

Skywatchers

Newsletter of the China Lake Astronomical Society

Volume 57 No. 08

July 31, 2020

NEXT MEETING 7:30 p.m., Monday, Aug 03, 2020

~~Maturango Museum, 100 East Las Flores Avenue, Ridgecrest, California.~~

PROGRAM FOR THE Aug 03, 2020 7:30 PM MEETING

For our first meeting since March Keith Weisz (Vice President) will have a program on work he has been doing regarding "The Earthquake". Because of family events he may not be able to do it and that is where our membership comes in. Most of you have been watching or photographing Comet Neowise and if possible could you please send in images you may have acquired and talk about your experiences. In addition we would like to have some input on what we might want to do for club activities in the future.

Please send your images to ghodkinson@sbcglobal.com

George Hodgkinson is inviting you to a scheduled Zoom meeting.

Topic: China Lake Astronomical Society

Time: Aug 3, 2020 7:30 PM Pacific Time (US and Canada)

Join Zoom Meeting

<https://us02web.zoom.us/j/86928105798?pwd=RIVSNVhTd1dTeVhEQlpEeWxJSVhUT09>

Meeting ID: 869 2810 5798

Passcode: 852674

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+1 312 626 6799 US (Chicago)

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Meeting ID: 869 2810 5798

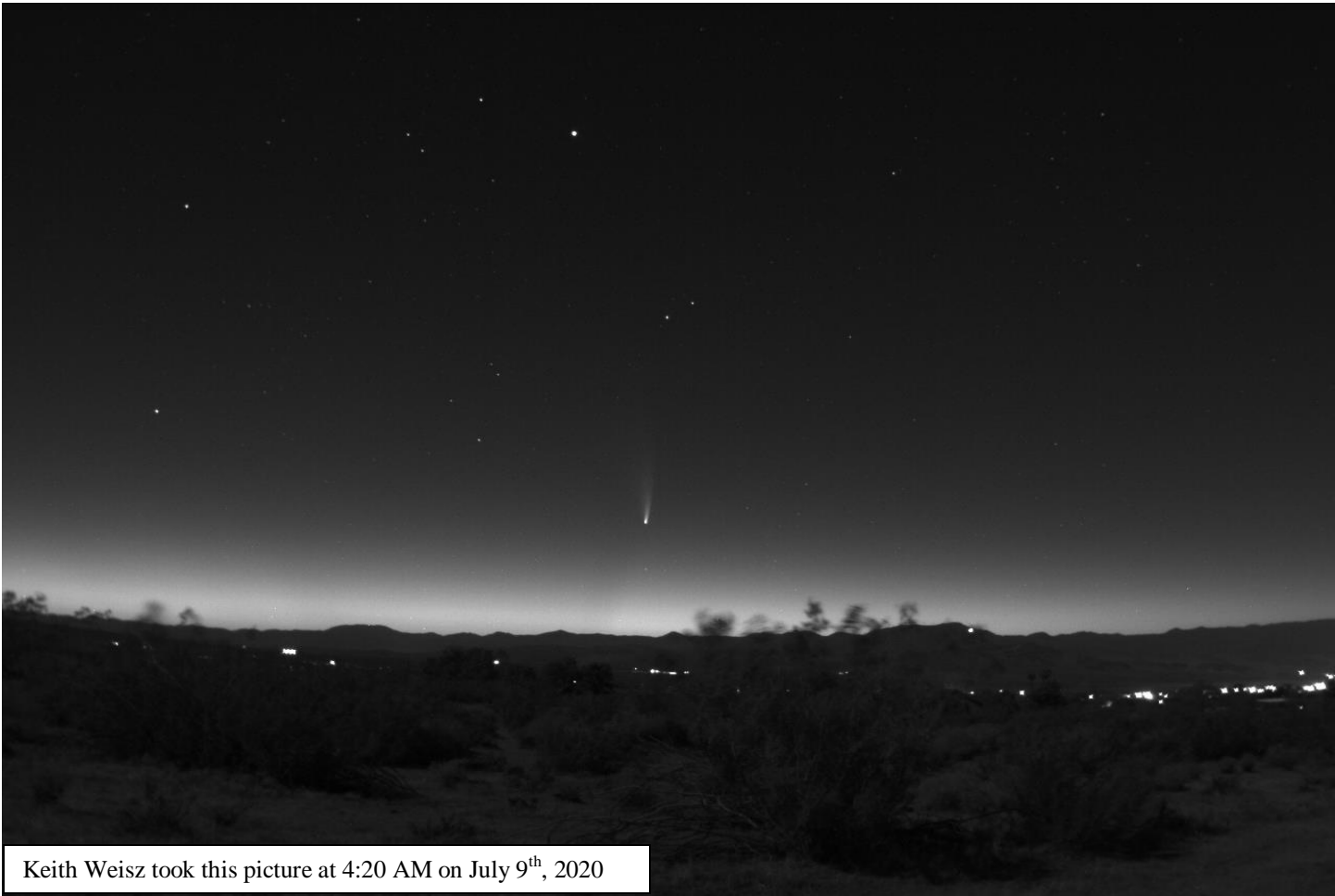
Passcode: 852674

Find your local number: <https://us02web.zoom.us/j/86928105798?pwd=RIVSNVhTd1dTeVhEQlpEeWxJSVhUT09>

This picture was taken by our past CLAS President David Gregg. He used a 230 mm lens @ f 6.3 for one exposure of 6 sec with no tracking. The location was in Lockwood Valley at the Polaris Astronomy Club site on July 16th.



