

ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

VOL. 49, No. 7 – July 2001

Speaker, General Meeting, July 18

Dave Rodrigues

Space Art at the Dawn of the Space Age:

The Art of Chesley Bonestell, Fred Freeman, and Rolf Klep

Dave Rodrigues is an avid amateur astronomer who received a B.A. in Economics at Stanford University in 1975 and a M.A. in Economics with a minor in Finance at UCLA in 1980. He has been interested in Astronomy and Space Exploration since the age of four. In 1970 Dave assisted in the rescue of Apollo 13 with the Apollo Tracking Project at Chabot Observatory. He is the recipient of the Amateur Award of the Astronomical Association of Northern California in 1994 for his outstanding effort and continuous support in distinguishing and fostering amateur astronomy. Dave is the founder of the White Mountain Star Party, possibly the highest star party in the world (12,400 feet). He is also been the Program Director of the Eastbay Astronomical Society since 1991.

Speaker, City Star Party, July 28

Stacy McDermott

Light Pollution

Stacy Jo McDermott has had an interest in astronomy all her life. For the past three years, she has been a member of SFAA and an avid stargazer who has been on a Don Quixote journey of finding the perfect observing site. Stacy periodically writes up reviews on various observing sites which can be seen on the SFAA website. Stacy has an aversion to any type of lighting that is wasteful, unnecessary and impedes her quest of looking at the night sky. Stacy can remember from her childhood being able to see the Milky Way from her backyard in Huntsville, Alabama. Now Stacy is grateful if she can make out the Big Dipper from her home in San Francisco. When not planning the perfect camping-stargazing trip to the Sierras, she can be found selling ad space for a major electronics industry weekly newspaper.

San Francisco
Amateur Astronomers

Web Page:
www.sfaa-astronomy.org



Sharing the Wonders
of the Universe

Information Hotline
(415) 566-2357

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Club Telescopes

The SFAA owns 3 club loaner telescopes, Dobsonian/Newtownian reflectors: 6" f/10, 8" f/7, and 10" f/8. These 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 (pg@lbin.com) or phone (415-206-9867). Email communication is preferred and strongly recommended for a quick and accurate reply.

Important Dates

Board Meeting – July 11 - 7:00 p.m.

Western Addition Library, Scott & Geary Sts., SF

SFAA General Meeting – July 18

Morrison Planetarium, Golden Gate Park

Refreshments at 7:00 p.m.

Speakers begin at 7:30 p.m.

Mt. Tam Star Party

July 21 at 8:30 p.m.

City Star Party

June 30 at 8:00 p.m.

July 28 at 8:00 p.m.

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 Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109 or at LorrenLee@aol.com

From the President

Mt Tam was a great success again. Alex Filippenko gave a wonderful talk and there were over 400 people there. We had 33 telescopes and two binocular mounts, a great showing of club members. Thank you one and all. The weather was quite warm, light jackets only, and the skies were quite beautiful as the city was dressed in fog. I don't think we could have asked for a better night.

The adaptive optics presentation and the views of our planets and their moons through the Keck Telescope by Imke de Pater at the Morrison Planetarium lecture were very interesting and our dinner before hand was fun as well.

I am very pleased to let you know that our refreshment break just before the speaker starts (there are also refreshments before the meeting i. e. from 7:00 to 7:30) at our Morrison Planetarium presentations has been very successful. I have several times been reluctant to tell people it is time for the guest speaker to start. It is very good to see so much conversation going on. A special thanks to Lorrie Boen for her very good treats which have always gotten rave reviews.

I have heard great reviews of the Point Lobos star party. Fraser Reich was said to be a very good speaker and used some exceptional graphics as well.

I am very pleased to announce that we have a new telescope loan coordinator Pete Goldie. He can be reached on the internet through our web site at SFAA-astronomy.org. If you are a member of the SFAA you can arrange to borrow one of the scopes that we loan out through Pete. We would also like to thank Ray Cash for his years of service in performing this function.

Upcoming events include: our next Morrison Planetarium speaker Dave Rodrigues on Wednesday July 18th on the Space artist Chesley Bonestell who shaped much of our early thoughts and images about space; Debra Fischer will talk at Mt Tam. on June 23rd on the hunting for new planets and the next Point Lobos City star party is at 8 PM on June 30th. Our Yosemite trip will be on August 24, 25; and our picnic at Stern Grove on September 8th. For more remote activities there is the Astronomical Society of the Pacific (ASP) annual meeting in St. Paul Minnesota the weekend of July 14th

Dinner with the speaker is something we have been working on for our club members on the night of the general meeting presentations (the third Wednesday of the month). Dave Rodrigues, our July speaker, plans to attend. We cannot always expect the speaker to have time to do this but we have a fun dinner either way. If you are interested in attending these, please let me know.

