Website: http://acl.universeii.com 2, September 2019

Astronomy Club of lompoc
Presents
The Sidereal Times

Saturn (see page 5)

Meeting *News:*

At the August meeting we discussed some general ACL business and events we supported and Dr. Bassi's presentation on Apollo 11.

Reminder: ACL club meeting Friday Sept 13th Manzanita school teachers lounge 7:00 PM.

Lunar Calendar:

New Moon 28th
Full Moon 14th

ACL VAFB Display Sat 9 Aug.

Presidents Message

Hello, Friends,

What a treat is was to finally have a clear night, Friday the 23rd! I set up the DS-10 on the patio and had a nice look at Jupiter, its north equatorial band, and its four Galilean moons perfectly spaced on either side. Saturn showed up well, too, but I retreated inside, not wanting to risk my chest congestion worsening. Still, exciting to have had the experience and share the view with Molly, especially since my hopes of doing the same with the grandchildren during their month-long visit were fog-thwarted.

We had a grand turnout at the last meeting! Most of our guests were brought to the meeting through personal contact, members inviting friends. This is a reminder to us all that the number one way of recruiting new members is to share personally with others your enjoyment of what we have going on here and invite them to join us.

That said, the attendance was certainly helped by Dr. Joe Bassi's presentation. I am always amazed at the facts he carries around in his head; his details of the run-up to, and mission of Apollo 11, was wonderful. His accompanying illustrations were perfect, and his relating the historical/political context added an element of "you were there" immediacy that I was not expecting.

I look forward to seeing all of you at our September meeting....ooooooo: Friday, the 13th! We will finalize plans for Astronomy Day activities, October 6th, and plan our picnic, October 12th.

Skyward,
Tom

Events

September 7th ***Star Party at Observatory***.

Yes!

September 9th Neptune at opposition, the planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It 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 Neptune. It will be a tiny blue dot in all but the most powerful telescopes.

September 21st ***Star Party at the Observatory***.

Yes!

September 23rd September equinox occurs at 0750 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 and the first day of Spring (Vernal equinox) in the Southern Hemisphere.

September 28th ***Star Party at the Observatory / Figueroa Mt .***

Yes!

Old Town Fair (July) ACL display

Star party's and Events

August 3rd Star Party @ observatory cancelled due to weather,

August 24th Star Party @ the Observatory. Vince Tobin on site at 8:30 Pm, sky clear. Had a bit of trouble with opening the upper shutter (intermittent operation). Set up the 14inch and did some visual observing on several objects. No one else on site so it was a "One Man" star party. Secured and departed 10:30 Pm.

August 31st Star Party at Observatory / Figueroa Mt.

Old Town Fair (July) ACL display

September 2019 Moon

Full 14th, New 28th, Last Quarter 22nd, First Quarter 6th.

