Website: https://acl.universeii.com September 2, 2023

Astronomy Club of Lompoc
Presents
The Sidereal Times

M13 (see page 5)

Meeting *News:*

At the August ACL Club meeting we did some club business. An Area 51 presentation by Jana was very informative.

Reminder: The Club meeting Sept. 8th is cancelled. We will be having a pot luck on the 9th at River Park starting at 11:30 AM. Bring a dish to share with the attending membership and their family's.

Lunar Calendar

New Moon 15th
Full Moon 29th

Old Town Display

Presidents Message

Due to a few members ill, and others busy, our attendance was down a bit for our August meeting. Jana discussed her **trip to Area 51** in 1996 when she was invited to visit there by a former VAAS member Chuck Clark. He had just moved there and was taking photos of the "secret"government base, using his telescope set up on a mountain nearby. He published the photos which brought in many visitors to that area. Chuck gave Jana, her friend, and a British pilot a ride near the perimeter fence of Area 5 where we were observed by security men with rifles, they drove toward us quickly in their white jeep. That was the beginning ….and end of our Area 51 Tour! It still was exciting to be there and know that the secret US base does exist where many of our new planes were tested during the night and day. Perhaps this is why some have reported unusual objects in the sky. Vahan told another true story about a very strange set of images seen on the radar station at the south part of VAFB in 1967. No one could figure out what they could be, and other radar stations in the area were showing it also. Some brought up the idea of UFO'S ?? It was determined to be unique weather conditions causing radar ducting bouncing back images of vehicles on the Hollywood Freeway.

Our ACL annual **PICNIC** - to take the place of the meeting will be held at **River Park on Sept 9th** starting at **11:30 am.** We will be at the furthest end of the park-at the Lutheran Pavilion where there is parking. We will be **eating by noon** so if anyone wants to bring a warm dish as this is a **POTLUCK**, not a BBQ, then wrap it well to retain the heat. Unfortunately, No electricity is available. **Cold dishes like salads,** fruit, other items welcome. Jana is making a cake and bringing all utensils, plates, napkins, cups etc. We will provide cold water, but you could bring a beverage of your choice but **no alcohol,** as we do not have a permit for that. I thank members of our club that helped at the **Sunburst Star Party** on Aug. 12th - Vince T. , Louise G., Jose R., Katherine B., Ebbe, and former member Liberty Partrige. They could share their stories about that night at the picnic. They said it was a great success with clear skies and many people attending.

See you at our picnic Sept 9th River Park… Clear Skys…….Jana

Events

September 9, 16, and 23 -***Star Party at the Observatory***

September 19th Neptune at opposition and the blue 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 year and be visible all night long. This is the best time of year to view and photograph Neptune.

September 22nd Mercury at greatest western elongation at 17.9° from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the morning sky. Look for the planet low in the eastern sky just before sunrise.

September23 September Equinox occurs at 06:43 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 also the first day of Fall (autumnal equinox) in the Northern Hemisphere and the fist day of Spring in the Southern Hemisphere.

September 29rd The full Moon will be located on the opposite side of Earth as the Sun and its face will be fully illuminated. This phase occurs at 09:58 UTC. This full Moon was known by early American tribes as the Corn Moon because the corn is harvested around this time of year. This Moon is also known as the Harvest Moon. The harvest Moon is the is the full Moon that occurs closest to the September equinox.

Old Town Display Cont.