Taken from a dark area in the Inyo Mountains N of Hwy 190 and S of Saline Valley. Combination of 24 exposures (90 sec each) on a sky tracker, processed in PixInsight to remove trailing. Canon EOS 6D + 135mm lens, ISO 3200. I was surprised at how much of the dust tail shows up in this long exposure (36 min total). July 22, 2020. Ralph Paonessa



Keith Weisz took this picture at 4:20 AM on July 9th, 2020



Chris Watson July 16th, 2020

@C4EXPOSURES

Please go to the following link for updates on Comet Neowise, Comet Lemmon, Comet Swan, Pan-STARRS, Encke, & Howell.

<https://www.calsky.com/cs.cgi?cha=8&sec=3>

STAR PARTY SCHEDULE FOR THE 2020 SEASON:

Star Parties will be held on the dates listed below. Star Parties are an activity where members and guests come together to view the skies. If you have a telescope, bring it; if not, come and look through someone else's. They are held at a site in the open desert south of Ridgecrest. To reach the site from Ridgecrest, go south on China Lake Boulevard 6.5 miles from its intersection with Ridgecrest Boulevard. Continue straight across Highway 395 and you will be on Brown Road (Old Highway 395). Follow Brown Road as it curves to the right and goes west. After 2.3 miles, there will be a 30-inch orange cone on the left. Turn left and follow the dirt road marked by 12-inch cones. The CLAS star party is south 0.5 mile along this road. Signs and cones will be put out about a half hour before viewing starts. All viewing is weather dependent.

Call Roger Brower 760-446-0454, 760-677-1143 or Keith Weisz 760-375-9114, for more information.

