

Astronomy Club of Lompoc
Presents
The Sidereal Times



JWST Deep Field (see page 5)

Meeting News: The February meeting we **again** discussed having Club members present astronomy subjects. Also outreach for the public on the April Solar Eclipse.

Remindr ACL Friday March 8th meeting will be held at Manzanita School Teachers lounge at 7:00 Pm.



Lunar Calendar:

New Moon 10

Full Moon 25

Some photos from the JWST



A new feature is added to the News Letter. It is called "Name the Object Quiz", (See Page 7)

Presidents Message

Our Feb. meeting was attended by 13 persons, and more dues was collected. If you have not paid yet, please bring it to the next meeting or mail it to Jana Hunking at 324 No. Lupine St. Lompoc, 93436. **Thanks** to the members that have paid for the year!

We have a **new committee** in our club, being headed up by Tom Gerald and Katherine Black and has room for more members- to help think up new ideas for Presentations, and perhaps, even pay a professional to come to do a special presentation. The cost would be more than our club could afford, so Tom asked how many would help, and donate, maybe \$10. toward a special speaker, and several members raised their hands.

I called Albertson's to see if they would bring out their Solar glasses they sold for the October2023 Solar eclipse, and I was shocked at what the manager said to me...He said he threw them away, as he did not know he would need them again! I told him about the April 8th Patial Solar eclipse in our area, and how sad it was that he did not keep them.

The maximum time of the Eclipse for our area will be near 11:10 am on that Monday, and if you do not have your own eclipse glasses, I will have them available again at the March meeting.

Steve Ball brought up a great idea for our newsletter- **A Mystery Photo** each month, for the members to ponder and try to figure out by the Meeting. Vahan is incorporating that into this edition, so be sure to look for it.

Jana is placing in the **Lompoc Library Display case for March** – Photos and info about total and Partial Eclipses over the years, and the one coming April 8th. Hours: Mon-Thurs 10-7, Fri & Sat. 1-5.

Hoping for More Clear Skies after our winter rains, Jana

Events

March 9, 16 & 30 *Star Party at the Observatory.*



March 20 March Equinox occurs at 03:01 UTC. The Sun will shine directly on the equator and there will be nearly equal amounts of day and night throughout the world. First day of Spring in Northern hemisphere and first day of Fall in the Southern hemisphere.

March 24 Mercury at greatest Eastern elongation of 18.7° from the Sun. Best time to observe Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the Western sky just after sunset.

March 25 Full Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated. This occurs at 07:02 UTC. This Moon was known by early American tribes as the Worm Moon because this was the time of year that the ground would start to soften and earthworms would appear.

March 25 Penumbral Lunar Eclipse occurs when the moon passes through Earth's partial shadow. The eclipse will be visible in all of North America, Mexico, Central and South America.



Star party's and Events

February 3, 10 & 17 *Star Party @ observatory, bad weather again. We just don't get a break in conditions..... Uugh!*



Nuts!



Solar Flares: A Solar flare is an explosion on the Sun that happens when energy stored in twisted magnetic fields (usually above Sun Spots) is suddenly released. Flares produce a burst of radiation across the electromagnetic spectrum, from radio waves to X-rays and Gamma-rays. Solar flares are classified according to their X-ray brightness in the wavelength range 1 to 8 Angstroms. There are 3 categories: X-Class Flares are big: They are major events that can trigger planet-wide radio blackouts and long lasting radiation storms. M-Class Flares are medium sized events that can cause brief radio blackouts that affect Earth's Polar regions, minor radiation storms sometimes follow an M-Class flare. Compared to X- and M- class events, C-Class flares are small with few noticeable consequences here on Earth. On the other side of the scale Coronal Mass Ejections (CME's) dump larger masses of Energetic particles into Earth's upper atmosphere and orbital environment where satellites fail because of cascading electronics glitches and anomalies. Astronauts in low Earth orbit inside the International Space Station have to retreat to the stations shielded core to wait out the storm. Even there they receive elevated doses of radiation and occasionally they see brief flashes of brilliant white and blue bursts of secondary radiation caused when a stray particle passed directly through the vitreous humor of their eyes at near light speed. If the CME is strong enough Earth reaching radiation can cause power transformers and power grids to fail.

