



SVAS Vol.72 No.4* July-Aug, 2015
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OBSERVER
 Sacramento Valley Astronomical Society
 Founded in 1945

A Very
 Cloudy
 Spring!



HGO

Photo by
 Stuart Schulz

The weather has been very pleasant in the valley this year, but blue Canyon has had more than it's share of cloudy skies. I have tried my best to get the C-14 mount drift aligned, but the clouds just wouldn't cooperate! Stuart Schulz, our HGO Maintenance Director, is there a lot in the winter, and you would think of all people he would catch the clear nights. Not a chance this year! Here is a quote from a frustrated Stuart in May: "We have had NO viewable skies! I can't believe it. I have been up in the mountains maybe twice a week for the last two months (for reasons other than astronomy), and have checked BC often, and it is always under cumulus or very thick clouds (while the valley/foothills are often clear). Yesterday, it was HOT in Secret Town, Gold Run, but as soon as you go up the grade at Drum Forebay, the skies look like winter."

I have decided to ask Stu when he is going to BC, and then pick another day! He seems to have made the astro weather gods angry, and the skies may be clear when he isn't there! I'm kidding.
 Observer Editor

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SVAS Event Calendar



July 11, Sat Family Camp Out, Rusch Park, Citrus Heights.



July 15, Wed New Moon.



July 17-18 Star-B-Q Blue Canyon.
The July general meeting will be held at Blue Canyon.



Aug 13, Thurs New Moon



Aug 15, Sat Blue Canyon, weather permitting.



Aug 21, Friday, General Meeting Friday at 8:00pm

Sacramento City College, Mohr Hall Room 3, 3835 Freeport Boulevard, Sacramento, CA.
Notice; Please watch the Yahoo Groups for notification of a possible new meeting place!!



Star Party Schedule for 2015

July 17-18th, Star-B-Q
 Aug 15th Blue Canyon
 Sept 12th
 Oct 10th
 Nov 14th
 Dec 12th

Star Parties

Yosemite

Contact Tom Braun
Cell 916-214-5591

**Labor Day Weekend
Sept, 4 - 7**

Community Star Parties

Contact Wayne Lord

SVAS Main Events

International Sun-Day at Discovery Museum
Sat & Sunday, June 20 & 21!
SVAS

SVAS
Rusch Park
Family Camp Out
July 11

Star-B-Q
July 17-18

Star Sp Party
Yosemite
GPS Joint Glacier
SVAS

Contact
Tom Braun

See page 7

SVAS
Sunday FunDay
September 27th
Rusch Park
11:00am - 3:00pm

Messier Marathon
East West
SVAS

Contact
Tom Braun
Contact
Charles Jones
Contact
Lonnie Robinson

Star-B-Q 2015!

Time really flies, it's Star-B-Q time again! Time for the SVAS to get ready for this year's main event, our big blowout party, a chance to see old friends both human and stellar. High Sierra mountain atmosphere, clear dark skies, great friends, great food, and some quality time with the heavens. Does it get any better?

Arrive early if you can, say around 2:00pm on Saturday, to find a great parking spot and get your scope set up before we start **cooking steaks about 4:00pm**. Please bring a dish or dessert to share at our potluck table. The **raffle begins around 5:30pm** and lasts a couple hours, so don't follow my lead and end up eating late during the raffle! Lots of great prizes will be spread out on tables for everyone to view and pre-select should you have a winning ticket! There will be club announcements following the raffle. Then on to a great viewing evening under the stars.

We will be following the 12' rule again this year, all the parking and equipment along the easterly side of the tarmac should be within 12' from the tarmac's edge. Most vehicles will need to be parked partly on the SUP dirt area. That will allow us an ample sized emergency access lane. RV's, campers, and tents must be entirely on the dirt SUP area! Please check the SVAS website for the complete Star-B-Q rules.

Please remember to bring a red flashlight, mosquito repellent, suntan lotion, a large brimmed hat, and drink plenty of water! Don't forget a knife and fork to do some real damage to your B-B-Q specimen, along with steak sauce (really not needed up here), salt and pepper.

The Star-B-Q is just one of the many benefits of being a SVAS member. Let's not forget this newsletter (a lot of effort goes in to making it one of the best ever), HGO and RJMO observatories, our Forrest Service SUP, Glacier Point Star Party, monthly scheduled star parties at Blue Canyon, outreach star parties for the general public, school star parties for young aspiring astronomers, speakers for public events, public representatives for special newsworthy events, regular SVAS meetings (a new and very exciting meeting place will be announced soon!!), scheduled speakers, field trips, help with your telescope issues and ATM advice, mirror and telescope making, Constant Contact to keep you in touch with current events, and great lifelong



friendships. We welcome all astronomy disciplines from astrophotography, visual observing, video astronomy, and binocular (or eyes only) viewers on chaise lounges! Such a value for only \$36 a year!

Be sure to stash a few extra dollar\$ to buy raffle tickets! The SVAS really appreciates your donations to help finance our great observatory, and pay the ongoing bills associated with it. Another super value, supporting your favorite astronomy club, and at the same time a chance to win great prizes.

