

ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

VOL. 49, No. 5 – May 2001

Speaker, General Meeting, May 16

Imke de Pater/Keck

“Telescope Infrared Adaptive Optics Images of our Solar System”

San Francisco
Amateur Astronomers



Sharing the Wonders
of the Universe



Information Hotline
(415) 566-2357

Web Page
<http://www.zennla.com/sfaa>

Imke de Pater is a Professor at the University of California, Berkeley, in the departments of Astronomy and Earth and Planetary Science. She received her Ph.D. cum Laude in 1980 from Leiden University, the Netherlands. Her research uses the newly implemented adaptive optics system on the 10-m Keck telescope in Hawaii to observe planets and satellites in our Solar system. She observes these bodies at infrared wavelengths. The images are very sharp, and are directly comparable with images obtained at visible wavelengths with the Hubble Space Telescope. After a short introduction on what is adaptive optics, Dr. de Pater will talk about and show images of Uranus, Neptune, Titan and Io. Neptune's atmosphere seems to be very dynamic, in particular in contrast to Uranus where only a few small clouds can be discerned. Dr. de Pater has captured a truly large volcanic outburst on Io during her observing run in February 2001. We look forward to seeing the beautiful sharp images and gaining an understanding of the scientific findings that have resulted from the use of the infrared adaptive optic images of the Keck telescope.

Speaker, City Star Party, June 2

Fraser Reich

“”

Fraser Reich was born and raised in England and came to the U.S. ten years ago. As a small boy he visited the radio observatory at Jodrell Bank in Cheshire and met John Glenn, the American ‘space hero’, and said “Hello” to Sir Bernard Lovell. In lectures, both men extolled the virtues of science and astronomy to the admiring audience. It is not on record whether either of the great men said anything significant back to the impressionable boy, except perhaps “Hello, sonny boy, how are you?” Years later, now living in the U.S., the call of (now) Senator Glenn and Sir Bernard echoed back to him, and he bought a decent telescope. Since then, like many amateur astronomers, he can’t believe what a wonderful hobby astronomy is: full of rich fields of interest, full of bizarre yet apparently real objects (white dwarfs, neutron stars, black holes, other amateur astronomers etc.). He believes that astronomy is one of the few legal, mind-altering pursuits that can take a person out of themselves to consider larger, universal perspectives (literally), and is dedicated to enlightening the unsuspecting public as he hijacks them on the sidewalks at night to look through his telescope. He is a member of the San Francisco Amateur Astronomers.

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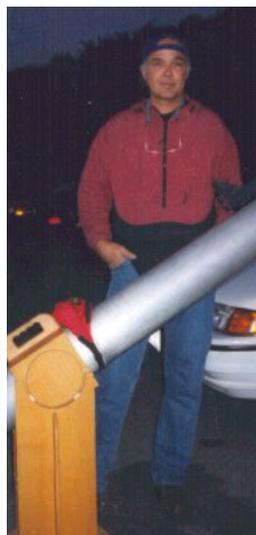
Ray Cash (415) 665-8666

SFAA Website Update

For those of you with online access, don't forget to visit the club's website. The bulletin board area especially is a great place to post info and ask questions. Go to <http://www.zennla.com/sfaa>.

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.

Club Telescopes



URGENT

Ray Cash needs, and deserves, a break! That's him on the left. The club needs a temporary (6–9 mo) for the 3 club loaner Newtonians: 6" f/10; 8" f/7; 10" f/8 – with some accessories. If you have a garage, or a spare room and want to meet members, we need you!

Please call Ray at (415) 665-8666, or E-mail him: raycash@aol.com

CLUB DATES

Board Meeting – May 9

7:00 p.m. Western Addition Library – corner of Scott & Geary Sts. SF – 7:00 p.m.

SFAA General Meeting – May 16

Refreshments at 7:00 p.m.

Speakers begin at 7:30 p.m.

Morrison Planetarium, Golden Gate Park

Mt. Tam Star Party

May 26 at 8:30 p.m.

City Star Party

April 28 at 7:30 p.m.

June 2 at 8:00 p.m.

