ABOVE THE FOG

• BULLETIN OF THE SAN FRANCISCO AMATEUR ASTRONOMERS •

Vol. 51, No. 1 – January 2003

FROM YOUR PRESIDENT

I would like to thank the Officers and Board of the SFAA for their support in the past year and in particular in the last two months. I have had a struggle recently with illness which forced me to drop out of all volunteer activities. Our new President, Michael Portuesi and Treasurer, Lorrie Boen, deserve special thanks for taking on an additional workload. Thank you!

In this New Year I would like to point you to a great new book by Norm Sperling, whom many of you know. Norm has been active in Astronomy as an editor at Sky and Telescope, a planetarium director and co-designer of the Astroscan Telescope among other accomplishments. His book is titled "What Your Astronomy Textbook Won't Tell You" with a forward by David Levy.

In teaching intro Astronomy at the college level Norm has found a great need to supplement traditional texts and created this book to fulfill that need. The chart that Norm created on page 69 in Comparative Planetology is worth the price of the book alone! This is a piece of original research that will clarify the evolution of our solar system. Check out his website at www.everythingintheuniv.com

The SFAA is in great hands with Michael and the new officers and board and I urge you to come to a board meeting and get involved! I have enjoyed all the friendships I have made, and all the interactions I have had with our members at meetings and star parties. Once again, I thank you all, for your contributions to public astronomy and your contributions to our club!

Bill Stepka, Stepka@aol.com and (415) 928-7105

IMPORTANT DATES

JANUARY 8 - BOARD OF DIRECTORS MEETING
JANUARY 11 - ANNUAL AWARDS DINNER

2002 Club Officers & Contacts

President	***Michael Portuesi*** *(415) 550-9366*
Vice President	Nancy Cox (415) 826-2217
Secretary	Morris Jones
Treasurer	Lorrie Boen (415) 921-1432
Speaker Chair	Robert Naeye
City Star Party	Randy Taylor
Membership & Subscriptions	Lorrie Boen (415) 921-1432
Bulletin Editor	Phil Estrin (415) 703-4533
Telescope Loans	Pete Goldie (415) 206-9867
Honorary Director	John Dobson
Board Members	Cheryl Schudel Bill Stepka Randy Taylor Dennis Tye Jim Webster Dan Christian James Mace
Alt. Board Members	Bob Naeye

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.

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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.**

HUNT FOR PLANETS WITH DR. GEOFF MARCY AT W.M. KECK OBSERVATORY

The Astronomical Society of the Pacific (ASP) has announced a unique fundraising auction -- an observing night at the W.M. Keck Observatory in Hawai'i with internationally renowned astronomer Dr. Geoff Marcy.

The ASP has pledged to donate 5% of the auction proceeds to the amateur astronomy club of the winner's choice.

The highlight of the five-day/four-night trip for two is a once-in-a-lifetime opportunity to spend a night in the Keck I control room with Dr. Marcy and his team during one of his scheduled observing runs. Dr. Marcy will host dinner that evening, and the winner will be able to sleep overnight at the VSQ (Visiting Scientists' Quarters), which is open only to astronomers. The auction package includes round-trip airfare for two, resort accommodations, car rental, meals, and a behind-the-scenes VIP tour of the W.M. Keck Observatory conducted by a Keck staff member.

Potential bidders may visit the ASP Web site at http://www.astrosociety.org immediately to get full information and to be notified exactly when the auction will begin. The auction will be held in January 2003 on a popular auction Web site. The winner can schedule the trip to coincide with any of Dr. Marcy's scheduled observing nights in 2003.

Michael Bennett, Executive Director, Astronomical Society of the Pacific, 390 Ashton Ave., San Francisco, CA 94112
mbennett@astrosociety.org
415-337-1100 ext 111

SFAA ANNUAL AWARDS DINNER
Saturday, January 11, 2003
Dinner begins at 7:30 p.m.