Al

SFAA SPEAKERS CALENDAR 2001

August 15, 2001	Speaker to be announced
September 19, 2001	John Dobson, the originator of the Dobsonian telescope mount design; the guru of the side walk astronomy movement; and teacher of telescope making and cosmology classes will be answering our questions. The meeting will be a question and answer session so bring your questions for John.
October 17, 2001	Bob Naeye, editor of the ASP's Mercury Magazine will give a presentation and then lead a discussion on the merits of Pluto being a planet and the other guys out there, where they are and what is being said about them.
November 14, 2001	November's meeting is the second Wednesday of the month to avoid Thanksgiving eve. Speaker to be announced.
December 19, 2001	Members' night. SFAA members talk about their astronomical experiences.

Abstract of General Meeting Talk

From Abstract by Dave Rodriques

Shortly after World War II, several events came together to make space travel seem a real possibility. In order to convince the general public, and decision makers in particular, that such dreams were on the edge of tangibility, space scientists such as Werner Von Braun, Willy Ley, and Fred Whipple wrote articles and books that used real science and engineering.

But hardheaded calculations were not enough. To captivate, inspire, and seduce, they employed a remarkable group of space artists: Chesley Bonestell, Fred Freeman and Rolf Klep. Preeminent among these was Chesley Bonestell. Raised in the Bay Area, when he was ten he was inspired by a view of Saturn through the 36 inch refractor at Lick Observatory (A good lesson for those of us who give views of the planets through telescopes to kids!). The San Francisco Bay Area is often a background for his portrayals of space ships orbiting the Earth. These beautiful works of art inspired generations of astronauts, engineers, astronomers and just regular folks. They shaped and encouraged the development of the U.S. space program.

Dave will show slides of many of these stunning works, point out and explain much of the incredible detail that might normally be missed, and discuss how they influenced the history of space flight.

The Astronomical Arts Award

We are happy to announce the SFAA will have a new astronomical arts award.

This contest is open to all members and will be judged by the membership at our December indoor meeting. The main reason for this award is to give more of our members a chance to participate in club awards programs. Moreover, we feel by sponsoring this type of award we will bring out some of the hidden talents of our membership. Many of you are doing astronomical art with out knowing it. Take for instance line drawings of the Moon, Sun or deep sky objects. These are all pieces of art. How about astronomical them crafts such as jewelry boxes that are hand painted?

Just look at the beautiful quilt on display at the Academy of Sciences. Did you note in the center of the quilt is a nice rendition of the Planetarium?

If you use a computer to do astronomy art work, process your images using programs such as PhotoShop or other imaging programs and printed them using your own printer, this will count as art and can be used as such for this contest. Digital Space art of any type will be accepted.

Pretty much any art or craft goes within reason, except please no live acts (Little Green Men Acrobats) or huge art works (1/24 scale model of the Solar System). We must keep our display area small because the art will be shown along with the Astro-Photo's displayed on the same December indoor meeting night. We will be giving out 1st, 2nd and 3rd place Astronomical Arts Awards by club member votes. If you have any questions please contact Toney Burkhart evenings after 6:00 p.m. at (650)-994-8033. This we hope should add a lot of fun and diversity to our last meeting of the year.

Regards,
Toney Burkhart

California Star Party 2001

The California Star Party 2001 at Lake San Antonio is on again. The event is new moon weekend of September 13 - 15. For information: www.sjaa.net/calstar2001.html If you do not have access to the web, contact: Jim Van Nuland, SJAA, (408) 371-1307

2001 Literary Award

The Pesky Rules (there's enough chaos in the Universe as it is):

- Open to members only.
- It must include more than a vague reference to astronomy.
- It must be a personal experience.
- Word limit is 1,100 words – no exceptions.
- No photos, artwork, stick figures, etc. (There is another award for that this year - see below - yippee!)
- Entries must be postmarked or in the editor's hands by September 30, 2001.
- Entries need to be in print ready format – on a zip disk, 3.5" floppy or emailed as an attachment (not in the body of the email) - Word or Rich Text Format. All disks will be returned.
- Mail to Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109, or email to lorrenlee@aol.com.
- Articles published in "Above the Fog" are eligible if they comply with these Pesky Rules.
- You are not obliged to enter, but, hey, it would be fun to hear from you.

