



The Newsletter of the Kern Astronomical Society No. 574 July 2023

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### *KAS Open Meeting*

*First Friday of  
Every Month*

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*Round Table Pizza,*  
*4200 Gosford Road,  
Suite 101, Bakersfield, CA*

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*Dinner & Social 6:30 pm  
Meeting/Program 7:30 pm*

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**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](mailto:kernastronomicalsociety@gmail.com)

**Reach for the Stars**



## Upcoming Events

July 8 – Last quarter moon star party at Chuchupate.

July 15 – New moon star party at Chuchupate.

Look for more information on upcoming events on the club Facebook page and in your e-mail.

## From the Editor:

Last month I asked the question: Will Venus catch Mars for a planetary alignment as summer progresses or will Venus slow down its eastward movement along the ecliptic, begin retrograde motion, and make a quick exit from the evening sky to the morning sky as it passes through inferior conjunction? As July begins you can catch Venus just a few degrees from Mars. But that is as close as they get in 2023 and on July 22 Venus begins retrograde motion (moving backwards along the ecliptic) and the gap between the planets begins to widen. Usually, we think of Mars or Jupiter when we talk about retrograde motion but both Venus and Mercury “travel backward” along the ecliptic as they pass through “Inferior Conjunction” between the Earth and the Sun. By the end of July Venus will be low in the west at sunset and quickly move into the morning sky as it passes through inferior conjunction August 13. Venus doesn’t catch up to Mars until February 2024!

# The Evening Sky Map

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

## Sky Calendar – July 2023

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

- Mercury at superior conjunction with the Sun at 5h UT. The innermost planet passes into the evening sky.
- Moon near Antares at 9h UT (evening sky).
- Full Moon at 11:39 UT.
- Moon at perigee (closest to Earth) at 22:31 UT (distance 360,149km; angular size 33.2').
- Earth at Aphelion (farthest from Sun) at 20h UT. The Sun-Earth distance is 1.016681 a.u. or about 152.1 million km.
- Moon near Saturn at 6h UT (morning sky). Mag. 0.8.
- Venus at its brightest at 18h UT. Mag. -4.5.
- Last Quarter Moon at 1:48 UT.
- Venus, Mars and Regulus within circle 4.7° diameter at 7h UT (evening sky). Mags. -4.5, 1.7 and 1.4.
- Mars 0.6° NNE of Regulus at 18h UT (42° from Sun, evening sky). Mags. 1.7 and 1.4.
- Moon near Jupiter at 21h UT (morning sky). Mag. -2.3.
- Moon near Pleiades at 9h UT (morning sky).
- Venus 3.5° WSW of Regulus at 18h UT (35° from Sun, evening sky). Mags. -4.5 and 1.4.
- New Moon at 18:32 UT. Start of lunation 1244.
- Moon near Mercury at 12h UT (evening sky). Mag. -0.4.
- Moon at apogee (farthest from Earth) at 7h UT (distance 406,289km; angular size 29.4').
- Moon near Venus at 15h UT (evening sky). Mag. -4.4.
- Moon near Regulus at 19h UT (evening sky).
- Moon near Mars at 8h UT (evening sky). Mag. 1.8.
- Moon near Spica at 7h UT (evening sky).
- First Quarter Moon at 22:07 UT.
- Venus, Mercury and Regulus within circle 5.3° diameter at 8h UT (25° from Sun, evening sky). Mags. -4.3, -0.1 and 1.4.
- Mercury 5.1° NNE of Venus at 12h UT (evening sky). Mags. -0.1 and -4.3.
- Moon near Antares at 19h UT (evening sky).
- Mercury 0.1° S of Regulus at 1h UT (evening sky). Mags. 0.0 and 1.4.

