

ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 52, No. 10 – OCTOBER 2004

OCTOBER 20, 2004 – GENERAL MEETING

RANDALL MUSEUM
199 MUSEUM WAY
SAN FRANCISCO

7:00 PM DOORS OPEN
7:30 PM ANNOUNCEMENTS
8:00 PM SPEAKER

GREG LAUGHLIN

THE FUTURE OF THE SOLAR SYSTEM AND THE UNIVERSE



In this talk I will focus on the impending fate of our Solar System over the next six billion years. I will describe how the evolution of the Sun will slowly make the Earth a less pleasant place, and I will describe some "practical" strategies for dealing with this problem over billion year timescales. I will also put the demise of the Earth and our Solar System into the larger context of the evolution of the entire universe.

Greg Laughlin is currently an assistant professor of astronomy and astrophysics at UC Santa Cruz. His main current research interest is in extrasolar planets, and he runs the www.transitsearch.org project, which coordinates a worldwide effort by amateur astronomers to detect transiting extrasolar planets. He is also the co-author of a popular-level book, "The Five Ages of the Universe -- Inside the Physics of Eternity", which describes his other research interest, the physics of the extremely distant future.

2003 CLUB OFFICERS & CONTACTS

President	Michael Portuesi	(415) 550-9366
Vice President	Nancy Cox	(415) 269-8259
Secretary	James Mace	
Treasurer	Lorrie Boen	
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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.

CLUB TELESCOPES

The SFAA owns 4 club loaner telescopes, Dobsonian/Newtonian reflectors: 6" f/10, 8" f/7, and 10" f/8 and a Starblast. 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 Goldie & Sarah Szczechowicz, 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>

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>

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

FROM YOUR PRESIDENT

MICHAEL PORTUESI

My column last month on the future of SFAA (or possible non-future) generated a good deal of concern and discussion among the members who attended the September General meeting. We spent about a half hour discussing the nature of participating in the SFAA, and ways in which we can engage more of the club's membership.

One issue raised is whether we are facing a crisis of participation in events like the lectures and star parties, or a crisis of volunteer effort to lead the club. The honest answer, as I pointed out last month, is both. The most pressing need right now is to find people who are willing to donate effort to the club. But excepting a few special events, such as this year's Yosemite trip, participation in club events is down across the board.

There was some discussion that perhaps the club's current activities are not of interest to the general membership. It was suggested that taking a survey of club member's interests would help.

I have set an agenda for the club these past two years, and it has been that of an observer. I want to encourage people to see the skies, whether it's through fancy cameras, monster telescopes, binoculars, or just eyeballs and a lounge chair. I've tried to put together events that would encourage newcomers, people who have just bought scopes, to come and learn by observing side-by-side with more experienced club members. Last year's (and this year's) Annual Picnic, this year's Messier Marathon (clouded out), and our trips to Fremont Peak were intended to provide an opportunity for newcomers to observe without having to feel obligated to put on a show for the general public. The Telescope Clinics are intended to help first-time scope owners get past the initial learning curve and start using their scopes.

For people who don't own a telescope or don't relish trying to operate one, I've tried to provide observing events complete with a telescope and operator, such as Fremont Peak, our trip to Chabot Space and Science Center last September to view Mars, and our trip last fall to Mount Wilson Observatory. Board member Steve Bryson and I have made diligent efforts to obtain private access to Mount Tam, so newcomers can observe in a pressure-free environment.

I don't feel the "armchair astronomers" in the group – those who love the intellectual challenge and wonder of astronomy moreso than the thrill of photons – have been neglected. Linda Mahan, our Speaker Coordinator, has put together an excellent lineup of speakers covering a broad range of topics, and has worked enthusiastically to recruit new speakers for our meetings. If the lectures have not been to member's liking, neither I, nor Linda, have heard such feedback from the membership.

If the club hasn't met your needs or interests, I am concerned, but I am not apologetic. By far the biggest reward for people who are willing to volunteer and help is that they have the freedom to set the agenda for the club's activities. If there's something you want to see the club do, the most effective way to get that to happen is to volunteer to sponsor it yourself.

I think a survey of the membership is a good idea, and we'll see if we can get one put together in the near future. It can certainly guide the club leadership in crafting activities people may enjoy. But by itself, a survey is not going to resolve the pressing need to find volunteers to lead the club.

Another person suggested that perhaps instead of asking for people to help with specific tasks, we should take an inventory of people's skills, ability and interest to help with specific types of events. The flaw with this suggestion is that this kind of query is already implicit in our requests for participation, especially public outreach. We assume that people who are interested and have the means will come out and participate. It's nice to know that certain people are interested in a particular topic or activity, but that means nothing unless they actually *do* something.

