

Scientists to measure spin of near-miss asteroid to help predict future path

February 14 2013, by Bob Yirka

(Phys.org)—As most have heard, an asteroid scientists have dubbed 2012 DA14 is set to pass very close to the Earth on Feb 15th—closer than most of the geosynchronous satellites currently in orbit. Because of its proximity, a team of researchers is set to take a novel approach to measure its spin, which should help researchers plot out its future course.

The 150 foot wide [asteroid](#), which was discovered just a year ago, will be tracked by a team of researchers led by Michael Busch, of the [National Radio Astronomy Observatory](#).

The idea will be to send radio signals in the direction of the asteroid, and then measure the signals that are bounced back. To make that happen, the researchers will beam radio signals from NASA's Goldstone [radar dish](#) at the asteroid and then listen for reflected signals using two sets of antenna arrays in New Mexico. Because the surface of the asteroid is rough, [radio waves](#) bounced off of it tend to interfere with one another on the way back—the researchers refer to this as a speckle pattern. By noting which of the antennas in the two arrays used to listen for signals detects the speckling first (this is possible because they are widely spaced) the researchers can work out which way the asteroid is spinning and that can help researches plot out its future course.

An asteroid's spin impacts its course because of the heat from the sun that is reflected off its surface. If the asteroid is spinning in the same direction as its [orbit](#), the heat emission will tend to cause the asteroid to speed up. Conversely, if it's spinning in the opposite direction, it will

tend to be slowed. This is known as the [Yarkovsky effect](#). Plotting out the path of the asteroid is important of course, to help scientists discover if the asteroid is likely to strike the earth the next time it comes around. Also, in studying the asteroid and its spin, and making estimates based on evidence gathered, scientists are able to improve their predictive skills regarding the paths of other asteroids which should help in discerning if they are likely to strike the planet in the future.

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