This year, let's have a swap meet? I'll set aside a special table for your stuff and keep an eye on it for a few hours while members make their deals. Bring that old eyepiece, filter, Barlow, telescope parts, and even telescopes for sale. Please make sure to sign in with your items, contact info, and how we can locate you for potential deals.

Have any special announcements? Let us know so we can save 30 seconds or so for you during our meeting. (I'm kidding about the 30 seconds, we'll make it 45!)

Hope to see you there! Our special thanks for your past support, we all will work hard to make your SVAS experience exceptional!

Walt Heiges, SVAS President

Lonnie Robinson, SVAS Vice President

Kevin Normington, Treasurer

Kevin Heider, Secretary

SVAS Board of Directors:

Perry Preston Porter

Ramona Glasgow

Tom Braun

Bill Marquardt

Chuck Real

Charles Jones

David Macho

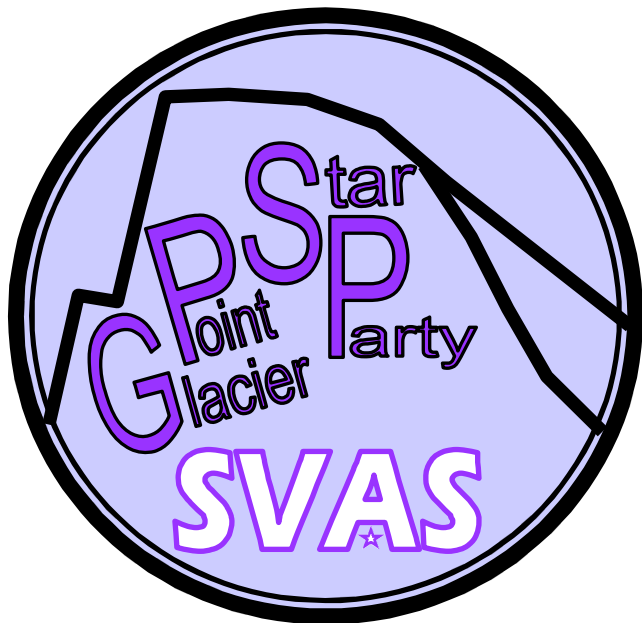
Happy
Star-B-Q!



Remembering Tim Tingey, Star-B-Q 2013

Star-B-Q Sponsors!





Grab your bags and do not forget your telescope, for you are all invited to join in on the greatest adventure of your life! This year we have been selected to sponsor a star party during the 2015 Labor Day weekend (Sept 4-7), at Yosemite's Glacier Point (7214' altitude), for three fantastic nights of unforgettable dark skies!

Our Glacier Point Star Party is scheduled for the Labor Day weekend; Friday, Sept 4th through Monday, September 7, 2015. This will be a fantastic event with the Moon at the last quarter (51%) and rising around 11:52PM, giving members plenty time to view during dark conditions.

Last year the SVAS and Central Valley astronomy groups, sponsored the event together during the Labor Day weekend event. There were visitors from all parts of the world with many questions. Some astronomers were utilizing video imaging cameras to view the various galaxies, nebulae and star clusters. I had my scope aimed at the Andromeda Galaxy, and to my surprise I actually viewed the dust clouds and galaxy structures due to the clear dark conditions.

Your Hosts
Tom Braun & Lisa Perez

Yosemite's Bridal Veil Campground entrance is located approximately 8 miles north of Wawona Road, and approximately 8 miles from Glacier Point. SVAS members and guests are expected to check in by Friday, September 4th, at the designated group camp site. Please bring your completed SVAS Entrance Form upon checking into the park. The Camp host will have placards placed on specific numbered camp sites, and the group camp site will be reserved for the SVAS. A maximum of 30 persons (SVAS Members and guests) will be able to stay at the reserved camp site, without charge, Friday through Sunday nights. As a rule of thumb, the Park Service would like to have between 10 to 20 telescopes present at the star party. Individual camp sites have a 6 person, 2 car limitation.

One or two telescopes may be set up during the day, to do some solar observing for the public, on Saturday and or Sunday. The rest of the observers should set up their telescopes for evening viewing no earlier than 7:00 PM and no later than 8:30 PM. Upon arrival at

Glacier Point, SVAS members can park in the area near the observing site to unload their equipment, then return their vehicle to the parking lot. After midnight, or when the program is completed, observers are free to take photographs and observe for the rest of the night. Checkout time from the park is noon Monday, September 7, 2015.

I look forward to working with SVAS members and conducting this special Glacier Point Star Party. The signup deadline for attending this event is JULY 15, 2015! Please notify me if you want to attend. If there are any questions regarding this trip, please contact Tom Braun.



