



Vol. 64, No. 10 – October 2016

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SFAA BOARD MEETING: TUESDAY, OCTOBER 11, 7:00PM

Quarterly SFAA in-person Board meetings are open to all Members. Please plan to attend and learn about what the Board is working on for the club. This meeting will be held in the meeting room at the Presidio Branch of the SFPL, 3150 Sacramento Street.

CALL FOR VOLUNTEERS

SFAA is looking for volunteers to help at Star Parties – both on Mt. Tam and for City Star Parties. Please send an email to Michael Patrick at president@sfaa-astronomy.org if you're interested.

01.

OCTOBER 18TH LECTURE | DR. ANDREW WESTPHAL

THE PRESIDIO . OBSERVATION POST . BUILDING 211

211 Lincoln Boulevard, 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)

“STARDUST MISSION: ANALYSES OF COMETARY AND INTERSTELLAR DUST IN THE LAB”



DR. ANDREW WESTPHAL

**Senior Fellow,
Space Sciences Laboratory,
UC Berkeley**

Stardust was the first spacecraft ever to bring back to Earth extraterrestrial materials from beyond the Moon. It was designed for two missions in one spacecraft. Stardust returned the first samples from a known primitive solar system body, the Jupiter-family Comet Wild 2.

Stardust also carried a separate collector that was exposed to the interstellar dust stream for 200 days before the encounter with the Comet. These tiny rocks - a trillion would fit into a teaspoon - were

identified in the return collector by a small army of more than 30,000 citizen scientists, through a project called Stardust@home.

Dr. Westphal will present results of laboratory analyses of samples from both collectors, including laboratory analyses of seven particles that are likely the first individual rocks from the local interstellar medium ever identified.

Andrew Westphal is a Research Physicist and Senior Fellow at the Space Sciences Laboratory at U. C. Berkeley.

Dr. Westphal received his PhD at UC Berkeley in 1992 in high-energy astrophysics, migrated to planetary science about a decade ago, and has been intensively involved in analyses of the cometary and interstellar dust collections returned by the Stardust mission.

Most recently he was the leader of the Interstellar Preliminary Examination for the Stardust mission, and is involved in the planning for new missions, including a new interstellar dust mission and a mission to collect a surface sample from a comet.

02.

UPCOMING SFAA LECTURES 2016

NOVEMBER 15TH | R. JAY GABANY, ASTROPHOTOGRAPHER

"GALACTIC ARCHEOLOGY: GOOD SCIENCE WITH MODEST EQUIPMENT"



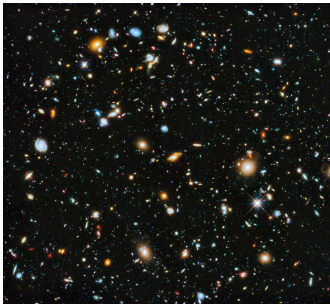
Using modest aperture, commercially produced semi-robotic telescopes under steady dark skies, GaBany produces long exposure images that reveal previously undetected merging star streams. He collaborates with a team of international astrophysicists, processing his images for over 100 hours to reveal faint details.

R. Jay GaBany is a Chambliss awardee by the American Astronomical Society.

Photo credit: R. Jay GaBany

DECEMBER 20TH | LEO BLITZ, UC BERKELEY DEPARTMENT OF ASTRONOMY

"ARE ANCIENT GALAXIES REALLY RED AND DEAD?"



Galaxies are generally observed as spiral and elliptical shapes. The early type elliptical galaxies, with their old stars, are seen as reddish and often referred to as 'red and dead.' We will learn that some of these galaxies hold surprising new areas or research.

Photo credit: Hubble Ultra Deep Field 2014

Image Credit: NASA, ESA, H.Teplitz and M.Rafelski (IPAC/Caltech), A. Koekemoer (STScI), R. Windhorst(ASU), Z. Levay (STScI)



03.

SFAA PRESIDENT'S NOTE | CLARIFYING LANGUAGE FOR OUR BY-LAWS

Inside this issue of Above the Fog you will find proposed changes to our By-laws that the Board has worked on in order to clarify the language used in several sections. We hope that by so doing we are eliminating ambiguity and making the document easier to read. Please review the changes proposed as we will ask for members to vote on approving, or not, these changes in a future monthly meeting.

