



Desert Sky Observer

Volume 34

Antelope Valley Astronomy Club Newsletter

November 2014

Up-Coming Events

November 01- 02 ARIZONA SCIENCE AND ASTRONOMY EXPO

November 08: TEHACHAPI SUPER SCIENCE SATURDAY

November 12: CLUB BOARD MEETING

November 14: CLUB MEETING

November 15: PRIME DESERT MOON WALK

November 19: ACTON LIBRARY (STAR TREKIN)

November 22: DARK SKY PARTY (TBA)

* Monthly meetings are held at the S.A.G.E. Planetarium on the Cactus School campus in Palmdale, the second Friday of each month. The meeting location is at the northeast corner of Avenue R and 20th Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium*



President

Frank Moore

What a month we've had friends. First, in the wee hours of October 8 we had an event at the SAGE Planetarium for the total lunar eclipse. Because this event took place so late in the morning, with totality occurring at 3:27 in the morning, the public turnout was light but those in attendance were certainly enthusiastic. Among those in attendance were about 20 fourth grade students from The Palmdale Learning Plaza. Can you imagine how enthused they were? I can hear it now, "But mom and dad, my teacher told me I had to be up at 3:30 AM to see this thing....honest" With totality ending at 4:22, and the partial eclipse ending at 5:32, Rose and I were driving home to Tehachapi with the penumbral eclipse still visible with the moon setting in the west. It was absolutely gorgeous.

On Friday October 10, the AVAC had our annual business meeting at the SAGE. With only one new face willing to step up to the plate and serve in a board position, the Executive Board officers for 2015 will be President-Frank Moore, Vice-President - Don Bryden, Treasurer-Virginia Reid, Secretary-Rose Moore, and our new officer, Robert Lynch Jr. as Director of Community Development. As mentioned at the business meeting, we've discussed some changes to our Constitution and Operations Manual to take some of the burden off of the board members. Some of these may require a vote by the membership and we'll be making notifications if that turns out to be the case.

The following morning, at 8:00 AM on Saturday October 11, Bob Kemp and I were at Pierce College in Woodland Hills to setup our display at the Science, Imaging, and Astronomy Expo (SIA Expo). Manufacturers, astronomy and science clubs, educators and vendors were there to share our enthusiasm with the public. Darrell Bennett arrived around noon and relieved Bob who had other things to attend in the afternoon including the outreach event at Prime Desert Woodland Preserve.

Our next event was the Partial Solar Eclipse on October 23. We couldn't have asked for a better venue than The Palmdale Learning Plaza at Division and Ave R. From the location, we had clear, unobstructed,

views to the south and west . SAGE Planetarium Director and Science “Mr. Wizard” Jeremy Amarant, was set up on upper patio where he shared views of the eclipse with over 700 students using three SunSpotter telescopes, two 40 mm Coronado PST hydrogen-alpha solar telescopes, and a Celestron C-8 with a white light filter. Rose Moore, Don Bryden, Bob Kemp, and myself were setup on a lower deck, with the club’s 60mm Coronado hydrogen-alpha solar telescope, a SunSpotter, a C-11, an 8” LX-200, and a Pronto all with white light filters. Between the partial eclipse, some awesome prominences, and the HUGE sunspot complex AR 2192, the sun put on a real show and there was plenty to keep the kids and public fascinated. We were too busy to keep count, but we estimate that we shared views of the event with another 100-200 people (in addition to kids from Jeremy’s group who came down after school was dismissed). Rose ran out of eclipse shades and Night Sky Network handouts about the sun. Sunspot AR 2192 has continued to put on a show for days and has launched X-class solar flares toward earth but no coronal mass ejections (yet).

