



The Newsletter of the Kern Astronomical Society No. 556 January 2022

KAS Open Meeting

***First Friday of
Every Month***

[Round Table Pizza,](#)
4200 Gosford Road,
Suite 101, Bakersfield, CA

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

**Our regular monthly meeting will be
held on January 7th at Round Table
Pizza at 4200 Gosford Road.**

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

January – Tim Stoner - Let's Process an Astro Photo / You are the Artist

February – Darren Bly

March – Omer Blaes

Upcoming Star Parties

Last quarter moon star party at Chuchupate possible on January 22nd. New moon star party possible at Chuchupate on January 29th. Check the KAS Facebook page or your e-mails for updates.

Important Messages from the Board

Membership: We are now collecting annual membership fees for 2022. Annual membership is \$25. There is an application form at the end of the newsletter.

Club Officers: We are in immediate need of someone to fill the club secretary position. If interested, please e-mail Gregg Pytlak at gpytlak@yahoo.com. Here is a description of the duties:

Secretary Position Duties from the Club Bylaws:

Section 4: The Secretary shall keep records, submit notices, and make reports to the members and Board of Directors, and perform such duties as are incidental to the office. The secretary must assist the treasurer in record keeping of the KAS membership list updated by administering sign in sheets at all meetings.

Thank You

A special thank you to Dr. Stephen Collett for his donation of astronomy books to the club. The donation included a variety of easy reading informative books and some very technical books. The books were available for members to take home and add to their libraries and generated much enthusiasm throughout the club.

KAS Annual Christmas Party



Photo mosaic of Comet Leonard
C/2021 A1 by Michael Jäger.

KAS Astrophotography



Bubble Nebula (NGC 7635) by: John Hester



Thor's Helmet - Emission Nebula (NGC 2359) by: John Hester



Orion Nebula (M42) & Running Man Nebula by: Justin RodnBoot



24" Clark Refractor & other Telescopes at Lowell Observatory in Flagstaff, Az. Photos by: Ivan Aburto

The Evening Sky Map

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

Sky Calendar – January 2022

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

- 1 Moon at perigee (closest to Earth) at 22:53 UT (distance 358,033 km; angular size 33.4'). 20 hours before New Moon.
- 2 New Moon at 18:35 UT. Start of lunation 1225.
- 3 Quadrantid Meteor Shower peaks at 21h UT. Active between December 28 and January 12. Produces up to 120 meteors per hour. Radiant is in northern Boötes.
- 4 Moon near Mercury at 3h UT (19° from Sun, evening sky). Mag. -0.7.
- 4 Earth at Perihelion (closest to Sun) at 7h UT. The Sun-Earth distance is 0.983337 a.u. or 147.1 million kilometers.
- 4 Moon near Saturn at 19h UT (evening sky). Mag. 0.7.
- 6 Moon near Jupiter at 4h UT (evening sky). Mag. -2.1.
- 7 Moon shows maximum libration for the year (9.9°) at 5h UT.
- 7 Mercury at greatest elongation east at 11h UT (19° from Sun, evening sky). Mag. -0.6.
- 9 Venus at inferior conjunction with the Sun at 1h UT. The brightest planet passes into the morning sky.
- 9 First Quarter Moon at 18:12 UT.
- 13 Moon near the Pleiades at 5h UT (evening sky).
- 13 Moon near Aldebaran at 23h UT (evening sky).
- 14 Moon at apogee (farthest from Earth) at 9h UT (distance 405,805 km; angular size 29.4').
- 17 Full Moon at 23:50 UT.
- 18 Moon near Beehive cluster M44 at 20h UT (morning sky).
- 20 Moon near Regulus at 15h UT (morning sky).
- 23 Mercury at inferior conjunction with the Sun at 10h UT. Mercury passes into the morning sky.
- 24 Moon near Spica at 19h UT (morning sky).
- 25 Last Quarter Moon at 13:42 UT.
- 28 Moon near Antares at 2h UT (morning sky).
- 29 Moon near Mars at 16h UT (36° from Sun, morning sky). Mag. 1.4.
- 30 Moon at perigee (closest to Earth) at 7:09 UT (distance 362,252 km; angular size 33.0').
- 31 Moon near Mercury at 3h UT (16° from Sun, morning sky). Mag. 1.5.

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

All times in Universal Time (UT). (USA Eastern Standard Time = UT - 5 hours.)



