

Astronomy Club of Lompoc Presents The Sidereal Times



Messier 27 (see page 5)

Meeting News:

At the November meeting we Nominated club officers for Operating year 2020. Voted on submissions of Club logo's. Discussed the Observatory power refit and watched a very Informative video on the Titan ICBM.

Reminder: ACL club meeting December 13th 7:00 pm Manzanita School Teachers Lounge.



Lunar Calendar

New Moon 26th
Full Moon 12th



Hello, Skywatchers,

Well, November was a busy month: Day of the Dead outreach, Mercury Transit, Hapgood Elementary outreach, completing the Observatory upgrade, new logo development, lions and tigers and bears...oh, my!

First, through a coincidental meeting at the Lompoc Library, Molly and I were invited to represent our respective organizations with displays at the fourth annual Lompoc Day of the Dead celebration held at El Camino Elementary. The event's organizers required that we have an activity for children, so I took illustrations for coloring and the children absolutely adored them! From this I learned a great lesson for future such displays: ALWAYS have an activity for young people.

The Day of the Dead event lead directly to a presentation the following week for Mr. Noe Chavez's Fifth Grade Class at Hapgood Elementary. The children were amazingly engaged and filled with questions and enthusiasm. What was planned as a one-hour event grew to two hours and ended with the students singing and, yes, for the last twenty minutes, busily coloring activity sheets I had prepared just for them.

Between those two events was the Mercury Transit. The fog was persistent, but cleared in time to allow me to experience the last thirty minutes of the tiny dot's passage. This brief observation readily confirmed how much faster Mercury travels around the sun than its neighbor Venus, based on my observation of the latter's transit back in 2012!

The LOGO! Based on the tied vote at our November meeting, the two top-voted designs [from Vahan and Bonnie] have been submitted to April Johnson, a professional graphic artist and friend of Gary Satterfield. April is in the process of bringing the best elements of the two designs into one image that will hold its integrity across various uses and sizes. Based upon other work of hers that I have seen and insights she shared about our needs, I am confident she will produce a strong representation of the Astronomy Club of Lompoc.

One more time I thank everyone who contributed to upgrading the Observatory's power system. The new solar panels and batteries that Edmund Burke secured will keep our observations in good form for a long time to come.

Merry Christmas and Happy Holidays to each of you. Thank you for sending me into 2020 as your President. May peace be with us all and may our night skies stay clear more nights than not.

Skyward into the New Year,
Tom

Events

December 7th *Star Party at the Observatory.*

😊 Yea!

December 13th Geminids Meteor shower is the king of meteor showers producing up 120 meteors per hour at its Peak. It is produced by debris left behind by asteroid 3200 Phaethon. It peaks this year on the night of the 13th and morning of the 14th. Meteors will radiate from the constellation of Gemini but can Appear anywhere in the sky.

December 22nd December Solstice occurs 04:19 UTC. The South pole of Earth will be tilted toward the Sun which will have reached its southern most position in the sky and will be directly over the tropic of Capricorn at 23° 44' South latitude. This is the first day of winter in the northern hemisphere and the first day of summer in the southern hemisphere.

December 21st *Star Party at the Observatory.*

😊 Yea!

December 26th An annual Solar eclipse, the path will in Saudi Arabia and move east through southern India, northern Sri Lanka, parts of the Indian Ocean and Indonesia before ending in the Pacific ocean. A partial eclipse will be visible throughout most of Asia and Australia.

December 28th *Star party at the Observatory.*

😊 Yea!



Star party's and Events

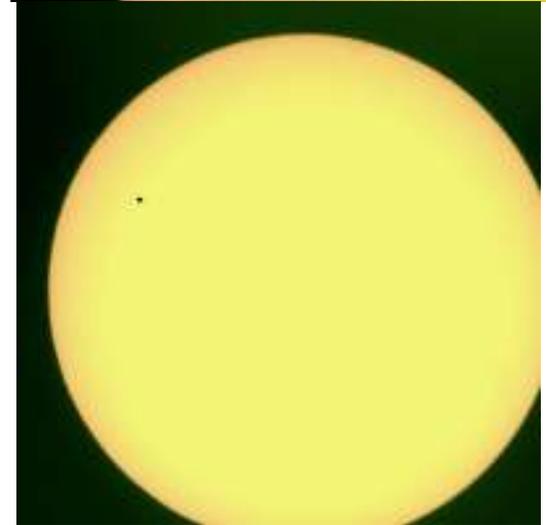
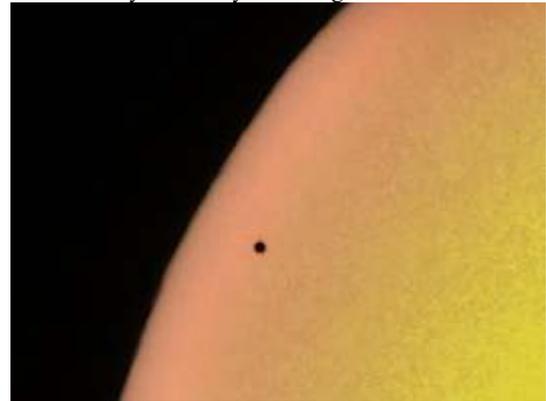
Nov 2nd Star Party at the Observatory, No input but it appears no one attended.

