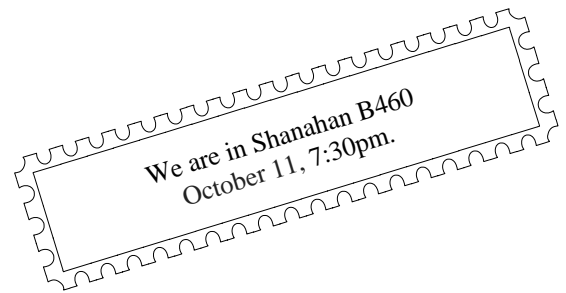




Newsletter of the Pomona Valley Amateur Astronomers

There is in the universe neither center nor circumference.  
*Giordano Bruno*



Volume 39 Number 10

*nightwatch*

October 2019

## President's Message

I have some homework for you this month. In addition to keeping your eyes on the skies, I am going to encourage you to take some action here on Earth. There was formerly an array of radio telescopes up near the Grandview campground at White Mountain in the Inyo National Forest. The radio astronomers lost their funding and the telescope array has been removed. Because the area where the radio telescopes were sited counts as "disturbed", it must either be repurposed or restored. Cliff Saucier, who was formerly active in the PVAA, proposed converting the former radio telescope site into a dedicated observing site for amateur astronomers. He has talked with rangers about this a bit, and they've been generally receptive. Repurposing the site for amateur astronomers would be cheaper than either restoring it or doing anything else with it. But it might take a little nudging.

Cliff proposed a letter-writing campaign to the Inyo National Forest leadership to drum up support for a dedicated astronomy area. We discussed it at the last PVAA board meeting and we're all in favor. If this is something you'd like to pursue, please write to the park staff. You can reach them here:

Inyo National Forest  
351 Pacu Lane  
Suite 200  
Bishop, CA 93514

You can also submit correspondence online at this link:  
<https://www.fs.usda.gov/contactus/inyo/about-forest/contactus>

If you write, please be polite and constructive, and explain the recreational and educational benefits of stargazing. You might mention that you are a member of the PVAA, a 501(c)(3) charitable organization dedicated to enjoying and sharing the wonders of the night sky.

I have one other request. Next month is the general meeting closest to the 50<sup>th</sup> anniversary of Apollo 12. It would be great to have someone give a short talk recapping the history of the mission and its accomplishments. Doesn't have to be a huge thing, could just be a 5-minute talk. If you're interested, please let me or one of the other board members know.

At our general meeting this Friday, October 11, we will have the world pre-premier of the movie "Chile Eclipse Del Sol". Bob Stephens and Alson Wong of the Riverside Astronomical Society produced the movie, which they describe as, "a rocking adventure of long time eclipse chasers; Bob Stephens, Alson Wong, and Allan and Valerie Hwang. They went to Peru and Chile to see the July 2019 Total Eclipse of the Sun. The film chronicles their adventures along the way with beautiful scenery, strange Peruvian dishes, local cultural music, high altitude excursions, and of course – a Total Eclipse of the Sun!" Bob and Alson will be present to answer questions after the screening. I hope to see you there.

*Matthew Wedel*

### They Were Almost Household Names

An edited conversation between Ludd Trozpek and Ron Hoekwater about their recent Oregon sky gazing experience

This just came to my notice. The Wikipedia article is pretty interesting.

[https://en.wikipedia.org/wiki/C/2019\\_Q4\\_\(Borisov\)](https://en.wikipedia.org/wiki/C/2019_Q4_(Borisov))

I also looked at reference 10 which is a Sky and Tel blurb about the comet, including a picture of the discoverer and his telescope.

<https://www.skyandtelescope.com/astronomy-news/possible-interstellar-comet-headed-our-way/>

Ron--how come you didn't spot this in your scope? It was apparently in the sky in July...his scope is about the same aperture of yours, though it's a faster scope.

Ludd

I am completely mystified. It said the comet came "from the direction of Perseus near the border with Cassiopeia". We looked at Perseus and we looked at Cassiopeia. How could we have missed it? The S & T article said the current magnitude is about 18, so maybe we thought it was just another faint, fuzzy, comety, alien space ship thingy from outside the Solar System.

Actually, at about 18th magnitude it would have been right at the limit of what we could see, or a little beyond the limit and also low in the sky until later in the night. If we had known where to look, we still might not have seen it.