From the President

Michael Barber's presentation on CCD imaging was a big success. We had a large crowd, there were some very good cookies made by Lorrie Boen (thanks Lorrie), and there were a number of people who signed up for a CCD interest group within the club. We had people join the club that night. Thanks to Bob Berta for arranging for the guest speaker and for starting the CCD interest group. Michael gave an excellent presentation and had some fantastic pictures to show us all. There sure is a lot of Gee Whiz to CCD imaging. It looks very exciting. If you want to join the CCD interest group contact Bob Berta.

The star party at Lands End in San Francisco was well attended, maybe our largest crowd. Bill Stepka came, cough and all, gave a good presentation on the moon, turned around and went home. Thanks for doing that Bill. We had people come, observe with us, join the club, and one couple learned how to see something through their gift telescope for the first time and were they excited. We were pleased we were able to help them. Thanks Toney for sticking with them for a major part of the evening. We had good observing with lots of scopes until about 9:30 when the fog came in which dashed our hopes of seeing a repeat of the previous nights northern lights which were bright red, and lasted for about 20 minutes around 10 PM.

I think we all look forward to observing on Mt Tam and the club needs some volunteers to become State Park Ranger Volunteers. Please give our club VP, Bill Stepka, a call. The time commitment to get trained is one four hour session on Mt Tam, usually on a Saturday and it will help us provide a better program on the Mountain each time we go up there. As I said please give Bill a call.

As we move into summer, each month we have two star parties, both of which are fun to attend. And don't forget that on August 24th and 25th we have our usual (or is it unusual) trek up to Yosemite to some really dark skies and a very interesting crowd of people to show the night sky to. Of course, our crew up there has a good time too. (I have been informed that this trip can be dangerous as two weddings have occurred as the result the Yosemite event. One was actually held there!!)

We have three or so telescopes that the club loans out to club members and we are still looking for someone to look after these telescopes. Please contact the club board if you are interested in helping with this endeavor.

Please plan to participate in Astronomy day at the Morrison planetarium the last Saturday in April. (The 28th). It is fun and the solar observing is interesting to help out with. We also have an SFAA table in the Planetarium which needs some help during the day. Randy and Renita are working on the table plan.

Imke de Pater has an interesting presentation for our May 16th general club meeting.. Good stuff on how adaptive optics works, some neat pictures of some of our neighbors, and some interesting science regarding our immediate neighborhood. There is more on this elsewhere in the bulletin.

Well I ran dry so there. Night all, and clear skies.

AI

Bob Berta
Speaker, City Star Party
April 28

I was born in Eureka, Calif. in 1947 (some dark skies there!) and first developed my interest in astronomy at the age of 11. The husband of my mother's best friend was an amateur astronomer who owned a 80mm refractor. He took the time to show me how to find a few objects and this led to my obtaining a Tasco refractor for my birthday some 40 years ago. I have always thought it was neat that an adult took the time to spark my interest and I try to do the same for youngsters I meet.

I have worked for PG&E for 33 years as an electrical engineer, construction supervisor and now as a supervisor of the safety program. I also own a free lance photo business with studio and lab. I used to road race sports cars and sometimes crew on a Nascar stock car team with my oldest son who is a part owner and team member. I road raced

bicycles for years and still put in a lot of miles on a bike. The other hobby that takes up a lot of my remaining free time is music...I play organ, classical guitar, synthesizers and accordion. At one time I played organ professionally. My wife is a concert pianist...although she is in semi retirement with my youngest children taking most of her time. I have a total of 5 children...two, aged 27 and 19 by my late wife who passed away 13 years ago. I have three children by my present wife aged 7, 5 and 18 months. My oldest son is married and I have two grandchildren, both of whom are older than my two youngest children!

I will explore two themes at the San Francisco Star Party for April. First... What are the chances for an alien encounter and second, mind boggling factoids as we undertake a virtual exploration of Orion the Hunter. What would a cup of Betelgeuse look like? This talk will be mostly non-technical and would appeal to children as well as adults - bring them along so I can return the favor of my mentor of long ago.

SFAA SPEAKERS CALENDAR 2001

May 16, 2001

Imke de Pater, a professor at the University of California, Berkeley, will give us a short introduction to adaptive optics. Then she will share with us her ongoing research of observing planets and satellites in our Solar system using the newly implemented adaptive optics system on the 10-meter Keck telescope in Hawaii.

June thru August 2001

Speakers 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 and November 2001 Speakers to be announced.

December 19, 2001

Members' night. SFAA members talk about their astronomical experiences.

