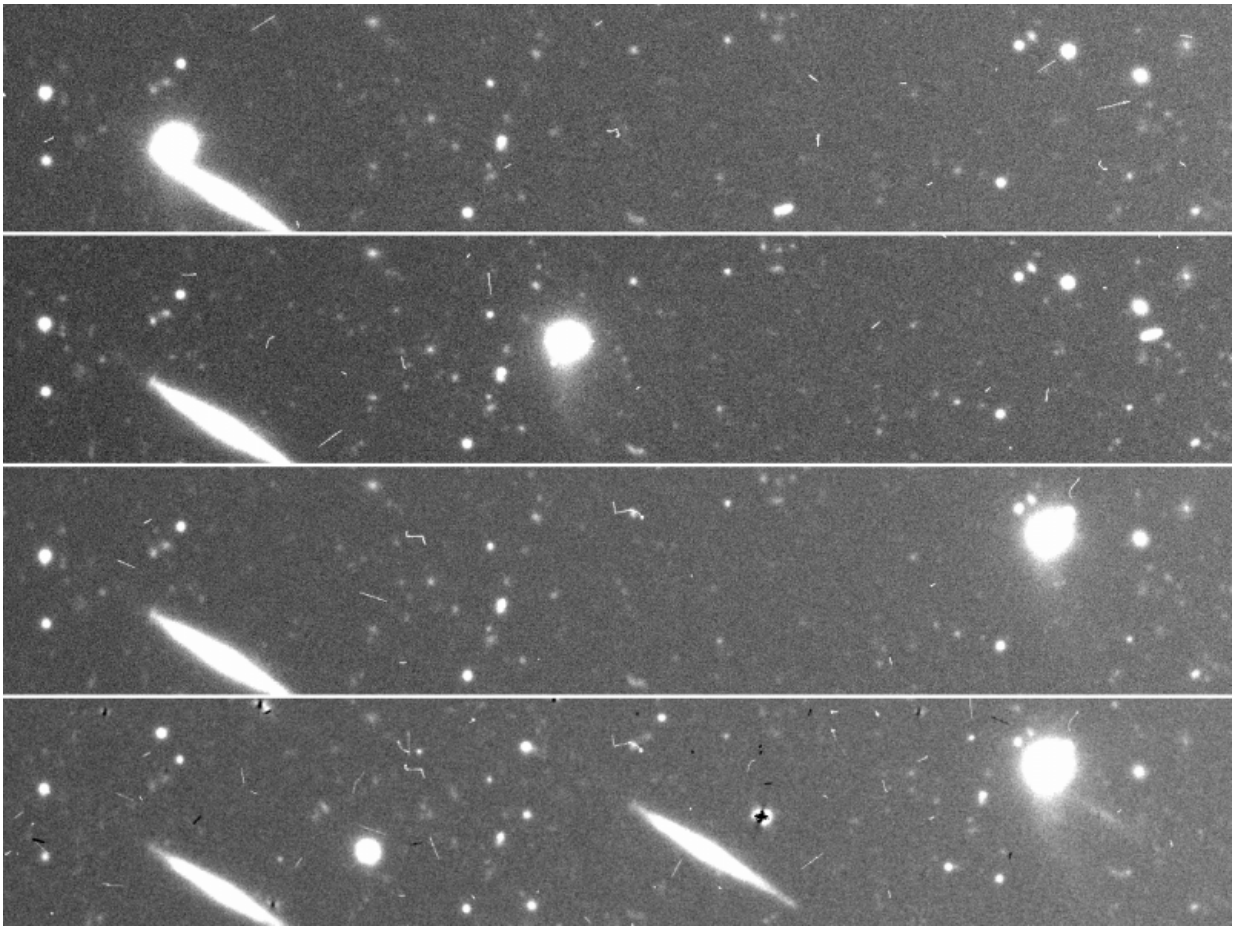
Main-belt asteroid shows evidence of March collision

November 12 2015



Four-panel image: The top three panels are three different exposures with Subaru with asteroid (493) Griseldis moving from left to right as you move from the first panel to the third one. The bottom panel shows all three exposures added together, after suppressing the galaxy that interferes with the "tail" in the first exposure; the asteroid is on the right. Credit: D. Tholen, S

The main-belt asteroid (493) Griseldis was probably hit by another object last March. The results were reported on November 12 at the annual meeting of the Division for Planetary Sciences of the American Astronomical Society near Washington, DC.

Observations taken with the 8-meter Subaru Telescope on Maunakea on 17 March 2015 UT showed that the main-belt asteroid (493) Griseldis had "an extended feature," which is astronomer-speak for a tail.

However, unlike the tails of comets, which flow in the direction opposite from the sun due to the solar wind, the extension on Griseldis was not in the antisolar direction, and the extension proved to be a short-lived phenomenon.

Additional observations taken with the 6.5-m Magellan telescope four nights later still detected the extension, though it was weaker, but exposures taken with the 2.2-meter University of Hawaii telescope on 24 March UT or Magellan on 18 April UT and 21 May UT showed no such feature, nor did images from telescope archives taken in 2010 and 2012.

The researchers, David Tholen (Institute for Astronomy, University of Hawaii at Manoa), Scott Sheppard (Carnegie Institution) and Chad Trujillo (Gemini Observatory) have therefore concluded that "the observations are consistent with the occurrence of an impact event on this asteroid."

The main asteroid belt is located between the orbits of Mars and Jupiter.

Provided by University of Hawaii at Manoa