



The New Syzygy

The Newsletter of the Kern Astronomical Society

number 588

september 2024

Our **SEPTEMBER** monthly meeting will be held at A **SPECIAL DATE**

Lengthwise Brewing Company

7700 District Blvd, Bakersfield, CA 93313

September 13

Social Hour @ 6:30p

Meeting @ 7:30 - 9:00p



facebook.com/groups/syzygy



kernastro.org



kernastronomicalsociety@gmail.com

UPCOMING CLUB EVENTS

Dark Sky Festival

September 6-8 in Sequoia & Kings Canyon National Parks

Star Party

September 28 at the Frazier Mountain Trailhead. [Click for map](#)

PUBLIC OUTREACH

Public Viewing

September 14 - Public telescope viewing at **The Park at River Walk** from 7pm to 10pm. Our arrival time is 6pm.

More info at the meeting. [Click for map](#)



UPCOMING SPEAKERS

September 13th

Seestar Telescopes demonstration,
KAS Elections

October 4th

Linda Spilker - Voyager

November 1st

Rod Guice - Milankovitch Cycles

December 6th

Potluck, no speaker



! IMPORTANT CLUB INFO

BRING YOUR PHOTOS - At this month's meeting, we will be opening the floor to those of you with astrophotography images to share with the club!

BOARD ELECTIONS - As many of you know, Darren Bly has decided to step down from his positions of Star Party Coordinator and Equipment Manager. We would like to thank Darren for his 30+ years of service to the club and for all the training and help that he has provided over the years. We wish him well in his upcoming adventures.

LOOKING FOR BOARD MEMBERS - Janine Adams has rescinded her acceptance of the nomination for President. We are also looking for a Star Party Coordinator as well as an Equipment Manager. Look forward to a full nominations session followed by elections at our special September meeting on the 13th.

MT. WILSON REFUNDS - If you had paid for the cancelled Mt. Wilson Observatory trip, you will be receiving a refund check at the meeting. If you are unable to attend the meeting, we will be mailing you your refund check.

INTERNATIONAL OBSERVE THE MOON NIGHT

NASA's International Observe the Moon Night is a time to come together with fellow Moon enthusiasts and curious people worldwide. Everyone on Earth is invited to learn about lunar science and exploration and to take part in celestial observations.

The Kern Astronomical Society is hosting free public telescope viewing at The Park at Riverwalk, just east of the lake, 11200 Stockdale Hwy from 7pm to 10pm on Saturday, September 14th. It's a wonderful opportunity to see the Moon and Saturn through a telescope at absolutely no cost. Children are not only welcome but are encouraged - **so bring the kids and grandkids.**



The poster features a central image of the Moon. Surrounding it are various translations of 'Observe the Moon' in different languages: Korean (달 관측), Italian (Osseviamo la Luna), Chinese (观看月亮), Indonesian (PERHATIKAN), Vietnamese (OBSERVONS), Malay (BULAN), Hindi (चाँद को देखो), Arabic (راقبوا القمر), Spanish (Observamos), Polish (Observacji Księżyca), Japanese (月を見よう), and French (La Lune). Below the Moon, the text reads 'International Observe the Moon' with 'SEPTEMBER 14, 2024' in a dark box and 'Night' to the right. At the bottom, there are silhouettes of people observing the sky with telescopes and a city skyline in the background. The hashtag #ObserveTheMoon and the website moon.nasa.gov/observe are at the bottom.

달 관측 Osseviamo la Luna 观看月亮 PERHATIKAN
OBSERVONS BULAN
Observe चाँद को देखो
LA LUNE راقبوا القمر
the Moon Observamos
Observacji Księżyca
月を見よう La Lune
Betrachte den Mond
International
Observe the Moon
SEPTEMBER 14, 2024 Night
#ObserveTheMoon moon.nasa.gov/observe



KAS Information

Since 1956, the Kern Astronomical Society has promoted community awareness of current events in astronomy and provides a forum for sharing of knowledge and experiences among amateur astronomers. Annual membership is \$25.00 which also provides membership in the Amateur Astronomical League, access to their newsletter (Reflector Magazine), and participation in observational programs.

Star Parties & Outreach

The Kern Astronomical Society typically has two Club Star Parties each month depending on the weather. Our Club Parties are held on Saturdays nearest the New Moon. We also host Public Star Parties at various locations around town during April - October. These parties are held on Saturdays nearest the first quarter Moon. In addition, we also host Lunar, Solar, and Planetary viewing for public schools. Requests may be directed to our Star Party Coordinator.

Club Equipment

The Kern Astronomical Society has telescopes and accessories (listed below) available for loan to Club Members in good standing. Members are encouraged to borrow the different types of telescopes in stock (especially if you are considering purchasing one). Trying out different sizes and types of telescopes can help you make an informed decision about purchases. If you have a Club telescope in your possession, you will be expected to participate in at least one public star party.

