

Astronomy Club of Lompoc Presents The Sidereal Times



Double Cluster (see page 5)

Meeting News:

At the July ACL meeting we had general discussions on various topics one of which is to display some our scopes and photos etc at the Old Town gathering.

Reminder: ACL club meeting Aug 12th will be held at Manzanita School Teachers Lounge 7:00 Pm. Masks!



Lunar Calendar

New Moon 27th

Full Moon 12th

Space days



Presidents Message

Hello, Sky Scanners,

We had a fun July meeting at Manzanita School. This was a relaxed conversational gathering and mostly we celebrated and shared information. We celebrated the new Dobsonian telescope recently acquired by Kate and Steve Medvedoff; though they actually brought it to share with us, of course the marine layer prevented us being able to actually enjoy it. However, clear nights in Orcutt had allowed them to set up and use their scope, much to their delight.

Also, we welcomed Nellie and Steve Emerson as guests from Orcutt, along with their lovely companion Helena, an astute four-legged observer of heavenly objects. Like Kate and Steve, they have been doing their homework and learning much about the night sky and have come to us to learn more about using their telescopes. After the meeting, Steve confirmed that they will be joining us as members. Welcome to the fold, Steve, Nellie, and Helena!

Our August 12th meeting will feature Captain Brandon Hufstetler, Instructor Trainer with the 553rd Training Squadron at Vandenberg Space Force Base. Brandon has translated his own interest in astronomy and telescopic optics into teaching young Guardians the intricacies of visually tracking missiles and satellites, domestic and foreign. Captain Hufstetler will update us on his progress with his students, how they have been able to employ the Endeavour Center Observatory as a tool in their learning. This will be a fun and very informative evening and I look forward to seeing all of you there.

Skyward,
Tom



Events

Aug 6, 20, 27 -Star Party at the Observatory



Yes!

August 12,13

Perseids Meteor shower is one of the best meteor showers to observe, producing up to 60 meteors per hour at its peak. It is produced by comet Swift Tuttle. The Perseids are famous for producing a large number of bright meteors. Meteors will radiate from the constellation of Perseus but can appear anywhere in the sky.

August 14 Saturn at opposition and will be at its closest approach to Earth and will be fully illuminated by the Sun and will be visible all night long. This is the best time to photograph Saturn or just observe the planet. A few of its moons will also be visible.

August 27 Mercury at Greatest Eastern Elongation of 27.3 degrees from the Sun. This is the best time to observe Mercury Since it will be at its highest point in the evening sky. Look for Mercury low in the Western sky just after sunset.

The Observatory Work Crew



Star party's and Events

JUL 9, 23, 30 Star Party at the Observatory cancelled due to weather.

2.5 Months, no end to it!



ACL Solar at the Observatory For School kids



VAFB Display



August 2022 Moon



Full 12th , New 27th , Last Quarter 19th , First Quarter 5th .

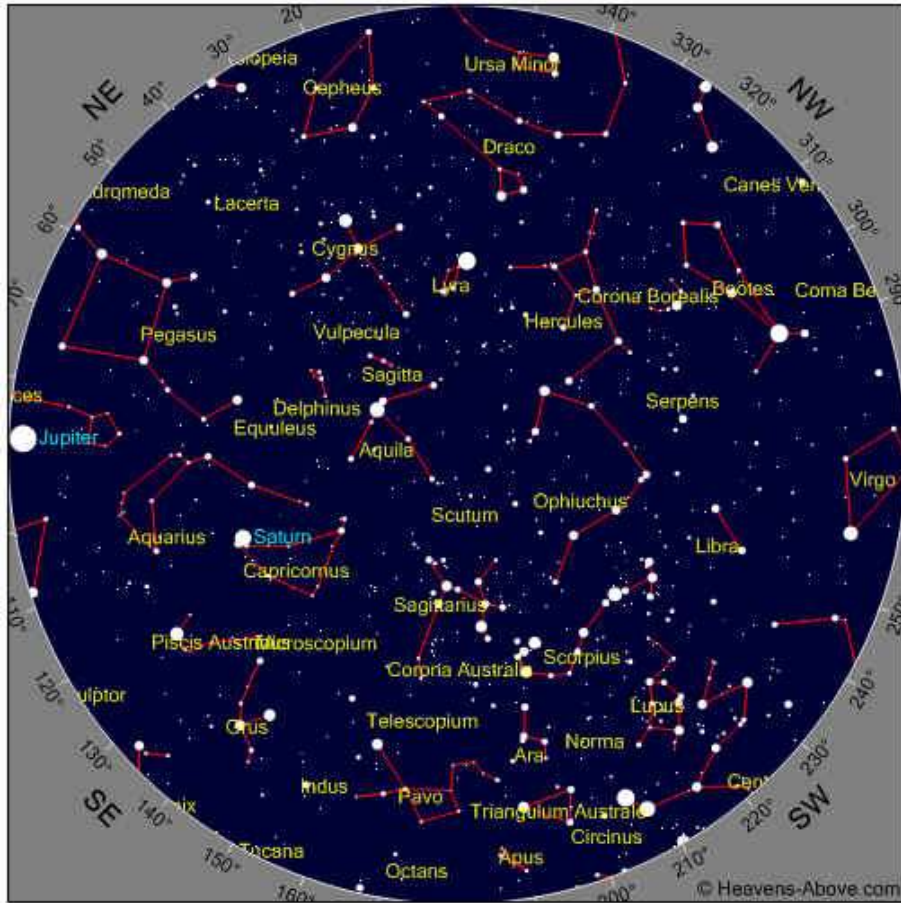
Moon Facts and folk lore

The full Moon on February 11th has been known by some Native American tribes as the Full Hunger Moon since the harsh winter weather made hunting difficult.

