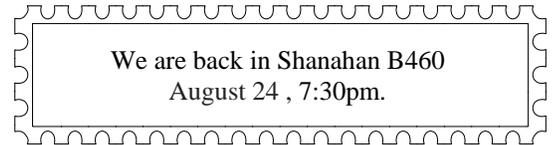




Newsletter of the Pomona Valley Amateur Astronomers

Explore. Dream. Discover.

Mark Twain



Volume 38 Number 08

nightwatch

August 2018

President's Message

The planets continue to be spectacular in the early evening sky. Right at sunset, Venus, Jupiter, Saturn, and Mars are spread along the ecliptic from the western horizon to the eastern one. And we're getting at least a few nights of good seeing to take advantage of the show.

Here are some upcoming club events to be aware of. On Saturday, September 8, we'll have our club star party at Culp Valley Campground in Anza-Borrego Desert State Park. Culp Valley is nice and high, about 3000 feet, so it should be considerably cooler than the desert floor. Saturday, October 6, is our trip to Mt. Wilson to spend the night observing with the 60-inch telescope. It's an amazing experience and I always look forward to going. The cost is \$125 per person.

It does throw a bit of a wrench into our schedule - October 6 would normally be the night of our monthly star party, so we need to find an alternative date. I'll take a poll at the upcoming meeting to see what date people would prefer to move the star party to.

Our speaker this month is Dr. Denise Kaisler, a professor at Citrus College professor, who will speak to us about space tourism. We'll be back in Shanahan B460. The meeting starts at 7:30 - I hope to see you there.

Matt Wedel

Club Events Calendar

Aug 24 General Meeting – Citrus College Professor, Denise Kaisler. Her topic will be space tourism.

Sept 8 Star Party – Anza Borrego

Sept 12 Board Meeting

Sept 21 General Meeting - Meteorites

TBD Star Party - Joshua Tree National Park

Oct 6 Mt Wilson 60" telescope observing

Oct 17 Board Meeting

Oct 26 General Meeting

Nov 10 Star Party – Mecca Beach, Salton Sea

Nov 14 Board Meeting

Nov 30 General Meeting

Dec 8 PVAA Holiday Party

PVAA Gen Meeting 07/27/18

Dr. Jake Hartman was our main speaker. His topic for the night was "The Dynamic Sky of Low-Frequency Radio Astronomy". While the ideal place to put the receiving array would be the far side of the moon, (to block all of earth's radio interference), the costs of doing so are prohibitive. Several low frequency arrays now exist on earth, and several more are planned. The problems with being on earth, besides all the man-made interference, are lightning, meteorites and meteors.

They are starting construction of the Square Kilometer Array in Australia, and just finished the design review for the Square Kilometer Array in South Africa. Cal Tech has a much smaller array in the Owens Valley, near Bishop California.

One of the main goals of the array is to look for the highly red-shifted photons in the 21cm range. This is characteristic of ionized hydrogen. This will give us a better peek at the "first light" when stars and galaxies first started to form and give off light. It is also being used to identify black holes and as counterparts for high frequency Gamma Ray Bursts. One of the largest arrays is in the Netherlands.

Gary Thompson

<http://www.astron.nl/>

<http://www.lofar.org/>



Dr. Jake Hartman



By LOFAR / ASTRON - <http://www.jb.man.ac.uk/news/2011/LOFAR-pulsars/>



Owens Valley Long Wavelength Array (OVRO-LWA) <http://www.tauceti.caltech.edu/LWA/>

Girl Scouts Nature at Night

The Girl Scouts “Nature at Night” event was the evening of Saturday, August 4. Three PVAA members were there: Cori Charles, Laura Jaoui, and myself. Cori brought her 20x80 wide angle binoculars, Laura brought her ETX-70 refractor and XT8 Dobsonian, and I brought my Apex 127 Mak-Cass. We all arrived before sunset and had time to get some of our gear set up before dinner.