Morrison Planetarium's
Benjamin Dean Lecture Series
presents

May 15

Dr. Chris McKay

NASA Ames Research Center

Life in the Cold and Dry: Earth, Mars and Europa

Studies in the polar regions of Earth may provide a basis for the search
for life on Mars and Europa.

All programs begin at 7:30 p.m. in the Planetarium - Tickets are \$3.00 each
DEAN LECTURE INFORMATION LINE at (415) 750-7141



2001 Literary Award

The San Francisco Amateur Astronomers

Second Annual Literary Award

The Award is open to all SFAA members. Please submit articles about your experiences and adventures in astronomy. All entries will be distributed to every member for judging after the closing date of September 30, 2001. 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.

Entries must be limited to 1,100 words and be received by September 30, 2001. All entries need to be submitted in print ready format, on a 3.5" diskette or zip disk, or as an attachment to an email. Please do not type your article in the body of the email, attach it as a Word (any version) document or in rich text format. All disks will be returned to the owners. Entries on disk can be mailed to Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109, or email entries can be sent to lorrenlee@aol.com.

Any articles already printed in "Above the Fog" in 2001 can be submitted, provided it is within the 1,100-word limit. Authors may edit longer articles in order to enter them.

We want to hear about your experiences. Good luck to all!

Orion Telescope Discount

Hello SFAA members:

After the question came up on the SFAA bulletin board and during an e-mail exchange, I asked Marshall Smith (former SF Orion manager, now managing the Cupertino store) what the Orion discount policy was. He repeated the same thing he told us at the SFAA awards dinner in January.

Here is his note. Please pass this on, and you can put it in the newsletter if possible. Marshall is an SFAA member, by the way.

"We give ten percent off Orion stuff here in the Cupertino store to members in good standing in the local astronomy clubs. We gotta know you or show us a card. Only in the Cupertino store, not over the phone or web." --Marshall

Jane Houston Jones

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

Silicon Valley Astronomy Lecture Series
Wednesday, May 2, 2001, at 7 pm
Smithwick Theater, Foothill College,
Los Altos Hills, CA

Dr. Vera Rubin (Carnegie Institution of Washington)
"What's the Matter in the Universe: Galaxies and Dark Matter"

Dr. Rubin, one of the most distinguished astronomers in the U.S., has made significant contributions to many areas of our understanding of galaxies. Her research in the 1970's first suggested that these vast islands of stars must include a great deal of unknown, unseen material, which astronomers now call "dark matter." She will describe our modern understanding of this weird "stuff," which may make up the majority of the universe.

A nontechnical program focusing on the ultimate fate of our planet over billions of years. Come and find out if a giant Sun will someday melt or even swallow the Earth, and what nature has in store for the solar system.

Sponsored by: NASA Ames Research Center Foothill College SETI Institute ASP

Information - call 650-949-7888 Admission is free and open to the public. Parking meters: \$2

Santa Cruz Astronomy Club at Bonny Doon Airport

Join the Santa Cruz Astronomy Club at Bonny Doon Airfield on the scheduled Saturday observing nights.

site <http://astro.santa-cruz.ca.us/>

Find directions to Bonny Doon Airfeild at the SCAC web site - <http://astro.santa-cruz.ca.us/>

AN EXCITING ASTRONOMY EVENT IN ST. PAUL, MINNESOTA

The heavens are coming to Earth in St. Paul, Minnesota from July 13-15, and you are invited! This year's annual meeting of the Astronomical Society of the Pacific (ASP) features a star party, two CCD workshops conducted by Richard Berry, an astronomy expo, and public talks by renowned astronomers, writers, and astronauts, including David H. Levy and Alex Filippenko. The ASP's 113th Annual Meeting, "UNIVERSE 2001," begins on the evening of Friday July 13, with a star party at a dark sky site hosted by the Minnesota Astronomical Society and the ASP.

Join people from around North America in this national astronomy festival at the Radisson Riverfront Hotel, 11 E. Kellogg Blvd., St. Paul, Minnesota 55101, 651-292-1900, from 8:30 a.m.-5:30 p.m. A Universe 2001 EXPO weekend pass is only \$20. The costs for Richard Berry's CCD workshops will be \$20 for each or \$35 for both. For information & registration visit <http://www.aspsky.org/meetings.html>

Meeting cosponsors include Astronomy Magazine, Astronomy.com, and the University of Minnesota's Department of Astronomy. Other sponsors include the Chandra X-ray Center, the Minneapolis Planetarium, the Science Museum of Minnesota, the Minnesota Astronomical Society, and The Teaching Company.

