

Mini-Asteroid to Buzz Earth

What's the smallest, closest asteroid you've ever seen with your scope? If you live in North America, mark the evening of Tuesday November 8th to set a new personal record. The little Earth-crossing asteroid 2005 YU₅₅ will reach magnitude 11.2 as it races across the sky a little closer than the Moon's distance from Earth.

For the finder chart at bottom, we've selected one prime hour for your asteroid chase. The little object, estimated to be 1,300 feet (400 meters) in diameter, will be so close that your location on Earth significantly affects where you'll see it against the stars (topocentric parallax). So imagine sliding the little upside-down, mirror-image map of the United States across the chart; get out a pencil and ruler and follow the instructions in the caption.

Stars are plotted to magnitude 11.5, just a trace fainter than the asteroid itself. But once you aim at the right place, you shouldn't have much trouble telling which speck it is. It will be creeping right along at 7 arcseconds per second, fast enough to see moving in real time at moderately high magnification.

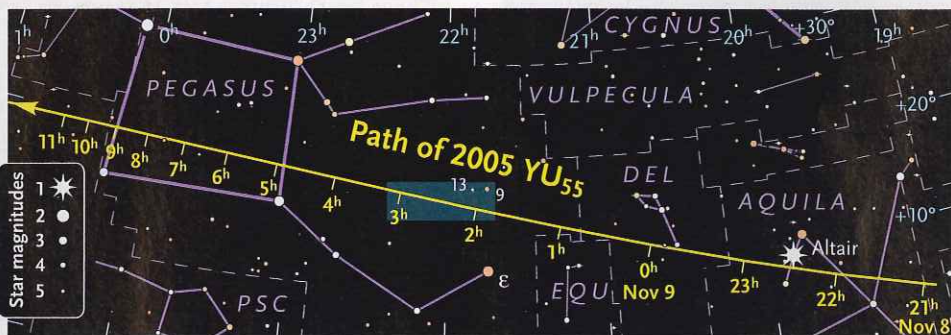
If it looks in your eyepiece like we're

dodging a missile in the night, you're right. If 2005 YU₅₅ hit Earth the blast would equal several thousand megatons of TNT, compared to 50 megatons for the largest hydrogen bomb ever tested. Fortunately, radar ranging has refined the asteroid's orbit precisely enough to show that there's no chance of it hitting Earth in the next 100 years.

The asteroid is surprisingly round and has a dark, carbonaceous surface. High-resolution radar imagery is planned for the day of closest approach. Because the object went undiscovered during a closer pass in 1976, this flyby will be the closest ever observed of something this large.

Photometry Needed!

To complement the radar observations planned for 2005 YU₅₅ during its flyby, astronomers are seeking precise measurements of its changing brightness as it tumbles. A problem is that the asteroid will be moving across the sky so fast that no one station can record a full rotation. Many observers are needed. Amateurs who are set up to do accurate photometry are urged to join this effort; see SkyandTelescope.com/2005yu55. And start planning early.



Best seen from North America, the little asteroid 2005 YU₅₅ will race far across the constellations in just 11 hours. On the top chart, the dark blue rectangle shows the area of the close-up below it. There, the asteroid is plotted for just over an hour on the evening of November 8th for North America (from 1:51 to 3:11 November 9th Universal Time). North is up, east is left. On each of the little upside-down, mirror-image maps of the U.S., put a pencil dot on your location. These are the asteroid's apparent positions at 2:00 and 3:00 UT for your site. Connect your dots with a straight line paralleling the line plotted, which is for Kansas City. Then copy the 10-minute tick marks, noting your offset from Kansas City on the U.S. map.