Finally, on Saturday October 25 we had our October Dark Sky Star Party at the Red Cliffs Natural Area near Red Rock Canyon State Park. We had about a dozen members in attendance and though the wind occasionally kicked up for the most part it was calm or there was just a gentle breeze. The skies were dark and clear with the Milky Way twinkling overhead. An added treat was the occasional meteor which I assume were remnants of the Orionid Meteor Shower. At about 11:30 PM, Darrell Bennett and I saw the most gorgeous blue fireball go streaking across 2/3 of the sky with a tail that must have hung in the sky for two seconds after it passed. That meteor alone was worth the trip. State Parks had built a new toilet building since our last visit and Rose and I set up on the concrete walkway and patio area adjacent to it. Others soon followed suit. There are also two rugged concrete picnic tables on the patio area which made for a convenient place to set up coffee and snacks. The only problem was, that something on that patio area seemed to affect GPS readings with my SkyScout, the GPS unit on the telescope mount, and Rose’s cell phone all having problems getting accurate readings from there. Darrell Bennett has named the phenomena and “disturbance in The Force”, “The Potty Vortex”. It also could have been caused by the crackling sunspot AR 2192. We’ll have to see if the “vortex” still exists on our next visit. After midnight, clouds that had been on the southernmost horizon began to migrate north so they were covering more of the sky and the wind began to kick up. With the deteriorating conditions, those of us still left decided to pack up leaving only a few our members left but they had already retired to their RV. Still, it was a good time and well worth the trip. I have been told some members had a hard time finding the observing site. This might have been exacerbated by road construction adjacent to the turnoff. There are text based instructions on the event in the calendar on the AVAC website and the event listing on our facebook page. There is also this link to the Google map showing where the turnoff is in relation to Red Rock Canyon . The “street view” even shows the road sign just past the turnoff. <https://goo.gl/maps/OBPvq>

On Friday October 31 I’ll be hitting the road to attend the Arizona Science and Astronomy Expo in Tucson, AZ. The Show is on November 1st and 2nd and I can’t overemphasize how big and grand it is. This is the third year for the ASAE and if you don’t get a chance to go this year, you’ve got to plan to go in the future.

<http://www.scienceandastronomy.com/>



Vice President

Rose Moore

Thanks to everyone who came out for one or both of the eclipses this past month! Both events were well attended. I was surprised we had as many people as we did for the Lunar Eclipse as it was in the middle of the night!

There is no speaker for November's meeting, but I'll be in touch with Jeremy to see what we can arrange for the last meeting of the year.

We have a few events for November: the Tehachapi High School Super Science Saturday on Nov. 8th, a Prime Desert Moon Walk on Saturday Nov. 15th, the Acton Library Lecture with Jeremy on 'Star Trekk'n' Wednesday Nov. 19th, and a Dark Sky Star Party TBA on Saturday Nov. 22nd. Times and further info to follow.

We are taking sign ups and payments for the Christmas Party. This is for members and their guest(s). Final payment is due by November 20th so that we can pay Julianni's. You may pay at the next meeting, Nov. 14th, or pay via the PayPal link: <http://avastronomyclub.org/christmas>. Julianni's is located at 44960 Valley Central Way, Lancaster. The Christmas Party is set for Saturday, December 6th at 6pm. An email will be coming out shortly with the menu. If you can't attend November's meeting, please email me if you want to attend, or call and leave me voicemail (972-1953). This will be a buffet dinner, and we will be having a silent auction and raffle. Anyone wishing to donate an item(s) for the event, may contact a board member, or just bring it to the dinner. We have a larger room this year, so come on out and enjoy with fellow club members!



Director of Community Development

Don Bryden

October 31, 2014

Happy Cross-Quarter Day! Its October 31st as I write this and time for that well-known astronomical event: Halloween! What astronomical event you say? We all know that many modern holidays and festivals have their Pagan roots and "All Hallow's Eve" is no exception. It is derived from *Samhain*, pronounced SAH-win, and is a Gaelic festival marking the end of the harvest season and the beginning of winter or the "darker half" of the year.

Samhain was marked by the first cross-quarter of the year. Cross-quarter days are the point half way between a solstice and an equinox. This divided the year up into eight chunks, two solstices, two

equinoctial points and four cross-quarter points. The other cross-quarters are celebrated in modern times, too, as Groundhog Day, May Day and Lammas (Harvest Festival).

