

# Astronomy Club of Lompoc Presents The Sidereal Times



NGC 7380 Nebula (see page 5)

### Meeting News:

At the August ACL meeting Jana talked about the VSFb block party she and Tom attended.

**Reminder: ACL club meeting September 10<sup>th</sup> 7:00 PM Manzanita School Teachers Lounge.**



### Lunar Calendar

New Moon 7<sup>th</sup>

Full Moon 20<sup>th</sup>

(Old ACL club Photos this issue)



### Presidents Message

Hello, Friends,

A big thank you to Jana, Vice President, for conducting our August meeting in my absence. All indications are the meeting went very well, with a lot of information and ideas shared. I particularly like Jana's idea that each of us take responsibility to present a small program each month on a subject we find interesting. This form of monthly presentations is one we have tried before and certainly should become a regular part of our meetings. You will remember that Ebbe took the initiative several months ago and did an excellent job exploring the dilemma of ever-increasing "space junk."

Jana also described the VSFb "Neighborhood Block Party" for newly arrived Base families at which she and I maintained a booth with telescopes and materials to study. We had happy interactions with a large number of young families. We answered a lot of questions and stimulated enthusiastic interest in astronomy as a family activity.

I understand that we may have a new member in Bill Garden. Bill attended on the 14<sup>th</sup> at the invitation of Louise Gray. This reminds us to never refrain from mentioning ACL and its activities to your friends; if you detect interest, extend a welcome to come with you to the next meeting. This is the very best way to bring new life and ideas to the Astronomy Club of Lompoc. I look forward to seeing all of you on September 10<sup>th</sup>. Skyward,  
Tom

## Events

**September 4, 11,** -*Star Party at the Observatory.*



*Yes!*

**September,7** New Moon, the Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 00.52 UTC. This is the best time of the month to observe faint objects as Galaxies and star clusters because there is no Moon light to interfere.

**September 14** Neptune at opposition. The giant planet will be at Its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Neptune. Due to its extreme distance it will appear as a tiny blue dot in all but the most powerful telescopes.

**Also on September 14** Mercury at greatest Eastern Elongation. The planet reaches greatest eastern elongation at 20.8 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

**September 22** September Equinox. The September equinox occurs at 19:11 UTC. The Sun will shine directly on the Equator and there will be nearly equal amounts of day and night throughout the world. This is the first day of Fall in the Northern hemisphere (Autumnal equinox) and the first day of Spring in the Southern hemisphere, (Vernal Equinox).



## Star party's and Events

**Aug 7, 14, & 28<sup>th</sup>** Star Party at the Observatory cancelled again due to weather.



Nuts!



## September 2021 Moon



Full 20<sup>th</sup> , New 7<sup>th</sup> , Last Quarter 29<sup>th</sup> , First Quarter 13<sup>th</sup> .

### Moon Facts and folk lore

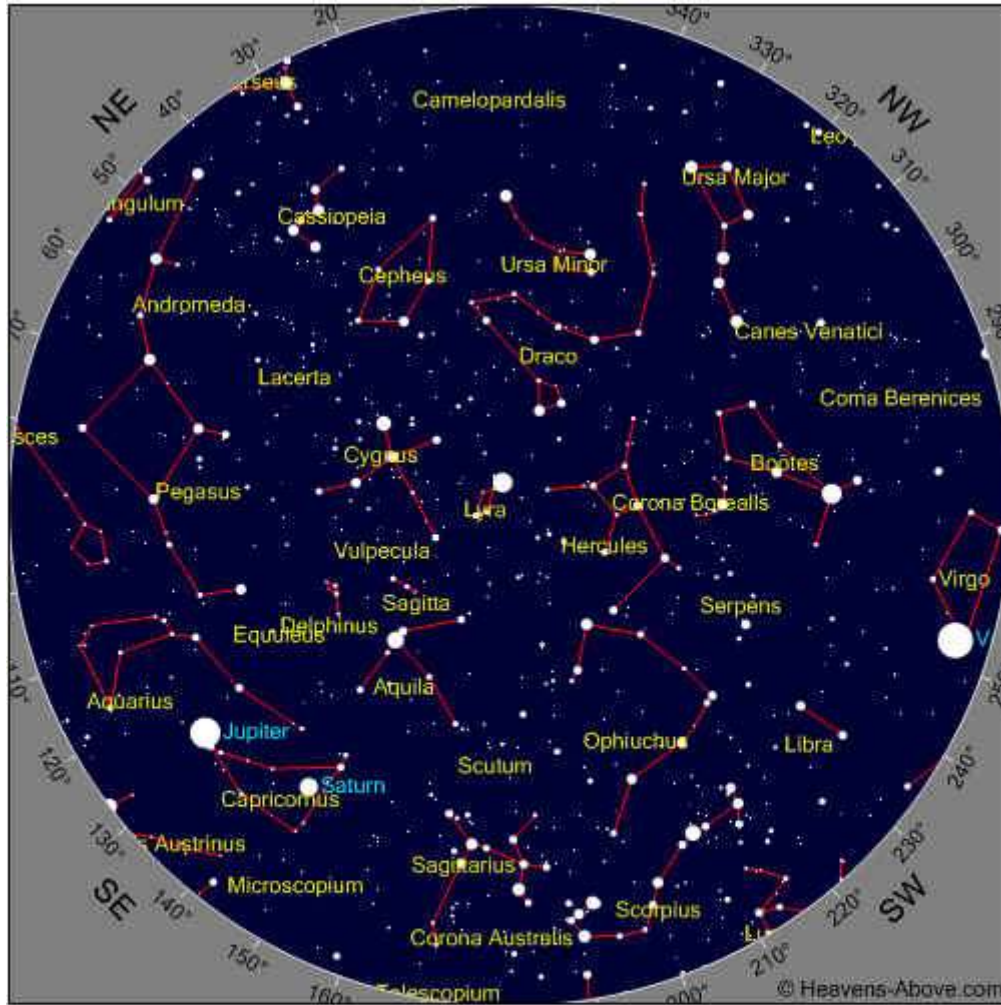
Rail fences cut during the dry, waning Moon will stay straighter. • Wooden shingles and shakes will lie flatter if cut during the dark of the Moon.