March 2024 Moon

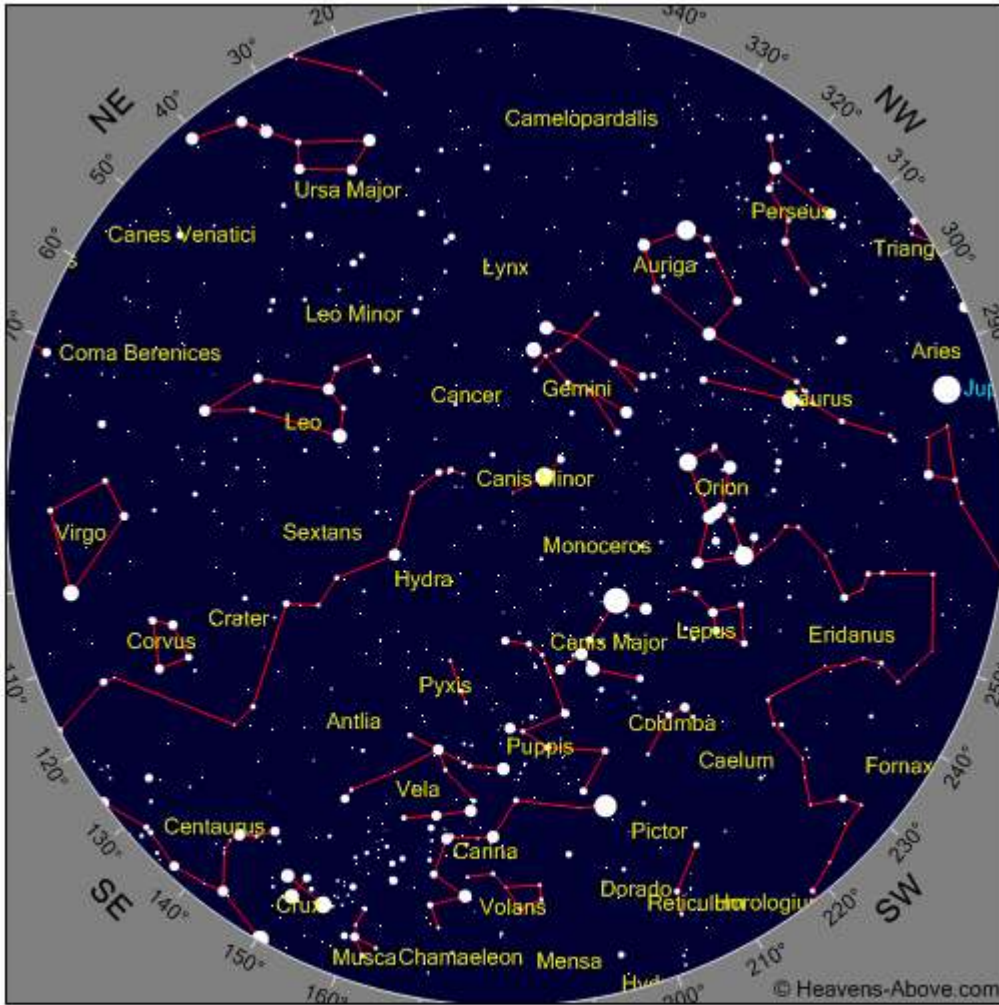


Full 25, New 10, Last Quarter 3, First Quarter 17

A Little Humor: Two hydrogen atoms meet one says, "I've lost my electron". The other says, "Are you sure". The first replies, "Yes I'm positive".
 A Photon checks in to the Hotel. A Bell hop asks, "May I take your bags" The Photon says "No I'm traveling Light".