By-laws give legal structure to our organization and define how the Board and Officers are to function as stewards of the SFAA. We invite members to comment on these proposed changes and you can do so by emailing any of the officers via the SFAA website.

Dark, clear and stable skies,

Michael Patrick
President, SFAA

SFAA Board Officers and Directors:

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

LICK OBSERVATORY TOUR ON OCTOBER 22

The SFAA has organized a private tour of the world renowned Lick Observatory. The tour will begin in the **early evening on Saturday, October 22** (exact time to follow) and will last 4-6 hours. The tour has limited capacity, so first priority will be given to SFAA members who have current membership status as of September 1, 2016.

We get to look forward to seeing the 120-inch reflecting telescope (the main research instrument used by the astronomers at Lick) and learning about the ongoing research in astronomy and astrophysics and, hopefully, weather permitting, viewing astronomical objects through the 36-inch refracting telescope. Group members may purchase photographs, posters, booklets, T-shirts, etc. at the gift shop.

Although the SFAA does not provide transportation to or from the Observatory, we do encourage carpooling. More details to follow — Sign up below for this incredible opportunity!

https://docs.google.com/forms/d/e/1FAIpQLSeRN3NQAW2K0aL0dh_N5C16-erxSb-0Vibg7xTumnONynUUaA/viewform

04.

PROPOSED UPDATES TO SFAA BYLAWS | VOTE AT NOVEMBER 15 GENERAL MEETING / LECTURE

The SFAA Board has recently reviewed the organization's bylaws and is proposing a number of updates for clarification and consistency. **A vote of the SFAA membership, present at the meeting, to accept or reject these proposed changes will be held at the General Meeting / Lecture at the SF Presidio Observation Post on November 15, 2016.**

Summary of proposed updates, by section:

- Preamble
 - Clarifies references to majority voting percentages in bylaws
- Article One
 - Includes reference to SFAA status as a nonprofit organization, as defined by the IRS under Section 501(c)(3)
- Article Two
 - No changes
- Article Three
 - Updates to voting process for members to elect Board members
 - Updates to duties of Secretary and Treasurer
 - Clarifies majority of Board votes required for expenditures
 - Replaces term “constitution” with more accurate usage of the term “articles of incorporation”
 - Updates title of Shop Foreman to Shop Coordinator
 - Adds description of duties for Speaker and Equipment Loan Coordinators
 - Clarifies that appointed roles shall serve until relieved of duties by majority vote of the Board and removes some redundant text
- Article Four
 - Clarifies terminology in membership classifications
 - Provides minor edits for consistency
- Article Five
 - Adds reference to SFAA 501(c)(3) status and tax-deductibility of membership dues as allowed by law
- Article Six
 - Minor edits
- Article Seven
 - No changes
- Article Eight
 - No changes
- Article Nine
 - Changes requirement for revised bylaws to be read at a membership meeting to instead be made available.
- Article Ten
 - Provides minor edits for consistency
- Article Eleven
 - No changes

Members may review the full document, with deletions in strike-through text and additions in underlined text, at the following link:

[SFAA-Bylaws-2016-09-27.pdf](#)

05.

SFAA ASTROPHOTOGRAPY GALLERY

Great responses to the request for the new astrophotography gallery! If you have photos you are proud of or even if you are just starting in astrophotography, please share what you have and we can share it here!

Here are the details:

- 1. Who can enter?** The contest is open to both members and non-members.
- 2. What kinds of photos?** Any type of astrophotography is welcome.
- 3. What file format is preferred for submissions?** JPG or PNG formats.
- 4. What do you need to provide with each photo?** Your name, date and time of shot, description of the photo subject and type of equipment used.
- 5. Where/how are photos submitted?** Photos should be submitted by email to president@sfaa-astronomy.org.
- 6. By when should I submit my photos?** Please submit all photos by the 21st of each month.
- 7. Where will my photos be featured?** Photos will be featured in the monthly newsletter.

Photo by: **Agnes Pyrchla**

Subject: Night Sky at Joshua Tree National Park

Photo taken during the New Moon on June 5, 2016

Equipment: Nikon D90



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Subject: Night Sky at Joshua Tree National Park

Photo taken during the New Moon on June 5, 2016

Equipment: Nikon D90



Photo by: **Norman Mahan**

Subject: Rosette Nebula. NGC 2246

Photo taken in Novato, CA

Equipment: Takahashi FSQ 106 / Camera SBIG STL 6303



Photo by: **Norman Mahan**

Subject: Eastern Veil Nebula, NGC 6992

Photo taken at Tahoe, 6800' elevation

Equipment: Austrian carbon fiber telescope / ASA N 12 / Camera SBIG STL 6303





(Left) Geoff Collins at his observatory in Tahoe-Donner, with Linda & Norman Mahan.