Stacy's Stargazing Getaways

Upper Blue Lakes or High in the Sky
By Stacy Jo McDermott

This month our stargazing getaway journey takes us up to the high country of the Sierras. At 8,200 feet, you'll feel pretty lightheaded if you're not use to high altitude but in comparison to the Rocky Mountains, after awhile of acclimating, you'll do fine. (NOTE: Persons with health conditions should check with their doctor first before planning a trip to any high altitude venue. I'm in pretty good shape and I even had some lightheadedness when we first arrived at this month's destination.)

In planning this month's trip, it was decided that the place we would go to had to have several elements as it was over a long holiday weekend. Good campsites, ease of access, water for kayaking and fishing, fun hiking trails, clear horizons, no light pollution and a beautiful drive. What we found was Upper Blue Lakes, near Kirker and Luther Pass and Kirkwood Ski Area that met all our criteria.

The campsites are maintained by PG&E and they are quite nice with bathrooms, pads, picnic tables and fire rings. We noticed that they did fill up very quickly the holiday weekend we were there. Our campsite was rather nice as it faced the lake and there were bushes between our neighbors and us. There are a couple of boat launches and fishing was pretty big...most people came back with fish as did we. My friend brought his kayak and spent a great deal of time paddling.

Hiking around Upper Blue Lakes is a good experience also. There are a number of trails in the general area and you can hike further back to take in the varying terrain. The drive into the area is very nice and there are two roads you can take – one, which requires 4WD, and another which you can easily do in the family sedan. (Guess which one we ended up taking in a low to the ground van!)

Upper Blue Lakes is quite high as far as altitude is concerned. While driving in, we saw snow from the last of the previous winter's storm. There were people actually snowboarding! However, because of the altitude, you will find extreme temperature changes. We were glad we brought our ski jackets as the nights got a tad cold.

Star gazing at Upper Blue Lakes is a grand experience. I was blessed with pristine night skies. Transparency was incredible and the seeing (turbulence) was almost none-existent. Great horizons to the south, north and west. Not much of a problem with dewing even though I had set up by the lake. Scorpius and Sagittarius were

absolutely incredible. I had fun checking out the various star clusters in each. The Milky Way was dazzling almost to the point of having to turn away for a few minutes so my eyes could adjust to viewing through my telescope.

Some basic camping notes: It took a little longer to get the campfire going due to the altitude. (For comparison, at Bowman Lake, I can get a 5 alarm fire going in about 20 minutes; here at UBL, it took almost twice that long, and no, I don't use lighter fluid.)

It also gets VERY cold at night. Think winter wear and an extra blanket for in the tent. The wind across the lake during those early morning hours can really pick up. So bring extra tie-down ropes and secure your tent.

While the campgrounds have trash receptacles, try and pack out as much as you can. Yes, you do pay a fee for staying there (about \$15 per night), but it's a good habit to get into regardless of where you are camping. It also lessens the impact on the environment. PG&E does a good job of maintaining the site but every little bit helps.

Altitude: At the beginning of this month's article I mentioned altitude and I will again. If you are not used to high altitude, don't push yourself. If you have a medical condition, check with your doctor first, particularly if you have breathing problems or circulatory or heart concerns. Even if you are in the picture of health, take things slowly when you get there. And, lay off the beer/wine until you've been there for a while. It really does go to your head!

Upper Blue Lakes gets a solid 6 stars from me. While I'm more of a "find my own campsite off a fire road" type of camper, I have to say it was nice not to have to dig my own "reading library" for this particular trip. (Needless to say, we had lots o' stuff!) The seeing and transparency play a big part in the 6 star rating as my focus for this trip was some serious stargazing and I got it.

Directions: From SF: I80 to Sacramento to Highway 50. Highway 50 to Highway 89. South on H89 and drive over Luther Pass to the junction of Highway 88. Turn right (west) and drive two miles to Blue Lakes Road. Turn left (south) and drive 11 miles to a junction at the south end of Lower Blue Lake. Turn right and drive 3 miles to the campground and the left side of the road. (Suggestion: Look at a good road map before heading out.)