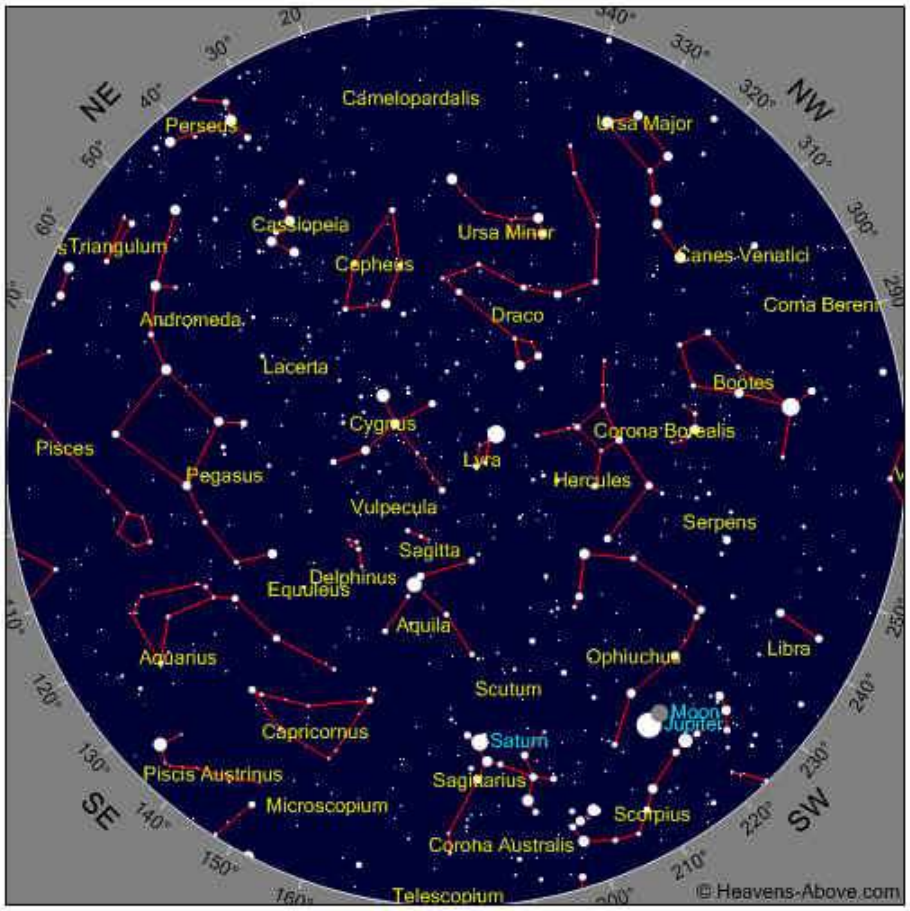
Moon Facts and Folklore

The first Space Craft to send back pictures of the Moon was Luna 3 (built by the Soviet Union) in October 1959.

The Apollo missions brought back 2196 rock samples weighing 382 Kg in total.

September 2019 Sky

Some Objects of interest, M13, M31, M27, M57



Time

Year	2019	Month	9	Day	5	Hour	21	Minute	20

Old town Fair (July) ACL Display

Photo Courtesy Vahan Yeterian

Saturn 6th planet in the solar system. Saturn is a gas giant made up mostly of hydrogen and helium. Saturn's volume is greater than 760 Earths and is the second most massive planet in the solar system, about 95 times Earth's mass. The ringed planet is the least dense of all the planets and is the only one less dense than water. If there were a bathtub big enough to hold it Saturn would float. The Yellow and gold bands seen in Saturn's atmosphere are the result of super fast winds in the upper atmosphere which can reach up to 1100 mph around its equator combined with heat rising from the planets interior. Saturn rotates once every 10.5 hours. The planets high-speed spin causes Saturn to bulge at its equator and flatten its poles. The planet is around 75,000 miles across at its equator and 68,000 miles from pole to pole.
The largest ring spans 7,000 times the diameter of the planet. The main rings are only about 30 feet thick but the vertical formations in some rings with particles piling up in bumps and ridges can be more than 2 miles high. The Cassini Division, a gap 2,920 miles wide separates rings B and A.
Saturn's distance from the Sun: 890.8 million miles.
Orbital period: 29 years.
Mass: 5.683 = 10^26 kg.
Length of day: 0d 10h 42m
Moons: Enceladus, Titan, Mimas, Dione, Tethrys, Tapetus, Rhes, and many more for a total of 57.
Image capture 8"SCT, Imaging with Images+ ccd camera, exposure time 3" processed with Registax software.