# September 2021 Sky

Some Objects of interest, M27, M57, M13, Jupiter



## Time

Year	2021	Month	9	Day	5	Hour	20	Minute	30
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Photo Courtesy HST



The Wizard Nebula is an emission nebula that surrounds open star cluster NGC 7380 in the constellation of Cepheus. The nebula is said to resemble the appearance of a medieval sorcerer. The active star forming region lies at a distance of 7,200 light years from Earth, has a radius of 100 light years and occupies an area of the sky the size of the full Moon. The open cluster NGC 7830 was discovered by the German Astronomer Caroline Herschel in 1787. The estimate age of the cluster is 4 million years. The radiation and stellar winds of the cluster's young stars are responsible for the nebula's shape. The ultra violet light from the luminous type O and B stars formed within the molecular cloud ionizes the nebula's hydrogen, which in turn re-emits light in the red part of the spectrum. While the nebula will dissipate within a few million years, some of the stars within it will likely outlive our Sun. Radiation and stellar winds of the cluster's young stars are responsible for creating the nebula's shape. Despite being fairly large the Wizard nebula is a challenging object to observe. A narrow band filter with O3 and H2 spectrum and dark skies will help enormously.



## **For What its Worth**

### EXOPLANETS:

An exoplanet is any planet beyond our solar system. Most orbit other stars, but free-floating exoplanets, called rogue planets, orbit the galactic center and are untethered to any star. Most of the exoplanets discovered so far are in a relatively small region of our galaxy, the Milky Way. We know from NASA's Kepler Space Telescope that there are more planets than stars in the galaxy. By measuring exoplanets' sizes (diameters) and masses (weights), we can see compositions ranging from very rocky (like Earth and Venus) to very gas-rich (like Jupiter and Saturn). Exoplanets are made up of elements similar to those of the planets in our solar system, but their mixes of those elements may differ. Some planets may be dominated by water or ice, while others are dominated by iron or carbon. We've identified lava worlds covered in molten seas, puffy planets the density of Styrofoam and dense cores of planets still orbiting their stars.

The first exoplanets were discovered in the 1990s and since then we've identified thousands using a variety of detection methods. It's pretty rare for astronomers to see an exoplanet through their telescopes the way you might see Saturn through a telescope from Earth. That's called direct imaging, and only a handful of exoplanets have been found this way (and these tend to be young gas giant planets orbiting very far from their stars). Now we live in a universe of exoplanets. The count of confirmed planets is in the thousands and rising. That's from only a small sampling of the galaxy as a whole. The count could rise to the tens of thousands within a decade, as we increase the number, and observing power, of robotic telescopes. Most exoplanets are found through indirect methods: measuring the dimming of a star that happens to have a planet pass in front of it, called the transit method, or monitoring the spectrum of a star for the tell-tale signs of a planet pulling on its star and causing its light to subtly Doppler shift. Space telescopes have found thousands of planets by observing "transits," the slight dimming of light from a star when its tiny planet passes between it and our telescopes. Other detection methods include gravitational lensing, the so-called "wobble method." tied into space.

The TRAPPIST-1 planets have been examined with ground and space telescopes. The space-based studies revealed not only their diameters, but the subtle gravitational influence these seven closely packed planets have upon each other; from this, scientists determined each planet's mass. So now we know their masses and their diameters. We also know how much of the energy radiated by their star strikes these planets' surfaces, allowing scientists to estimate their temperatures. We can even make reasonable estimates of the light level, and guess at the color of the sky, if you were standing on one of them. And while much remains unknown about these seven worlds, including whether they possess atmospheres or oceans, ice sheets or glaciers, it's become the best-known solar system apart from our own.

Exoplanets come in a wide variety of sizes, from gas giants larger than Jupiter to small, rocky planets about as big around as Earth or Mars. They can be hot enough to boil metal or locked in deep freeze. They can orbit their stars so tightly that a "year" lasts only a few days; they can orbit two suns at once. Some exoplanets are sunless rogues, wandering through the galaxy in permanent darkness.

## *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 Sept 10<sup>th</sup> 7:00 Pm  
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)

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/>

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

## *ACL Club Logo*