When Stacy isn't swamped at work, you can find her outdoors doing something, most likely camping and stargazing unless the weather is totally uncooperative. Email her at stacyjo@space.com with comments, suggestions, requests or just to compare notes.

BE A VISITING ASTRONOMER IN BAY AREA SCHOOLS

Get Free Training and Materials with Project ASTRO

Project ASTRO is searching for amateur (or professional) astronomers who would like to work with teachers and students in 4th - 9th grade classrooms. This is a great opportunity to help kids learn science, while sharing the wonder of astronomy with the most enthusiastic audience you can find (and to sharpen your own teaching or communication skills in the process.)

Through Project ASTRO, you will be paired in a one-on-one partnerships with a Bay Area teacher at a school near you. Together, astronomer and teacher partners attend a free two-day summer training workshop where they learn effective hands-on astronomy activities and receive a copy of Project ASTRO's 800-page curriculum resource book, "The Universe at Your Fingertips."

The project emphasizes ongoing partnerships, not just one-time class visits. During the school year, astronomers make at least four visits to their adopted classroom at mutually convenient times. The program has been operating for 7 years in the Bay Area, and previous participants often report that it has been one of the most satisfying volunteer endeavors they have ever undertaken.

No formal educational background in astronomy is required. Enthusiasm for science and a love of kids is much more important. You should just feel comfortable answering basic questions and working with a teacher who will be delighted to have you coming to his or her classroom.

Astronomer applications are now being accepted for the 2001 - 2002 school year. The deadline is April 27 (but late applications are often accepted.) Space is limited to 20 - 25 partnerships. All participants are required to attend the training workshop, which will be held August 3 - 4, 2001, at the San Mateo County Office of Education in Redwood City.

(Project ASTRO, a program of the nonprofit Astronomical Society of the Pacific, began with support from the National Science Foundation and the NASA Office of Space Science. It has now expanded to 11 other sites around the country and has trained over 900 astronomer-teacher partnerships.)

Astronomer application forms are available from:

Karin Avila, Project ASTRO, A.S.P.

390 Ashton Avenue

San Francisco, CA 94112;

Tel. 415-337-1100 ext. 101;

E-mail: astro@aspsky.org

Forms can also be downloaded from: www.aspsky.org/astro/volunteer.html

Dr. John Heilbron

Science Historian, Author

"The Sun in the Church: Cathedrals as Solar Observatories"

In Conversation with Roy Eisenhardt at the Herbst Theater

Monday, April 30th at 8:00 p.m.

For tickets call City Box Office – (415) 392-4400

The Night Sky Observer's Guide , Kepple and Sanner Volume 2 Spring and Summer
by Linda Mahan

Carbon, *and other select Red Stars, by constellation*

Aquila

V Aql C5-C6 red variable. 19h04.0m -05 41
R Aql M5-M9 Mira type variable. 19h06.4m +08 14

Canes Venatici

Y CVn C5,4J "La Superba" deep red variable. 12h45.1m +45 26
R CVn M5.5-M9 deep orange variable. 13h49.0 +39 33

Corona Australis

V CrA C(R0) carbon variable. 18h47.5m -38 09

Corona Borealis

R CrB C0 carbon variable. 15h48.6m +28 09
S CrB M6-M8 variable star. 15h21.4m +31 22

Cygnus

U Cyg C7-C9 deep red double variable. 20h19.6m +47 54
R Cyg S3-S6 carbon variable. 19h36.8m +50 12
RS Cyg N0 ep variable star. 20h13.4m +38 44

Draco

RY Dra C3,4 deep red variable. 12h56.4m +66 00
T Dra C6-C8 deep red variable. 17h56.4m +58 13
UX Dra C7,3 nice crimson variable. 19h21.6m +76 34
VW Dra K1.5 orange variable. 17h16.5m +60 40

Hydra

U Hya N2 variable carbon star. 10h37.6m -13 23
V Hya N6e David Levy's favorite carbon star.
10h51.6m -21 15
R Hya M7 red-orange variable. 13h29.7m -23 17
W Hya M7-M9 orange variable with blue companion.
13h49.0m -28 22