SVAS Speaking to the SFAC Photography Club

The SVAS was invited to speak at the Sacramento Fine Arts Center "SFAC" Photography Club, May 28th in Carmichael, and Walt Heiges, Wayne Lord, and Chuck Real did a fantastic job of representing Sacramento Astronomy! Walt gave the introduction and a brief discussion of telescope types and navigating the night sky, followed by Wayne talking about what camera equipment is needed to get started in astrophotography. He discussed using a standard camera to expose star trails or make a simple tracking mount to take photos of large areas of the sky. Then he finished up talking about using cameras with telescopes, and processing photos. Chuck talked about Video Astronomy and the MallinCam, spending some time describing the differences between digital SLR cameras and video cameras. After talking about how the video cameras are able to quickly capture the faint astronomical images, he

described the telescope setups, computer connections, viewing screens, and the software used to edit the images.



I enjoyed all the talks immensely, and I'm sure the camera club did as well. It's a natural extension of their photography endeavors, and it really excited their imagination. I had a fun conversation with one SFAC member about the similarities between telescopes and cameras concerning focal ratios. That's a great topic, too large to cover here.

Great Job!

Observer Editor

Observer Editor



Finally! HGO, Clear Skies, & Warm Evenings.

Star Party Report

We had a great time at HGO Sat, June 13th! As soon as the Sun went down, we filled up two rows of cars and telescopes. Joe Maloney brought his scout troop and camped near RJMO. Notice the tall shadow in the right photo, who says the photographer never gets in the picture. We had a steady stream of scouts in HGO for some great views through our 16" Ritchey.



Matt Jennings (at right) with his great 22" Dob, Phil McDonald (below) and his outstanding 16" Servo Cat Dob, Nick Johonie (below Phil) and his 8" Celestron, and Don Edelberg (Center right) with his Mallincam were getting set up. Sorry, I know I missed many of you.

I was supposed to help with the Messier Marathon, but was too busy being Observatory Director for the absent Perry



Porter.
Below is a photo of the marathon



supporters with Charles Jones and Tom Braun in the lead. Jay Schudel and his daughter (right) caught a few Messier objects too.

Finally, about midnight I had time to observe on my own. Regrettably, my 16" Dob has seen little use over the past year. Messier 13,92,57,19,3,5,51,15,22,101,108,97,81,82,31,32,110,17, 28,21, NGC5907, and NGC 891 were some of the random objects I observed before packing up about 3:30. I confess I used my computer at times.

Lonnie Robinson

Messier Marathon

East West





Discovery Museum

Father's Day Weekend

I really enjoy this public outreach event each year! There is never a shortage of great families eager to take a look at our Sun. This year, the Moon was a great target as well. In the photo at right are Bill Hagbery, Walt Heiges, Wayne Lord, and Kevin Normington. David and Rita Macho joined us a bit later. The sky was a bit hazy, putting on a colorful show we called sunglow. It didn't seem to deter the views in the scopes. Wayne Lord worked on setting up our Mallincom, but



somehow we never could get a bright enough screen image through the H-Alpha scope, but we will keep working on it. Bill Hagbery is always well equipped with all the accessories. He created a great scale solar system map on the round sun-shade, trying to get a handle on the distance and size visualization. Good stuff for young minds! Saturday was a bit warm, Sunday noticeably cooler, and we spent our time under the umbrellas and the shade of the stately redwoods surrounding the Discovery Museum grounds. They have a peaceful quiet much like the Muir Woods near Sausalito.





At left is a closer look of Bill's solar system map, and his one ton meteorite (kidding). It just wouldn't be complete without Kevin's Wilson emulating the Super Moon. He set the distance markers such that it demonstrated the proportional distance and size.

You can see by the photos below, we had no shortage of Sun viewers! It was a festive atmosphere, folks relaxing and taking in the beautiful day while waiting for the next planetarium show to commence. We had just the right number of scopes. At center, Kevin is helping a young astronomer view the Sun. The photo below right, is Walt demonstrating the Sun Dial painted on the concrete patio.





Sunday, Fathers Day, started out a bit slower for customers. We didn't know what to expect; would the fathers show up with their families or stay home? We still had a fair number of viewers despite the holiday.

Saturday, Walt and I were treated to guest passes for the afternoon planetarium show. It was a real treat for me, since it was my very first! I've visited



many planetariums, but never seemed to time it right to take in the shows. Great fun! Sunday Walt and Kevin got to see it, while I manned the scopes. The Sun photo below left, is one I took with my cell phone and a homemade eyepiece projection camera adapter. A much better photo without me trying to hold a shaky camera. I would like to buy a white filter next, the views should rival a Herschel Wedge, with high contrast sun spots and surface details. We had some great views of solar prominences through Bill's and Walt's H-Alpha scopes. There were several prominences about 11:00 that resembled the McDonald's arches, with many more short outbursts around the edge.

What a great way to spend a peaceful holiday weekend sharing our hobby!
Lonnie Robinson



Great Video from Citrus Heights

by
Wayne Lord



Last night was a rare night for me with clear (or almost clear) skies and no need to be up early the next morning, so I got the basic gear out to continue my familiarization with the MallinCam. Since I wanted to try capturing video from the camera I used the laptop, but it was only connected to the camera and I used the hand-controller for the mount. It was way too light when I started to get any kind of polar alignment, so I just set the mount on my marked position. Since my targets wouldn't stay in place later, I suspect polar alignment was the cause.

