Radar images of near-Earth asteroid 2006 DP14

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This image is one frame from a collage of radar images taken on Feb. 11, 2014, of near-Earth asteroid 2006 DP 14, which is about 1,300 feet (400 meters) long. The imaging used the 230-foot (70-meter) Deep Space Network antenna at

Goldstone, Calif., while the asteroid was about 11 times farther from Earth than the moon is. Credit: NASA/JPL-Caltech/GSSR

A collage of radar images of near-Earth asteroid 2006 DP14 was generated by NASA scientists using the 230-foot (70-meter) Deep Space Network antenna at Goldstone, Calif., on the night of Feb. 11, 2014.

Delay-Doppler radar imaging revealed that the asteroid is about 1,300 feet (400 meters) long, 660 feet (200 meters) wide, and shaped somewhat like a big peanut. The asteroid's period of rotation is about six hours. The asteroid is of a type known as a "contact binary" because it has two large lobes on either end that appear to be in contact. Previous radar data from Goldstone and the Arecibo Observatory in Puerto Rico has shown that at least 10 percent of near-Earth asteroids larger than about 650 feet (200 meters) have contact binary shapes like that of 2006 DP14. The data were obtained over an interval of 2.5 hours as the asteroid completed about half a revolution. The resolution is about 60 feet (19 meters) per pixel.

The data were obtained on Feb. 11 between 9:03 a.m. and 11:27 p.m. PST (12:03 a.m. to 2:27 a.m. EST on Feb. 12). At the time of the observations, the asteroid's distance was about 2.6 million miles (4.2 million kilometers) from Earth. That is about 11 times the average distance between Earth and its moon. The asteroid's closest approach to Earth occurred on Feb. 10, at a distance of about 1.5 million miles (2.4 million kilometers).

Radar is a powerful technique for studying an asteroid's size, shape, rotation state, surface features and surface roughness, and for improving the calculation of asteroid orbits. Radar measurements of asteroid distances and velocities often enable computation of asteroid orbits

much further into the future than if radar observations weren't available.

NASA places a high priority on tracking asteroids and protecting our home planet from them. In fact, the United States has the most robust and productive survey and detection program for discovering near-Earth objects. To date, U.S. assets have discovered more than 98 percent of the known near-Earth objects.

In addition to the resources NASA puts into understanding asteroids, it also partners with other U.S. government agencies, university-based astronomers, and space science institutes across the country that are working to track and understand these objects better, often with grants, interagency transfers and other contracts from NASA.

NASA's Near-Earth Object Program at NASA Headquarters, Washington, manages and funds the search, study and monitoring of asteroids and comets whose orbits periodically bring them close to Earth. JPL manages the Near-Earth Object Program Office for NASA's Science Mission Directorate in Washington. JPL is a division of the California Institute of Technology in Pasadena.

Provided by NASA