Basque Cultural Center
599 Railroad Ave, South San Francisco
(650) 583-8091

!!! GOOD NEWS !!!
Due to a cancellation, we have a private dining room that holds up to 50.
Please send your check in early!

Banquet Menu

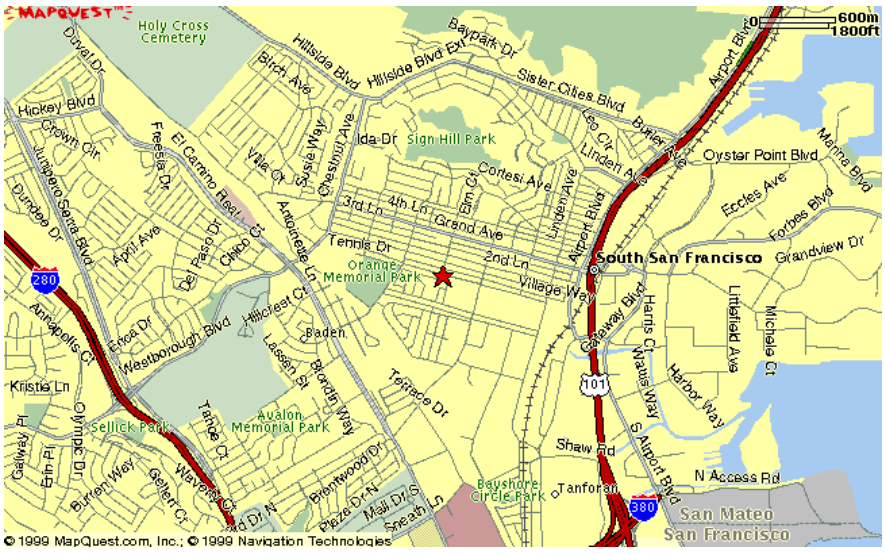
Prime Rib with Scalloped Potatoes & Vegetables ($27.00)
Breast of Chicken Chasseur with Vegetables & Rice ($22.00)
Vegetarian Pasta ($18.50)

Includes Soup, Salad, Bread & Butter, Ice Cream and Coffee
(Tax and gratuity is included in price)

Please send a check or money order **payable to San Francisco Astronomers Association**, along with your choice of entrée, to Lorrie Boen at 765 Geary Street #302, San Francisco, CA 94109 by **January 4, 2002**. Any requests received after this date cannot be guaranteed.

Directions to the Basque Cultural Center from Highway 280 coming from San Francisco

Take the Westborough exit near South San Francisco. Turn left at the light. (heading toward San Francisco Bay). Turn right at El Camino proceeding South. Two or three blocks later turn left onto West Orange heading toward San Francisco Bay. Go for some distance (what would be about 5 blocks except there are almost no side streets) Turn right onto Railroad Ave. Drive a few blocks and then turn right into the parking lot of The Basque Cultural Center at 599 Railroad Ave.



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AMATEUR ACHIEVEMENT AWARD OF THE ASTRONOMICAL SOCIETY OF THE PACIFIC

Given yearly since 1979, this international award recognizes significant contributions to astronomy or amateur astronomy by those not employed in the field of astronomy in a professional capacity. Past awards have recognized a series of discoveries or research projects (comets, variable stars, supernovae, occultations, astrophotography, etc.) or a combination of work in astronomical research and leadership in the arena of amateur astronomy.

The award consists of a plaque and $500 and expenses to attend the 2003 Meeting of the ASP. Nominations may be made by anyone (see below for the rules.)

A list of past winners can be found at: http://www.astrosociety.org/membership/awards/pastamateur.html
Nomination forms can be found at http://www.astrosociety.org/membership/awards/amateur.html

THE LAS CUMBRES AMATEUR OUTREACH AWARD

Established by Wayne Rosing and Dorothy Largay, this new award seeks to honor outstanding educational outreach by an amateur astronomer to K-12 students or teachers, and to the interested lay public. "Amateur" is understood to mean someone who does not receive compensation (other than expenses) for such activity and does not receive the majority of his or her income from a profession in astronomy. The award consists of $500 and a plaque; it is presented at the Society's Annual Meeting and the winner's way is pay to that meeting.

