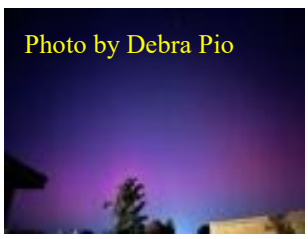
Volume 61, No. 06 May 29 2024 Pg 1

Skywatchers

Newsletter of the China Lake Astronomical Society

JUNE 03, 2024 CLAS MEETING 7:30

INSIDE THIS ISSUE:



Monday, June 3, 2024 7:00 PM

June Meeting & Program

Refreshments: 7:00 P.M

Program: 7:45

Keith Weisz

The Great Aurora of May 10, 2024

We will share images and experiences of sighting the historic Aurora Borealis visible from our area on May 10. Bring your images (USB stick) and your stories!

Moderated by Vice President Keith Weisz.

Location

Maturango Museum

Meetings and programs are open to the public, and are held at Maturango Museum on the first Monday of every month (or the following Monday for holidays).

China Lake Astronomical Society

Membership or Renewal 2024

Name:_____

Address:_____

City, State, Zip:_____

Phone:_____Email:_____

Yearly Membership $ 25 (*due in January*) Family $ 40 Youth 18 & under $ 10.
Checks or Money Orders accepted _____

Contact Roger Brower 760-446-0454 (email brower@iwvisp.com)

Make Checks or Money Orders Payable to China Lake Astronomical Society.(CLAS)

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

Photo by Ralph Paonessa May 10th, 2024

Keith Weisz from Ridgecrest looking west plus meteor

Alexis Svejda Red Rock Canyon May 10th, 2024

NASA's James Webb Space Telescope finds most distant known galaxy

Over the last two years, scientists have used NASA's James Webb Space Telescope to explore what astronomers refer to as Cosmic Dawn -- the period in the first few hundred million years after the big bang where the first galaxies were born.

Over the last two years, scientists have used NASA's James Webb Space Telescope (also called Webb or JWST) to explore what astronomers refer to as Cosmic Dawn -- the period in the first few hundred million years after the big bang where the first galaxies were born. These galaxies provide vital insight into the ways in which the gas, stars, and black holes were changing when the universe was very young. In October 2023 and January 2024, an international team of astronomers used Webb to observe galaxies as part of the JWST Advanced Deep Extragalactic Survey (JADES) program. Using Webb's NIRSpec (Near-Infrared Spectrograph), they obtained a spectrum of a record-breaking galaxy observed only two hundred and ninety million years after the big bang. This corresponds to a redshift of about 14, which is a measure of how much a galaxy's light is stretched by the expansion

"In January 2024, NIRSpec observed this galaxy, JADES-GS-z14-0, for almost ten hours, and when the spectrum was first processed, there was unambiguous evidence that the galaxy was indeed at a redshift of 14.32, shattering the previous most-distant galaxy record (z = 13.2 of JADES-GS-z13-0). Seeing this spectrum was incredibly exciting for the whole team, given the mystery surrounding the source. This discovery was not just a new distance record for our team; the most important aspect of JADES-GS-z14-0 was that at this distance, we know that this galaxy must be intrinsically *very* luminous. From the images, the source is found to be over 1,600-light years across, proving that the light we see is coming mostly from young stars and not from emission near a growing supermassive black hole. This much starlight implies that the galaxy is several hundreds of millions of times the mass of the Sun! This raises the question: How can nature make such a bright, massive, and large galaxy in less than 300 million years?

"The data reveal other important aspects of this astonishing galaxy. We see that the color of the galaxy is not as blue as it could be, indicating that some of the light is reddened by dust, even at these very early times. JADES researcher Jake Helton of Steward Observatory and the University of Arizona also identified that JADES-GS-z14-0 was detected at longer wavelengths with Webb's MIRI (Mid-Infrared Instrument), a remarkable achievement considering its distance.

