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*** * Observing Basics April 18 at 7:00pm: B.Y.O.B. * * ***

B.Y.O.B.—Bring Your Own Binoculars! Yes, that's right—binoculars can be an excellent tool for observing the night sky. At the upcoming Observing Basics session (April 18, beginning at 7:00 PM at the Presidio Officers Club), we will focus on the use of binoculars. We ask that attending members bring their binoculars so that proper and efficient use of them can be demonstrated and directly exercised by members.

01.

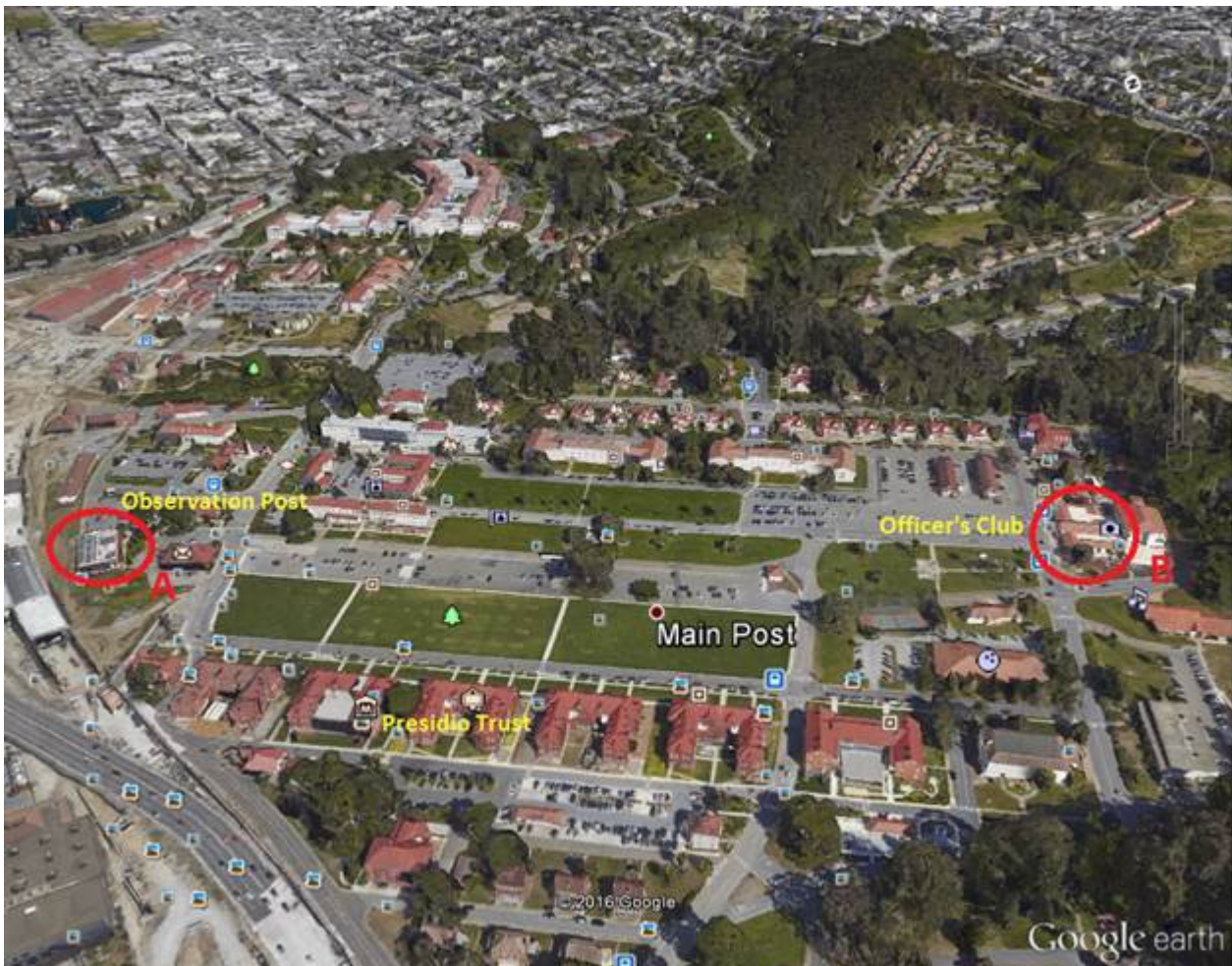
***** NOTE: NEW SFAA MEETING LOCATION FOR 2017 *****

We are happy to announce that, starting in 2017, we will be meeting at:
The San Francisco Presidio Officers' Club
50 Moraga Avenue, San Francisco, CA 94129

The SFAA meetings will take place in Moraga Hall, which is just inside the main entrance.

(As you may or may not know, the building where we have been meeting is scheduled to be demolished)

The image below illustrates the location of the Presidio Officers' Club relative to our prior location at the Observation Post.



02.

MARCH 21ST LECTURE |

ALAN AGRAWAL, M.D.

