



The Newsletter of the Kern Astronomical Society No. 545 February 2021

The February meeting has been Cancelled.

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



An Important Message from the Board

To our Membership:

I hope that 2021 finds you safe and well. Months ago, when we suspended club operations we said we would revisit the situation in January, 2021. Well, it is now a new year. With the current state of affairs, it does not look like we will be able to conduct a meeting anytime soon. Therefore, the Board of Directors has decided to continue our suspended status until April or May of 2021. We will continue to follow the state and local recommendations to keep us safe.

Again, thank you for your patience and understanding in this matter. Stay healthy and safe.

Gregory Pytlak

President

2021 Membership

To our Membership:

The KAS Board of Directors has approved a proposal for the club to carry (pay) your membership dues for 2021. If you were a member last year, KAS will renew your membership at our expense. We value your membership and participation.

Upcoming Star Parties

Possible dates for Star Parties at Chuchupate are February 6 (Last Quarter Moon) and February 13 (New Moon). Watch for updates via e-mail and/or Facebook.

Some changes to our Board of Directors

Our Treasurer, Mary Hanel is resigning as KAS Treasurer as of February 1. Mary signed up for KAS Treasurer for one year, two years max, in fall 2017 and stayed on for 2020 with the arrival of the pandemic.

“I want to thank Mary on behalf of the Board of Directors and the Membership for doing an outstanding job in this most important and difficult task over a very long time. She has done a wonderful job keeping the club going, handling everything that came her way with grace and professionalism. Thank you Mary! (and Greg who is not the treasurer) I'm going to miss your delivery of the Treasurer's report.” Gregg Pytlak

Per Mary's recommendation, club member Pam Miller has agreed to take over the duties of the Treasurer and the Board has approved this and appointed Pam as the temporary Treasurer until we can take a proper vote by the membership.

We would also like to welcome Ivan Aburto as the new Webmaster.

Once club meetings resume we will be able to proceed with an official election of officers.

KAS Marketplace

Free to a good home - 8" F/5 Celestron Newtonian, 2" focuser, tube rings and a dovetail, good condition.

For Sale- 14 1/4" truss tube Dob with push to computer, \$700

If interested, call Jim Wood at 661-587-5294

The Evening Sky Map

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

Sky Calendar – February 2021

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

- 3 Moon near Spica at 6h UT (morning sky).
- 3 Moon at perigee (closest to Earth) at 18:48 UT (distance 370,116 km; angular size 32.3').
- 4 Last Quarter Moon at 17:38 UT.
- 6 Moon near Antares at 12h UT (morning sky).
- 8 Mercury at inferior conjunction with the Sun at 14h UT. Mercury passes into the morning sky.
- 10 Moon near Saturn (morning sky) at 13h UT. Mag. 0.7.
- 10 Moon, Venus and Saturn within a circle of diameter 5.2° (14° from Sun, morning sky) at 16h UT. Mags. -3.9 and 0.7.
- 11 Jupiter 0.43° NNW of Venus at 15h UT (11° from Sun, morning sky). Mags. -2.0 and -3.9.
- 11 New Moon at 19:07 UT. Start of lunation 1214.
- 15 Mercury 3.9° NNW of Jupiter at 14h UT (14° from Sun, morning sky). Mags. 2.0 and -2.0.
- 18 Moon at apogee (farthest from Earth) at 10h UT (distance 404,467 km; angular size 29.5').
- 19 Moon near Mars (evening sky) at 2h UT. Mag. 0.7.
- 19 Moon near the Pleiades at 18h UT (evening sky).
- 19 First Quarter Moon at 18:48 UT.
- 20 Moon near Aldebaran at 12h UT (evening sky).
- 23 Mercury 4.1° NE of Saturn at 8h UT (27° from Sun, morning sky). Mags. 0.6 and 0.7.
- 25 Moon near Beehive cluster M44 (evening sky) at 3h UT.
- 26 Moon near Regulus at 18h UT (midnight sky).
- 27 Full Moon at 8:18 UT.

The **Zodiacal Light** is caused by sunlight reflected off meteoric dust in the plane of the solar system. Choose a clear, moonless night, about 1–2 hours after sunset, and look west for a large triangular-shaped glow extending up from the horizon (along the ecliptic). The best months to view the Zodiacal Light is when the ecliptic is almost vertical at the horizon: March and April (evening) and October–November (morning); times reversed for the southern hemisphere.

