

Name _____
Literacy Lab #35 - Asteroid YU55 Flyby

Date _____
Earth Science - Breed - 2012/2013

Directions: Take a few minutes to read the article below either online (or on the back of this page.) Write responses to the statements or questions below. Cut/copy/paste is not allowed – use your own words and thoughts, based in research if needed.

Read more: http://www.nasa.gov/mission_pages/asteroids/overview/yu55.html

Fact-finding: List three facts that you learned in this article.

1.

2.

3.

Vocabulary: List and define three unfamiliar words in the space below.

Implications: What are your feelings about this “discovery”? Express your feelings (tactfully) about whether this is an advancement of science or a bad idea.

Asteroid and Comet Watch



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

NASA/JPL-Caltech
[Larger image](#)

Asteroid 2005 YU55 is one of about 8,500 near-Earth objects to be catalogued to date. What makes this space rock special is that its orbital path carries it safely past Earth within the moon's orbit in early November 2011. The trajectory of 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 last time a space rock as big as 2005 YU55 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 scientist plan to take full advantage of this cosmic opportunity. During tracking of 2005 YU55, scientists will use antennas at NASA's Deep Space Network in Goldstone, Calif., and at Arecibo Observatory in Puerto Rico to bounce radio waves off the space rock. Radar echoes returned from the asteroid will be collected and analyzed. NASA

scientists hope to obtain radar 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.

This is not the first time 2005 YU55 has been in NASA's crosshairs. The asteroid was "imaged" by the Arecibo Observatory on April 19, 2010. The space rock was about 2.3 million kilometers (1.5 million miles) from Earth at the time. A ghostly image with resolution of 7.5 meters (25 feet) per pixel was generated. It reveals 2005 YU55 as a roughly spherical object about 400 meters (1,300 feet) in size. It also revealed the asteroid is spinning slowly, with a rotation period of about 18 hours, and its surface is darker than charcoal at optical wavelengths.

Data collected during Arecibo's observation of 2005 YU55 allowed the Near-Earth Object Program Office at NASA's Jet Propulsion Laboratory, Pasadena, Calif., to accurately refine the space rock's orbit. 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.

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