THE PRESIDIO . PRESIDIO OFFICERS' CLUB, BUILDING 50 . MORAGA HALL

50 Moraga Avenue, San Francisco

7:00 pm Doors Open | 7:30 pm Light Refreshments | 7:45 pm Announcements | 8:00 pm Speaker

SFAA'S GENERAL MEETINGS OCCUR ON THE 3RD TUESDAY OF EACH MONTH (EXCEPT JANUARY)

“GALILEO'S TELESCOPES AND OBSERVATIONS - THE GREAT INFLECTION POINT IN THE HISTORY OF SCIENCE”



ALAN AGRAWAL, M.D.

AMATEUR ASTRONOMER AND HISTORIAN

In 1609 Galileo Galilei significantly improved the optical performance of the telescope and began a series of celestial observations that dramatically changed our understanding of the universe and our place in it.

He developed a new method for reliably comprehending phenomena in the world around us, and so correctly has been called the father of modern science. This talk will lay out the key developments in the history of science related to astronomy preceding Galileo, describe in detail what is known about the optics and construction of his telescopes, and then discuss his observations and how they radically changed the science of astronomy.

Brief Bio

Alan Agrawal is a physician who specializes in the treatment of autoimmune diseases in the field of rheumatology. He is also an avid amateur astronomer and independent historian on the development of the telescope. He designs and builds telescopes and eyepieces, enjoys deep sky observing with his 0.6 meter telescope, is interested in the testing of optics and currently in the process of building an interferometer. He is an active member of the Antique Telescope Society and the Mount Diablo Astronomical Society, and just recently joined the San Francisco Amateur Astronomers. He has given previous talks on Galileo's telescopes, the history of sky charts, and the life and work of Joseph von Fraunhofer.

Photo credit: Portrait of Galileo Galilei by Giusto Sustermans

03.

UPCOMING SFAA LECTURES 2017

THE PRESIDIO . PRESIDIO OFFICERS' CLUB, BUILDING 50 . MORAGA HALL

50 Moraga Avenue, San Francisco

7:00 pm Doors Open | 7:30 pm Light Refreshments | 7:45 pm Announcements | 8:00 pm Speaker

SFAA'S GENERAL MEETINGS OCCUR ON THE **3RD TUESDAY** OF EACH MONTH (EXCEPT JANUARY)

APRIL 18TH | ROGER BLANDFORD, PH.D., KIPAC STANFORD UNIVERSITY

"NEUTRON STARS AND PULSARS: THE INSIDE STORY"



Predicted in the 1930s and discovered in the 1960s by X-ray and radio astronomers, neutron stars are now known to be the typical result of the evolution of a massive star. There should be nearly of a billion of them in our galaxy alone. Neutron stars have roughly ten km radii and can spin six hundred times in a second. They can also have magnetic fields over a million billion times stronger than the Earth's magnetic field. A small fraction of these neutron stars create bright radio emission and they can be observed as periodic radio pulses and are called radio pulsars. Radio pulsars have turned out to be superb cosmic laboratories and to provide tools to explore gravity and its radiation.

MAY 16TH | ANN MARIE CODY, PH.D., NASA AMES SETI INSTITUTE

"TWINKLE, TWINKLE, LITTLE STAR: HOW THE KEPLER SPACE TELESCOPE IS REVEALING THE BIRTHPLACES OF PLANETS"



Thanks to numerous astronomical surveys, we are now aware of over 3,400 planets orbiting other stars, with another nearly 2,500 candidates from the Kepler Mission awaiting confirmation. The Universe is teeming with rocky and gaseous bodies. How did these planet systems form and evolve toward their present configurations? The answer to this question lies in the study of their formation environments: dusty disks surrounding young stars. In this talk Dr. Cody will show how Kepler is illuminating the conditions surrounding planet formation by providing high-precision time series data on young stars and their protoplanetary disks.

04.

**** SPECIAL PRESENTATION PRIOR TO MARCH 21 LECTURE ****

MARCH 21 AT 7:00PM

**PHOTOGRAPHER BETH MOON REVISITS THE WORLD'S OLDEST TREES IN THE DARKEST PLACES ON EARTH, USING COLOR PHOTOGRAPHY TO CAPTURE VIBRANT NIGHTTIME SKIES
"ANCIENT SKIES, ANCIENT TREES"**



It is only in the rarest and clearest of nights that we can look up at the sky to find a sprinkling of twinkling stars. Surrounded by the bright lights of humanity, the infinite majesty of the cosmos can only be truly enjoyed by those devoted enough to seek it. Critically acclaimed photographer Beth Moon's own appreciation of the dazzling array of stars that shine above us began with her fourteen-year quest, spanning from continent to continent, to record the lives of some of the oldest trees in the world. Her devotion to photographing these ancient, living relics—the subject of her debut bestseller **Ancient Trees: Portraits of Time**—led her to some of the darkest corners of world, where constellations and nebulas shine more brightly, far from the obscuring lights of civilization. Moon's much awaited sequel **Ancient Skies, Ancient Trees** (October 2016, Hardcover) captures the boundless beauty of trees under the night sky, seemingly undisturbed by humans.