Nominations for this award may be made by any member of the astronomical community.
Nomination forms can be found at: http://www.astrosociety.org/membership/awards/cumbresform.html

-- HOW TO NOMINATE --

Please fill out the form (or send a sheet with the information the form requests) for the award.

At least one, but preferably three, letters of support (from someone other than the nominator) are required. These should be requested by the nominator and should be sent with the nomination if possible. E-mailed forms and letters are acceptable, but should include the full name, mailing address, and e-mail of the sender.

All materials must be received in the office of the Astronomical Society of the Pacific (see below) on or before January 10, 2003. For more information, please contact Marilyn Delgado, the Society's awards coordinator, at: mdelgado@astrosociety.org

Send complete nominations to Marilyn Delgado at the above e-mail, or at: Amateur Achievement Award [or Las Cumbres Award] Astronomical Society of the Pacific, 390 Ashton Ave., San Francisco, CA 94112.

For further information, contact Andrew Fraknoi, Astronomy Department, Foothill College, 12345 El Monte Rd., Los Altos Hills, CA 94022, Tel (Mon - Thu): 650-949-7288, Tel (Fri): 415-337-1100 x 120, FAX: 415-337-5205 E-mail: fraknoiandrew@fhda.edu

LEONID MULTI-INSTRUMENT AIRCRAFT CAMPAIGN
2002 LEONID MAC MISSION BEST YET

Peter Jenniskens

The NASA and USAF sponsored 2002 Leonid MAC mission was a great success. Both aircraft were above clouds and under perfect conditions for viewing both of the 2002 Leonid storms enroute from Torrejon, Spain, to Offutt AFB near Omaha, Nebraska. All instruments worked as expected and aurora, moon, and meteors made the view scenic and truely spectacular at times. The Leonid meteor storms occurred much as predicted. European observers saw the peak at 04:09 UT (ZHR = 2,300/hr - with the absolute scale still rather uncertain), while observers in the America's witnessed a storm peaking at 10:50 UT (ZHR = 2,600/hr). Both peaks were narrow, with a full-width-at-half-maximum of only 0.52 and 0.50 hours, respectively. Both peaks were also rich in faint meteors. As a result, the near-full Moon and bad weather at prime observing sites made visual observations from the ground difficult. Preliminary results from 1-minute counts gathered by Morris Jones and seven other members of the flux measurement team on board NASA's DC-8 Airborne Laboratory during the 2002 Leonid MAC mission show a very precise flux profile. Preliminary results (with a 3-point average and given in 2-minute intervals) are presented in the Table below.

These 2002 Leonid storm observations provide important new data for dust trail models. The dynamic models by Lyytinen et al. and Vaubaillon were only minutes off from the observed peak time. The fact that the flux profiles are narrow is very significant, because it demonstrates that the dust trails do not widen over time, as in the models by Lyytinen et al. (radiation pressure) and those by Asher & McNaught and Vaubaillon (a.o., from dynamic forces). In fact, the measured width is only slightly narrower than predicted by Jenniskens, who had 0.64 and 0.60 hrs, respectively. In addition, the strong showing in Europe confirms the small trail shifts noticed earlier. The most important result may have been the high abundance of faint meteors. While predicted in some models, the distribution of meteoroid sizes in the trails is still poorly understood, and the new observations will help put constraints on this variable.

A high background of activity persisted between the two storm peaks. That background may reflect the 1833 dust trail encounter (Lyytinen's prediction put the encounter time at 06:36 UT), or it could be a manifestation of the Leonid Filament.

Graphs of the results have been posted at our website: http://leonid.arc.nasa.gov. Results of other scientific efforts will be posted as they become available.

