

Arecibo astronomers prepare to obtain close images of a near-Earth asteroid

January 25 2008

The Arecibo Observatory in Arecibo, Puerto Rico will observe a newly discovered asteroid on Jan. 27-28, as the object called 2007 TU24 passes within 1.4 lunar distances, or 334,000 miles, from Earth.

The asteroid, estimated at between 150 and 600 meters in diameter – about 500 feet to 1,900 feet, or the size of a football field, at 360 feet, to the size of Chicago’s 110-story Sears Tower, at 1,454 feet – was discovered by the University of Arizona’s Catalina Sky Survey in October 2007. It poses no threat to Earth, but its near approach gives Arecibo astronomers a golden opportunity to learn more about potentially hazardous near-Earth objects.

“We don’t yet know anything about this asteroid,” said Mike Nolan, head of radar astronomy at the Puerto Rico observatory. Such objects pass near Earth with relative frequency, he said – approximately one every five years or so – but it’s rare that astronomers have enough advance notice to plan for rigorous observing.

“Because it’s coming so close, we’ll get our highest quality imaging,” said Nolan.

Using Arecibo’s powerful radar, which is the most sensitive in the world, researchers will gauge the object’s size, observe its speed and measure its spin. Switching then to imaging mode, which will offer resolution to 7.5 meters – three times more precise than NASA’s Goldstone telescope, the only other radar telescope in the world – the researchers hope to map the

object's surface in detail. The Robert C. Byrd Green Bank Telescope, Green Bank, W.Va., will receive Arecibo's echo from the asteroid and transmit its data back to Arecibo.

TU2 is one of an estimated 7,000 near-Earth objects, its size or larger – most have never been closely studied.

“We have good images of a couple dozen objects like this, and for about one in 10, we see something we've never seen before,” said Nolan. “We really haven't sampled the population enough to know what's out there.”

Arecibo's radar is vital for continuing to classify and understand such objects, said Cornell University assistant professor of astronomy Jean-Luc Margot. “Arecibo does a fantastic job at getting images, discovering the shape, spin and reflection properties of such an object . . . all these things that are important to know.”

The telescope will be trained on TU24 Jan. 27-28 and again Feb. 1-4. Goldstone's planetary radar observed it Jan. 23-24.

Source: Cornell University

Citation: Arecibo astronomers prepare to obtain close images of a near-Earth asteroid (2008, January 25) retrieved 24 April 2024 from <https://phys.org/news/2008-01-arecibo-astronomers-images-near-earth-asteroid.html>

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