Since the moon was bright, and Jupiter was also visible, I targeted those two objects. I tried it first at just the native magnification with the MallinCam plugged right into the back of the 127mm Mak-Cas. Since the camera has a pretty small chip (1/2-inch) the moon was quite large showing only a portion of the lit area, but Jupiter was quite small so I decided to try a 2x Barlow and see how it worked. Getting the bright moon in view was fairly easy, although with the change in magnification it was way out of focus. And after I did get it focused, it was still quite wavy due to atmospheric variations.

I took a series of 100 frame videos as the moon slowly paraded across the view field, and then switched to Jupiter, which was much harder to get into view as it is much smaller and at the 2x magnification the FOV is quite small. When I did get it in view and focused again (after readjusting the brightness on the camera) I was pleased to see the clouds bands were visible, so I did another series of 100 frame segments.

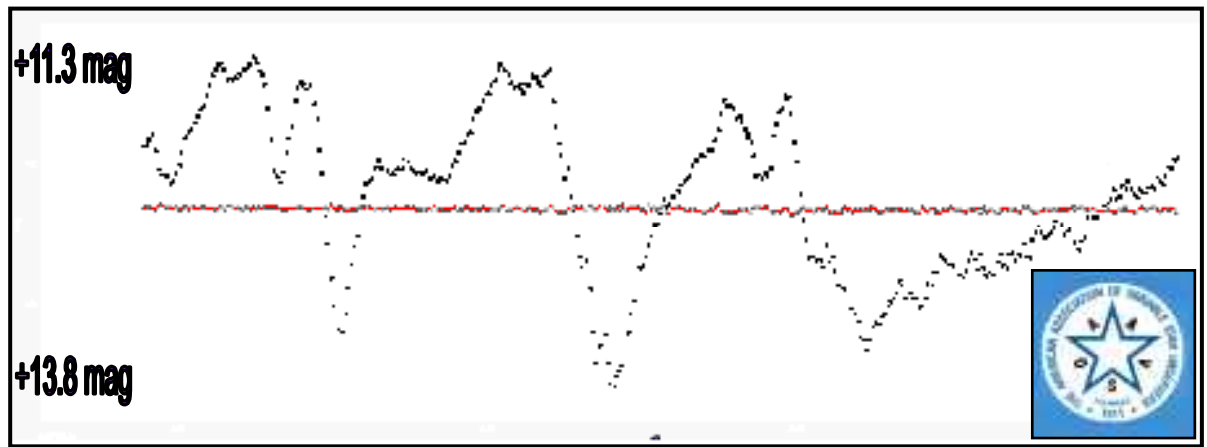
I transferred all the individual AVI files to my desktop via TeamViewer, and then used AutoStakkert to combine the best 50% of the 100 frames and stack them to arrive at a single still frame. Since I had adjoining files of the moon, I combined two of those into a 2-frame mosaic, which made it a little larger. A little cleanup and minor color adjustments in Photoshop (I think the red color is too hot in the camera setting), and as you can see the results are great.

Variable Star V404 Cyg by Bill Goff



V404 Cygnus continued to display very unusual behavior. It's thought to be a low mass star, such as a K or M dwarf and black hole binary pair, with an orbital period in hours. These types of outburst usually develop as the outer shells of the dwarf are being pulled off the star and swirling around the primary, the black hole here, in an accretion disk. The swirling disk begins to cascade into the primary, and as it does it heats to millions of degrees emitting every type of radiation including X-rays. That's why they are referred to as 'low mass X-ray binaries'. We see the glowing optical disk pulsing in these light curves.

The target is bright enough that an 8" or 10" telescope, with a camera, can record this type of excellent data. These are 30 second exposures continuously over a 4 hour period. The red line is a comparison star in the field, which you see isn't changing during the course of the evening. The target varies from a high of about magnitude 11.3 to a low of about 13.8, all in a few minutes.



Why Was the April 4th Lunar Eclipse Predicted Full and not Partial?

