SVAS OBSERVER
Vol.73 No.4* July-August, 2016
Sacramento Valley Astronomical Society
Founded in 1945

The Solitary Dob

HGO Star Party June 4, 2016

Inside This Issue

SVAS Event Calendar

July 2, Saturday

Blue Canyon, weather permitting.

July 3, Monday

New Moon.

July 8-9, Glacier Point!

It's not too late to join us at Glacier Point.
Last count there is room for 20 more.
Contact Tom Braun.

July 23-24, Rusch Park Campout

This is a fun public outreach event! We only stay until about midnight.
Contact Walt Heiges.

July 29-31, Star-B-Q!

The SVAS General Meeting is held at Star-B-Q.

Has Your Membership Expired?

August 2, Tuesday, New Moon

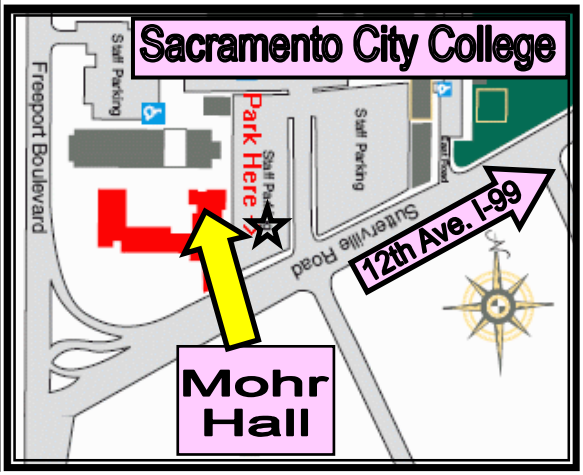
August 19, Friday, SVAS General Meeting, 8:00pm.

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

Star Party Schedule for 2016

July 2
July 29,30,31, Star-B-Q
Sept 3
Oct 1
Oct 29
Dec 3

Blue Canyon



Community Star Parties

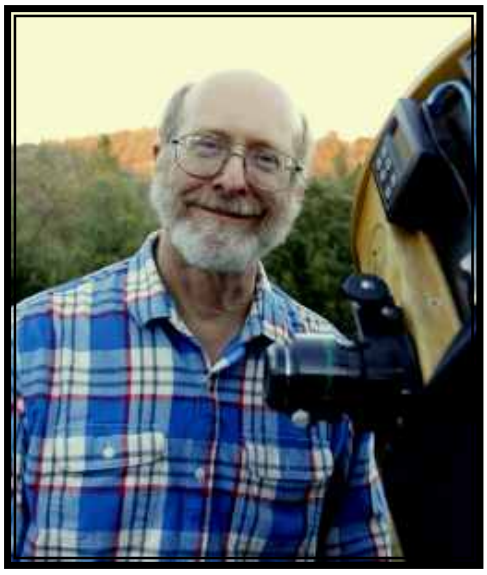
Contact Wayne Lord

SVAS Guest Speakers

2016 Roundup
by Fera Zamani

It's a Friday night – but wait- you're in luck. Because it's not just any ordinary Friday night, but the 3rd Friday of the Month – which means there's a SVAS Meeting at 8 p.m. at Sac City College. You go in maybe not too sure what to expect, and then you are greeted by some of the most exciting Speakers and Presenters in the field of Astronomy. One of the goals of the SVAS is to bring dynamic speakers to just about every meeting (the exceptions being the March general election meeting, the July Star B Q, and a possible December meeting at the Powerhouse Science Center with a planetarium show) so they can share their expertise and insight with members and open the door for some great discussions.

Here is just a sampling of some of the speakers that have presented over the past few meetings as well as some exciting upcoming engagements:



January 2016: Dr. Don Machholz
an internationally recognized comet hunter on the topic of the "Messier Marathon" which is the search to find as many Messier objects as possible during the course of one night.

February 2016: Vic Maris from Stellarvue
Vic owns and operates his own world-renowned telescope making business. Vic's business started in his garage in 1998 and since then has produced thousands of hand crafted telescopes with exceptional optics.

April 2016: Dr. Lyn VanWinkle and Dr. Phil Robinson from Aeroject Rocketdyne – Basic physics and rocket propulsion, with a focus on some of the systems used to Launch, Control, and Land several of the US Planetary Missions such as Viking, Curiosity, and New Horizons

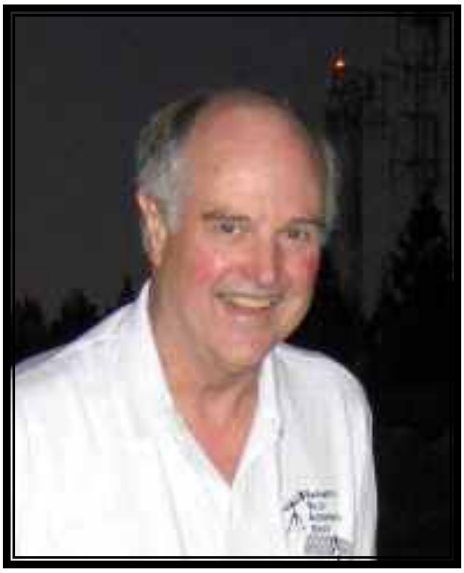
May 2016: Professor Liam McDaid

June 2016: SVAS's own President Walt Heighes on the basics of Astronomy 101 – a great refresher course for seasoned astronomy buffs and a good starting point for novice star seekers.

August 19, 2016: Dr. Don Goldman, a deep sky astrophotographer who will talk on the topics of Planetary Nebulae (e.g. Dumbbell, Ring, Helix). What are they? How do they evolve? What do the varied morphologies that we see in images mean? Is there more there than meets the eye? Why are they good imaging targets even with local light pollution? How do we image them? Check out his web site at **http://mstecker.com/pages/appgoldman.htm**

September 16, 2016:
Lonnie Robinson,
SVAS Vice President
will present on Telescope Mechanical & Optical Tube Alignment, RA-Dec Alt-Az Mount Motions, EZ Polar Alignment, Simplifying Drift Alignment, Choosing Guide Stars, Pointing Devices, Digital Setting Circles and Software.