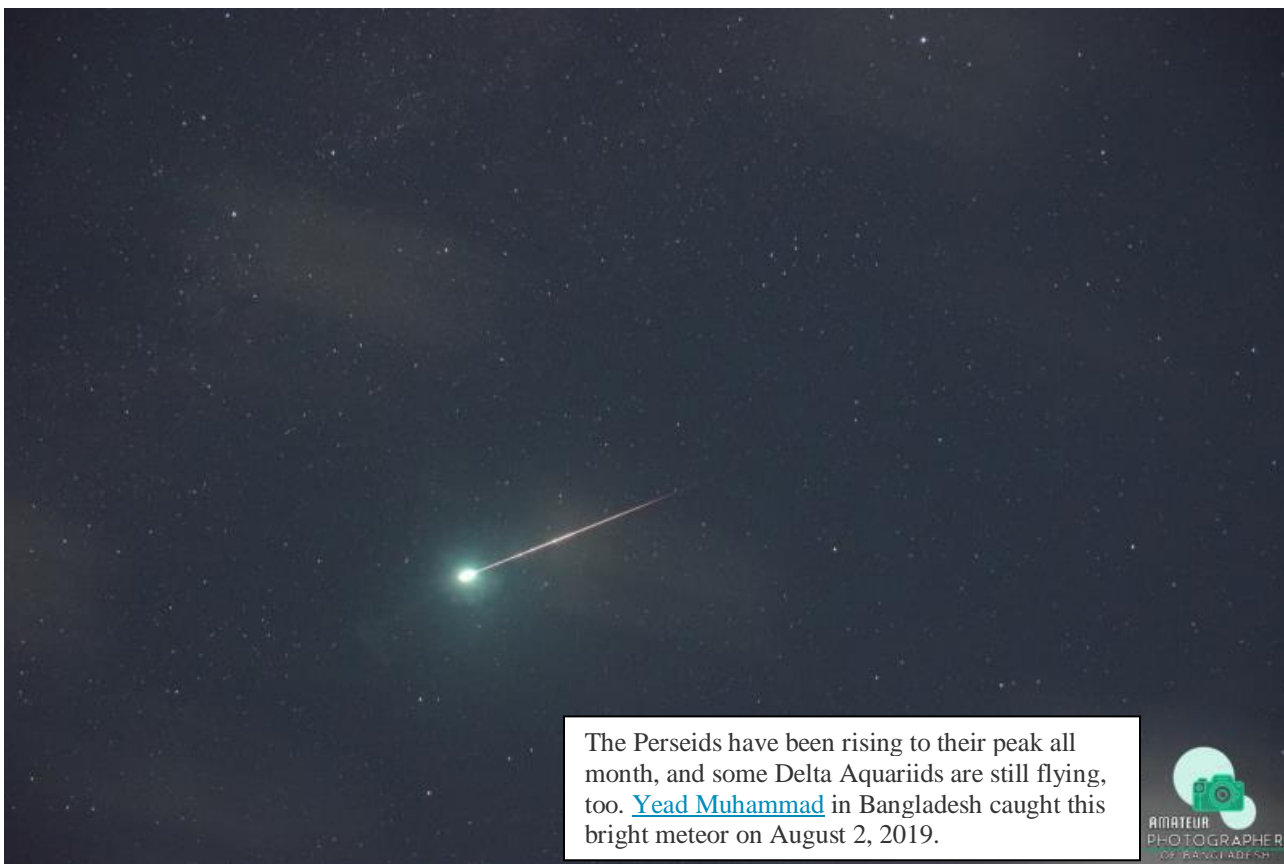
The star party for August has been cancelled due to the need to share equipment. Star parties for the future have also been cancelled until further notice.

Fri,	Aug 21st	Signs out at 8:00 p.m., Star viewing at 8:30 p.m. (New Moon +2 days) (TBA)
Fri,	Sept 18th	Signs out at 7:00 p.m., Star viewing at 7:30 p.m (New Moon + 1 Day) (TBA)
Sat,	Sept 19th	Red Rock Canyon – Visitors Center, Star viewing at Sundown(TBA)
Sat,	Oct 10th	Red Rock Canyon – Visitors Center, Star viewing at Sundown (TBA)
Fri,	Oct 16th	Signs out at 6:30 p.m., Star viewing at 7:00 p.m. (New Moon) (TBA)
Sat,	Oct 17th	Red Rock Canyon – Visitors Center, Star viewing at Sundown (TBA)
Sat,	Nov 07th	Red Rock Canyon – Visitors Center, Star viewing at Sundown (TBA)
Fri,	Nov 13th	Signs out at 6:00 p.m., Star viewing at 6:30 p.m. (New Moon – 2 days) (TBA)
Sat,	Nov 14th	Red Rock Canyon – Visitors Center, Star viewing at Sundown (TBA)

Next CLAS Meeting: September 13th, 2020 at 7:30 PM.

Perseid meteors 2020: All you need to know

Posted by Bruce McClure and Deborah Byrd in ASTRONOMY ESSENTIALS



The Perseids have been rising to their peak all month, and some Delta Aquariids are still flying, too. [Yead Muhammad](#) in Bangladesh caught this bright meteor on August 2, 2019.



