

Astronomy Club of Lompoc Presents The Sidereal Times



Xmas tree cluster (see page 5)

Meeting News:

At the January ACL meeting we had our New Year Pizza Party at Mi Amore Pizza restaurant, collected some Dues and had a pleasant meal and swapped stories about Astronomy.

Reminder: ACL club meeting Feb 9th will be held at Manzanita School Teachers Lounge 7:00 Pm.



Lunar Calendar

New Moon 9th
Full Moon 24th

In this ACL issue photos depict various functions & activities of the Club. They are in no special order and vary in years since 2012.



Presidents Message

We welcome the new year 2024 with our Astronomy Club of Lompoc! It is starting out as an exciting year with Pizza Party at Mi Amore attended by 10 whom enjoyed wings, pizza, salad, and great conversation! We can look forward to more Space X rocket launches to observe, a solar Eclipse coming up on April 8th, and many new happenings in our Universe to observe or read about. Jana collected dues for the year 2024 at the Pizza Party, and if you could not attend, then please bring your Dues of \$20 to the Feb. meeting or mail it to Jana at 324 North Lupine, Lompoc, Ca 93436.

We had 3 new potential members drive (one from Nipomo) out to Manzanita School looking to attend our January Meeting....and could not understand why we were not there! I feel sorry that we did not think to announce that we would be gone to Mi Amore's on our website. I hope they attend our February Meeting!

Space News: Japan was the 5th country to land on the moon-recently, but unfortunately lost power to the lander, and was not going to be able to finish its mission there. Can you name the other 4 countries that have ever landed on the Moon?

ULA's Vulcan Rocket launched Peregrine-a private moon lander. first since Apollo, and human remains were included, but due to a fuel leak, the rocket did not make it to the Moon, but instead will burn up over the Pacific near late January as it falls back to earth.

The Cosmosphere, a world class Space Museum located in Hutchinson, Kansas is redesigning and renovating its Hall of Space, a series of galleries that contain artifacts from NASA's early rockets and space exploration history.

There has been seen a **new type of light show in the sky**, that are not Auroras, but happen in the same area. They are called "**Steve**" - for **Strong Thermal Emission Velocity Enhancement**. They are seen as picket fence like streaks of purple and white light in the sky.

Hoping to see you at our February Meeting. Keep searching our skies for wonderous objects!

Jana

Events

Feb 3, 10, 17 -Star Party at the Observatory

Feb 9th The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 23:00 UTC. This is the best time of month to observe faint objects such as galaxies and star clusters because there is no Moonlight to interfere.

Feb 24th Full Moon, the Moon will be located on the opposite side of Earth as the Sun and its face will be fully illuminated. This phase occurs at 12:32 UTC. This Full Moon was known by early native American tribes as the Snow Moon because the heaviest snows usually fell during this time of year. Since hunting is difficult this Moon has also been known by some tribes as the Hunger Moon.

The new Storage Shed at the Observatory (Oct 2023)



Star party's and Events

Jan 6, 13, 20 No Star party @ Observatory, weather bad.



February 2024 Moon



Full 24th, New 9th, Last Quarter 2nd, First Quarter 16th.

