

NASA in final preparations for Nov. 8 asteroid flyby

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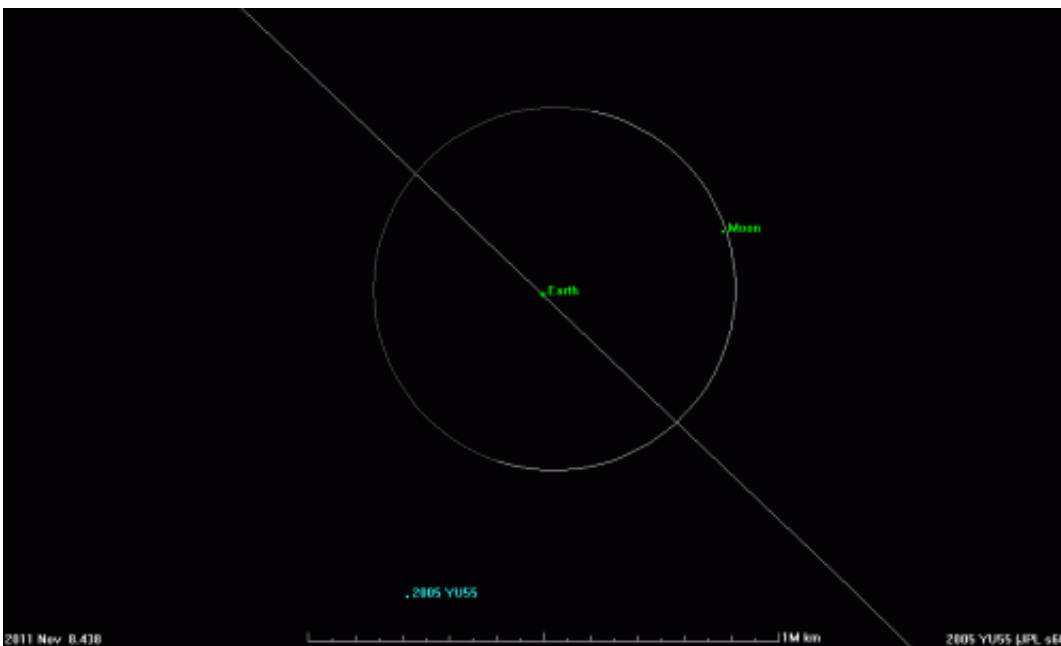


This radar image of asteroid 2005 YU55 was generated from data taken in April of 2010 by the Arecibo Radar Telescope in Puerto Rico. Image credit: NASA/Cornell/Arecibo

(PhysOrg.com) -- NASA scientists will be tracking asteroid 2005 YU55 with antennas of the agency's Deep Space Network at Goldstone, Calif., as the space rock safely flies past Earth slightly closer than the moon's orbit on Nov. 8. Scientists are treating the flyby of the 1,300-foot-wide (400-meter) asteroid as a science target of opportunity - allowing instruments on "spacecraft Earth" to scan it during the close pass.

Tracking of the aircraft carrier-sized asteroid will begin at 9:30 a.m. local time (PDT) on Nov. 4, using the massive 70-meter (230-foot) [Deep Space Network](#) antenna, and last for about two hours. The asteroid will continue to be tracked by Goldstone for at least four hours each day from Nov. 6 through Nov. 10. Radar observations from the Arecibo Planetary Radar Facility in Puerto Rico will begin on Nov. 8, the same day the asteroid will make its closest approach to Earth at 3:28 p.m. PST.

The trajectory of asteroid 2005 YU55 is well understood. At the point of closest approach, it will be no closer than 201,700 miles (324,600 kilometers) or 0.85 the distance from the moon to Earth. The [gravitational influence](#) of the asteroid will have no detectable effect on anything here on Earth, including our planet's tides or [tectonic plates](#). Although 2005 YU55 is in an orbit that regularly brings it to the vicinity of Earth (and Venus and Mars), the 2011 encounter with Earth is the closest this [space rock](#) has come for at least the last 200 years.



Animation of the trajectory for asteroid 2005 YU55 - November 8-9, 2011.

Image credit: NASA/JPL-Caltech

During tracking, scientists will use the Goldstone and Arecibo antennas to bounce [radio waves](#) off the space rock. Radar echoes returned from 2005 YU55 will be collected and analyzed. NASA scientists hope to obtain images of the asteroid from Goldstone as fine as about 7 feet (2 meters) per pixel. This should reveal a wealth of detail about the asteroid's surface features, shape, dimensions and other physical properties.

Arecibo [radar observations](#) of asteroid 2005 YU55 made in 2010 show it to be approximately spherical in shape. It is slowly spinning, with a rotation period of about 18 hours. The asteroid's surface is darker than charcoal at optical wavelengths. Amateur astronomers who want to get a glimpse at YU55 will need a telescope with an aperture of 6 inches (15 centimeters) or larger.

The last time a space rock as big came as close to Earth was in 1976, although astronomers did not know about the [flyby](#) at the time. The next known approach of an asteroid this large will be in 2028.

NASA detects, tracks and characterizes asteroids and comets passing close to Earth using both ground- and space-based telescopes. The Near-Earth Object Observations Program, commonly called "Spaceguard," discovers these objects, characterizes a subset of them, and plots their orbits to determine if any could be potentially hazardous to our planet.

Provided by JPL/NASA

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