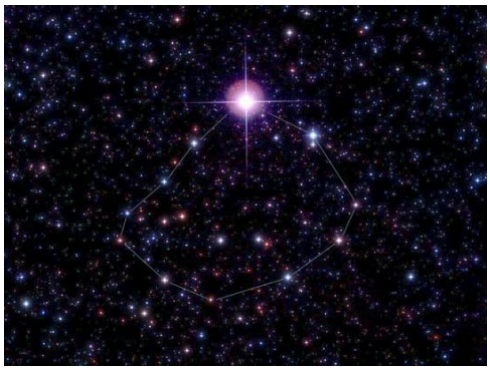
Kitt Peak Nightly Observing Program

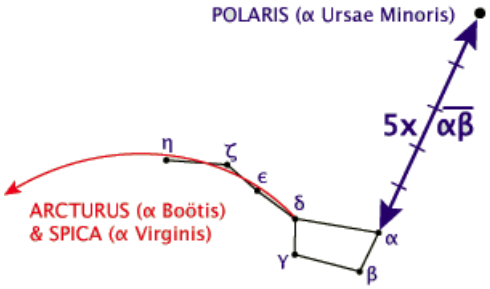
Splendors of the Universe on YOUR Night!

Many pictures are links to larger versions.
Click here for the “Best images of the OTOP” Gallery and more information.



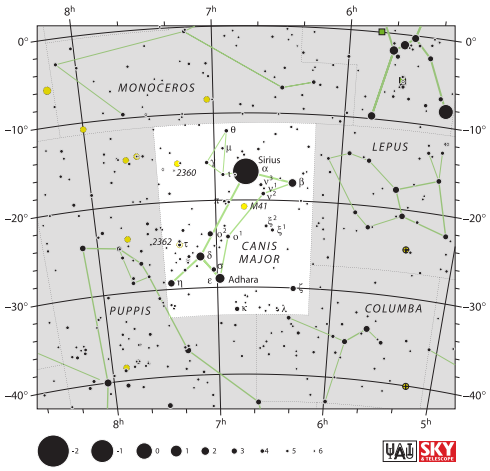
Engagement Ring

The Engagement Ring: Through binoculars, the North Star (Polaris) seems to be the brightest on a small ring of stars. Not a constellation or cluster, this asterism looks like a diamond engagement ring on which Polaris shines brightly as the diamond.



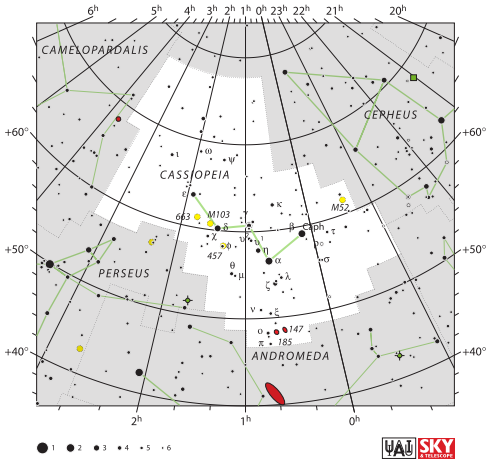
Big Dipper

The Big Dipper (also known as the Plough) is an asterism consisting of the seven brightest stars of the constellation Ursa Major. Four define a "bowl" or "body" and three define a "handle" or "head". It is recognized as a distinct grouping in many cultures. The North Star (Polaris), the current northern pole star and the tip of the handle of the Little Dipper, can be located by extending an imaginary line from Big Dipper star Merak (β) through Dubhe (α). This makes it useful in celestial navigation.



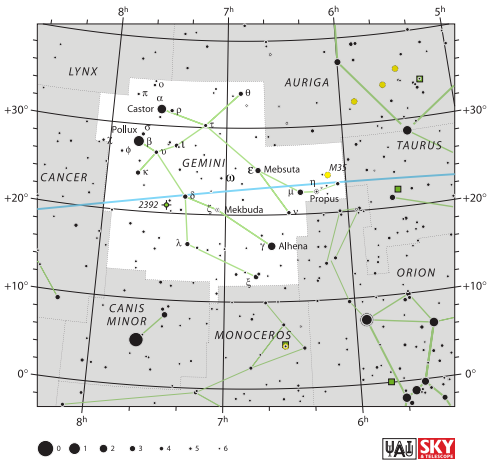
Canis Major

Canis Major, the “big dog”, boasts the brightest star in the night sky—Sirius! Also known as The Dog Star because of the constellation it resides in, Sirius is a massive, hot, blue star—and it’s right next door! One of the reasons Sirius is so bright is that it is so close to us—only 8.6 light-years away. It’s name comes from Greek, and means “glowing” or “scorcher”.



