



Newsletter of the Pomona Valley Amateur Astronomers

Volume 39 Number 12

nightwatch

December 2019

Club Events Calendar

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

Sep 25 General Meeting

Oct 10 Star Party -- TBD

Oct 21 Board Meeting

Oct 30 General Meeting

Nov 7 Star Party -- TBD

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

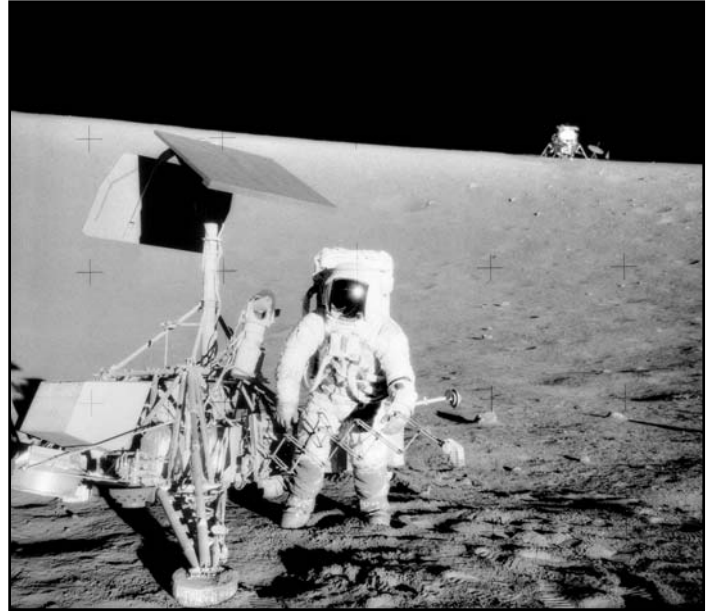
General Meeting 11/15/19

Our very own Ken Elchert gave a presentation of the Apollo 12 mission to the moon. His presentation was titled: 'Apollo 12 Pinpoint landing on the Moon'. Apollo 12 had an all Navy crew of Commander Charles "Pete" Conrad, Command Module Pilot Richard F. Gordon, Jr. and Lunar Module Pilot Alan L. Bean. On the Apollo 12 insignia there are 4 stars. Each represents an astronaut; the 3 Apollo 12 astronauts and astronaut C.C. Williams, who died when his T-38 crashed. They placed his aviator wings on the moon. The command Module was named the 'Yankee Clipper' and the Lunar Module was named the 'Intrepid'. The flight itself had a bumpy start as it was struck by lightning twice as it lifted into orbit. Fortunately, Flight Controller John Aaron told the astronauts to move 'SCE to Aux' (SCE=Signal Conditioning Equipment), which saved the mission.

They landed in the Ocean of Storms only 535 feet away from the Surveyor 3 spacecraft which landed on the moon on April 20, 1967. They brought back its camera, sampler scoop, and a few other things from the Surveyor Lander, but inadvertently pointed their own camera at the Sun, making it useless.

Apollo 12 was picked up by the carrier USS Hornet CVS-12. Apollo 12 launched on 11/14/1969 and splashed down on 11/24/1969.

Gary Thompson



Yankee Clipper on display at the Virginia Air and Space Center in Hampton, Virginia





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 to find local clubs, events, and more!

The Orion Nebula: Window Into a Stellar Nursery

By David Prosper

Winter begins in December for observers in the Northern Hemisphere, bringing cold nights and the return of one of the most famous constellations to our early evening skies: Orion the Hunter!

Orion is a striking pattern of stars and is one of the few constellations whose pattern is repeated almost unchanged in the star stories of cultures around the world. Below the three bright stars of Orion's Belt lies his sword, where you can find the famous Orion Nebula, also known as M42. The nebula is visible to our unaided eyes in even moderately light-polluted skies as a fuzzy "star" in the middle of Orion's Sword. M42 is about 20 light years across, which helps with its visibility since it's roughly 1,344 light years away! Baby stars, including the famous "Trapezium" cluster, are found inside the nebula's whirling gas clouds. These gas clouds also hide "protostars" from view: objects in the process of becoming stars, but that have not yet achieved fusion at their core.

