts 20 to 30 meteors per hour over North American and as many as 140 per hour over Asia. [Earlier predictions](#) of a "half-storm" of 500+ meteors/hr over Asia have been downgraded.

[The 2009 Leonid Meteor Shower](#) -- an overview from the International Meteor Organization

NASA's [Meteoroid Environment Office](#) Author: [Dr. Tony Phillips](#) | Credit: [Science@NASA](#)

SAVE THE
DATE

SATURDAY
JANUARY 30

SAN FRANCISCO
AMATEUR
ASTRONOMERS
ANNUAL
AWARDS
DINNER

DELANCEY
STREET
RESTAURANT
SAN FRANCISCO



UC Berkeley, Astronomy Department

INTERNATIONAL YEAR OF ASTRONOMY PUBLIC TALKS

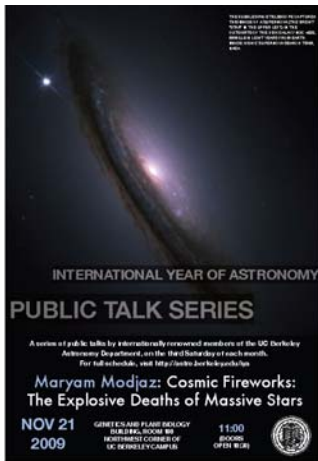
Saturday, November 21, at 11 a.m. (Doors open 10:30) - 12:00 Noon

100 Genetics & Plant Biology Building, Room 100

Northwest Corner of UC Berkeley Campus

MARYAM MODJAZ: COSMIC FIREWORKS

THE EXPLOSIVE DEATHS OF MASSIVE STARS



Maryam Modjaz is a Miller Postdoctoral Fellow in Astronomy at UC Berkeley. She works on the explosive deaths of massive stars as supernovae and gamma-ray bursts. The recipient of Harvard University's Fireman Prize for an outstanding PhD dissertation, her work has been featured on National Public Radio, in the Christian Science Monitor, Astronomy Now, and in a feature article in UC Berkeley's "California" magazine.

Massive stars die violently. They produce the most powerful explosions in the Universe during their death-throes: supernovae and gamma-ray bursts. Supernovae are brilliant firework displays that become as bright as a billion suns combined, and gamma-ray bursts are monster explosions that launch jets moving nearly at the speed of light and outshining the whole gamma-ray Universe in a few seconds. Both explosions produce and expel heavy elements and an enormous amount of energy; they leave behind fascinating objects like black holes and pulsars, and like beacons they are visible over billions of light years across the vast Universe.

How are these types of explosions related? Are they dangerous to life on earth? How may they be vital for life on earth? These are some of the questions Dr. Modjaz will discuss during her breathtaking tour of the most powerful explosions of the Universe.

This talk is presented as part of the astronomy department's International Year of Astronomy monthly speaker series.

Target audience: General Public

Open to all audiences

Event Contact: 510-642-8678

2009 CLUB OFFICERS & CONTACTS

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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/tc/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 20th day of the month.** Send your articles to Editor@sfaa-astronomy.org

San Francisco Amateur Astronomers
POB 15097
San Francisco CA 94115

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

_____ E-Mail
_____ Hard Copy

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

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

 _____ Zip _____

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

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

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.