nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

What was hard to do is sweet to remember. ***Seneca***

We are in Shanahan B460
April 19, 7:30pm.

Volume 39 Number4 ***nightwatch*** **April 2019**

President's Message

Amazing images are the sign of the season this month. On April 10, a team led by Dr. Katie Bouman released the first image of a black hole. The image was collected by the Event Horizon Telescope, which is not a single device but a network of eight radio telescopes located in Antarctica, Greenland, South America, North America, Hawaii, and Europe. Bouman's team used very long baseline interferometry to integrate data from all eight telescopes and obtain a "photo" in radio wavelengths of the supermassive black hole at the center of galaxy M87.

Closer to home and on the very next day, April 11, SpaceX launched the Falcon Heavy rocket for only the second time, and this time they successfully landed all three of the first stage rockets. The side boosters flew back to land at Cape Canaveral, and the center core landed on an autonomous drone ship in the Atlantic Ocean. Rough seas later caused the center core to tip over and fall into the ocean, but that takes nothing away from the technical achievement of the flight. SpaceX also recovered both halves of the cargo fairing for the first time, with the intent of refurbishing and reflying them as well. The mission sent Arabsat-6A on its way to geosynchronous orbit, where it will provide television, telephone, and internet services to portions of the Middle East, Africa, and Europe.

At this month's general meeting, our treasurer, Gary Thompson, will show videos about the Apollo program, as we get closer to the 50th anniversary of the first moon landing in July. We'll also raffle off a signed copy of the book, "Endurance: A Year in Space, a Lifetime of Discovery" by astronaut Scott Kelly. Kelly lived on the ISS from March 27, 2015, through March 1, 2016, the longest consecutive time in space by an American astronaut. (Cosmonaut Valeri Polyakov spent 14 months on the Mir space station in 1994-1995, the longest single spaceflight for any human to date.) And we may have one or more short presentations about recent astronomical events. The meeting will be in Shanahan B460 on the Harvey Mudd campus in Claremont, at 7:30 PM this Friday, April 19. I hope to see you there.

Matt Wedel

PVAA Officers and Board

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Outreach	Jeff Schroeder	909-758-1840
Programs	Ron Hoekwater	909-391-1943

Club Events Calendar

Apr 19 General Meeting - Apollo Program videos introduced by Gary Thompson plus book raffle

Apr 27 Children's Book Festival, Claremont Public Library 1-4 PM

May 4 Star Party – Mt Baldy
May 8 Board Meeting
May 17 General Meeting - Apollo 10 and "Getting Your Hands on Real Astronomy Data" by Lisa Rebull
May 18-19 JPL Open House

Jun 1 Star Party – White Mountain
Jun 5 Board Meeting
Jun 14 General Meeting Apollo 11 by Ken Elchert

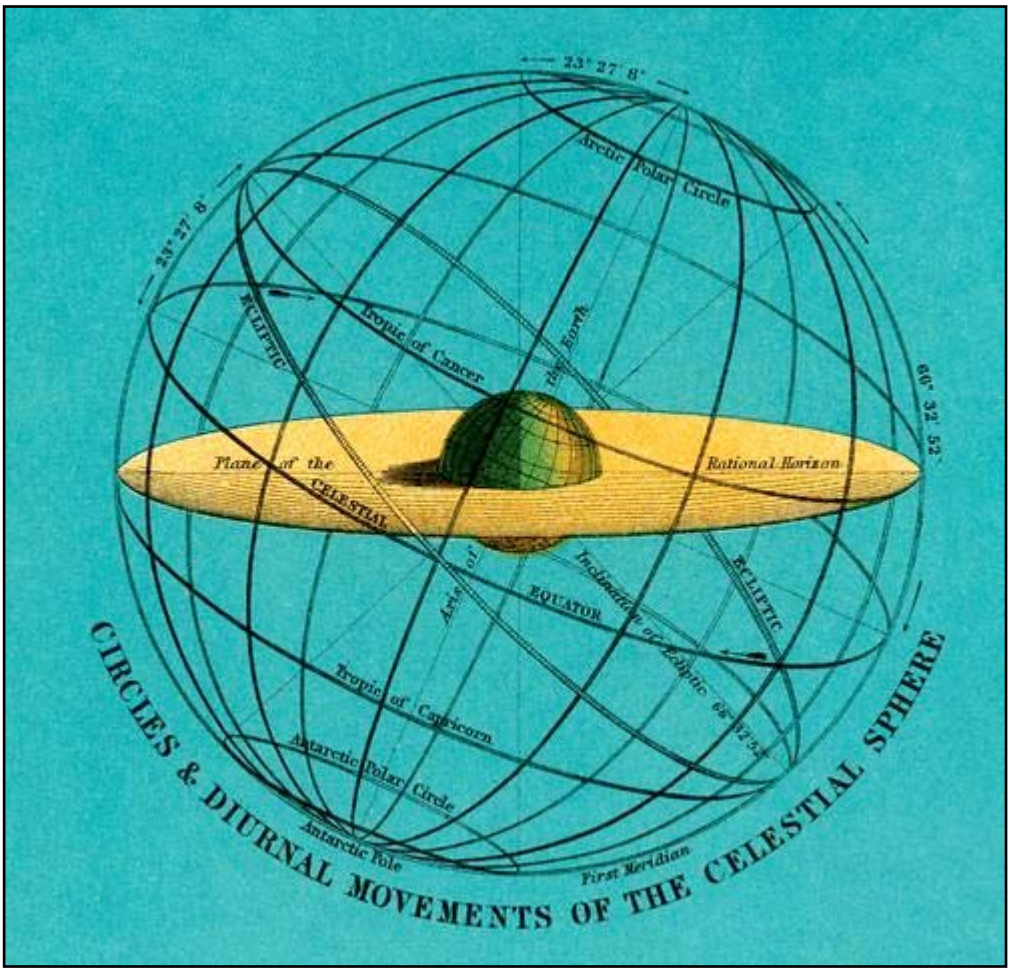
Jul 10 Board Meeting
Jul 19 General Meeting
Jul 27 Star Party – Tejon Ranch

