Vol.73 No.3* May-June, 2016

SVAS OBSERVER

Sacramento Valley Astronomical Society

Founded in 1945

Coming Soon!

POWERHOUSE SCIENCE CENTER

"Positioned between Discovery Park and Old Sacramento, along the river walk and just off I-5 and Richards Blvd., a power plant over 100 years old will be reborn into a regional destination and educational landmark for students, teachers, and families."(1) The SVAS wants to play a big part in the Powerhouse Science Center, now and in the future!

(1) Powerhouse Web Site: Powerhousesciencecenter.org

Inside This Issue

SVAS Event Calendar

May 6, Fri

New Moon.

May 7, Sat

Blue Canyon, weather permitting.

SVAS Guest Speakers

Walt Heiges
June Meeting

May 20, General Meeting

Friday at 8:00pm

Sacramento City College, Mohr Hall Room 3
3835 Freeport Boulevard, Sacramento, CA.

Mercury Transit

Monday Morning, May 9th, 2016

Mars Close Encounter

Sunday, May 22, 2016

June 4 , Sat New Moon.

June 4, Sat

Blue canyon, weather permitting.

June 17, General Meeting,

Friday at 8:00pm

Sacramento City College, Mohr Hall Room 3
3835 Freeport Boulevard, Sacramento, CA.

International Sun-Day at Discovery Museum

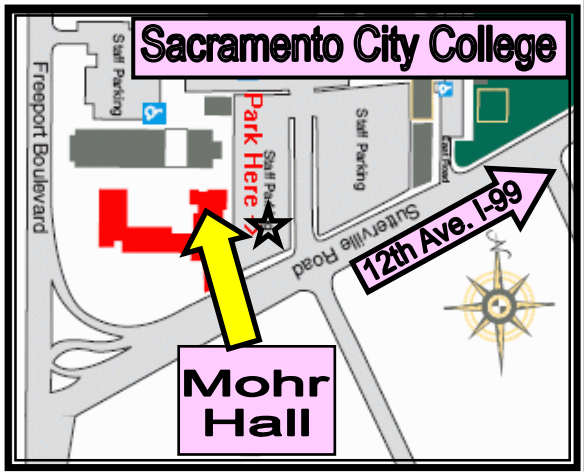
June 25 & 26th, Noon Till Four pm.

3615 Auburn Blvd. (near Watt Ave.), Sacramento, CA.
Contact Walt Heiges for details.

Star Party Schedule for 2016

May 7
June 4
July 2
July 29,30,31, Star-B-Q
Sept 3
Oct 1
Oct 29
Dec 3

Blue Canyon



Community Star Parties

Contact Wayne Lord

Newly Elected 2016-17 SVAS Officers & Even Year Board Members

Here are the newly elected SVAS Officers and even year Board Members for 2016-17. Left to right; Kevin Normington (Treasurer), Kevin Heider (Secretary), Walt Heiges (President), Perry P. Porter (Board), Tom Braun (Board), and Lonnie Robinson (Vice President). Fera Zamani (Board), will be sworn in at the next meeting.

After several general announcements, Charles Jones (odd year Board member) conducted the swearing in. We cut the meeting short so we could spend a little more time celebrating the new Plane Wave telescope with Professor Liam McDaid (see this months article on Hulbe Observatory).

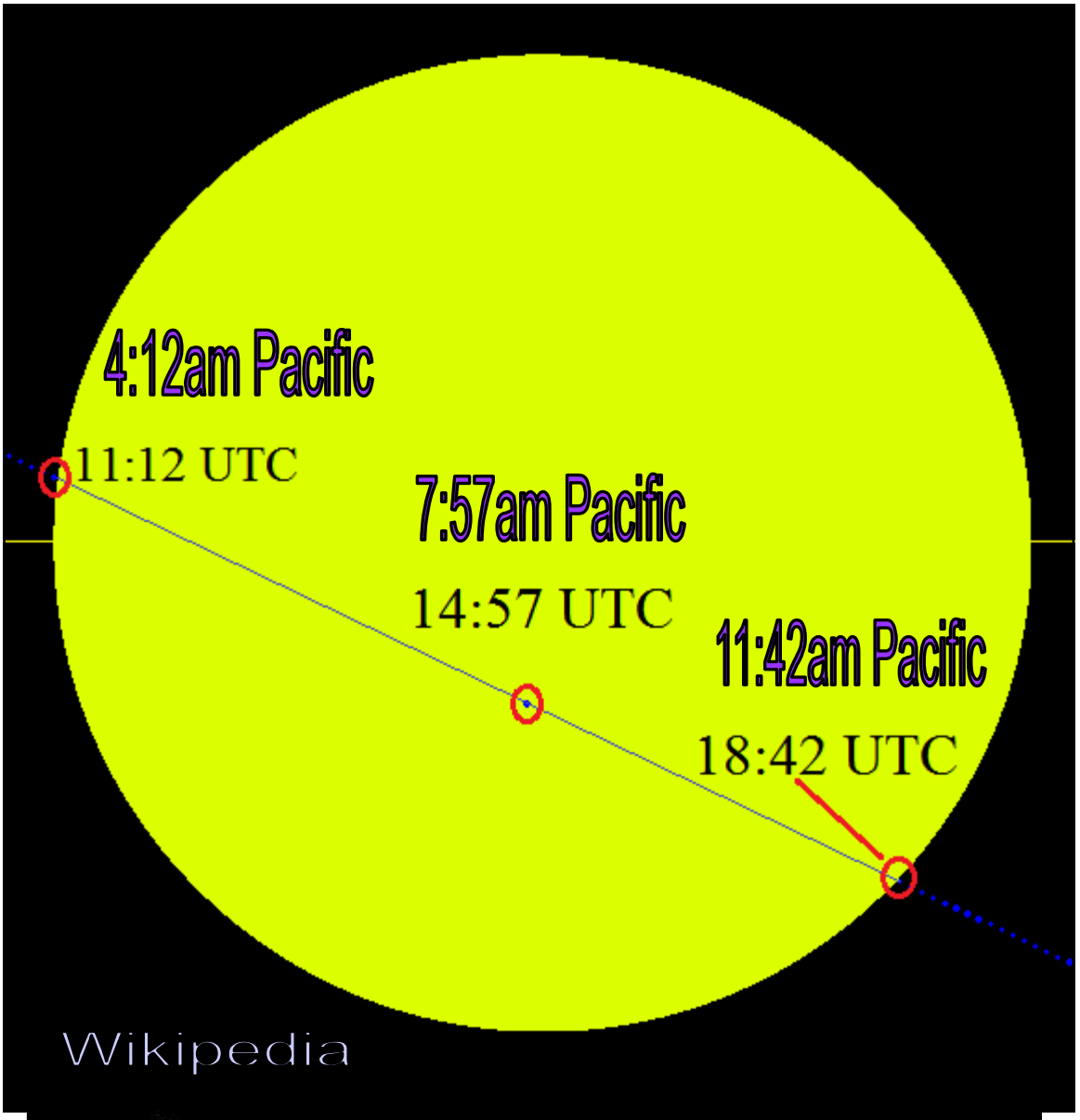
We are working towards another great year at the SVAS!