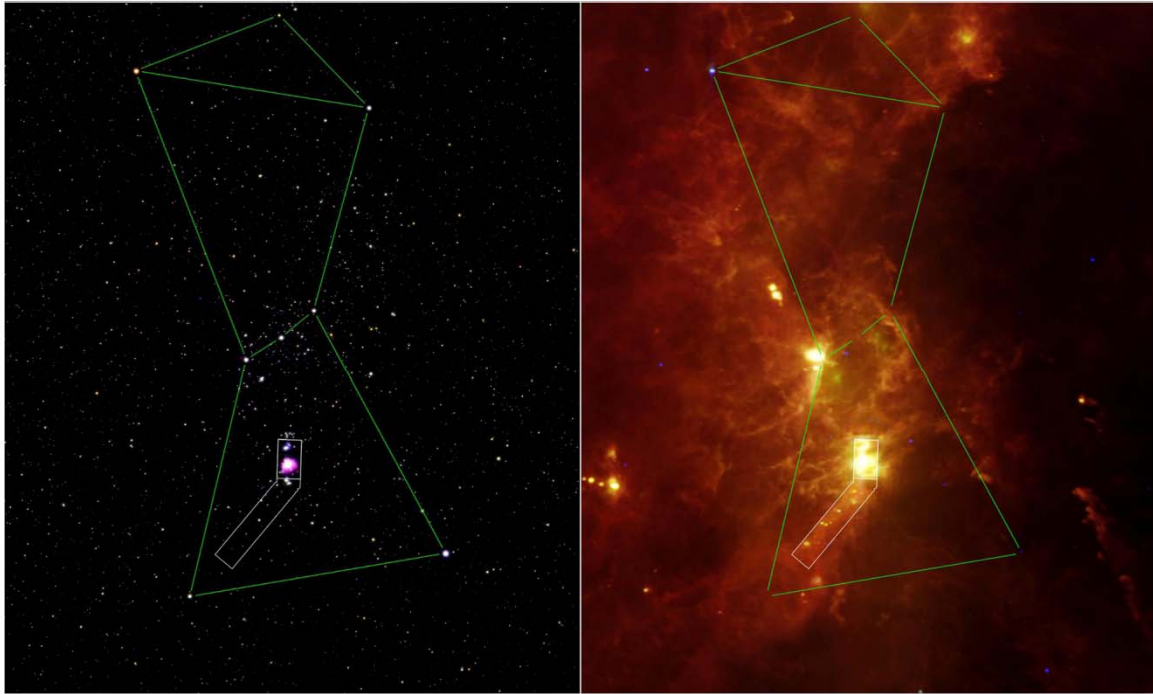
The Orion Nebula is a small window into a vastly larger area of star formation centered around the constellation of Orion itself. NASA's Great Observatories, space telescopes like Hubble, Spitzer, Compton, and Chandra, studied this area in wavelengths we can't see with our earthbound eyes, revealing the entire constellation alight with star birth, not just the comparatively tiny area of the nebula. Why then can we only see the nebula? M42 contains hot young stars whose stellar winds blew away their cocoons of gas after their "birth," the moment when they begin to fuse hydrogen into helium. Those gas clouds, which block visible light, were cleared away just enough to give us a peek inside at these young stars. The rest of the complex remains hidden to human eyes, but not to advanced space-based telescopes.

We put telescopes in orbit to get above the interference of our atmosphere, which absorbs many wavelengths of light. Infrared space telescopes, such as Spitzer and the upcoming James Webb Space Telescope, detect longer wavelengths of light that allow them to see through the dust clouds in Orion, revealing hidden stars and cloud structures. It's similar to the infrared goggles firefighters wear to see through smoke from burning buildings and wildfires.

Learn more about how astronomers combine observations made at different wavelengths with the Night Sky Network activity, "The Universe in a Different Light," downloadable from bit.ly/different-light-nsn. You can find more stunning science and images from NASA's Great Observatories at nasa.gov.

NASA Night Sky Notes

December 2019



Caption: This image from NASA's Spitzer missions shows Orion in a different light – quite literally! Note the small outline of the Orion Nebula region in the visible light image on the left, versus the massive amount of activity shown in the infrared image of the same region on the right. Image Credit: NASA/JPL-Caltech/IRAS /H. McCallon. From bit.ly/SpitzerOrion