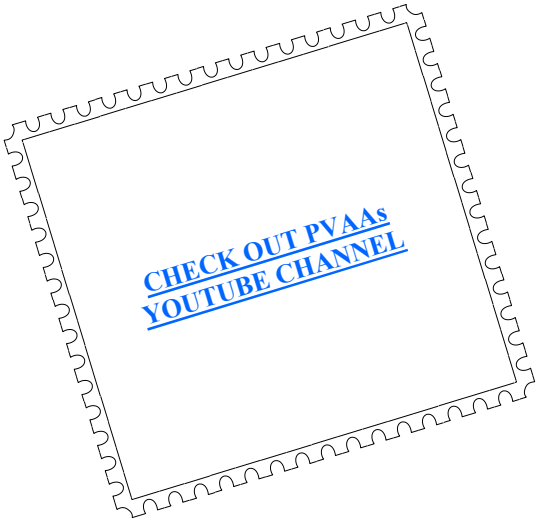
nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

Only those who will risk going too far
can possibly find out how far one can go.
T.S Eliot



President's Message - May 2026

What do April showers bring? Well, this year, the answer is the Flower Moon, the full moon that will start the month of May by brightening the night sky on May 1. That is also the day of our PVAA general meeting which I hope all of you will be able to attend either in person or virtually via Zoom.

Our treasurer, Gary Thompson, my daughter, Marissa, and I attended the face-to-face meeting of representatives in the Western Region of the Astronomical League on April 15. It was held at Lowell Observatory in Flagstaff, Arizona, and was a big success. A wide range of topics were covered from awards and speakers for meetings to copyright infringement to insurance. One negative item was that the Astronomical League dues are being increased which has caused us to increase the PVAA annual dues to $40 for individuals, $60 for families and $20 for individuals under 18. However, the PVAA is still a great bargain and I am optimistic that the PVAA will benefit from our affiliation with the Astronomical League and the Western Region by drawing on their resources and experience. My ultimate goal, of course, is to make the PVAA a fun club for the members and to increase the membership numbers.

And, speaking of fun, we will be having a private tour of the Mount Wilson Observatory just for PVAA members on May 9. We'll all be meeting at the gate at MWO at 10:00 am and the tour will last two to two and a half hours. It will include a walk around the grounds, a talk on the history of the institution, and visits to the major telescopes. However, there will not be any viewing through the telescopes. The cost is $25 per person. If you are interested, please contact Ron Hoekwater as soon as practical at astro4ron@gmail.com.

We also have another fun event: an ice cream social!!! This is being held by the Friends of the Claremont Library on Saturday, May 16, starting at 2:00 pm at the Claremont Library. We have been invited because the PVAA is partnered with the Claremont Library's Telescope Lending Program. The library is located at 208 N. Harvard Avenue in Claremont. The event is free so I hope to see all of you there!

The PVAA is also partnering with the Glendora Public Library. This has led to a program consisting of presentations to the Teen Astronomy Club which I will be giving at the library this summer. The first one will be on Tuesday, May 12, starting at 6:00 pm and my topic will be the Milky Way. All PVAA members are invited as well as any friends and family members you'd like to bring. The library is located at 140 S. Glendora Avenue in Glendora.

As usual, we have lots of opportunities for those of you who would like to actively help the PVAA. We still need someone to be Gary Thompson's assistant to help set up the computer for Zoom at the general meetings and to fill in for him when he is unable to attend a meeting. If interested, please contact Gary at garynorms@gmail.com. We also need a president, a secretary and an Outreach Coordinator. If you are interested in any of these, please contact me at thespaceshuttle@aol.com.

I wish all of you a very nice Mother's Day and Memorial Day with family and friends!

Ken Elchert

Club Events Calendar

Date	Time	Event	Location
May 1	7:30 pm	PVAA General Meeting - election of officers	Harvey Mudd College, Shanahan B-460
May 9	10:00 am	Mount Wilson Observatory tour	Mount Wilson
May 10	--------	Mothers Day	----------
May 12	6:00 pm	Teen Astronomy Club presentation	Glendora Public Library
May 16	2:00 pm	Ice Cream Social	Claremont Public Library
May 16	--------	Star Party	GMARS @ Landers
May 20	6:00 pm	PVAA Board Meeting	IHOP @ 80 N. Euclid Ave. Upland
May 21	11:59 pm	Deadline for Celestial Escape Sweepstakes	----------
May 25	--------	Memorial Day	----------
May 29	7:30 pm	PVAA General Meeting	Harvey Mudd College, Shanahan B-460

Upcoming Celestial Events

May 2026

events visible in southern CA highlighted in yellow

May 10 is Mothers Day
May 25 is Memorial Day

In the U.S., Daylight Savings Time is in effect from the first Sunday in April to the last Sunday in October