Beginners to Experts



October 21, 2016: Chuck Real
SVAS Board Member
will present on Near-Earth Objects or NEO's. He will discuss historical and pre-historical evidence of large extraterrestrial impacts on Earth, and work that is currently underway to better understand the risks future impacts could pose to humanity.

Check out the SVAS newsletter article dated July / Aug, 2015, page 8.

November 18, 2016: Bob Fies
Owner of Aluminum Coating
will present on proper aluminum coating for telescope mirrors, and his experience with laser spotting at Lick Observatory.

John Dobson asked Bob, many years ago, if he could figure out how to coat telescope mirrors. He achieved the goal, and coated countless mirrors for John and the San Francisco Sidewalk Astronomers. Check out his web site; http://www.alcoat.net/ and the SVAS newsletter article dated Jan / Feb, 2016

SVAS meetings are held in a stadium style classroom at Mohr Hall, which provides the perfect platform for speakers to present in an academic setting (quite similar to TED talks) complete with their power point slides on an overhead projector, and yet still remains small enough to actively engage with the audience.

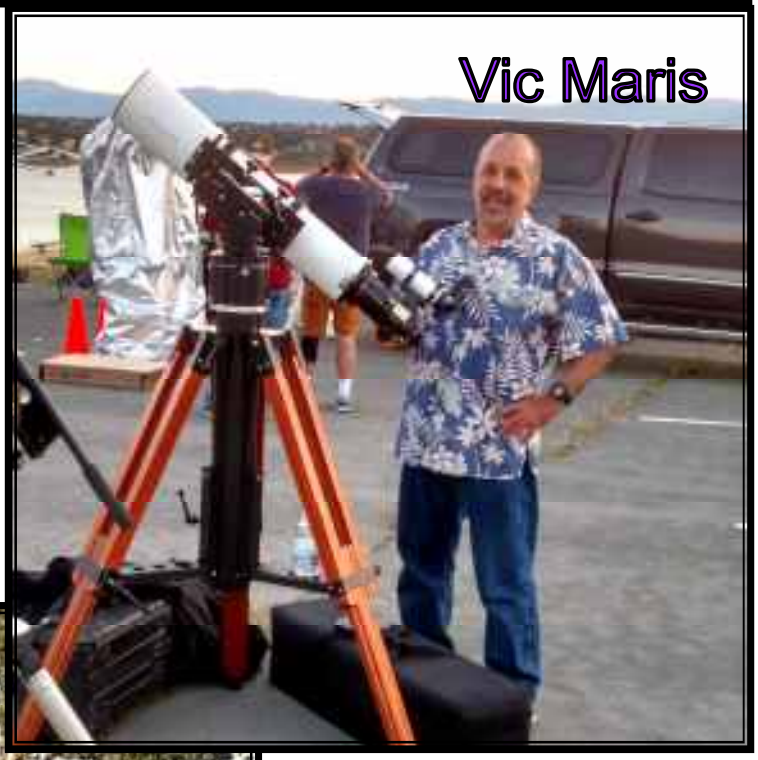
Here is a little challenge for you – if you personally know of anyone truly exceptional in the field of Astronomy, who might be willing to speak to us, please refer them our way! We love to be able to offer a variety of topics and speakers.

Late Spring at HGO

May 1, 2016

This makes my second trip to Black Butte, and I enjoy this star party immensely each time. There was a great turnout of sky watchers from all over California. We had a very special guest, Vic Maris of Stellarvue fame. It was great to visit with him, and it was a special treat to try several of his newest eyepieces in our scopes. We had the chance to blind compare Vic's new 100 degree 20mm Optimus Eyepiece with a Televue 17mm Ethos. Great fun, the Optimus scored very highly and is much less expensive.

Jack Sales told me last year that it can be windy on occasion, and windy it was this year! The wind blew most of the day Friday, Saturday, and Sunday, with a heavy overcast of high clouds. However, the clouds cleared for a few hours Fri & Sat evening, allowing a bit of great stargazing until about midnight. Sunday evening started out



cloudy and windy. Everyone wanted to get a little observing time on the last day, but the clouds stubbornly lingered on past midnight. All but three of us packed up and turned in, and we were rewarded with clear and calm skies from about 12:30am until near 4:30am! The best observing of the weekend, bar none. The skies at Black Butte are very dark, and the views are amazing especially considering we were at sea level. It's also quite warm for comfortable spring viewing of the Virgo Galaxy Cluster, my favorite area.

My good friend Paul Redmon and I have been working on building his scope for the last couple years. We ground, polished, and figured his 12.5" mirror, and then built the scope as a direct copy of my 16". It turned out really great! We had an issue with a B-Box just before the trip, so his push-to encoder system didn't work. Paul did his best to find familiar objects, and was very pleased with the images. Our large altitude bearings were sized after finding the balance point of the optical tube, that way we could add a pound of two of future accessories at the cage without any heavy counterweights attached to the mirror box. Then we added a sliding balance weight bar on the cage, a great way to balance since it takes only 1-lb at the cage to offset 5-lbs at the base. Balancing from the top down is almost unheard of in a Dob! We made the scopes look as attractive as possible, after all astronomers can see in the dark!

Greg Blandin and his 25" Dob both stayed up Sunday night waiting for clear skies. Greg is an amazing observer, being able to find loads of obscure objects in the sky. He is an accomplished telescope maker, and makes a great all aluminum equatorial wedge. Hopefully he will accompany us to Yosemite again this year.

The photo above is looking away from the observing area (parking lot) towards the main camp grounds. The restrooms and showers are behind the gazebo, the fire pit is just to the left of the photo. I'm always blown away by the amazing looking zig zag branches and limbs of the oak trees. Their dark bark contrasting the vivid bright green sculptured leaves is a beautiful sight. All this beauty is accentuated by the winding walkways and groomed grassy area.

