

Astronomy Club of Lompoc Presents The Sidereal Times



Lagoon Nebula (see page 5)

Meeting News The March meeting was cancelled because of the pandemic Corona-19 Virus situation.

Notice ACL club meeting Friday April 10th at Manzanita School Teachers Lounge is **Cancelled** due to the Corona-19 virus and the stay at home policy by the state.



Lunar Calendar:

New Moon 23rd
Full Moon 8th

Display Day



Presidents Message

Hello, Fellow Isolated Earthlings,

There is no reason to talk Covid 19 in my letter to you, as our editor addresses the issue elsewhere in this Newsletter. There are the meeting cancellations, and I thank you for your caution and your understanding acceptance. However, it is a fact that we in ACL are accustomed to not getting to do what we want, given the number of times over the past year the weather has left us confined to our homes rather than enjoying each other's company under the stars at the Observatory. Here's to better months this summer on all fronts! In the interim, let's stay in touch with each other and keep talking astronomy.

I lost my brother, Jimmy, on March 23, after a lengthy illness. I share this with you, not for consolation, but rather for celebration: truly, one of my earliest memories is of Jimmy and a magical spring evening in the Mississippi Delta, filled with the chorus of crickets. In this memory, he was explaining to me the realities behind a beautiful full moon which had just risen in the east; I was maybe four years old, he was eleven. He had seen me jumping up, trying to catch that big, beautiful moon and he was laughing, hoping to get me to understand the futility of my endeavor. I couldn't understand what 240,000 miles meant, but he did make it clear that the moon was waaaaay out there. I remember he also explained that what looked to me like lakes filled with blue water were actually plains covered with gray lava. That I refused to believe, because I had already lived long enough to know that he was a great trickster and I was an easy target for his plotting. Also, though it made no sense at the time, he explained why we never saw the far side of the moon. That I accepted, because, just as my eyes proved the moon was covered with blue oceans, my eyes already had shown me that the moon showed us only one face. He quickly gave up trying to explain the changing phases of that face. So there it was, my first lesson in astronomy, full of inaccuracies I am sure, but I like to think it set me on the meandering path that has led me to where I am today, still learning in the company of all of you. To each of you, I say: never miss an opportunity to share with a child your love of the wonders of the heavens; their minds are hungry creatures and what you feed them may never be forgotten.

Peace,
Tom

Events

April 8th Full moon, super moon occurs at 02:35 UTC. This full moon was known by early native American Indians as the Full Pink Moon because it marked the appearance of the Moss Pink or Wild Ground Phlox, a full spring flower. It has also been known as the Sprouting Grass Moon, the Growing Moon, Egg Moon and the Full Fish Moon.

April 18th *Star Party at the Observatory.*



April 22nd & 23rd Lyrids meteor shower is an average shower producing about 29 meteors per hour at its peak. It is produced by dust particles left behind by comet C/1861 G1 Thatcher. Best viewing is after midnight of the 22nd. Meteors will radiate from the constellation of Lyra but can appear anywhere in the sky.

April 25th *Star Party at the Observatory.*



Some Past Events



Star party's and Events

March 14th Star Party @ the Observatory. Cancelled due to Weather.



March 21th Star Party @ observatory, Event cancelled due to weather.



March 28th Star Party @ the Observatory, cancelled due to weather and the stay at home policy because of the Corona-19 virus..