PST = UTC – 8 hrs
PST = PDT – 1 hr
PDT = UTC – 7 hrs
PDT = PST + 1 hr

Date	Day	LA Time	Event	Direction	Altitude (deg)	Moon Phase/ Illumination
May 1	Fri	10:24 am visible all night	Full Moon "Flower Moon"	E – S – W	5 – 33 – 5	Full Moon 100%
May 3 - 4	Sun-Mon	10:30 pm – 5:30 am	Moon-Antares appulse sep = 0° 26' m = 1.1	SE – SW in Scorpius	5 – 29 – 16	Waning Gibbous 93.7%
May 6	Wed	4:00 am	Eta Aquarids shower peaks up to 30/hr	ESE	------	Waning Gibbous 82%
May 12 & 13	Tue Wed	morning	Da Vinci Glow Earthshine on Moon's night side	E	5 – 22	Waning Crescent
May 13	Wed	4:30 am – 5:15 am	Moon near Saturn sep = 5° 3' m = 0.9	E in Pisces	6 – 15	Waning Crescent 13%
May 14	Thu	5:00 am – 5:15 am	Moon near Mars sep = 4° 41' m = 1.3	E in Pisces	5 – 8	Waning Crescent 5%
May 16	Sat	1:01 pm	New Moon at apogee	-------	-------	New moon 0%
May 19	Tue	7:50 pm – 9:50 pm	Moon near Venus sep = 2° 56' m = -3.9	W – WNW in Taurus	29 – 5	Waxing Crescent 15.6%
May 19 & 20	Tue Wed	8:15 pm – 11:00 pm	Da Vinci Glow Earthshine on Moon's night side	W – WNW	36 – 5	Waxing Crescent 16.3%
May 20	Wed	8:00 pm – 11:00 pm	Moon near Jupiter & Pollux sep = 3° 0' & 3° 21'	W – WNW in Gemini	45 – 5	Waxing Crescent 26%
May 23	Sat	1:00 am	Moon-Regulus appulse sep = 0° 20' m = 1.3	W in Leo	6	Waxing Crescent 48%

Lunation No. 1278

Lunation No. 1279

PVAA General Meeting 4/3/2026

Our president Ken Elchert opened the meeting greeting everyone and asking anyone that wants to be part of the board to put their names forward. Elections will take place at the May meeting. The yearly dues are due at that time also. The dues are currently $30 for individuals, $40 for families, and $12 for those under the age of 18. Due to an increase in our contribution per member to the Astronomical League, and the fact that we have not raised the dues for over 15 years, on June 1st the dues will be $60 per family, $40 for individuals, and $20 for those under 18. – So: Get your dues in now and save!

Ken then gave his monthly presentation of current Astronomical and Aeronautical events. The big event was the Artemis II mission rounding the moon and coming back to Earth. Jeremy Glover was born in Pomona on April 30, 1976; and graduated from Ontario H.S. in 1994, making him a celebrated local. Artemis II 'Integrity' splashed down off the coast of San Diego, only 385 miles from where Jules Verne's 'Columbiad' was to have landed in his 1865 book 'From the Earth to the Moon.'

Ken then went on to talk about an add-on mission to the DART (Double Asteroid Redirection Test) mission. ESA's Hera Mission launched October 7, 2024, on a Falcon 9. It will reach the Dimorphos asteroid in November 2026. The entire surface of Dimorphos will be mapped, and its mass will be determined with high accuracy. This will allow a direct estimate of the momentum transfer efficiency from the DART mission.

Ken then brought up the Planetary Society's 'Celestial Escape to Mauna Kea' Sweepstakes. You can enter the contest at: https://www.tapkat.org/the-planetary-society/Wk1vj9

On March 17, 2026, a 7-ton meteor, ~6 feet wide traveled ~34 miles through the atmosphere at ~ 45,000 mph. It created a bright fireball that could be seen from Wisconsin to Maryland. It disintegrated over Valley City, Ohio. The blast released energy equal to around 250 tons of TNT. On March 21, 2026, at 4:39 pm, a meteor exploded over northern metro Houston. Some fragments have been reported to be recovered.

Ron Hoekwater has set up a tour of the Mount Wilson Observatory on the morning of May 9th for $25 per person. Please contact Ron to let him know you are coming.