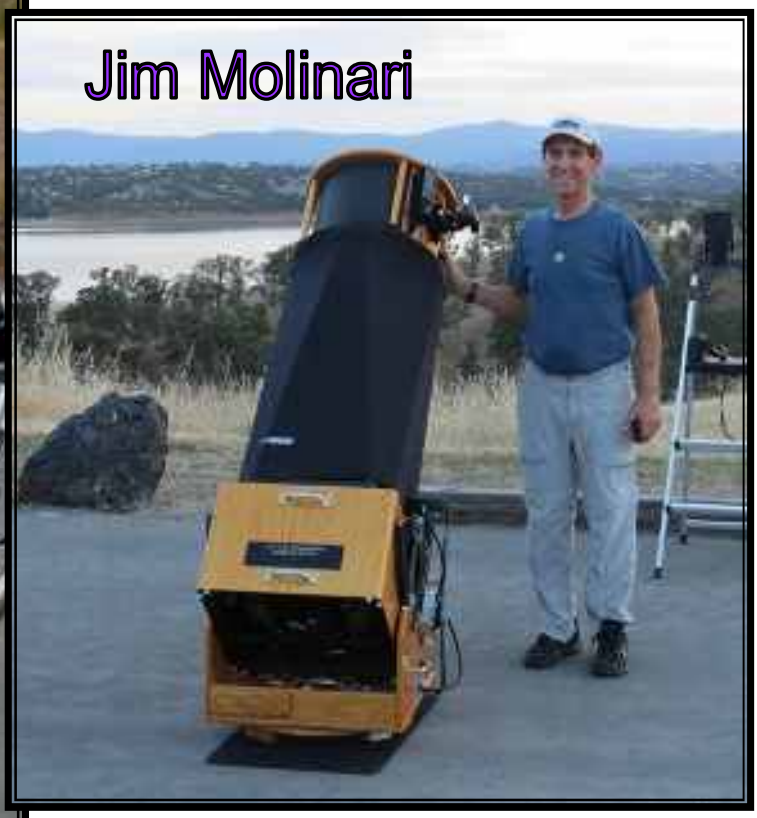
Rick Linden from San Rafael, CA., and his 22" Obsession Ultra Compact Dob fits easily in his small SUV. It's a beautiful scope, and very expensive looking! He has an amazing collection of eyepieces, not to mention all sorts of accessories. Rick showed us his new Astro Devices Nexus DSC. It wasn't connected yet, and it's an amazing looking complete digital setting circle computer similar to Argo Navis or Sky Commander. It has a practically unlimited database, built in GPS, and a WiFi interface for wireless control from a smart phone or tablet. Can't wait to see it in operation.

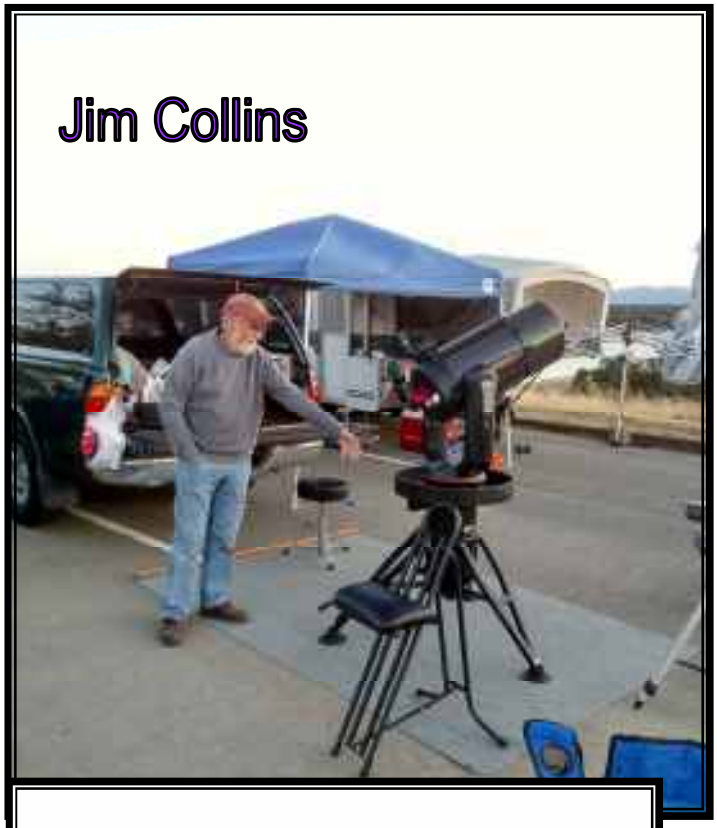
Bill Hagbery (below) and his friend Martin Dunlap were there with several scopes. I was treated to seeing Bill's Meade 7" Maksutov LX200, it was only produced for a short time. Very interesting small secondary, much smaller that a typical Cassegrain. It is a round aluminum coating applied to the inside of the spherical-meniscus corrector plate. Check out the binocular mount too!

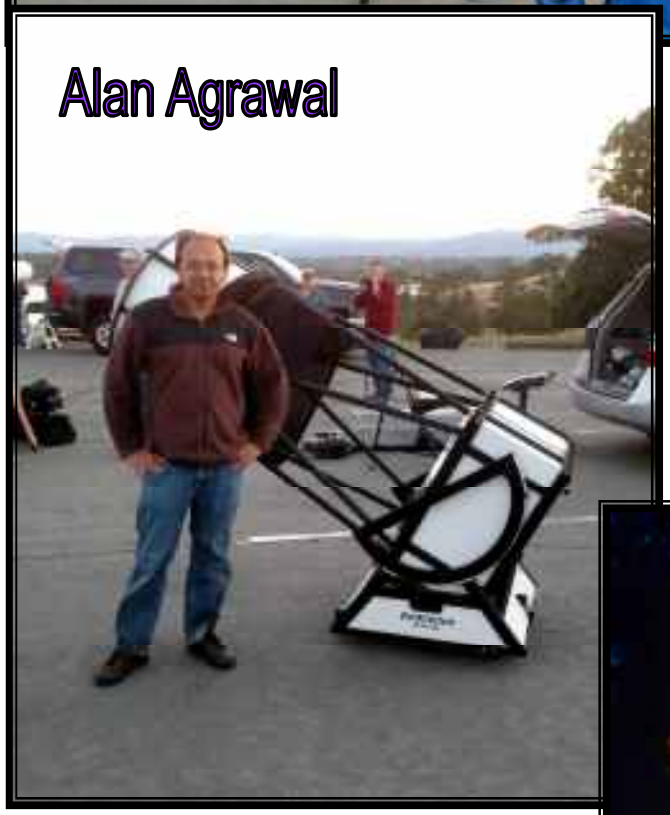
It was great to visit with Terry Sandbeck. I hope we didn't keep him up Sunday evening, we were observing very close to his van where he was sleeping.