Mercury Transit

Monday Morning, May 9th, 2015

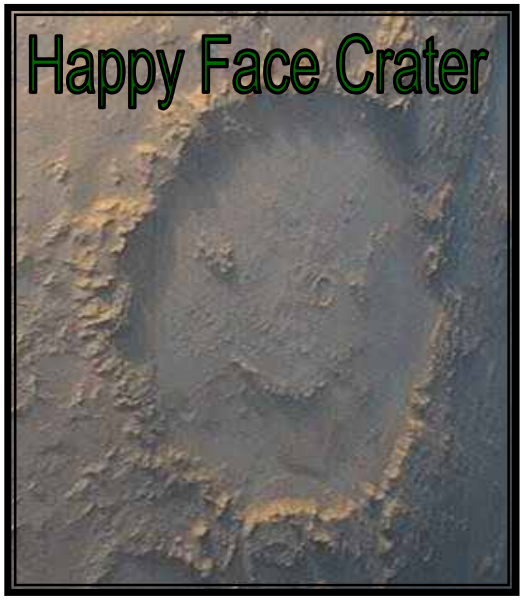
Monday morning, May 9, 2016: planet Mercury transits across the disk of the sun. The innermost planet begins crossing the southern portion of the solar disk approximately two hours before sunrise, local time. The transit ends about 11:42 am PDT. The advantage with this transit is that Mercury will be 12" in apparent diameter, instead of the 10" common to November transits.

Ralph Merletti



Mars

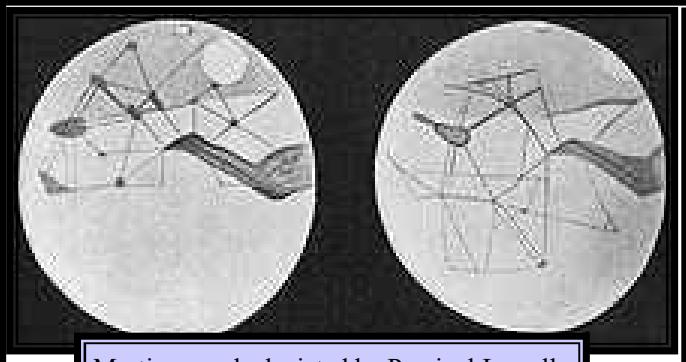
Close Encounter
May 22, 2016



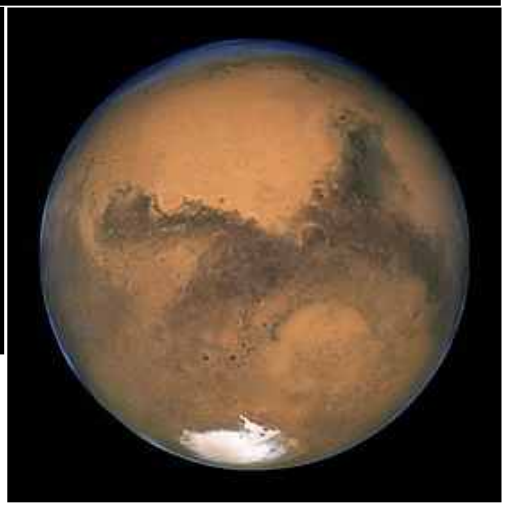
Mars is getting fairly close to Earth in May, 2016 (only 46.8 million miles), and will be very close July 31, 2018! This year Mars will be 18.4" in diameter (71% of the maximum 25.1") at magnitude -2.0, located in Scorpius. In 2018 it will be 24.2" in diameter (96% of max) at magnitude –2.8, and it will be the closest approach for the next decade plus years.

As a youngster in grade school, I remember the tales of vast cannel's carrying water for the Mars civilizations. Everyone was certain there was life on Mars, and artist concepts of Martians abounded everywhere. After holding on to improbable hope, I was so disappointed when the first photos came back of a desolate landscape without any signs of life. Nonetheless, it was those first memories that endeared Mars as my favorite planet, and sparked a life-time of excitement waiting for the next close encounter.

Martian tripod illustration from the 1906 French edition of *The War of the Worlds* by H. G. Wells.