The surface of the Moon has about the same area as the continent of Africa. The Moon's largest Crater is 144 miles in diameter.

Long ago, the Earth's gravitational effects slowed the moon's rotation about its axis. Once the moon's rotation slowed enough to match its orbital period (the time it takes the moon to go around Earth) the effect stabilized. Many of the moons around other planets behave similarly.

August 2022 Sky
Some Objects of interest, M57, C14, Jupiter, Saturn



Time

Year	<input type="text" value="2022"/>	Month	<input type="text" value="8"/>	Day	<input type="text" value="2"/>	Hour	<input type="text" value="22"/>	Minute	<input type="text" value="00"/>
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Solar Eclipse @ the Observatory



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 borrowed 8 inch RC scope and a Canon T3 Rebel (modified) DSLR. Ten Light frames at ISO 1600, 50 seconds per frame and 3 Dark frames were all processed using DSS and PSP 9 software. All images were taken in Unguided configuration.

More Solar Eclipse viewing



For What its Worth

Earth's Atmosphere has a series of layers, each with its own specific traits. Moving upward from ground level, these layers are named the troposphere, stratosphere, mesosphere, thermosphere and exosphere. The exosphere gradually fades away into the realm of interplanetary space.

The Troposphere is the lowest layer of our atmosphere. Starting at ground level, it extends upward to about 10 km (6.2 miles or about 33,000 feet) above sea level. We humans live in the troposphere, and nearly all weather occurs in this lowest layer. Most clouds appear here, mainly because 99% of the water vapor in the atmosphere is found in the troposphere. Air pressure drops as you get higher in the atmosphere

The next layer up is called the Stratosphere. The stratosphere extends from the top of the troposphere to about 50 km (31 miles) above the ground. The infamous ozone layer is found within the stratosphere. Ozone molecules in this layer absorb high-energy ultraviolet (UV) light from the Sun, converting the UV energy into heat. Unlike the troposphere, the stratosphere actually gets warmer the higher you go! That trend of rising temperatures with altitude means that air in the stratosphere lacks the turbulence and updrafts of the troposphere beneath. Commercial passenger jets fly in the lower stratosphere, partly because this less-turbulent layer provides a smoother ride. The jet stream flows near the border between the troposphere and the stratosphere.

Above the stratosphere is the Mesosphere. It extends upward to a height of about 85 km (53 miles) above our planet. Most meteors burn up in the mesosphere. Unlike the stratosphere, temperatures once again grow colder as you rise up through the mesosphere. The coldest temperatures in Earth's atmosphere, about -90°C (-130°F), are found near the top of this layer. The air in the mesosphere is far too thin to breathe; air pressure at the bottom of the layer is well below 1% of the pressure at sea level, and continues dropping as you go higher.

The layer of very rare air above the mesosphere is called the Thermosphere. High-energy X-rays and UV radiation from the Sun are absorbed in the thermosphere, raising its temperature to hundreds or at times thousands of degrees. However, the air in this layer is so thin that it would feel freezing cold to us! In many ways, the thermosphere is more like outer space than a part of the atmosphere. Many satellites actually orbit Earth within the thermosphere! Variations in the amount of energy coming from the Sun exert a powerful influence on both the height of the top of this layer and the temperature within it. Because of this, the top of the thermosphere can be found anywhere between 500 and 1,000 km (311 to 621 miles) above the ground. Temperatures in the upper thermosphere can range from about 500°C (932°F) to $2,000^{\circ}\text{C}$ ($3,632^{\circ}\text{F}$) or higher. The aurora, the Northern Lights and Southern Lights, occur in the thermosphere.

Although some experts consider the thermosphere to be the uppermost layer of our atmosphere, others consider the exosphere to be the actual "final frontier" of Earth's gaseous envelope. As you might imagine, the "air" in the exosphere is very, very, very thin, making this layer even more space-like than the thermosphere. In fact, the air in the exosphere is constantly - though very gradually - "leaking" out of Earth's atmosphere into outer space. There is no clear-cut upper boundary where the exosphere finally fades away into space. Different definitions place the top of the exosphere somewhere between 100,000 km (62,000 miles) and 190,000 km (120,000 miles) above the surface of Earth. The latter value is about halfway to the Moon!

The Ionosphere is not a distinct layer like the others mentioned above. Instead, the ionosphere is a series of regions in parts of the mesosphere and thermosphere where high-energy radiation from the Sun has knocked electrons loose from their parent atoms and molecules. The electrically charged atoms and molecules that are formed in this way are called ions, giving the ionosphere its name and endowing this region with some special properties.

Astronomy Club Officers



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ACL Webmaster
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(New Zealand)



Club Meeting

Reminder Club meeting Aug 12th 7:00 Pm
Manzanita School Teachers lounge. Masks!

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

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

Vince Tobin and the planetarium



ACL Club Logo