The flux measurement team consisted of Morris Jones, Chris Crawford, Jane Houston-Jones, Bob Lunsford, David Holman, Peter Gural, David Nugent, and Ruediger Jehn, the latter representing ESA. The data were analyzed by Peter Jenniskens, Morris Jones, David Holman, Chris Crawford, and Peter Gural. A further improvement of results is expected when the sky limiting magnitude and magnitude size distribution have been studied in more detail, and when also the FISTA video tapes (operated by Mike Koop) have been examined. Also, Jim Richardson and a team of observers gathered additional data from a ground site at Mount Lemmon Observatory in Tucson, Arizona.

We thank the aircraft operators at NASA Dryden Flight Research Center, notably mission managers Bob Curry and Chris Jennison, and at the USAF 418th Flight Test Squadron, especially mission managers Don Bustillos and Jon Haser for their heroic efforts to make the 2002 Leonid MAC mission possible. Some 300 people took responsibility for bringing various aspects of the campaign together. Our host at Torrejon in Spain was Juan Perez-Mercader, the director of the Center for Astrobiology (CAB). Capt. Rafael Gomez-Blanco made the logistic arrangements. The mission was sponsored by NASA's Astrobiology Program (Mike Meyer), NASA's Planetary Astronomy program (John Hillman), and by NASA Ames Research Center (Greg Schmidt). Support was also received from the Center for Astrobiology and the European Space Agency. The participation of individual research teams was made possible by local institutes and organizations. The mission was executed as part of the Aerospace MOIE program (Ray Russell). I also thank Hal Roey, Brenda Simmons, Debbie Kolyer, Sue Lehr,
Edna deVore, and Chris Chyba of the SETI Institute for their efforts on behalf of this final Leonid Multi-Instrument Aircraft Campaign.