There is a list of small tasks associated with running the club that are necessary, but not glamorous, such as picking up mail from the club P.O. Box, scheduling rooms for board meetings, printing membership brochures, and providing munchies for the monthly lectures. They are not well staffed by conducting an inventory of interests, since they are not

intrinsically interesting tasks. They are staffed by people who are passionate about their hobby. These people are willing to do a little mundane work, because they are giving something back in exchange for what others have brought them.

We have been asking all along, and silence has mostly been the reply. So asking people for their skills and interests is not going to solve the pressing need to find volunteers to lead the club.

Another person, with a background in management, suggested that we “streamline” the club, find ways to make running the club more efficient and less work. Some things we have streamlined already. The club hotline has been moved from an answering machine on a dedicated line in someone's home to a commercial answering service. Not only does it save the club money, it allows the hotline to be managed among a group of people, since anyone can call in and update it. Streamlining in action. But guess what? We have no pool of volunteers to update the hotline. Ken Frank currently does that all by himself. Instead of sending out membership reminders, we print your renewal date on the label of your club newsletter, so no one has to stuff envelopes with renewal reminders. Much of the club's business is now conducted online, with an email list for the Board's use and a secretary's website (<http://www.whiteoaks.com/sfaa>).

There is more streamlining we can do. For example, we can move more of the club business online. But streamlining only goes so far; someone still has to step up to the plate. We cannot rely on magical fairies and elves to maintain email lists and update websites. The mainstay activities of the club, however much they are streamlined, still need *someone* to volunteer to supervise them. To “streamline” the club further will mean dropping activities we take for granted, such as the City Star Parties, or the Mount Tam Star Parties. Or, we could drop the lectures, or maybe have them only on a quarterly basis.

In the end, this “streamlining” will likely allow the club to survive in some form. But to me, it simply reflects lack of interest and lack of participation. It won't be the club I want. But if that's what everyone else wants, then so be it.

Position Open - Treasurer

After six years of volunteering in various roles with the SFAA, I am stepping back for at least the next year. It is mostly to focus on a couple of projects, but also because I do not get much opportunity to attend most SFAA events. After being a board member for four years, three of those also as bulletin editor, I have been treasurer since January 2003. So, the club needs someone to take the plunge and run for treasurer for 2005.

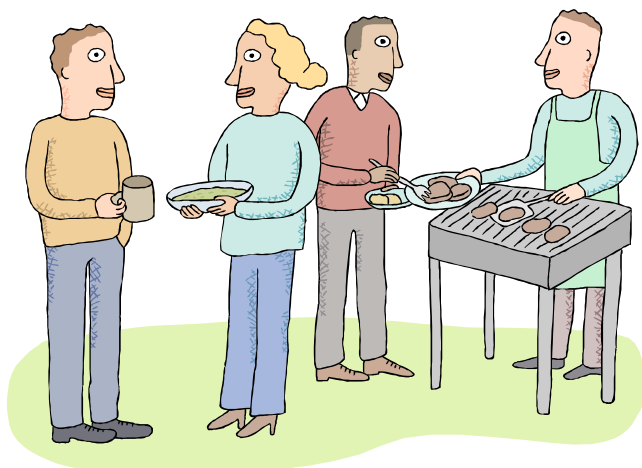
The role is not very difficult or time-consuming. The main duties are processing renewals and new memberships, picking up mail from the post office box (I do this once a week), banking the checks, and attending the board meetings. I also maintain current and lapsed membership lists and send an electronic file of address labels to the bulletin editor once a month. There are other occasional checks to be written, such as the post office box fees, insurance premiums and donations. It's all quite easy, really. I spend about six hours a month on the duties of the office, plus the time needed for the board meeting.

My decision to not run for the office again is not optional. So, I hope someone out there is willing to devote a little time and effort to the club. I have enjoyed my involvement immensely. If you have any interest and want to ask about it, please email me at treasurer@sfaa-astronomy.org.

Clear skies . Lorrie Boen . Treasurer

SATURDAY, OCTOBER 9, 2004 4:00 P.M.

SFAA ANNUAL PICNIC



Come to the 2004 San Francisco Amateur Astronomers Annual Picnic and Star B Q! Hamburgers and hot dogs will be provided. Any contributions of other food items will be most welcome, and gratefully devoured ... especially if they have an astronomical theme!

After the picnic, stay for a private SFAA-only star party. Bring your telescope/solar scope along and join in the fun!