A collection of over 50 full-color prints, only achieved through Moon's relentless dedication, undeterred by knee-high mud, windstorms, and distance, **Ancient Skies, Ancient Trees** reveals the rich hues of the night that are often too faint to be seen by the naked eye. Accompanying Moon's introduction, which chronicles her search for the trees documented in this book, are essays by Jana Grcevich, a postdoctoral fellow of astrophysics at the American Museum of Natural History, and Clark Strand, the author of **Waking Up to the Dark: Ancient Wisdom for a Sleepless Night**. In a world where our night skies are becoming increasingly brighter, Grcevich's illuminating text speaks to the uniqueness behind the brilliant impressions of the cosmos reflected in Moon's photography, while Clark Strand's essay ruminates on another natural wonder placed at risk by growing cities and populations—our rare and sacred ancient trees.

A look into some of the most remote locations around the world, **Ancient Skies, Ancient Trees** is an adventure into the wild, wrapped in the elegant binding of your new favorite coffee table book. The ideal purchase for any lover of nature and photography, Beth Moon's photography collection is guaranteed take you on a journey.

Books will be available for sale at the lecture. The SFAA will not receive any of the proceeds from the sales.

05.

SFAA PRESIDENT'S NOTE | 2016 MEMBER SURVEY KEY TAKEAWAYS

At our monthly meeting/lecture on 21 February I gave a presentation of the summarized results of the Membership Satisfaction Survey conducted in June/July 2016. This presentation is on our website to view in detail. Here, I would like to present what I see as the key takeaways from the survey.

- The survey results are representative of overall membership since the respondents comprised about 40% of total membership at that time.
- Our demographics show a mostly male membership (73% / 22% female), predominantly older (48% 55 years and older) but with a growing younger membership (31% 44 years and younger), who live in San Francisco and Marin county (55% and 19% respectively), and we are rapidly growing with new members (59% have 2 years or less membership duration, 19% have 6 or more years).
- Most members initially learn about the SFAA via our website (39%) or were referred by a friend (28%) and with a solid satisfaction rate (72%) highly satisfied members are likely to refer the SFAA to a friend (82%) thereby keeping a main source of new members. A solid percentage of members will renew their membership (72%).
- Overwhelmingly people join the SFAA to learn about astronomy (75%) with a substantial percentage of membership describing their astronomy knowledge as beginning-learner (36%) while a somewhat larger percentage describe their knowledge as intermediate (44%).
- A significant number of members own some form of astronomical observing equipment (85%) which helps explain why so many joined the SFAA to have access to Members Only star parties (55%).
- Most members attend a variety of SFAA events, but a relatively large percentage of members essentially do not attend any of our events (20%).
- Members are mostly satisfied with Above the Fog newsletter in the categories of quality and ease of reading (72%) and usefulness of information (66%); our website is mostly viewed favorably with quality and ease of navigation (67%); and our lectures are fairly well attended (63%) and those attending, find the level of lecture content about right for their level of understanding (85%).
- Observing Basics, held 4 times per year prior to our lecture, receives a high rating of being useful (83%) but attendance is not particularly strong (41%) and most have not attended (59%). This result contrasts with the second most wanted additional topic members want to see offered "How to use a telescope / binoculars" (61%).
- Finally, while a few respondents would be interested in helping with public educational outreach events (15%), very few are interested in volunteering to help the SFAA logistically carry out events (6%).

What to make of all this valuable data? I have some conclusions for near future action as follows:

1. Overall the SFAA is doing a pretty good job in offering events and communication sources with which members are satisfied. There is obviously room for improvement in any category and we have been revamping Above the Fog in this vein. These improvements are a responsibility of the SFAA Board, Officers and any additional volunteers.
2. The SFAA is an organization that requires members to attend and engage in events offered to realize the benefits of membership. This is a responsibility of members.

3. We need to offer more events aimed at beginning-learner members so they can develop a base of knowledge from which to build understanding and provide direction for further personal research and engagement in SFAA events. SFAA Board, Officers and additional volunteers' responsibility to present events and beginning-learner members to attend and engage.
1. Please note that at our 18 April meeting/lecture we will be focusing Observing Basics (beginning at 7:00 PM) on the use of binoculars. We ask that attending members bring their binoculars so that proper and efficient use of them can be demonstrated and directly exercised by members. This event will address a stated need in the survey, but you have to attend the event! (See Conclusion 2 above.) SFAA Board and Officers will carry this out.
4. It was suggested at our 21 February meeting that we list the Volunteer Opportunities on our website and Above the Fog. We are following up on this good idea. By and large 13 people do 90% + of the work that produces what the SFAA offers. We certainly could use additional help that would not require all that much time per volunteer to be able to address the needs as described in the survey. (See Conclusion 1 above.) SFAA Board, Officers and any additional volunteers' responsibility.