All entries will be distributed to every member for judging ASAP after the closing date of September 30, 2001. Then, we all get to read the entries and vote for the best one. The winners will be announced at the December General Meeting and the awards will be presented at the SFAA Annual Awards Banquet in January 2002.

Sponsored by our friends at:



Mt. Tamalpais State Park *Star Programs*

June 23 - 8:30 p.m.

"Hunting for Planets"

Dr. Debra Fischer, Postdoctoral Fellow, UC Berkeley

Multiple planetary systems appear to be common; now the search is on for Earth-type planets.

July 21 - 8:30 p.m.

"Starbursts Forever!"

Dr. Wil van Breugel, Lawrence Livermore National Lab

Periods of intense star formation in the center of galaxies can signal spectacular episodes in the life cycles of these galaxies.

Dinners with the speakers: at Lau's China Bistro, Tam Junction, 252 Almonte Boulevard, Mill Valley, 2 1/2 hours before the scheduled talk. To participate, call the restaurant at (415) 389-8868, and add your name to the "Mt Tam Party." The no-host dinners run between \$10 and \$15, including tax and tip.

Information: **Telephone: (415) 455-5370, (415) 388-2070 Same day Hotlines: (415) 566-2357, (415) 455-5370 (messages after 4:00 pm)** Mailing Address: **MTIA/Astronomy Programs, P.O. Box 3318, San Rafael, CA 94912**

The Davis Star Show

Friday, August 24, 4pm - 10pm
Saturday, August 25, 9am – midnight

Veterans Memorial Center, 203 E 14th Street, Davis, California

The Davis Star Show, a festival of astronomy and related sciences is a public outreach celebration of our universe. There will be speakers talking about exciting new discoveries in astronomy, a trade show featuring instruments and accessories appealing to a wide range of amateurs, an exhibit hall with displays and activities for all ages, daytime viewing of sunspots, flares, and other solar activity, a planetarium for the kids, astronomy club booths and demonstrations, public teacher curriculum training classes, Workshops, and a public star party at night. The festival will be free to all who wish to attend.

Speakers include Don Yeomans of JPL, Kelly Beatty, executive editor of Sky and Telescope Magazine, Alex Filippenko of UC Berkeley, Tony Hallas of Hallas Digital Services, Mary Urquhart of NASA Ames, Robert Naeye, editor ASP Mercury journal, and Derek Buzasi, USAF Academy.

For information email Larry Snyder at starshow@dcn.davis.ca.us, visit www.DavisStarShow.com, or phone (916) 782-7111, option 8. For information about lodging, you may phone our host hotel, the Hallmark Inn, at 1-800-753-0035.

The Davis Star Show represents a collaboration by many different groups, including Explorit Science Center, the Sacramento Valley Astronomical Society, UC Davis Astronomy Club, Davis High School Astronomy Club, Sacramento Sidewalk Astronomers, the American Association of Variable Star Observers, the Astronomical Association of Northern California, the Astronomical Society of the Pacific, Stellarvue, and Nightwatch Observatory, with the cooperation of the Davis Parks and Community Services department. Our major sponsors are Sky and Telescope Magazine and Agilent

Weird Wacky Weather

By Jane Houston Jones

Now is a great time of the year to learn about our wacky weather and our weird SF Bay Area micro climates. Our home library contains a great little weather booklet about the San Francisco Bay Region. It is tucked neatly next to our hiking, biking and geology guidebooks. It is called Weather of the San Francisco Bay Region by Harold Gilliam, published by the University of California Press in 1962. I decided to read it again one recent cloudy night -- a night not destined to be a stargazing night, not even from our back deck in San Rafael. I could see the fog cascading over Mount Tamalpais to the southwest, and the hills over to the west had foggy whitecaps on their gently rounded peaks. The booklet was a fascinating read. There have been some subtle changes to the weather in the past 40 years, most importantly, we know more about the El Nino and La Nina phenomenon, but the basics haven't changed much. Here are the basics from the booklet.

We can blame our weather on two mountain ranges, a river system and a big thaw. The Sierra Nevada rises 14,000 feet 200 miles inland from the shore of the Pacific. This hunk of granite intercepts the clouds and moisture-laden clouds drifting eastward from the ocean. It forces the clouds to drop their burden on the mountain slopes in the form of rain and snow.