The Girl Scouts served us a delicious dinner of beef, chicken, rice, veggies, and fresh fruit. After dinner we sat and talked while the girls did “swaps”, trading little trinkets that they had made that week at camp. We all ended up with plenty of swappies to clip to our vests and jackets.

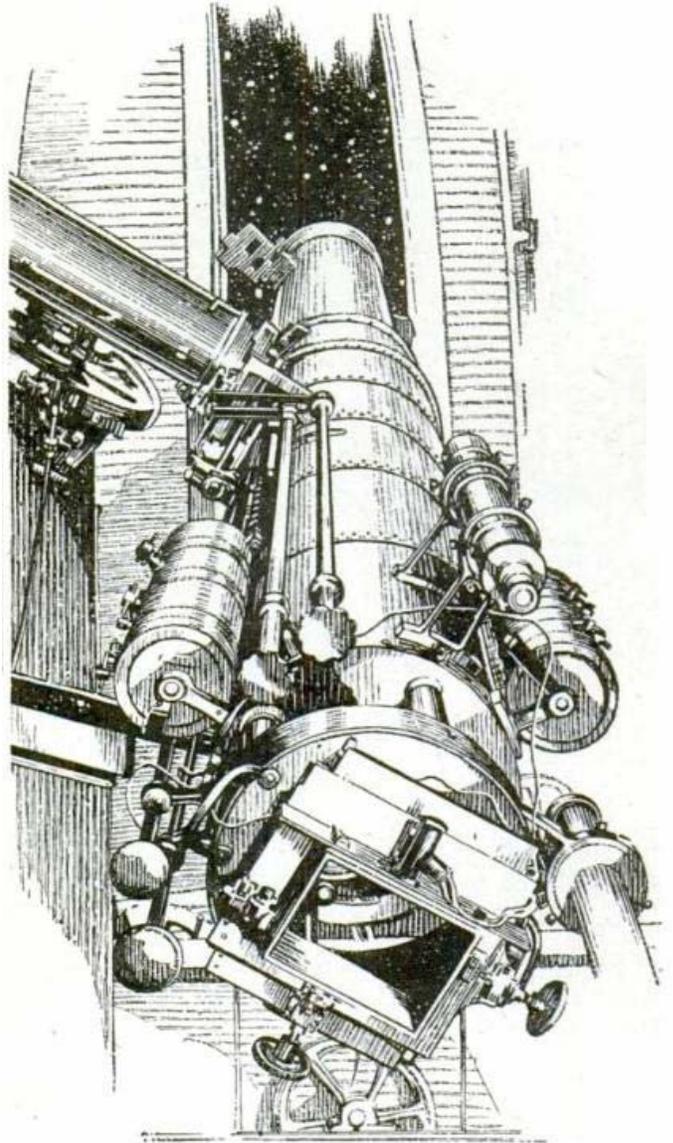
After that, we went to finish setting up our scopes and binoculars, and then the chaperones started to bring the girls up, about a dozen at a time. We rotated observing targets. In the early evening, Jupiter and Saturn got all of the attention. By about 10:30 Jupiter was too far down in the trees to the west to observe clearly, and Mars had finally climbed up out of the trees to the east. In addition to the planets, we also looked at some star clusters and nebulae. In particular, the Lagoon Nebula, M8, was very close to Saturn.

While Laura and I were putting our scopes on various targets, Cori let the girls use her 20x80 binos. She writes, “After a while, one of the girls walked up and operated the binos like a pro, so after that I decided they were on a tripod steady enough for them to handle, so I just let them do hands on and surf the sky, which they really enjoyed.”

We were observing from about 9:00 until 11:30 or so. For many of the girls, it was their first time seeing the rings of Saturn or the moons of Jupiter. The seeing was pretty bad – we couldn’t push much past 100x without the image getting blurry – but everyone had a good time anyway.

We learned from one of the organizers that this was the 25th year in a row that the PVAA had come to “Nature at Night”. It was a very fun evening and I hope that we can continue to support the Girl Scouts for another 25 years at least.