The MIRI observation covers wavelengths of light that were emitted in the visible-light range, which are redshifted out of reach for Webb's near-infrared instruments.

of the universe. Stefano Carniani from Scuola Normale Superiore in Pisa, Italy, and Kevin Hainline from the University of Arizona in Tucson, Arizona were invited to tell more about how this source was found and what its unique properties tell us about galaxy formation. "The instruments on Webb were designed to find and understand the earliest galaxies, and in the first year of observations as part of the JWST Advanced Deep Extragalactic Survey (JADES), we found many hundreds of candidate galaxies from the first 650 million years after the big bang. In early 2023, we discovered a galaxy in our data that had strong evidence of being above a redshift of 14, which was very exciting, but there were some properties of the source that made us wary.

The source was surprisingly bright, which we wouldn't expect for such a distant galaxy, and it was very close to another galaxy such that the two appeared to be part of one larger object. When we observed the source again in October 2023 as part of the JADES Origins Field, new imaging data obtained with Webb's narrower NIRCam (Near-Infrared Camera) filters pointed even more toward the high-redshift hypothesis. We knew we needed a spectrum, as whatever we would learn would be of immense scientific importance, e ither as a new milestone in Webb's investigation of the early universe or as a confounding oddball of a middle-aged galaxy.

Jake's analysis indicates that the brightness of the source implied by the MIRI observation is above what would be extrapolated from the measurements by the other Webb instruments, indicating the presence of strong ionized gas emission in the galaxy in the form of bright emission lines from hydrogen and oxygen. The presence of oxygen so early in the life of this galaxy is a surprise and suggests that multiple generations of very massive stars had already lived their lives before we observed the galaxy.

"All of these observations, together, tell us that JADES-GS-z14-0 is not like the types of galaxies that have been predicted by theoretical models and computer simulations to exist in the very early universe. Given the observed brightness of the source, we can forecast how it might grow over cosmic time, and so far we have not found any suitable analogs from the hundreds of other galaxies we've observed at high redshift in our survey. Given the relatively small region of the sky that we searched to find JADES-GS-z14-0, its discovery has profound implications for the predicted number of bright galaxies we see in the early universe, as discussed in another concurrent JADES study (Robertson et al., recently accepted). It is likely that astronomers will find many such luminous galaxies, possibly at even earlier times, over the next decade with Webb. We're thrilled to see the extraordinary diversity of galaxies that existed at Cosmic Dawn!"

Source: NASA/Goddard Space Flight Center

May 30, 2024

NASA's James Webb Space Telescope finds most distant known galaxy | ScienceDaily

SKYWATCHER'S NEWSLETTER

28 May 1984

P. O. Box 1783
Ridgecrest, California 93555

OF THE CHINA LAKE ASTRONOMICAL SOCIETY

* * *

NEXT MEETING

Monday, June 4, 1984

7:30 p.m.

Kern County Library
131 East Las Flores
Ridgecrest, California

PROGRAM FOR JUNE 4 MEETING

JIM MCMAHON WILL PRESENT SPECTACULAR NASA SPACECRAFT SLIDES OF THE PLANETS MERCURY, VENUS, MARS, JUPITER AND SATURN.

At the regular CLAS meeting on Monday, June 4, CLAS member Jim McMahon will make a slide presentation entitled "New Views of Old Planets: The Second Revolution in Planetary Astronomy." The specially selected slides will give views of the planets Mercury, Venus, Mars, Jupiter, and Saturn which were obtained by NASA spacecrafts Mariner 10, Vikings 1 and 2, and Voyagers 1 and 2. These explorations constituted the second revolution in planetary astronomy. The first revolution began almost four hundred years ago at the time of the invention of the telescope.

-- RH and JHM

DATES TO KEEP IN MIND

Monday, June 4:	- Regular CLAS meeting at Ridgecrest library.
Saturday, June 30:	- CLAS FIELD TRIP to Stony Ridge Observatory for night of viewing through 30-inch Newtonian telescope. (See announcement below.)
Monday, July 2:	- Regular CLAS meeting at Ridgecrest library.
Saturday-Thursday, July 7-12:	- Joint convention of WAA, AANC, and ASP at University of California at Santa Cruz. Pick up registration forms at meeting on June 4. See detailed announcement in Skywatcher's Newsletter dated 30 April 1984.