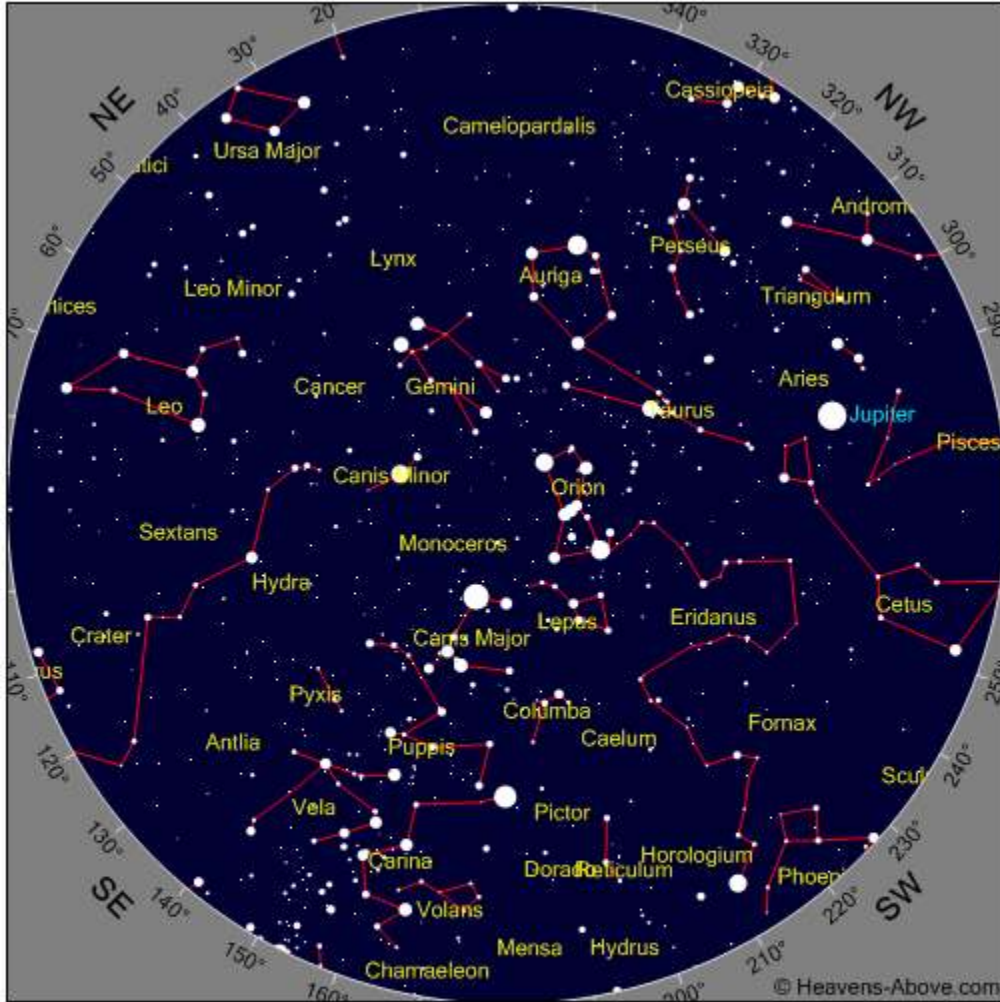
Moon Facts and folk lore

The full Moon on February 24th has been known by some Native American tribes as the Full Hunger Moon since the harsh winter weather made hunting difficult.

Long ago, the Earth's gravitational effects slowed the moon's rotation about its axis. Once the moon's rotation slowed enough to match its orbital period (the time it takes the moon to go around Earth) the effect stabilized. Many of the moons around other planets behave similarly.

February 2024 Sky

Some Objects of interest, M42, M1, Jupiter



Time

Year	2024	Month	2	Day	5	Hour	21	Minute	20
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Photo Courtesy of my Friend Steve



The Christmas Tree Cluster is a young open cluster of stars embedded in a diffuse nebula the constellation Monoceros. It is part of the NGC 2264 region along with the Cone nebula and the Fox Fur Nebula, and belongs to the Monoceros OB1 association, a loose association of very young stars located in the Orion arm of the Milky Way. The cluster was named for its triangular shape formed by a cluster of very young stars that look like a tree in visible light. It is located in the northern part of NGC 2264 Just above the cone nebula. The 7th magnitude member HD 47887 sits just above the tip of the cone and the bright variable star S Monocerotis located slightly to the north and marks the trunk of the Christmas tree. The apex of the tree is located at the Cone nebula. S Monocerotis lie at the base of the cluster and is a bright irregular eruptive variable star that varies from 4.62 to 4.68. It is a multiple star system with a hot massive O-type main sequence dwarf as the primary component. The stars in the cluster were formed recently from the surrounding molecular cloud. The cluster contains more than 600 members that are from 1 to 4 million years old including several dozen OB stars and more than 400 lower mass members.

Right ascension: 06h 40m 58s

Declination: +09° 53' 42"