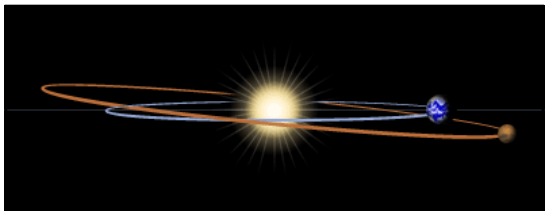


Martian canals depicted by Percival Lowell.



These closes encounters only happen once or twice every 15 to 17 years. Close encounters are complicated by our orbit being slightly elliptical, and Mars's orbit is very elliptical and slightly tilted to ours. This makes the closest encounters very rare, the last was in 2003 and it won't be that close again until 2287! I had some spectacular views from my back yard in 2003, and it felt really special knowing it would be the last chance in my lifetime to see Mars this close.

Observer Editor



BCN 2

Blue Canyon Nights: *Looking South in Spring*

Seasonal photos contributed by SVAS members

The Kite of Monoceros

The southern area along the celestial equator appears blank in Spring compared to the brilliant appearance of Orion all winter. Yet therein lies a rich section of the Milky Way defined by a simple kite-like asterism consisting of four stars: **Procyon** in Canis Minor in the upper East(left of the chart), clockwise to the relatively dim **Alhena** in Gemini at the top(North), then to colorful **Betelgeuse** in Orion(West), and ending with the most brilliant star, **Sirius**, at the bottom(South) in Canis Major. Inside the Kite resides the dim constellation of **Monoceros** with brilliant nebulae, open clusters, interesting galaxies (especially in the loop near Murzim), and other NGC objects not obvious to the naked eye. Thus, the Kite asterism provides an easy way to orient the eye in this dark, featureless area of the sky.

The Chrismans Tree and Cone Nebula

This 60 sec wide-angle photo taken with a Canon 60Da camera and 150mm lense shows (A)the overlapping **Christmas Tree Cluster** and the **Cone Nebula,** NGC 2264(top) and (B)the **Rosette Nebula**, NGCC 2244, (bottom). See enlarged Cone Neb. at right.

The Rosette Nebula

NGC 2244

The Cone Neb *FOV 20'*

IC 2163/NGC 2207 nearing collision in in the "Murzim loop" west of Sirius *FOV 4'*

Two Views of the Seagull Nebula NGC 2177

Kevin Lucidi

These two photos of the **Seagull Nebula(IC2177)** reveal some important truths about astrophotography. Both were taken with about the same size telescope, but look radically different. The left photo was taken by Kevin Lucidi with a Stellarvue SVR 80 F4.5, for a tolal of 10 hours exposure, and shows delicate gradations of color with subtle filiments and details. The right photo represents only an hour exposure, and while it shows good color, the gradations are abrupt and choppy, and present only a suggestion of the underlying complexity. Clearly, time matters. In addition, the stars in the left photo have been suppressed to reveal the nebula, while the dense stars to the right only obscure the nebula..

Stuart Schulz 6711stuart@gmail.com

Sac City College's New Telescope

It has been customary for Professor Liam McDaid to open the Sac City College observatory to the SVAS after our monthly meetings. This time it was a very special event, first light (at least for us) of the new 17" PlaneWave telescope. SVAS was there in force, almost too many of us for the amount of space. Liam asked us to form a line to the eyepiece, and when finished viewing move back down the opposite stairs forming a continuous loop to share the telescope. We were treated to M42, the Moon, and Jupiter among others.

Christopher Hulbe was a member of the Physics Department from 1968 to 2005, he passed away in 2010. Chris was a longtime SVAS member. I only met him once, sitting on the tailgate of his pickup at HGO, and talking astronomy to anyone and everyone. I listened for some time to his enthusiastic descriptions of the heavens, added my two cents worth, and afterwards asked a friend who he was. That's Chris Hulbe, the professor at Sac City College, he said. I remember that encounter well, Chris was so easy to converse with. How fitting to name the observatory after him! His wife Claudia is an honorary SVAS member, and still supports the SVAS with generous donations.

The new $22K 17" PlaneWave CDK (Corrected Dall-Kirkham) telescope is most impressive, not to mention the $15K Paramount MEII mount from Software Bisque. The MEII can carry 480lbs max, has a clutch less design with a belt drive for zero backlash, and a potential 30" pointing accuracy! The scope has a focal ratio of f/6.8, a long 2936 mm focal length, and a 40mm 65 degree wide field eyepiece gives 73.4x with a .89 deg field of view. Large enough to view a half degree full Moon comfortably.

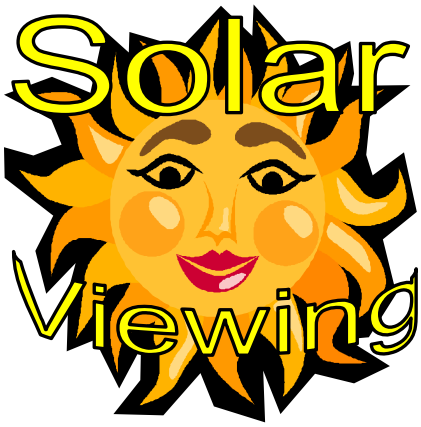
Professor Liam McDaid, Walt Heiges, Perry P. Porter, Mike Bailey, & Ralph Merletti

The Dall-Kirkham optical design utilizes an elliptical primary mirror, and a convex spherical secondary. The spherical secondary makes collimation very forgiving, and the optical system is corrected with a special lens located between the secondary and focuser.

The Hulbe Observatory is perched on the roof of the three story Rodda South building. The elevator reaches the third floor, and the trek to the roof is via a final stairway.

