

Taurus

With comet C/2022 E3 (ZTF) visible throughout the majority of February I shall focus on the constellation of Taurus, which is where you will find the comet. The catchy name describes the comet. The C signifies that the comet is non-periodic, meaning that its orbital period is more than 200 years, this one reappears every 50 000 years. The 2022 is the year the comet was discovered. The E3 shows that it was the third comet discovered in the fifth half-month of the year (A is first half of January, B is the second half of January and so on). The ZTF relates to the people or site that discovered the comet; the Zwicky Transient Facility, which used a wide-field survey camera. Comets are balls of ice and dust, and asteroids are lumps of rock, both orbit the Sun.

The comet will rise just above the horizon in the evening from the 6th February, and be visible through most of February, but it is moving away from us, the best viewing days will be from around the 9th to 15th. The comet is travelling surprisingly slowly, at around 39 km/s relative to the sun, and as it is now travelling away from the sun it is undergoing a gentle deceleration.

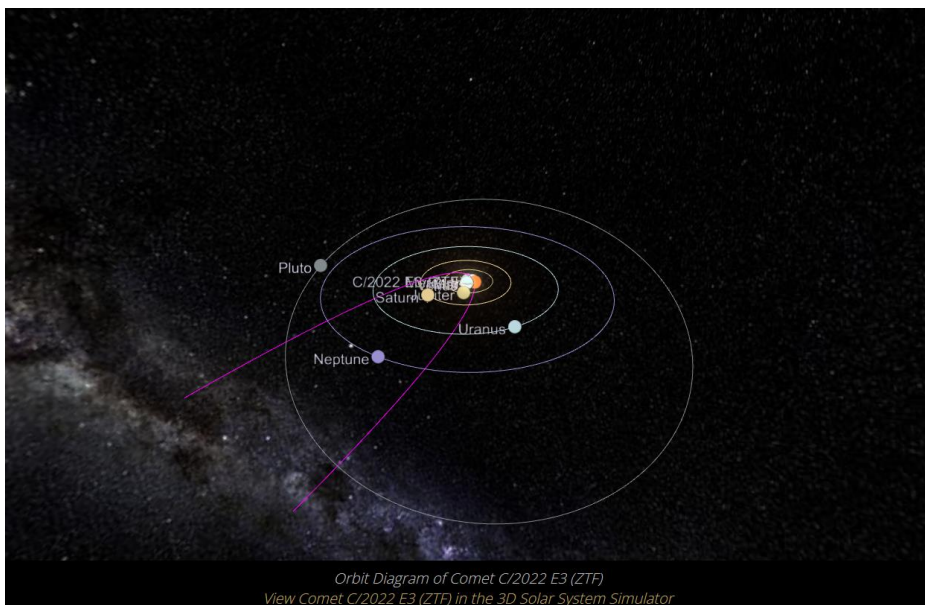


Figure 1: Comet path through the solar system.

Below shows the comet's approximate path throughout mid-february, the earlier in the month you observe the comet the brighter it will appear as it is traveling away from us.

The comet, as mentioned is traveling through the constellation of Taurus. Figure 3 shows the constellation outline.