More Past Events



April 2020 Moon



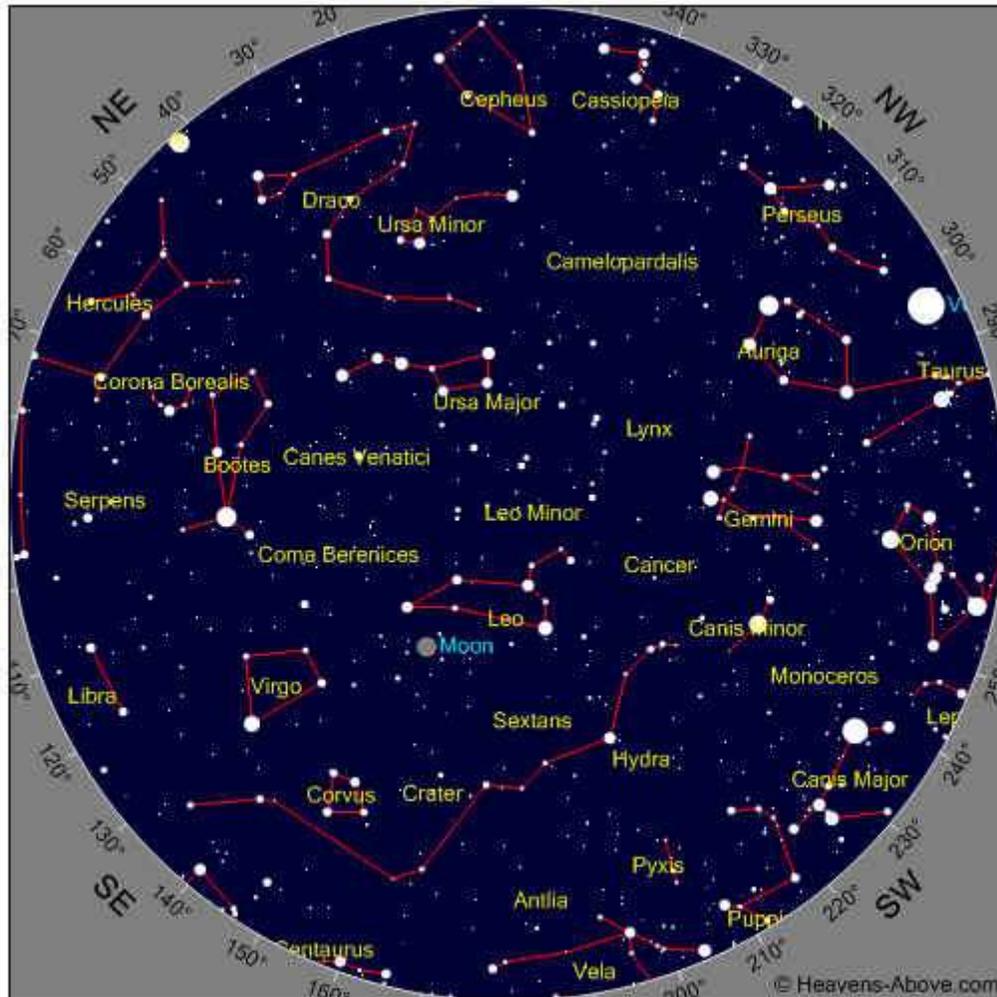
Full 8th, New 23rd, Last Quarter 14th, First Quarter 1st & 30th

Moon Facts and Folklore

Perhaps the most important effect of the Moon is the way it stabilizes our rotation. When the Earth rotates it wobbles slightly back and forth on its axis. It's like a top which doesn't spin in a vertical position on the table or on the floor. But without the Moon we'd be wobbling much more. (precession 1° every 72 years)

April 2020 Sky

Some Objects of interest, M42, M13



Time

Year	2020	Month	4	Day	5	Hour	22	Minute	37
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Meeting Time



Photo Courtesy Craig Fair



Lagoon Nebula.

Messier 8 The Lagoon nebula NGC 6523 is an interstellar cloud in the constellation of Sagittarius. It is an emission nebula and has an H II region. Messier 8 is estimated to be 4000 to 6000 light years from Earth. It spans 40 to 60 minutes in the sky that translates to an actual dimension of 110 Light years by 50 light years. Like many nebulas it appears pink in time exposure color photos but is gray to the eye when peering through a telescope. The nebula contains a number of Bok globules (dark collapsing clouds of protostellar material) the most prominent of which have been catalogued by E.E. Barnard as B88, 89 and B296. It also includes a tunnel-like or tornado-like structure caused by a Hot O type star that emanates ultra violet light heating and ionizing gasses on the surface of the nebula. The nebula also contains at its center a structure known as the Hour Glass nebula, Not to be confused with the better known Hour Glass nebula in the constellation of Musca. In 2006 the first four Herbig-Haro objects were detected within the hour glass that provided the first direct evidence of active star formation by accretion within it. The dark areas of the nebula are just clouds of dust that block light. Inside the nebula is a young open star cluster NGC 6530 that is situated just slightly to the front of the nebula from our perspective. M8 (Lagoon nebula), 31 Jul 16 @ 0700 UTC, C8 1280mm @ F/6.3, 600mm w/PHD2 guide. T3i(mod) ISO 1600 12x300s lights, 20 darks/40bias/40 Flat.