Time(hr) 02 Nov 19	Sol long (J2000)	ZHR (/hr)	+/- (/hr)
2.767	236.5580	284	99
2.800	236.5594	253	108
2.833	236.5607	292	56
2.867	236.5621	336	52
2.900	236.5636	257	69
2.933	236.5650	332	67
2.967	236.5664	304	58
3.000	236.5677	316	49
3.033	236.5692	324	52
3.067	236.5706	257	47
3.100	236.5720	345	48
3.133	236.5733	302	43
3.167	236.5748	275	36
3.200	236.5762	332	45
3.233	236.5776	293	49
3.350	236.5825	295	63
3.383	236.5839	359	82
3.417	236.5853	514	66
3.450	236.5867	385	56
3.483	236.5881	444	56
3.517	236.5895	511	58
3.550	236.5909	501	51
3.583	236.5923	419	51
3.617	236.5937	566	61
3.650	236.5951	779	82
3.683	236.5965	655	68
3.717	236.5979	718	90
3.750	236.5993	1000	101
3.783	236.6007	797	91
3.817	236.6021	970	74
3.850	236.6035	1379	94
3.883	236.6049	1302	107
3.917	236.6063	1331	95
3.950	236.6077	1481	102
3.983	236.6091	1790	121
4.017	236.6105	1727	103
4.050	236.6119	1985	111
4.083	236.6133	2350	118
4.117	236.6147	2819	121
4.150	236.6161	2499	134
4.183	236.6175	2520	148
4.217	236.6189	2539	120
4.250	236.6203	1728	109
4.283	236.6217	1486	104
4.317	236.6231	1613	97
4.350	236.6245	1562	99
4.383	236.6259	1467	97
4.417	236.6273	1471	91
4.450	236.6287	1193	83
4.483	236.6301	941	81
4.517	236.6315	899	73
4.550	236.6329	933	72
4.583	236.6343	1139	88
4.617	236.6357	859	73
4.650	236.6371	818	95
4.683	236.6385	1009	111
4.717	236.6399	821	111
4.750	236.6413	663	80
4.783	236.6427	909	123
4.817	236.6441	645	74
4.850	236.6455	495	80
4.883	236.6469	535	102
4.917	236.6483	417	80
4.950	236.6497	365	83
4.983	236.6511	546	110
5.017	236.6525	355	76
5.050	236.6539	496	73
5.083	236.6553	533	76
5.117	236.6567	345	74
5.150	236.6581	309	93
5.183	236.6595	539	108
5.217	236.6609	293	72
5.250	236.6623	462	163
5.283	236.6637	261	92
5.317	236.6651	456	161
5.350	236.6665	520	184
5.383	236.6679	324	115
5.417	236.6693	291	103
5.600	236.6770	169	42
5.633	236.6784	168	42
5.667	236.6798	318	79
5.700	236.6812	280	70
5.917	236.6903	175	33
5.950	236.6917	200	33
5.983	236.6931	217	38
6.017	236.6945	297	38
6.050	236.6959	273	36
6.083	236.6973	231	37
6.117	236.6987	294	40
6.150	236.7001	251	40
6.183	236.7015	175	40
6.217	236.7029	302	43
6.250	236.7043	227	31
6.283	236.7057	224	33
6.317	236.7071	265	39
6.350	236.7085	219	38
6.383	236.7099	260	39
6.417	236.7113	184	37
6.450	236.7127	161	49
6.483	236.7141	217	44
6.517	236.7155	145	29
6.550	236.7169	139	59
6.583	236.7183	180	55
6.617	236.7197	280	51
6.650	236.7211	204	41
6.683	236.7225	164	35
6.717	236.7239	155	42
6.750	236.7253	307	62
6.783	236.7267	299	68
6.817	236.7281	281	85
6.850	236.7295	175	75
6.883	236.7309	315	72
6.917	236.7323	224	43
6.950	236.7337	219	34
6.983	236.7351	157	29
7.017	236.7365	162	37
7.050	236.7379	147	24
7.083	236.7393	123	28
7.200	236.7442	206	52
7.233	236.7457	261	65
7.267	236.7471	344	86
7.300	236.7484	278	70
7.333	236.7498	231	58
7.367	236.7513	94	24
7.400	236.7527	131	33
7.433	236.7541	159	48
7.467	236.7554	136	41
7.500	236.7569	221	47
7.533	236.7583	248	40
7.567	236.7597	188	43
7.600	236.7611	195	45
7.633	236.7625	216	58
7.667	236.7639	185	56
7.700	236.7653	140	38
7.733	236.7667	156	39
7.767	236.7681	117	29
7.800	236.7695	95	24
7.833	236.7709	100	25
7.867	236.7723	111	28
7.900	236.7737	89	22
7.933	236.7751	155	39
7.967	236.7765	155	39
8.000	236.7779	144	39
8.033	236.7793	158	36
8.067	236.7807	214	34
8.100	236.7821	278	48
8.133	236.7835	245	38
8.167	236.7849	196	36
8.200	236.7863	147	24
8.233	236.7877	178	41
8.267	236.7891	154	28
8.300	236.7905	142	30
8.333	236.7919	196	30
8.367	236.7933	136	21
8.400	236.7947	212	33
8.433	236.7961	199	35
8.467	236.7975	283	40
8.500	236.7989	227	43
8.533	236.8003	188	31
8.567	236.8017	226	41
8.600	236.8031	194	52
8.633	236.8045	212	48
8.667	236.8059	286	41
8.700	236.8073	147	31
8.733	236.8087	171	34
8.767	236.8101	86	23
8.800	236.8115	180	33
8.833	236.8129	219	44
8.867	236.8143	187	43
8.900	236.8157	234	43
8.933	236.8171	167	45
8.967	236.8185	206	38
9.000	236.8199	146	37
9.033	236.8213	335	44