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

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



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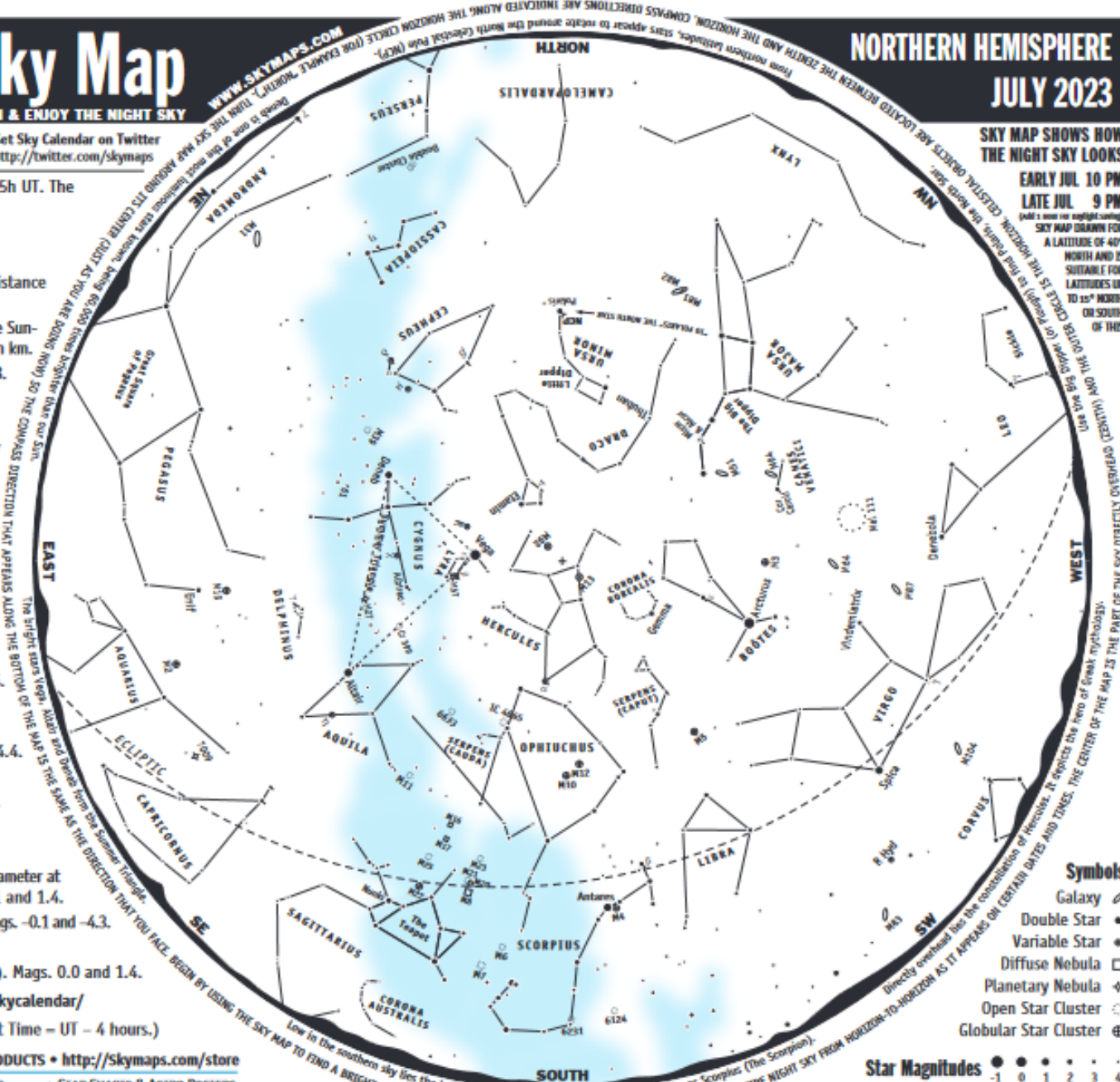
- STAR ATLASES & PLANISPHERES
  - STAR CHARTS & ASTRO POSTERS
  - BOOKS FOR SKY WATCHERS
  - TELESCOPES & BINOCULARS
- All sales support the production and free distribution of The Evening Sky Map.

# NORTHERN HEMISPHERE JULY 2023

SKY MAP SHOWS HOW  
THE NIGHT SKY LOOKS

EARLY JUL 10 PM  
LATE JUL 9 PM

(Add 1 hour in daylight saving time)  
 SKY MAP DRAWN FOR  
 A LATITUDE OF 40°  
 NORTH AND IS  
 SUITABLE FOR  
 LATITUDES UP  
 TO 25° NORTH  
 OR 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.

NORTHERN HEMISPHERE  
JULY 2023

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.
M30	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	• Coathanger 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 4.9 companion. Sep=2.8". Difficult to split.
M04	CVn	• Compact nearby 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 Delphinii	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.
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	<a href="mailto:gqpytlak@yahoo.com">gqpytlak@yahoo.com</a>
Vice President:	Diane Franco	<a href="mailto:dianef02@yahoo.com">dianef02@yahoo.com</a>
Secretary	Rod Guice	<a href="mailto:stargazer10000@gmail.com">stargazer10000@gmail.com</a>
Star Party / Event Coordinator	Darren Bly	<a href="mailto:dcbly@bak.rr.com">dcbly@bak.rr.com</a>
Member at Large	John Hester	<a href="mailto:jh191623@gmail.com">jh191623@gmail.com</a>
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# Kern Astronomical Society

## New Membership/Renewal 2023

Date: \_\_\_\_\_

Name: \_\_\_\_\_

Family Members: \_\_\_\_\_

Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Phone: \_\_\_\_\_

Email:\*\* \_\_\_\_\_

My check # \_\_\_\_\_ in 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:

**Kern Astronomical Society**  
**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”: \_\_\_\_\_