Rick Linden


Bill Hagbery & Nick Maupin


Jim Molinari





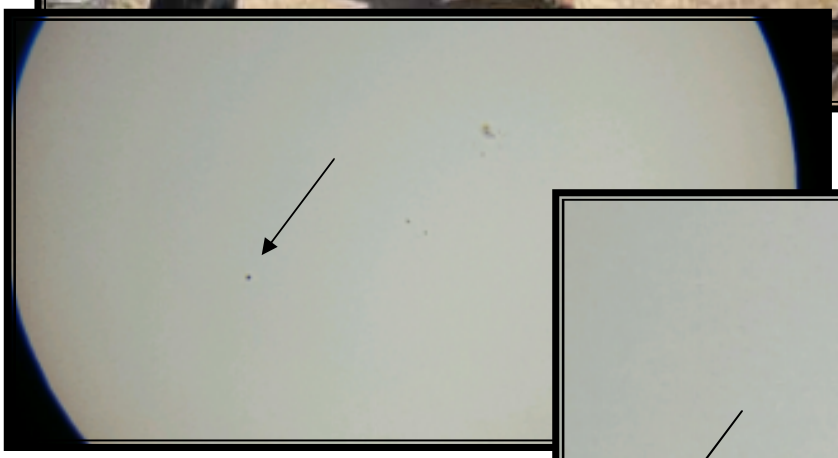
Jim Collins, of Chico Observatory fame was present (upper left). The above Star Structure Dob worked flawlessly, extremely stable, and great views for such a short fast focal ratio.

The campfire was especially enjoyable this year with the wind and clouds. A fantastic way to end a beautiful day, and begin an evening of sky watching.

http://jimstar11.com/BBLSP-2016-Apr.html

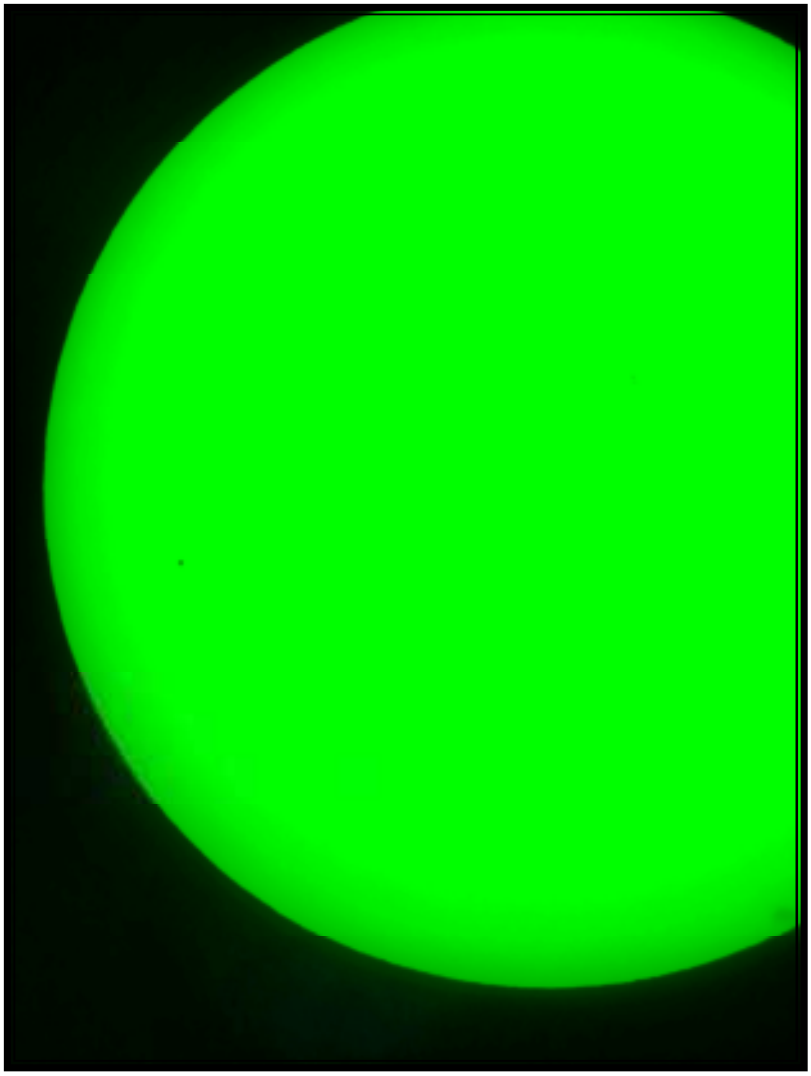
Observer Editor

Mercury Transit



May 9 Community Observatory Placerville, CA.

Photo Credits
Bill Hagbery



My SUV was packed and ready to go the night before, set to leave early for the Community Observatory in Cameron Park, and share the transit of Venus with Forrest Lockhart and their group of prestigious solar observers. The next morning in Sacramento, the clouds covered the skies so I aborted my planned 7:00am departure. About two hours later, Bill Hagbery texted me wondering when I was coming. He said the skies were clear there, and the views of Mercury were great! The driving up to Cameron Park only proved to be clouded in more, but surprisingly the skies cleared just below the observatory. Bill must have planned it that way.