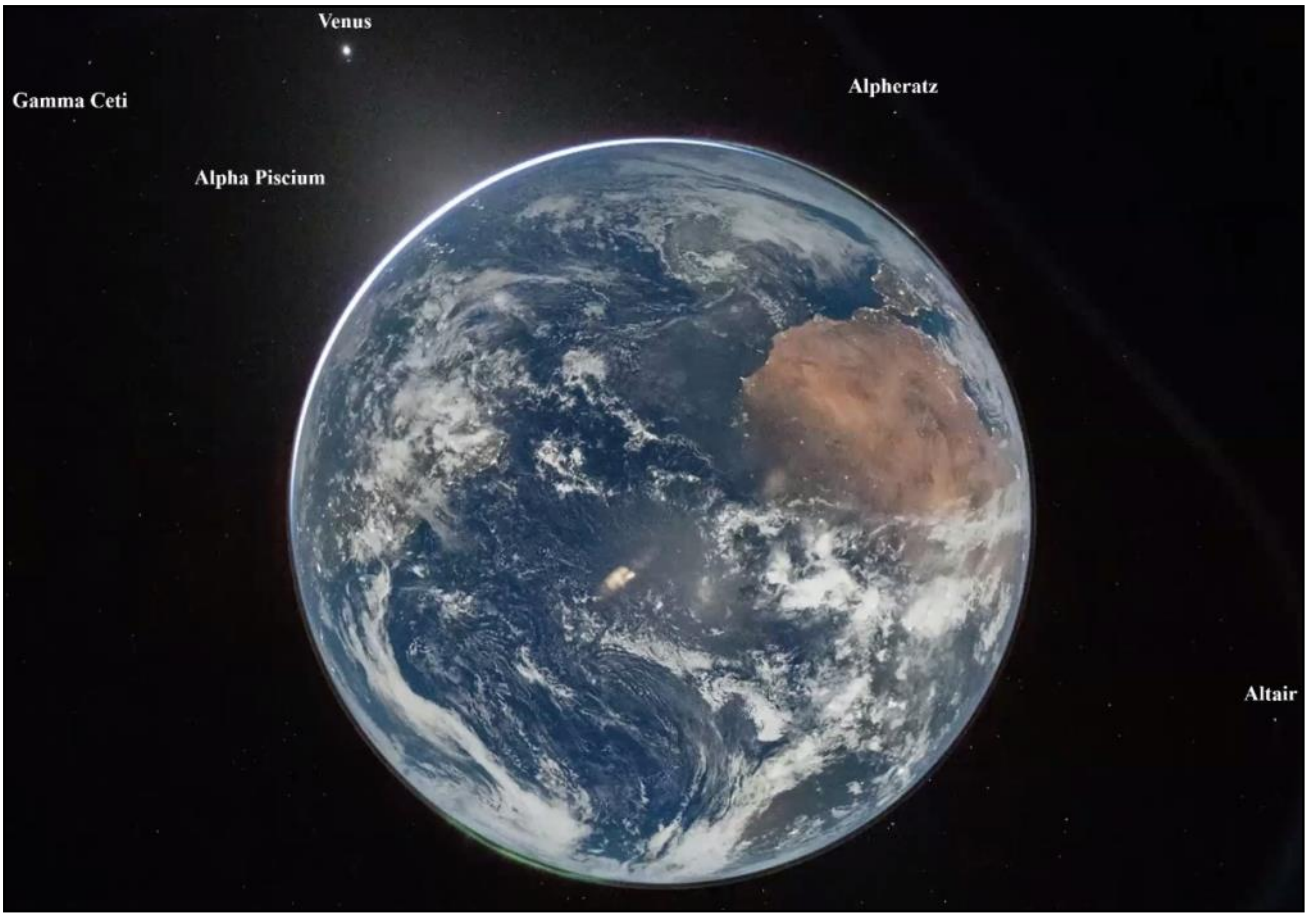
Our speaker for the night was PVAA's own Dr. Scott Little of Cal Poly Pomona and Pepperdine University. His talk was on Pasadena Astronomy Day last November, Dr. Kip Thorne, and LIGO (Laser Interferometer Gravitational-Wave Observatory). Pasadena calls itself "The City of Astronomy" https://www.cityofastronomy.org/ because JPL (NASA's Jet Propulsion Laboratory), Mt Wilson, Caltech, the Planetary Society, TMT (Thirty Meter Telescope), and GMT (Giant Magellan Telescope) headquarters are nearby or in the city itself. The Pasadena Astronomy Day started in 2016, as a celebration and public outreach. They had several speakers on subjects like 'How Do Galaxies Form?' and 'Black Holes.'

Dr. Little then talked about Dr Kip Thorne and his amazing work at LIGO. LIGO can detect movement within the instrument down to the width of one proton! The LIGO website: https://www.ligo.caltech.edu/ Here you can view a lot of pictures and videos on their research.

He then brought up a way to participate in the LIGO project through https://einsteinathome.org/ (Einstein@Home) uses your computer's idle time to search for weak astrophysical signals from spinning neutron stars (often called pulsars) using data from the LIGO gravitational-wave detectors, the MeerKAT radio telescope, the Fermi gamma-ray satellite, as well as archival data from the Arecibo radio telescope.