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>

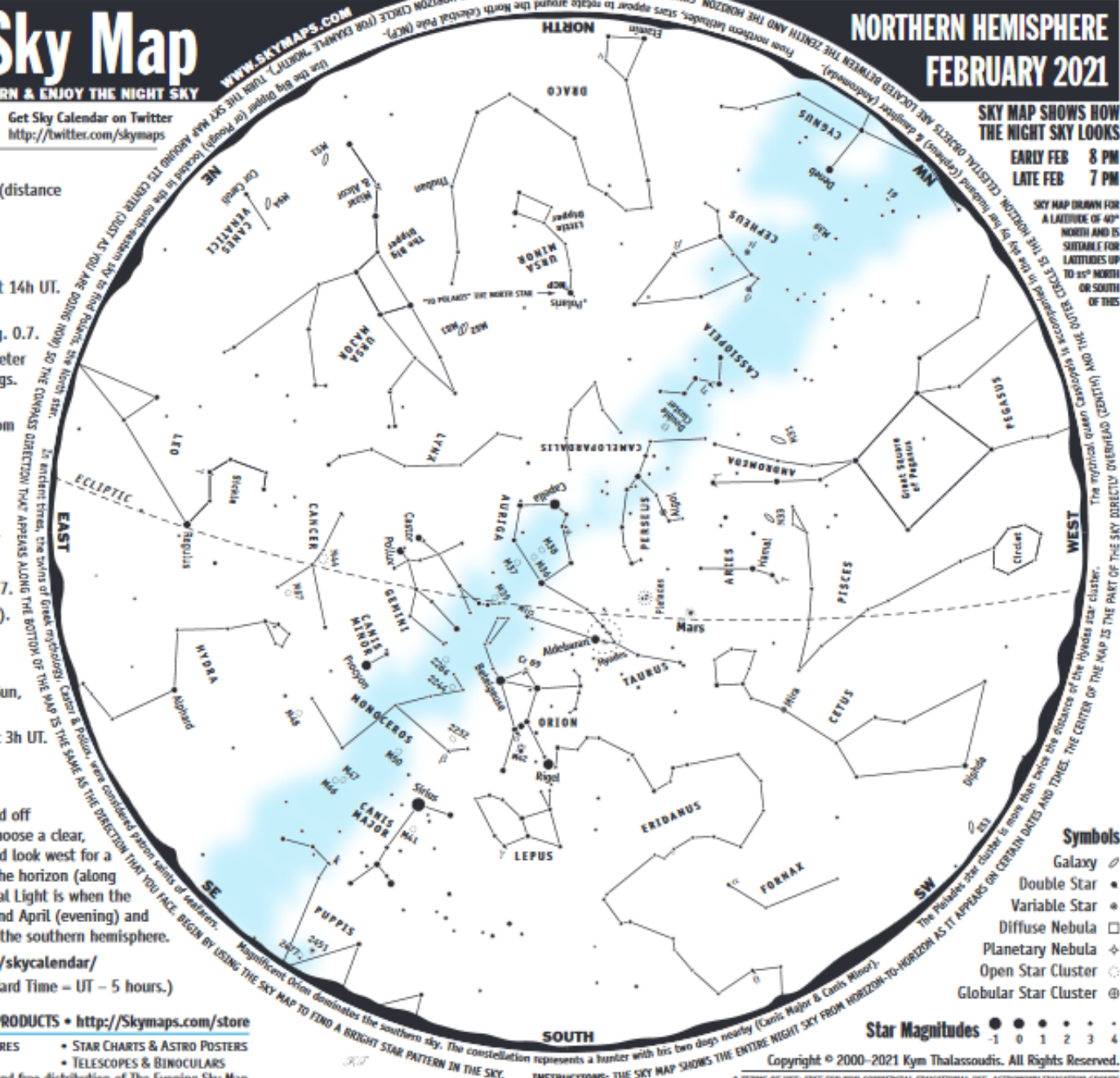
- STAR ATLASES & PLANISPHERES
 - STAR CHARTS & ASTRO POSTERS
 - BOOKS FOR SKY WATCHERS
 - TELESCOPES & BINOCULARS
- Help support the production and free distribution of The Evening Sky Map

NORTHERN HEMISPHERE FEBRUARY 2021

SKY MAP SHOWS HOW
THE NIGHT SKY LOOKS

EARLY FEB 8 PM
LATE FEB 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
FEBRUARY 2021

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. |
| Deneb | Cyg | • Brightest star in Cygnus. One of the greatest known supergiants. Dist=3,000 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. |
| Regulus | Leo | • Brightest star in Leo. A blue-white star with at least 1 companion. Dist=77 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=380 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=65 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. |
| 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. |
| M39 | Cyg | • May be visible to the naked eye under good conditions. Dist=900 ly. |
| M35 | Gem | • Fine open cluster located near foot of the twin Castor. Dist=2,800 ly. |
| M48 | Hya | • 12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly. |
| γ Leporis | Lep | • Visible with binoculars. Gold & white stars. Mags 3.6 & 6.2. Dist=30 ly. Sep=96.3". |
| 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. |
| Double Cluster | Per | • Double Cluster in Perseus. NGC 869 & 884. Excellent in binoculars. Dist=7,300 ly. |
| M47 | Pup | • Bright star cluster. 15+ stars in 7x binoculars. Dist=1,500 ly. |
| M46 | Pup | • Dist=5,400 ly. Contains planetary NGC 2438 (Mag 11, d=65") - not associated. |
| 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. |
| 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. |
| 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". |
| θ Eridani | Eri | • Striking blue-white double star. Mags 3.2 & 4.3. Visible in a small telescope. Sep=8.2". |
| γ Leonis | Leo | • Superb pair of golden-yellow giant stars. Mags 2.2 & 3.5. Orbit=600 years. Sep=4.4". |
| 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. |
| k Puppis | Pup | • Telescope easily shows two blue-white stars of almost equal brightness. Sep=9.9". |
| 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 ½" f/13 Maksukov-Cassegrain, 4" f/15 Unitron Refractor
- 8" Solar Filter
- Assorted eyepieces

KAS Board Members

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