🐼 Uugh!

Nov 23rd Star Party at the Observatory. No info available,

Nov 30th Star Party at the Observatory. No info available.

Mercury Transit by Joel Kruger Nov 11 2019



December 2019 Moon



Full 12th, New 26th Last Quarter 19th First Quarter 4th .

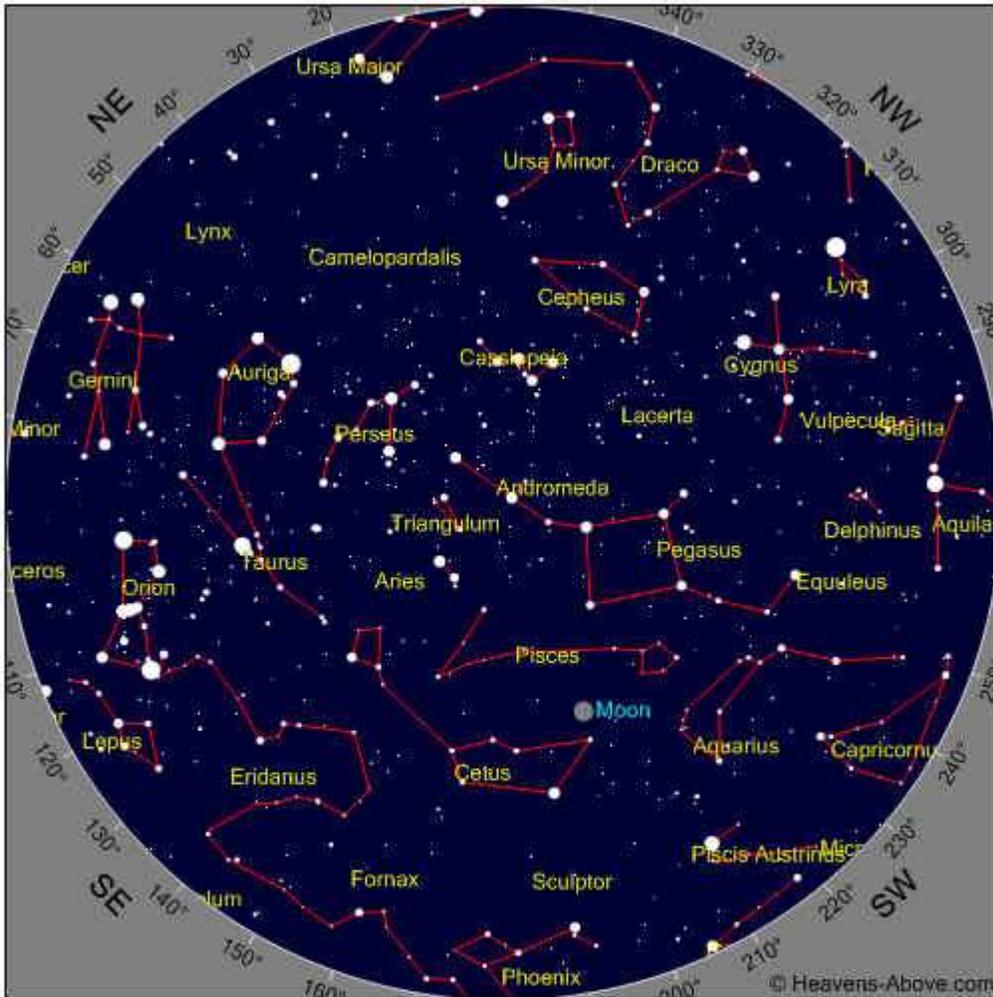
Moon Facts

Apollo 17 astronaut Harrison “Jack” Schmitt discovered that he is allergic to Moon matter. Following a survey of the Sea of Serenity, he climbed back into the crew’s lunar module and tracked in a lot of moon dust. The dust affected him as soon as he removed his space suit, triggering red eyes, sneezing fits and other symptoms that lasted 2 hours.



December 2019 Sky

Some Objects of interest, M42, M31, M1, M27



Time

Year	2019	Month	12	Day	5	Hour	20	Minute	20
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Photo Courtesy Vahan Yeterian



Messier 27 NGC 6853 also known as the Dumbbell nebula is a typical planetary nebula and is located in the constellation of Vulpecula (The Fox). The distance is uncertain but it is believed to be around 1,200 light years. It consists of very rarified gas that has been ejected from the hot central star now in one of the evolutionary stages. The gas atoms in the nebula are excited (heated) by the intense ultraviolet radiation from this central star. Planetary nebulae are what our Sun will produce when it nears the end of its life and nuclear fusion stops at its core. These nebulae are formed when evolved giant stars eject their outer envelopes exposing the hot core of the star which then ionizes the surrounding cloud of expelled material with ultraviolet light. The clouds keep expanding until they dissipate into the surrounding space. The central region of M27 contains dark and bright knots that vary in size and shape. The knots are anywhere from 17 to 56 billion kilometers in size and each of them has a mass three times that of our planet. The estimated age of M27 is under 14,600 years. The Dumbbell nebula expands at a rate of 2.3 arc seconds per century. The bright central region is expanding at a rate of 6.8 arc seconds per century that gives the nebula an estimated age of 3000 to 4,000 years. The calculated expansion velocity is 31 Km/s that gives the nebula a kinetic age at 9,800 years. Image capture was with an 8 inch SCT, Meade fork mount, DSI 2 CCD camera. Integration time 15 min. Image processing PS



For What its Worth

Planet Jupiter:

Jupiter is the fourth brightest object in the solar system. Only the Sun, Moon and Venus are brighter. The ancient Babylonians were first to record their sightings of Jupiter. This was around the 7th or 8th century BC. Jupiter is named after the king of the Roman gods. To the Greeks it represented Zeus the god of thunder. The Mesopotamians saw Jupiter as the god Marduk and patron of the city of Babylon Germanic tribes saw this planet as Donar or Thor.

Jupiter has the shortest day of all the planets. It turns on its axis once every 9 hrs and 55 minutes. This rapid rotation flattens the planet slightly giving it an oblate shape. It also orbits the Sun every 11.8 Earth years. From our point of view on Earth it appears to move slowly in the sky taking months to move from one constellation to another. Jupiter's cloud features are unique. The upper atmosphere of Jupiter is divided into cloud belts and zones. They are made primarily of ammonia crystals, sulfur, and mixtures of two compounds. Jupiter's moon Ganymede is the largest moon in the solar system. The moons of Jupiter are sometimes called the Jovian satellites the largest are Ganymede, Callisto, Io and Europa. Ganymede measures 5,268 Km in diameter making it larger than the planet Mercury. Jupiter has a thin ring system composed mainly of dust particles ejected from some of Jupiter's smaller worlds during impacts from incoming comets and asteroids. The ring system begins some 92,000 kilometers above Jupiter's cloud tops and stretches out to more than 225,000 kilometers from the planet. They are between 2,000 to 12,500 kilometers thick.

Situated 22° south of Jupiter's equator, the Great Red Spot is a storm that has been raging for at least 350 years. It is so large that three Earths could fit inside it. Upper estimates suggest that this red and turbulent storm could have been in existence for well over three and a half centuries. A giant red spot was seen on Jupiter in the seventeenth century when telescopes first started being used. However, it is unknown whether this is the same red spot we see today, or whether Jupiter has had many such storms that have come and gone as the centuries pass. The red spot circulates anticlockwise and takes six Earth days to rotate completely. Another mystery surrounding the red spot is what makes it red. Some speculate is the presence of red organic compounds. But nobody knows for certain.

Jupiter's atmosphere is special because it is the solar systems largest planetary atmosphere. It is made up of hydrogen and helium in roughly the same proportions as are found in the Sun. However it also contains much smaller amounts of other space gasses such as ammonia, methane and water. 90% of Jupiter's atmosphere is made up of hydrogen, Below Jupiter's massive atmosphere there are layers of compressed hydrogen gas, liquid metallic hydrogen and a core of ice, rock and metals.

Jupiter Data:

Equatorial Diameter:	142,984 Km
Polar Diameter:	133,709 Km
Mass:	1.9 x 10 ²⁷ Kg (318 Earths)
Moons:	79 (Io, Europa, Ganymede & Callisto)
Rings:	4
Orbital Distance:	778,340,821 Km (5.20 AU)
Orbital Period:	4.333 days (11.9 years)
Surface Temperature	-108° C





Club Officers



President
Tom Gerald

Vice president
& Treasurer
Jana Hunkang



News Letter Editor
Vahan Yeterian

*“Astronomy compels the soul to look upward,
and leads us from this world to another”.*
(Plato 428 – 347 BC)

The Club Logo?



Club Meeting

Reminder Club meeting December 13th at
7:00Pm Manzanita School teachers Lounge.

Star Parties (as always weather permitting)

Other Astronomy Club Meetings

Central Coast Astronomical Society

Link to web site...

<http://www.centralcoastastronomy.org/>

Santa Barbara Astronomical Unit

Link to web site...

[http:// www.sbau.org/#AU_EVENTS_Calendar](http://www.sbau.org/#AU_EVENTS_Calendar)

Night Time Bright Objects (no scope required)

Link to “Heavens Above” web site

[http:// www.heavens-above.com/](http://www.heavens-above.com/)

(Iridium Satellite)

(ISS Visible Pass)

Be sure to set the nearest location from their
pull-down menu.

The web site link below will take you to some
Great Milky Way interactive images and how
It was developed. (Type it in the search box.)

<http://skysurvey.org/>

ACL Webmaster

Serf / Minion Dave McNally