Cassiopeia

Cassiopeia is widely recognized by its characteristic W shape, though it may look like an M, a 3, or a Σ depending on its orientation in the sky, and your position on Earth. However it's oriented, once you've come to know its distinctive zig-zag pattern, you'll spot it with ease. The plane of the Milky Way runs right through Cassiopeia, so it's full of deep sky objects—in particular, a lot of open star clusters. Cassiopeia is named for the queen form Greek mythology who angered the sea god Poseidon when she boasted that her daughter Andromeda was more beautiful than his sea nymphs.

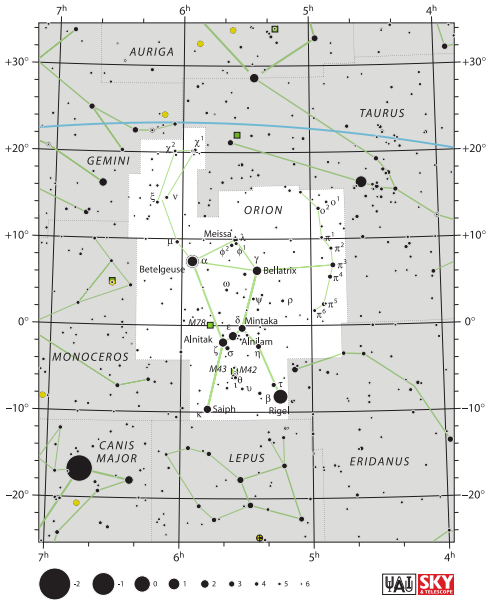


Gemini

Gemini is a well known zodiac constellation. Zodiac constellations line up with the plane of the Solar System in our sky, an intersection known as the ecliptic. This means you will find planets passing through Gemini from time to time. Gemini is also grazed by the plane of the Milky Way, and therefore has a few deep sky objects within its boundaries. Gemini's brightest stars get their names from twins Castor and Pollux of Greek mythology.

Leo

Leo is a fairly well known constellation, because the plane of the Solar System runs through it. Such constellations are called Zodiac Constellations. Leo has some notable, bright stars, in it to boot. The brightest of these, Regulus is at the bottom of a series of stars arrayed in the form of a sickle, or a backwards question mark. This constellation does look more or less like the side profile of a lion lying on the ground, with its head up.

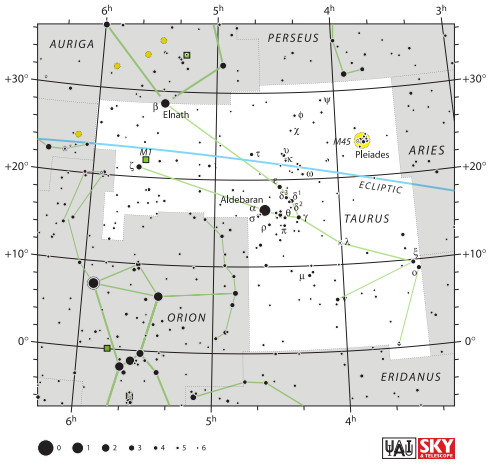


Orion

Orion is a famous constellation, well known especially for the Belt of Orion—three stars in a line at what seems to be the waste of a human figure. The bright stars Rigel and Betelgeuse are two of the brightest stars in the sky. Between the Belt and Rigel you can see the Orion Nebula—the closest star forming region to our Solar System. A beautiful object in a telescope or binoculars, you can also just make out the nebula naked-eye.

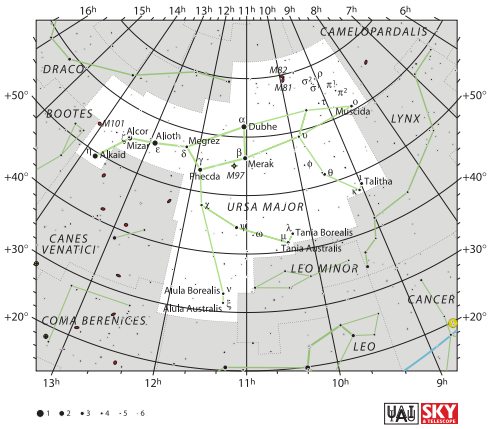
Perseus

Hero of Greek mythology, Perseus is the character who slayed Medusa and rescued the Princess Andromeda from the sea monster Cetus. This is why you will find the constellations Andromeda, Cetus, and Andromeda's parents Cassiopeia and Cepheus, nearby each other in the sky. Perseus's brightest star is called Mirfak (Arabic for elbow). The plane of the Milky Way runs through Perseus, so there are many deep sky objects to be found.