CLAS FIELD TRIP

TO OBSERVE THROUGH 30-INCH REFLECTOR
AT STONY RIDGE OBSERVATORY
ON SATURDAY, JUNE 30, 1984

The China Lake Astronomical Society has made many field trips to astronomical observatories. Among them we have seen three telescopes each of which was the largest in the world at the time of its completion. However, on none of these earlier field trips have we seen through any of these telescopes at night! Now we have planned a field trip for the very purpose of having a night of viewing through a large telescope! It is the 30-inch reflector at the Stony Ridge Observatory in the San Gabriel Mountains.

Special Star Party Invitation

Sultan Randy "R Dub!" Williams, leader of the micronation, The United Territories of The Sovereign Nation of The People's Republic of Slowjamastan, (www.slowjamastan.org) invites you to visit our beloved nation on August 30 and 31, 2024, Labor Day weekend for a Star Party. We are located 11.07 acres of land, parallel to California State Route 78, between the American towns of Ocotillo Wells and Westmorland. Our exact location is **33.125901, -115.958612**. You will not be able to miss our signs.

As we are outside of Borrego Springs, we feature the darkest skies in the west! With an 11.3% moon rising at 3:42 am on the 30th and a 5.6% moon rising at 4:41 on the 31st, there will be galaxies galore! Bring your telescope. Whether you have a 50mm Galileoscope or a fast yard scope, seeing will be limited by your telescope, not the skies! As a telescope maker with an organization headquartered in Vermont, I have a special place in my heart for telescopes that you have made with your own hands. If you have one, please bring it!

Slowjamastan is rural. There are no facilities, such as electricity, or restroom facilities available on site. This is a double-edged sword; no facilities mean no light pollution.

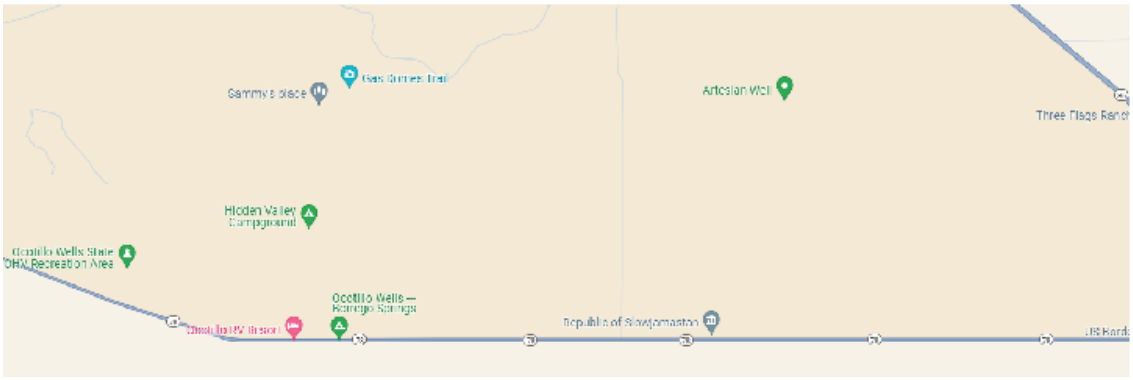
Camping is welcome as are recreational vehicles, however please RSVP with me first to ensure we have room for you. Please help keep Slowjamastan clean. There are also numerous lodging choices nearby, including RV parks just minutes away and numerous hotels and Airbnbs in Borrego Springs.

The weather during the day is expected to be hot. Evenings are usually in the seventies in late August but be prepared for all eventualities. One of the nice things about being in the desert is if you don't like the weather, wait twenty minutes. It will be fine again. Visitors assume all risk of injury or other loss and liability which may be occasioned.