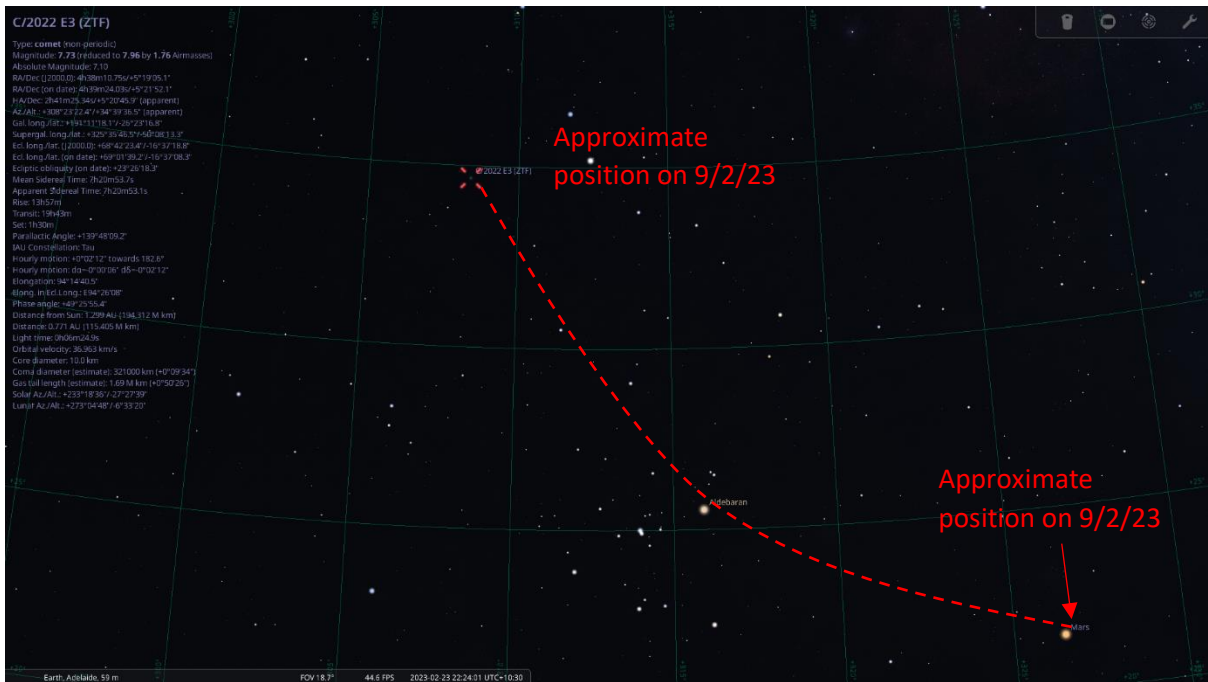


Figure 2: Comet path across the night sky.