The annual Perseid meteor shower is one of the most beloved meteor showers of the year, especially in the Northern Hemisphere, where the shower peaks on warm *summer* nights. No matter where you live worldwide, the 2020 Perseid meteor shower will probably produce the greatest number of meteors on the mornings of August 11, 12 and 13. On the peak mornings in 2020, the moon will be at or slightly past its last quarter phase, so moonlight will somewhat mar this year's production. But the Perseids tend to be bright, and a good percentage of them should be able to overcome the moonlight. Who knows? You still might see up to 40 to 50 meteors per hour at the shower's peak. Visit the [Sunrise Sunset Calendars site](#) to find out when the moon sets in your sky, remembering to check the *moonrise and moonset* box. People tend to focus on the peak mornings of meteor showers, and that's entirely appropriate. But meteors in annual showers – which come from streams of debris left behind in space by comets – typically last weeks, not days. Perseid meteors have been streaking across our skies since around July 17. We'll see Perseids for 10 days or so after the peak mornings on August 11, 12 and 13, though at considerably reduced numbers. Yet, each day as the moon wanes in the morning sky, less moonlight will obtrude on the show. Starting on or around August 17, moon-free skies reign all night long. Also remember, the [the Delta Aquariid meteor shower](#) is still rambling along steadily. You'll see mostly Perseids, but also some Delta Aquariids in the mix. There's an explanation of how to tell the difference toward the bottom of [this article](#). In the Northern Hemisphere, we rank the August Perseids as an all-time favorite meteor shower of every year. For us, this major shower takes place during the lazy, hazy days of summer, when many families are on vacation. And what could be more luxurious than taking a siesta in the heat of the day and watching this summertime classic in the relative coolness of night? *Don't rule out early evenings, either*. In a typical year, although the meteor numbers increase after midnight, the Perseid meteors still start to fly at mid-to-late evening from northerly latitudes. South of the equator, the Perseids start to streak the sky around midnight. If fortune smiles upon you, the evening hours might offer you an *earthgrazer* – a loooooong, slow, colorful meteor traveling horizontally across the evening sky. Earthgrazer meteors are rare but memorable. Perseid earthgrazers appear before midnight, when the radiant point of the shower is close to the horizon. **What is the radiant point for the Perseid meteor shower?** If you trace all the Perseid meteors backward, they all seem to come from the constellation Perseus, near the famous Double Cluster. Hence, the meteor shower is named in the honor of the constellation Perseus the Hero. However, this is a chance alignment of the meteor shower radiant with the constellation Perseus. The stars in Perseus are [light-years](#) distant while these meteors burn up about 60 miles (100 km) above the Earth's surface. If any meteor survives its fiery plunge to hit the ground intact, the remaining portion is called a meteorite. Few – if any – meteors in meteor showers become meteorites, however, because of the flimsy nature of comet debris. Most meteorites are the remains of asteroids.

In ancient Greek star lore, Perseus is the son of the god Zeus and the mortal Danaë. It is said that the Perseid shower commemorates the time when Zeus visited Danaë, the mother of Perseus, in a shower of gold. **General rules for Perseid-watching.** No special equipment, or knowledge of the constellations, needed. *Find a [dark, open sky](#) to enjoy the show. An open sky is essential because these meteors fly across the sky in many different directions and in front of numerous constellations. Give yourself at least an hour of observing time, because the meteors in meteor showers come in spurts and are interspersed with lulls. Remember, your eyes can take as long as 20 minutes to adapt to the darkness of night. So don't rush the process. Know that the meteors all come from a single point in the sky. If you trace the paths of the Perseid meteors backwards, you'd find they all come from a point in front of the constellation Perseus. Don't worry about which stars are Perseus. Just enjoying knowing and observing that they all come from one place on the sky's dome. Enjoy the comfort of a reclining lawn chair. Bring along some other things you might enjoy also, like a thermos filled with a hot drink. Remember ... all good things come to those who wait. Meteors are part of nature. There's no way to predict exactly how many you'll see on any given night. Find a good spot, watch, wait. You'll see some. What's the source of the Perseid meteor shower?* Every year, from around July 17 to August 24, our planet Earth crosses the orbital path of Comet Swift-Tuttle, the parent of the Perseid meteor shower. Debris from this comet litters the comet's orbit, but we don't really get into the thick of the comet rubble until after the first week of August. The bits and pieces from Comet Swift-Tuttle slam into the Earth's upper atmosphere at some 130,000 miles (210,000 km) per hour, lighting up the nighttime with fast-moving Perseid meteors. If our planet happens to pass through an unusually dense clump of *meteoroids* – comet rubble – we'll see an elevated number of meteors. We can always hope! Comet Swift-Tuttle has a very *eccentric* – oblong – orbit that takes this comet outside the orbit of Pluto when farthest from the sun, and inside the Earth's orbit when closest to the sun. It orbits the sun in a period of about 133 years. Every time this comet passes through the inner solar system, the sun warms and softens up the ices in the comet, causing it to release fresh comet material into its orbital stream.