Matt Wedel



PVAA Officers and Board

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James Webb Space Telescope

On Saturday August 4, 2018 at 10:00 am, I went on a private tour of the James Webb Space Telescope (JWST) currently located at Northrop Grumman Space Park, Redondo Beach, CA. We viewed JWST at the assembly High Bay, upper and lower platforms. The Sun Shield is 72' in length, tennis court size, and has a light purple tent. The mirror is 21' in diameter, we could see the front panel of the mirror and both sides of the mirror were folded in. The primary mirror material is beryllium, coated with a thin layer of gold, which improves the reflection of infrared light. Beryllium is lightweight, strong, and can withstand very cold temperatures.

JWST will be 1.5 million miles away from Earth, at what is called the Earth-Sun L2 second Lagrange point. JWST is optimized for infrared wavelengths to cover longer wavelengths of light than Hubble, and will have greater sensitivity. It is expected to peer back over 13.5 billion years to see the first stars and galaxies forming out of the darkness of the early universe. The focal length is 131.4 meters and it has a mission duration of 5-10 years. It was amazing to see the size of the Telescope. No photographs were allowed.

JWST is a collaboration between NASA, the European Space Agency, and the Canadian Space Agency. They have encountered various setbacks, including over budgeting. The expected launch date is March 2021 and the launch vehicle is an Ariane 5 Rocket. JWST will be the successor to the Hubble Space Telescope, which can be credited with amazing contributions to our understanding of the Universe.

Cori Charles

Nature at Night

Three of us from PVAA joined the Girl Scouts for "Nature at Night" at Camp Nawakawa near Angelus Oaks on August 4th. This is a new location for the Girl Scouts. The camp is mainly outdoors but has a large covered area for dining.

As always, it was very enjoyable to share the night sky with these enthusiastic campers. I wish more PVAAers would come next year. We three, Matt Wedel, Cori Charles, and I were kept very busy showing the girls Jupiter, Saturn and Mars along with a few other objects. Tall trees limited the horizon but the sky was dark and we all had a good time. The camp cooks, the Jaou family, did a bang-up job as usual with a tasty dinner and deserts. The camp directors thanked us with some Girl Scout cookie boxes, yum!

It took about one hour and fifteen minutes to drive to the camp from Claremont so the drive to this new camp is comparable to the drive to the old camp near Idyllwild.

Lori Osegura, the camp organizer, makes us "astronomers" feel more than welcome and I look forward every year to such a nice reception by the camp organizers as well as the pleasure of sharing my enjoyment of the night sky with these Girl Scouts. This year Lori mentioned that the "Nature at Night" camp has been ongoing for 20+ years and PVAA has been represented there for many if not most of these years.

I hope we keep up this tradition for years to come. Many of these Girl Scout campers (and most of the adult organizers and cooks) come year after year to "Nature at Night" and anticipate seeing us and our telescopes. I hope those of you who have not enjoyed this well-appreciated outreach activity will join us next year!

Laura Jaoui



This article is provided by NASA Space Place.

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The Best Meteor Shower of the Year

If you're a fan of meteor showers, August is going to be an exciting month! The Perseid meteor shower is the best of the year, and in 2018, the peak viewing time for the shower is on a dark, moonless night—perfect for spotting meteors.

The best time to look for meteors during this year's Perseid shower is at the peak, from 4 p.m. EDT on Aug. 12 until 4 a.m. EDT on the Aug. 13. Because the new Moon falls on the peak night, the days before and after the peak will also provide very dark skies for viewing meteors. On the days surrounding the peak, the best time to view the showers is from a few hours after twilight until dawn.

Meteors come from leftover comet particles and bits from broken asteroids. When comets come around the Sun, they leave a dusty trail behind them. Every year Earth passes through these debris trails, which allows the bits to collide with our atmosphere and disintegrate to create fiery and colorful streaks in the sky—called meteors.

The comet that creates the Perseid meteor shower—a comet called Swift-Tuttle—has a very wide trail of cometary dust. It's so wide that it takes Earth more than three weeks to plow all the way through. Because of this wide trail, the Perseids have a longer peak viewing window than many other meteor showers throughout the year.

