



Comet C/2017 K2 (PanSTARRS)

Comet C/2017 K2 (PanSTARRS) is one of the farthest active comets ever spotted. It was first spotted by the Hubble Space Telescope in the outer regions of the Solar System in 2017. It is now slated to make its closest approach to Earth on 14 July, when it will be at a distance of 270 million kilometres from the Earth. K2, as it is commonly known, is twice the size of Mount Everest.

(Source: <https://www.wionews.com/science/giant-comet-twice-the-size-of-mt-everest-to-pass-through-earth-in-july-493757>)

The following information has been extracted from Wikipedia. Please visit the original site for more details and references.

C/2017 K2 (PanSTARRS) is an Oort cloud comet with an inbound hyperbolic orbit, discovered in May 2017 at a distance beyond the orbit of Saturn when it was 16 AU (2.4 billion km) from the Sun. Preccovery images from 2013 were located by July. It had been in the constellation of Draco from July 2007 until August 2020. As of June 2022, the 3-sigma uncertainty in the current distance of the comet from the Sun is ± 5000 km. The comet is record breaking because it is already becoming active at such a distance. Only comet Hale–Bopp produced such a show from that distance with a similar nucleus.

However, this comet will not be as visible as Hale–Bopp was in 1997 in part because it does not come nearly as close to the Sun. Astronomers had never seen an active inbound comet this far out, where sunlight is 1/225th its brightness as seen from Earth. Temperatures, correspondingly, are at -440 °F (-262 °C) in the Oort cloud. However, as it was approaching the Sun at a distance of 16 AU at discovery, a mix of ancient ices on the surface containing oxygen, nitrogen,

carbon dioxide and carbon monoxide began to sublimate and shed as dust. This material expands into a vast 130,000 km (81,000 mi) wide halo of dust, called a coma, enveloping the solid nucleus.

Research with the Canada–France–Hawaii Telescope (CFHT) infers the comet nucleus to have a radius between 14–80 km (9–50 mi), so there is a chance the nucleus could be as large as C/1995 O1 (Hale–Bopp). However, research with the Hubble Space Telescope (HST) estimates the nucleus to have a circular equivalent diameter of less than 18 km (11 mi). On 17 September 2020, morphological studies of the inner coma, observed on 12 September 2020, were reported, noting that two jet-streamed structures were emitted from the nucleus and, as well, that the length of the tail was about 800,000 km (500,000 mi) long.

The comet was within 5 AU (750 million km) of Earth by 11 January 2022. Around 6 July 2022, the comet will cross the celestial equator, and then on 14 July 2022, it will pass 1.8 AU (270 million km) from Earth and shine around 9.0 magnitude, making it a decent binoculars object. It will reach perihelion on 19 December 2022, close to the orbit of Mars, and should not be visible to the naked eye at 8.0 magnitude.

On 27 July 2021, further detailed observations of the comet were reported on The Astronomer's Telegram.

JPL Horizons models that C/2017 K2 took millions of years to come from the Oort cloud at a distance of roughly 50,000 AU (0.8 ly). The heliocentric orbital eccentricity drops below 1 in December 2023. The outbound orbital period will be around 18000 years.

(Source: [https://en.wikipedia.org/wiki/C/2017_K2_\(PanSTARRS\)](https://en.wikipedia.org/wiki/C/2017_K2_(PanSTARRS)))

Where and How to Find the Comet

The map given below is plotted for the positions of the comet at 8 pm IST. A + sign on the line of the orbit marks each 5-day interval.