(Right) Norman Mahan with his Austrian carbon-fiber telescope, the ASA N 12", and SBIG camera. He is set up next to Geoff's observatory.



Photo by: **Geoff Collins**

Subject: Crab Nebula, M1

Photo taken at Tahoe, 6800' elevation, January 2014

Equipment: RCOS 14.5 and the SBIG 8300 camera using Ha and RGB filters



Photo by: **Geoff Collins**

Subject: Whirlpool Galaxy, M51

Photo taken at Tahoe, 6800' elevation, June 2010

Equipment: RCOS 14.5 and SBIG 6303 camera with adaptive optics. It was taken by combining LRGB images.



Photo by: **Geoff Collins**

Subject: Helix Nebula, NGC 7293

Photo taken at Tahoe, 6800' elevation, October 2011

Equipment: RCOS 14.5 using Ha and RGB filters and the FLI 16803 camera



Photo by: **Geoff Collins**

Subject: Dumbbell Nebula, M27

Photo taken at Tahoe, 6800' elevation, August 2010

Equipment: RCOS 14.5, .75 focal reducer & FLI 16803 camera. Combination of Ha, OIII, R G & B filtered images.



Photo by: **Geoff Collins**

Subject: Orion Nebula, M42

Photo taken at Tahoe, 6800' elevation, April 2007

Equipment: Combination of images taken with the RCOS 14.5 for detail in the central region and the ASA N10 for the overall image. I used Ha, OIII and RGB filters for the images, which were then combined.



Photo by: **Geoff Collins**

Subject: Lagoon Nebula, M8

Photo taken at Tahoe, 6800' elevation, July 2007

Equipment: RCOS 14.5 and SBIG 6303 camera. It consisted of Ha and OIII images combined.



Photo by: **Geoff Collins**

Subject: Iris Nebula, NGC 7023

Photo taken at Tahoe, 6800' elevation, July 2011

Equipment: RCOS 14.5 and the I6803 camera taken in July 2011. It used LRGB filters combined.



06.

SFAA EXPEDITION 2017

TOTAL SOLAR ECLIPSE

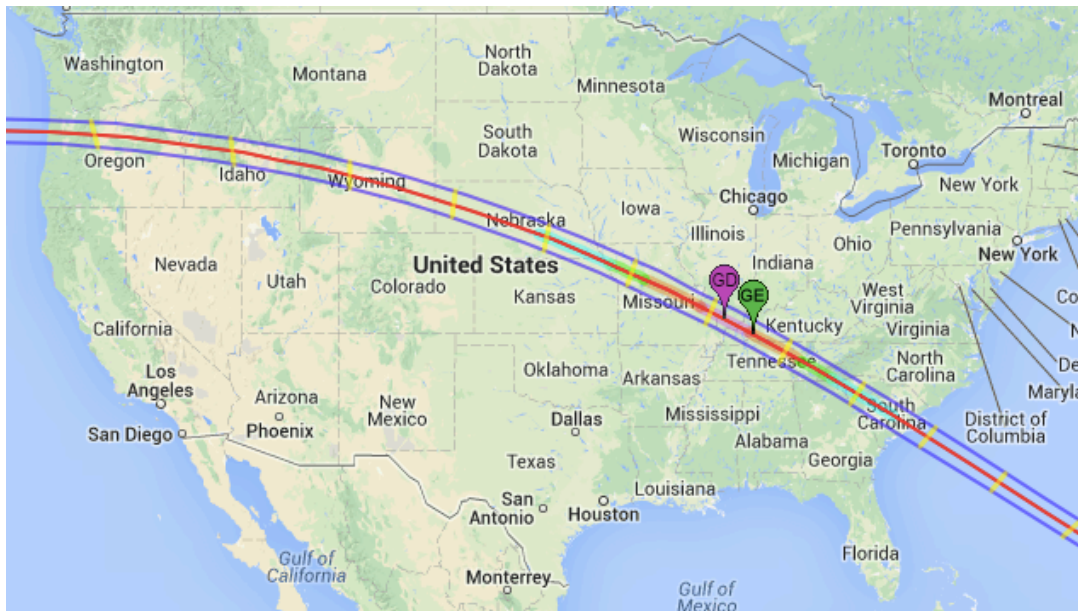
August 21, 2017

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.