Scott Little PhD website: https://zuriky.com/

Gary Thompson



INASA

PVAA Officers and Board

Officers

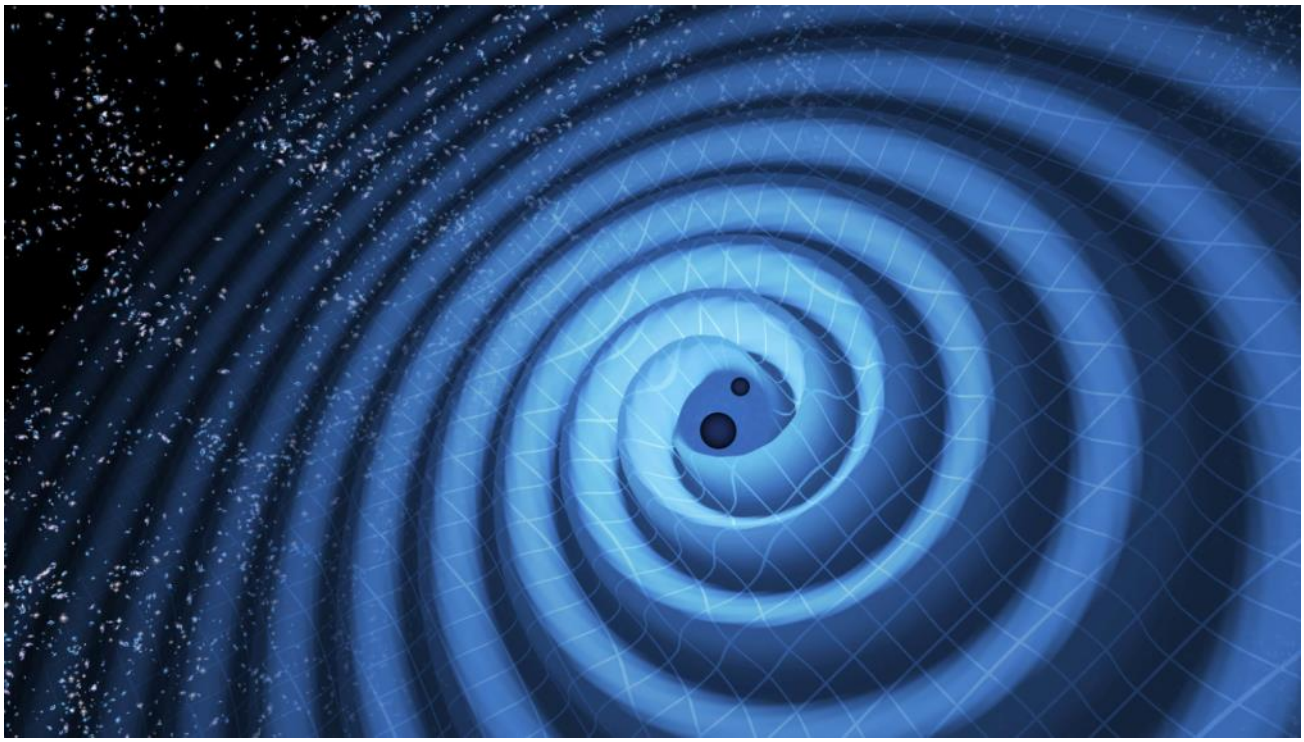
President …..... Ken Elchert ..... thespaceshuttle@aol,com
Vice President .. Open position
Secretary(acting) .....Ken Elchert 626-541-8679
Treasurer ..... Gary Thompson 909-935-5509

Board

Jim Bridgewater (2026)..... 909-599-7123
Claire Stover(2026) .....pvaanightwatch@gmail.com
Ron Hoekwater (2027)..... 909-445-9282
Howard Maculsay (2027)…….909-913-1195

Directors

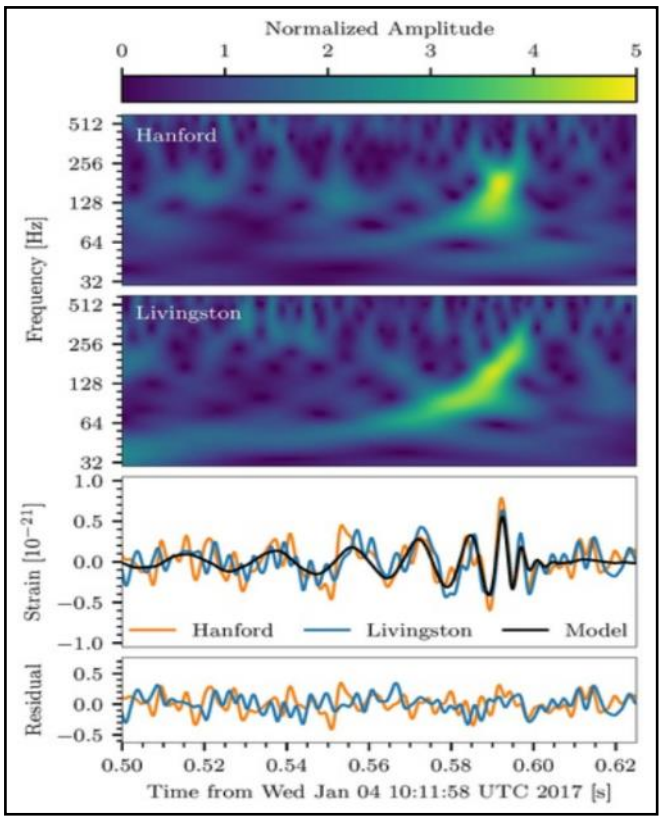
Membership / Publicity....Gary Thompson .909-935-5509
Outreach ..... Jeff Schroeder 909-758-1840
Programs ..... Ron Hoekwater 909-445-9282