Comet Swift-Tuttle last reached *perihelion* – closest point to the sun – in December 1992 and will do so next in July 2126.

Bottom line: The 2020 Perseid meteor shower is expected to produce the most meteors in the predawn hours of August 11, 12 and 13, though under the light of a moon at or just past first quarter phase.



Source: <https://earthsky.org/?p=165416>

The star cluster closest to Earth is in its death throes

Stars in the Hyades are moving so fast it will disintegrate in 30 million years



By [Ken Crowell](#)

JULY 24, 2020 AT 8:00 AM

The closest cluster of stars to Earth is falling apart and will soon die, astronomers say.

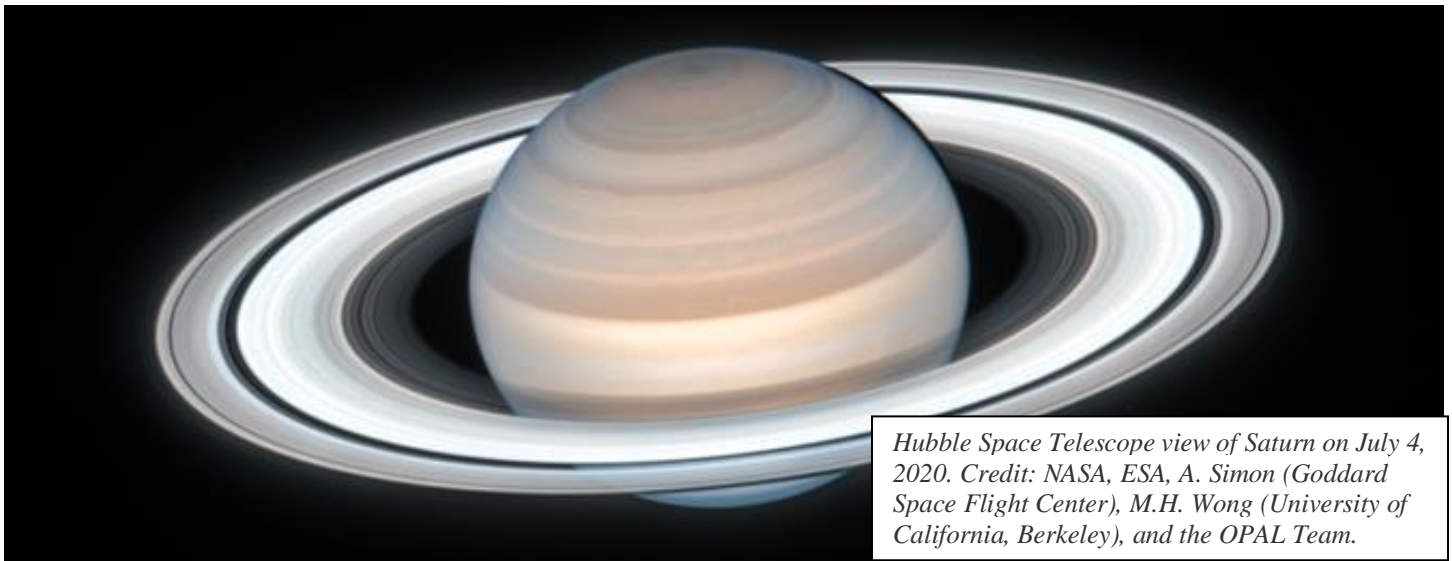
Using the Gaia spacecraft to measure velocities of stars in the Hyades cluster and those escaping from it, researchers have [predicted the cluster's demise](#). “We find that there’s only something like 30 million years left for the cluster to lose its mass completely,” says Semyeong Oh, an astronomer at the University of Cambridge.

