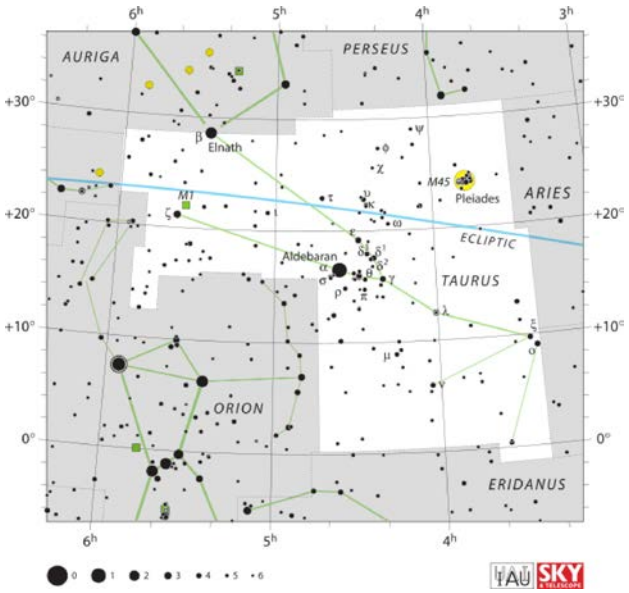
CONSTELLATION TAURUS, THE BULL



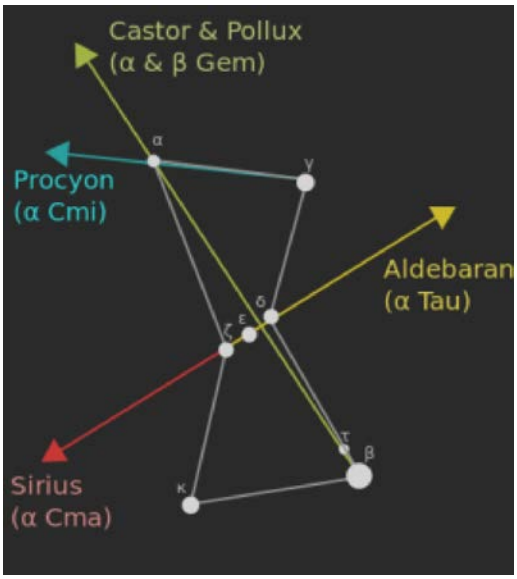
The Taurus constellation lies in the northern sky. Its name means "bull" in Latin. The constellation is symbolized by a bull's head. Taurus is one of the 12 constellations of the zodiac, first catalogued by the Greek astronomer **Ptolemy** in the 2nd century. The constellation's history dates back to the Bronze Age.

It is a large constellation and one of the oldest ones known. In Greek mythology, the constellation is associated with Zeus, who transformed himself into a bull in order to get close to Europa (see Myths below)

Taurus is known for its bright stars Aldebaran, El Nath, and Alcyone, as well as for the variable star T Tauri. But it is probably best known for the Pleiades (Messier 45), also known as the Seven Sisters, and the Hyades, which are the two nearest open star clusters to Earth.

FACTS, LOCATION & MAP

- Taurus is the 17th largest constellation in the sky, occupying an area of 797 square degrees.
- It is located in the first quadrant of the northern hemisphere and can be seen at latitudes between +90° and -65°.
- The neighbouring constellations are Aries, Auriga, Cetus, Eridanus, Gemini, Orion and Perseus.
- Taurus contains two Messier objects – Messier 1 (M1, NGC 1952, the Crab Nebula) and Messier 45 (the Pleiades) – and has five stars that may have planets in their orbits. The brightest star in the constellation is Aldebaran, *Alpha Tauri*, with an apparent visual magnitude of 0.85. Aldebaran is also the 13th brightest star in the sky. There are two meteor showers associated with the constellation; the Taurids and the Beta Taurids. The Taurids peak in November and the Beta Taurids in June and July.
- Taurus belongs to the Zodiac family of constellations, along with Aries, Gemini, Cancer, Leo, Virgo, Libra, Scorpius, Sagittarius, Capricornus and Pisces.



Using Orion to find Aldebaran, Procyon, Sirius, Castor and Pollux

- The galactic plane of the Milky Way intersects the northeast corner of the constellation and the galactic anticenter is located near the border between Taurus and Auriga.
- Taurus is the only constellation crossed by all three of the dividers: the galactic equator, the celestial equator and the ecliptic.
- A ring-like galactic structure known as the Gould's Belt passes through the Taurus constellation
- The recommended three-letter abbreviation for the constellation, as adopted by the International Astronomical Union in 1922, is "Tau".
- The official boundaries, as set by Eugène Delporte in 1930, are defined by a polygon of 26 segments.