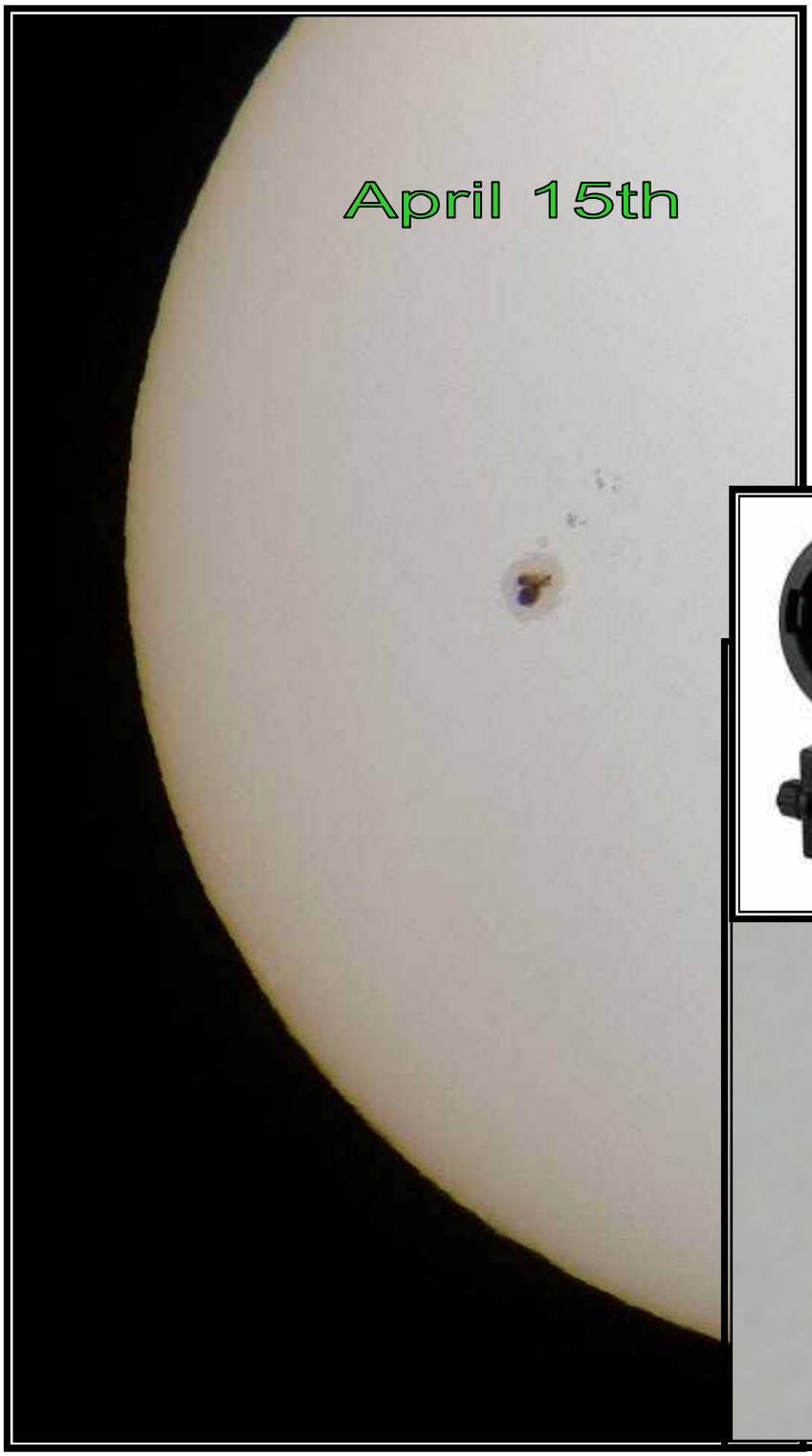
The SVAS is very fortunate to have this great facility available to us, this is what you miss if you don't attend our general meetings.

Thank you Liam! Observer Editor



Giant Sunspot Appears

Bill Hagbery



Here are Friday's Sunspots through Forrest's 100mm Lunt ED telescope and Lunt 2" Herschel Wedge, **using a Samsung Galaxy S6 phone camera**.

The sunspot diameter was over 20,000-km almost two Earths across! Saturday, I took several more photos using Baader AstroSolar film on a Celestron NexStar 6SE scope. The detail was good but no where near the detail thru the Lunt Herschel Wedge.

Editor's note: Bill found this very cool camera holder on E-Bay for less than $10. Rotate and it clamps down on the eyepiece. Search E-Bay & Amazon: "Telescope eyepiece cell phone camera holder." The photo quality from the new cell phones is just amazing! Attach to our telescopes for a dynamic duo!

Astro Photography

by Adam Phillips

These photos were taken with a QSI 6120, with Astrodon filters, through a Stellarvue SV80. They were stacked in Deepskystacker, and processed in Photoshop.

HGO Repairs

Stuart Schulz, Perry P. Porter, and I spent a couple days in early April, starting the repair process on the break room floor and walls in HGO. It has endured years of various roof leaks in the corner, and finally dry rotted all the way through a 1 1/8" thick floor! After showing the photos to the Board, we decided to spend a day together at HGO and discuss the necessary repairs and how to get it done.

A few weeks later in April, several Board members got together for a fun trip to HGO. We have a couple construction experts in our group, Walt Heiges and Charles Jones. I learned a lot about dry rot, and what I had planned to replace and repair wasn't nearly extensive enough. Wow, this job just got very intimidating, but Charles discussed in

detail how we will support the ceiling while replacing a short piece of the foundation 4x6, and the 2x6 bottom wall rail. So far, it looks like the damage is localized in a lower 6' section of the north wall. After replacing the dry rotted wood, we will re-insulate the walls, replace the paneling, and get ready for paint. Roof repair is a high priority, and we will get that done before any more damage occurs.