Solar eclipse at the Observatory

For What its Worth

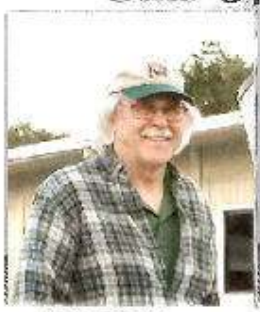
Globular Clusters are a spherical collection of stars that orbit a galactic core as a satellite. They are very tightly bound by gravity which gives them their spherical shapes and relatively high stellar densities toward their centers. The name of this type of star cluster is derived from the Latin name Globulus – a small sphere. Globular clusters are found in the halo of a galaxy. They are fairly common and number over 125 in the Milky Way Galaxy. Larger galaxies may have a greater population of globular clusters. The Sagittarius and Canis Major Dwarf galaxies appear to be in the process of donating their associated globular clusters to the Milky Way Galaxy. This demonstrates how many of this galaxy's globular clusters have been acquired in the past. Although it appears that globular clusters contain some of the first stars to be produced in the galaxy, their origins and their role in galactic evolution are still unclear.

The formation of globular clusters remains a poorly understood phenomenon and it remains uncertain whether the stars in a globular cluster form in a single generation or are spawned across multiple generations over a period of several hundred million years. In many globular clusters most of the stars are approximately the same stage in stellar evolution, suggesting that they formed about the same time. However the star formation history varies from cluster to cluster with some clusters showing distinct populations of stars. An example of this is the globular clusters in the large Magellanic cloud that exhibit a bimodal population. During their youth these clusters may have encountered giant molecular clouds that triggered a second round of star formation. This star–forming period is relatively brief compared with the age of many globular clusters. It has also been proposed that the reason for this multiplicity in the stellar populations could have been a dynamical origin. The Hubble space telescope has observed clusters of globular clusters, regions in the galaxy, that span hundreds of parsecs, where many of the clusters will eventually collide and merge. Many of them present a significant range in ages.

Globular clusters are generally composed of hundreds of thousands of low-metal old stars. The type of stars found in a globular cluster are similar to those in the bulge of a spiral galaxy but confined to a volume of only a few million parsecs. They are free of gas and dust and is presumed that all the gas and dust was long ago turned into stars. Globular clusters can contain a high density of stars, on average about 0.4 stars per cubic parsec, increasing to 100 or 1000 stars per cubic parsec in the core of the cluster. The typical distance between stars in a globular cluster is about one light year, but at its core the separation is comparable to the size of the solar system. Globular clusters are not thought to be favorable locations for the survival of planetary systems. Planetary orbits are dynamically unstable within the cores of dense clusters because of the perturbations of passing stars, a planet orbiting a star within the core of a dense cluster would be short lived. Globular clusters have a very high star density and therefore close interactions and near collisions of stars occur relatively often. Due to these chance encounters some exotic classes of stars such as the stragglers, millisecond pulsars and low-mass X-ray binaries are much more common in globular clusters. A blue straggler is formed from the merger of the two stars, possibly as a result of an encounter with a binary system. The resulting star has a higher temperature than comparable stars in the cluster with the same luminosity thus differing it from the main sequence stars formed at the beginning of the cluster.

In contrast to open clusters most globular clusters remain gravitationally bound for the time periods comparable to the life spans of the majority of their stars. However, a possible exception is when strong tidal interactions with other large masses result in dispersal of the stars. After they are formed the stars in the globular cluster begin to act gravitationally with each other. As a result the velocity vectors of the stars are steadily modified and the stars lose any history of their original velocity. The characteristic interval for this to happen is the reaction time. This is related to the characteristic length of time a star needs to cross the cluster as well as the number of stellar masses in the system. The value of the reaction time varies by cluster but the mean value is in the order of 10^8 years. Although globular clusters generally appear spherical in form ellipticities can occur due to tidal interactions. Clusters in the Milky Way and Andromeda galaxies are typically oblate spheroids in shape whereas in the Large Magellanic cloud they are more elliptical.

Club Officers



President
Tom Gerald

Vice president
& Treasurer
Jana Hunking

News Letter Editor
Vahan Yeterian

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

Possibhle New Logo display

Club Meeting

Reminder **ACL** Club meeting September 13th 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

Night Time Bright Objects (no scope required)

Link to "Heavens Above" web site
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 "Astronomy Club of Lompoc"

Dave McNally is the ACL Web Site Serf/Minion

Dave