March Sky 2024

Some Objects of interest, M1, M42

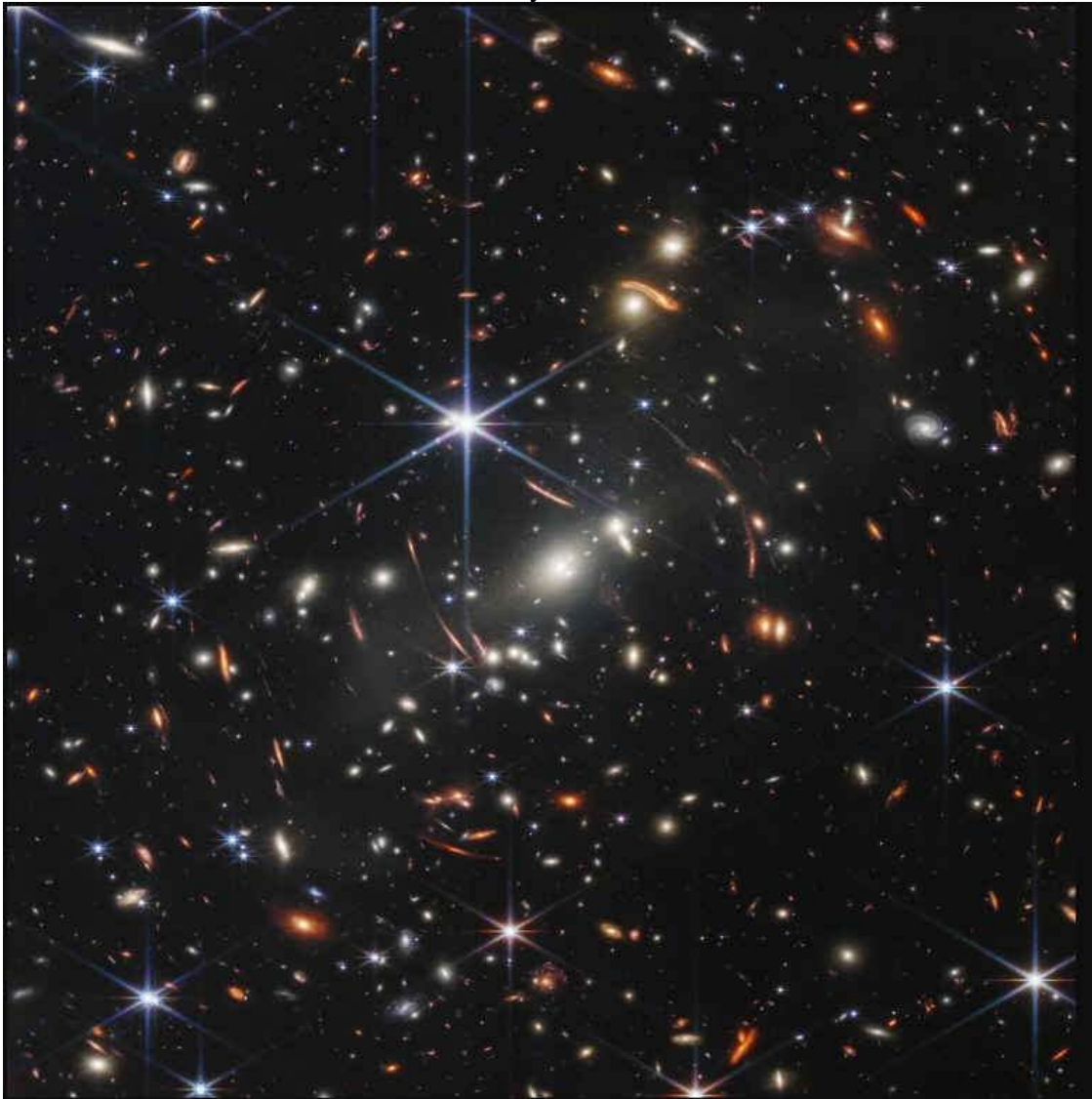


Time

Year	2024	Month	3	Day	5	Hour	21	Minute	10
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Photo courtesy JWST NASA



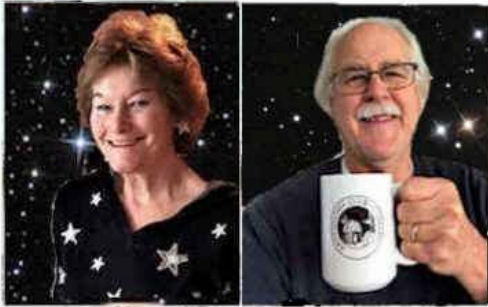
Thousands of galaxies flood this near-infrared image of galaxy cluster SMACS 0723. High-resolution imaging from NASA's James Webb Space Telescope combined with a natural effect known as **gravitational lensing** made this finely detailed image possible. First, focus on the galaxies responsible for the lensing: the bright white elliptical galaxy at the center of the image and smaller white galaxies throughout the image. Bound together by gravity in a galaxy cluster, they are bending the light from galaxies that appear in the vast distances behind them. The combined mass of the galaxies and **dark matter** act as a cosmic telescope, creating magnified, contorted, and sometimes mirrored images of individual galaxies. Clear examples of mirroring are found in the prominent orange arcs to the left and right of the brightest cluster galaxy. These are lensed galaxies – each individual galaxy is shown twice in one arc. Webb's image has fully revealed their bright cores, which are filled with stars, along with orange star clusters along their edges. Not all galaxies in this field are mirrored – some are stretched. Others appear scattered by interactions with other galaxies, leaving trails of stars behind them. Webb has refined the level of detail we can observe throughout this field. Very diffuse galaxies appear like collections of loosely bound dandelion seeds aloft in a breeze.