We had a very scary incident happen in early March of this year. The roll-off roof was blown free of the locking mechanism, and rolled all the way open dur-

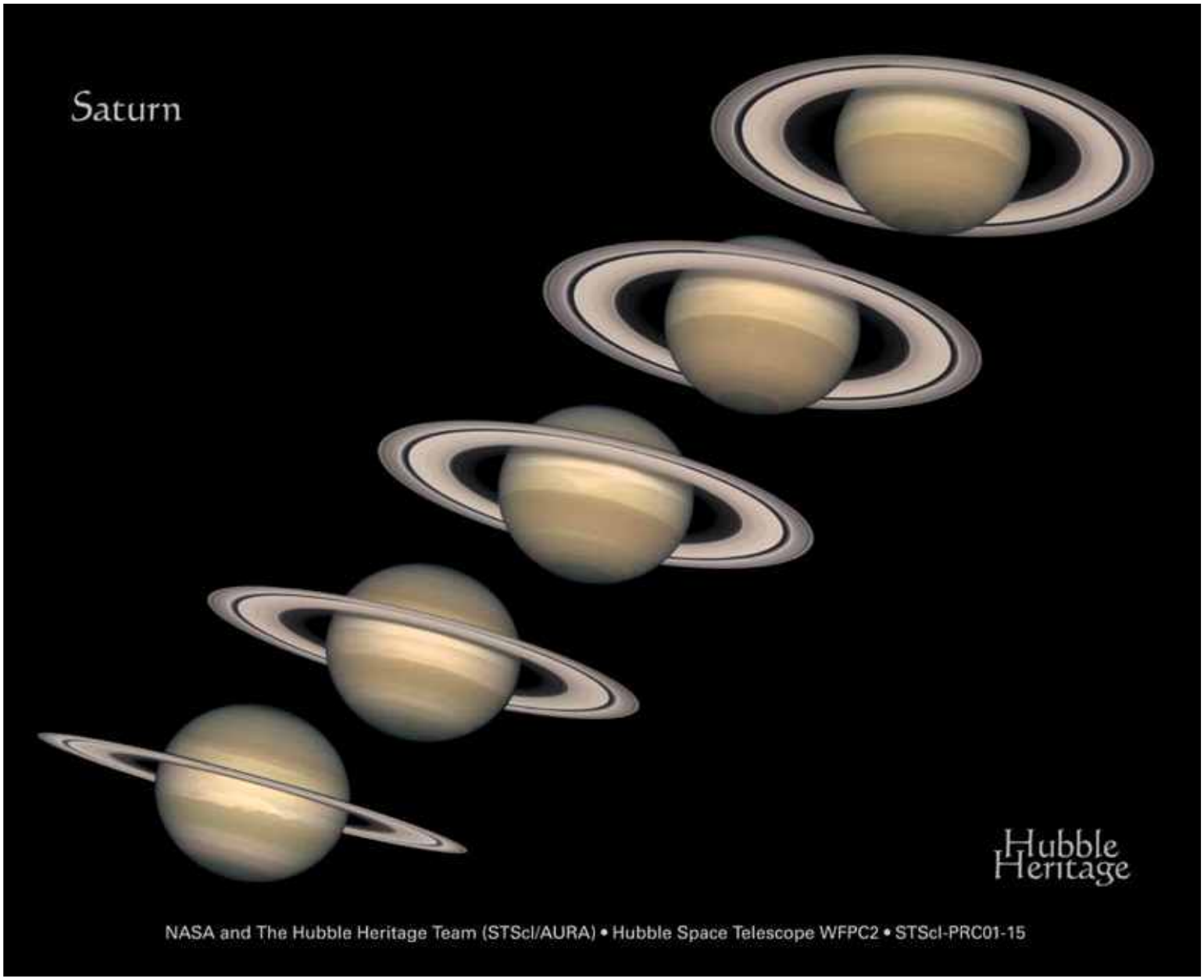
Perry, David, Walt, Charles, Kevin N., and Kevin H., Stuart is inside HGO, Lonnie taking photos.

ing a snow storm! Luckily, Stuart Schulz was there the very next day, and cleaned out the snow before it melted. The end result was damage to the south end of the roof fascia, and to the cross beam that stops the roof when fully open or closed. The photo at right shows Charles and Stuart inspecting the cross beam damage. The roof is now chained down and operational, and we have a plan to make the necessary repairs and improvements to the lock down system.

The break room floor is the most challenging to me, so naturally my attention focused there. It's also necessary to accomplish roof leak repair, and the roll off roof repair, immediately as well. It's great feeling having the support of the entire Board to get this huge project completed!