So, you might ask yourself, the real midpoint between the Autumnal Equinox and the Winter Solstice is not until November 7th – Why October 31st? The season was also marked with the culmination at midnight of the Pleiades. Pre-Gregorian calendar and a few thousand years ago these events all occurred on October 31st. What better time, then, to celebrate the end of summer or Samhain? Samhain was considered to be the time when the veil between the living and the dead was at its thinnest and was a time to remember and honor the dead. All hallow mas, or All Saints Day, was November 1st and All Hallow's Eve was the day before which, as we know, became Halloween. So you can see how the association with the dead and the creatures of the night came about!

So when the kids come knocking at your door, don't be surprised if there are a few devils as well as a few angels but save you best candy for the kid who shows up as Galileo!

This month say welcome back to Orion and his buddies so come out on Saturday, November 15th to Prime Desert and join in the fun as we host another moonwalk. Bring your scope and share your views or just follow Jeremy on the walk. Also, the previous Saturday the 8th, Frank and Rose will be at Tehachapi High School for another Super Science Saturday. They could use a hand with a little solar observing or just someone to man the booth and talk to kids. Email to president@avastronomyclub.org for more info.

News Headlines

NASA's Wallops Flight Facility Completes Initial Assessment after Orbital Launch Mishap



An aerial view of the Wallops Island launch facilities taken by the Wallops Incident Response Team Oct. 29 following the failed launch attempt of Orbital Science Corp.'s Antares rocket Oct. 28.

Image Credit: NASA/Terry Zaperach The Wallops Incident Response Team completed today an initial assessment of Wallops Island, Virginia, following the catastrophic failure of Orbital Science Corp.'s

Antares rocket shortly after liftoff at 6:22 p.m. EDT Tuesday, Oct. 28, from Pad 0A of the Mid-Atlantic Regional Spaceport at NASA's Wallops Flight Facility in Virginia.

"I want to praise the launch team, range safety, all of our emergency responders and those who provided mutual aid and support on a highly-professional response that ensured the safety of our most important resource -- our people," said Bill Wrobel, Wallops director. "In the coming days and weeks ahead, we'll continue to assess the damage on the island and begin the process of moving forward to restore our space launch capabilities. There's no doubt in my mind that we will rebound stronger than ever."

The initial assessment is a cursory look; it will take many more weeks to further understand and analyze the full extent of the effects of the event. A number of support buildings in the immediate area have broken windows and imploded doors. A sounding rocket launcher adjacent to the pad, and buildings nearest the pad, suffered the most severe damage.

At Pad 0A the initial assessment showed damage to the transporter erector launcher and lightning suppression rods, as well as debris around the pad.

The Wallops team also met with a group of state and local officials, including the Virginia Department of Environmental Quality, the Virginia Department of Emergency Management, the Virginia Marine Police, and the U.S. Coast Guard.

The Wallops environmental team also is conducting assessments at the site. Preliminary observations are that the environmental effects of the launch failure were largely contained within the southern third of Wallops Island, in the area immediately adjacent to the pad. Immediately after the incident, the Wallops' industrial hygienist collected air samples at the Wallops mainland area, the Highway 175 causeway, and on Chincoteague Island. No hazardous substances were detected at the sampled locations.

Additional air, soil and water samples will be collected from the incident area as well as at control sites for comparative analysis.

The Coast Guard and Virginia Marine Resources Commission reported today they have not observed any obvious signs of water pollution, such as oil sheens. Furthermore, initial assessments have not revealed any obvious impacts to fish or wildlife resources. The Incident Response Team continues to monitor and assess.

Following the initial assessment, the response team will open the area of Wallops Island, north of the island flagpole opposite of the launch pad location, to allow the U.S. Navy to return back to work.

Anyone who finds debris or damage to their property in the vicinity of the launch mishap is cautioned to stay away from it and call the Incident Response Team at 757-824-1295.

