

# OT: The goal is to alter the trajectory

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  - *Date:* 11 Jun 2005 06:39:36 -0700
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(The goal is to see if they can defend the planet from an incoming comet.)

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Hubble Telescope to View Comet Collision  
– By ALEX DOMINGUEZ, Associated Press Writer  
Friday, June 10, 2005

(06-10) 20:28 PDT BALTIMORE, (AP) —

The Hubble Space Telescope will be watching when the University of Maryland's Deep Impact space probe crashes into a comet July 4, setting off a cosmic firework that may be visible on Earth.

The best view is expected to be had by the Deep Impact probe itself, but officials at the Space Telescope Science Institute, which coordinates Hubble's use, say they are ready for anything.

"We will be here and we'll be working," said Cheryl Gundy, a spokeswoman for the Space Telescope Science Institute.

Hubble was also trained on the collision of comet Shoemaker Levy and Jupiter in 1994 and "had those great results. We're hoping well see something similar," Gundy said.

While the Shoemaker Levy collision was the first collision of two solar system bodies ever observed, if all goes well, the Deep Impact mission will mark the first time a spacecraft has struck a comet.

As Deep Impact nears the end of its six-month journey, the Hubble is

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also observing the comet to help guide mission officials, Gundy said.

Observations by Hubble and the Spitzer space telescopes in 2004 helped paint a clearer picture of the comet, showing it to be about 8.7 miles by 2.5 miles, or half the size of the island of Manhattan, with a matte black color.

Mission officials said Thursday that the probe is on course and they have a method to deal with one camera that is not focusing properly.

Deep Impact, launched Jan. 12, has two parts, an "impactor" that will be released to collide with Tempel 1, possibly creating a stadium-size gouge, and a fly-by craft with instruments to observe the collision. NASA announced in March that the High Resolution Instrument on the fly-by craft was not focusing properly, and mission officials said Thursday they will use a mathematical process called deconvolution to reverse the distortion.

The High Resolution Instrument is designed to deliver light simultaneously to a multispectral camera and to an infrared spectrometer. The fly-by spacecraft also carries a Medium Resolution Instrument, which is a smaller telescope, and the impactor also has a camera.

Comets are believed to contain raw materials from the birth of our solar system and scientists hope the collision will reveal secrets contained since the comet was created billions of years ago.

In addition to instruments on board the spacecraft, the impact will also be observed by NASA's Hubble, Spitzer and Chandra space telescopes, and by big telescopes on Earth.

With all of those eyes on the sky, no one is really sure what they will see, said the mission's principal investigator, University of Maryland professor of astronomy Michael A'Hearn.

"The important point everyone has to realize is the uncertainty is so large we don't know what to expect," A'Hearn said at a preview briefing Thursday at the Jet Propulsion Laboratory in Pasadena, Calif.

The University of Maryland provides overall mission management while the Jet Propulsion Laboratory manages the project for NASA's Science

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Mission Directorate. Ball Aerospace & Technologies Corp. of Boulder, Colo., built the spacecraft for NASA.

"It is possible that the change will be so small you can't see it with anything less than a four-meter telescope. It could be much more than that, it could be that you could see the change with binoculars," A'Hearn said. "You just have to be aware of the uncertainty."

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On the Net:

[www.nasa.gov/deepimpact](http://www.nasa.gov/deepimpact)

URL:

<http://sfgate.com/cgi-bin/article.cgi?file=/news/archive/2005/06/10/national/a182502D23.DTL>

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