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

- STAR ATLASES & PLANISPHERES
- STAR CHARTS & ASTRO POSTERS
- BOOKS FOR SKY WATCHERS
- TELESCOPES & BINOCULARS

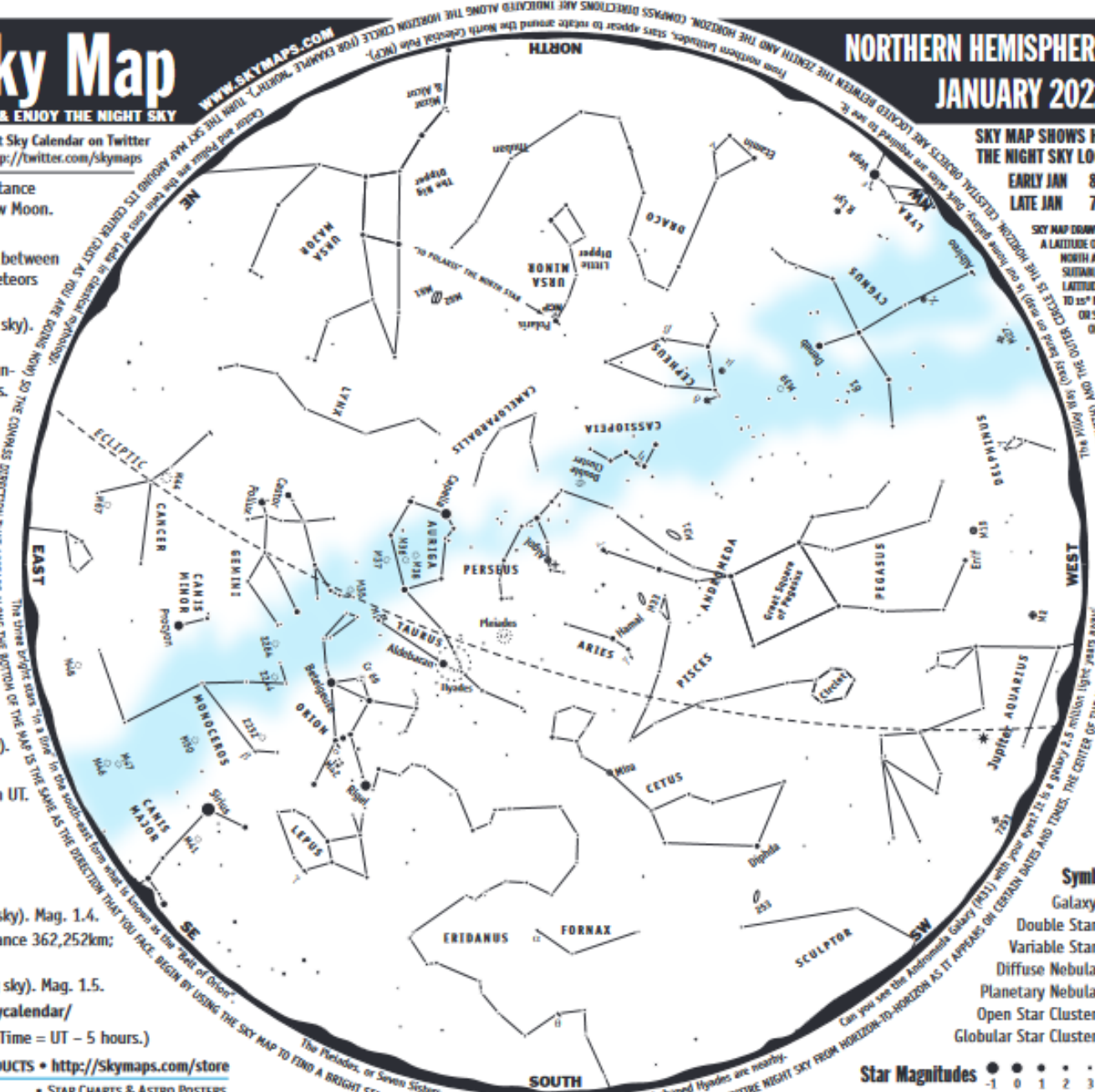
Help support the production and free distribution of The Evening Sky Map

NORTHERN HEMISPHERE JANUARY 2022

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY JAN 8 PM
LATE JAN 7 PM

SKY MAP DRAWN FOR
A LATITUDE OF 40°
NORTH AND IS
SUITABLE FOR
LATITUDES UP
TO 55° 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.