9.067	236.8227	248	36
9.100	236.8241	104	26
9.133	236.8255	96	24
9.167	236.8269	297	74
9.200	236.8283	250	62
9.233	236.8297	176	44
9.267	236.8311	103	26
9.300	236.8325	145	36
9.333	236.8339	116	29
9.367	236.8353	217	38
9.400	236.8367	172	27
9.433	236.8381	121	23
9.467	236.8395	352	49
9.500	236.8409	284	54
9.533	236.8423	156	42
9.567	236.8437	175	32
9.600	236.8451	250	36
9.633	236.8465	238	40
9.667	236.8479	261	33
9.700	236.8493	282	36
9.733	236.8507	328	39
9.767	236.8521	203	31
9.800	236.8535	285	39
9.833	236.8549	354	52
9.867	236.8563	275	33
9.900	236.8577	297	39
9.933	236.8591	335	41
9.967	236.8605	397	38
10.000	236.8619	395	39
10.033	236.8633	314	38
10.067	236.8647	322	31
10.100	236.8661	271	34
10.133	236.8675	376	34
10.167	236.8689	438	42
10.200	236.8703	434	41
10.233	236.8717	507	41
10.267	236.8731	559	53
10.300	236.8745	625	52
10.333	236.8759	652	53
10.367	236.8773	680	47
10.400	236.8787	732	53
10.433	236.8801	805	59
10.467	236.8815	1022	68
10.500	236.8829	993	61
10.533	236.8843	1195	69
10.567	236.8857	1393	74
10.600	236.8871	1398	83
10.633	236.8885	1588	77
10.667	236.8899	1945	103
10.700	236.8913	2154	99
10.733	236.8927	2255	114
10.767	236.8941	2817	124
10.800	236.8955	2410	110
10.833	236.8969	2820	111
10.867	236.8983	2702	151
10.900	236.8997	2667	106
10.933	236.9011	2329	95
10.967	236.9025	2298	97
11.000	236.9039	1954	93
11.033	236.9053	1447	101
11.067	236.9067	1360	105
11.100	236.9081	1270	112
11.133	236.9095	1111	99
11.167	236.9109	1051	91
11.200	236.9123	726	79
11.233	236.9137	667	70
11.267	236.9151	803	83
11.300	236.9165	705	85
11.333	236.9179	763	86
11.367	236.9193	908	87
11.400	236.9207	625	69
11.433	236.9221	595	90
11.467	236.9235	531	56
11.500	236.9249	462	62
11.533	236.9263	612	60
11.567	236.9277	510	71
11.600	236.9292	543	64
11.633	236.9305	470	62
11.667	236.9319	426	56
11.700	236.9333	542	67
11.733	236.9348	331	38
11.767	236.9362	389	57
11.800	236.9375	324	46
11.833	236.9389	271	38
11.867	236.9404	339	50
11.900	236.9418	260	47
11.933	236.9432	221	40
11.967	236.9445	240	39
12.000	236.9460	221	77
12.017	236.9467	278	51
12.050	236.9481	249	50

Silicon Valley Astronomy Lecture Series

Wednesday * January 29, 2003 * 7 p.m.

Dr. Gibor Basri (University of California, Berkeley) will give a non-technical illustrated talk on ***Failed Stars or Supergiant Planets: A Cosmic Identity Crisis*** in the Smithwick Theater, Foothill College, El Monte Road and Freeway 280, in Los Altos Hills, California Free and open to the public. Call the series hotline at 650-949-7888 for moreinformation. Co-sponsored by: NASA Ames Research Center, Foothill College Astronomy Program, SETI Institute, Astronomical Society of the Pacific

Dr. Basri, who has made pioneering observations of the mysterious objects called "brown dwarfs," will discuss the shadowy realms that lie between being a planet and being a star -- a realm which we have only been able to get information about in the last few years. In the process, he will explain how astronomers are learning to make more sophisticated distinctions about exactly what it takes to be a star.