The spring thaw cascaded into ancient lakes, down creeks, waterfalls, streams and rivers. This volume of water sliced through the coast range to the sea, carving the Carquinez Strait and the Golden Gate long before San Francisco Bay was formed. A breach in the Coast Range has created a meeting place for continental and ocean air masses. The Coast Ranges themselves are divided into sub-ranges, each with its own hill-and-valley topography creating more modifications to the basic weather and climate patterns.

Through the funnel of the Golden Gate and San Francisco Bay, the aerial forces of sea and land wage war. The battle line zigzags through the streets of San Francisco and extend in similar erratic fashion across the region. So what are we stargazers and astronomers alike to do? A better understanding of our natural air conditioning system will not make the bay area fog and

clouds go away, but at least you'll be armed with knowledge. Now isn't that comforting?

The reason for the foggy zigzags is the complex topography of the coast range. It modifies the basic struggle between air masses of land and sea. The Coast Range in our region is a double chain of mountains running north and south -- actually north-northwest and south-southeast. Between these two mountain chains lie the basin of the San Francisco Bay with the Petaluma Valley to the north and the Santa Clara Valley to the south. The western range consists of the Santa Cruz Mountains south of the Golden Gate and the Marin Hills, including Mount Tamalpais to the north. The eastern part of the Coast Range is divided into two main chains. The Berkeley Hills are to the immediate east of the bay and beyond the Livermore and San Ramon valleys are the higher Diablo Range. It gets even more divided north of the bay by the Sonoma, Mayacama and Vaca mountains.

The pattern is also modified by large bodies of water that tend to cool their shores in the summer and warm them in the winter. The most important of these is the San Francisco Bay itself, and its various subdivisions and tributaries, including the San Pablo Bay, Suisun Bay, and the Delta. The Delta is where the major rivers of the Sierra and the Central Valley meet in an intricate network of watercourses and low islands. These geographical complexities form the land and lead to innumerable microclimates within the region. Microclimates which vary from mountain to mountain, from valley to valley, and from point to point within these mountains and valleys.

The ocean of atmosphere that surrounds the earth bears down on the earth's surface. Warm air is light and rises and cold air is heavy and descends. Because cold air presses down more heavily on the earth's surface than warm air, a cold region is a relatively high pressure area; a warm region, a low pressure area. Just as water tends to seek its own level, so air tends to equalize the pressure. Air moves from a high pressure area to a low pressure area. Winds blow from a cool to a warm place. When air rises, it expands and cools. When air descends, it compresses and grows warmer at about the same rate. Warm air is able to hold more moisture (in vapor form) than cool air. If warm damp air begins to cool off, it will reach a point where it can no longer contain its watery load and the moisture will condense into fog or clouds.

The gaps in the hills determine our local weather. On the same summer day Berkeley may be foggy and Redwood City may be warm and sunny. They are the same distance from the ocean, but Berkeley is opposite the lowest gap in the coastal hills -- the Golden Gate, while

a high ridge separates Redwood City from the ocean. The damp, ocean air is channeled into a streamline (a surface wind direction) by the Coast Range break at the Golden Gate. The damp air flows directly across San Francisco Bay into Berkeley. But there are many little "Golden Gates" funneling ocean weather inland along streamlines and sometimes allowing land weather to move to the coast. These weather funnels are often called onshore flows to describe the ocean to land air movement and offshore flow to describe the land to ocean movement.

One of these gaps is near Redwood City where the San Andreas fault slices through the coastal hills from the ocean and creates a low lying area called the Crystal Springs Gap. Farther north is a much lower and broader pass between Montara Mountain and San Bruno Mountain, known as San Bruno Gap. North of the Golden Gate there is a narrow gap at Elk Valley and a higher gap above Muir Woods. The Nicasio Gap rushes through west Marin near the valley created by the Tomales Bay and the San Andreas Fault. And lastly the Estero Gap in Sonoma county funnels cooling winds and fog from Bodega Bay into the Petaluma Valley. Is it any surprise why these valleys of ours are renowned for their agriculture and viticulture? Artichokes and grapes are kissed by the sun and then blanketed by the fog. Everyone who has driven south of San Francisco on Highway 280 or north of San Francisco on Highway 101 has witnessed the resulting fog fingers in these gaps.