For What its Worth

Sunspots are temporary phenomena on the Sun's photosphere that appear as spots darker than the surrounding areas. They are regions of reduced surface temperature caused by concentrations of magnetic field flux that inhibit convection. Sunspots usually appear in pairs of opposite magnetic polarity. Their number varies according to the approximately 11-year solar cycle. Individual sunspots or groups of sunspots may last anywhere from a few days to a few months, but eventually decay. Sunspots expand and contract as they move across the surface of the Sun, with diameters ranging from 16 km (10 mi) to 160,000 km (100,000 mi). Larger sunspots can be visible from Earth without the aid of a telescope. They may travel at relative speeds, or proper motions, of a few hundred meters per second when they first emerge. Indicating intense magnetic activity, sunspots accompany secondary phenomena such as coronal loops, prominences, and reconnection events. Most solar flares and coronal mass ejections originate in magnetically active regions around visible sunspot groupings. Similar phenomena indirectly observed on stars other than the Sun are commonly called starspots, and both light and dark spots have been measured.

Although they are at temperatures of roughly 3,000–4,500 K (2,700–4,200 °C), the contrast with the surrounding material at about 5,780 K (5,500 °C) leaves sunspots clearly visible as dark spots. This is because the luminance (which is essentially "brightness" in visible light) of a heated black body (closely approximated by the photosphere) at these temperatures varies extremely with temperature—considerably more so than the (temperature to the fourth power) variation in the total black-body radiation at all wavelengths (see Stefan–Boltzmann law). Isolated from the surrounding photosphere a sunspot would be brighter than the Moon. Sunspots have two parts: the central umbra, which is the darkest part, where the magnetic field is approximately vertical (normal to the Sun's surface) and the surrounding penumbra, which is lighter, where the magnetic field is more inclined. Due to its link to other kinds of solar activity, sunspot occurrence can be used to help predict space weather, the state of the ionosphere, and hence the conditions of short-wave radio propagation or satellite communications. High sunspot activity is celebrated by members of the amateur radio community as a harbinger of excellent ionospheric propagation conditions that greatly increase radio range in the HF bands. During sunspot peaks, worldwide radio communication can be possible on frequencies as high as the 6-meter VHF band. Solar activity (and the solar cycle) have been implicated in global warming, originally the role of the Maunder Minimum of sunspot occurrence in the Little Ice Age in European winter climate. Sunspots themselves, in terms of the magnitude of their radiant-energy deficit, have a weak effect on solar flux however the total solar flux increases as "At solar maximum the Sun is some 0.1% brighter than its solar-minimum level".

1645 to 1715. This period of sunspot minima is called the Maunder Minimum. The "Little Ice Age" occurred over parts of Earth during the Maunder Minimum. So how much does the solar output affect Earth's climate? There is debate within the scientific community how much solar activity can, or does affect Earth's climate. There is research which shows evidence that Earth's climate is sensitive to very weak changes in the Sun's energy output over time frames of 10s and 100s of years. Times of maximum sunspot activity are associated with a very slight increase in the energy output from the sun. Ultraviolet radiation increases dramatically during high sunspot activity, which can have a large effect on the Earth's atmosphere. The converse is true during minimum sunspot activity. But trying to filter the influence of the Sun's energy output and its effect on our climate with the "noise" created by a complex interaction between our atmosphere, land and oceans can be difficult. For example, there is research which shows that the Maunder Minimum not only occurred during a time with a decided lack of sunspot activity, but also coincided with a multi-decade episode of large volcanic eruptions. Large volcanic eruptions are known to hinder incoming solar radiation. Finally, there is also evidence that some of the major ice ages Earth has experienced were caused by Earth being deviated from its average 23.5 degree tilt on its axis. Indeed Earth has tilted anywhere from near 22 degrees to 24.5 degrees on its axis. But overall when examining Earth on a global scale, and over long periods of time, it is certain that the solar energy output does have an affect on Earth's climate. However there will always be a question to the degree of affect due to terrestrial and oceanic interactions on **Earth**.

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ACL Webmaster
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Club Meeting

Notice ACL Club meeting April 10th is **Cancelled** due to the Corona-19 virus.

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/)

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