Benjamin Dean Lecture Series Presents

Dissecting Solar Systems

Dr. Jack Lissauer, NASA-Ames Research Center

Earthlike Planets: How They Form and How We Can Find Them

January 21, 2002 – 7:30 p.m. – In the Planetarium

NASA's Kepler Mission is being designed to detect earthlike planets in extra-solar planetary systems.

Tickets - $3.00 each

DEAN LECTURE INFORMATION LINE: (415) 750-7141

NCHALADA LXIII

The sixty-third meeting of the Northern California Historical Astronomy Luncheon and Discussion Association will be held at the Chabot Space and Science Center on Saturday, February 1, 2003 starting at 10 AM.

The morning session topic will be History of Astronomy on the Internet, chaired by Bruce R. Mehlman. The topic should be read as resources on the internet for the history of astronomy.

In the afternoon Celete Burrows of the Chabot Space and Science Center will lead a discussion on Astronomical Instruments from 200 BCE to 1600 CE. This will cover everything from the first serious instruments to just before the invention of the telescope.

Please forward this mail to anyone who would be interested in these subjects, or in the history of astronomy in general.

To be added to (or removed from) this list, please contact me, Bruce R. Mehlman, at mehlman@earthlink.net.

For more information about the group, please contact Norm Sperling, nsperling@california.com.

The NCHALADA web site is at www.nchalada.org

SFAA 2003 Calendar

JANUARY

8 Board Meeting
7:00 p.m.
11 Annual Awards Dinner
6:30 p.m.

FEBRUARY

8 City Star Party
5:30 p.m.
12 Board Meeting
7:00 p.m.
19 General Meeting
& Lecture
7:00 p.m.

MARCH

8 City Star Party
6:00 p.m.
12 Board Meeting
7:00 p.m.
19 General Meeting
& Lecture
7:00 p.m.

APRIL

5 Mt. Tam Star Party
7:00 p.m.
9 Board Meeting
7:00 p.m.
12 City Star Party
7:30 p.m.
16 General Meeting
& Lecture
7:00 p.m.

MAY

3 Mt. Tam Star Party
8:30 p.m.
10 City Star Party
8:00 p.m.
14 Board Meeting
7:00 p.m.
21 General Meeting
& Lecture
7:00 p.m.
31 Mt. Tam Star Party
8:30 p.m.

JUNE

7 City Star Party
8:30 p.m.
11 Board Meeting
7:00 p.m.
18 General Meeting
& Lecture
7:00 p.m.
28 Mt. Tam Star Party
8:30 p.m.

JULY

5 City Star Party
8:30 p.m.
9 Board Meeting
7:00 p.m.
16 General Meeting
& Lecture
7:00 p.m.
26 Mt. Tam Star Party
8:30 p.m.

AUGUST

2 City Star Party
8:00 p.m.
13 Board Meeting
7:00 p.m.
20 General Meeting
& Lecture
7:00 p.m.
30 Mt. Tam Star Party
8:00 p.m.

SEPTEMBER

6 City Star Party
7:30 p.m.
10 Board Meeting
7:00 p.m.
17 General Meeting
& Lecture
7:00 p.m.
27 Mt. Tam Star Party
7:30 p.m.

OCTOBER

4 City Star Party
6:30 p.m.
8 Board Meeting
7:00 p.m.
15 General Meeting
& Lecture
7:00 p.m.

NOVEMBER

12 Board Meeting
7:00 p.m.
19 General Meeting
& Lecture
7:00 p.m.

DECEMBER

10 Board Meeting
7:00 p.m.
17 General Meeting,
Elections &
Member's Night
7:00 p.m.

San Francisco Amateur Astronomers
Membership Application

Name:_____ Telephone:_____

Address:_____

Email address:_____

Select one category:

O $10 enclosed, youth/student membership
O $25 enclosed, individual membership
O $30 enclosed, family or foreign membership
O $40 enclosed, institutional membership
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