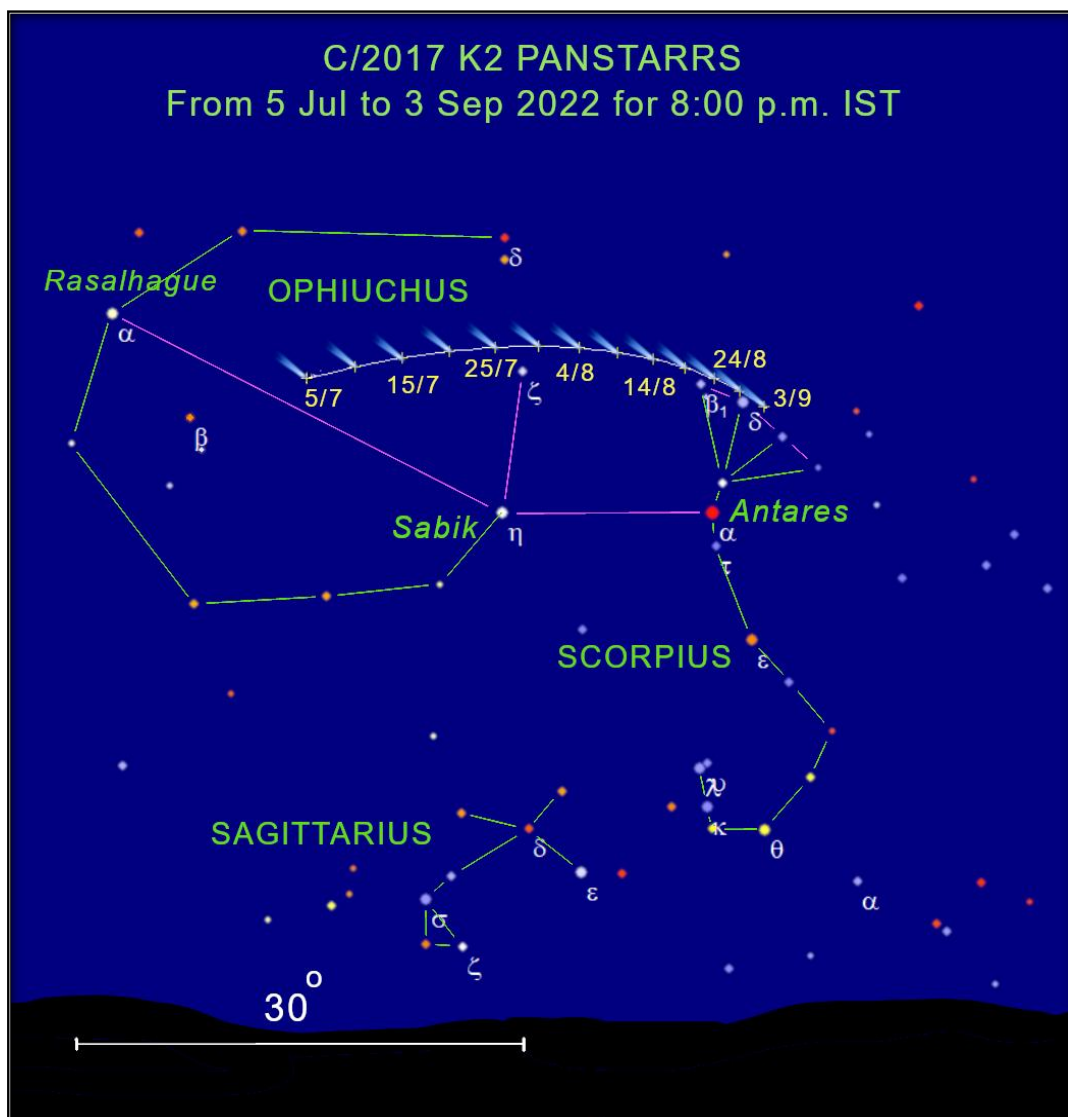
To begin with, first identify Antares in Scorpio with a pair of binoculars. Then move to the east by about 15° , nearly parallel to the horizon, to find Sabik (η Ophiuchi). On 5 July the comet will be halfway between Sabik and Rasalhague (α Ophiuchi). Repeat scanning for a few times to get used to the star field. This will be very useful in the days to come.

Between 25 and 30 July, the comet will move over the star ζ Ophiuchi. Scan the sky from Antares to Sabik and then to ζ

Ophiuchi. The comet will be less than 5° from this star.

Later, the comet moves nearly parallel to ζ Ophiuchi and the jaws of Scorpio.

The ephemeris of the comet is given below. Recall the words of David H Levy, a Canadian amateur astronomer, science writer and discoverer of comets and minor planets. He co-discovered Comet Shoemaker-Levy 9 in 1993, which crashed into Jupiter in 1994. Levy's famous words were, "Comets are like cats: they have tails, and they do precisely what they want." Therefore, there is no saying what K2 might do. You may not even see it at night, or it might just decide to become a bright, naked-eye object. Let us hope for the latter.



**Ephemeris of comet C/2017 K2 (panSTARRS)
for 8:00 p.m. IST**

Date	Right ascension	Declination	Magnitude
05 Jul 2022	17h17.5m	+00°11.2'	7.2
10 Jul 2022	17h07.1m	-01°48.0'	7.1
15 Jul 2022	16h57.1m	-03°50.4'	7.0
20 Jul 2022	16h47.5m	-05°57.0'	7.0
25 Jul 2022	16h38.7m	-08°05.0'	6.9
30 Jul 2022	16h30.5m	-10°12.6'	6.9
04 Aug 2022	16h23.2m	-12°18.6'	6.8
09 Aug 2022	16h16.8m	-14°21.9'	6.8
14 Aug 2022	16h11.3m	-16°22.0'	6.8
19 Aug 2022	16h06.7m	-18°18.5'	6.8
24 Aug 2022	16h03.0m	-20°11.5'	6.7
29 Aug 2022	16h00.1m	-22°01.1'	6.7
03 Sep 2022	15h58.1m	-23°47.6'	6.7



C/2017 K2 (PanSTARRS) photographed in June 2017 by Hubble's Wide Field Camera 3

(Source: [https://en.wikipedia.org/wiki/C/2017_K2_\(PanSTARRS\)](https://en.wikipedia.org/wiki/C/2017_K2_(PanSTARRS)))

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