Aug 3 Nature at Night GS Camp - Nawakwa
Aug 7 Board Meeting
Aug 16 General Meeting
Aug 31 Star Party – TBD

Sept 4 Board Meeting
Sept 13 General Meeting
Sept 19-22 RTMC
Sept 28 Star Party – TBD

Oct 2 Board Meeting
Oct 11 General Meeting
Oct 26 Star Party – TBD

Nov 6 Board Meeting
Nov 15 General Meeting Apollo 12
Nov 23 Star Party – TBD



General Meeting 03/22/19

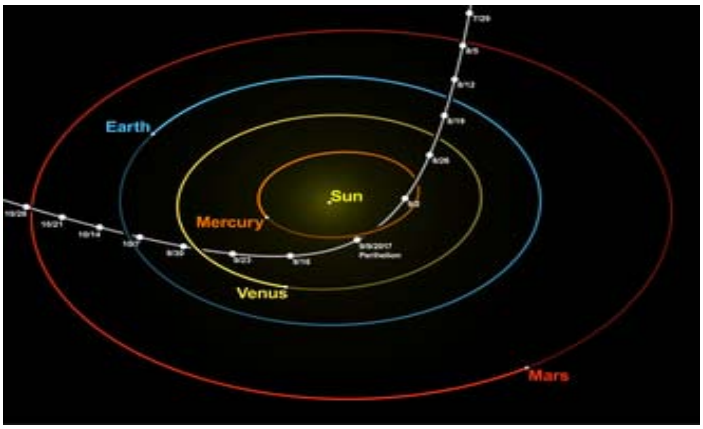
Mathew Wedel opened the meeting welcoming everyone. Cori Charles mentioned the upcoming JPL Open House May 18th and 19th. You must get your tickets online, and due to the volume of JPL Guests, you must pick a time slot for your visit. Tickets will be sold starting April 6th. You can go to https://www.jpl.nasa.gov/ to get your tickets.

Membership dues are now due for the year. Dues are $30 per individual, or $40 for a family, or $12 for youth under 18.

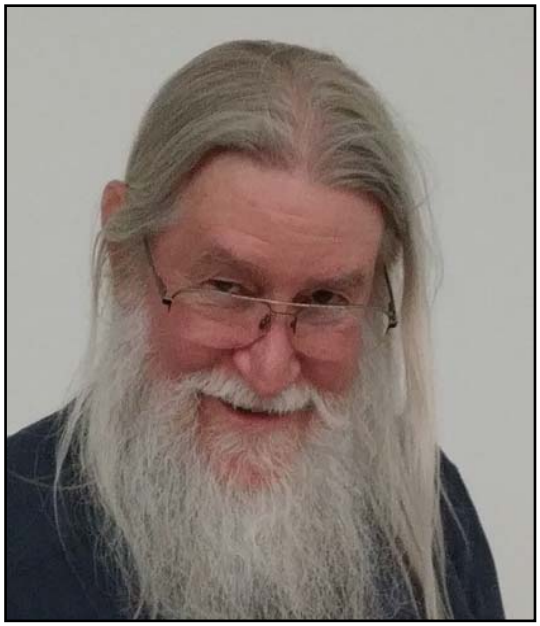
PVAA will be holding a raffle for the book "Endurance" signed by astronaut Scott Kelly about his year in space aboard the International Space Station.