- **6" f/6, 8" f/6, 10" f/5.6, 13" f/4.5 Dobsonian Telescopes**
- **Parks Jovian 90**
- **3½" f/13 Maksukov-Cassegrain**
- **4" f/15 Unitron Refractor**
- **8" Solar Filter**
- **Assorted Eyepieces**

The Evening Sky Map

FREE* EACH MONTH FOR YOU TO EXPLORE, LEARN & ENJOY THE NIGHT SKY

WWW.SKYPAPS.COM
The bright stars of Cassiopeia form a new asterism that is easy to recognize. AS YOU ARE DOING NOW) SO THE COMPASS DIRECTION THAT APPEARS ALONG THE BOTTOM OF THE MAP IS THE SAME AS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.

NORTHERN HEMISPHERE SEPTEMBER 2024

SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

EARLY SEPT 9 PM

LATE SEPT 8 PM
(Add 1 Hour For Daylight Saving)

SKY MAP DRAWN FOR A LATITUDE OF 40° NORTH AND IS SUITABLE FOR LATITUDES UP TO 15° NORTH OR SOUTH OF THIS

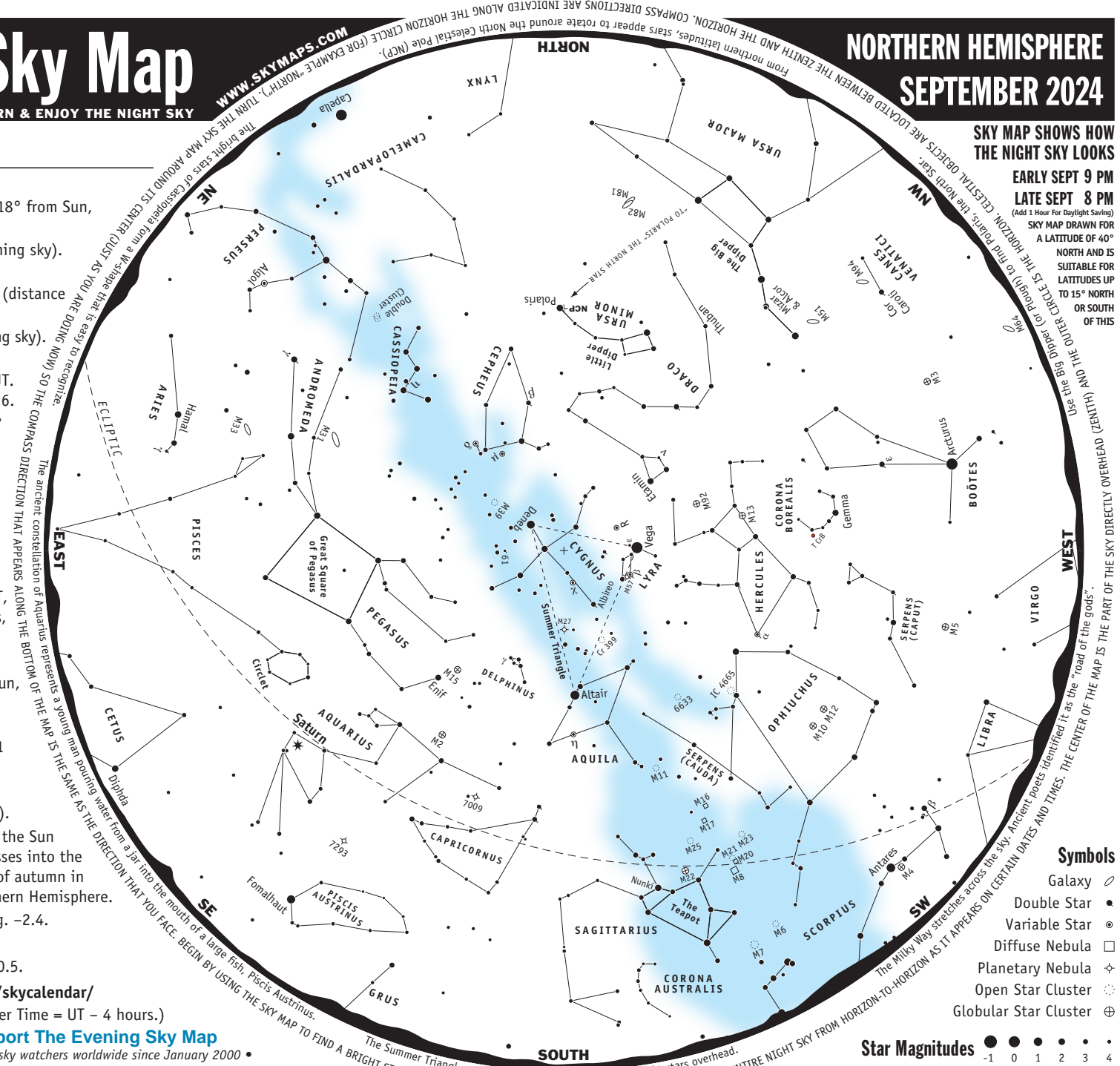
Sky Calendar – September 2024

- 3 **New Moon** at 1:56 UT. Start of lunation 1258.
- 5 **Mercury at greatest elongation** west at 2h UT (18° from Sun, morning sky). Mag. -0.2.
- 5 **Moon near Venus** at 10h UT (25° from Sun, evening sky). Mag. -3.9. Occultation visible from Antarctica.
- 5 **Moon at apogee** (farthest from Earth) at 15h UT (distance 406,211km; angular size 29.4').
- 6 **Moon near Spica** at 18h UT (40° from Sun, evening sky). Occultation visible from Africa.
- 8 **Saturn at opposition** (opposite the Sun) at 4h UT. The planet is at its closest and brightest. Mag. 0.6.
- 8 **Mars 0.85° S of M35** star cluster at 19h UT (74° from Sun, morning sky). Mag. 0.7.
- 10 **Moon near Antares** at 14h UT (evening sky). Occultation visible from western Australia.
- 11 **First Quarter Moon** at 6:06 UT.
- 17 **Moon near Saturn** at 11h UT (evening sky). Mag. 0.6. Occultation visible from western US, western Canada, NW Mexico, and NE Australia.
- 18 **Partial Eclipse of the Moon** from 2:13 to 3:16 UT, mid-eclipse at 2:44 UT. Visible from the Americas, Africa, and Europe.
- 18 **Full Moon** at 2:36 UT. Supermoon.
- 18 **Venus 2.4° NNE of Spica** at 10h UT (28° from Sun, evening sky). Mags. -3.9 and 1.0.
- 18 **Moon at perigee** (closest to Earth) at 13:34 UT (distance 357,286km; angular size 33.4'). Only 11 hours after Full Moon.
- 21 **Neptune at opposition** at 0h UT. Mag. 7.8.
- 22 **Moon near the Pleiades** at 12h UT (morning sky).
- 22 **September equinox** at 12:42 UT. The time when the Sun reaches the point along the ecliptic where it crosses into the southern celestial hemisphere marking the start of autumn in the Northern Hemisphere and spring in the Southern Hemisphere.
- 23 **Moon near Jupiter** at 23h UT (morning sky). Mag. -2.4.
- 24 **Last Quarter Moon** at 18:51 UT.
- 25 **Moon near Mars** at 14h UT (morning sky). Mag. 0.5.

More sky events and links at <http://Skymaps.com/skycalendar/>
