



The Newsletter of the Kern Astronomical Society No. 562 July 2022

No meeting in July

Join us on Facebook: <https://www.facebook.com/groups/syzygy/>

Visit our Web Page at <https://www.kernastro.org>

Contact us at kernastronomicalsociety@gmail.com



Reach for the Stars



Upcoming Meetings

July – No meeting in July

August – Briley Lewis – “Life in the Universe”

September – Nick Strobel - TBD

July Star Parties – Last quarter moon star party at Chuchupate on July 23rd. New moon star party at Chuchupate on July 30th.



2022 Dark Sky Festival
September 23, 24, 25

Save the dates. This is our biggest event of the year. Camping available. Rooms at the lodge fill up fast. More information available at our Monthly Meetings.

The Dark Sky Festival is the largest night sky festival in Central California and takes place in various locations throughout Sequoia and Kings Canyon National Parks. The festival includes stargazing, guest speakers, and more.

Election of Club Officers

Our club constitution designates September as the month for the election of Club Officers. If you would like to hold a position and be a part of directing the club business, contact one of our Board members to make your wishes known. We will discuss the upcoming election more at the August meeting.

The Evening Sky Map

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

Sky Calendar – July 2022

Get Sky Calendar on Twitter
<http://twitter.com/skymaps>

- 1 Venus 4.1° N of Aldebaran at 10h UT (30° from Sun, morning sky). Mags. -3.9 and 0.9.
- 1 Moon near Beehive cluster M44 at 17h UT (evening sky).
- 3 Moon near Regulus at 14h UT (evening sky).
- 4 Earth at Aphelion (farthest from Sun) at 7h UT. The Sun-Earth distance is 1.016715 a.u. or about 152.1 million km.
- 7 First Quarter Moon at 2:14 UT.
- 7 Moon near Spica at 20h UT (evening sky).
- 11 Moon near Antares at 2h UT (evening sky).
- 13 Moon at perigee (closest to Earth) at 9:04 UT (distance 357,264km; angular size 33.4').
- 13 Full Moon at 18:37 UT.
- 15 Moon near Saturn at 23h UT (morning sky). Mag. 0.5.
- 16 Mercury at superior conjunction with the Sun at 19h UT. The innermost planet passes into the evening sky.
- 19 Moon near Jupiter at 4h UT (morning sky). Mag. -2.6.
- 19 Pluto at opposition at 17h UT. Mag 14.3.
- 20 Last Quarter Moon at 14:18 UT.
- 21 Moon near Mars at 17h UT (78° from Sun, morning sky). Mag. 0.3. Occultation visible from NW Asia and Japan.
- 22 Moon near Uranus at 7h UT (71° from Sun, morning sky). Occultation visible from E South America and NW Africa. Mag. 5.8.
- 23 Moon near the Pleiades at 7h UT (morning sky).
- 24 Moon near Aldebaran at 1h UT (morning sky).
- 26 Moon at apogee (farthest from Earth) at 10h UT (distance 406,275km; angular size 29.4').
- 26 Moon near Venus at 15h UT (morning sky). Mag. -3.9.
- 28 New Moon at 17:54 UT. Start of lunation 1232.
- 30 Moon near Mercury at 1h UT (14° from Sun, evening sky). Mag. -0.7.
- 30 Moon near Regulus at 19h UT (evening sky).

More sky events and links at <http://Skymaps.com/skycalendar/>

All times in Universal Time (UT). (USA Eastern Daylight Time = UT - 4 hours.)



SAVE ON RECOMMENDED PRODUCTS • <http://Skymaps.com/store>

- STAR ATLASES & PLANISPHERES
 - STAR CHARTS & ASTRO POSTERS
 - BOOKS FOR SKY WATCHERS
 - TELESCOPES & BINOCULARS
- All sales support the production and free distribution of The Evening Sky Map.