Dark sky protocols will be observed.

Please RSVP to this email address. Include the number in your party.

Clear and Dark skies!
Francis J. O'Reilly
Minister of Astronomy



June DAILY CELESTIAL CALENDAR

2 The Moon is at perigee (228,728 miles from Earth), 0:16 A.M. PST

2 The Moon passes 2.0 deg north of Mars, 5 P.M. PST

4 Mercury passes 0.1 deg south of Jupiter, 3 A.M. PST

4 Venus is in superior conjunction 9:00 A.M. PST

4 The Moon passes 4.0 deg north of Uranus, 6 P.M. PST.

5 The Moon passes 5 deg north of Jupiter 7:00 A.M. PST

6 New Moon occurs at 5:38 A.M. PST

13 The Moon passes 0.5 deg south of Asteroid Juno 2:00 A.M. PST

13 First Quarter Moon occurs at 10:18 P.M. PST

14 The Moon is at apogee (251,082 miles from Earth), 6:35 A.M. PST

14 Mercury is in superior conjunction 10:00 A.M. PST

16 The Moon passes 1.2 deg north of Spica, 11:00 A.M. PST

20 The Moon passes 0.3 deg north of Antares, 4:00 A.M. PST

20 Moon near Beehive Cluster.

20 Summer Solstice occurs at 1:51 P.M. PST

21 Full Moon occurs at 6:08 A.M. PST

22 The Moon passes 1.0 deg north of dwarf planet Ceres 10:00 P.M. PST

27 The Moon is at perigee (229,464 miles from Earth), 4:30 A.M. PST

27 The Moon passes 0.08 deg north of Saturn, 8:00 A.M. PST

28 The Moon passes 0.3 deg north of Neptune 2:00 A.M. PST

28 Last Quarter Moon occurs at 2:53 P.M. PST

29 Mercury passes 5 deg south of Pollux, 3:00 A.M. PST

30 Saturn is Stationary, 2:00 P.M. PST

ASTRONOMY COLUMN

June EVENTS:

1. The next club meeting on 3rd in the Maturango Museum at 7:30 PM. The program this month will be a discussion of the Aurora. Please bring and pictures or comments you want to make.

Star parties:

June 7th : Brown road star party. 8 PM

June CELESTIAL CALENDAR

1. Mercury starts the month low in the morning sky but moves to the evening sky at the end of the month.

2. Venus reaches superior conjunction on June 4th and is too close to the sun to be visible this month.

3. The rest of the planets are all in the morning sky all month. Starting from the eastern horizon they are Jupiter, Uranus, Mars, Neptune and Saturn. Note: Mercury joins them the first few days of the month and is just 7’ apart.

