

## MENKAR, THE STAR OF THE WEEK

Just west of the River Eridanus winding its way down from Orion towards the South Pole is the lone constellation Cetus, the Whale. Far from the bright lights of the Milky Way disk it does indeed appear to be lonely. Menkar is not the most famous star in the Whale, or the brightest, although it carries the designation Alpha. But Menkar has its own claims to fame.

Menkar ranks as the second-brightest star in the constellation Cetus the Whale, after Diphda, or Deneb Kaitos, otherwise known as the Whale's Tail. All the same, Menkar has been awarded the alpha designation (Alpha Ceti), possibly because Menkar sits closer to the ecliptic, which marks the sun's yearly circuit in front of the background stars. **And, of course, the most famous star in Cetus is neither of these. It is Mira, a famous variable star.**

("Mira", Latin - feminine form of adjective "wonderful")

Still, Menkar has its own claims to fame. For all you Star Trek fans, this star played a key role in an original Star Trek episode called Space Seed (1967) as well as in the second Star Trek film Star Trek II: The Wrath of Khan (1982). It hosts the planet on which Khan and his crew are exiled, and from which they escape in Wrath of Khan after the planet is rendered uninhabitable (of all the 3,710 known exoplanets, none of them happens to be near Menkar).

**WHEN IS THE BEST TIME TO SEE MENKAR?**

From northern latitudes, Menkar shines due South around 9 pm around the December winter solstice (due North in the Southern Hemisphere). The V-shaped Hyades star cluster – Face of the Bull in the constellation Taurus – serves as a directional arrow, pointing the way to the star Menkar. It's pretty easy to see Menkar and the Circlet of stars outlining the Head of Cetus the Whale in a dark sky. The constellation Cetus lies in the region of the sky called the Water, along with several other constellations with names evocative of water: Eridanus (the river), Aquarius (the water bearer), Pisces (the fish), etc. It was catalogued by the Greek astronomer Ptolemy in the 2nd century.

**In mythology, the princess Andromeda, daughter of King Cepheus and Queen**

**Cassiopeia, was sacrificed to the monster as**

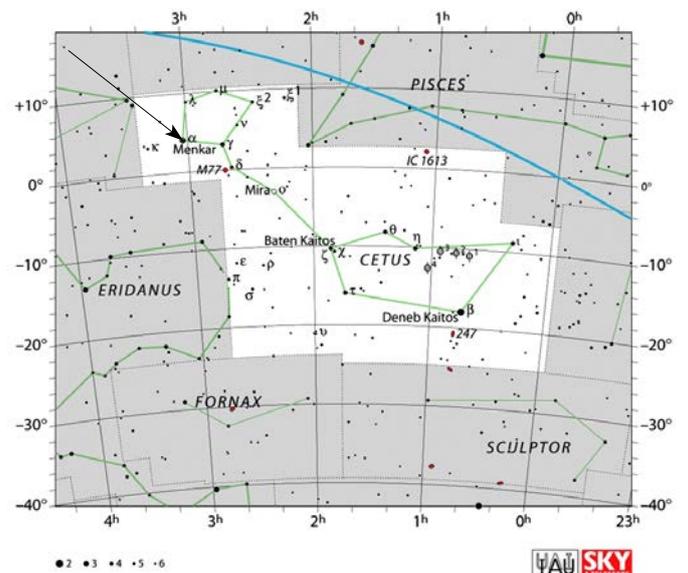
**punishment for her mother Cassiopeia's boastfulness.** This fearsome creature almost gobbled up the Princess Andromeda. But Perseus the hero rescued the Ethiopian princess in the nick of time. **THE SCIENCE OF MENKAR.**

A small telescope shows Menkar to be a colourful double star. The orange giant star, Menkar, contrasts with its fainter blue-white companion, the star 93 Ceti. These two stars are not physically related but happen to lie along our line of sight, as seen from Earth. Menkar resides some 220 light-years away, while 93 Ceti is at least twice that distance away. Menkar's ruddy complexion reveals that it's a cool star, and 93 Ceti's blue-white radiance indicates a young and hot star. Menkar is similar to our Sun in mass, with about twice its mass. However, Menkar has exhausted the hydrogen and helium fuel at its core and has expanded to become a giant star with about 90 times the radius of our Sun. The large area of Menkar's photosphere means that it is emitting about 1,455 times as much energy as the Sun, even though the effective temperature is only 3,795 K (compared to 5,778 K on the Sun). That's why it shines with a reddish hue. Red stars tend to be cooler stars than white stars, just as red hot on Earth indicates something cooler than white hot.

As Menkar continues to evolve – and to burn carbon at its core – it's thought this star will become unstable and ultimately become a variable star, perhaps similar to Mira, the Whale's famous variable star.



Alpha Ceti, aka Menkar, appears as a double star in small telescopes, but in fact the two stars lie at very different distances



Constellation Cetus, as it appears high in the sky looking South, just south of Pisces in the Ecliptic (left is East in this picture)