Spiral Dance of Black Holes Image credit: LIGO/T. Pyle

This illustration shows the merger of two black holes and the gravitational waves that ripple outward as the black holes spiral toward each other. The black holes—which represent those detected by LIGO on Dec. 26, 2015—were 14 and 8 times the mass of the sun, until they merged, forming a single black hole 21 times the mass of the sun. In reality, the area near the black holes would appear highly warped, and the gravitational waves would be difficult to see directly.

Data from the gravitational wave signal which indicates that a gravitational wave from colliding black holes was detected by LIGO 1/7/2017. Credit: Caltech/MIT



Mount Wilson Observatory Talk and Tour

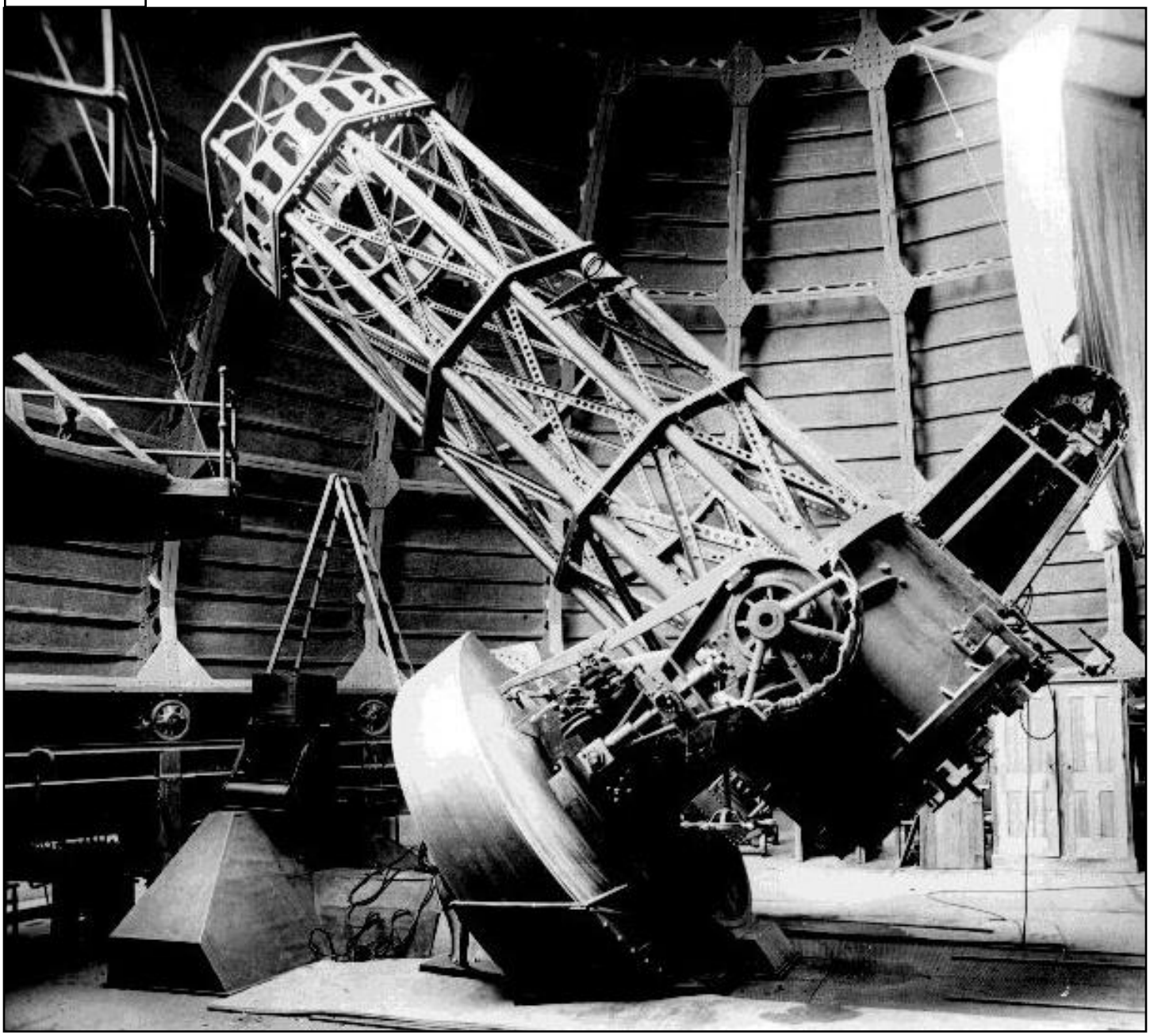
At our May 1st PVAA meeting Tim Thompson will speak about the Mount Wilson Observatory. Mount Wilson Observatory is the site of groundbreaking discoveries in astronomy that shaped our understanding of the Universe. Tim is a Mount Wilson Observatory Trustee and Science Director and also serves as a docent and session director at the observatory. He is a retired JPL physicist and long-time member of the Los Angeles Astronomical Society and is very active in promoting astronomy and space exploration to the public.