Dark, clear and stable skies,

Michael Patrick
President, SFAA

SFAA Board Officers and Directors:

| | | |
|----------------|--|-----------------------------------|
| President | Michael Patrick | president@sfaa-astronomy.org |
| Vice President | Liz Triggs | vice-president@sfaa-astronomy.org |
| Treasurer | Michael Patrick | treasurer@sfaa-astronomy.org |
| Secretary | Anthony Barreiro | secretary@sfaa-astronomy.org |
| Directors: | PJ Cabrera, Anil Chopra, Brian Kruse, Matthew Jones, Jessica Miller, Scott Miller, Mina Reyes, Douglas Smith, Paul Salazar | |

*** * * SFAA T-SHIRTS NOW AVAILABLE! * * ***

Many of you have asked when those handsome blue SFAA T-Shirts will be available for sale. We have a limited number available, so reserve yours now!

Prices:

\$10 for SFAA Members (membership must be current)
\$25 for non-Members

Shirts will be available for purchase and/or pick-up at the March 21st lecture at the Presidio Officers' Club. If you need to renew your membership or want to join as a new member, please submit the Membership Application, included as the final page of this newsletter, or from our web site, at: <http://www.sfaa-astronomy.org/membership/>

06.

SFAA NEEDS YOU: VOLUNTEER OPPORTUNITIES | ANTHONY BARREIRO

Upcoming Volunteer Outreach Opportunities

In addition to our lectures and star parties, SFAA often partners with schools, museums, and other community organizations to offer astronomy-related outreach activities. We depend on our members to provide people of all ages a first-hand experience of the wonders of the universe. Outreach activities are often centered around telescope observing, but there are many ways to teach people about astronomy, and there are always roles for members at all levels of expertise, including beginners, whether or not you bring a telescope. Here are some upcoming outreach opportunities. Please help out as you're able.

The California Academy of Sciences is looking for help with the following activities. In addition to volunteers willing to help out, SFAA also needs a coordinator for each event. A coordinator needs to make a firm commitment to attending the event and will need to do some advance planning and coordination with Academy staff and other SFAA volunteers. If you're interested in helping with one or more of these events, either as a coordinator or as a volunteer, please send an email to Anthony Barreiro, secretary@sfaa-astronomy.org

- **Thursday, April 13 - YURI'S NIGHTLIFE**
- **Saturday, April 29 - ASTRONOMY DAY** (daytime programming)
- **Thursday, June 29** (NightLife) and/or **Friday, June 30 - ASTEROID DAY** (daytime programming)

The Bay Area Discovery Museum is planning an **Astronomy Festival, Saturday, June 3**, 10 am-2 pm. Michael Patrick is coordinating SFAA's participation in this festival. We're in the early planning stages, so ideas and suggestions are welcome. Solar telescopes are always a big hit at daytime astronomy events. If you're interested in helping out with this event, please send an email to president@sfaa-astronomy.org

Snack Volunteers Needed

SFAA also needs members to volunteer to bring **light refreshments** to our monthly **meetings and lectures** at the Presidio Officers Club, on the **Third Tuesday of Each Month**. Refreshments help to create a welcoming, sociable atmosphere for members and guests. If a few members each bring something, there's less burden on any one member, and we'll have a good variety of snacks and beverages. You may donate snack items or simply provide receipts to be reimbursed for your expenses, and your fellow members will be grateful to you! If you can bring refreshments, please send an email to Linda Mahan, speakerchair@sfaa-astronomy.org
Let Linda know which month or months you can help with, and what you would like to bring.

Ongoing Opportunities to Participate in our SFAA Club

SFAA is also looking for volunteers to help in these areas:

- **Star Parties** – both on Mt. Tam and for City Star Parties
- **Marketing** – we can use help posting SFAA event updates to SFGate, SF FunCheap, Eventful, Bay Area Science, etc.
- **Above The Fog** – submit an occasional article, astrophoto and/or serve as a member of the editorial team.

Please send an email to Michael Patrick at president@sfaa-astronomy.org if you're interested.