Ron

### Club Events Calendar

**Oct 11 General Meeting**

**Oct 26 Star Party – Cottonwood**

**Nov 6 Board Meeting**

**Nov 11 Transit of Mercury**

**Nov 15 General Meeting Apollo 12**

**Nov 23 Star Party – Mecca Beach**

**Dec 7 Christmas Party**

**Jan 8 Board Meeting**

**Jan 10 General Meeting**

**Jan 25 Star Party -- TBD**

**Jan 29 Board Meeting**

**Feb 7 General Meeting**

**Feb 22 Star Party -- TBD**

**Feb 26 Board Meeting**

**Mar 6 General Meeting**

**Mar 21 Star Party -- TBD**

**Apr 1 Board Meeting**

**Apr 10 General Meeting (presentation: TBD; Apollo 13)**

**Apr 25 Star Party -- TBD**

**Apr 29 Board Meeting**

**May 8 General Meeting**

**May 23 Star Party -- TBD**

**May 27 Board Meeting**

**Jun 5 General Meeting**

**Jun 20 Star Party – TBD**

**Jul 22 Board Meeting**

**Jul 31 General Meeting**

**Aug 15 Star Party -- TBD**

**Aug 19 Board Meeting**

**Aug 28 General Meeting**

**Sep 12 Star Party -- TBD**

**Sep 16 Board Meeting**

### PVAA Officers and Board

**Officers**

President .....	Mathew Wedel .....	909-767-9851
Vice President ..	Joe Hillberg .....	909-949-3650
Secretary .....	Ken Elchert .....	626-541-8679
Treasurer .....	Gary Thompson .....	909-935-5509
VP Facilities .....	Jeff Felton .....	909-622-6726

**Board**

Jim Bridgewater (2018).....	909-599-7123
Richard Wismer(2018) .....	
Ron Hoekwater (2019).....	909-706-7453
Jay Zacks (2019) .....	

**Directors**

Membership / Publicity....	Gary Thompson ..	909-935-5509
Outreach .....	Jeff Schroeder .....	909-758-1840
Programs .....	Ron Hoekwater .....	909-391-1943

## General Meeting 09/13/19

After bringing the meeting to order and a quick review of the recent RTMC (Riverside Telescope Makers Conference), we jumped right into the main presentation. Our speaker for the night was David Pearson. Dave worked on the Space Shuttle with PVAA's Ken Elchert. Dave's presentation was on "A Guide to Beginning and Advanced Astrophotography". His website is: <http://astrodwp.com/> and it has a lot of information.

One of the first things to do before you start taking pictures of stars is to find out how much 'noise' your camera has. To do this, leave the lens cap ON, and take a picture with the exposure length you plan on taking. Check out the 'noise', or white dots, show up. There are programs that can remove the noise from your photo to make it more accurate. One good rule to follow when taking an un-guided picture of the sky is the '500 rule.' That is, take 500 and divide it by the aperture of the camera lens. Let's say you have a 50mm lens:  $500/50 = 10$  seconds would be the maximum exposure you can take before the stars become streaks. (Less if you blow up your picture to 8X10.) A lens aperture of 18 would give you  $500/18 = 27 \frac{3}{4}$  second exposure. There are programs out there that will allow you to 'stack' the pictures to see dimmer objects. Imagine taking twenty 5 second exposures and stacking half of the best frames to get the equivalent of a 50 second exposure. (You might throw one or more out due to a plane or satellite in the frame, or a gust of wind made it blurry, etc.) Check out the 500 rule here:

<https://astrobackyard.com/the-500-rule> -

and visit the main website: <https://astrobackyard.com/>

While astrophotography can get really expensive and complicated, it also can be as simple as putting your mobile phone lens up to the eyepiece and getting a great shot of the moon. If you have a camera with adjustable settings - you can go to a dark sky place in the desert and take great pictures of the night sky. You can take pictures of star trails by having 5 minute or longer exposures of the North Star area. You should check out this website for seeing and 'transparency' of the night sky:

<http://weasner.com/etx/buyer-newuser-tips/seeing.html>

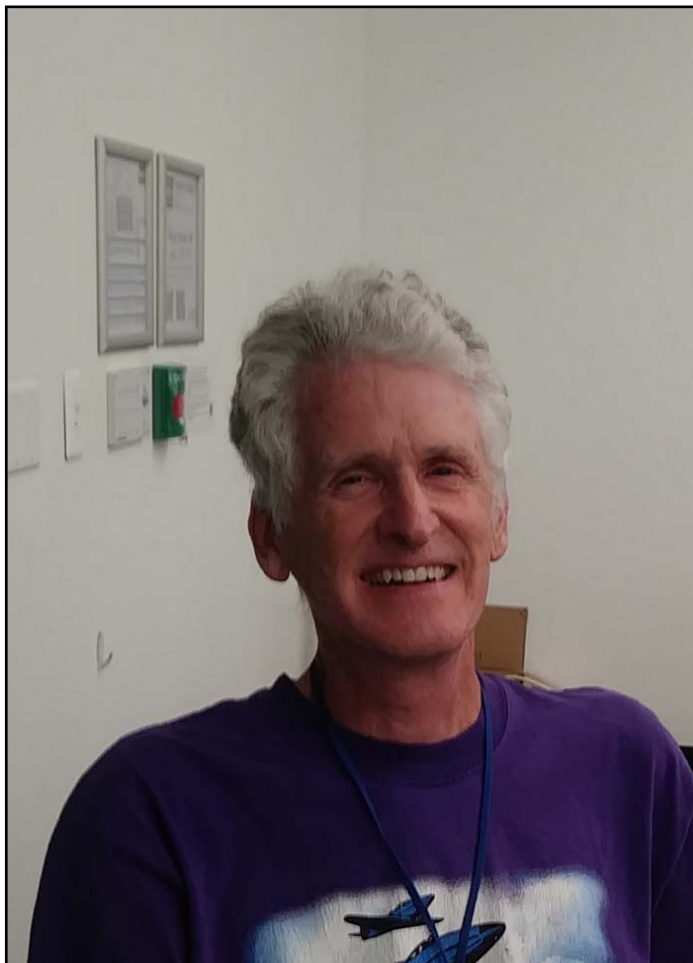
. Sometimes a clear night might be terrible due to turbulent high altitude atmosphere winds.