Eight days after Tim's presentation, on Saturday, May 9th, PVAA members will have the opportunity to take a private guided tour of Mount Wilson Observatory and see for themselves the instruments that were used to make so many important discoveries. The tour will start at 10:00 AM and last about 2 and 1/2 hours.

Mount Wilson charges for observatory tours at a cost of $25 per person. Members will pay PVAA and we will settle up with Mount Wilson. The money helps to keep this wonderful and historic site operating. If you want to join this tour, please send a message to astro4ron@gmail.com for more information.

Ron Hoekwater

MtWilson.



Leo times Three

I know it's nearly May, so an image captured in March is pretty late. We camped at the dark site March 19-21 and just a few days after camping, we went to NY for "grandparenting duties"! We spent 3 weeks with a very energetic 1-year-old granddaughter and we were exhausted! The image was taken through the new SVX90T refractor and represents the first light from a dark site. If I remember correctly, we spent at least one of the nights dodging the clouds. I was also battling an issue with my system where a fuse would randomly blow or the computer would cut in and out. I think I have figured out that a faulty dew heater was the problem.

TARGET

If you recall, springtime is galaxy season. The time of year when we look out of the plane of the Milky Way. Surprisingly, I hadn't imaged the Leo Triple since February of 2017, also from the dark site using a similar telescope but very different camera and mount. I figured I could improve on the image this time.

Discovered in 1784 by William Herschel, the Hamburger Galaxy gets its moniker from the prominent dust band that bisects it along with the thick galactic plane. There is also a 300,000 light-year long tidal tail of stars extending eastward from past galactic interactions. Depending on conditions and processing, the tidal tail is not always visible but can be seen in this one. The Hamburger is believed to be a non-barred spiral galaxy. M66, also cataloged as NGC 3627, was discovered in 1780 by Charles Messier and is the 66th entry in his famous list of "non-comets". It is a barred spiral galaxy, although the bar is weak and the arms not tightly wound. M65, known also as NGC 3623, was also discovered by Charles Messier in 1780. It too appears to be a barred spiral but at an oblique angle relative to our line of sight. A dust lane can be seen along its eastern side. All three galaxies appear to have bluish and pinkish regions indicative of star formation and nebulae. I have attempted to accentuate these features but haven't been very successful. Finally, one thing that I really enjoy is to zoom in to about 200% and hunt for small, faint galaxies. There are quite a few in this image and I particularly like the little splinter-like ones!

IMAGING AND PROCESSING

The image is composed of 91 2-minute luminance frames and 63, 61, and 63 3-minute red, green, and blue frames, respectively, for a total integration time of 12 hours, 23 minutes. I had intended to use 40 5-minute H-alpha frames to enhance the pink nebulosity, but so far, I haven't been satisfied with the results. Data was collected using an ASI294MM Pro camera, Astrodon LRGB filters, a StellarVue SFFX1 field flattener, and StellarVue SVX90T telescope. Focusing during data acquisition was done if the FWHM

increased by 5% using an Optec FocusLynx DirectSync SV autofocuser. The individual frames were all calibrated with 15 dark, flat, and flat dark frames. Stacking was done using PixInsight's *WeightedBatchPreProcessing*.

All processing was done using PixInsight. *BlurXterminator* in the correct-only mode was used on the individual raw frames to ensure the stars were round. The R, G, and B frames were then combined into an RGB image. Color correction was applied using *SpectroPhotometricColorCalibration* before *DynamicBackgroundExtraction* (*DBE*) was used to correct a slight gradient that was present. *StarXterminator* was used initially to remove stars from the image, however, parts of the galaxies were removed along with the stars. *StarNet2* was used instead to remove the stars from the image.

Focusing on the stars, the stars-only image was stretched using *GeneralizedHyperbolicStretch* (*GHS*) with arcsinh as the transformation type. After stretching, *Curves* was used to increase color saturation. After noise reduction using *NoiseXterminator*, the starless RGB image was also stretched using *GHS* but using the generalized hyperbolic transformation type. Several iterations were used to carefully bring out the details in the galaxies. Color saturation was increased using *Curves* again.