Corresponding to these seven gaps in the western Coast Range are three in the inner range. Niles Canyon and the Hayward Pass are two of the gaps, and the Carquinez Strait, also called the "inner Golden Gate" completes the list. The same natural air conditioning system that effects the entire Bay Region also holds true within San Francisco. One gap extends eastward from the beach along the line of Geary Boulevard, making that stretch of the Richmond district breezy. Golden Gate Park lies in another gap. Its streamline extends inland between Lone Mountain and Buena Vista Peak to the downtown area and causes the wind gusts down Market Street. The largest pass through the city is the Alemany Gap immediately north of San Bruno Mountain. The wind and fog often flow from Lake Merced along the route of Alemany Boulevard reaching San Francisco Bay near Hunters Point. One branch of the Alemany Gap extends through Visitacion Valley, channeling the streamlines toward the Bayshore and around Bayview Hill to Candlestick Park, where it collides with another streamline from the main Alemany Gap by way of Hunters Point. Now you know the reason why it is so windy at Candlestick Park.

These gaps determine our local weather. The fog burns off under the heat of the morning sun. The rays of the

sun disappear at sunset instantly cooling the air and causing fog. As spring turns to summer stargazers yearn for warm and rain-less nights under the stars. Unfortunately this is just when Mother Nature decides to turn on the air conditioning in our region. Star seekers will need to understand these weather patterns, and plan their star nights accordingly. A hill or mountain top with an elevation of 1500 feet may be above the fog.

Sometimes a warm layer of air, known as an inversion layer sits on top of the fog. It can often be 10 or 15 degrees warmer on a mountain top in the summertime. A stargazers dream come true includes the pale golden moon above and a glacier blanket of billowing fog a few hundred feet below. It is a dream that does come true in our wonderful San Francisco Bay Area.

The Hounds of the Sun

by Bert Katzung

The 28th of May did not start out in very promising fashion for astrophotography in Sonoma. The 27th had been clear and cold and very dewy, but the wind had been light. Light or no wind is important if you're trying to do long-exposure astrophotography because telescopes tend to wander about when strong wind is buffeting them. The wind had been blowing strongly all day on the 28th, resulting in nice clean air, but concern about steadiness for photography. Nevertheless, as sunset approached I opened the observatory roof part way in hopes that the wind might die down by the time the moon went down. After dinner, I pattered around in the house planning a viewing strategy even though the wind was still very strong.

About 7:15 I went to the west window (the observatory is on the west side of the house) to check the sunset and was delighted to see a beautiful, multicolored sundog in the band of clouds lying just above the horizon! The only other sundog I've seen was two years ago, so they are still a pleasant novelty. I grabbed my camera and took a few shots and if these turn out to show anything, I'll post them on the club website and on my webpage (www.astronomy-images.com). I was looking at the southern dog, but with a little checking around the northern one became obvious as well. A rough estimate using the "fist at arm's length equals 10 degrees" rule gave me an estimate of 20 to 25 degrees from sun to each dog. The sun at this time was less than 10 degrees above the horizon and partly hidden by a strip of horizontal clouds lying just above it.

Sundogs, or *parhelia*, are one type of short rainbow-like spectra cast by sunlight refracting through ice crystals in clouds. It turns out that there are numerous varieties of ice crystal-produced daylight atmospheric phenomena and the sundog is just one of them. The website www.meteoros.de/indexe.htm has a nice discussion and gallery of pictures; navigate to the atmospheric phenomenon of interest. There are English language

versions of most of the pages on the site, for example www.meteoros.de/englisch/ee02e.htm). According to the information on this site, sundogs are fairly common and are formed by light passing through flat hexagonal ice crystals and should be located 22 degrees from the sun. So my estimate of 20 to 25 degrees was in the right ballpark. As these crystals fall through the air, their drag orients them horizontally and this provides for the uniform dispersion of the light. Sundogs are always on a horizontal line with the sun and, of course, always come in pairs. Curiously, the website claims that if the sun is higher, the radial distance of the dog from it increases. For example, at 40 degrees sun elevation above the horizon, the dog will be located 27.5 degrees from it. The only explanation I can think of for this is that the ice crystals are still horizontal but the observer's eye is seeing light coming out of a different face of the crystal. Ice can also form cylindrical hexagonal crystals and these produce somewhat different spectral displays. So what's the origin of the name "sundogs"? Alice and I suspect it's from the fact that they always accompany the sun like hunting dogs with a hunter.