by Ralph Merletti

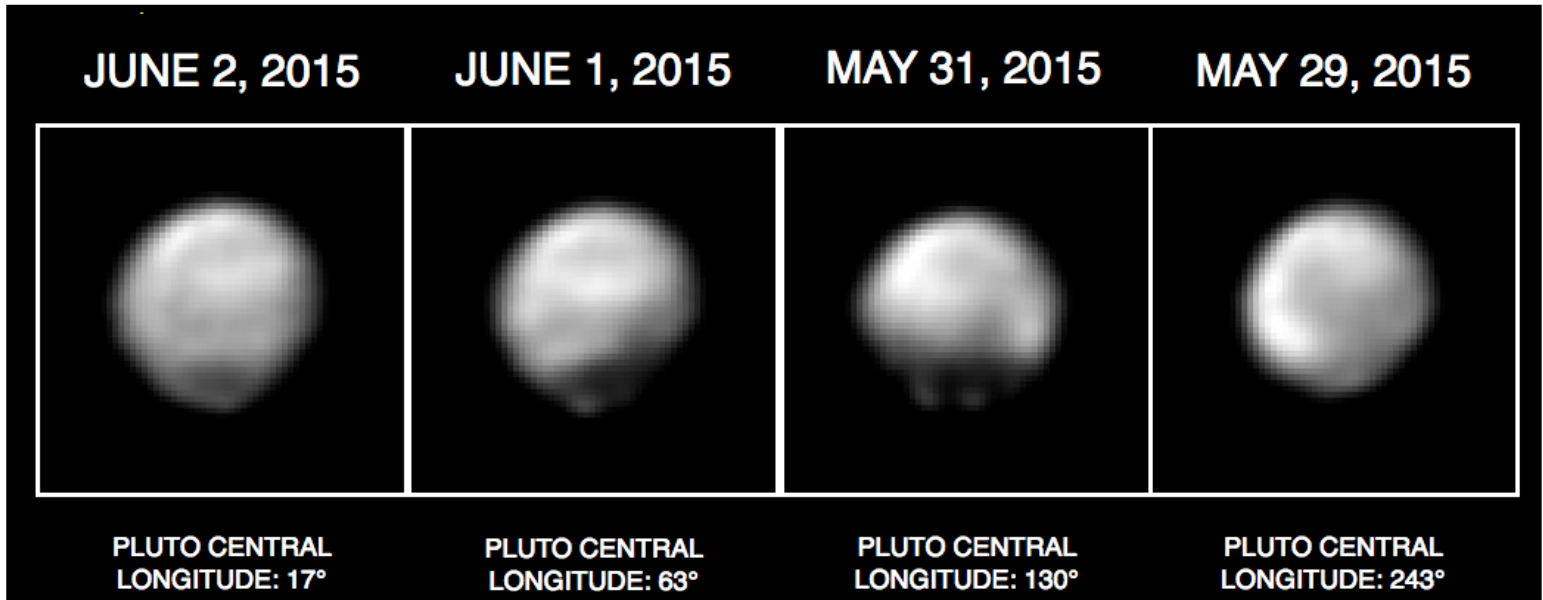


There are still unanswered questions (as of late June) as to why the April 4th lunar eclipse was partial instead of total. So far, only an article on pg 12, of the July issue of Sky and Telescope, has attempted to address the situation. Problems include different predicted umbral magnitudes from multiple sources, lack of use of an oblate spheroid model of earth for prediction calculations, lack of fixed observing station cameras at different locations on the lunar surface, as well as a lack of seriousness by astronomers and our governments as to the importance of the phenomenon. Not since 1856 had a total lunar eclipse had a predicted magnitude so little above an exact borderline case! One source even predicted a maximum magnitude of only 0.998--but that was not specifically in the S & T article. Additionally, there continues to be a lack of understanding of how the earth's atmosphere changes the edge of our planet's umbral shadow edge.

The non-use of an oblate spheroid (earth flatter at the poles, thicker at the equator) model is surprising-- WHY wasn't such a model employed, considering all the modern advances in computer technology? Models of our atmosphere's "eclipsing layer" could have been developed, if there had been cameras on the moon at different locations to give us clear sharp color photographs of exactly what the eclipse looks like from the lunar surface. This point is especially meaningful, considering our current need for more information in regard to global warming and climate change.

Perhaps the best attitude for all of us is to realize that no matter what the phenomenon, WE ARE NEVER DONE as to what we can learn from it! We need to encourage our professional astronomers, scientists, and NASA engineers, to pay more attention to this issue and give us a seriously-needed perspective on changes in our atmosphere.

Pluto Emerging for July 14th New Horizons Flyby



The surface of Pluto is becoming better resolved as NASA's New Horizons spacecraft speeds closer to its July flight through the Pluto system.

A series of new images obtained by the spacecraft's telescopic Long Range Reconnaissance Imager (LORRI) during May 29-June 2 show Pluto is a complex world with very bright and very dark terrain, and areas of intermediate brightness in between. These images afford the best views ever obtained of the Pluto system.

New Horizons scientists used a technique called deconvolution to sharpen the raw, unprocessed pictures that the spacecraft beams back to Earth; the contrast in these latest images has also been stretched to bring out additional details. Deconvolution can occasionally produce artifacts, so the team will be carefully reviewing newer images taken from closer range to determine whether some of the tantalizing details seen in the images released today persist. Pluto's non-spherical appearance in these images is not real; it results from a combination of the image-processing technique and Pluto's large variations in surface brightness.

Since April, deconvolved images from New Horizons have allowed the science team to identify a wide variety of broad surface markings across Pluto, including the bright area at one pole that scientists believe is a polar cap.

"Even though the latest images were made from more than 30 million miles away, they show an increasingly complex surface with clear evidence of discrete equatorial bright and dark regions—some that may also have variations in brightness," says New Horizons Principal Investigator Alan Stern, of the Southwest Research Institute, Boulder, Colorado. "We can also see that every face of Pluto is different and that Pluto's northern hemisphere displays substantial dark terrains, though both Pluto's darkest and its brightest known terrain units are just south of, or on, its equator. Why this is so is an emerging puzzle."