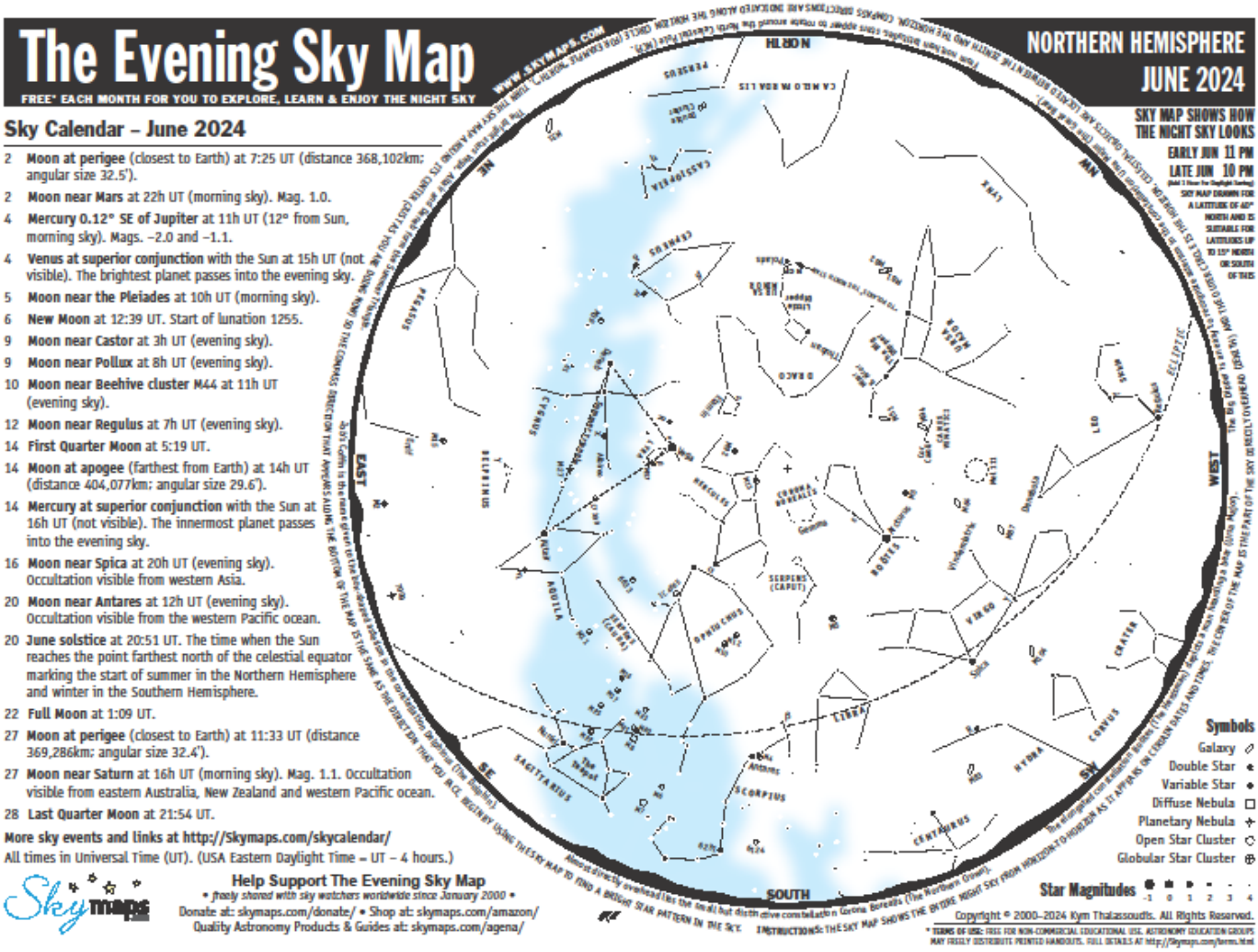
4. The summer solstice occurs on June 20th.

INFORMATION:

Please visit us at our website ChinaLakeAstro.org.

For more information, contact the China Lake Astronomical Society at 760-446-0454 or 760-384-8666.

Roger Brower



To Download the Evening Sky Map go to: [Skymaps.com - Publication Quality Sky Maps & Star Charts](https://www.skymaps.com/downloads.html)
https//www.skymaps.com/downloads.html

About the Celestial Objects

Listed on this page are several of the brighter, more interesting celestial objects visible in the evening sky this month (refer to the monthly sky map). The objects are grouped into three categories. Those that can be easily seen with the naked eye (that is, without optical aid), those easily seen with binoculars, and those requiring a telescope to be appreciated. **Note, all of the objects (except single stars) will appear more impressive when viewed through a telescope or very large binoculars.** They are grouped in this way to highlight objects that can be seen using the optical equipment that may be available to the star gazer.

Tips for Observing the Night Sky

When observing the night sky, and in particular deep-sky objects such as star clusters, nebulae, and galaxies, it's always best to observe from a dark location. Avoid direct light from street lights and other sources. If possible observe from a dark location away from the light pollution that surrounds many of today's large cities.

You will see more stars after your eyes adapt to the darkness—usually about 10 to 20 minutes after you go outside. Also, if you need to use a torch to view the sky map, cover the light bulb with red cellophane. This will preserve your dark vision.