Lonnie Robinson

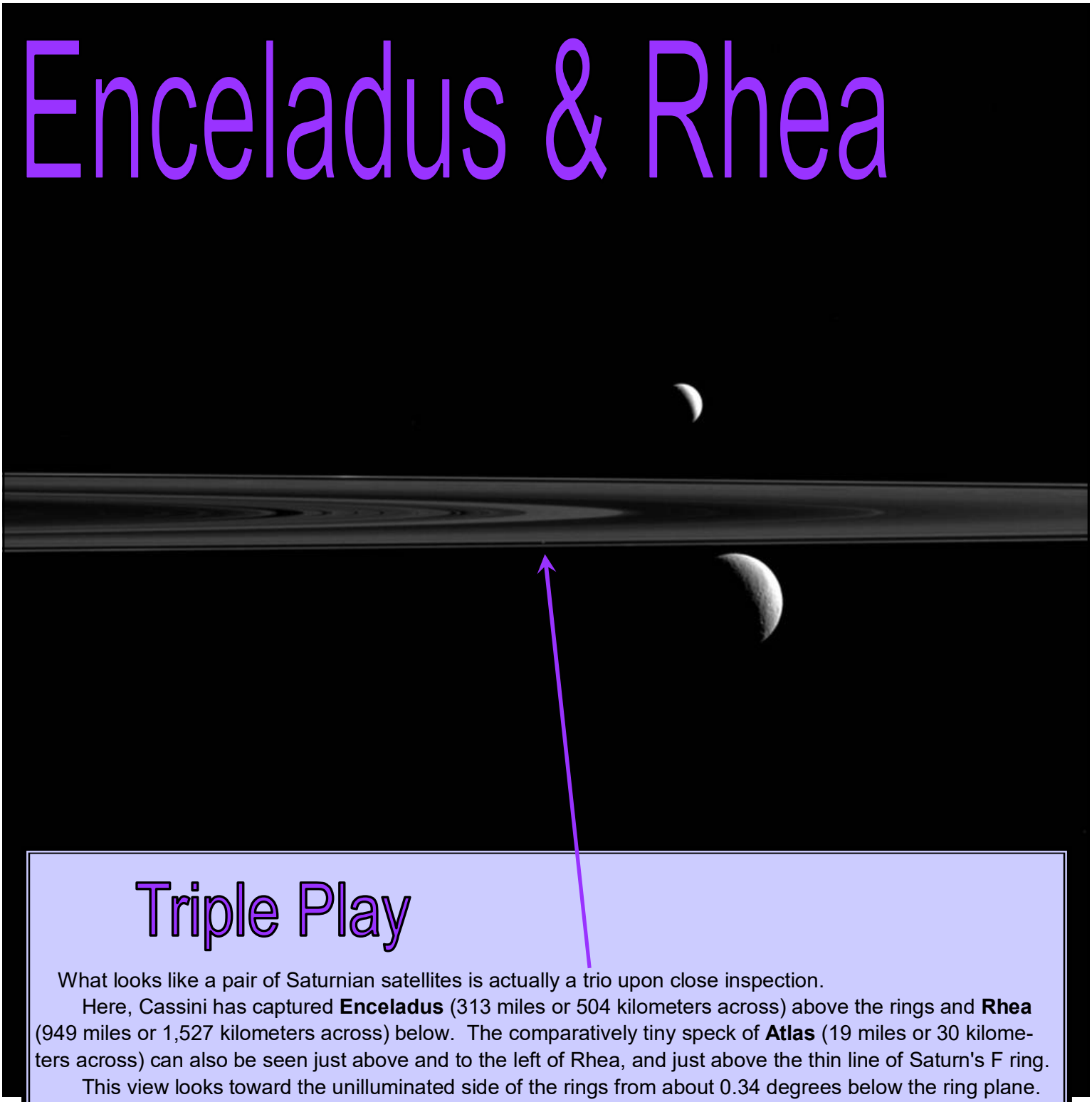
Saturn's Rings Almost Fully Open



Are you watching the tilt of Saturn's rings? We are in for a treat in October, 2017, when they will be inclined at their maximum of +27 degrees! Don't wait however, Saturn is putting on a great show right now, the rings (as of March, 2016) are at +26 degrees. Saturn is almost twice as bright when the rings are open to us, because they reflect a lot more light! Every 13-16 years, the rings go through a cycle from edge on to wide open, and this happens twice during the 29.44 year orbit. The north and south hemisphere swap each time, and we are currently viewing the northern hemisphere as indicated by a + sign before the tilt degree number. After 2017, the rings will slowly close again to edge on by 2025.

Observer Editor

Enceladus & Rhea



Triple Play

What looks like a pair of Saturnian satellites is actually a trio upon close inspection.

Here, Cassini has captured **Enceladus** (313 miles or 504 kilometers across) above the rings and **Rhea** (949 miles or 1,527 kilometers across) below. The comparatively tiny speck of **Atlas** (19 miles or 30 kilometers across) can also be seen just above and to the left of Rhea, and just above the thin line of Saturn's F ring.

This view looks toward the unilluminated side of the rings from about 0.34 degrees below the ring plane.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera on Sept. 24, 2015.

The view was obtained at a distance of approximately 1.8 million miles (2.8 million kilometers) from Rhea. Image scale on Rhea is 10 miles (16 kilometers) per pixel. The distance to Enceladus was 1.3 million miles (2.1 million kilometers) for a scale of 5 miles (8 kilometers) per pixel. The distance to Atlas was 1.5 million miles (2.4 million) kilometers) for an image scale at Atlas of 9 miles (14 kilometers) per pixel.

The Cassini mission is a cooperative project of NASA, ESA (the European Space Agency) and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging operations center is based at the Space Science Institute in Boulder, Colorado.

Calming the Fears of Lens & Mirror Cleaning

by Lonnie Robinson

Everyone is terrified of cleaning their optics, and with so many suggested techniques and cleaning products, it's no wonder why! Here are some guidelines to help ease your fears:

Most Important!! Before cleaning, make sure there is no grit on the surface that may scratch the coating or glass! Lightly brush and blow off the surface of lenses (camera lens brushes with blower bulbs attached work really well), corrector plates, and objectives, and thoroughly soak and rinse the grit off the surface of mirrors before cleaning. Change your cleaning tissue and cotton balls often to prevent any ongoing damage. Dirt and grit are our biggest enemy!