By the time I arrived, it was too late to set up my equipment. I walked around and got some great views through H-Alpha, Herschel Wedge, and white filters of the scopes already set up. Bill was kind enough to send me some of the photos he took, they are included in this article.

I'm glad I decided to go, it was a fun event! Mercury transits are far more common than Venus transits, happening about 13 to14 times a century. The next one will be November 11, 2019. Cameron Park is a great location for solar viewing, not to mention the great folks there.

Observer Editor

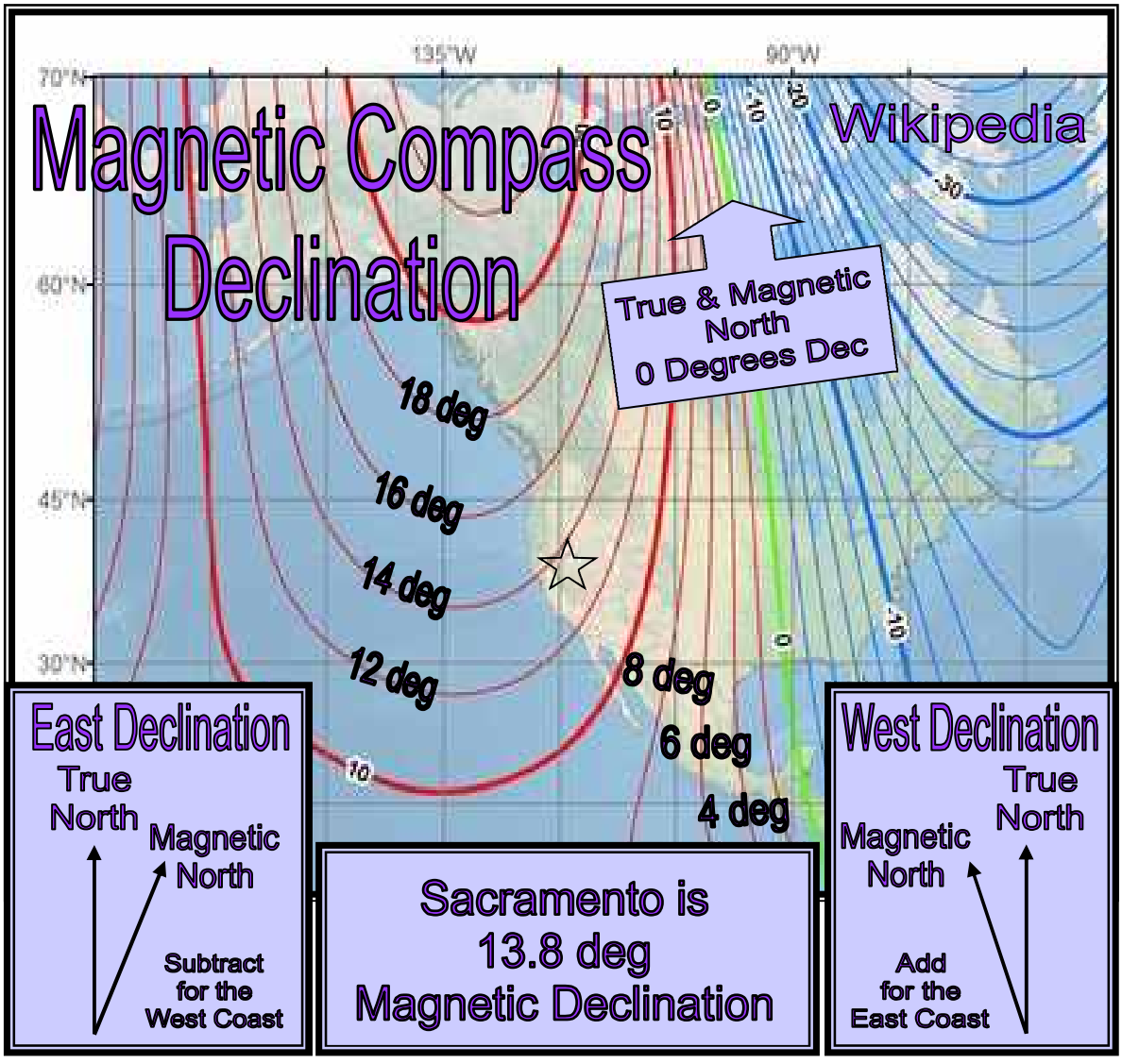
Ralph Merletti, our resident eclipse expert, rarely misses an astro event. This photo was taken at his residence, and he is projecting the solar image containing Mercury on to the cardboard. Ralph described this transit as displaying Mercury at about 12 arc seconds across the disk, closer to Earth than the next transit when it will be only 10 arc seconds. Mercury's very eccentric orbit is the reason for the size change, and it's orbit is tilted from the ecliptic about 7 degrees. Because of this tilt, Mercury usually passes above or below the Sun's disk, viewed from Earth, resulting in the rare transits.

Polar Alignment

True North & Magnetic North

by Lonnie Robinson

Back in the early 80s, I bought my 8" Meade LX3. I read the instructions on setting the mount compass, but it never made sense to me. I simply left the compass dial north aligned with the scope wedge, the compass pointer aimed about a quarter inch to the right of the mount centerline, and all was well. Then I went on to building a Dobsonian telescope and never looked back, the Meade ended up stored in my closet for many years. Then came public outreach and school star parties, and for that purpose the Meade is perfect. We only look at bright objects, mostly the Moon and planets, the kids can reach the eyepiece easily, and tracking an object for several customers to view is priceless. But, here I was again trying to understand the compass needed to set up the mount before the north star appears in the evening. I felt like an idiot, perhaps I am, but there are some good reasons for my confusion. Here goes my thought process, I hope I don't make it more difficult for you!