All times in Universal Time (UT). (USA Eastern Summer Time = UT - 4 hours.)



Help Support The Evening Sky Map
• freely shared with sky watchers worldwide since January 2000 •
Donate: skymaps.com/donate/ • Shop: skymaps.com/amazon/
Recommended Telescopes & Products at: skymaps.com/astro/



Symbols

- Galaxy ☾
- Double Star ●●
- Variable Star ⊙
- Diffuse Nebula □
- Planetary Nebula ☆
- Open Star Cluster ○
- Global Star Cluster ⊕

Star Magnitudes ●●●●●
-1 0 1 2 3 4

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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 SEPTEMBER 2024 CELESTIAL OBJECTS



Easily Seen with the Naked Eye

Altair	Aql	• Brightest star in Aquila. Name means "the flying eagle". Dist=16.7 ly.
Capella	Aur	• The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 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.
Algol	Per	• Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days.
Fomalhaut	PsA	• Brightest star in Piscis Austrinus. In Arabic the "fish's mouth". Dist=25 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=433 ly.

Easily Seen with Binoculars

M31	And	• The Andromeda Galaxy. Most distant object visible to naked eye. Dist=2.93 million ly.
M2	Aqr	• Resembles a fuzzy star in 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.
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.
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.
M15	Peg	• Only globular known to contain a planetary nebula (Mag 14, d=1"). Dist=30,000 ly.
Double Cluster	Per	• Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 ly.
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.
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.
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

γ Andromedae	And	• Attractive double star. Bright orange star with mag 5 blue companion. Sep=9.8".
7009	Aqr	• Saturn Nebula. Requires 8-inch telescope to see Saturn-like appendages.
7293	Aqr	• Helix Nebula. Spans nearly 1/4 deg. Requires dark sky. Dist=300 ly.
γ Arietis	Ari	• Impressive looking double blue-white star. Visible in a small telescope. Sep=7.8".
ε Boötis	Boo	• Red giant star (mag 2.5) with a blue-green mag 4.9 companion. Sep=2.8". Difficult to split.
M51	CVn	• Whirlpool Galaxy. First recognised to have spiral structure. Dist=25 million ly.
η Cassiopeiae	Cas	• Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12".
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.
M20	Sgr	• Trifid Nebula. A telescope shows 3 dust lanes trisecting nebula. Dist=5,200 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.
M33	Tri	• Fine face-on spiral galaxy. Requires a large aperture telescope. Dist=2.3 million ly.
M27	Vul	• Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly.