

# The Evening Sky Map

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

## Sky Calendar – April 2023

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- 2 **Moon near Regulus** at 12h UT (evening sky).
- 6 **Full Moon** at 4:36 UT.
- 6 **Moon near Spica** at 21h UT (midnight sky).
- 10 **Moon near Antares** at 8h UT (morning sky).
- 11 **Venus 2.5° SE of the Pleiades** at 14h UT (evening sky).
- 11 **Mercury at greatest elongation east** at 22h UT (20° from Sun, evening sky). Mag. 0.1.
- 11 **Jupiter at conjunction** with the Sun at 22h UT. The largest planet passes into the morning sky.
- 13 **Last Quarter Moon** at 9:12 UT.
- 16 **Moon at perigee** (closest to Earth) at 2:31 UT (distance 367,968km; angular size 32.5').
- 16 **Moon near Saturn** at 7h UT (morning sky). Mag. 1.0.
- 20 **Annular-Total Eclipse** of the Sun along a narrow path crossing the Indian Ocean, Australia's North West Cape, East Timor, West Papua and Pacific Ocean from 1:34 to 6:59 UT. Partial solar eclipse visible from Southeast Asia and Australia.
- 20 **New Moon** at 4:15 UT. Start of lunation 1241.
- 22 **Moon near the Pleiades** at 12h UT (evening sky).
- 23 **LyrId meteor shower** peaks at 1h UT (timing and activity is variable). Active April 14-30. Radiant is between Hercules and Lyra. Expect 10 to 20 bright, fast meteors per hour at its peak.
- 23 **Moon near Venus** at 13h UT (41° from Sun, evening sky). Mag. -4.1. Look out for this spectacular sight!
- 26 **Moon near Mars** at 4h UT (evening sky). Mag. 1.3.
- 27 **First Quarter Moon** at 21:20 UT.
- 27 **Moon near Beehive cluster M44** at 23h UT (evening sky).
- 28 **Moon at apogee** (farthest from Earth) at 7h UT (distance 404,299km; angular size 29.6').
- 29 **Moon near Regulus** at 20h UT (evening sky).
- 29 **International Astronomy Day 2023** is celebrated today! Contact your local Astronomy club, planetarium, observatory or science museum to participate in a variety of Astronomy activities.

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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## NORTHERN HEMISPHERE APRIL 2023

SKY MAP SHOWS HOW THE NIGHT SKY LOOKS

EARLY APR 10 PM

LATE APR 9 PM

(Add 1 Hour for Daylight Saving)

SKY MAP DRAWN FOR

A LATITUDE OF 40°

NORTH AND IS

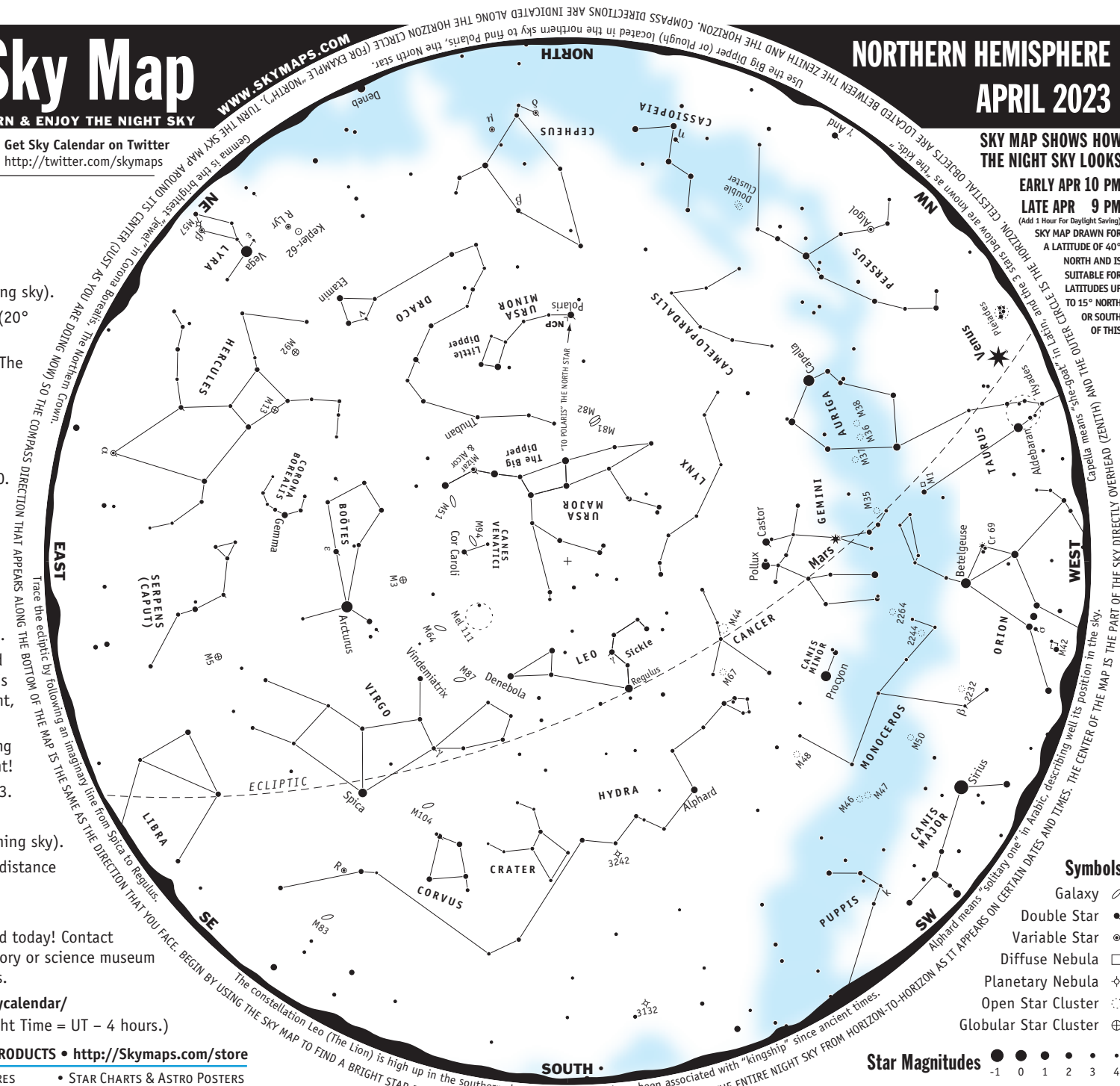
SUITABLE FOR

LATITUDES UP

TO 15° NORTH

OR SOUTH

OF THIS



### 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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INSTRUCTIONS: THE SKY MAP SHOWS THE ENTIRE NIGHT SKY FROM HORIZON-TO-HORIZON AS IT APPEARS ON CERTAIN DATES AND TIMES. THE CENTER OF THE MAP IS THE PART OF THE SKY DIRECTLY OVERHEAD (ZENITH) AND THE OUTER CIRCLE IS THE HORIZON. CELESTIAL OBJECTS ARE LOCATED BETWEEN THE ZENITH AND THE HORIZON. COMPASS DIRECTIONS ARE INDICATED ALONG THE HORIZON CIRCLE (FOR EXAMPLE "NORTH").

Use the Big Dipper (or Plough) located in the northern sky to find Polaris, the North Star.

Capella means "steer-head" in Latin, and the 3 stars below are known as "the kids".

Alphard means "solitary one" in Arabic, describing well its position in the sky.

The constellation Leo (The Lion) is high up in the southern sky. Regulus and Leo have been associated with "kingship" since ancient times.

Take the ecliptic by following an imaginary line from Spica to Regulus.

THE CENTER OF THE MAP IS THE DIRECTION THAT YOU FACE. BEGIN BY USING THE SKY MAP TO FIND A BRIGHT STAR PATTERN IN THE SKY.

## 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 APRIL 2023 CELESTIAL OBJECTS



## Easily Seen with the Naked Eye

|            |     |   |
|------------|-----|---|
| 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.                                |
| 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. |
| 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.               |
| Vega       | Lyr | • The 5th brightest star in the sky. A blue-white star. Dist=25.0 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.             |
| 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.    |
| Spica      | Vir | • Latin name means "ear of wheat" and shown held in Virgo's left hand. Dist=250 ly.             |

## Easily Seen with 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.                  |
| M3             | CvN | • Easy to find in binoculars. Might be glimpsed with the naked eye.                       |
| Mel 111        | Com | • Coma Berenices. 80 mag 5-6 stars in 5 deg. Dist=283 ly. Age=400 million years.          |
| 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.                  |
| 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.                     |
| M48            | Hya | • 12+ stars in 7x binoculars. Triangular asterism near centre. Dist=1,990 ly.             |
| R Hydrae       | Hya | • Long period variable. Mag varies between 3.0 & 11.0 over 390 days. Brilliant red.       |
| 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.  |
| 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.            |
| 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. |

## 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. |
| 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".            |
| M64           | Com | • Black-Eye Galaxy. Discovered by J.E. Bode in 1775 - "a small, nebulous star".               |
| 3242          | Hya | • Ghost of Jupiter. Bright blue disk. Mag 11 central star. Dist=2,600 ly.                     |
| M83           | Hya | • Classic face-on spiral. Discovered in 1752 by Lacaille. In attractive star field.           |
| 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.                     |
| M1            | Tau | □ Crab Nebula. Remnant from supernova which was visible in 1054. Dist=6,500 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.  |
| 3132          | Vel | • One of the brightest planetaries. Magnitude 10 central star. Dist=2,600 ly.                 |
| M87           | Vir | • Supergiant galaxy with supermassive black hole at its core. Dist=53.5 million ly.           |
| M104          | Vir | • Sombrero Galaxy. Almost edge-on spiral galaxy. Protruding central core.                     |
| γ Virginis    | Vir | • Superb pair of mag 3.5 yellow-white stars. Orbit=169 years. At their closest in 2005.       |