"We're squeezing as much information as we can out of these images, and seeing details we've never seen before," said New Horizons Project Scientists Hal Weaver, from the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. "We've seen evidence of light and dark spots in Hubble Space Telescope images and in previous New Horizons pictures, but these new images indicate an increasingly complex and nuanced surface. Now, we want to start to learn more about what these various surface units might be and what's causing them. By early July we will have spectroscopic data to help pinpoint that." New Horizons is approximately 2.9 billion miles (4.7 billion kilometers) from Earth and just 24 million miles (39 million kilometers) from Pluto. The spacecraft and payload are in good health and operating normally.

Comet Rosetta's lander Philae Wakes Up From Hibernation



- This image was taken by Rosetta's Navigation Camera at 19:38 GMT on 13 June 2015, shortly before Philae's wake-up signal was received. The signals were relayed by the Rosetta orbiter and received at ESA's European Space Operations Centre in Darmstadt at 20:28 GMT.
- The image was taken from a distance of 201 km from the centre of Comet 67P/Churyumov-Gerasimenko and measures 17.5 km across. The image scale is 17.1 m/pixel. The comet is orientated with the small lobe towards the right, with the large depression known as Hatmehit visible. Philae is thought to be resting just outside the rim, towards the top right in this image.

The signals were received at ESA's European Space Operations Center in Darmstadt at 22:28 CEST on 13 June. More than 300 data packets have been analyzed by the teams at the Lander Control Center at the German Aerospace Center (DLR).

"Philae is doing very well: It has an operating temperature of -35°C and has 24 Watts available," explains DLR Philae Project Manager Dr. Stephan Ulamec. "The lander is ready for operations."

For 85 seconds Philae "spoke" with its team on ground, via Rosetta, in the first contact since going into hibernation in November.

When analyzing the status data it became clear that Philae also must have been awake earlier: "We have also received historical data - so far, however, the lander had not been able to contact us earlier."

Now the scientists are waiting for the next contact. There are still more than 8000 data packets in Philae's mass memory which will give the DLR team information on what happened to the lander in the past few days on Comet 67P/Churyumov-Gerasimenko.

Philae shut down on 15 November 2014 at 1:15 CET after being in operation on the comet for about 60 hours. Since 12 March 2015 the communication unit on orbiter Rosetta was turned on to listen out for the lander.

More information when we have it!

Rosetta is an ESA mission with contributions from its Member States and NASA. Rosetta's Philae lander is contributed by a consortium led by DLR, MPS, CNES and ASI.

Dawn Spacecraft Images of Dwarf Planet Ceres

A cluster of mysterious bright spots on dwarf planet Ceres can be seen in this image, taken by NASA's Dawn spacecraft from an altitude of 2,700 miles (4,400 kilometers). The image, with a resolution of 1,400 feet (410 meters) per pixel, was taken on June 9, 2015.

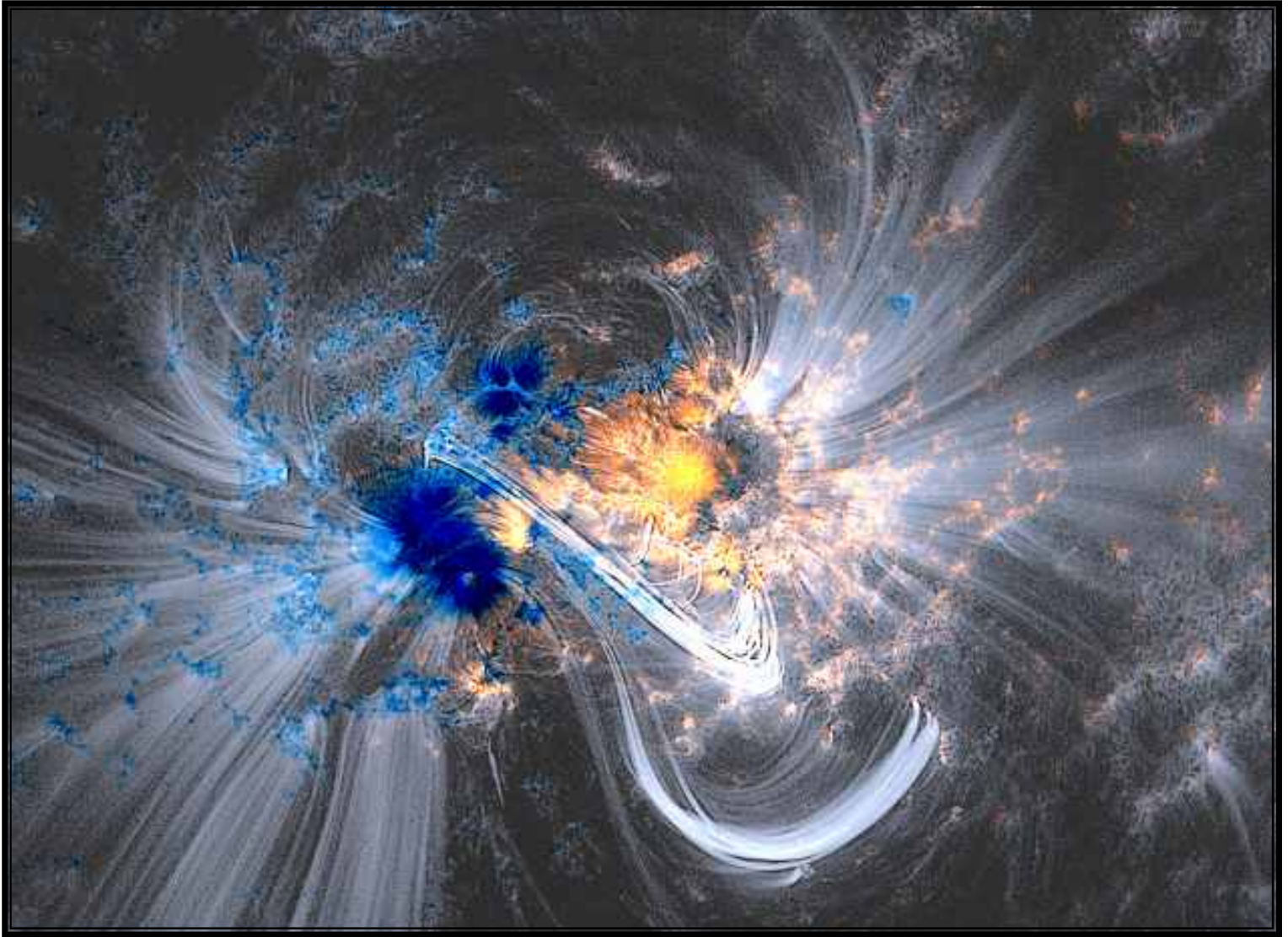
Image Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA



Among the fascinating features on dwarf planet Ceres is an intriguing mountain protruding from a relatively smooth area. Scientists estimate that this structure rises about 3 miles (5 kilometers) above the surface. NASA's Dawn spacecraft took this image from an altitude of 2,700 miles (4,400 kilometers). The image, with a resolution of 1,400 feet (410 meters) per pixel, was taken on June 6, 2015.

Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

Coronal Loops over a Sunspot Group



The Atmospheric Imaging Assembly (AIA) instrument aboard NASA's Solar Dynamics Observatory (SDO) images the solar atmosphere in multiple wavelengths to link changes in the surface to interior changes. Its data includes images of the sun in 10 wavelengths every 10 seconds. When AIA images are sharpened a bit, such as this AIA 171Å channel image, the magnetic field can be readily visualized through the bright, thin strands that are called "coronal loops". Loops are shown here in a blended overlay with the magnetic field as measured with SDO's Helioseismic and Magnetic Imager underneath. Blue and yellow represent the opposite polarities of the magnetic field. The combined images were taken on Oct. 24, 2014, at 23:50:37 UT.

Image Credit: NASA SDO



The "G" in GOES is What Makes It Go

by Ethan Siegel

Going up into space is the best way to view the universe, eliminating all the distortionary effects of weather, clouds, temperature variations and the atmosphere's airflow all in one swoop. It's also the best way, so long as you're up at high enough altitudes, to view an entire 50 percent of Earth all at once. And if you place your observatory at just the right location, you can observe the *same* hemisphere of Earth continuously, tracking the changes and behavior of our atmosphere for many years.

The trick, believe it or not, was worked out by Kepler some 400 years ago! The same scientist who discovered that planets orbit the sun in ellipses also figured out the relationship between how distant an

object needs to be from a much more massive one in order to have a certain orbital period. All you need to know is the period and distance of one satellite for any given body, and you can figure out the necessary distance to have any desired period. Luckily for us, planet Earth has a natural satellite—the moon—and just from that information, we can figure out how distant an artificial satellite would need to be to have an orbital period that exactly matches the length of a day and the rotational speed of Earth. For our world, that means an orbital distance of 42,164 km (26,199 miles) from Earth's center, or 35,786 km (22,236 miles) above mean sea level.

We call that orbit *geosynchronous* or *geostationary*, meaning that a satellite at that distance always remains above the exact same location on our world. Other effects—like solar wind, radiation pressure and the moon—require onboard thrusters to maintain the satellite's precisely desired position above any given point on Earth's surface. While geostationary satellites have been in use since 1963, it was only in 1974 that the Synchronous Meteorological Satellite (SMS) program began to monitor Earth's weather with them, growing into the Geostationary Operational Environmental Satellite (GOES) program the next year. For 40 years now, GOES satellites have monitored the Earth's weather continuously, with a total of 16 satellites having been launched as part of the program. To the delight of NASA (and Ghostbusters) fans everywhere, GOES-R series will launch in 2016, with thrice the spectral information, four times the spatial resolution and five times the coverage speed of its predecessors, with many other improved capabilities. Yet it's the simplicity of gravity and the geostationary "G" in GOES that gives us the power to observe our hemisphere all at once, continuously, and for as long as we like!