Tim Thompson JPL-Retired was the speaker for the evening. The subject for the night was "'Oumuamua – Interstellar Asteroid or Interstellar Spacecraft?" Officially known as 1I/2017 U1, 'Oumuamua was discovered on Oct. 19, 2017 by the University Of Hawaii's Pan-STARRS1 telescope 40 days after it passed its closest point to the Sun. NASA's Near-Earth Object Observations Program funded the telescope time. Originally classified as a comet, observations showed no signs of cometary activity after it slingshotted around the Sun on Sept. 9th, 2017 at 196,000 mph (87.3 kilometers per second). It was then classified as an asteroid, but then was found to be accelerating slightly, as a comet would. 'Oumuamua (pronounced oh MOO-uh MOO-uh), which is Hawaiian for "a messenger from afar arriving first.") is the first confirmed object from another star. It seems to be a dark reddish rocky cigar-shaped object about a quarter mile (400 meters) long, and 40 meters wide, spinning every 7.3 hours

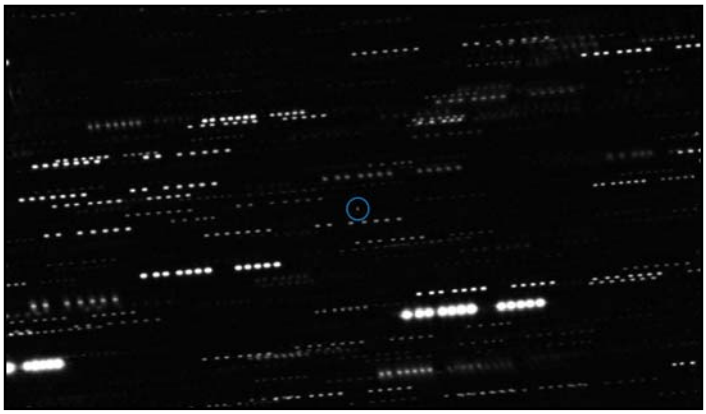
It came as close as 15,020,000 miles (24,180,000 km) to Earth. –About 62 times further away than the moon. As it was only as bright as magnitude 22 after discovery, only the largest telescopes could detect its faint movement. SETI, using the Allen Telescope Array, detected no unusual radio emissions.



Hyperbolic trajectory of Oumuamua through the inner Solar System with the Sun at the focus
Credit: nagualdesign; Tomruen - Own work made with trajectory data from JPL Horizons, redrawn by nagualdesign.



Tim Thompson not wearing his Gandalf or Dumbledore costumes.



This very deep combined image shows the interstellar object 'Oumuamua at the center of the image. It is surrounded by the trails of faint stars that are smeared as the telescopes tracked the moving comet. Credit: ESO/K. Meech et al.

By Original: ESO/M. KornmesserDerivative: nagualdesign - Derivative of http://www.eso.org/public/images/eso1737a/, shortened (65%) and reddened and darkened, CC BY-SA 4.0, https://commons.wikimedia.org/w/index.php?curid=64730303

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https://en.wikipedia.org/wiki/%CA%BBOumuamua

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Watching the Late Spring Skies

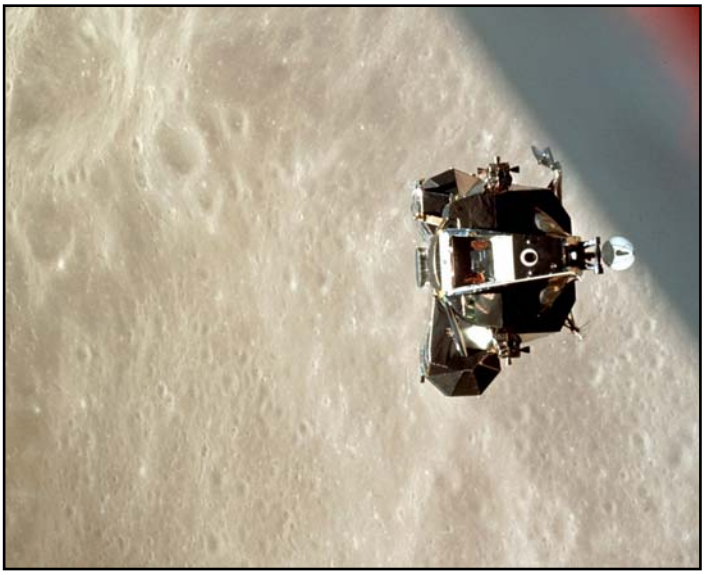
.Late spring brings warmer nights, making it more comfortable to observe a good showing of the **Eta Aquarids** meteor shower. Skywatchers can also look for the delicate **Coma Star Cluster**, and spot the **Moon** on the anniversary of **Apollo 10**'s "test run" prior to the Moon landing in 1969.