07.

ASTRONOMY EVENTS

SAN FRANCISCO AMATEUR ASTRONOMERS EVENTS OCTOBER 1, 2016 – NOVEMBER 26, 2016

Saturday October 1, 6:00 pm
Mt. Tam Members Night

Thursday October 6, 6:00 pm
City Star Party, Presidio Main Parade Ground

Saturday October 8, 6:00 pm
Mt. Tam Public Astronomy Program

Tuesday October 11, 7:00 p.m.
SFAA Board Meeting – Open to Members; feel free to join us
Presidio Branch, SF Public Library
3150 Sacramento Street / San Francisco

Tuesday October 18, 7:30 p.m.
Meeting and Lecture, Presidio Observation Post

Saturday October 22, exact time to follow
Lick Observatory Tour
See details and registration link in Section 3 of this newsletter

Saturday October 29, 5:30 pm
Mt. Tam Members Night

Saturday November 5, 5:30 pm
City Star Party, Embarcadero at Pier 17

Tuesday November 15, 7:30 p.m.
Meeting and Lecture, Presidio Observation Post

Saturday November 26, 4:00 pm
Mt. Tam Members Night



BAY AREA ASTRONOMY EVENTS

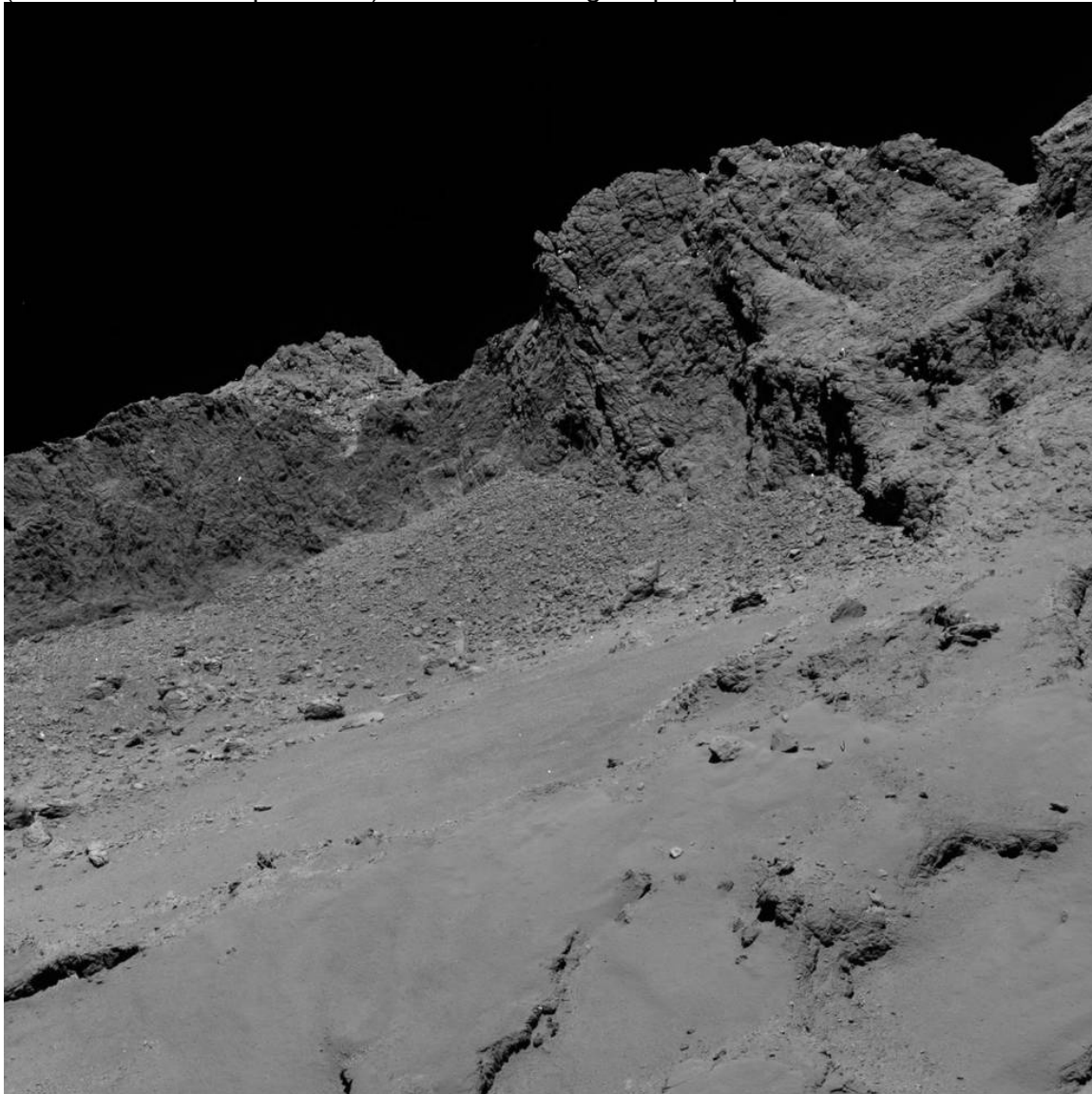
Each month, long-time SFAA member Kenneth Lum assembles and sends out a list of Bay Area Astronomy events. As each month unfolds, check the following link for information regarding additional events:

