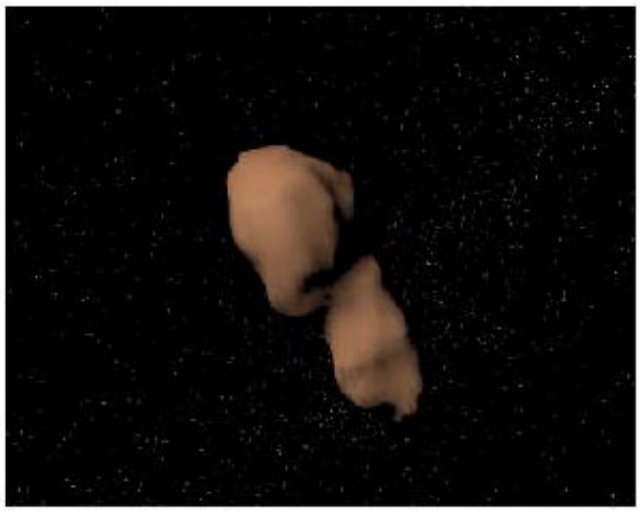
Large Asteroid Will Make Its Closest Approach to Earth Wednesday

September 29 2004



A mountain-sized asteroid will make its closest approach to Earth at 9:35 a.m. EDT wednesday.
Although asteroid 4179 Toutatis will come no closer than four times the distance between the Earth and the moon (approximately 961,000), this will be the closest approach of any known asteroid of comparable size this century.

"This is the closest Toutatis will come for another 500 years, and its orbit is very well known," said Dr. Don Yeomans of NASA's Jet Propulsion Laboratory (JPL), Pasadena, Calif., manager of NASA's

Near Earth Objects Program Office. "What this fly-by provides is an opportunity to study one of our closest solar system neighbors," he said.

"While we have done radar observations on this particular asteroid before, this is the closest it has come since at least the twelfth century " said Dr. Steve Ostro, a scientist at JPL. "We will use the huge dish in Arecibo, Puerto Rico, to refine our knowledge of its physical characteristics and its trajectory," he said.

Named after an obscure Celtic and Gallic god, Toutatis, the yam-shaped space rock measures 1.92 kilometers (1.2 miles) by 2.29 kilometers (1.4 miles) by 4.6 kilometers (2.9 miles).

When the asteroid flies past Earth, it will be traveling at approximately 39,600 kilometers per hour (24,550 mph). Toutatis has not passed this close to Earth since the twelfth century, and it will not be this close again until 2562.

About Asteroid 4179 Toutatis

Asteroid 4179 Toutatis (formerly 1989 AC) was discovered by C. Pollas on January 4, 1989, at Caussols, France, on photographic plates taken on the 0.9-m Schmidt telescope by Alain Maury and Derral Mulholland during astrometric observations of Jupiter's faint satellites.

The images revealed Toutatis to be a several-kilometer-long object with a nonconvex shape dominated by two components in contact, one approximately twice as large as the other. The highest-resolution images, show craters with diameters ranging from about 100 m to about 600 m.

Toutatis has one of the strangest rotation states yet observed in the solar system. Instead of the spinning about a single axis as do the planets and the vast majority of asteroids, it "tumbles" somewhat like a football after a botched pass. Its rotation is the result of two different types of motion with

periods of 5.4 and 7.3 Earth days that combine in such way that Toutatis's orientation with respect to the solar system never repeats.

Citation: Large Asteroid Will Make Its Closest Approach to Earth Wednesday (2004, September 29) retrieved 25 April 2024 from https://phys.org/news/2004-09-large-asteroid-closest-approach-earth.html

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