For What It's Worth

The James Webb Space Telescope is living up to its promise as a way back machine. The spectacularly sensitive observatory is finding and confirming galaxies more distant, and therefore existing earlier in the universe's history, than any seen before. The telescope, also known as JWST, has confirmed extreme distances to four galaxies, one of which sets a record for cosmic remoteness by shining about 13.475 billion years ago, astronomers reported December 12 at the conference. Dozens of other galaxies may have been spotted as they were just 550 million years or less after the Big Bang, meaning the light from those galaxies traveled at least 13.1 billion years before reaching the telescope. Taken together, the new observations suggest galaxies formed earlier and faster than previously thought. "We're entering a new era," says astronomer [Swara Ravindranath](#) of the Space Telescope Science Institute in Baltimore. That new era is thanks in part to JWST's ability to see very faint light. For the most distant objects, like the first stars and galaxies, their visible light is stretched by the relentless expansion of the universe into longer infrared wavelengths that are invisible to human eyes and some previous space telescopes. But now, measurements that were recently impossible are suddenly easy with JWST, researchers say. "JWST is the most powerful infrared telescope that has ever been built," astrophysicist [Jane Rigby](#) said at the conference. Rigby, of NASA's Goddard Space Flight Center in Greenbelt, Md., is the JWST operations project scientist. "Almost across the board, the science performance is better than expected." Even in the very first image, released in July, astronomers spotted galaxies whose light originated 13 billion years ago or more. But those distances were estimates. To measure the distances precisely, astronomers need spectra, measurements of how much light the galaxies emit across many wavelengths. Those measurements are slower and more difficult to make than pictures. "Thanks to this glorious telescope, we're now getting spectra ... for hundreds of galaxies at once," said astronomer [Emma Curtis-Lake](#) of the University of [Hertfordshire](#) in England. Among those are four of the earliest galaxies ever seen, some of which existed less than 400 million years after the Big Bang, Curtis-Lake and colleagues reported at the meeting and in a paper submitted December 8 to [arXiv.org](#). The team spotted these record holders in a patch of sky that the Hubble Space Telescope once scoured for ultra remote galaxies. JWST confirmed the distance to that galaxy and came back with three more whose light comes The galaxies are also surprisingly pristine, chemically speaking, lacking in elements heavier than hydrogen and helium. "We don't see that in the present-day universe," says [Ravindranath](#), who was not involved in the new discovery. It could mean that not many of the galaxies' stars have died in supernova explosions that spread heavy elements around the universe, which suggests the galaxies' original stars were not extremely massive. In another part of the sky, JWST has spotted 26 galaxies that may have existed about 550 million years or earlier after the Big Bang, astronomer [Steven Finkelstein](#) and colleagues reported at the meeting and in a paper submitted November 10 to [arXiv.org](#). "On an emotional, visceral level, looking at these images is amazing," said Finkelstein, of the University of Texas at Austin. The first of these to be discovered, dubbed [Maisie's Galaxy](#) after Finkelstein's daughter, appears to be just 380 million years after the Big Bang, the researchers reported December 1 in the *Astrophysical Journal Letters*. The most distant galaxy in the team's survey might lie as much as 130 million years earlier than [Maisie](#). Those galaxies' distances still need to be confirmed with spectra, but the team expect to get those data in the next few weeks, from as early as 325 million years after the Big Bang. The galaxies are also surprisingly pristine, chemically speaking, lacking in elements heavier than hydrogen and helium.



Astronomy Club Officers



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ACL Webmaster
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(New Zealand)



Club Meeting

Reminder ACL Club meeting March 8th 7:00 PM
Manzanita School Teachers Lounge.
Star Parties (as always weather permitting)

Other Astronomy Club Meetings and links to other sites.

<http://www.centralcoastastronomy.org/>

<https://acl.universeii.com>

[Sunrise and sunset times in Lompoc \(timeanddate.com\)](#)

[Moonrise, Moonset, and Moon Phase in Lompoc \(timeanddate.com\)](#)

[http:// www.sbau.org/#AU_EVENTS_Calendar](http://www.sbau.org/#AU_EVENTS_Calendar)

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

<https://spaceweather.com>

<https://www.space.com>

<https://skymaps.com>

“ Name the Object Quiz”



Answer in April News Letter

ACL Club LOGO