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

NASA JPL SCIENCE NEWS | Sept. 30, 2016

FINAL DESCENT IMAGES FROM ROSETTA SPACECRAFT

A new image of comet 67P/Churyumov-Gerasimenko was taken by the European Space Agency's (ESA) Rosetta spacecraft shortly before its controlled impact into the comet's surface on Sept. 30, 2016. Confirmation of the end of the mission arrived at ESA's European Space Operations Center in Darmstadt, Germany, at 4:19 a.m. PDT (7:19 a.m. EDT / 1:19 p.m. CEST) with the loss of signal upon impact.

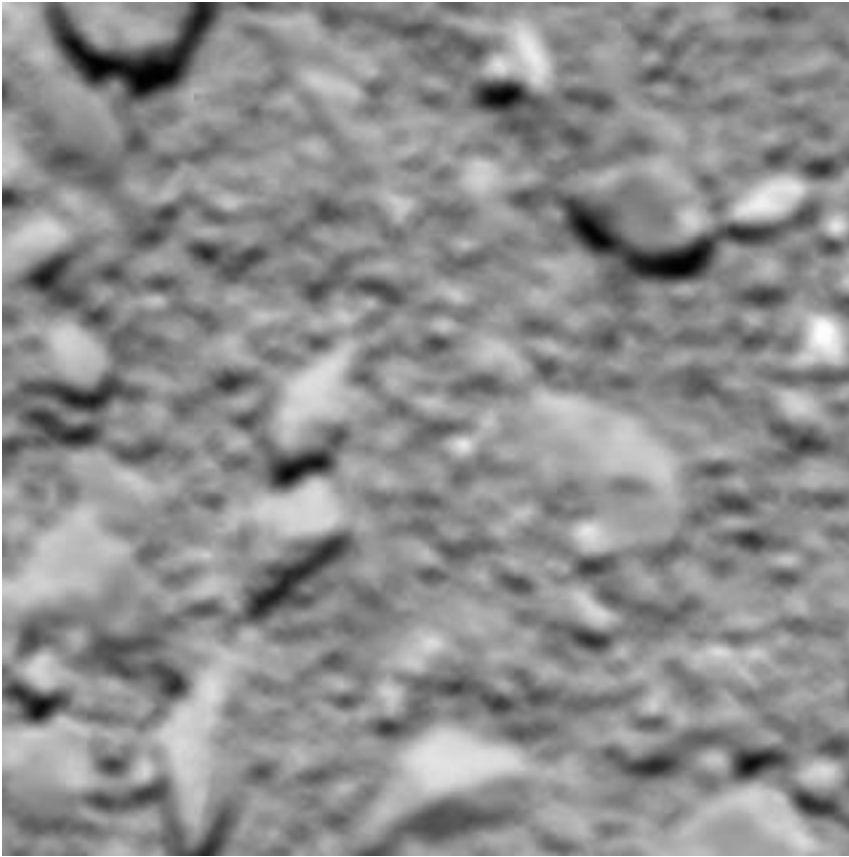


The OSIRIS narrow-angle camera aboard the Space Agency's Rosetta spacecraft captured this image of comet 67P/Churyumov-Gerasimenko on September 30, 2016, from an altitude of about 10 miles (16 kilometers) above the surface during the spacecraft's controlled descent. The image scale is about 12 inches (30 centimeters) per pixel and the image itself measures about 2,000 feet (614 meters) across.