Further updates on the situation and the progress of the ongoing investigation will be available at:

<http://www.orbital.com>

and

<http://www.nasa.gov/orbital>

www.avastronomyclub.org



Statement from NASA Administrator on Virgin Galactic SpaceShipTwo Mishap

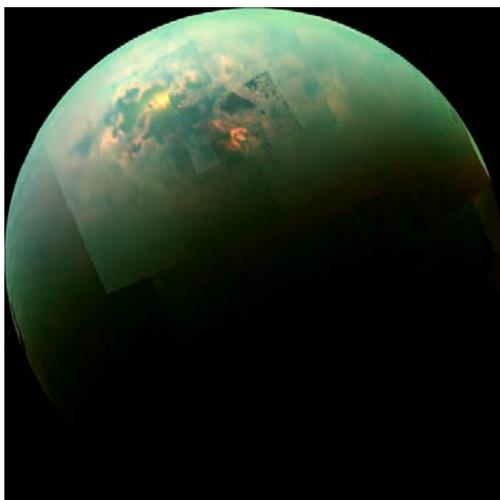
The following is a statement from NASA Administrator Charles Bolden:

“On behalf of the entire NASA family, I offer our deepest condolences to the family and loved ones of the pilot lost in today’s accident involving Virgin Galactic’s SpaceShipTwo, and we are praying for a speedy recovery of the other pilot.

“While not a NASA mission, the pain of this tragedy will be felt by all the men and women who have devoted their lives to exploration. Space flight is incredibly difficult, and we commend the passion of all in the space community who take on risk to push the boundaries of human achievement.”

Astrophoto of The Month

Specular Spectacular



This near-infrared, color mosaic from NASA's Cassini spacecraft shows the sun glinting off of Titan's north polar seas. While Cassini has captured, separately, views of the polar seas (see [PIA17470](#)) and the sun glinting off of them (see [PIA12481](#) and [PIA18433](#)) in the past, this is the first time both have been seen together in the same view. The sunglint, also called a specular reflection, is the bright area near the 11 o'clock position at upper left.

This mirror-like reflection, known as the specular point, is in the south of Titan's largest sea, Kraken Mare, just north of an island archipelago separating two separate parts of the sea. This particular sunglint was so bright as to saturate the detector of Cassini's Visual and Infrared Mapping Spectrometer (VIMS) instrument, which captures the view. It is also the sunglint seen with the highest observation elevation so far -- the sun was a full 40 degrees above the horizon as seen from Kraken Mare at this time -- much higher than the 22 degrees seen in [PIA18433](#). Because it was so bright, this glint was visible through the haze at much lower wavelengths than before, down to 1.3 microns.

The southern portion of Kraken Mare (the area surrounding the specular feature toward upper left) displays a "bathtub ring" -- a bright margin of evaporate deposits -- which indicates that the sea was larger at some point in the past and has become smaller due to evaporation. The deposits are material left behind after the methane & ethane liquid evaporates, somewhat akin to the saline crust on a salt flat.

The highest resolution data from this flyby -- the area seen immediately to the right of the sunglint -- cover the labyrinth of channels that connect Kraken Mare to another large sea, Ligeia Mare. Ligeia Mare itself is partially covered in its northern reaches by a bright, arrow-shaped complex of clouds. The clouds are made of liquid methane droplets, and could be actively refilling the lakes with rainfall.

The view was acquired during Cassini's August 21, 2014, flyby of Titan, also referred to as "T104" by the Cassini team.

The view contains real color information, although it is not the natural color the human eye would see. Here, red in the image corresponds to 5.0 microns, green to 2.0 microns, and blue to 1.3 microns. These wavelengths correspond to atmospheric windows through which Titan's surface is visible. The unaided human eye would see nothing but haze, as in [PIA12528](#).

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. JPL, a division of the California Institute of Technology, Pasadena, manages the mission for NASA's Science Mission Directorate in Washington. The VIMS team is based at the University of Arizona in Tucson.

More information about Cassini is available at <http://www.nasa.gov/cassini> and <http://saturn.jpl.nasa.gov>.

November Sky Data

First Qtr
Nov 29

Full
Nov 07

Last Qtr
Nov 14

New
Nov 21

**Best time for deep sky observing this month:
November 15 Through November 29**



Highlights of the Month



November 1st - 8th - 45 minutes before sunrise: Mercury above Spica in Virgo.

Before dawn on the 1st, Mercury will lie just over 5 degrees above and a little to the left of Spica in Virgo. One will need a good low horizon in the East-Southeast and possibly the use of binoculars. Over the next few days it drops down towards the horizon to the lower left of Spica.



