

# Parker Solar Probe spies newly discovered comet NEOWISE

July 13 2020, by Sarah Frazier

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An unprocessed image from the WISPR instrument on board NASA's Parker Solar Probe shows comet NEOWISE on July 5, 2020, shortly after its closest approach to the Sun. The Sun is out of frame to the left. The faint grid pattern near the center of the image is an artifact of the way the image is created. The small black structure near the lower left of the image is caused by a grain of dust resting on the imager's lens. Credit: NASA/Johns Hopkins APL/Naval Research Lab/Parker Solar Probe/Brendan Gallagher

NASA's Parker Solar Probe was at the right place at the right time to capture a unique view of comet NEOWISE on July 5, 2020. Parker Solar Probe's position in space gave the spacecraft an unmatched view of the comet's twin tails when it was particularly active just after its closest approach to the sun, called perihelion.

The comet was discovered by NASA's Near-Earth Object Wide-field Infrared Survey Explorer, or NEOWISE, on March 27. Since then, the comet—called comet C/2020 F3 NEOWISE and nicknamed comet NEOWISE—has been spotted by several NASA spacecraft, including Parker Solar Probe, NASA's Solar and Terrestrial Relations Observatory, the ESA/NASA Solar and Heliospheric Observatory, and astronauts aboard the International Space Station.

The image above is unprocessed data from Parker Solar Probe's WISPR instrument, which takes images of the sun's outer atmosphere and [solar wind](#) in visible light. WISPR's sensitivity also makes it well-suited to see fine detail in structures like comet tails. Parker Solar Probe collected science data through June 28 for its fifth solar flyby, but the availability of additional downlink time allowed the team to take extra images, including this image of comet NEOWISE.

The twin tails of comet NEOWISE are seen more clearly in this image from the WISPR instrument, which has been processed to increase contrast and remove excess brightness from scattered sunlight, revealing more detail in the comet tails.



Processed data from the WISPR instrument on NASA's Parker Solar Probe shows greater detail in the twin tails of comet NEOWISE, as seen on July 5, 2020. The lower, broader tail is the comet's dust tail, while the thinner, upper tail is the comet's ion tail. Credit: NASA/Johns Hopkins APL/Naval Research Lab/Parker Solar Probe/Guillermo Stenborg

The lower tail, which appears broad and fuzzy, is the dust tail of comet NEOWISE—created when dust lifts off the surface of the comet's nucleus and trails behind the comet in its orbit. Scientists hope to use WISPR's images to study the size of dust grains within the dust tail, as well as the rate at which the comet sheds dust.

The upper tail is the ion tail, which is made up of gasses that have been ionized by losing electrons in the sun's intense light. These ionized gasses

are buffeted by the solar wind—the sun's constant outflow of magnetized material—creating the ion tail that extends directly away from the sun. Parker Solar Probe's images appear to show a divide in the ion tail. This could mean that [comet NEOWISE](#) has two ion tails, in addition to its dust tail, though scientists would need more data and analysis to confirm this possibility.

Provided by NASA's Goddard Space Flight Center

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