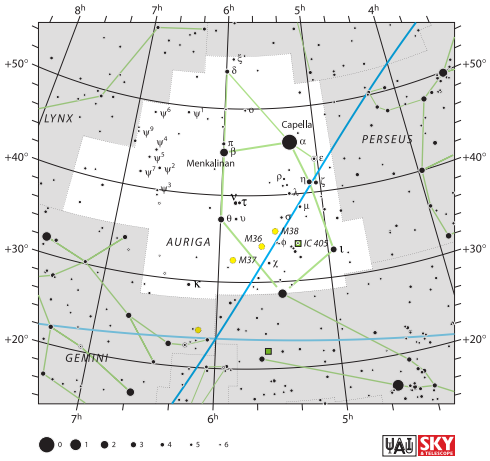
Taurus

You can look to Taurus, the bull, to find the two closest open star clusters to our Solar System. The Pleiades (or, Seven Sisters) is the second closest at 444 light-years away. It's an obvious cluster to even the naked eye. The Pleiades is named for the seven daughters of Atlas and Pleione of Greek Mythology. To the left of the pleiades, the Hyades (siblings to the Pleiades in mythology) is the closest open star cluster to Earth at 153 light-years away. The Hyades has a characteristic V shape to help identify it.



Ursa Major

Ursa Major, or, the Big Bear, is one of the best known and most well recognized constellations, but you might know it by a different name. Contained within the boundaries of the constellation Ursa Major is the Big Dipper, which is not a true constellation, but an asterism. The Big Dipper is useful for finding both the North Star and the bright star Arcturus. Follow the curve of the handle to “arc to Arcturus” and use to two stars in the dipper opposite the handle to point to the North Star.

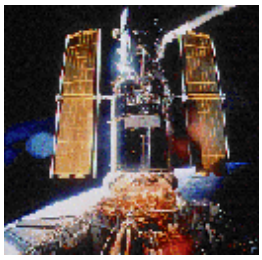


Auriga

Auriga is located north of the celestial equator. Its name is the Latin word for "charioteer", associating it with various mythological charioteers, including Erichthonius and Myrtilus. Auriga is most prominent in the northern Hemisphere winter sky, along with the five other constellations that have stars in the Winter Hexagon asterism. Auriga is half the size of the largest constellation, Hydra. Its brightest star, Capella, is an unusual multiple star system among the brightest stars in the night sky. Because of its position near the winter Milky Way, Auriga has many bright open clusters within its borders, including M36, M37, and M38. In addition, it has one prominent nebula, the Flaming Star Nebula, associated with the variable star AE Aurigae.

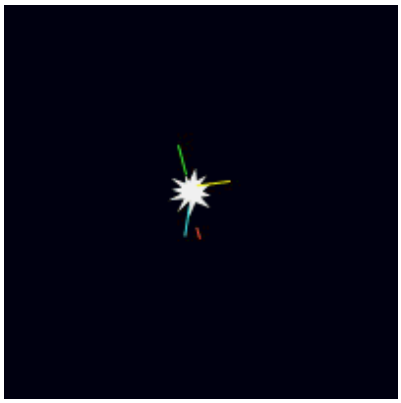
M42 The Orion Nebula

M42, the **Orion Nebula** is a region of star formation about 1,300 light-years away—the closest to our Solar System. It is roughly 30 light-years across, and contains enough material to make 2,000 stars the size of our sun.



Satellites

Human technology! There are almost 500 of these in Low Earth Orbit (we can't see the higher ones). We see these little "moving stars" because they reflect sunlight.



Scintillation

The twinkling of star light is a beautiful effect of the Earth's atmosphere. As light passes through our atmosphere, its path is deviated (refracted) multiple times before reaching the ground. Stars that are near to the horizon will scintillate much more than stars high overhead since you are looking through more air (often the refracted light will display individual colors). In space, stars would not twinkle at all. Astronomers would like it if they could control the effects of this troubling twinkle.

M45 The Pleiades

M45, the "**Pleiades**," is a bright, nearby star cluster, in the last stages of star formation. About seven stars stand out as the brightest in the cluster, and is why the cluster is also known as the "**Seven Sisters**," alluding to the Pleiades, or Seven Sisters from Greek mythology. In Japanese, the cluster is known as "**スバル**," "**Subaru**," and is featured as the logo of the automobile manufacturer of the same name. The Pleiades lies about 440 light-years away and is a very young (for an open star cluster) 100 million years old.

Double Cluster

The "**Double Cluster**" (**NGC 884** and **NGC 869**) is a pair of two open star clusters that are a treat for binoculars and telescopes alike. Each is a congregation of many hundreds of stars, around 50-60 light-years in diameter. These clusters are both about 7,500 light-years away.

Your Telescope Operator and Guide. Thank you for joining me this evening! See you soon!!

The web page for the program in which you just participated is at Nightly Observing Program. Most of the above images were taken as part of the Overnight Telescope Observing Program. For more information on this unique experience please visit Overnight Telescope Observing Program.