Uranus below the Moon Image: Stellarium/IM

On the evening of the 4th, there is a chance to spot Uranus just below and a touch to the right of the 93% illuminated waxing gibbous Moon. Uranus is just ~2 arcminutes (this will vary across the UK somewhat) below the Moon's limb at 17:00, but in the twilight may be very difficult to spot - a telescope will be a very great help - but as it darkens over the next 45 minutes or so it should become easier to find as the Moon passes away to the east. By 17:30 the separation will have increased to ~6 arc minutes and, by 18:00,

19 arc minutes. In the darkening skies, Uranus should then be easier to see. The disk, at 3.3 arc seconds across, is tiny, but its turquoise colour should be easy to spot.



November 14th - 1 hour before sunrise: Jupiter near the third-quarter Moon.

Before dawn on the 14th, Jupiter will lie ~7 degrees to the left of the third quarter Moon



Mars in Sagittarius

After sunset on the 14th, given a good low horizon in the Southwest and possibly aided by binoculars, Mars will (if clear) be seen lying just above the handle of the 'teapot' in Sagittarius.



A Leonid crossing the Sword of Orion

November 17th/18th - after midnight : The Leonid Meteor Shower

Every year, on the nights of November 16/17th and 17/18th, the Earth passed close to the trails of cometary debris from Comet Temple-Tuttle which produce the annual Leonid Meteor shower. The wonderful image shows one of the 2001 Leonids burning up in the atmosphere as it crossed the constellation of Orion. The good news is that, this year, the meteor shower occurs near to the time of new Moon, so its light will not hinder our view, but the less good news is that the meteor shower is much weaker than around the turn of the millennium and perhaps only a dozen meteors will be seen per hour. The best time to observe them will be after midnight as our hemisphere is facing the stream of cometary debris. The dust particles that are swept up by the Earth are released as Comet Temple-Tuttle rounds the Sun every 33 years. As implied by the name, the radiant of the shower - from where the meteors appear to radiate from - lies within the head or Sickle of the constellation Leo the Lion.



Around the third week of November (with no Moon in the sky): find M31 - The Andromeda Galaxy - and perhaps M33 in Triangulum

How to find M31

In the evening, the galaxy M31 in Andromeda is visible in the south. The chart provides two ways of finding it:

1) Find the square of Pegasus. Start at the top left star of the square - Alpha Andromedae - and move two stars to the left and up a bit. Then turn 90 degrees to the right, move up to one reasonably bright star and continue a similar distance in the same direction. You should easily spot M31 with binoculars and, if there is a dark sky, you can even see it with your unaided eye. The photons that are falling on your retina left Andromeda well over two million years ago!

2) You can also find M31 by following the "arrow" made by the three rightmost bright stars of Cassiopeia down to the lower right as shown on the chart.

Around new Moon (22nd November) - and away from towns and cities - you may also be able to spot M33, the third largest galaxy after M31 and our own galaxy in our Local Group of galaxies. It is a face on spiral and its surface brightness is pretty low so a dark, transparent sky will be needed to spot it using binoculars (8x40 or, preferably, 10x50). Follow the two stars back from M31 and continue in the same direction sweeping slowly as you go. It looks like a piece of tissue paper stuck on the sky just a bit brighter than the sky background. Good Hunting!



November 25th and 26th - 1 hour after sunset: Mars close to a thin crescent Moon

A.V.A.C. Information

Membership in the Antelope Valley Astronomy Club is open to any individual or family.

The Club has three categories of membership.

- Family membership at \$30.00 per year.
- Individual membership at \$25.00 per year.
- Junior membership at \$15.00 per year.

Membership entitles you to...

- Desert Sky Observer—monthly newsletter.
- The Reflector – the publication of the Astronomical League.
- The A.V.A.C. Membership Manual.
- To borrow club equipment, books, videos and other items.

AVAC

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Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/

The Antelope Valley Astronomy Club, Inc. is a 501(c)(3) Non-Profit Corporation.

The A.V.A.C. is a Sustaining Member of The Astronomical League and the International Dark-Sky Association.

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