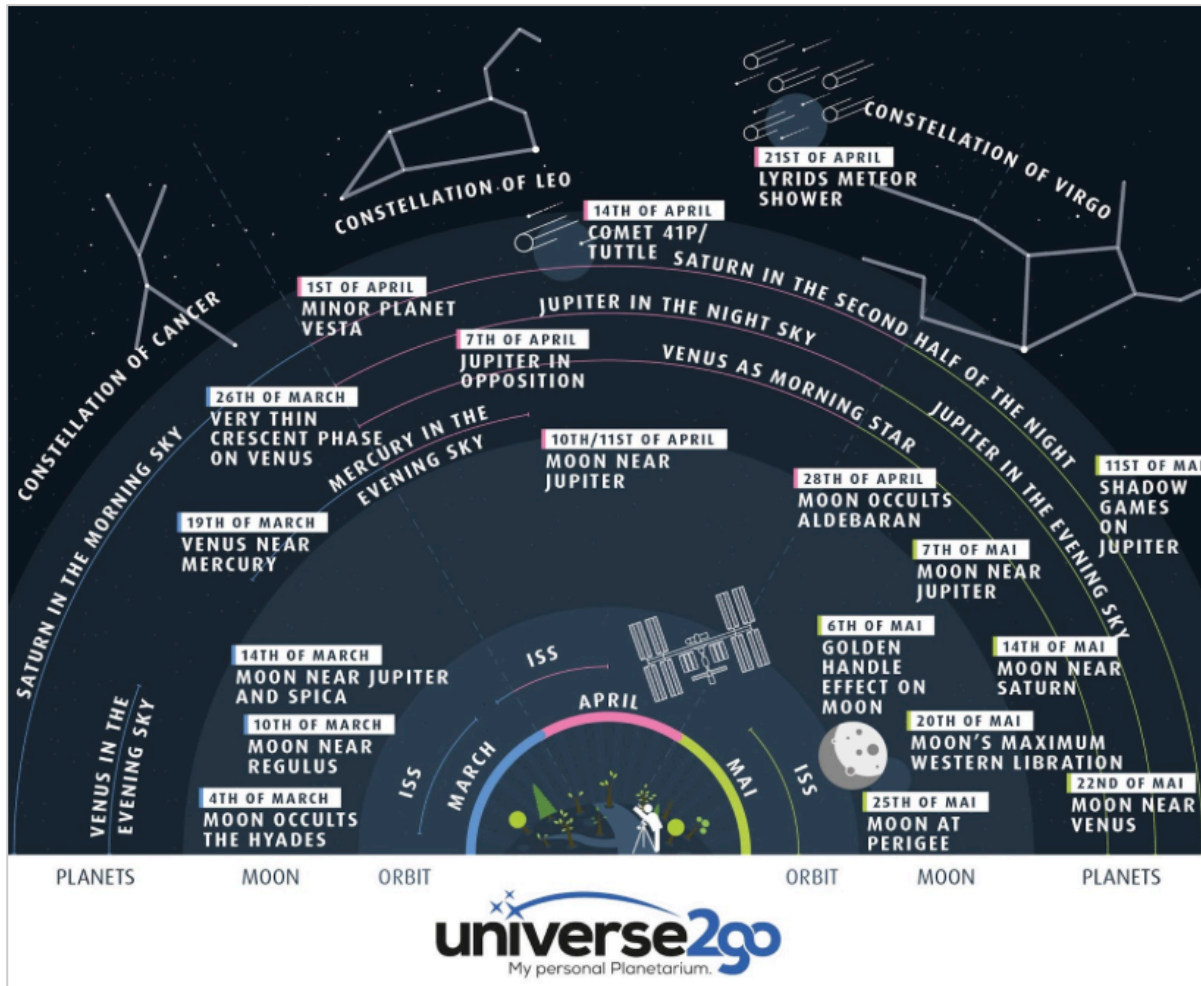
On behalf of the board of directors and your fellow SFAA members, thank you for your willingness to help out.

07.

THE URBAN ASTRONOMER BLOG: THE SPRING NIGHTTIME SKY BECKONS | PAUL SALAZAR

Spring Sky Highlights

Spring arrives on Monday March 20th and with it the ever-changing night sky with all it has to offer. The upcoming three months offer many celestial wonders, from Moon + Planet pairings to Meteor Showers to the arrival of Leo and Virgo high overhead as Orion and the winter beacons gradually fade into the western sky. Mercury makes a strong showing in April while Venus fades out of the evening and emerges in the morning sky.



Astronomy Highlights in Spring 2017

This Infograph from Universe2Go showcases these highlights quite nicely. Look ahead for opportunities to get out under the night sky in the coming months and savor all that the universe has to show you.

Long-time SFAA Member, Paul Salazar is "The Urban Astronomer". In case you haven't met Paul, here is an excerpt from his blog profile: In 2005 I began writing a column for the San Francisco Waldorf School newsletter called "The Urban Astronomer." I started this blog in 2007 as a place to archive my articles and to offer additional insights on the night sky - even if you live in a big city. In 2008 I became an occasional guest on the KFOG Morning Show, and more recently on KALW and KGO. Archived shows are posted on the blog. Check out the blog at: <http://urbanastronomer.blogspot.de>

08.

OCCULTATION BY ASTEROIDS - CITIZEN SCIENCE OPPORTUNITIES | P.J. CABRERA

Citizen Science Overview

With the increasing popularity of the Internet over the last two decades, it has become easier to communicate and distribute information to people spread all around the globe. Scientists have seized on the proliferation of the Internet to coordinate collaborative activities with members of the general public interested in science. These projects seek not only to publish their information on the Internet, but also to enlist the public's help in the observation, cataloguing and categorizing of astronomical phenomena.