You can do your own observing, or you can take part in a special group observing session we will be sponsoring for those interested. We will have a list of suggested targets for you to observe and the opportunity to share the views of these objects through each other's telescopes.

If you plan to attend, please send email to <mailto:kennethfrank@planitarium.net>. We need an accurate count so there's no waste of food and supplies.

Following the Star B Q, for those wishing a darker site i.e. Lake Sonoma, feel free to leave early; we understand.

Directions

Blue and Gold Schedule from either Ferry Bldg. or Pier 41<http://198.94.156.9/Sched/BG/TIB/A/>

Golden Gate Transit (stops at our driveway either NW or SE bound)
<http://www.goldengatetransit.org/schedules/pages/NewSchedules/Bus-Schedules.html>
Tell the driver you want the Gilmartin Drive stop]

Driving 101 N or S take Tiburon Blvd (Hwy 131) exit. Pass thru Rock Hill signal. Turn Left up the driveway AT the Gilmartin Drive sign. We are on the Left. As Yosemite, drop off your scope and park on Tiburon Blvd. This is an easement and shared driveway. For fire/safety and continued good neighbor relations, please do not block the driveway or the carport.

We're one mile (exactly) past Blackie's Pasture (at Trestle Glen a steeply banked right-hand turn) and less than 4 miles from 101. You'll spot the Gilmartin Drive sign on the right.



http://maps.yahoo.com/py/maps.py?Pyt=Tmap&ed=xPqPI.p_0TqDfH17SfKtpaQzGUU2mY2NjkuUKO7BfxjFiE09APboI5r6SzYs&sz=TIBURON,+CA&country=us

**SAN FRANCISCO AMATEUR ASTRONOMERS
GLACIER POINT STAR PARTY
AUGUST 20-22, 2004**

Photographs provided courtesy of SFAA Member, Jung Thomas



Jinsook and JT at Glacier Point with Half Dome in the background



Glacier Point visitor uses 8-inch telescope



Visitors at Glacier Point looking through telescope to see mountain climbers on flat face



Aeddan, Jayni, Danny, and Ken enjoying pot luck dinner conversation



Mary Ellen, Stephanie, Barbara, and Peter enjoying dinner at Bridalvale base camp. Cheers.



JT staying warm after a night of star gazing at Glacier Point. Half Dome is in the background silhouetted by the morning twilight.

FIELD TRIP

**SATURDAY
NOVEMBER 6
10:00 A.M**



**Stanford
Linear
Accelerator
Center**

SFAA will host a tour of the Stanford Linear Accelerator Center for members and their invited guests.

Those who wish to attend should sign up at the general meetings or by calling (415) 221-6004. If you leave a voice message you must also leave a phone number and your primary residence, and the names of any other family members or guests who will be attending along with their addresses and full names. All tour participants need to bring photo identification for access to the lab. Please check with the attendant at the front gate on your arrival for information on where to park and learn the tours starting place.

SLAC is located on about 430 acres of Stanford property. It is a government-owned facility operated by Stanford University for the Department of Energy Office of Science. The main entrance is located on Sand Hill Road, just east of highway 280, on the South side of the road. If you need additional driving directions these can be found at www.slac.stanford.edu/welcome/location.html.

The number of people attending will be limited to the first thirty. Tours take about two hours. Feel free to bring cameras. The tour guide will meet you at the tour meeting room, where the group will be given a presentation on SLAC, followed by a bus tour of the site. There is no fee.



IMPORTANT UPCOMING DATES

**BOARD MEETING
OCTOBER 13 . NOVEMBER 10, DECEMBER 8
7:00 P.M.**

*Western Addition Library
Scott & Geary Streets, San Francisco*

**SFAA GENERAL MEETING & LECTURE
OCTOBER 20
NOVEMBER 17
DECEMBER 15
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 PARTY
OCTOBER 23 – 6:21 P.M.
NOVEMBER 20 – 4:55 P.M.
DECEMBER 18 – 4:53 P.M.**

Star parties on the above dates sponsored by the National Park Service

IS THE CLUB ON LIFE SUPPORT?

BY BOB BERTA YOUR "REMOTE" REPORTER FROM MICHIGAN

I have exchanged email with other club "expatriates" like Bob Naeye, Jane and Mojo as well as various club members who still are in California. We have echoed our concern over the status of the club to each other. PLEASE read this note with an open ear and with respect for what the SFAA represents historically.