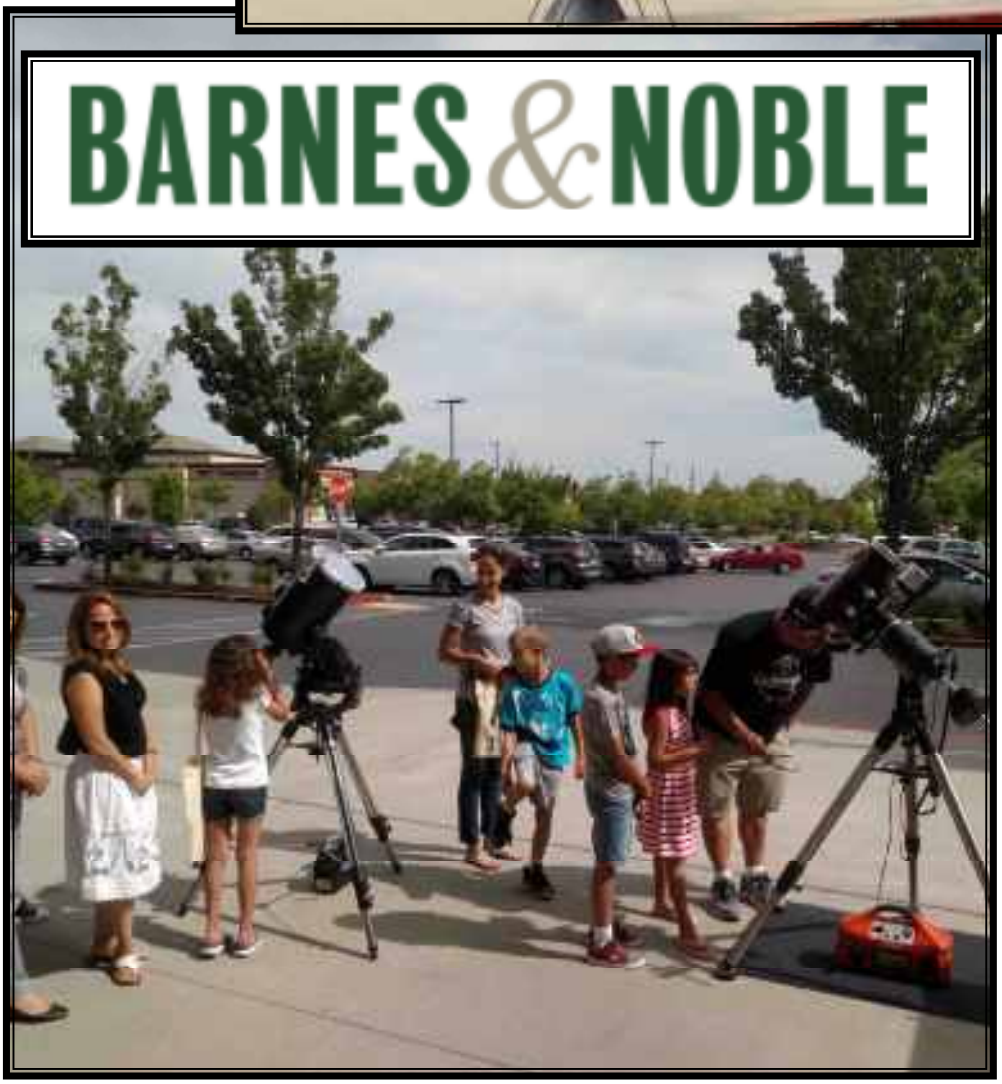
I blame the Meade manual, for it describes the setup for back east. It mentioned east and west compass declination adjustments, **but never made the distinction that the declination east setting was used for the west coast!** Which way do I set the pointer offset for the west coast? The declination offset is one way, and the pointer offset is the opposite. I just couldn't get a handle on it. The simple answer is: For Sacramento in the west, true north is actually west of the compass pointer by 13.8 degrees. **The degree of compass declination for true north, is subtracted from the reading in the west, added in the east. The zero declination dividing point runs roughly east of the Mississippi river.**

The best explanation, for me at least, was to think of going on a 50 degree compass heading avoiding the confusing less than 0 numbers. You must subtract Sacramento's 13.8 deg from the compass reading, it will read 36.2 degrees for a true 50 degree heading. If you want to zero your compass dial to true north, adjust the **pointer to offset 13.8 degrees higher** or 63.8 deg. Then you can use the compass dial (not the pointer) for true north, and your 50deg heading will be correct.

Now we are armed and dangerous when someone asks "Where is true north"?

SVAS

Mall Astronomy



Mall astronomy has been a dying art for the SVAS, and Kevin Normington decided to change all that. Having sponsored several there years ago, he knew the Barnes & Noble management team embraces the idea, and a successful turnout is easy just across from the Galleria.

We set up our equipment about 3:00pm, and it was already quite warm. Our goal was to observe the Sun, Moon, and Jupiter early. Jupiter was very close to the Moon making it a lot easier to find in the daylight. Well...it seems like our run of bad luck is holding when it comes to cloudy skies, we could see them drifting towards the north east leaving a clearing in the west. That clearing was ever so slow to materialize, but finally we had some great views of Jupiter, the Moon, and our Star the Sun.

The folks patronizing Barnes & Noble were a great group, they all seemed educated, upper class, and very interested in the heavens. When David Macho and his wife Rita arrived, we had a total of four scopes. Wayne Lord with the clubs scope, Kevin Normington, and yours truly Lonnie Robinson set up their scopes as well. This proved to be just the right number, the book buyers arrived in a steady stream of five to ten at a time. Steady is the operative, since we had similar counts at any time during the evening!

Supervisors from Barnes & Noble checked up on us regularly, making sure we were doing fine, plenty of water, and checking on the customer involvement. As the evening progressed, they offered us a free lunch from the Starbucks counter. Much appreciated, we were getting very hungry.

As the shadows grew longer, the crowds seemed to grow larger. We had several guests that just wanted to talk. Questions like how large is the universe, and is there life out there. Of course we had all the answers. Big, and Yes!