Citizen science projects are an exciting way in which amateur astronomers can contribute their time and effort to the advancement of science. They also provide a way to learn more about the science by being involved more directly in the process. Many of these projects do not require heavy or expensive equipment, and some only require access to a computer connected to the Internet.

Over the next several *Above The Fog* issues, I will give overviews of different citizen science projects looking for help from the public.

Occultation by Asteroids – Adaptive Optics (AO) Campaign

An international team led by Pierre Vernazza of the Laboratoire d'Astrophysique de Marseille will be conducting observation of 38 large asteroids at high angular resolution, to characterize their shape and search for moons around them. They will be using the Very Large Telescope in Chile with the SPHERE Adaptive Optics camera developed by UC Berkeley and SETI Institute researcher Franck Marchis and his team. Franck has lectured many times at SFAA, most recently explaining the work on the SPHERE Adaptive Optics camera in the direct imaging of exoplanets.

This team is looking for amateurs to collaborate in observing the occultation of stars by asteroids. In an occultation by asteroid, a telescope or binoculars is set up with a specific star in the field of view, and the star is observed until the asteroid passes in front and covers it. Because we know the asteroid's orbit, we can predict when the occultation will happen down to the nearest minute. So it's not like you have to observe the star all night to catch the occultation, you can set up just a few minutes before it happens. The star drops in brightness and reappears shortly. The precise time and the length of the occultation is recorded to a precision of half a second or better, and this is reported back to the other scientists. Having multiple observers in an area of a few miles helps characterize the shape of the asteroid, because each observer will see the occultation from a slightly different angle.

The telescope used doesn't have to be big or expensive, and precise tracking is not necessary as long as the star remains in the field of view during the event. So a Dobsonian or other manual alt-azimuth mount is sufficient. A shortwave radio tuned to a station that reads the time from an atomic clock is a good timepiece. These stations feature a voice reading coordinated universal time every minute, and an audible click each second. Using the time from the shortwave radio, the observer can estimate the time of the occultation to the nearest quarter second without having to take their eye from the eyepiece.

Higher precision of the time recording can be achieved by using a special high-speed digital camera to record the event, as described at this link:

http://scottysmightymini.com/PR/Effects_miniature_optics_occultations.html

Upcoming Occultation Events

The following are occultation events observable from California in 2017 and 2018:

- 40 Harmonia on March 22, 2017
- 96 Aegle on April 14, 2017
- 51 Nemausa on October 22, 2017
- 65 Cybele on Dec 26, 2017
- 20 Massalia on April 29, 2018
- 52 Europa on August 23, 2018

Please visit the following site for more information, links to more detailed descriptions of the process, software for making occultation predictions and for planning an occultation observing session:

<http://www.asteroidoccultation.com/observations/NA/>

*** * * FREE ASTRONOMY BOOKS * * ***

Dear members of the SFAA:

The next two meetings of our association, at the Officer's Club, promise to be interesting and maybe even inspirational. The opportunities that new photographic technologies have brought to astronomy will be on display at March's meeting with Beth Moon's work, and the historical perspective on Galileo's work broadens our understanding of astronomy's intersection with culture.

At this meeting there will also be a more traditional serving of astronomy, through the written and printed library of an astronomy buff. At the behest of the estate of George and Shirley Carvalho, we will be sharing their library of Astronomy Books with the members of SFAA.

All books will be free (with the exception that we ask you to send a note of thanks to the family) are almost all brand new and include many sky mapping books, lots of cataloging books on topics such as double stars and galaxies as well as books exploring the many facets of space.

We will be sharing these books at both the March 21st meeting and the April 18th meeting. Please come and share in the new worlds our speakers open up for us... and take home a few books!

09. **ASTRONOMY EVENTS**

City Star Party Highlights

* * * * *

by Scott Miller

Saturday, February 11 @
Presidio Parade Ground

After the recent rains, we avoided the soggy lawn and set up on the sidewalk at the Main Parade Ground from 6:00-10:30pm. We had a smaller group (20-25 visitors) for the City Star Party on Saturday night, but we enjoyed clear-sky views of a crescent Venus, Mars, Orion Nebula, M41 open cluster, Mizar double star, Andromeda galaxy, and a very bright Moon. PJ Cabrera, Liz Triggs, and I set up telescopes, and we assisted a young couple who brought a telescope on how to use their new equipment.

We missed George Teiber though, and we look forward to his return.