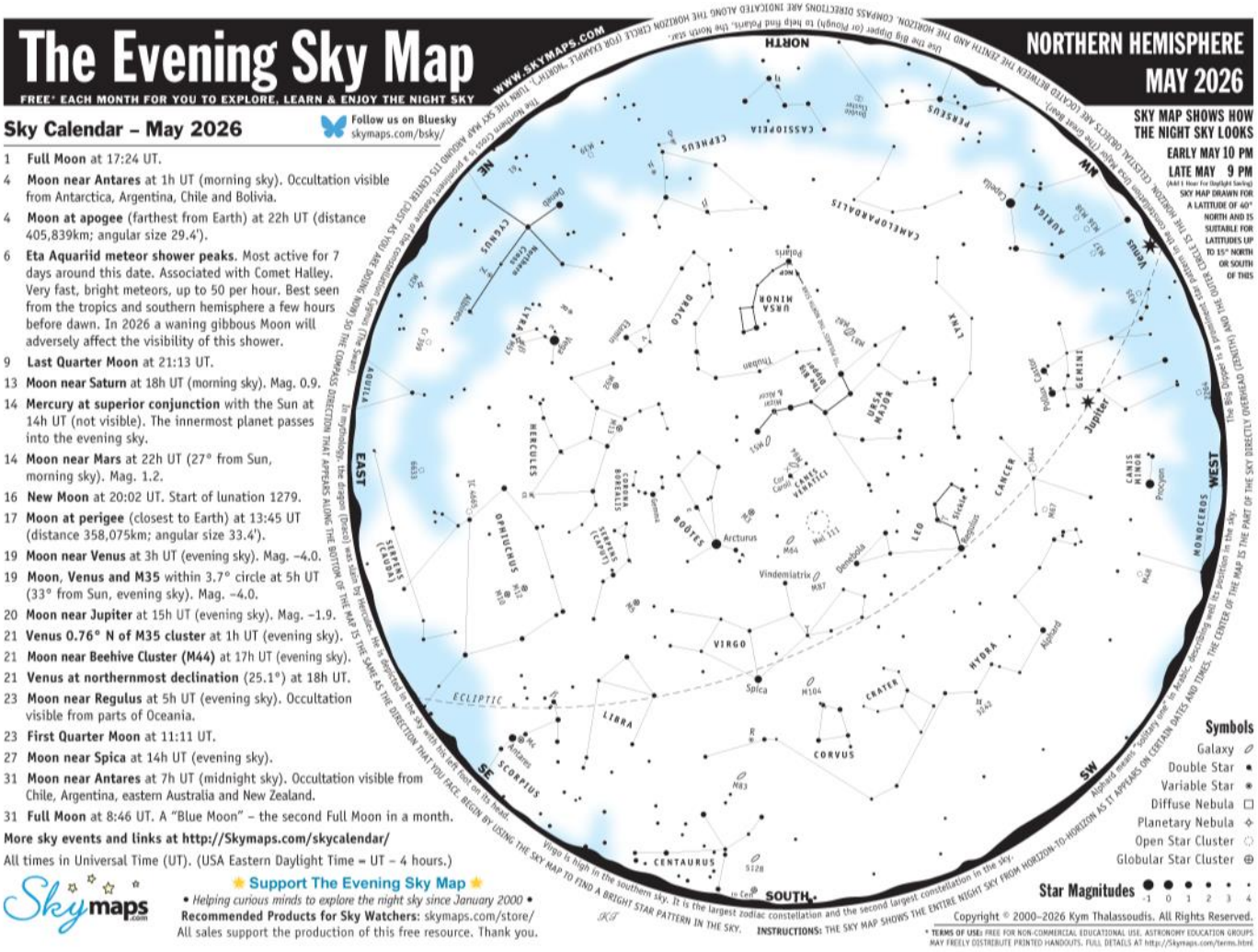
Gradients in the stacked luminance frame were removed using *DBE* followed by star removal with *StarNet2*. The luminance stars were discarded. Noise reduction with *NoiseXterminator* was done prior to the starless image being stretched with *GHS* using the generalized hyperbolic transformation. Again, several small iterations of *GHS* were used to bring out details in the galaxies. A mask was created using the *GAME* script to isolate the galaxies, and the masked luminance frame was sharpened using a high pass filter in the *ImageBlend* script. The *ImageBlend* script was used again to blend the sharpened frame to overlay the luminance and RGB frames to create the starless LRGB frame. *ImageBlend* was used a third time to screen the RGB stars onto the LRGB image. The final LRGB image with stars was adjusted with *Curves* to enhance the contrast. If I look back on my old image from 2017, I think this one came out significantly better.

Our next scheduled outing is mid-May. May and June tend to be overcast, especially overnight, so I might need to catch photons from home during any nights that are clear.