Dave talked about color cameras vs. B&W - with filters, camera pixel size vs. focal length, image smear due to polar alignment, and field rotation due to using an Alt-Azimuth mount. Angular rate of rotation (deg/hour) =  $15.037662 \text{ deg/hour (Earth's rotation) X cos (lat) X cos (az) / cos(alt)}$  where lat= observer's latitude in degrees, az=target's azimuth angle from North in degrees, and alt = target's altitude angle from the horizon in degrees. For more on this go to:

[http://calgary.rasc.ca/field\\_rotation.htm](http://calgary.rasc.ca/field_rotation.htm)

Dave packed a lot of information into his presentation. His afore mentioned website goes into much more detail than I can put here.

*Gary Thompson*



Dave Pearson



**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.org](https://nightsky.jpl.nasa.org) to find local clubs, events, and more!

## **Find Strange Uranus in Aries**

David Prosper

Most of the planets in our solar system are bright and easily spotted in our night skies. The exceptions are the ice giant planets: Uranus and Neptune. These worlds are so distant and dim that binoculars or telescopes are almost always needed to see them. A great time to search for Uranus is during its opposition on October 28, since the planet is up almost the entire night and at its brightest for the year.

Search for Uranus in the space beneath the stars of Aries the Ram and above Cetus the Whale. These constellations are found west of more prominent Taurus the Bull and Pleiades star cluster. You can also use the Moon as a guide! Uranus will be just a few degrees north of the Moon the night of October 14, close enough to fit both objects into the same binocular field of view. However, it will be much easier to see dim Uranus by moving the bright Moon just out of sight. If you're using a telescope, zoom in as much as possible once you find Uranus; 100x magnification and greater will reveal its small greenish disc, while background stars will remain points.

Try this observing trick from a dark sky location. Find Uranus with your telescope or binoculars, then look with your unaided eyes at the patch of sky where your equipment is aimed. Do you see a faint star where Uranus should be? That's not a star; you're actually seeing Uranus with your naked eye! The ice giant is just bright enough near opposition - magnitude 5.7 - to be visible to observers under clear dark skies. It's easier to see this ghostly planet unaided after first using an instrument to spot it, sort of like "training wheels" for your eyes. Try this technique with other objects as you observe, and you'll be amazed at what your eyes can pick out.