Spray can air has a lot of controversy attached, and many folks warn not to use it. The main fear is the liquid propellant may not vaporize and squirt some hard to remove stuff on the optic. Well, it really works great removing dangerous grit, our worst contaminate, so I feel using some easy precautions makes it a viable tool. First, don't tilt the can from upright, the liquid can be pulled into the intake. Second, don't shake because it can mix the liquid into the air, and try not to use an almost empty can. Third, clear the nozzle before using on optics, by spraying a little off to the side. And finally, the exhausting air changes pressure and becomes very cold, so be careful not to freeze your optic! I suggest not using regular air compressors, since they use oil for lubrication and it gets carried out with the air and onto the optic. By following these simple guidelines, I think you will really like using canned air.

I was relieved after reading this quote from Televue: "***The anti-reflective coatings on eyepieces and objective lenses (*corrector plates included*) are durable enough so that almost no liquid (short of a corrosive) is going to damage them, although some cleaning fluids can leave a film."*** And this quote from RF Royce precision optics: ***"Protected aluminum is more durable than many people think. I have experimented and have tried to destroy protected aluminum coatings and other coatings by rubbing the surface with my hands and paper, and have found it more difficult than I imagined to harm it. Eventually, the coating does pick up scratches, abrasions, and scuffs, but it takes a bit of effort. Rubbing dirt into the surfaces causes instant scratches. Dirt is really the culprit."*** Most all mirrors have a coating of silicone oxide over the aluminum, a thin glass like layer that makes the aluminum quite tough and corrosion resistant. This silicone oxide gradually hardens over the first six

months, so waiting to clean a freshly coated mirror is advisable.

Have you heard horror stories about using **Kleenex**, and why you must use all the suggested special lens papers, towels, brushes, and cleaning solutions? Well, it is my experience & opinion that Kleenex (no lotion or perfume added), cotton balls, and Q tips, are the preferred products for optical cleaning. I must add that **using any product without moisture is very dangerous, and always press very lightly with several layers between your finger and the mirror or lens. Mirrors;** Use no pressure, only drag wet cotton balls and or wet Kleenex puffs under their own weight over a water and/or solvent soaked surface. Don't wipe dry, drain excess liquid, chase the water droplets with a cold hair dryer, and only blot the surface. How often should we clean, at least every year. Pollutants can degrade the aluminum coatings, and periodic regular cleaning can extend the life of the coating. **Lenses;** Again, use no pressure and only necessary moisture when cleaning. Damp Q tips work well around the edges, avoid too much liquid that can seep into the eyepiece. To finish; mist the surface with distilled water, lens cleaner, or condensed breath vapor, and wipe gently with a slightly damp Kleenex. Dry just enough to leave the glass streak free.

Now on to which liquid solvents to use for cleaning lenses (objectives & corrector plates) and mirrors. I like to draw a parallel with using paint thinners for oil base paints, and water to thin water base paints. Water will not thin or clean up oil base paints, and paint thinner won't thin or clean up water based latex. **Do not use any oil based paint thinners, like mineral spirits and paint thinner, on optics.** Continuing with the idea of two types of cleaners to remove different stuff on optics, the first is a water based lens cleaning solution and the second cleaner is straight acetone or alcohol. If soap and water can't remove all contaminates, straight alcohol or acetone are the preferred alternatives for breaking down substances resistant to water and detergent. Dried finger prints are good examples of detergent resistant, as are some air pollutants. Be careful using acetone around paint and plastic, it may dissolve it. It's also very toxic and flammable! Alcohol and acetone dry fast and leave little residue, but I usually find a light film left on the surface that requires a final water based cleaning or rinse to remove. Methanol is great for removing felt tip marker ink, and it is also optics safe.

Highly Recommended Lens Cleaner
66% Distilled Water
33% Pure Alcohol
(90% pure or better, less pure works but may leave a film)
Two Drops Dish Soap Per/Gal

I highly recommend making your own lens/mirror cleaner, it will be the simplest, by far the cheapest, and the most effective you can find. Many of the commercial cleaners have so many additives and they tend to leave a messy film on optics, our homemade brew leaves minimal residue. Here is my own favorite recipe, and many telescope companies, Meade and Celestron to name a couple, suggest similar solutions. Celestron uses 66% Alcohol and 33% distilled water, which implies lots of elbow room for adjusting proportions. Although this lens cleaner will work on mirrors after rinsing, cleaning is best done with distilled water and a higher concentration of dish soap. Use straight acetone or alcohol for stuff our lens cleaner, or soapy water, won't remove from lenses/mirrors. After spot cleaning mirrors, apply a very light misting of lens cleaner, distilled water, or breath vapor for a final residue removal, and gently blot with a damp Kleenex to speed drying. I just ran across a cleaner mixture that uses Windex as part of the formula. Windex is often overlooked as a great optical cleaner, it cleans stubborn stuff fairly well and leaves very little residue or streaks (it leaves more residue than my favorite formula). For your convenience, I've even included a label you can cut out and attach to your cleaner bottle with clear packing tape. Tap Plastics has some great plastic bottles with a choice of a dropper, sprayer, or nozzle attachments. Dollar stores have small travel bottles that work well too.

Jeff Baldwin, our ATM Stockton Connection and mirror making guru, likes to use alcohol as a final rinse to a still wet mirror surface after rinsing with distilled water. It speeds the drying process, and helps prevent spotting.

If you manage to remove all the small boulders, meteor dust, sand, dirt, and grit before cleaning, you have just jumped the biggest hurdle. Now you can clean optics without the terror, cold sweats, and sleepless nights!

Note: Please use caution and proceed at your own risk, these are only my suggestions.

