

WISE captures key image of comet mission's destination

October 6 2010



Image credit: NASA/JPL-Caltech/UCLA

NASA's Wide-field Infrared Survey Explorer, or WISE, caught a glimpse of the comet that the agency's EPOXI mission will visit in November. The WISE observation will help the EPOXI team put together a large-scale picture of the comet, known as Hartley 2.

"WISE's infrared vision provides data that complement what EPOXI will see with its visible-light and near-infrared instruments," said James Bauer, of NASA's Jet Propulsion Laboratory, Pasadena, Calif. "It's as if WISE can see an entire country, and EPOXI will visit its capital."

WISE's infrared vision will allow the telescope to get a new estimate of the size of the comet's nucleus, or core, as well as a more thorough look at the sizes of [dust particles](#) that surround it. This information, when

combined with what EPOXI finds as it gets closer to Hartley 2, will reveal how the comet has changed over time.

On Nov. 4, the [EPOXI mission](#), which uses the already "in flight" Deep Impact flyby spacecraft, will reach its closest approach to Hartley 2. The spacecraft will examine the dusty, icy body in detail as it flies by, providing the best, extended view of a comet in history. WISE and several other ground- and space-based telescopes are participating in the viewing, working together to tackle mysteries about our solar system's origins that are frozen inside comets.

For stargazers, opportunities to view the comet are possible throughout October. On Wednesday, Oct. 20, Hartley 2 will reach its closest approach to Earth since it was discovered in 1986. The comet will be approximately 11 million miles away and should be visible with the naked eye near the constellation Perseus if viewed in dark skies. Observers will need binoculars or telescopes from urban areas in the Northern Hemisphere. Southern Hemisphere stargazers can see the comet later in the month.

WISE captured its view of the comet during an ongoing scan of the sky in [infrared light](#). The mission has been busy cataloging hundreds of millions of objects, from comets to distant, powerful galaxies. In late September, it used up its frozen cryogen coolant as expected and began a new phase of its survey. Called the NEOWISE Post-Cryogenic Mission, it primarily focuses on finding additional asteroids and comets. To date, the WISE mission has observed more than 150,000 asteroids and 110 comets, including Hartley 2.

"Astronomers can reference our catalog to get detailed infrared data about their favorite asteroid or comet," said Amy Mainzer, the principal investigator of NEOWISE at JPL. "Space missions can also use our observations for more information on their targets, as EPOXI is doing."

WISE's view of Hartley 2 was taken on May 10, 2010. It gives astronomers a unique look at the comet, complementing what other telescopes can see. Because WISE scanned the whole sky, it captured the most extensive view of Hartley 2's trail, the dusty path left by the comet on its repeated journey around the sun.

Bauer said, "We want to know how the comet behaves as it comes toward the sun and out of deep freeze. The WISE image is one critical puzzle piece of many that will give a comprehensive view of the behavior of the comet through the time of the encounter."

The [comet](#) started to show signs of activity in the spring, spitting out gas and dust. By July, there were clear jets of gas. "Comparing the dust early on to what we see later with EPOXI helps us understand how the activity started on Hartley 2," said Michael A'Hearn, the principal investigator of EPOXI at the University of Maryland in College Park.

The term EPOXI is a combination of the names for the two extended mission components: the Extrasolar Planet Observations and Characterization (EPOCh), and the Hartley 2 flyby, called the [Deep Impact](#) eXtended Investigation (DIXI). The name NEOWISE comes from combining WISE and the acronym for near-Earth object, NEO.

Provided by JPL/NASA

Citation: WISE captures key image of comet mission's destination (2010, October 6) retrieved 11 May 2024 from <https://phys.org/news/2010-10-wise-captures-key-image-comet.html>

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