Star party's and Events

September 2023 Moon

Full 29th , New 15th , Last Quarter 6th, First Quarter 22nd

Moon Facts and folk lore

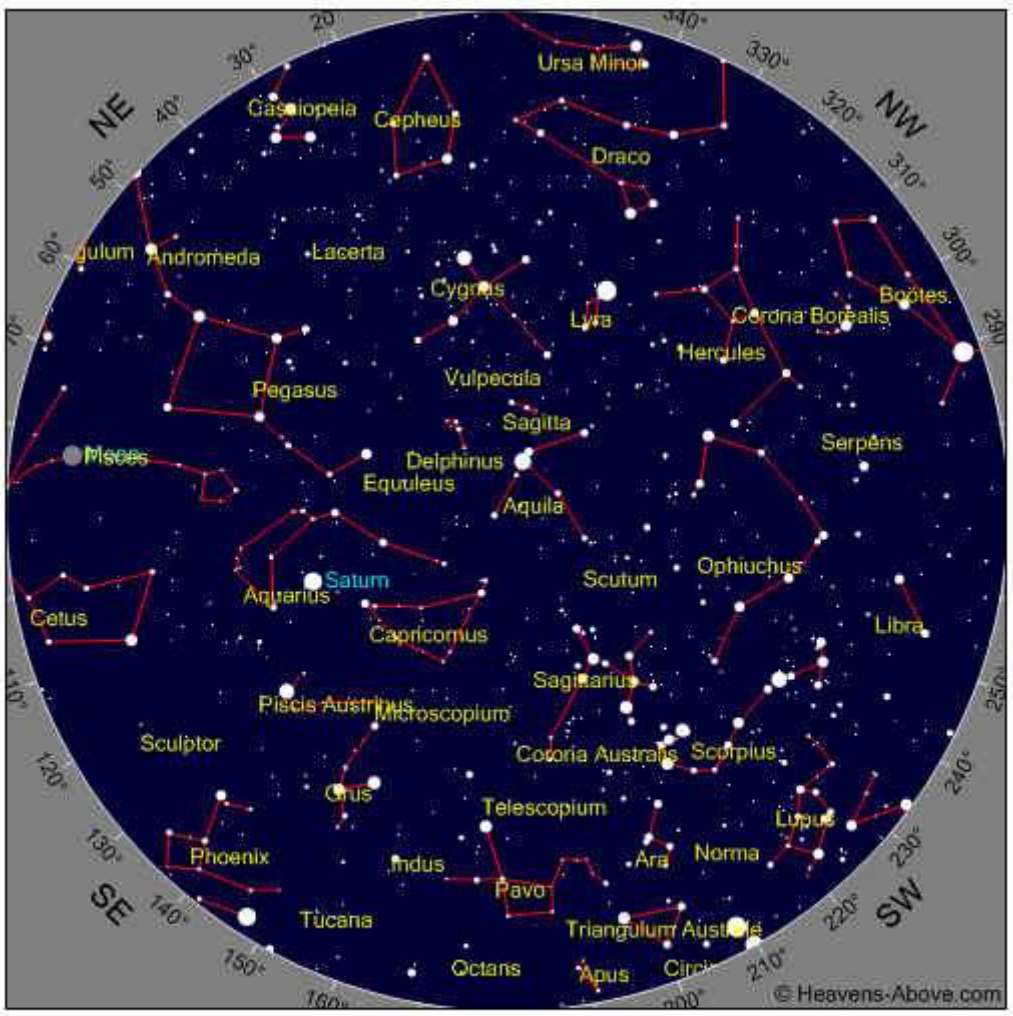
The Moon is drifting away from Earth about 3.8 centimeters per year. It is estimated that it will continue to do so for about 50 billion years. By the time that happens the Moon will be taking around 47 days to orbit Earth instead of the current 27.3 days.

Notice:

Would anyone like to buy a brand new Celestron 8SE Telescope ? It was bought by a friend of Jana's in April, 2023, and the man changed his mind about wanting it. It is computerized and comes with an extended warranty. Cost new- $1,798- And he will go as low as **$ 1,200.** Ask Jana for a photo and more info if interested.

September 2023 Sky

Some Objects of interest, M31, Saturn, M57



Time

Year	2023	Month	9	Day	2	Hour	21	Minute	15

Observing Tips

Spend some time with each sky object you're able to find and really get to know it. Too many first time telescope users expect Hubble-like brightness and color in the eyepiece, when in fact most astronomical objects are very dim to the human eye. Our night vision sees almost everything in shades of gray. Much of what the universe has to offer is subtle, and of course extremely distant. On the other hand, the Moon and planets are bright and easy to find. These make excellent first targets for the budding sky watchers. The Moon is one celestial object that never fails to impress when seen in a telescope. It is big, bright, and beautifully bleak and just a quarter million miles away. This makes the Moon a wonderful target for even the most humble astronomical instrument. An amateur telescope can keep you busy on the Moon forever. There is more to night sky than planets, and winter evenings often bring crisp transparent skies with a dazzling canopy of stars.

Photo Courtesy Gary Satterfield

Messier 13, NGC 6205 also known as the Great Globular Cluster in the constellation of Hercules. M13 is one of the brightest and best known Globular in the Northern sky. It has an apparent magnitude of 5.8v and lies at a distance of 25,100 light years from Earth. It has an age estimated to be 11.65 billion years and contains about 300,000 stars. The estimated mass is half million solar masses. M13 stretches across 20 arc minutes of sky that corresponds to a linear diameter of 145 light years. The brightest star in M13 is V11, a red giant classified as a Cepheid variable and has a visual magnitude of 11.95. The cluster contains an unusually young B2 type star designated as Bernard 29. The star does not really belong to the globular cluster but was presumably picked up by M13 on its orbit around the Milky Way. Other stars in the cluster are very old and only have about 5% of the Sun's iron content as they were formed before stars in our galaxy created metals. M13 also contains about 15 blue stragglers, old stars that appear younger and bluer than their neighbors. M13 is a class V globular cluster, one with intermediate concentration of stars toward the center. In other words stars in the clusters core region are about 500 times more concentrated than those in our immediate stellar neighborhood. Globular clusters orbit the Milky Way outside the Galactic disk at tens of thousands of light years away. Image capture 8 inch RC scope, canon 500D camera, hypertuned CGEM mount and images plus camera control and guiding with Mini Borg and PHD guiding. Integration time 0.7 hrs.