SAN FRANCISCO AMATEUR ASTRONOMERS EVENTS MARCH 1, 2017 – APRIL 30, 2017

< Details: <http://www.sfaa-astronomy.org> >

Saturday March 11, 6:30 pm
City Star Party, Point Lobos, San Francisco, CA

Tuesday March 21, 7:00 pm – 7:45 pm
“Ancient Skies, Ancient Trees” (see Section 4)
Special Presentation Prior to Lecture and Book Signing, Presidio Officers’ Club

Tuesday March 21, 7:45 pm – 9:30 pm
Meeting and Lecture, Presidio Officers’ Club

Saturday, March 25, 6:00 pm
Mt. Tam Members-only Observing Night: Messier Marathon

Tuesday April 18, 7:00 pm – 7:45 pm
Observing Basics—Binoculars for observing the night sky, Presidio Officers’ Club

Tuesday April 18, 7:45 pm – 9:30 pm
Meeting and Lecture, Presidio Officers’ Club

Saturday April 22, 7:30 pm
Mt. Tam Members Night

Saturday April 29, 7:30 pm
Mt. Tam Public Astronomy Night

*** * * GET REAL, LIVE HELP WITH YOUR TELESCOPE! * * ***

Are you a new telescope owner? Or perhaps you could use some help with alignment, collimation or other adjustments? Collimating a reflector, like playing guitar or dancing the tango, can, with great effort, be learned from reading, but it is much easier and more enjoyable to learn hands-on from somebody who already knows how to do it.

Bring your telescope to a Star Party – we’ll be happy to help!

BAY AREA ASTRONOMY EVENTS

Each month, long-time SFAA member Kenneth Lum assembles and sends out a list of Bay Area Astronomy events. As each month unfolds, check the following link for information regarding additional events:

<http://tech.groups.yahoo.com/group/bayastro/?v=1&t=directory&ch=web&pub=groups&sec=dir&slk=94>

10. SFAA EXPEDITION 2017



TOTAL SOLAR ECLIPSE

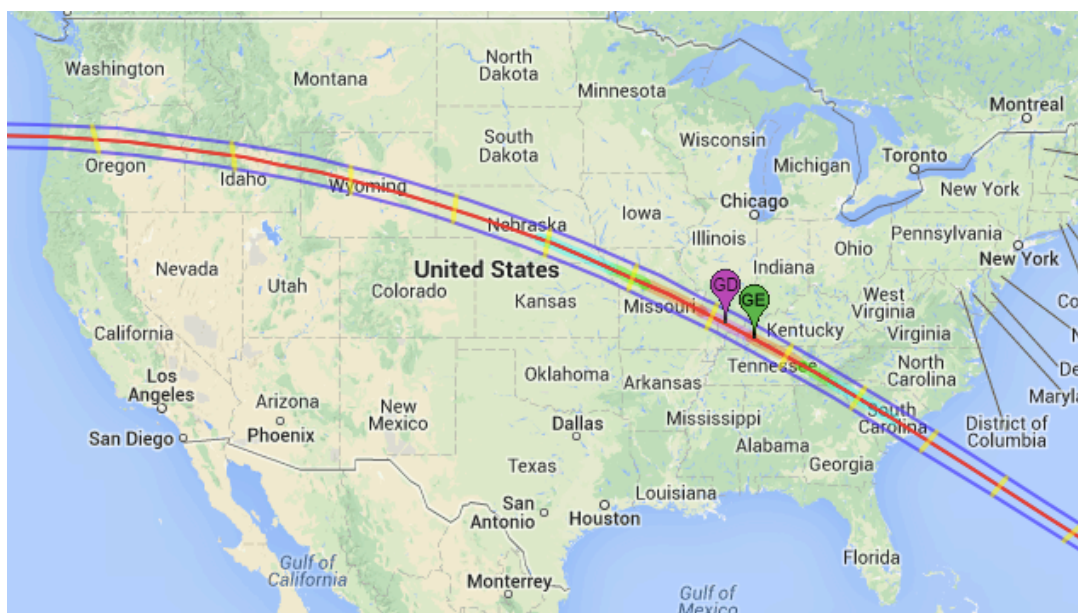
August 21, 2017

Jackson Hole, Wyoming (Teton Mountains)