One of the most enticing reasons I joined the SFAA rather than one of the other California clubs was its wonderful history and FABULOUS members throughout the years. I did belong to another club for a while on the other side of the Bay and believe me...it was not in the same class as the SFAA. I was most taken by the assistance and immediate support given to all new members whether the existing member was a seasoned observer or a rank beginner. Take it from me...this is not usual. Many clubs I have seen tend to be very clicky and not at all open to all types of skill levels and interests. I came in as a "GOTO fan and CCD imager" and at first was very worried that a DOB oriented club would avoid me like the plague. I was thrilled to not only gain immediate acceptance and a lot of friends...but was given the chance to promote my interest to others. The other benefit of the SFAA was the incredible resource of speakers by nature of its location and prestige to outstanding speakers. While the two clubs I belong to here in Michigan have wonderful speakers and presentations...they drool at the names of the people we have had as a matter of course in the SFAA.

While there may be some problems with the move to the new club site at Randall...I don't believe that is a good reason for the failure of some to step forward to participate. As I mentioned before...I have been in a few other clubs over the years and in various officer positions including president of these clubs. The largest one had over 600 members and believe me...the issues at the SFAA were nothing new for me. That large club went through the same issues with waning interest and lack of participation. But that club took the smart path and went forward acknowledging the issues and than instead of sitting by and hoping for the best, they brainstormed on just a FEW areas of concern and rather than using the shotgun approach...then zeroed in on a couple of hot buttons and addressed those. It worked as the club is now better than it ever. Some of the following ideas were key in this return to health.

First...the issue of participation. In a club there are NO paid positions...and while it is very easy to sit back and point fingers when somebody makes a mistake....it is much better to point out that problem ALONG with YOUR suggestion on how to fix it AND YOUR volunteering to help fix it.

Next...it may be helpful to think of new ways to get excitement. Having the same events time after time is not creative and tends to stifle member interest. The big club I belong to here (big by Michigan standards at 180 members) is

extremely active. They have TWO general membership meetings a month. Each will have a minimum of 30 people but usually as much as 70. While they don't have as many "names" to speak...they use the members to provide various talks. ALL members are encouraged to give some sort of a presentation.

Yes...some are scared to death and won't do it...but we "work" on them. If they can't do a presentation...they might want to show some sort of a DVD, etc. that they saw that caught their attention. We have had amazing talks. One fellow related his building of a radio telescope for his daughter's school science project, another member who is a film buff talked about a famous English comedy actor in the early days of the motion pictures who was also a fanatical amateur astronomer, Will Hayes. Besides talking about him, he showed parts of one of his first movies. I have given my ASTRO TRIVIA talk that I provided for the SFAA star parties a few times. Another talked about Globulars, another variables, another Pluto's planet status. The point is that while they don't have the access to the "names" they make do with sharing each of the members love for their "special interest" in astronomy.

Another member and I are thinking of new ways to get interest. Since he owns a Meade telescope we thought a special star party for Meade owners with field updates of operating systems, debugging scopes, and newbie HOW TO help would be a good idea. We were astounded that a huge number of people showed up for that one. A Celestron workshop is going to happen next year. There is a historic solar observatory about 12 miles from my house. We are having one of the volunteers there give a talk at our October meeting...and than will sponsor a club visit to the observatory with a special tour. In a hand count it looks like there will be a huge number of people in attendance. I think the reason this works is that it doesn't require a long drive and is just enough different to pique others interest. Another idea I had is for a "Club goes to the movies day". I have a big home theatre with big screen and fantastic surround sound. We are going to have a special movie night event where we will show a few of the DVDs of Imax movies we have like Solar Max, Cosmic Voyage, etc. That will make a good Winter event when the weather isn't as conducive to observing here in Michigan. But the real secret isn't in what the CLUB does...but what the members volunteer to do THEMSELVES. While my friend and I had the ideas for these events...we didn't expect others to do them but volunteered to do them ourselves.

Finally...rather than asking for volunteers to step forward...I suggest an "engraved silver invitation". There are probably a lot of people in the club that are shy...but I bet if you approached them one-on-one and asked them to do one particular item they would probably do so...especially if you

also offered to help them. It might be worthwhile to have one of the board members who is particularly good at "persuasion" to be assigned this task of drawing people into a larger volunteer role. The key is to not just ask for somebody to volunteer to do something...but to talk to an individual and have ONE idea (or ask them for one) that they can do. You would be surprised at how many people will respond to this approach.

Guess this is a bit long of a message...but it is my hope that we can all get the SFAA back off intensive care and into their old role as one of the premier clubs in California if not the US. I will be coming back to California once a year and my dream is to attend club meetings and star parties and maybe provide a talk about Michigan astronomy....it is up to YOU to see that I have a club to come back to!

