46P/Wirtanen: The Christmas comet

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Since the beginning of the month, comet 46P/Wirtanen has been rising morning after morning above the horizon. The star with luminous hair is passing by our Sun as we speak. This weekend, and especially this Sunday, December 16, this comet was as close to Earth as possible and was observable with the naked eye after sunset, especially after 8pm.

The hairy star is currently spinning at a speed of 38 kilometres per second, it was then less than 12 million kilometres from us. It is a small comet, the nucleus of Wirtanen is about 750 meters long but its total diameter is 1.2 kilometres.

On the northern sky, it reaches a peak of more than 80° at the end of the month. At its perigee, it was 0.08 AU from the Earth, about 30 Earth-Moon distances, and its height was just over 50° when it passed the meridian at 22h UT in a moonless sky.

The most optimistic forecasts then expect it to have a magnitude equal to 3.8 but the most pessimistic at 7.5. The Moon was absent at best from the comet's visibility from November 30 to December 14, and, having become circumpolar, it can be seen in a dark sky until December 21 in the second part of the night, but much lower on the horizon. It is currently located a little more than 3° southeast of the Pleiades cluster.

The French Astronomical Society considers that its passage on 16 December is one of the *"most favourable of a comet known for the next 30 years*".

Figure 1: Position of Comet Wirtanen from December 1, 2018 to January 31, 2019

Since its discovery at the Lick Observatory in California (USA) in 1948 by Carl Alvar Wirtanen (hence its name), the comet has been the subject of special surveillance by astronomers, professionals and amateurs. Over twelve of its successive passages at the perihelion (the point closest to the Sun), it has been observed eleven times. It had even been initially selected by ESA to be the comet target of the Rosetta mission, before finally being abandoned for the benefit of 67P/Churyomov-Gerasimenko, better known as "Chouri".

Its orbital period is currently 5.4 years and its aphelion is between 5 and 6 AU.

46P/Wirtanen whose orbit is influenced by Jupiter could one day, when it comes too close to the planet, be ejected outside our Solar System.

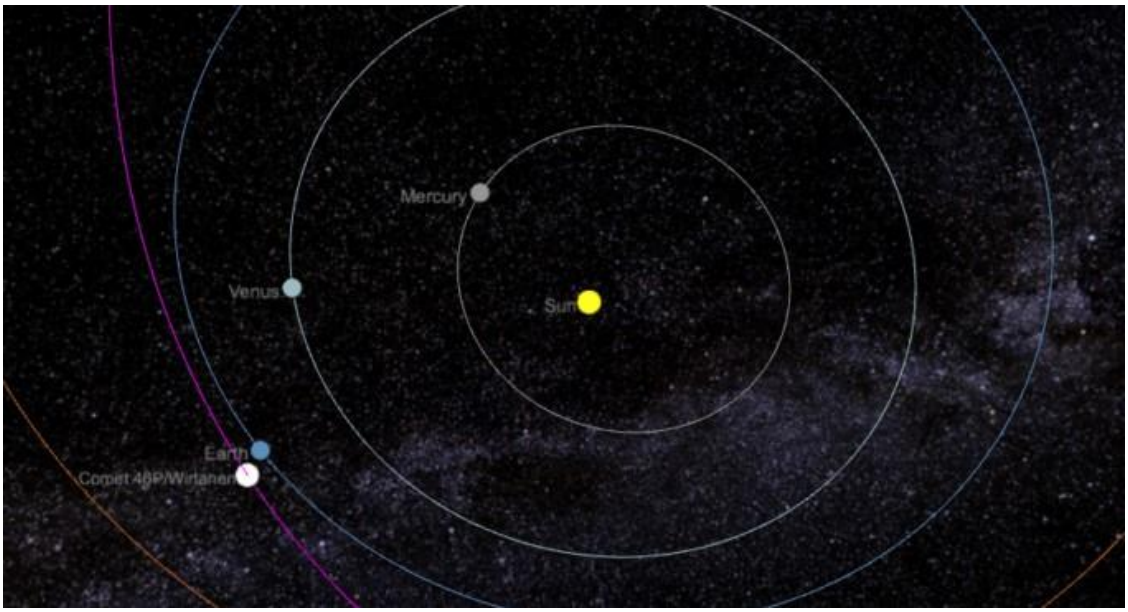

Figure 2: The position of Comet Wirtanen in relation to the Earth and the Sun.