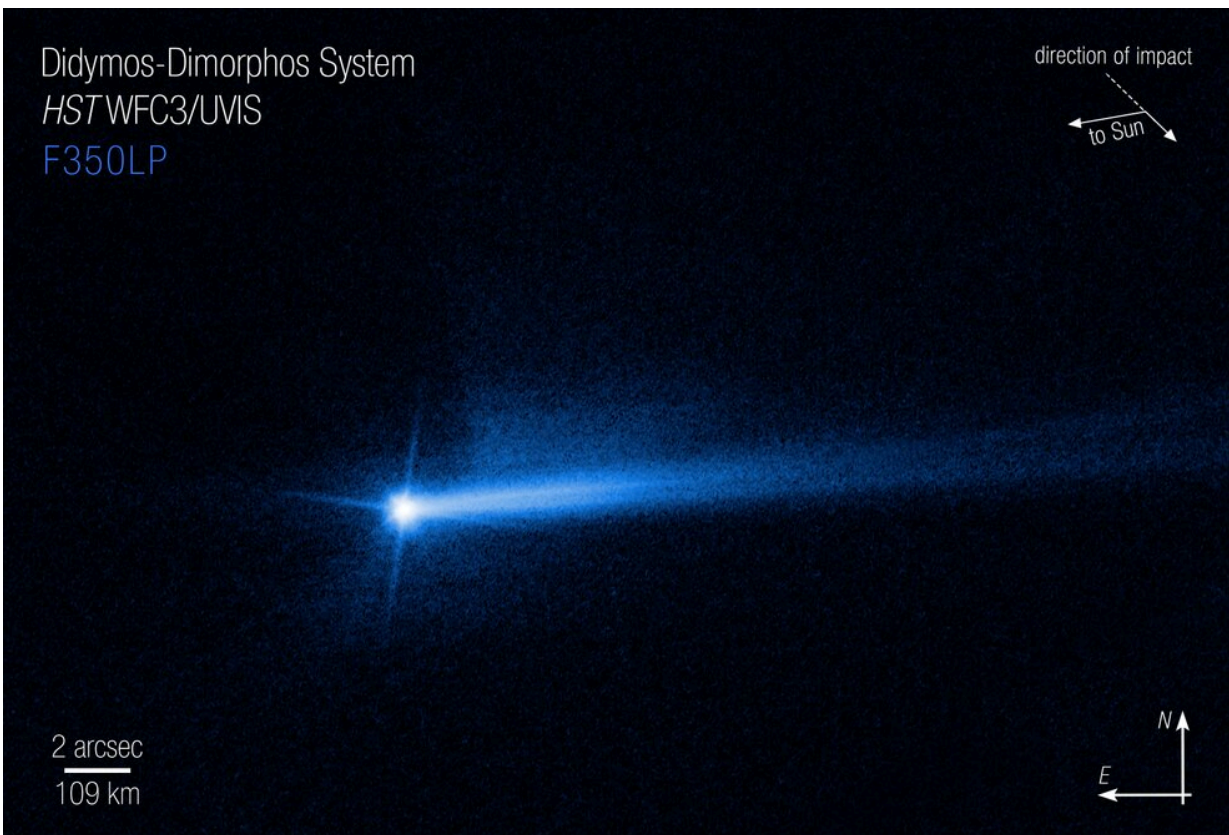


NASA's Hubble spots twin tails in new image after DART impact

October 20 2022



At the top right of the image, there are arrows indicating the direction of impact by the DART spacecraft. The direction of impact arrow points in the 10 o'clock direction. The "to sun" arrow points in the 8 o'clock direction. Following impact, Hubble made 18 observations of the system. Imagery indicates the second tail formed between Oct. 2 and Oct. 8. At the bottom right are compass arrows indicating the orientation of the image on the sky. The north arrow points in the directly straight up. The east arrow points to the left in the 9 o'clock direction. In the top left corner of each image are the filters used to create the image. For

Hubble, F350LP is blue. Credit: NASA, ESA, STScI, Jian-Yang Li (PSI); Image Processing: Joseph DePasquale

Two tails of dust ejected from the Didymos-Dimorphos asteroid system are seen in new images from NASA's Hubble Space Telescope, documenting the lingering aftermath of NASA's Double Asteroid Redirection Test (DART) impact.

The DART spacecraft impacted Dimorphos, a small moonlet of Didymos, on Sept. 26 in a planetary defense test to change Dimorphos's orbit by crashing into it. Current data show that DART shortened Dimorphos's original 11 hour and 55 minute orbit around Didymos by about 32 minutes.

Repeated observations from Hubble over the last several weeks have allowed scientists to present a more complete picture of how the system's debris cloud has evolved over time. The observations show that the ejected material, or "ejecta," has expanded and faded in brightness as time went on after impact, largely as expected. The twin tail is an unexpected development, although similar behavior is commonly seen in comets and active asteroids. The Hubble observations provide the best-quality image of the double tail to date.

Following impact, Hubble made 18 observations of the system. Imagery indicates the second tail formed between Oct. 2 and Oct. 8.

In this image, DART impacted the Didymos-Dimorphos system from the 10 o'clock direction.

The relationship between the comet-like tail and other ejecta features seen at various times in images from Hubble and other telescopes is still

unclear, and is something the investigation team is currently working to understand. The northern tail is newly developed. In the coming months, scientists will be taking a closer look at the data from Hubble to determine how the second tail developed. There are a number of possible scenarios the team will investigate.

The Hubble data were collected as part of [Cycle 29 General Observers Program 16674](#).

Provided by NASA's Goddard Space Flight Center

Citation: NASA's Hubble spots twin tails in new image after DART impact (2022, October 20) retrieved 1 June 2023 from <https://phys.org/news/2022-10-nasa-hubble-twin-tails-image.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.