"My" sundogs were fairly transient, but averted vision showed a definite halo around the sun even after the colors of the dogs had faded considerably. After the sun went down, there was a distinct halo around the moon with a radius of 22 degrees, so the ice crystals were still there even though there were no clouds visible. I couldn't see any color associated with this moon halo, probably because the halo was faint and I was seeing it with my dark-adapted (non-color) vision.

The moon was extremely bright, so deep-sky photography was out for the time being and I took a short siesta. I got up around 2 AM, after moonset, and found that the wind had died down, the air was still clear, and the dew was light. Mars was brilliant—the clearest I've seen it so far this year. I took some piggy-back wide-field pictures of the Milky Way and a deep-sky shot of M51. The sky was fantastic. At 4:30 (or was it 5?) Venus popped up in the East, even more brilliant than Mars. Seemed like the sundogs had brought me good luck!

Y2K + 1 YOSEMITE STAR PARTY

We have been fortunate to draw the August 24th & 25th weekend in Yosemite. **The moon will be at a .431 phase on Friday night and will set at 23h 39m (11:39 PM).**

The rules to apply for this SFAA function are still, very simple:

1. This trip is **open to SFAA members, their immediate families and their significant others, only**; friends, neighbors, relatives, etc. are specifically not invited. The SFAA is providing service in astronomy to the rangers in return for free camping facilities with guaranteed reservations; it is not meant to be a free vacation for SFAA members or non-SFAA guests. **Amateur Astronomers from other astronomy groups are welcomed to participate in our star party** when our own SFAA members have not filled the quota noted in item no. 3, below.
2. Each SFAA member must **bring at least one astronomical grade telescope to operate** and share with the general public on both nights. The ranger's and the SFAA rules strictly prohibit tagging along without a telescope or bringing a telescope and not participating. Binoculars will not be accepted in lieu of this one telescope requirement, noted above.
3. The total amount of adults permitted in this group campsite is **strictly limited to 30**. Children 15 years and under are not counted towards the 30 maximum. Please, **no pets**. The SFAA may be required to present names of the participating astronomers, in advance, for posting at the entrances to the park. **Those who do not have their names posted may have to independently secure their own campsites for camping.** In the past, individuals who had "gate crashed" our campsite to join the star party, unfairly displaced our own SFAA members - these campsites do have camper limitations.
4. Camping on **Glacier Point, in August, will have temperatures into the low 40's at night (3:00 AM / 4:00 AM)**. Prepare for this mountain environment. Since we can park our cars near our tents, bring plenty of warm clothing and sleepwear; you may need it.
5. We have to be at the Glacier Point observation area, with our telescopes ready at 7:30 PM. **Since quiet hour at Yosemite begins at 10:00 PM, you will not be allowed to set up your tent or campsite after the star party concludes.** Please arrive at our campground in the early evening - early enough to set up camp before 7:30 PM or you will be required to sleep in your vehicle - no exceptions. **The SFAA will strive to be good campground neighbors in Y2K+1.**
6. Cut off and **return the application stub below** with the correct fee to save your reservation. This is on first come - first served basis with a preference for those who have contributed to our Yosemite Star Parties in the past. A basic fee of \$5.00 is charged per adult (children 15 years and under are free). This fee is not refundable. The money will go into our Yosemite General Fund. Yosemite Park entrance fees have been waived for us during our stay.

Please cut along dotted line below and send to address noted:

.....
SFAA Member.....Telescope.....

No. of Adults @ \$5.00 ea. =.....Total Enclosed.....

MAKE CHECKS PAYABLE TO:
SEND CHECKS TO:

**SAN FRANCISCO AMATEUR ASTRONOMERS
BOB LEVENSON, YOSEMITE TRIP COORDINATOR
237 BELLEVUE AVENUE
DALY CITY, CA 94014**

Any questions?? Call Bob Levenson, Yosemite Trip Coordinator,

(415) 584-5756

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, 13 Mabry Way, San Rafael, CA 94903

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

- \$ 8 enclosed, youth membership (under 18)
- \$30 enclosed, institutional membership
- \$30 enclosed, family membership
- \$30 enclosed, foreign membership
- \$25 enclosed, individual membership

Select one category:

Email address:

Address:

Name: Telephone:

San Francisco Amateur Astronomers Membership Application

San Francisco Amateur Astronomers

c/o Morrison Planetarium
California Academy of Sciences
Golden Gate Park, San Francisco, CA 94118

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