MORE LUNAR RESOURCES ON THE INTERNET

MICHAEL PORTUESI

If you attended the September SFAA meeting, you were treated to a great introduction to the Moon by Dr. John Westfall. He presented a handout list of great, free resources on the web where you can go to get detailed photographs and charts of the Moon, from professional telescopes and space probes.

Here's a few more free web resources I've found. If you didn't attend the meeting, maybe you should come to a future SFAA meeting and see what you're missing out on.

Geologic History of the Moon, Don Wilhelms – This is the cornerstone reference that professional lunar geologists use. It has plenty of photos and diagrams illustrating the evolution of the lunar surface. It has been out of print and until recently, very difficult to find. Now it has been scanned and made available for download on the Web.

<http://cps.earth.northwestern.edu/GHM/>

Lunar and Planetary Institute Lunar Map Catalog – These are detailed charts drawn for the Apollo moon program.

<http://www.lpi.usra.edu/research/mapcatalog/>

Photographic Moon Book – This is an online book by an amateur and for amateurs, about observing and photographing the Moon. It is presented in Adobe Acrobat (PDF) format. It contains a series of photographic maps of the lunar surface. Together with a good lunar atlas (such as Virtual Moon Atlas), it is a great way to learn the Moon. I burned the files to CD, took them to Kinko's and had them print and bind a full-fledged book for about \$15. If you do this, note that the book is formatted for A4-sized paper (metric sized) and you will need to have Acrobat shrink the pages slightly for printing on U.S. 8.5 by 11-inch paper.

<http://moonbook.hkas.org.hk/>

Virtual Moon Atlas – This free program (Windows only) will display a Moon map onscreen for any date and time, so you can identify craters and other surface features. Incredibly detailed, with lots of information. Works best with 3D-capable computers, but not required. I have used it on an old 300Mhz laptop without 3D acceleration, and it works fine. You do need about 100 MB of disk space for the full version, though.

http://astrosurf.com/avl/UK_index.html

Astrophotography Award

Members are encouraged to submit astrophotographs (up to three entries per member) for judging in the astrophotography award. Submissions are accepted October, November or at the December general meeting. All entries will be exhibited at the December meeting and voted upon by the general membership. Entries must have been taken this year (2004) and be of an astronomical theme. Size should be reasonable (11' x 14' or less), mounted or unmounted.

The Astronomical Arts Award

This contest is open to all members and will be judged by the membership at the December General Meeting. We had several fine entries at the inaugural competition last year. 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 Planetarium, alongside the Astrophotography Award entries. Also, no living critters, please. The Academy may frown on 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 Meeting on December 15, 2004. Any questions can be directed to club officers, listed on page two in this bulletin.

Observer of the Year Award

The Observer of the Year Award is given for noteworthy observing accomplishments during the year, such as qualifying for the Messier Award, the Herschel Club, observing all the planets, getting articles or photographs published, etc. Nominations will be accepted in October and November. Members may submit their own name or the names of anyone they feel is qualified. Candidates should prepare a list of their observing accomplishments in 2004 for judging by the December meeting.



2004 Mt Tam Astronomy Programs

Tinka Ross

October 23 - 5:00pm

"We are the Stars That Sing: The Story of the Universe"

Mary Ellen Hill

The Madrone Picnic Area (next to the Mt Theater) is reserved 1 1/2 hours before the program for informal gathering. Bring your picnic supper and meet the speakers before the talk.
No telescope viewing with this program



SAN FRANCISCO CITY STAR PARTIES

SATURDAY, OCTOBER 23, 6:15 P.M.
SATURDAY, NOVEMBER 20, 5:00 P.M.
SATURDAY, DECEMBER 18, 5:00 P.M.

Join the San Francisco Amateur Astronomers (SFAA) in sharing the wonders of the night sky in San Francisco. Ask about your favorite constellation or astronomical phenomenon. Telescopes will be provided, or you may bring your own. The star parties will be held in the parking lot next to the *USS San Francisco* Memorial at Lands End on El Camino del Mar, just north of 48th and Pt. Lobos avenues, off of Geary Blvd. For more information about the program and weather conditions, please call the SFAA hotline at (415) 289-6636 or visit the SFAA website at www.sfaa-astronomy.org.

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.

make checks payable to **San Francisco Amateur Astronomers** and mail to:
Treasurer, SFAA, 765 Geary St., #302, San Francisco CA 94109

- \$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:

Name: _____ Telephone: _____

Address: _____

Email address: _____

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.