Credits: ESA / Rosetta / MPS / UPD / LAM/IAA / SSO/INTA / UPM / DASP / IDA

The final descent gave Rosetta the opportunity to study the comet's gas, dust and plasma environment very close to its surface, as well as take very high-resolution images.

The image was taken from an altitude of 167 feet (51 meters) above the comet's surface by the spacecraft's OSIRIS wide-angle camera on Sept. 30. The image scale is about two-tenths of an inch (5 millimeters) per pixel. The image measures about 9 feet (2.4 meters) across.



Rosetta's last image of Comet 67P/Churyumov-Gerasimenko, taken shortly before impact, at an estimated altitude of 51 m above the surface.

The image was taken with the OSIRIS wide-angle camera on 30 September. The image scale is about 5 mm/pixel and the image measures about 2.4 m across.

*Credits: ESA / Rosetta / MPS for OSIRIS Team
MPS / UPD / LAM / IAA / SSO / INTA / UPM /
DASP / IDA*

The decision to end the mission on the surface is a result of Rosetta and the comet heading out beyond the orbit of Jupiter again. Farther from the sun than Rosetta had ever journeyed before, there would be little power to operate the craft. Mission operators were also faced with an imminent month-long period when the sun is close to the line-of-sight between Earth and Rosetta, meaning communications with the craft would have become increasingly more difficult.

The European Space Agency's Rosetta mission was launched in 2004 and arrived at comet 67P/Churyumov-Gerasimenko on Aug. 6, 2014. It is the first mission in history to rendezvous with a comet and escort it as it orbits the sun. On Nov. 4, 2014, a smaller lander name Philae, which had been deployed from the Rosetta mothership, touched down on the comet and bounced several times before finally alighting on the surface. Philae obtained the first images taken from a comet's surface and sent back valuable scientific data for several days.

U.S. contributions aboard the Rosetta spacecraft are the Microwave Instrument for Rosetta Orbiter (MIRO); the Alice spectrograph; the Ion and Electron Sensor (IES), part of the Rosetta Plasma Consortium Suite; and the Double Focusing Mass Spectrometer (DFMS) electronics package for the Rosetta Orbiter Spectrometer for Ion Neutral Analysis (ROSINA). They are part of a suite of 11 total science instruments aboard Rosetta.

Comets are time capsules containing primitive material left over from the epoch when the sun and its planets formed. Rosetta is the first spacecraft to witness at close proximity how a comet changes as it is subjected to the increasing intensity of the sun's radiation. Observations will help scientists learn more about the origin and evolution of our solar system and the role comets may have played in the formation of planets.

Rosetta is an ESA mission with contributions from its member states and NASA. Rosetta's Philae lander is provided by a consortium led by the German Aerospace Center, Cologne; Max Planck Institute for Solar System Research, Gottingen; French National Space Agency, Paris; and the Italian Space Agency, Rome. NASA's Jet Propulsion Laboratory, Pasadena, California, a division of Caltech, manages the U.S. contribution of the Rosetta mission for NASA's Science Mission Directorate in Washington. JPL also built the MIRO and hosts its principal investigator, Mark Hofstadter. The Southwest Research Institute (San Antonio and Boulder, Colorado), developed the Rosetta orbiter's IES and Alice instruments and hosts their principal investigators, James Burch (IES) and Alan Stern (Alice).

For more information about Rosetta and on the U.S. instruments aboard Rosetta, visit:

<http://rosetta.jpl.nasa.gov>

<http://www.esa.int/rosetta>



San Francisco Amateur Astronomers

PO Box 15097
San Francisco, CA 94115

San Francisco Amateur Astronomers 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.
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

*SFAA is a 501(c)(3) nonprofit organization. Membership dues are tax-deductible as allowed by law.

Please mail to me a Mt. Tamalpais Parking Permit

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

New members will be entered onto the SFAA roster on the Night Sky Network (NSN) and will receive a verifying email from the NSN with username and password for the NSN. Renewing members will have their information updated but will not receive an email from the NSN. Both new and renewing members will receive a verifying email from the SFAA Treasurer upon completion of the membership process.