Leo

R Leo M8 variable star. 09h47.6m +11 26

Leo Minor

R Lmi M6.5-M9 variable star. 09h45.6m +34 31

Libra

H N 28 K5 & M0 orange and red double . (Herschel's 1821 catalog)
14h57.5m -21 25

Lyra

T Lyr R6 carbon "interstellar ruby". 18h32.3 +37 00

Sagitta

X Sge N (C5,5) carbon variable. 20h05.1m +20 39

ScutumS Sct C5 carbon variable. 18h50.3m -07 54**Serpens Cauda**W Ser CF5ep carbon variable. 18h09.8m -15 33**Ursa Major**VY UMa C5 carbon variable. 10h45.1m +67 25S UMa S0-S5 carbon variable. 12h43.9m +61 06**Virgo**SS Vir C5, 3e carbon variable. 12h25.3m +00 48**Vulpecula**R Vul M3-M7 variable star. 21h04.4m +23 49

Carbon stars are highly evolved cool red giants. Their deep crimson color is the result of the abundance of carbon molecules in their atmospheres, which are efficient absorbers of blue light. Carbon stars have strong spectral lines of such carbon molecules such as C2, CN and CO; TiO is absent. N type stars differ from spectral class M with a reversed carbon- to-oxygen ratio. R type stars are warmer and carbon rich, corresponding in temperature to classes K and G. Type S stars are intermediate in carbon composition between M and N, and has its TiO replaced by ZrO. In M type stars, neutral metals, CH and CN are strong. TiO appears and become stronger toward late M stars.

For more information on variable star minima and maxima, access American Association of Variable Star Observers (aavso). Also, see "The Night Sky Observers Guide" by Kepple and Saner, which is a rich source for a wide variety astronomical objects. James Kaler's book "Stars" is very informative, as well as his website: www.uiuc.edu/~kaler/sow/sowlist.html, for the Star of the Week.

This list was compiled by Linda Mahan, a member of San Francisco Amateur Astronomers, from information contained in the two volumes of "The Night Sky Observers Guide", and "Stars".

<p style="text-align: center;">The Davis Star Show</p> <p style="text-align: center;">August 24 & 25</p> <p style="text-align: center;">www.davisstarshow.com</p>	<p style="text-align: center;">I.A.P.P.P. West Wing Symposium</p> <p style="text-align: center;">May 23 & 24</p> <p style="text-align: center;">www.iappwest.org</p>	<p style="text-align: center;">Riverside Telescope Makers Conference</p> <p style="text-align: center;">May 25 & 28</p> <p style="text-align: center;">www.rtmc-inc.org</p>
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WANTED

Do you have any eyepieces, astronomy books, planispheres and other astronomy paraphernalia sitting in the back of the closet, growing cobwebs? The club loaner telescopes (currently looking for a short-term – 6 to 9 months – home, would love to have company. Our loaner scopes have just a few accessories. They are all Newtonians: a 6" f/10; an 8" f/7; and a 10" f/8. Any items you would like to donate would be greatly appreciated. Please contact any club officers or board members.

Mt. Tamalpais State Park

Star Programs

April 21 – 8:00 p.m.

"Scrutinizing Star Clusters with Space Observatories"

Dr. Adrienne Cool, Associate Professor, San Francisco State University

The centers of some globular clusters are so densely packed with stars that stellar collisions are not only possible but probable.

May 26 - 8:30 p.m.

"Cosmic Antigravity and the Accelerating Universe"

Dr. Alex Filippenko, Professor of Astronomy, UC Berkeley

The recent discovery that the Universe is speeding up with time, rather than slowing down as expected, suggests the presence of a long-range "antigravity" effect."

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.

August 18 - 8:30 p.m.

"Superman's Telescope"

Robert Naeye, Editor of Mercury Magazine, ASP

Astronomers studying the way the universe looks in X rays finally have their equivalent of the Hubble Space Telescope.

September 22 - 8:00 p.m.

"Life's Expansion Beyond its Planet of Origin"

Dr. Rocco Mancinelli, NASA-Ames Research Center

Is there potential for survival, adaptation, and biological evolution of life beyond the home planet?

October 20 - 7:30 p.m.

"Saving the World with Sky-Power"

Dr. Joe Jordan, Space and Atmospheric Researcher, SETI Institute

Scientists are searching for a solution to our energy crisis and projected climate changes with renewable energy systems.

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 Contacts: 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

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

In This Issue of SFAA's Above the Fog

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- **From the President**
- **Announcements**
- **Stacy's Stargazing Getaway**
- **Mt. Tam 2001 Schedule**
- **and more...**