

Astronomy Club of Lompoc Presents The Sidereal Times



Beta Cygni (see page 5)

Meeting News: At the may meeting we took care of some club business and set the time and date for our annual Pizza Party. Had a good presentation by Jana on cosmic rays.

Reminder: No club meeting Friday June 10th. Instead we will have our annual Pizza party at River Park on Saturday June 11th at the Lutheran Pavilion at the far end of the park. We will have pizza and hot wings and a large green Salad serving at 11:30 AM. Any deserts brought by the members will be appreciated.



Lunar Calendar:

New Moon 29

Full Moon 14

Photos of club activities
New Batteries installation



Presidents Message

Hello, Lompoc Astronomy Fans,

How has everyone been? Very well, I trust; I am recovering from my surgery and doing better than anticipated. Long way to go, but the first week was entirely tolerable. Great to look down and see that left calf returned to a normal size, matching the right one. Thank you so much for the well wishes on the card Jana brought to me from the meeting, and for your other expressions of concern.

A big thanks to our VP, Jana, for shepherding the meeting and transporting some members who otherwise would have been unable to attend. What a champ!

I am very excited about our Pizza Picnic! Selfishly, my excitement stems from my likely being able to attend and seeing all of you. AND: with Solar Cycle 25 in full swing, there should be lots of sunspots to observe and, if a certain hydrogen-Alpha scope can appear, prominences!

While we were completely socked in here in Lompoc, I do hope some of you were able to get out somewhere and observe the Lunar Eclipse. Friends and family sent me photos in the moment from other parts of the country and all had rewarding views and were impressed with the phenomenon. If you were able to get photos (phone pics totally acceptable), please send to Vahan to include in a future Newsletter.

There are some outreach opportunities coming up across the summer that I learned of immediately before my surgery and details about these will be forthcoming. I do hope a number of us will be able to support such events.

Skyward,
Tom Gerald, President



Events

June 7th 18th and 25th Star Party's at the Observatory.



Yes!

June 16 Mercury at Greatest Western Elongation at 23.2 degrees from the Sun. Mercury is best viewed in the Morning sky just before Sunrise low in the Eastern sky.

June 21 June Solstice occurs at 0905 UTC. North pole of the Earth will be tilted toward the Sun. The Sun will be at its North most position in the sky and will be directly over the tropic of Cancer at 23.44 degrees North Latitude. This is the first day of Summer in the Northern hemisphere and the first day of Winter in the Southern Hemisphere.

Club activities continued



Star party's and Events

May 2, 21, 30 Star Party @ observatory, Cancelled due to weather.



Nuts!



June 2022 Moon

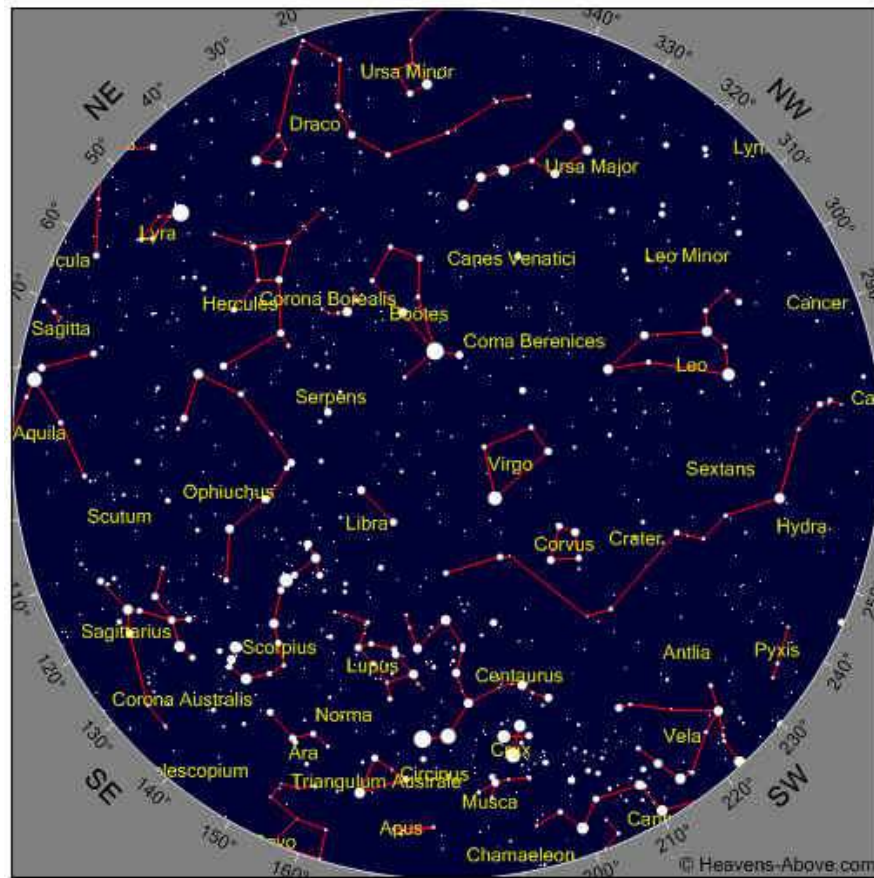


Full 14, New 29, Last Quarter 21, First Quarter 7

Solar Array fabrication



June 2022 Sky
Some Objects of interest, M13, M57



Time

Year	2022	Month	6	Day	2	Hour	21	Minute	20
------	------	-------	---	-----	---	------	----	--------	----