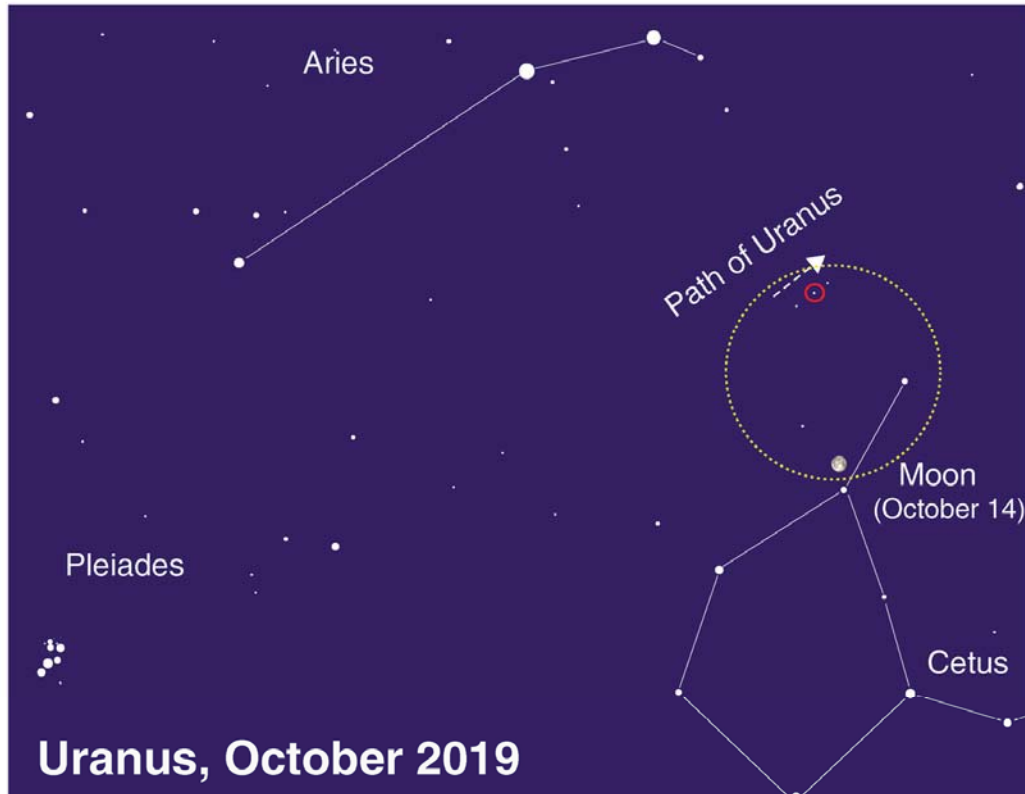
By the way, you've spotted the first planet discovered in the modern era! William Herschel discovered Uranus via telescope in 1781, and Johan Bode confirmed its status as a planet two years later. NASA's Voyager 2 is the only spacecraft to visit this strange world, with a brief flyby in 1986. It revealed a strange, severely tilted planetary system possessing faint dark rings, dozens of moons, and eerily featureless cloud tops. Subsequent observations of Uranus from powerful telescopes like Hubble and Keck showed its blank face was temporary, as powerful storms were spotted, caused by dramatic seasonal changes during its 84-year orbit. Uranus's wildly variable seasons result from a massive collision billions of years ago that tipped the planet to its side.

Discover more about NASA's current and future missions of exploration of the distant solar system and beyond at [nasa.gov](https://nasa.gov)

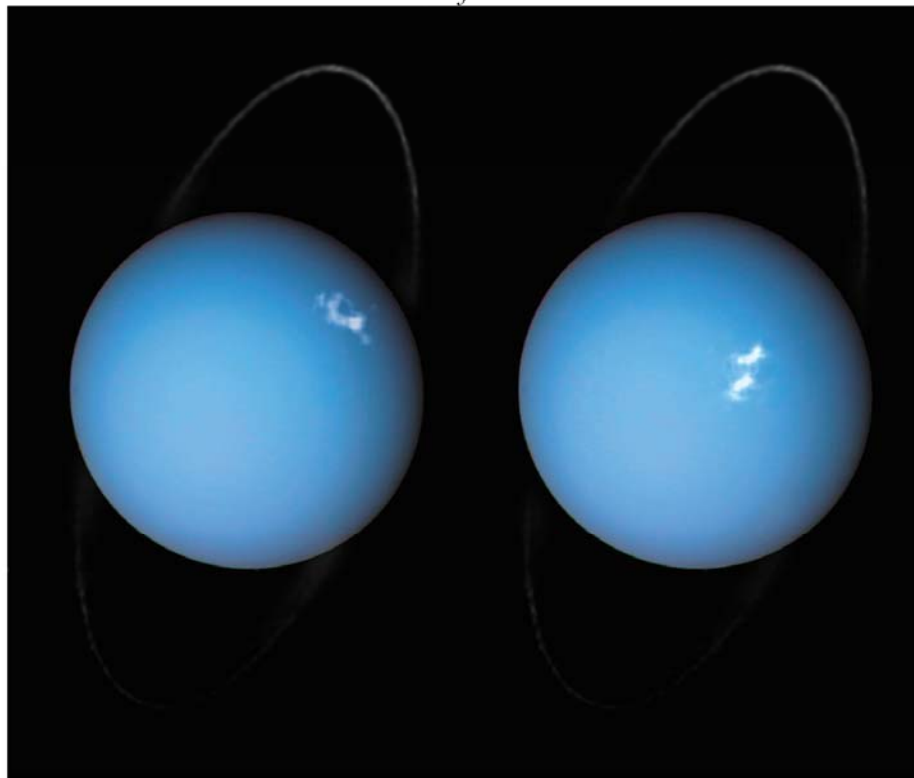
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*Caption: The path of Uranus in October is indicated by an arrow; its position on October 14 is circled. The wide dashed circle approximates the field of view from binoculars or a finderscope. Image created with assistance from Stellarium.*



*Caption: Composite images taken of Uranus in 2012 and 2014 by the Hubble Space Telescope, showcasing its rings and auroras. More at [bit.ly/uranusauroras](http://bit.ly/uranusauroras) Credit: ESA/Hubble & NASA, L. Lamy / Observatoire de Paris*