Finally, even though the Moon is one of the most stunning objects to view through a telescope, its light is so bright that it brightens the sky and makes many of the fainter objects very difficult to see. So try to observe the evening sky on moonless nights around either New Moon or Last Quarter.

Astronomical Glossary

Conjunction – An alignment of two celestial bodies such that they present the least angular separation as viewed from Earth.

Constellation – A defined area of the sky containing a star pattern.

Diffuse Nebula – A cloud of gas illuminated by nearby stars.

Double Star – Two stars that appear close to each other in the sky; either linked by gravity so that they orbit each other (binary star) or lying at different distances from Earth (optical double). Apparent separation of stars is given in seconds of arc (").

Ecliptic – The path of the Sun's center on the celestial sphere as seen from Earth.

Elongation – The angular separation of two celestial bodies. For Mercury and Venus the greatest elongation occurs when they are at their most angular distance from the Sun as viewed from Earth.

Galaxy – A mass of up to several billion stars held together by gravity.

Globular Star Cluster – A ball-shaped group of several thousand old stars.

Light Year (ly) – The distance a beam of light travels at 300,000 km/sec in one year.

Magnitude – The brightness of a celestial object as it appears in the sky.

Open Star Cluster – A group of tens or hundreds of relatively young stars.

Opposition – When a celestial body is opposite the Sun in the sky.

Planetary Nebula – The remnants of a shell of gas blown off by a star.

Universal Time (UT) – A time system used by astronomers. Also known as Greenwich Mean Time. USA Eastern Standard Time (for example, New York) is 5 hours behind UT.

Variable Star – A star that changes brightness over a period of time.

NORTHERN HEMISPHERE CELESTIAL OBJECTS JUNE 2024

Sky maps

Easily Seen with the Naked Eye

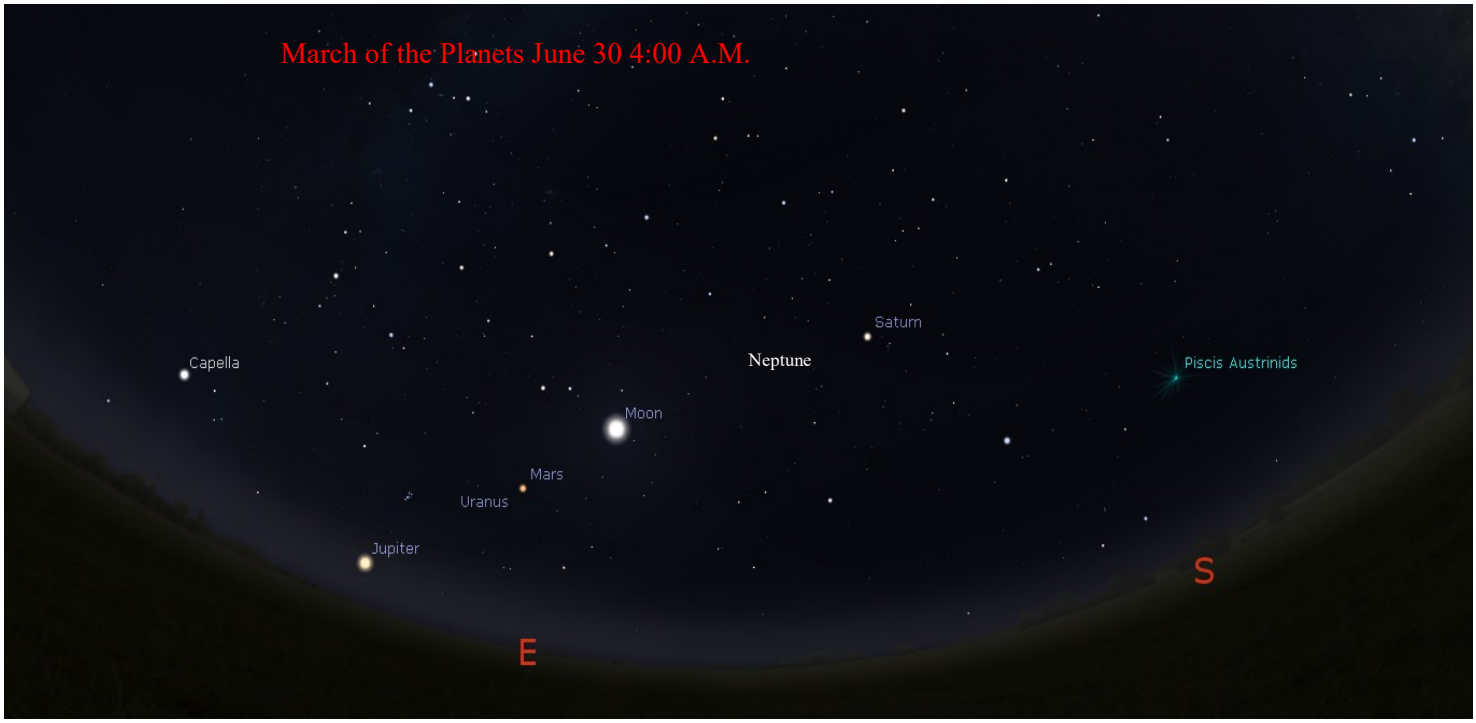
Altair	Aql	✦	Brightest star in Aquila. Name means "the flying eagle". Dist=16.8 ly.
Arcturus	Boo	✦	Orange, giant K star. Name means "bear watcher". Dist=36.7 ly.
δ Cephei	Cep	✱	Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.
Deneb	Cyg	✦	Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400±200 ly.
α Herculis	Her	✱	Semi-regular variable. Magnitude varies between 3.1 & 3.9 over 90 days. Mag 5.4 companion.
Vega	Lyr	✦	The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly.
Antares	Sco	✦	Red, supergiant star. Name means "rival of Mars". Dist=135.9 ly.
Polaris	UMi	✱	The North Pole Star. A telescope reveals an unrelated mag 8 companion star. Dist=433ly.
Spica	Vir	✦	Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=250 ly.