“Compared to the Hyades’ age, that’s very short,” she says. The star cluster, just 150 light-years away and visible to the naked eye in the constellation Taurus, formed about 680 million years ago from a large cloud of gas and dust in the Milky Way. Stellar gatherings such as the Hyades, known as open star clusters, are born with hundreds or thousands of stars that are held close to one another by their mutual gravitational pull. But numerous forces try to tear them apart: Supernova explosions from the most massive stars eject material that had been binding the cluster together; large clouds of gas pass near the cluster and yank stars out of it; the stars themselves interact with one another and jettison the least massive ones; and the gravitational pull of the whole Milky Way galaxy lures stars away too. As a result, open star clusters rarely reach their billionth birthday. The Hyades has survived longer than many of its peers. But astronomers first saw signs of trouble there in 2018, when teams in [Germany](#) and [Austria](#) independently used the European Space Agency’s Gaia space observatory to find numerous stars that had escaped the cluster. These departing stars form two long tails on opposite sides of the Hyades — the first ever seen near an open star cluster. Each stellar tail stretches hundreds of light-years and dwarfs the cluster itself, which is about 65 light-years across. In the new work, posted July 6 at arXiv.org, Oh and Cambridge colleague N. Wyn Evans analyzed how the cluster has lost stars over its life. It was born with about 1,200 solar masses but now has only 300 solar masses left. In fact, the two tails of escapees possess more stars than does the cluster. And the more stars the cluster loses, the less gravity it has to hold on to its remaining members, which leads to the escape of additional stars, exacerbating the cluster’s predicament. Siegfried Röser, an astronomer at Heidelberg University in Germany who led one of the two teams that discovered the cluster’s tails, agrees that the Hyades is in its sunset years. But he worries that it’s too early to pin a precise date on the funeral. “That seems to be a little bit risky to say,” Röser says. Running a computer

simulation with the stars' masses, positions and velocities should better show what will happen in the future, he says. The main culprit behind the cluster's coming demise, Oh says, is the Milky Way. Just as the moon causes tides on Earth, lifting the seas on both the side facing the moon and the side facing away, so the galaxy exerts tides on the Hyades: The Milky Way pulls stars out of the side of the cluster that faces the galactic center as well as the cluster's far side. Even millions of years after the cluster disintegrates, its stars will continue to drift through space with similar positions and velocities, like parachutists jumping out of the same airplane. "It's still probably going to be detectable as a coherent structure in position-velocity space," Oh says, but the stars will be so spread out from one another that they will no longer constitute a star cluster.

Source: <https://www.sciencenews.org/article/hyades-star-cluster-closest-earth-death-throes>

Hubble Shows Saturn in the Middle of its Summer



Hubble Space Telescope view of Saturn on July 4, 2020. Credit: NASA, ESA, A. Simon (Goddard Space Flight Center), M.H. Wong (University of California, Berkeley), and the OPAL Team.