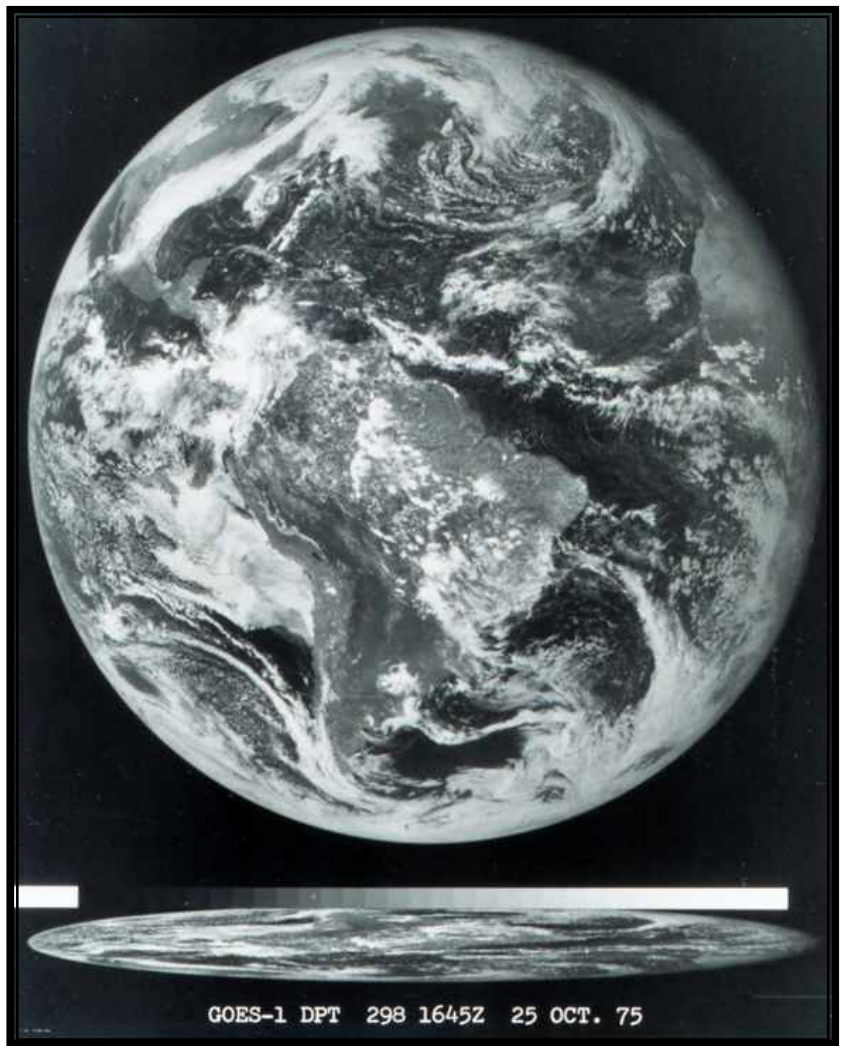


Image credit: National Oceanic and Atmospheric Administration, of the first image ever obtained from a GOES satellite. This image was taken from over 22,000 miles (35,000 km) above the Earth's surface on October 25, 1975.



For sale: A Meade 8" LX90, Schmidt Cassegrain Auto Star. This scope has been lightly used, and improvements have been made. The GOTO apparatus, with aid of the GPS make it easy to locate your favorite objects. A basic set of eye pieces are included, including a Mars filter. The pictured right angle finder scope saves craning your neck locating targets. Also included is a 12 hour power source. I'm asking \$1300 and will accept reasonable counter offers. Please contact Dave Compton.

For Sale, Meade 10" f4/5 Newtonian. Completely gone through and modified to make it easier and safer to use. The feet now have leveling adjusters and the drive motor has an on/off switch. The bands that secure the tube assembly are trapped so they can't come off. Both RA and Dec pivots were cleaned and greased, the drive clutch was cleaned and adjusted. The optic's are typical high quality Meade. The original 1.25 plastic focuser has been replaced with a metal 2" Orion with a 1.25" adapter. The mirror's were cleaned and collimated. The scope comes with two eyepieces, a 1.25/15mm Kellner and a 40mm Scopetronix Maxview 2". A Stellarvue 8x50 right angle correct view finder that accepts eyepieces, and a Telrad are included. Designed for visual observations, it works fine with today's fast rate imagers (with careful polar alignment). Asking \$1000,00, please make offer. Contact Many Hvizdak



For Sale: Celestron (Ultima 8 -PEC) 8 inch Schmidt-Cassegrain telescope with tripod. (includes instruction manual and metal case for telescope) Telescope is about 20 years old but in very good condition. Also includes the following eye-pieces: Celestron Ultima Series 30 mm, 18 mm, 7.5 mm, and 2x Barlow. Asking \$1,200. If interested, please contact James Wurschmidt



For sale: NexStar 11 GPS with a couple extra lenses. Asking \$2,000, will consider reasonable offers. Contact; Kurt Robinson

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Yosemite Star Party	Tom Braun & Lisa Perez
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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.

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 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 _____
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
 PO Box 15274 -0274
 Sacramento, California. 95851-0274

Detach, SIGN, & mail with payment.