Removing the old Solar array



Photo Courtesy of UNK



Albireo, also known as Beta Cygni, is the second-brightest star in the constellation Cygnus the Swan. At first glance, it doesn't particularly stand out. But viewing this star through a small telescope can take your breath away. It resolves into a striking double, with one component a lovely gold star and the other a dimmer blue close by. Although the two stars appear close in the sky, from our perspective, astronomers still don't know for sure if they're gravitationally bound to each other. It doesn't matter. The color contrast between the two is so striking and so beautiful that Albireo is one of the sky's most beloved stars. The brighter gold star, known as Albireo A, is about 430 light years away. Albireo B, the dimmer blue star, is around 400 light-years distant. It's not yet clear if these two stars are distantly-spaced binary stars. An analysis of their motion in space, from ground- and space-based telescopes suggests they aren't gravitationally bound to each other. But astronomers say they need more measurements to come to a definite conclusion. So is it just by chance that "A" and "B" appear close to each other in our night sky? According to a paper published in January 2021, there's evidence from spectroscopic data that they formed around the same time. Astronomers also found a few other stars in close proximity to them with similar motions in space. They suspect these stars and the Albireo system are what's left of an open star cluster (a family of stars) formed together about 100 million years ago. Albireo A's binary star system has an orbital period of 121.6 years. The brighter star is responsible for the gold color you see through a telescope; it's a Red supergiant star, about 5 times the mass of the sun. It outshines its fainter companion, a hot main sequence star that's 2.7 times the sun's mass. However, in a recent analysis of the Albireo A binary system, astronomers were surprised to find that there may be another yet undetected star in the mix, possibly making Albireo A a triple star system. Albireo B, the fainter blue star of the pair when viewed through a small telescope, appears just 34 arc seconds away from gold-colored Albireo A. It's a hot blue star, about 3.7 times the sun's mass.

For What It's Worth

Apochromatic lenses: A lens or optical system virtually free of chromatic aberration which for practical purposes means that light of at least three different wavelengths is brought to focus at the same point. The best apochromatic lenses use fluorite crystal and may correct three different wavelengths with only two optical elements. However, because fluorite is expensive to manufacture and because of its brittleness is difficult to grind and polish and mount. High quality apochromatic refracting telescopes are costly. Reflecting telescopes, on the other hand, are apochromatic in performance without the extra cost.

Refraction: The refraction of light rays passing through the Earth's atmosphere is due to Variations in the density and temperature which produce corresponding variations In the refractive index. Atmospheric refraction gives rise to a shift in the apparent direction of the celestial object. The effect increases the observed altitude of a celestial Object and is greatest at the horizon. Unusual density variations close to the surface may produce mirages, shimmer and other deceptive effects.

Light intensity: The reduction in the intensity of light from a celestial body is due to absorption and scattering by Earth's atmosphere. It increases from the zenith to the horizon and effects short wavelengths more than long wavelengths, so that objects near the horizon appear redder than they do at zenith. The brightness of a star in the zenith will be reduced by only 0.3 magnitudes whereas the extinction at 20 degrees altitude is about 0.9 magnitude and at 10 degrees altitude about 1.6 magnitudes.

Aberration of star light: The difference between the observed position of a star and its true direction is a combined result of the observers motion across the path of the incoming star light and the finite speed of light. The effect is similar to that observed by someone walking in the rain. Though the rain is in fact falling vertically, because of the person's motion the rain appears to be falling at an angle. There are three components of the aberration of star light, Annual aberration caused by Earth's revolution around the Sun, Diurnal Aberration cause by Earth's axial rotation and a very small Secular Aberration caused my the motion of the solar system through space. Stars on the Ecliptic appear to move To-and-Fro. Stars 90 degrees from the ecliptic appear to trace out a circle and stars in intermediate positions trace out ellipses.

Astigmatism: A form of optical aberration in which the focus changes from the center to the edges of the field of view. In the presence of astigmatism the problem is compounded because there are two separate astigmatic focal surfaces. Field curvature varies with the square of the field angle or the square of the image height. Positive lens elements usually have inward curving fields and negative lenses have outward curving fields. Field curvature can be corrected to some extent by combining positive and negative lens elements. Lenses with virtually no field curvature are called flat-field lenses.

Tom's Show and Tell class room



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 ACL Pizza party meeting Saturday June 11th at 11:30 Am at river park at the Lutheran Pavilion at the far end of the park.

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)

Link to "Heavens Above" web site

[http:// www.heavens-above.com/](http://www.heavens-above.com/)

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

ACL Club LOGO