The Closest New Stars to Earth

By Ethan Siegel

When you think about the new stars forming in the Milky Way, you probably think of the giant star-forming regions like the Orion Nebula, containing thousands of new stars with light so bright it's visible to the naked eye. At over 400 parsecs (1,300 light years) distant, it's one of the most spectacular sights in the night sky, and the vast majority of the light from galaxies originates from nebulae like this one. But its great luminosity and relative proximity makes it easy to overlook the fact that there are a slew of much closer star-forming regions than the Orion Nebula; they're just much, much fainter.

If you get a collapsing molecular cloud many hundreds of thousands (or more) times the mass of our sun, you'll get a nebula like Orion. But if your cloud is only a few thousand times the sun's mass, it's going to be much fainter. In most instances, the clumps of matter within will grow slowly, the neutral matter will block more light than it reflects or emits, and only a tiny fraction of the stars that form—the most massive, brightest ones—will be visible at all. Between just 400 and 500 light years away are the closest such regions to Earth: the molecular clouds in the constellations of Chamaeleon and Corona Australis. Along with the Lupus molecular clouds (about 600 light years distant), these dark, light-blocking patches are virtually unknown to most sky watchers in the northern hemisphere, as they're all southern hemisphere objects.

In visible light, these clouds appear predominantly as dark patches, obscuring and reddening the light of background stars. In the infrared, though, the gas glows brilliantly as it forms new stars inside. Combined near-infrared and visible light observations, such as those taken by the Hubble Space Telescope, can reveal the structure of the clouds as well as the young stars inside. In the Chameleon cloud, for example, there are between 200 and 300 new stars, including over 100 X-ray sources (between the Chamaeleon I and II clouds), approximately 50 T-Tauri stars and just a couple of massive, B-class stars. There's a third dark, molecular cloud (Chamaeleon III) that has not yet formed any stars at all.

While the majority of new stars form in large molecular clouds, the closest new stars form in much smaller, more abundant ones. As we reach out to the most distant quasars and galaxies in the universe, remember that there are still star-forming mysteries to be solved right here in our own backyard.

Image credit: NASA and ESA Hubble Space Telescope. Acknowledgements: Kevin Luhman (Pennsylvania State University), and Judy Schmidt, of the Chamaeleon cloud and a newly-forming star within it—HH 909A—emitting narrow streams of gas from its poles.

SVAS Main Events

SVAS Sponsors!

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Vice President — Lonnie Robinson

Secretary — Kevin Heider

Treasurer — Kevin Normington

Past President — Ross Gorman

SVAS Board of Directors

~ Even Year Term ~

Perry Preston Porter, Tom Braun, Fera Zamani

~ Odd Year Term ~

Bill Marquardt, Chuck Real, Charles Jones, David Macho

Committees

Membership / New Members	Walt Heiges / Kevin Normington
Star-B-Q & Resources	Walt Heiges
Yosemite Star Party	Tom Braun
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Community Star Parties	Wayne Lord
Observatory Director	Perry Preston Porter
Help for Beginners	Perry Preston Porter
HGO Maintenance Director	Stuart Schulz
Amateur Telescope Making	Lonnie Robinson / Bill Thomas
Scholarships	Chuck Real / Kevin Normington

Where We Meet

General Meetings the third Friday of each month beginning at 8:00pm.
Board Meetings begin at 6:30 on the same day. All members are welcome.
Star Parties on weekends nearest the new Moon.

Sacramento City College
Mohr Hall Room 3
3835 Freeport Boulevard
Sacramento, CA.
(12th St. Exit West off I-99)
WWW.SVAS.ORG

SVAS Observer - Newsletter

To Subscribe– First send in your membership application form below, with your dues, and upon approval by the Board of Directors the Observer newsletter (published bi-monthly beginning January) will be sent to your supplied email address in .pdf format. Second, request to join the SVAS Yahoo Group at http://groups-yahoo.com/group/svas-members. This group will keep you informed with the day to day current events and discussions.

Articles– Manuscripts and letters are welcome in MS Word, MS Publisher, or plain text format, and emailed to the SVAS Editor. Submission deadline is the 15th of the newsletter release month.

Advertising– Commercial, non-personal advertising, business card, and full page are available. Classified advertising is free to SVAS members.

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SVAS Membership Application

Date___/ ___ /___ **Membership** *(check one)* **New:** ___ **or Renew:**___

Annual Renewal Date June 1st (Expires July 1st)

(Four months minimum membership is requested, please include the following year if necessary)

General Member *(Family–Individual)*	*Prorate @ $3 per month*	**$36 per yr** _____
Observatory Member *(Please read Observatory Membership)*	*Prorate @ $7 per month*	**$84 per yr** _____ *(General Membership included)*
Student Member *(ID required)*	*Prorate @ $2 per month*	**$24 per yr** _____

Additional Tax Deductible Contribution $ _____

Total Enclosed Amount $ _____

Print Name_____

Address_____

City _____ **Zip**_____

Phone_____ *(E-mail required for newsletter mailing)*

E-mail_____

Signature_____

Observatory Membership

Observatory Membership offers the benefits of a regular membership plus the private use of the Henry Grieb Observatory (HGO) at Blue Canyon. **To apply, you must have been a general member for six months or longer, be certified and approved by the Observatory Director, and then approved by the SVAS Board of Directors.**

Please allow 30 Days Or More for Application Approval

By signing this application, I acknowledge I have accessed the SVAS website **SVAS.org**, read and understand the SVAS bylaws and the rules governing the USFS Special Use Permit. In doing so, I agree to abide by the respective "terms and conditions" of each as they relate to using the SVAS property and facilities. I further understand and acknowledge that failure to abide by these "terms and conditions" can result in revocation of use privileges and/or SVAS membership.

To: SVAS Membership Application
Detach, *SIGN*, & mail with payment.
PO Box 15274 –0274
Sacramento, California. 95851-0274