The **Eta Aquarids** meteor shower should make a good showing this year, peaking the morning of May 6. This meteor shower has an unusual "soft peak," meaning that many meteors can be spotted several days before and after the 6th; many may find it convenient to schedule meteor watching for the weekend, a night or two before the peak. You may be able to spot a couple dozen meteors an hour from areas with clear dark skies. Meteors can appear in any part of the sky and you don't need any special equipment to view them; just find an area away from lights, lie down on a comfy lawn chair or blanket, relax, and patiently look up. These brief bright streaks are caused by Earth moving through the stream of fine dust particles left by the passage of Comet Halley. While we have to wait another 43 years for the famous comet grace our skies once more, we are treated to this beautiful cosmic postcard every year.

While you're up meteor watching, try to find a delightful naked eye star cluster: the **Coma Star Cluster** (aka Melotte 111) in the small constellation of Coma Berenices. It can be spotted after sunset in the east and for almost the entire night during the month of May. Look for it inside the area of the sky roughly framed between the constellations of Leo, Boötes, and Ursa Major. The cluster's sparkly members are also known as "Berenice's Hair" in honor of Egyptian Queen Berenices II's sacrifice of her lovely tresses. Binoculars will bring out even more stars in this large young cluster.

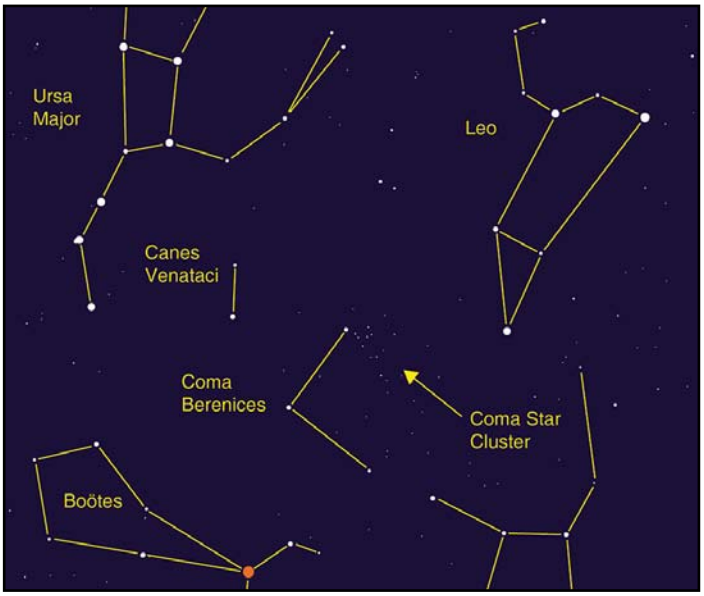
May marks the 50th anniversary of the Lunar Module's test run by the A**pollo 10** mission! On May 22, 1969, NASA astronauts Thomas Safford and Eugene Cernan piloted the Lunar Module - nicknamed "Snoopy" - on a test descent towards the lunar surface. Undocking from "Charlie Brown" - the Command Module, piloted by John Young – they descended to 47,400 feet above the surface of the Moon before returning safely to the orbiting Command Module. Their success paved the way for the first humans to land on the Moon later that year with Apollo 11. Look for the Moon on the morning of May 22, before or after dawn, and contemplate what it must have felt like to hover mere miles above the lunar surface. You'll also see the bright giant planets Saturn and Jupiter on either side of the Moon before sunrise. When will humans travel to those distant worlds?

By David Prosper



A view of Apollo 10's Lunar Module from the Command Module as it returned from maneuvers above the lunar surface. Photo Credit: NASA Source: http://bit.ly/apollo10view

You can catch up on all of NASA's current and future missions at nasa.gov



Try to spot the Coma Star Cluster! Image created with assistance from Stellarium