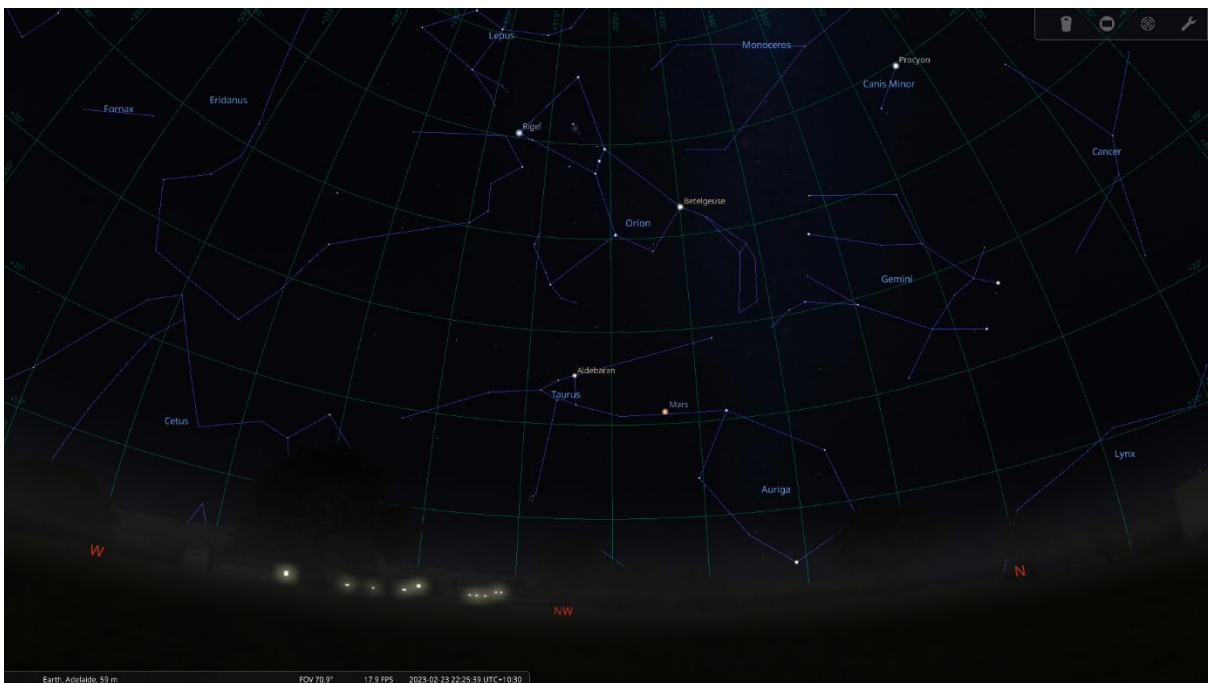


Figure 3: Taurus

Taurus is most easily spotted by finding Orion (sometimes called the saucerpan) and looking for the bright star below it. This month is made slightly easier because Mars is also in the constellation of Taurus.

Taurus is one of the 12 zodiac constellations, first recorded by Ptolemy around 150 AD, although Pleiades and other stars in Taurus have been used to help signify the start of spring in the bronze age (4000 – 1700 BC). Pleiades is known as the seven sisters in many cultures and languages including a significant number of first nations peoples.

In Greek mythology Zeus took the form of a bull and being a god, he was the most handsome bull (taurus is a Latin name that means “the bull”). As such a handsome bull he attracted the attention of Europa, the daughter of King Agenor, when she sat on his back he rose and headed across the sea to the island of Crete, where he revealed his true identity, lavished her with gifts. They had three sons together and sent the bull to the heavens to be immortalized there.

The brightest star in Taurus is Aldebaran, it is the thirteenth brightest star in the night sky it is about 65 light years away, its diameter is 44 times larger than the sun’s diameter and about 425 times more luminous. Alderbaran is derived from Arabic meaning “the follower”, as it appears to follow the seven sisters across the sky. Elnath is the second brightest star and is the butting horn of the constellation.

There are several interesting deep sky objects in Taurus that are easily observable with a 10” telescope. The **crab nebula** is a supernova remnant which is the first to be catalogued in Messier’s catalogue (although it is NGC 1952). It was discovered in 1731 by an English doctor, John Bevis, and was added to Messier’s catalogue in 1758. The nebula is believed to be the remnant of a supernova event that took place in 1054 and was noted by astronomers in China, Japan and the Middle East. The nebula is about 6500 light years away and is now 11 light years across, it is expanding at a rate of 1500 km/s. At the centre of the nebula is a young neutron star – the remains of the star that went supernova in 1054, it is rotating about 30 times a second. It is called the crab nebula as its shape resembles that of a crab shell.

Finally, we cannot leave Taurus without discussing the seven sisters (Pleiades), it is an open cluster of about 500 stars, all of these stars were formed from the same cloud of gas about 100 million years ago. Pleiades were the seven daughters of Atlas whose son was Zeus. Atlas was forced to hold up the sky for all eternity, meaning he was unable to protect them. To save his sisters Zeus transformed his sisters into stars to protect them from being raped from Orion, who is infamous for his treatment of women in Greek mythology. This is very similar to the common star dreaming story across many first nations peoples. This story also has the group as seven sisters, in some nations the sisters come down from the heavens, and in others they are from one particular group. However in both cases they end up being pursued by a man who is in love with the women and wishes to marry one of them. In order to flee from him they launch themselves into the night sky and become Pleiades. The man following a short distance behind also launches into the night sky and becomes part of Orion’s belt forever chasing them across the night sky. This could be the world’s oldest story, because when you look at Pleiades now you will only see six stars; one hundred thousand years ago two stars Atlas and Pleione were far enough apart from each other to be discerned as two stars. Nowadays they are a little closer together and the human eye cannot discern them as two separate stars.

References:

Figure 1: [Comet C/2022 E3 ZTF \(heavens-above.com\)](https://www.heavens-above.com)

Figures 2 & 3: Stellarium

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