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

NORTHERN HEMISPHERE
JANUARY 2022

CELESTIAL OBJECTS

Sky maps.com

Easily Seen with the Naked Eye

Capella	Aur	• The 6th brightest star. Appears yellowish in color. Spectroscopic binary. Dist=42 ly.
Sirius	CMa	• The brightest star in the sky. Also known as the "Dog Star". Dist=8.6 ly.
Procyon	CMi	• Greek name meaning "before the dog" - rises before Sirius (northern latitudes). Dist=11.4 ly.
δ Cephei	Cep	• Cepheid prototype. Mag varies between 3.5 & 4.4 over 5.366 days. Mag 6 companion.
Denob	Cyg	• Brightest star in Cygnus. One of the greatest known supergiants. Dist=1,400 ±200 ly.
Castor	Gem	• Multiple star system with 6 components. 3 stars visible in telescope. Dist=52 ly.
Pollux	Gem	• With Castor, the twin sons of Leda in classical mythology. Dist=34 ly.
Vega	Lyr	• The 5th brightest star in the sky. A blue-white star. Dist=25.0 ly.
Rigel	Ori	• The brightest star in Orion. Blue supergiant star with mag 7 companion. Dist=770 ly.
Betelgeuse	Ori	• One of the largest red supergiant stars known. Diameter=300 times that of Sun. Dist=430 ly.
Algol	Per	• Famous eclipsing binary star. Magnitude varies between 2.1 & 3.4 over 2.867 days.
Pleiades	Tau	• The Seven Sisters. Spectacular cluster. Many more stars visible in binoculars. Dist=399 ly.
Hyades	Tau	• Large V-shaped star cluster. Binoculars reveal many more stars. Dist=152 ly.
Aldebaran	Tau	• Brightest star in Taurus. It is not associated with the Hyades star cluster. Dist=66.7 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=2.5 million ly.
M2	Aqr	• Resembles a fuzzy star in binoculars.
M38	Aur	• Stars appear arranged in "pi" or cross shape. Dist=4,300 ly.
M36	Aur	• About half size of M38. Located in rich Milky Way star field. Dist=4,100 ly.
M37	Aur	• Very fine star cluster. Discovered by Messier in 1764. Dist=4,400 ly.
M44	Cnc	• Praesepe or Beehive Cluster. Visible to the naked eye. Dist=590 ±20 ly.
M41	CMa	• First recorded observation by Aristotle in 325 BC as "cloudy spot". Dist=2,300 ly.
μ Cephei	Cep	• Herschel's Garnet Star. One of the reddest stars. Mag 3.4 to 5.1 over 730 days.
Mira	Cet	• Famous long period variable star. Mag varies between 3.0 & 10.1 over 332 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.
M35	Gem	• Fine open cluster located near foot of the twin Castor. Dist=2,800 ly.
γ Leporis	Lep	• Visible with binoculars. Gold & white stars. Mags 3.6 & 6.2. Dist=30 ly. Sep=96.3".
R Lyrae	Lyr	• Semi-regular variable. Magnitude varies between 3.9 & 5.0 over 46.0 days.
2232	Mon	• A large scattered star cluster of 20 stars. Dist=1,300 ly.
2244	Mon	• Surrounded by the rather faint Rosette Nebula. Dist=5,540 ly.
M50	Mon	• Visible with binoculars. Telescope reveals individual stars. Dist=3,000 ly.
Cr 69	Ori	• Lambda Orionis Cluster. Dist=1,630 ly.
M42	Ori	• The Great Orion Nebula. Spectacular bright nebula. Best in telescope. Dist=1,300 light years.
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.
253	Scl	• Fine, large, cigar-shaped galaxy. Requires dark sky. Member of Sculptor Group.
Mizar & Alcor	UMa	• Good eyesight or binoculars reveals 2 stars. Not a binary. Mizar has a mag 4 companion.

Telescopic Objects

γ Andromedae	And	• Attractive double star. Bright orange star with mag 5 blue companion. Sep=9.8".
γ Arietis	Ari	• Impressive looking double blue-white star. Visible in a small telescope. Sep=7.8".
M67	Cnc	• Contains 500+ stars mag 10 & fainter. One of the oldest clusters. Dist=2,350 ly.
η Cassiopeiae	Cas	• Yellow star mag 3.4 & orange star mag 7.5. Dist=19 ly. Orbit=480 years. Sep=12".
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.
θ Eridani	Eri	• Striking blue-white double star. Mags 3.2 & 4.3. Visible in a small telescope. Sep=8.2".
β Monocerotis	Mon	• Triple star. Mags 4.6, 5.0 & 5.4. Requires telescope to view arc-shape. Sep=7.3".
2264	Mon	• Christmas Tree Cluster. Associated with the Cone Nebula. Dist=2,450 ly.
α Orionis	Ori	• Superb multiple star. 2 mag 7 stars one side, mag 9 star on other. Struve 761 triple in field.
M1	Tau	• Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 ly.
M33	Tri	• Fine face-on spiral galaxy. Requires a large aperture telescope. Dist=2.3 million 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.

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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 1/2" f/13 Maksukov-Cassegrain, 4" f/15 Unitron Refractor
- 8" Solar Filter
- Assorted eyepieces

KAS Club Officers and Support Staff

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Vice President:	Diane Franco	dianef02@yahoo.com
Treasurer	Pam Miller	dgmpsm2@yahoo.com
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Kern Astronomical Society

Membership New/Renewal 2022

Date: _____

Name: _____

Family Members: _____

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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)

"SYZYG": _____