SVAS Community Outreach

3:00pm until 10pm sounds like a really long shift, but the time went really fast. Once the sun set, we first found Mars just over the parking lot trees to the south. I've heard it said that city muck can produce some great views of planets. We had the best views of Mars this year, it revealed some surface details, a slight polar cap, and great color. Is it possible to make a filter called "City Muck"? Shortly afterwards, Saturn made it's debut. I thought it was a bit stubborn exposing surface detail and ring splits, but presented very sharp and clear. Not bad for across the parking lot, over the trees, and through the parking lot lights!

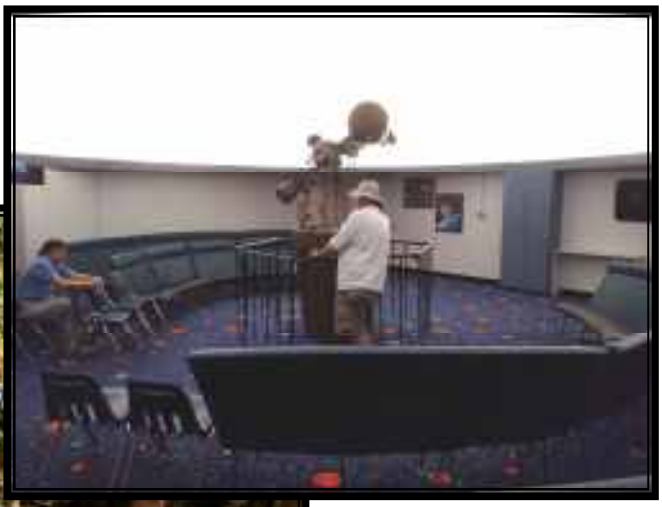
Until next time. There is another event scheduled for July 9th, same location across from the Galleria. Come join in on the fun.

Special thanks to our treasurer Kevin Normington, a lot of hard work coordinating this special event!

Observer Editor

International Sun-Day at Powerhouse Science Center
Sat & Sunday, June 25 & 26!
SVAS
2016

POWERHOUSE SCIENCE CENTER



Solar Viewing

The Powerhouse Science Center's, formerly the Discovery Museum, International Sun-Day was here again last weekend. And so was the SVAS, un-intimidated by 100 degree plus forecasted temperatures, we showed up in force with our ice chests, water cooling fans, large hats, and extra sunscreen lotion. Walt Heiges and son Adam, Perry P. Porter, Kevin Norminton, Wayne Lord, Bill Hagbery and his friend Martin dunlap, Randy Hellewell, new member Rich Loper fresh from Denver Colorado with his fabulous Lunt H-alpha scope, new member Raj Dixit with his yellow filter, and my 8" white filter rounded out the attendance list and scopes. Our new Board member, Fera Zamani, and her significant other Nick Skrabo stopped by to add their support. To add to the excitement, Jack Sales and his wife Beverly dropped by to say hi. This is great fun hanging out with friends!

The crowds were light this year, probably because of the extra high forecasted temperatures. Backing up that theory, it seemed we were busiest early on before the afternoon heat settled in. We had lots of time to talk about Board issues, upcoming events, solar equipment, and a new solar finder design I'm making on the cheap. It worked great!

The group photos below were taken Sunday during a slow period. It was a great chance to get everyone together for a group shot. Fera, in the lower photo, noticed I wasn't in the pix, so she kindly offered to take one including the photographer. By default, the editor is the least photographed SVAS member! Thank you Fera for making me famous.

We wound up each afternoon with a free planetarium show in the museum. After taking down our equipment, we stayed around for some time enjoying lengthy conversations about the happenings in our lives and hobby.

International Sun-Day is never a disappointment. The Redwood trees offer a welcome cool shady area to sit, and the Powerhouse Science Center patrons are super eager observers.

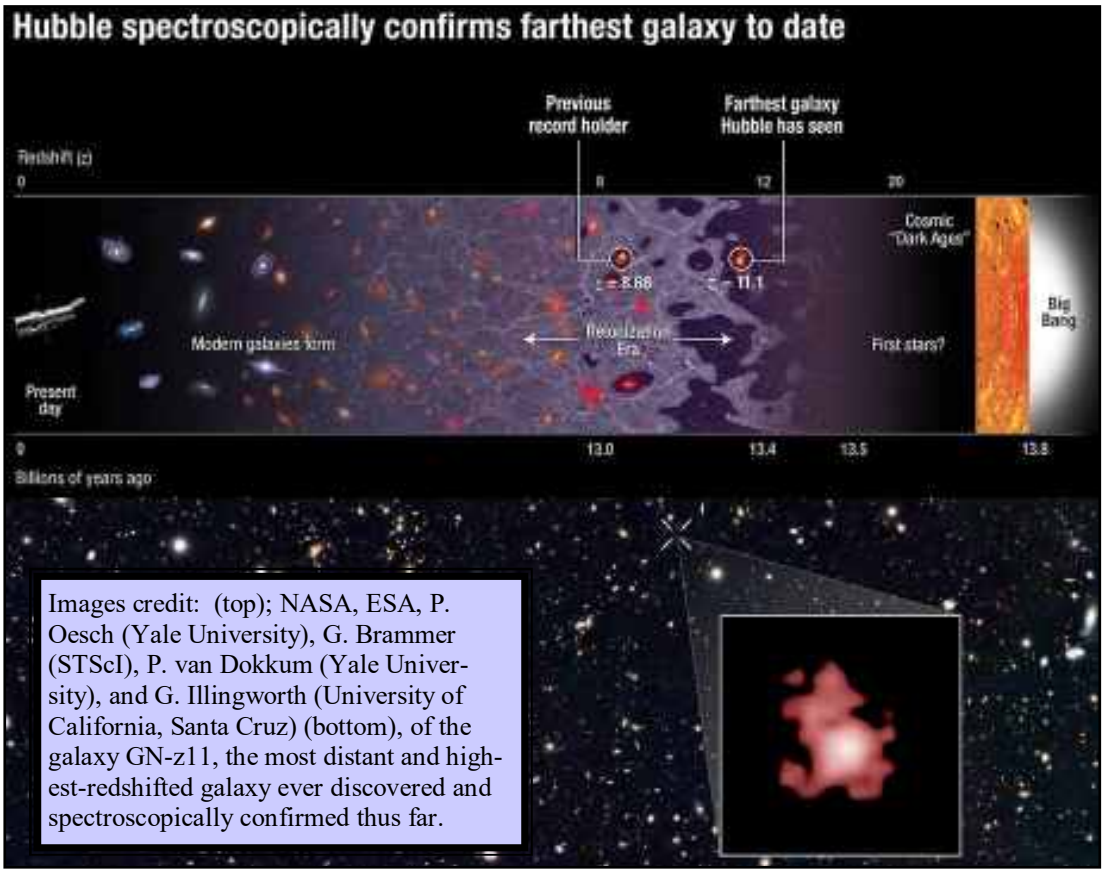
Don't miss it next year, this is a very special event. We want to ensure the SVAS is engaged with the new Powerhouse Science Center downtown, when it's completed.

Observer Editor

Hubble Shatters The Cosmic Record For Most Distant Galaxy

by Ethan Siegel

The farther away you look in the distant universe, the harder it is to see what's out there. This isn't simply because more distant objects appear fainter, although that's true. It isn't because the universe is expanding, and so the light has farther to go before it reaches you, although that's true, too. The reality is that if you built the largest optical telescope you could imagine -- even one that was the size of an entire planet -- you still wouldn't see the new cosmic record-holder that Hubble just discovered: galaxy GN-z11, whose light traveled for 13.4 billion years, or 97% the age of the universe, before finally reaching our eyes.



Images credit: (top); NASA, ESA, P. Oesch (Yale University), G. Brammer (STScI), P. van Dokkum (Yale University), and G. Illingworth (University of California, Santa Cruz) (bottom), of the galaxy GN-z11, the most distant and highest-redshifted galaxy ever discovered and spectroscopically confirmed thus far.

There were two special coincidences that had to line up for Hubble to find this: one was a remarkable technical achievement, while the other was pure luck. By extending Hubble's vision away from the ultraviolet and optical and into the infrared, past 800 nanometers all the way out to 1.6 microns, Hubble became sensitive to light that was severely stretched and redshifted by the expansion of the universe. The most energetic light that hot, young, newly forming stars produce is the Lyman-α line, which is produced at an ultraviolet wavelength of just 121.567 nanometers. But at high redshifts, that line passed not just into the visible but all the way through to the infrared, and for the newly discovered galaxy, GN-z11, its whopping redshift of **11.1** pushed that line all the way out to 1471 nanometers, more than double the limit of visible light!

Hubble itself did the follow-up spectroscopic observations to confirm the existence of this galaxy, but it also got lucky: the only reason this light was visible is because the region of space between this galaxy and our eyes is mostly ionized, which *isn't true* of most locations in the universe at this early time! A redshift of 11.1 corresponds to just 400 million years after the Big Bang, and the hot radiation from young stars doesn't ionize the majority of the universe until 550 million years have passed. In most directions, this galaxy would be invisible, as the neutral gas would block this light, the same way the light from the center of our galaxy is blocked by the dust lanes in the galactic plane. To see farther back, to the universe's first true galaxies, it will take the James Webb Space Telescope. Webb's infrared eyes are much less sensitive to the light-extinction caused by neutral gas than instruments like Hubble. Webb may reach back to a redshift of 15 or even 20 or more, and discover the true answer to one of the universe's greatest mysteries: when the first galaxies came into existence!

For Sale Astro Classifieds

Large Aperture Aluminum Telescopes with SlipStream GoTo Drive System

These all metal telescopes offer extreme durability, precision of movement, ease of use and a pleasing low profile aero-space look. They feature:

* Highest quality optics
* *Feathertouch* focuser
* Argo Navis DSC's
* SlipStream Drive with slip clutches on both axes
* Rigid welded structure
* Durable powder coating and black anodizing
* Available in sizes from 16" to 40" and f/ratios from f2.8 to f4.

This is a complete telescope system. It will automatically GoTo and then track any object you bring up on the Argo Navis. Or you can move the scope by hand at any time with no clutches to engage or disengage. A wireless hand control also gives you a 3-speed slew for both axes, allowing you to center objects or do fine guiding. Check our website for pricing and details.

EQUATORIAL PLATFORMS
15736 McQuiston Lane Grass Valley, CA 95945
530-274-9113 tomosy@nccn.net
www.equatorialplatforms.com

Check out
Cloudy Nights Classifieds
for Astro Stuff

SVAS Main Events

International Sun-Day at Powerhouse Science Center
Sat & Sunday, June 25 & 26!
SVAS

SVAS
July 23-24th
Rusch Park
Family Camp Out

Star-B-Q
July 29-31, 2016

Star Party Schedule for 2016
Star Parties
July 2
July 29,30,31, Star-B-Q
Sept 3
Oct 1
Oct 29
Dec 3
Blue Canyon

Yosemite Star Point Party
Glacier
SVAS
July 8-9th

Community Star Parties
Contact Wayne Lord
star_geezer@yahoo.com
916-396-7404

Messier Marathon
East
SVAS
West

SVAS Sponsors!

POWERHOUSE SCIENCE CENTER

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by Woodland Hills Camera & Telestopes

OPT Telescopes
800-483-6287

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Agena AstroProducts

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President — Walt Heiges

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
Newsletter Editors	Lonnie Robinson / Walt Heiges
Speaker Seeker	Fera Zamani
SVAS Web Site	Gary Shuluk / Walt Heiges
Public Outreach Director	Walt Heiges
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 Month is June (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.

Detach, *SIGN*, & mail with payment.

To: SVAS Membership Application
PO Box 15274
Sacramento, California. 95851-0274