In fact, this year you should be able to see some meteors from July 17 to Aug. 24. The rates of meteors will increase during the weeks before Aug. 12 and decrease after Aug. 13. Observers should be able to see between 60 and 70 meteors per hour at the shower's peak.

The Perseids appear to radiate from the constellation Perseus, which is where we get the name for this shower. Perseus is visible in the northern sky soon after sunset this time of year. Observers in mid-northern latitudes will have the best views.

However, you don't have to look directly at the constellation Perseus to see meteors. You can look anywhere you want to; 90 degrees left or right of Perseus, or even directly overhead, are all good choices.

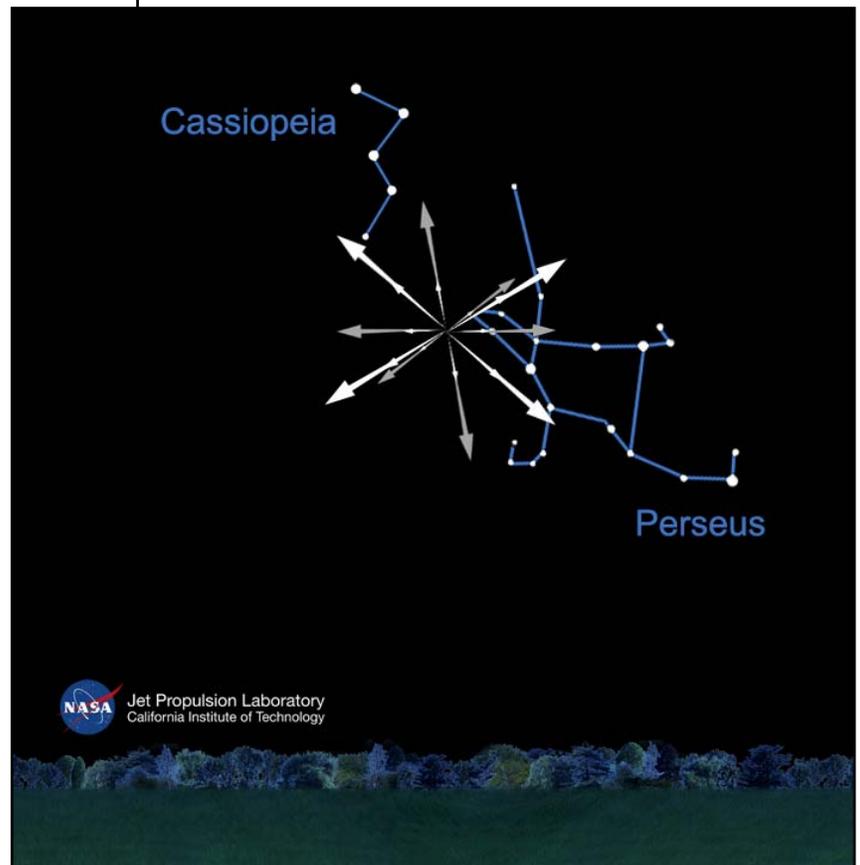
While you're watching the sky for meteors this month, you'll also see a parade of the planets Venus, Mars, Jupiter and Saturn—and the Milky Way also continues to grace the evening sky. In next month's article, we'll take a late summer stroll through the Milky Way. No telescope or binoculars required!

By Jane Houston Jones and Jessica Stoller-Conrad

Caption: The Perseid meteor showers appear to radiate from the constellation Perseus. Perseus is visible in the northern sky soon after sunset this time of year.

Credit: NASA/JPL-Caltech

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Amazing Facts



When the moon passes between the Earth and the Sun, partially or fully blocking the Sun from view, it is known as a solar eclipse. There are always at least two eclipses each year, but these may not be very noticeable, depending on from what part of the Earth they are observed. An average area of the world will experience a total solar eclipse only every 350-400 years.

wiseGEEK