

# Comet Tsuchinshan-ATLAS



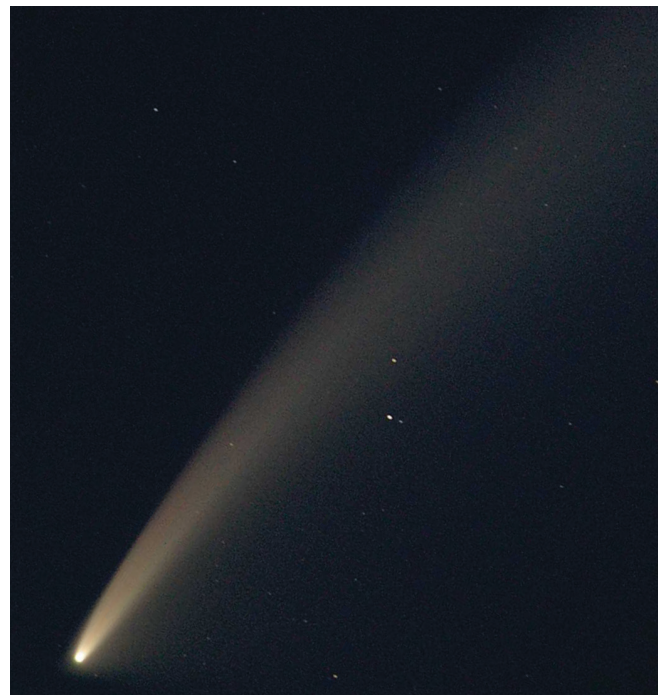
A comet that has arrived from the extremely distant region called the Oort Cloud, a very long way beyond even the planet Neptune, will hopefully be visible in our evening skies from Tasmania from about mid-October. The comet, called Comet Tsuchinshan-ATLAS, was discovered in 2023 independently by the Purple Mountain Observatory in China (Tsuchinshan) and the South African telescope forming part of the Asteroid Terrestrial-impact Last Alert System (ATLAS) group.

Comets are icy, dusty objects which have been described as 'dirty snowballs'. They are typically a few kilometres in diameter and most have very elongated orbits that take them very far from, and very close to, the Sun. Although some, like Comet Halley, have relatively short orbital periods around the Sun – Comet Halley's is around 76 years – others have such long, drawn-out paths that they are in the inner Solar System very infrequently. One estimate of the orbital period of Comet Tsuchinshan-ATLAS is around 80,000 years, but it may never actually return.

In the lead-up to October 2024, the comet was seen in the eastern morning twilight, but was not a prominent object for casual skywatchers. Photographs of it showed a tail, which is normal for comets when near the Sun. As a comet is heated, the Sun's light and stream of outflowing particles called the solar wind 'blow away' the cometary material, with the tail generally directed away from the Sun. (The tail is not a result of the comet's motion; when it is leaving the Sun, it is moving tail-first!)

Astronomers are hoping that the comet will be clearly seen with the unaided eye in the western evening sky from about mid-October. Comets'

brightnesses are hard to predict exactly, but indications are that the best period for watching it will be from about 17 October for several nights, possibly extending to about the end of the month. It will be low in the west as the evening twilight is fading, and because of Earth's rotation, it will set below the horizon by mid-evening. This means that there will be a 'window of opportunity' each night between the late twilight and the time the comet sets. You will need a clear view toward the west, unobstructed by trees, hills or buildings. If you can, observe from a location well away from the lights of a town or city.



*Comet McNaught, photographed from Tasmania in January 2007. It is possible that Comet Tsuchinshan-ATLAS may look something like this in mid-October, although rather less bright. Binoculars will show the comet more clearly. CREDIT: Martin George, Ulverstone Planetarium*

## Ulverstone Planetarium

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We recommend that you start watching from about 8:30 pm (Summer Time) each evening, but the best view is likely to be from around 8:45 pm. A good way to find the comet will be to identify the planet Venus, which is the brightest point of light in our night sky, and look well to the right of Venus and closer to the horizon. Its distance to the right of Venus will be a little more than the distance between the tips of your thumb and little finger when your fingers are spread out and held at arm's length.

If the comet is quite bright, you may spot it a few nights before 17 October, but it will be much lower in the twilight. It will reach its closest point to Earth on 12 October, but it will still be very distant on a human scale: 71 million kilometres from us!

The chart shows the view looking toward the western horizon from Tasmania around 8:45 pm in mid-October. The position of the head of the comet is shown. If there is a tail visible, this will be directed up and to the right. Venus is shown in position for 17 October, but will be in a slightly higher position with respect to the stars each evening.



*This chart shows the view looking due west, toward the horizon, from Tasmania during mid-October at 8:45 pm Summer Time. Comet Tsuchinshan-ATLAS's position is marked at two-day intervals. It may be visible a few nights before 17 October, but it would be very low in the sky. CHART: Martin George, Ulverstone Planetarium*

Some sources have predicted that Comet Tsuchinshan-ATLAS will be the 'Comet of the Century', but this is quite unlikely. For example, it would be hard to beat the stunning view of Comet McNaught in 2007. The comet may be easily visible without optical aid, and *may* be quite spectacular, but a pair of binoculars will certainly offer a better view. Try to see it while you can, and let's hope for clear evening skies!

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