



Newsletter of the Pomona Valley Amateur Astronomers

Nothing gives rest but the sincere search for truth.  
*Blaise Pascal*



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*nightwatch*

December 2020

### Arecibo Collapse Link

I'm sure many of you have seen the final, catastrophic failure of the Arecibo Observatory. This YouTube video comes with narration by someone explaining the physics of the forces on the catwalk and the support cables so you can better understand how the collapse happened.

<https://www.youtube.com/watch?v=59WQIRvezZI>

### Great Conjunction/Appulse

While the close approach of Jupiter and Saturn is over (at least until their next appulse in 2080) you can see the show again, with perhaps a better view than from your own scope. Below is a link to a 2-hour Virtual Star Party presented by scientists using an 8" Celestron SCT at our very own Mt Wilson. According to Tim Thompson, 5000 people joined on Zoom while another 10,000 watched on YouTube. He is pretty sure 15K is the most people who have observed at once from the scopes at Mt Wilson! There is some great commentary about telescope operations and planetary motions – and I've only watched 10 minutes of it so far. You'll also see all the comments from people joining from around the world.

<https://youtu.be/pZtXOguk63U>

### Club Events Calendar

Jan 16	Star Party – Mecca Beach	Mar 17	Board Meeting
Jan 20	Board Meeting	Mar 26	<u>Virtual General Meeting</u>
Jan 29	<u>Virtual General Meeting</u>		
Feb 13	Star Party–Anza-Borrego Desert State Park	Apr 10	Star Party – TBD
Feb 17	Board Meeting	Apr 21	Board Meeting
Feb 26	<u>Virtual General Meeting</u>	Apr 30	<u>General Meeting (presentation: TBD)</u>
Mar 13	Star Party – Culp Valley	May 8	Star Party – TBD
		May 19	Board Meeting

## Links from Matt

On December 11<sup>th</sup>, about a dozen of us from the Club joined virtually for our yearly gathering. I saw a couple of Christmas trees and member Eldred Tubbs went all out and came dressed up as Santa!

Here are some links Matt shared with us during our Holiday Party

List of ISS visiting spacecraft, with visual:

<https://www.nasa.gov/feature/visiting-vehicle-launches-arrivals-and-departures>

NASA interactive solar system explorer:

<https://solarsystem.nasa.gov/planets/overview/>

Night Sky with the Naked Eye (great book by Bob King/AstroBob)

<https://www.amazon.com/Night-Sky-Naked-Eye-Constellations/dp/1624143091>

Fireball movie by Werner Herzog on Apple TV+:

<https://www.youtube.com/watch?v=K4X9fOsiAOQ>

Alien Worlds documentary series on Netflix:

<https://www.youtube.com/watch?v=2YTYIeNFaPE>

Good source of meteorites from a legitimate dealer on eBay:

<https://www.ebay.com/usr/fujmon>

## Conjunction Photos - Jeff Schroeder

From my apartment balcony on Wednesday, December 16, 2020.  
250mm f/4.5 lens and 5" Orion Maksutov.

The moon made for a fabulous preview tonight.  
High cirrus didn't interfere too much. Canon T6i 0.8 sec. exp.



1,500mm f/12.  
1.6 sec. exp.  
Titan is just to the right  
of Saturn's oval.  
Only 30 arc minutes  
apart-but a half billion  
actual miles.

**More  
Conjunction Photos  
from  
Jeff Schroeder**

From Dec 16th.  
3" f/7 refractor.  
1.6 sec. exp  
with Canon T6i



From Dec 20th.  
5" Mak. Background 7th  
magnitude star next to  
Ganymede.  
Titan to upper right of Saturn.  
3 sec. exp.

**More  
Conjunction Photos  
from  
Jeff Schroeder**

Also from Dec 20th.  
11" refractor  
f16.5 1/40th sec. exp.  
Unguided from cartop mount.  
Image cropped.  
Low altitude and fair to poor  
seeing limited detail.



From Dec 21st.  
closest approach, 6.1 arc minutes.  
11" refractor f/16.5 1/60th sec. exp.  
Full frame and mirror flipped  
due to use of a diagonal.  
I was switching between  
the camera and visual observers.



Unaided eye view from  
Brackett airport.  
Enlarge to see both planets.  
Visually, a glance  
wouldn't separate them,  
you had to look more carefully!

Jeff Schroeder  
December 21, 2020







**This article is distributed by NASA Night Sky Network**

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

### **Check Your Sky's Quality with Orion!**

David Prosper

Have you ever wondered how many stars you can see at night? From a perfect dark sky location, free from any light pollution, a person with excellent vision may observe a few thousand stars in the sky at one time! Sadly, most people don't enjoy pristine dark skies – and knowing your sky's brightness will help you navigate the night sky.

The brightness of planets and stars is measured in terms of **apparent magnitude**, or how bright they appear from Earth. Most visible stars range in brightness from 1<sup>st</sup> to 6<sup>th</sup> magnitude, with the lower number being brighter. A star at magnitude 1 appears 100 times brighter than a star at magnitude 6. A few stars and planets shine even brighter than first magnitude, like brilliant Sirius at -1.46 magnitude, or Venus, which can shine brighter than -4 magnitude! Very bright planets and stars can still be seen from bright cities with lots of light pollution. Given perfect skies, an observer may be able to see stars as dim as 6.5 magnitude, but such fantastic conditions are very rare; in much of the world, human-made light pollution drastically limits what people can see at night.

Your sky's **limiting magnitude** is, simply enough, the measure of the dimmest stars you can see when looking straight up. So, if the dimmest star you can see from your backyard is magnitude 5, then your limiting magnitude is 5. Easy, right? But why would you want to know your limiting magnitude? It can help you plan your observing! For example, if you have a bright sky and your limiting magnitude is at 3, watching a meteor shower or looking for dimmer stars and objects may be a wasted effort. But if your sky is dark and the limit is 5, you should be able to see meteors and the Milky Way. Knowing this figure can help you measure light pollution in your area and determine if it's getting better or worse over time. And regardless of location, be it backyard, balcony, or dark sky park, light pollution is a concern to all stargazers!

How do you figure out the limiting magnitude in your area? While you can use smartphone apps or dedicated devices like a Sky Quality Meter, you can also use your own eyes and charts of bright constellations! The Night Sky Network offers a free printable Dark Sky Wheel, featuring the stars of Orion on one side and Scorpius on the other, here:

[bit.ly/darkskywheel](https://bit.ly/darkskywheel). Each wheel contains six "wedges" showing the stars of the constellation, limited from 1-6 magnitude. Find the wedge containing the faintest stars you can see from your area; you now know your limiting magnitude! For maximum accuracy, use the wheel when the constellation is high in the sky well after sunset. Compare the difference when the Moon is at full phase, versus new. Before you start, let your eyes adjust for twenty minutes to ensure your night vision is at its best. A red light can help preserve your night vision while comparing stars in the printout.

Did you have fun? Contribute to science with monthly observing programs from Globe at Night's website ([globeatnight.org](https://globeatnight.org)), and check out the latest NASA's science on the stars you can - and can't - see, at [nasa.gov](https://nasa.gov).

NASA Night Sky Notes

January 2021



*The Dark Sky Wheel, showing the constellation Orion at six different limiting magnitudes (right), and a photo of Orion (left). What is the limiting magnitude of the photo? For most observing locations, the Orion side works best on evenings from January-March, and the Scorpius side from June-August.*