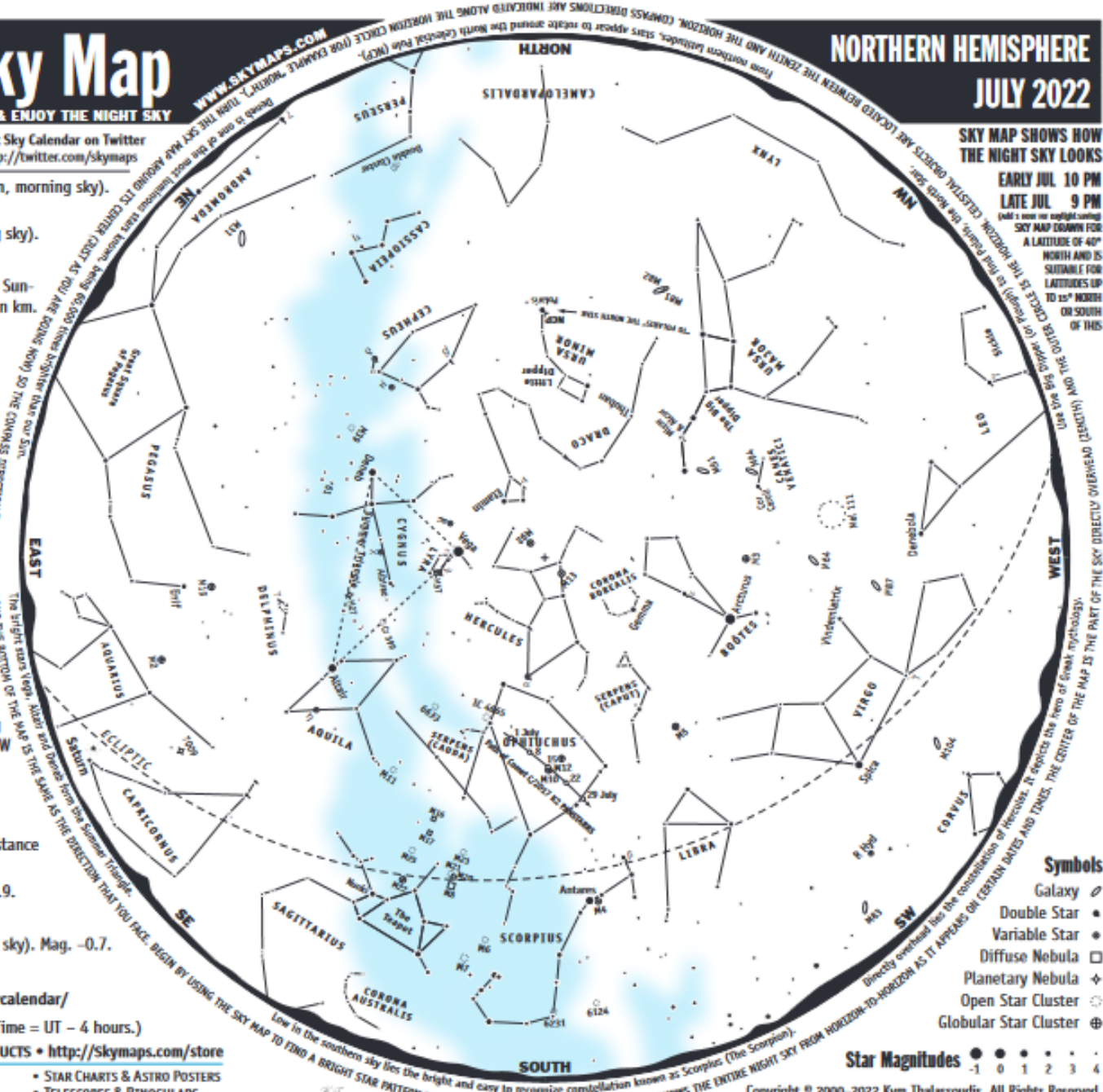
NORTHERN HEMISPHERE JULY 2022

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY JUL 10 PM

LATE JUL 9 PM

(add 1 hour for daylight saving)
 SKY MAP DOWN FOR
 A LATITUDE OF 40°
 NORTH AND IS
 SUITABLE FOR
 LATITUDES UP
 TO 15° SOUTH
 OF THIS



Symbols

- Galaxy
- Double Star
- Variable Star
- Diffuse Nebula
- Planetary Nebula
- Open Star Cluster
- Globular 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 JULY 2022 CELESTIAL OBJECTS Sky maps.com

Easily Seen with the Naked Eye

- | | | |
|------------|-----|--|
| Altair | Aql | • Brightest star in Aquila. Name means "the flying eagle". Dist=16.7 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=433 ly. |
| 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. |
| M15 | Peg | • Only globular known to contain a planetary nebula (Mag 14, d=1"). Dist=30,000 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. |
| 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 | • Coalhanger asterism or "Brocchi's Cluster". Not a true star cluster. Dist=218 to 1,140 ly. |

Telescopic Objects

- | | | |
|------------|-----|---|
| ε Boötis | Boo | • Red giant star (mag 2.5) with a blue-green mag 4.0 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 bisecting 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. |
| M27 | Vul | • Dumbbell Nebula. Large, twin-lobed shape. Most spectacular planetary. Dist=975 ly. |

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Kern Astronomical Society InfoShare

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 and 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, 3 ½" f/13 Maksukov-Cassegrain, 4" f/15 Unitron Refractor
- 8" Solar Filter
- Assorted eyepieces

Privileges and Benefits of Membership in the Kern Astronomical Society

- 1) Hold an elected position as an Officer or Board Member in the Society
- 2) Vote in the election process and on business at meetings
- 3) Go on sponsored field trips to various astronomy related events (i.e. Mt Wilson Observatory, Panamint Springs Dark Sky, etc.)
- 4) Membership in the Astronomical League which includes subscription to Reflector Magazine
- 5) Discount for Sky and Telescope Magazine
- 6) Access/use of club telescopes and related equipment / Help with use of equipment by members
- 7) You are covered under the Society's insurance at related events

KAS Club Officers/Board Members

President:	Gregg Pytlak	gpytlak@yahoo.com
Vice President:	Diane Franco	dianef02@yahoo.com
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Kern Astronomical Society

New Membership/Renewal 2022

Date: _____

Name: _____

Family Members: _____

Address: _____

City, State, Zip: _____

Phone: _____

Email:* _____

My check# _____ for (or cash) the amount of \$ _____ is enclosed.

Yearly Membership \$25

Make checks payable to: KAS (or) Kern Astronomical Society

You can also mail this form and check to:

KAS

5501 Stockdale Hwy #10241

Bakersfield, CA 93389

** Please provide the email address where you wish to receive the KAS newsletter (if different than above)

"SYZYGy": _____