Easily Seen with Binoculars

η Aquilae	Aql	✱	Bright Cepheid variable. Mag varies between 3.6 & 4.5 over 7.166 days. Dist=1,200 ly.
M3	CVn	◔	Easy to find in binoculars. Might be glimpsed with the naked eye.
μ Cephei	Cep	✦	Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days.
Mel 111	Com	○	Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=283 ly. Age=400 million years.
χ Cygni	Cyg	✦	Long period pulsating red giant. Magnitude varies between 3.3 & 14.2 over 407 days.
M39	Cyg	○	May be visible to the naked eye under good conditions. Dist=900 ly.
ν Draconis	Dra	✱	Wide pair of white stars. One of the finest binocular pairs in the sky. Dist=100 ly.
M13	Her	◔	Best globular in northern skies. Discovered by Halley in 1714. Dist=23,000 ly.
M92	Her	◔	Fainter and smaller than M13. Use a telescope to resolve its stars.
ε Lyrae	Lyr	✱	Famous Double Double. Binoculars show a double star. High power reveals each a double.
R Lyrae	Lyr	✦	Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days.
M12	Oph	◔	Close to the brighter M10. Dist=18,000 ly.
M10	Oph	◔	3 degrees from the fainter M12. Both may be glimpsed in binoculars. Dist=14,000 ly.
IC 4665	Oph	○	Large, scattered open cluster. Visible with binoculars.
6633	Oph	○	Scattered open cluster. Visible with binoculars.
M8	Sgr	□	Lagoon Nebula. Bright nebula bisected by a dark lane. Dist=5,200 ly.
M25	Sgr	○	Bright cluster located about 6 deg N of "teapot's" lid. Dist=1,900 ly.
M22	Sgr	◔	A spectacular globular star cluster. Telescope will show stars. Dist=10,000 ly.
M4	Sco	◔	A close globular. May just be visible without optical aid. Dist=7,000 ly.
M6	Sco	○	Butterfly Cluster. 30+ stars in 7x binoculars. Dist=1,960 ly.
M7	Sco	○	Superb open cluster. Visible to the naked eye. Age=260 million years. Dist=780 ly.
M5	Ser	◔	Fine globular star cluster. Telescope will reveal individual stars. Dist=25,000 ly.
Mizar & Alcor	UMa	✱	Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.
Cr 399	Vul	○	Coathanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly.

Telescopic Objects

ε Bootis	Boo	✱	Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split.
M94	CVn	◯	Compact nearly face-on spiral galaxy. Dist=15 million ly.
M51	CVn	◯	Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly.
M64	Com	◯	Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".
Albireo	Cyg	✱	Beautiful double star. Contrasting colours of orange and blue-green. Sep=34.4".
61 Cygni	Cyg	✱	Attractive double star. Mags 5.2 & 6.1 orange dwarfs. Dist=11.4 ly. Sep=28.4".
γ Delphini	Del	✱	Appear yellow & white. Mags 4.3 & 5.2. Dist=100 ly. Struve 2725 double in same field.
β Lyrae	Lyr	✱	Eclipsing binary. Mag varies between 3.3 & 4.3 over 12.940 days. Fainter mag 7.2 blue star.
M57	Lyr	+	Ring Nebula. Magnificent object. Smoke-ring shape. Dist=4,100 ly.
M23	Sgr	○	Elongated star cluster. Telescope required to show stars. Dist=2,100 ly.
M20	Sgr	□	Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. Dist=5,200 ly.
M21	Sgr	○	A fine and impressive cluster. Dist=4,200 ly.
M17	Sgr	□	Omega Nebula. Contains the star cluster NGC 6618. Dist=4,900 ly.
M11	Sct	○	Wild Duck Cluster. Resembles a globular through binoculars. V-shaped. Dist=5,600 ly.
M16	Ser	□	Eagle Nebula. Requires a telescope of large aperture. Dist=8,150 ly.
M81	UMa	◯	Beautiful spiral galaxy visible with binoculars. Easy to see in a telescope.
M82	UMa	◯	Close to M81 but much fainter and smaller.
M87	Vir	◯	Supergiant galaxy with supermassive black hole at its core. Dist=53.5 million ly.
γ Virginis	Vir	✱	Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.
M27	Vul	+	Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly.



2024/2025 New Moons

- June 6, 2024
- July 5, 2024
- August 4, 2024
- September 2, 2024
- October 2, 2024
- November 1, 2024
- Dec 01, 2024
- Dec 30, 2024
- Jan 29, 2025
- Feb 27, 2025
- March 29, 2025
- April 27, 2025
- May 26, 2025
- June 25, 2025
- July 24, 2025

August 22, 2025

Sept 21, 2025

Oct 21, 2025

Nov 19, 2025

Dec 19, 2025

Red Rock Spring Star Parties

2024

- **June 1st Saturday**

Directions to Brown Road Star Parties

Directions: Brown road star parties are held in the desert. Take south China lake Boulevard to 395. Cross 395 and go 2.3 miles on Brown road until you come to signs in cones pointing to the left. Take this dirt road .5 miles to the star party site.

http://chinalakeastro.org/

CLUB INFORMATION

Monthly Skywatchers Newsletter.

Our newsletter is sent by email once a month to those who have subscribed. You do not have to be a member. Subscribe at a meeting or online at ChinaLakeAstro.org/subscribe

Annual Membership Dues

- Individual $25.00 per year.
- Family $ 40
- Youth 18 & under $10

Officers

PRESIDENT – Ralph Paonessa

VICE-PRESIDENT – Keith Weisz

SECRETARY – Debbie Pio

TREASURER – Roger Brower

NEWSLETTER EDITOR – Ted Hodgkinson ghodkinson@sbcglobal.net

Club Information

Meetings of the China Lake Astronomical Society are held at the Maturango Museum 7:00 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/