Apparent magnitude: 3.9

Distance 2600 light years



For What its Worth

Kuiper Belt a brief account

Dr. Mike Brown is a professor of planetary astronomy at Caltech. We asked him to help us explain this unusual region of our solar system. Soon after Pluto was discovered in 1930, astronomers began to theorize that Pluto was not alone in the outer Solar System. In time, they began to postulate the existence of other objects in the region, which they would discover by 1992. In short, the existence of the Kuiper Belt – a large debris field at the edge of the Solar System was theorized before it was ever discovered. The Kuiper Belt (also known as the Edgeworth–Kuiper belt) is a region of the Solar System that exists beyond the eight major planets, extending from the orbit of Neptune (at 30 AU) to approximately 50 AU from the Sun. It is similar to the asteroid belt, in that it contains many small bodies, all remnants from the Solar System's formation but unlike the Asteroid Belt, it is much larger – 20 times as wide and 20 to 200 times as massive: The Kuiper Belt is a collection of bodies outside the orbit of Neptune that, if nothing else had happened, if Neptune hadn't formed or if things had gone a little bit better, maybe they could have gotten together themselves and formed the next planet out beyond Neptune. But instead, in the history of the solar system, when Neptune formed it led to these objects not being able to get together, so it's just this belt of material out beyond Neptune. Shortly after discovery of Pluto, astronomers began to ponder the existence of a Trans-Neptunian population of objects in the outer Solar System. The first to suggest this was Freckrick C. Leonard, who began suggesting the existence of "ultra-Neptunian bodies" beyond Pluto that had simply not been discovered yet. That same year, astronomer Armin O. Leuschner suggested that Pluto "may be one of many long-period planetary objects yet to be discovered." In 1943, in the *Journal of the British Astronomical Association*, Kenneth Edgeworth further expounded on the subject. According to Edgeworth, the material within the primordial solar nebula beyond Neptune was too widely spaced to condense into planets, and so rather condensed into a myriad of smaller bodies. In 1951, in an article for the journal *Astrophysics*, that Dutch astronomer Gerard Kuiper speculated on a similar disc having formed early in the Solar System's evolution. Occasionally one of these objects would wander into the inner Solar System and become a comet. The idea of this "Kuiper Belt" made sense to astronomers. Not only did it help to explain why there were no large planets further out in the Solar System, it also conveniently wrapped up the mystery of where comets came from. A Canadian team of astronomers ran a number of computer simulations and determined that the Oort cloud could not account for all short-period comets, the simulations matched observations. In their 1988 paper, Tremaine and his colleagues referred to the hypothetical region beyond Neptune as the "Kuiper Belt", apparently due to the fact that Fernández used the words "Kuiper" and "comet belt" in the opening sentence of his paper. While this has remained the official name, astronomers sometimes use the alternative name Edgeworth-Kuiper belt to credit Edgeworth for his earlier theoretical work. There have been more than a thousand objects discovered in the Kuiper Belt, and it's theorized that there are as many as 100,000 objects larger than 100 km in diameter. Given to their small size and extreme distance from Earth, the chemical makeup of KBOs is very difficult to determine. However, spectrographic studies conducted of the region since its discovery have generally indicated that its members are primarily composed of ices: a mixture of light hydrocarbons (such as methane), ammonia, and water ice – a composition they share with comets. Initial studies also confirmed a broad range of colors among KBOs, ranging from neutral grey to deep red. This suggests that their surfaces are composed of a wide range of compounds, from dirty ices to hydrocarbons. In 1996, Robert H. Brown et al. obtained spectroscopic data on the KBO 1993 SC, revealing its surface composition to be markedly similar to that of Pluto, as well as Neptune's moon Triton, possessing large amounts of methane ice. Water ice has been detected in several KBOs, including 1996 TO66, 38628 Huya and 20000 Varuna. In 2004, Mike Brown et al. determined the existence of crystalline water ice and ammonia hydrate on one of the largest known KBOs, 50000 Quaoar. Both of these substances would have been destroyed over the age of the Solar System, suggesting that Quaoar had been recently resurfaced, either by internal tectonic activity or by meteorite impacts. The fact that surveys of other solar systems indicate that our Solar System isn't unique. Since 2006, there have been other "Kuiper Belts" (i.e. icy debris belts) discovered around nine other star systems. These appear to fall into two categories: wide belts, with radii of over 50 AU, and narrow belts (like our own Kuiper Belt) with radii of between 20 and 30 AU and relatively sharp boundaries. According to infrared surveys, an estimated 15-20% of solar-type stars are believed to have massive Kuiper-Belt-like structures. Most of these appear to be fairly young, but two star systems – HD 139664 and HD 53143, which were observed by the Hubble Space Telescope in 2006 – are estimated to be 300 million years old. Vast and unexplored, the Kuiper Belt is the source of many comets, and is believed to be the point of origin for all periodic or short-period comet (i.e. ones with an orbit lasting 200 years or less). The most famous of these is Halley's Comet, which has been active for the past 16,000–200,000 years. We call it a belt, but it's a very wide belt. It's something like 45 degrees in extent across the sky – this big swath of material that's just been churned and churned by Neptune. And these days, instead of making a bigger and bigger body, they're just colliding and slowly grinding down into dust. If we come back in another hundred million years, there'll be no Kuiper Belt left.



Astronomy Club Officers



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Jana Hunking

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ACL Support Personnel

ACL News letter Editor
Serf / Minion Vahan Yeterian



ACL Webmaster
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(New Zealand)



Club Meeting

Reminder Club meeting Feb 9th 7:00 Pm
Manzanita School Teachers lounge.

Star Parties (as always weather permitting)

Other clubs and sites

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

[Astronomy Club of Lompoc \(ACL\) \(universeii.com\)](http://www.universeii.com/)

[Sunrise and sunset times in Lompoc \(timeanddate.com\)](http://www.timeanddate.com/)

[Moonrise, Moonset, and Moon Phase in Lompoc \(timeanddate.com\)](http://www.timeanddate.com/)

[http:// www.sbau.org/#AU EVENTS Calendar](http://www.sbau.org/#AU_EVENTS)

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

<https://spaceweather.com>

<https://www.space.com>

<https://skymaps.com>

*“Astronomy compels the soul to look upward,
and leads us from this world to another”.*

ACL Club Logo