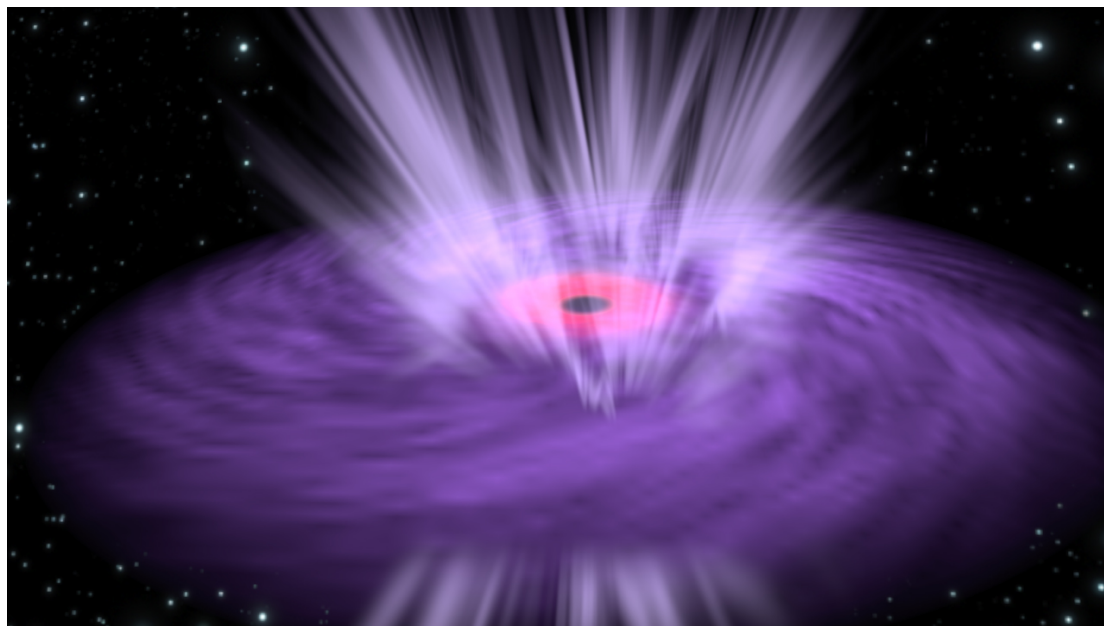
The San Francisco Amateur Astronomers is organizing an expedition to witness the August 21, 2017 Total Solar Eclipse. The eclipse will be visible across a broad swath of the USA, and club members will gather near Jackson Hole, Wyoming, to witness this spectacle high in the Teton Mountains. The trip is an opportunity for club members to gather in one place along the path of totality and journey together up the mountains for viewing of this spectacular astronomical phenomenon.

Over the past year as we have promoted this event, hotel space in all of the Jackson Hole region has sold out. So at this point in time, we welcome SFAA members to join us for the weekend of August 19th and 20th at our location in Teton Village, and for totality on Monday August 21st. However, you will have to find hotel or camping accommodations elsewhere and drive in. If you wish to join us or just to get updates, send an email to 2017eclipse@sfaa-astronomy.org to receive periodic updates.

If you have any other questions, send to 2017eclipse@sfaa-astronomy.org.



NUSTAR SPOTS TEMPERATURE SWINGS OF BLACK HOLE WINDS



This artist's concept illustrates a supermassive black hole with X-ray emission emanating from its inner region (pink) and ultrafast winds (light purple lines) streaming from the surrounding disk.

Image credit: ESA.

For the first time, scientists have measured rapidly varying temperatures in hot gas emanating from around a black hole. These ultrafast "winds" are created by disks of matter surrounding black holes.

The winds, according to new measurements of a nearby supermassive black hole obtained with NASA's Nuclear Spectroscopic Telescope Array (NuSTAR) telescope, can heat up and cool down in the span of just a few hours. The black hole is located in the active galaxy IRAS 13224-3809 in the constellation Centaurus. Scientists report these findings, using data from NuSTAR and European Space Agency's XMM-Newton telescope, in the journal *Nature*.

"We know that supermassive black holes affect the environment of their host galaxies, and powerful winds arising from near the black hole may be one means for them to do so," says NuSTAR Principal Investigator Fiona Harrison, professor at Caltech in Pasadena. "The rapid variability, observed for the first time, is providing clues as to how these winds form and how much energy they may carry out into the galaxy."

Full story from Caltech:

<http://www.caltech.edu/news/temperature-swings-black-hole-winds-measured-first-time-54263>

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Caltech, Pasadena, Calif.
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wclavin@caltech.edu



Application for New or Renewing Membership

1. Memberships, with dues payment, are for one year running from standard renewal dates of 1 July to 30 June and 1 January to 31 December. SFAA is a 501(c)(3) nonprofit organization. Membership dues are tax-deductible, as allowed by law.
2. Submitting appropriate dues in April, May, June, July, August, September, membership will run to 30 June of the next year.
3. Submitting appropriate dues in October, November, December, membership will run to 31 December of the next year; submitting appropriate dues in January, February or March, membership will run to 31 December of the same year.
4. Renewals are maintained at the original membership date unless the renewal is made later than the original cutoff date (e.g. September or March as described in 3). In such cases the membership date is shifted to the next renewal date 30 June or 31 December.
5. New or renewal memberships sent in via USPS mail will have membership start date based on postmark date.

This application is for:

New

Renewing

Name: _____

Address: _____

Email: _____

Home Telephone (optional): _____

Cell Phone (optional): _____

Membership Type: Individual \$25.00 Family \$30.00 Student \$10.00 Supporting \$75.00
 Institutional \$40.00 **(All dues tax-deductible as allowed by law.)**

Please mail to me a Mt. Tamalpais Parking Permit (1 per membership)

To complete the membership process:

- A. Print and fill out this form
- B. Make check or money order payable to San Francisco Amateur Astronomers
- C. Mail this form and payment to:

Treasurer, SFAA
PO Box 15097
San Francisco, CA 94115

Both new and renewing members will receive a verifying email from the SFAA upon completion of the membership process.