MYTH

Taurus constellation has been known since at least the Early Bronze Age, when it marked the Sun's location during the spring equinox. It has been associated with the bull in many cultures and mythologies: Greek and Egyptian among other, and even going back to Ancient Babylon. Depictions of Taurus and the Pleiades star cluster have even been found in a cave painting at Lascaux, dating back to 15,000 BC. Both the constellation and the Pleiades have been known in many indigenous cultures and referred to as the bull and the seven sisters, which indicates a common origin for the names.

In Greek mythology, Taurus is usually associated with Zeus, who adopted the shape of a bull in order to seduce, the beautiful daughter of the Phoenician **King Agenor**. Zeus mingled with the king's herd and, being the most handsome bull there, he got Europa's attention. When she sat on his back, he rose and headed for the sea. Zeus carried Europa all the way to Crete, where he revealed himself and lavished the princess with presents.

The two had three sons together, including **Minos**, who grew up to be the famous king of Crete, who built the palace at Knossos where bull games were held and who also sacrificed seven young boys and girls to the Minotaur each year. Zeus later commemorated the bull by placing it among the stars.

MAJOR STARS IN TAURUS

Aldebaran – *Alpha Tauri* is an orange giant with an apparent visual magnitude varying between 0.75 and 0.95. It is the brightest star in the constellation Taurus and the 13th brightest in the sky. It has a diameter 44 times that of the Sun and is about 425 times more luminous. The star lies approximately 65 light years from Earth. It is classified as a slow irregular variable, type LB. Its brightness varies by about 0.2 magnitudes. The traditional name, Aldebaran, comes from the Arabic al-dabaran, which means "the follower." The star got this name because it appears to follow the Pleiades cluster, the Seven Sisters, across the sky. Aldebaran is pretty easy to find in the sky as it lies in the vicinity of Orion constellation, and the three bright stars that form Orion's Belt point in its direction. Aldebaran lies pretty close to the ecliptic and can be occulted by the Moon.

Aldebaran forms the bull's bloodshot eye, described as "glaring menacingly at the hunter Orion"

Elnath – *Beta Tauri* is the second brightest star in Taurus. It has a visual magnitude of 1.68 and is approximately 131 light years distant. It is 700 times more luminous than the Sun. Like Aldebaran, it lies near the ecliptic and can be occulted by the Moon. The star's name, Elnath, is derived from the Arabic word an-nath, which means "the butting," referring to the bull's horns. Elnath lies on the border with the constellation Auriga, the Charioteer, and has the Bayer designation Gamma Aurigae, which is not used very often.

Zeta Tauri is a spectroscopic binary star with the stellar classification B2 IIIpe. It has a visual magnitude of 3 and is approximately 440 light years distant. The two components have an orbital period of roughly 133 days.

Alcyone – *Eta Tauri* is the third brightest star in Taurus constellation and the brightest member of the Pleiades cluster. It was named after one of the mythological Pleiades and is an eclipsing binary system composed of two stars separated by 0.031 seconds of arc. The system has an apparent visual magnitude of 2.873 and is approximately 370 light years distant from the Sun.


This is a mosaic image of the Crab Nebula, a six-light-year-wide remnant of a star's supernova explosion in 1054, a 1000 years ago. The orange filaments are the tattered remains of the star and consist mostly of hydrogen. A rapidly spinning neutron star embedded in the centre of the nebula is the dynamo powering the nebula's eerie interior bluish glow. The neutron star, like a lighthouse, ejects twin beams of radiation that appear to pulse 30 times a second due to the neutron star's rotation. The Crab Nebula was discovered by **John Bevis** in 1731 and was the first astronomical object to be entered in Messier's catalogue in 1758. It takes its name from its appearance in a drawing made by Irish astronomer **Lord Rosse** in 1844,

DEEP SKY OBJECTS IN TAURUS

Taurus also has a number of famous deep sky objects, among them Messier 1 (the Crab Nebula), Hind's Variable Nebula (NGC 1555), the colliding galaxies NGC 1410 and NGC 1409, the Crystal Ball Nebula (NGC 1514). It includes part of the Taurus-Auriga complex, a star-forming region that spans a diameter of 98 light-years and contains 35,000 solar masses of material and is larger than the Orion Nebula. At a distance of 490 light-years (150 parsecs), this is one of the nearest active star forming regions. AK with Wikipedia Notes


The face of Taurus is marked by the V-shaped group of stars called the Hyades. They span about 5° of the sky and are best viewed in binoculars. It includes a naked eye double star, Theta Tauri, with a separation of 5.6 arcminutes


To the northwest of the Pleiades lies the Crystal Ball Nebula, known by its catalogue designation of NGC 1514. It was discovery by **William Herschel** in 1790. In 1864 **William Huggins** used the spectrum of this nebula to deduce that the nebula is a luminous gas, rather than stars.


The Pleiades (M45), one of the best known open clusters, easily visible to the naked eye. The seven most prominent stars in this cluster are at least visual magnitude six, and so the cluster is also named the "Seven Sisters"