For What its Worth

Even small changes in solar activity can impact Earth's climate in significant and surprisingly complex ways. The Sun is a constant star when compared with many others in the galaxy. Some stars pulsate dramatically, varying wildly in size and brightness and even exploding. In comparison the Sun varies in the amount of light it emits by only 0.1 percent over the course of a relatively stable 11 year long pattern known as the solar cycle. Still the light reaching the top of Earth's atmosphere provides about 2,500 times as much energy as the total of all other sources combined. As such even 0.1 percent of the amount of light the Sun emits exceeds all other energy sources the Earth's atmosphere sees combined, such as the radioactivity naturally emitted from Earth's core. To learn more about how such tiny variations in solar energy might impact terrestrial climate the National Research Council (NRC) convened dozens of experts in fields such as plasma physics, solar activity, atmospheric chemistry, fluid dynamics and energetic particle physics. The ways these solar fluctuations could influence Earth were complicated in nature. For instance solar energetic particles and cosmic rays could reduce ozone levels in the stratosphere. This in tern alters the behavior of the atmosphere below it, perhaps even pushing storms on the surface off course. In the lower stratosphere the presence of ozone causes local warming because of the breakup of ozone molecules by ultra-violet light. When the ozone is removed the stratosphere there becomes cooler increasing the temperature contrast between the tropics and the polar region. The contrast in temperatures in the stratosphere and the upper troposphere leads to atmospheric flow west to east. The instability make for eddies or irregular motions. These eddies feed the strength of jet streams, ultimately altering the flows in the upper troposphere, the layer of atmosphere closest to Earth's surface. The geographical positioning of the jet streams aloft can alter the distribution of storms over the middle latitudes. So the Sun might have a role to play in this kind of process. This is a very difficult mechanism to prove in climate models. That does not mean it may not exist, it is just hard to prove. Solar variability is leaving a definite imprint on climate especially in the Pacific Ocean. When researchers look at sea surface temperature data using sunspot peak years, the tropical Pacific showed a pattern very much like that expected with La Nina, a cyclical cooling of the Pacific ocean that regularly affects climate worldwide, with sunspot peak years leading to a cooling of almost 1 degree C (1.8 deg F) in the equatorial eastern Pacific. In addition, peaks in the sunspot cycle were linked with increased precipitation in a number of areas across the globe as well as above normal sea level pressure in the mid latitude North and South Pacific. The Pacific is particularly sensitive to small variations in trade winds. Solar activity may influence processes linked with trade wind strength. Scientists have often speculated whether the Maunder Minimum, a 70 year dearth of sunspots in the late 17th to early 18th century was linked with the coldest part of the little ice age during which Europe and North America experienced bitterly cold winters. This regional cooling may be linked with a drop in the Sun's extreme ultraviolet radiation. In fact the Sun could currently be on the cusp of a miniature version of the Maunder Minimum since the current solar cycle is the weakest in more than 50 years. If the Sun is really entering an unfamiliar phase of the solar cycle then we must redouble our efforts to understand the Sun's climate link. Although the Sun is the main source of heat for Earth solar variability may have more of a regional effect than a global one. As such solar variability is not the cause of the global warming seen in recent times. While the Sun is the dominant energy source powering our climate system, do not assume that it is causing much of recent climate changes. It is pretty stable, think of it as an 800-pound gorilla in climate, it has the weight to cause enormous changes but lucky for us its pretty placidly lazy. While solar changes have historically caused climate changes, the Sun is most likely responsible for less than 15 percent of the global temperature increases we have seen over the last century during which human caused changes such as increased greenhouse gasses may have caused some atmospheric warming. Tracking the Sun: In the future, researchers suggested to better understand how solar variability might affect the Earth, a future space observatory may include a radiometric imager. Such a device could essentially map the surface of the Sun and reveal the contributions of each of its surface features to the Sun's luminosity. The solar disk is dotted by dark sunspots and bright magnetic areas known as faculae. Sunspots tend to vanish during low points in the solar cycle. Therefore, a radiometric imager could help reveal the links between prolonged spotlessness on the Sun and Earth climate. Ancient signals of climate such as tree rings and ice cores might also help shed light on the link between Sun and climate. Since variations in Earth's magnetic field and atmospheric circulation might disrupt this evidence on Earth, a better long term record of solar radiation might lie in the rocks and sediments of the Moon and Mars.

Astronomy Club Officers

President & Treasurer
Jana Hunking

Vice President
Tom Gerald

Secretary
Katharine Black

ACL Support Personnel

ACL News letter Editor
Serf /Minion Vahan Yeterian

ACL Webmaster
Serf / Minion Aaron Anderson (New Zealand)

Club Meeting

Reminder No Club meeting for Sept 8th. Pot Luck at River Park 11:30 AM Sept 9th. Bring dish to share with the attending membership.

Star Parties (as always weather permitting)

Other Astronomy club meetings and links to sites.

http://www.centralcoastastronomy.org/

Astronomy Club of Lompoc (ACL) (universeii.com)

http:// www.sbau.org/#AU_EVENTS_Calendar

Sunrise and sunset times in Lompoc (timeanddate.com)

Moonrise, Moonset, and Moon Phase in Lompoc (timeanddate

http:// www.heavens-above.com/

https://spaceweather.com

https://www.space.com

http://spacemaps.com

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

ACL Club Logo