Wishing you all clear and dark skies,

Ron Ugolick

https://www.astrobin.com/users/ruccdu/



About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

Astronomical Glossary

Conjunction – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

Constellation – A defined area of the sky containing a star pattern.

Diffuse Nebula – A cloud of gas illuminated by nearby stars.

Double Star – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

Ecliptic – The path of the Sun's center on the celestial sphere as seen from Earth.

Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

Galaxy – A mass of up to several billion stars held together by gravity.

Globular Star Cluster – A ball-shaped group of several thousand old stars.

Light Year (ly) – The distance a beam of light travels at 300,000 km/sec in one year.

Magnitude – The brightness of a celestial object as it appears in the sky.

Open Star Cluster – A group of tens or hundreds of relatively young stars.

Opposition – When a celestial body is opposite the Sun in the sky.

Planetary Nebula – The remnants of a shell of gas blown off by a star.

Universal Time (UT) – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

Variable Star – A star that changes brightness over a period of time.

NORTHERN HEMISPHERE MAY 2026 CELESTIAL OBJECTS

Skymaps.com

Easily Seen with the Naked Eye

Capella	Aur	●	The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly.
Arcturus	Boo	●	Orange, giant K star. Name means "bear watcher". Dist=36.7 ly.
Procyon	CMi	●	Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly.
δ Cephei	Cep	◔	Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.
Deneb	Cyg	●	Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400±200 ly.
Castor	Gem	●	Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly.
Pollux	Gem	●	With Castor, the twin sons of Leda in classical mythology. Dist=34 ly.
α Herculis	Her	◔	Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion.
Regulus	Leo	●	Brightest star in Leo. A blue-white star with at least 1 companion. Dist=77 ly.
Vega	Lyr	●	The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly.
Antares	Sco	●	Red, supergiant star. Name means "rival of Mars". Dist=135.9 ly.
Polaris	UMi	●	The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433 ly.
Spica	Vir	●	Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=250 ly.

Easily Seen with Binoculars

M44	Cnc	○	Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590±20 ly.
M3	CVn	⊕	Easy to find in binoculars. Might be glimpsed with the naked eye.
μ Cephei	Cep	◉	Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days.
Mel 111	Com	○	Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=283 ly. Age=400 million years.
χ Cygni	Cyg	◉	Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days.
M39	Cyg	○	May be visible to the naked eye under good conditions. Dist=900 ly.
ν Draconis	Dra	●	Wide pair of white stars. One of the finest binocular pairs in the sky. Dist=100 ly.
M13	Her	⊕	Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly.
M92	Her	⊕	Fainter and smaller than M13. Use a telescope to resolve its stars.
R Hydrae	Hya	◉	Long period variable. Mag varies between 3.0 & 11.0 over 390 days. Brilliant red.
ε Lyrae	Lyr	●	Famous Double Double. Binoculars show a double star. High power reveals each a double.
R Lyrae	Lyr	◉	Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days.
M12	Oph	⊕	Close to the brighter M10. Dist=18,000 ly.
M10	Oph	⊕	3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly.
IC 4665	Oph	○	Large, scattered open cluster. Visible with binoculars.
6633	Oph	○	Scattered open cluster. Visible with binoculars.
M4	Sco	⊕	A close globular. May just be visible without optical aid. Dist=7,000 ly.
M5	Ser	⊕	Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly.
Mizar & Alcor	UMa	●	Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.
Cr 399	Vul	○	Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly.

Telescopic Objects

ε Boötis	Boo	●	Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split.
M67	Cnc	○	Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist=2,350 ly.
M94	CVn	◯	Compact nearly face-on spiral galaxy. Dist=15 million ly.
η Cassiopeiae	Cas	●	Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12".
5128	Cen	◯	Bisected by a wide obscuring lane. Strong radio source. Dist=14 million ly.
M51	CVn	◯	Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly.
M64	Com	◯	Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".
Albireo	Cyg	●	Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4".
61 Cygni	Cyg	●	Attractive double star. Mags 5.2 & 6.1 orange dwarfs. Dist=11.4 ly. Sep=28.4".
3242	Hya	✧	Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist=2,600 ly.
M83	Hya	◯	Classic face-on spiral. Discovered in 1752 by Lacaille. In attractive star field.
γ Leonis	Leo	●	Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4".
β Lyrae	Lyr	◔	Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star.
M57	Lyr	✧	Ring Nebula. Magnificent object. Smoke-ring shape. Dist=4,100 ly.
M81	UMa	◯	Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope.
M82	UMa	◯	Close to M81 but much fainter and smaller.
M87	Vir	◯	Supergiant galaxy with supermassive black hole at its core. Dist=53.5 million ly.
M104	Vir	◯	Sombrero Galaxy. Almost edge-on spiral galaxy. Protruding central core.
γ Virginis	Vir	●	Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.
M27	Vul	✧	Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly.