

# Astronomy Club of Lompoc Presents The Sidereal Times



Double Cluster (see page 5)

### Meeting News:

At the October ACL meeting we discussed USAF observatory clean up. Vahan gave a presentation on Earth's atmosphere.

**Reminder:** ACL club meeting Nov 12<sup>th</sup> will be held at Manzanita School Teachers Lounge 7:00 Pm.



### Lunar Calendar

New Moon 4<sup>th</sup>  
Full Moon 19<sup>th</sup>

Photos this issue USAF Help at the Observatory



### Presidents Message

Hello, Skywatchers,

Did everyone get to take advantage of the recent break in our pesky fog, to take in some night sky? Jupiter, Saturn and Venus brightly graced our evenings; the predawn was filled with the lovely wonders of the "winter constellations." As Vahan remarked recently, the Orion Nebula was excitingly detailed even through binoculars. The break allowed me to test out a simple Meade refractor that was recently gifted to me and that I am passing on to a family with three young children. Thanks to Vahan's skills, its defective mount is now secured to its tripod, allowing me to have a very nice session with Jupiter and all four Galilean moons and a hint of its equatorial band. Probably the best use of this scope, however, will be to observe our Moon, which looked great even though nearly full and is, after all, a great starting place for any novice astronomer.

Speaking of Jupiter, amateur astronomers in Japan recently recorded another strike by an asteroid or other object in October. This news dovetails with the DART mission scheduled to launch from Vandenberg on the 23rd of this month. The Double Asteroid Redirection Test should demonstrate the feasibility of changing the course of an object's path through space, laying the foundation for a defense system to protect the earth from a large asteroid or comet hurdling toward us. Yes, I know I have mentioned this mission again and again, but it is only the second interplanetary mission to leave Vandenberg. Doctor Bassi gave us an excellent overview of the mission earlier and we will review its details at our November meeting on the 12th.

At the meeting we will also discuss acquiring Neptune and the asteroid Ceres. Both will be at opposition in November [Neptune of the 5th, Ceres on the 27th] and good targets across the month, as hopefully winter clearing begins. We will also get an update on Vandenberg's other important interplanetary mission, InSight and what it is teaching us about Mars.

See all of you at the Manzanita Teachers' Lounge! [Don't forget your masks.]

Skyward,  
Tom

## Events

### Nov 4, 11, 27 -Star Party at the Observatory



Yes!

**Nov 4 & 5** Taurids Meteor shower is a minor meteor shower producing about 5 to 10 meteors per hour. It is unusual in that it consists of 2 separate showers. The first is produced by dust grains left behind by Asteroid 2004 TG10. The second stream It is produced by debris left behind by Comet 2P Enke. Best viewing will be just after midnight, meteors will radiate from the constellation of Taurus but can appear anywhere in the sky.

**Nov 5** Uranus at opposition. The blue green planet will be at its closest approach to Earth. It will be brighter than any other time of year and will be visible all night long. Due to its great distance from Earth it will appear as a tiny blue green dot in all but the most powerful telescopes.

**Nov 17 & 18** Leonids Meteor shower is an average shower producing up to 15 meteors per hour at its peak. The Leonids is produced by dust grains left behind by Comet Tempel-Tuttle. It peaks this year on the night of the 17<sup>th</sup> and the morning of the 18<sup>th</sup>. Meteors will radiate from the constellation of Leo but can appear anywhere in the sky.

**Nov 19** Partial Lunar eclipse will be visible throughout most of Eastern Russia, Japan, the Pacific Ocean, North America, Mexico Central America and parts of Western South America.



## Star party's and Events

**Oct 2, 9, & 16<sup>th</sup>** Star Party at the Observatory cancelled. On the 9<sup>th</sup> we conducted a tour of the observatory for USAF personnel and the operation and maintenance requirements.



## Nov 2021 Moon



Full 19<sup>th</sup> , New 4<sup>th</sup> , Last Quarter 27<sup>th</sup> , First Quarter 11<sup>th</sup> .

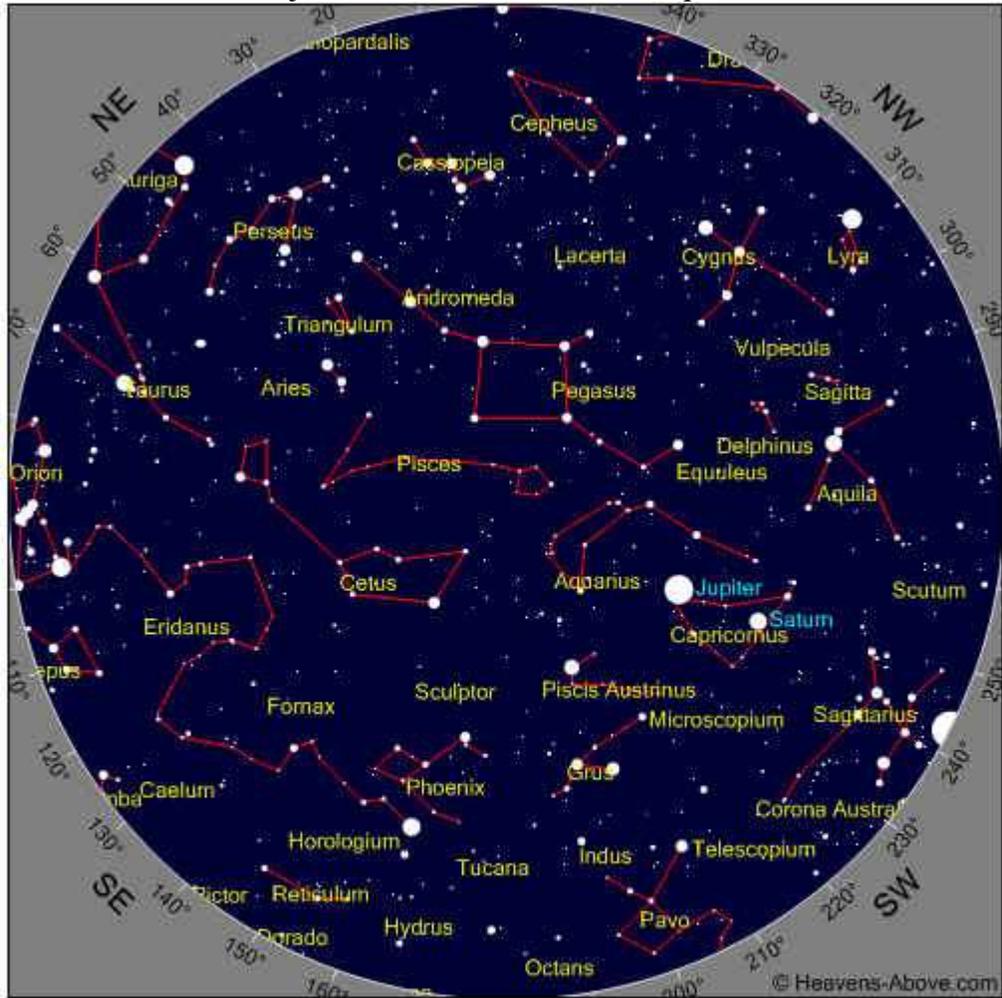
### Moon Facts and folk lore

The Moon is the fifth largest natural satellite in the Solar System. At 3,475 km in diameter. Earth is about 80 times the volume than the Moon, but both are about the same age.



# Nov 2021 Sky

Some Objects of interest, M 31, C14, Jupiter, Saturn



## Time

Year	2021	Month	11	Day	2	Hour	21	Minute	00
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Photo Courtesy of Vahan Yeterian



The Double Cluster NGC 869 and NGC 884 (h & x Persei) are a few light years apart in the constellation of Perseus. The distance from us is approximately 7500 light years. NGC 869 has a solar mass of 3700 and NGC 884 weights in at 2800 solar masses. The latest research shows that both clusters are surrounded by a very extensive halo of stars giving the total mass of the complex of at least 20,000 solar masses. It is a relatively young group, about 12.8 million years old. There are more than 300 blue-white super giants in each cluster. The clusters are blue shifted and Are approaching Earth at 39 Kilometers per second. The hottest main sequence stars are of spectral class B0. The cluster lies within the Perseus arm of the Milky Way galaxy. Our solar system resides within the Orion arm. Therefore when we look at the cluster we are looking through our local spiral arm and all the way to the next spiral arm outward from the galactic center. Image capture was with a Celestron OMNI XLT102 (4 inch) 900 mm focal length optics and a Canon T3 Rebel (modified) DSLR. Ten Light frames at ISO 1600, 30 seconds per frame and 3 Dark frames were all processed using DSS and PSP 9 software. All images were taken in Unguided configuration.

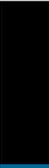
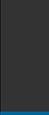


## For What its Worth

### The Bortle Dark-Sky Scale

Use the chart below to gauge the quality of your night skies where you live.

The column labeled "Naked-eye Limiting Magnitude" indicates the dimmest stars visible under each class of light pollution. The larger the magnitude number is, the dimmer the star is. Each whole number represents a factor of 2.51 in brightness. In other words, a magnitude 5 star appears approximately two and one-half times brighter than a magnitude 6 star, while a magnitude 4 star appears approximately five times brighter than a magnitude 6 star.

Class	Color Key	Naked-eye Limiting Magnitude	Sky Description	Milky Way	Astronomical Objects	Zodiacal Light / Constellations	Airglow and Clouds	Night Time Scene
1		7.6 – 8.0	Excellent, truly dark skies.	MW shows great detail and light from the Scorpio / Sagittarius region casts obvious shadows on the ground.	M33 (the Triangulum Galaxy) is an obvious object.	Zodiacal light has an obvious color and can stretch across the entire sky.	Bluish airglow is visible near the horizon and clouds appear as dark blobs against the backdrop of the stars.	The brightness of Jupiter and Venus is annoying to night vision. Ground objects are barely lit and trees and hills are dark.
2		7.1 – 7.5	Typical, truly dark skies.	Summer MW shows great detail and has veined appearance.	M33 is visible with direct vision, as are many globular clusters.	Zodiacal light bright enough to cast weak shadows after dusk and has an apparent color.	Airglow may be weakly apparent and clouds still appear as dark blobs.	Ground is mostly dark, but objects projecting into the sky are discernible.
3		6.6 – 7.0	Rural sky.	MW still appears complex, dark voids and bright patches and meandering outline are all visible.	Brightest Globular Clusters are distinct, but M33 is only visible with averted vision. M31 (the Andromeda Galaxy) is obviously visible.	Zodiacal light is striking in Spring and Autumn, extending 60 degrees above the horizon.	Airglow is not visible and clouds are faintly illuminated, except at the zenith.	Some light pollution evident along the horizon. Ground objects are vaguely apparent.
4		6.1 – 6.5	Rural / suburban transition.	Only well above the horizon does the MW reveal any structure. Fine details are lost.	M33 is a difficult object, even with averted vision. M31 is still readily visible.	Zodiacal light is clearly evident, but extends less than 45 degrees after dusk.	Clouds are faintly illuminated except at the zenith.	Light pollution domes are obvious in several directions. Sky is noticeably brighter than the terrain.
5		5.6 – 6.0	Suburban sky.	MW appears washed out overhead and is lost completely near the horizon.	The oval of M31 is detectable, as is the glow in the Orion Nebula.	Only hints of zodiacal light in Spring and Autumn.	Clouds are noticeably brighter than the sky, even at the zenith.	Light pollution domes are obvious to casual observers. Ground objects are partly lit.
6		5.1 – 5.5	Bright, suburban sky.	MW only apparent overhead and appears broken as fainter parts are lost to sky glow.	M31 is detectable only as a faint smudge; Orion Nebula is seldom glimpsed.	Zodiacal light is not visible. Constellations are seen and not lost against a starry sky.	Clouds anywhere in the sky appear fairly bright as they reflect back light.	Sky from horizon to 35 degrees glows with grayish color. Ground is well lit.
7		4.6 – 5.0	Suburban / urban transition.	MW is totally invisible or nearly so.	M31 and the Beehive Cluster are rarely glimpsed.	The brighter constellations are easily recognizable.	Clouds are brilliantly lit.	Entire sky background appears washed out, with a grayish or yellowish color.
8		4.1 – 4.5	City sky.	Not visible at all.	The Pleiades Cluster is visible, but very few other objects can be detected.	Dimmer constellations lack key stars.	Clouds are brilliantly lit.	Entire sky background has an orangish glow and it is bright enough to read at night.
9		4.0 at best	Inner city sky.	Not visible at all.	Only the Pleiades Cluster is visible to all but the most experienced observers.	Only the brightest constellations are discernable and they are missing stars.	Clouds are brilliantly lit.	Entire sky background has a bright glow, even at the zenith.

## *Astronomy Club Officers*



President  
Tom Gerald

Vice President &  
Treasurer  
Jana Hunking

## *ACL Support Personnel*

*ACL News letter Editor*  
Serf / Minion Vahan Yeterian



*ACL Webmaster*  
Serf / Minion Aaron Anderson  
(New Zealand)



## Club Meeting

**Reminder** Club meeting Nov 12<sup>th</sup> 7:00 Pm  
Manzanita School Teachers lounge.

## Star Parties (as always weather permitting)

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)



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

## *ACL Club Logo*