If you want an iconic picture of the planet Saturn, it doesn't get any better than this. The latest picture from the Hubble Space Telescope shows a spectacular view of the ringed giant, taken on July 4, 2020. This shows a "summertime" view of Saturn's northern hemisphere. Just like Earth, Saturn is tilted on its axis and so it goes through seasons. In fact, the amount of tilt is approximately the same for both worlds: Earth's axial tilt is 23.5° and Saturn's is 26.7° . But years and seasons stretch out much longer on Saturn. A Saturnian year lasts 29.5 Earth years, and summer on Saturn lasts about 8 Earth years. The current summer season on Saturn began in May of 2017, so any northern hemispherians on the ringed planet still have a lot of summer fun to look forward to. Here on Earth, we're in the midst of the "dog days" of summer – the hot, sultry part of the summer, named for the time when Sirius, the Dog Star, rises at the same time as the Sun (usually about July 3 to August 11), "a period marked by lethargy, inactivity, or indolence." When Saturn is tilted like this, we can get a great view of the planet's stunning rings. The rings are visible even through a small telescope. For me, seeing Saturn through a telescope is what got me hooked on observing. Hubble's image shows multiple banded cloud activity, due to the warming in by direct summer sunlight. Also visible are a number of small atmospheric storms, which are seasonal transient features that astronomers and atmospheric enthusiasts love to monitor, tracking shifting weather patterns and storms. NASA noted that the banding and storms remain pronounced as seen in Hubble's 2019 observations, with several bands slightly changing color from year to year. Saturn's atmosphere is mostly hydrogen and helium with traces of ammonia, methane, water vapor, and hydrocarbons that give it a yellowish-brown color. You also may notice a slight reddish haze over the northern hemisphere. Amy Simon of NASA's Goddard Space Flight Center in Greenbelt, Maryland says this may be due to heating from increased sunlight, which could either change the atmospheric circulation, or perhaps it remove ices from aerosols in the atmosphere. Another theory is that the increased sunlight in the summer months is changing the amounts of photochemical haze produced. "It's amazing that even over a few years, we're seeing seasonal changes on Saturn," said Simon. This image is taken when Saturn was 839 million miles from Earth, as part of the Outer Planets Atmospheres Legacy (OPAL) project. OPAL is helping scientists understand the atmospheric dynamics and evolution of our solar system's gas giant planets. For additional info on this image and on the Hubble Space Telescope, visit NASA's HubbleSite. Source: <https://www.universetoday.com/147204/hubble-shows-saturn-in-the-middle-of-its-summer/#more-147204>

August Celestial Calendar

1. Venus is in the morning sky this month where it will be visible in the east before sunrise.
2. Mercury moves to the morning sky this month where it can be seen in the northeast the first few days of the month.
3. Jupiter and Saturn are in the evening sky all month where they can be seen close together in the southeast after the sun sets.
4. Mars rises in the east around midnight this month and can be seen moving to the south as the night progresses.
5. The Perseid meteor shower peaks on the night of August 12th.

August 2	Jupiter 1.5° North of Moon Saturn 2.0° North of Moon
August 3	Full Moon
August 9	Mars 0.8° North of Moon
August 9	<i>Mars Occultation Visible in South America</i>
August 10	Uranus 4° North of Moon
August 11	Last Quarter Moon
August 12	<u>Perseid Meteors Peak Wed 13 hrs U.T.</u>
August 13	Venus at Greatest Western Elongation (46°)
August 15	Double Shadow Transit on Jupiter
August 15	Venus 4° South of Moon
August 19	New Moon
August 22	Double Shadow Transit on Jupiter
August 25	First Quarter
August 28	Ceres at Opposition
August 29	Jupiter 1.4° North of Moon
August 29	Saturn 2° North of Moon

Roger Brower

2020 ROYAL ASTRONOMICAL SOCIETY HANDBOOKS AND CALENDARS

The group rate price for a single copy if you buy in person from CLAS is \$27.00 for the handbook and \$10.00 for the calendar. Calendar and Handbook are sold together for the combined price of \$35.00. **Available NOW.**

MEMBERSHIP INFORMATION

Basic CLAS dues are \$25.00 per year - due in January. Students and Skywatchers Newsletter are **FREE**. Members also receive discounted rates for Astronomy Magazine and /or Sky and Telescope Magazine.

The fee schedule is as follows: Verify current magazine prices with Roger!

Basic membership \$25.00 per year.

Membership with Astronomy magazine is \$59.00 per year.

Membership with Sky and Telescope magazine is \$58.00 per year.

Membership with both S & T and Astronomy is \$92.00 per year.

Send your Check or Money Order to:

Roger Brower, Treasurer, China Lake Astronomical Society, P.O. Box 1783, Ridgecrest, CA 93556.

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NEWSLETTER EDITOR – Ted Hodgkinson – 661-754-0561 (email ghodkinson@sbcglobal.net)

Meetings of the China Lake Astronomical Society are held at the Maturango Museum at 7:30 p.m. on the first Monday evening of each month, except when the first Monday is a holiday.

WESTERN AMATEUR ASTRONOMERS WEB SITE <http://www.waa.av.org/>
New! CHINA LAKE ASTRONOMICAL SOCIETY WEB SITE <http://chinalakeastro.org/>