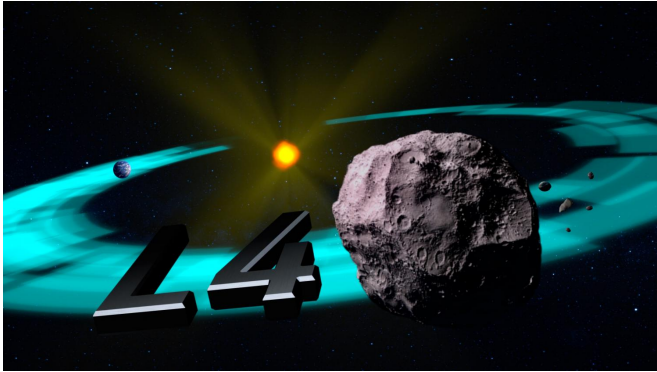


NASA's OSIRIS-REx begins Earth-Trojan asteroid search

10 February 2017, by Erin Morton



Credit: NASA

A NASA spacecraft begins its search Thursday for an enigmatic class of near-Earth objects known as Earth-Trojan asteroids. OSIRIS-REx, currently on a two-year outbound journey to the asteroid Bennu, will spend almost two weeks searching for evidence of these small bodies.

Trojan asteroids are trapped in stable gravity wells, called Lagrange points, which precede or follow a planet. OSIRIS-REx is currently traveling through Earth's fourth Lagrange point, which is located 60 degrees ahead in Earth's orbit around the sun, about 90 million miles (150 million kilometers) from our planet. The mission team will use this opportunity to take multiple images of the area with the spacecraft's MapCam camera in the hope of identifying Earth-Trojan asteroids in the region.

Although scientists have discovered thousands of Trojan asteroids accompanying other planets, only one Earth-Trojan has been identified to date, [asteroid](#) 2010 TK7. Scientists predict that there should be more Trojans sharing Earth's orbit, but they are difficult to detect from Earth as they appear near the sun on the Earth's horizon.

"Because the Earth's fourth Lagrange point is relatively stable, it is possible that remnants of the material that built Earth are trapped within it," said Dante Lauretta. "So this [search](#) gives us a unique opportunity to explore the primordial building blocks of Earth."

The search commences today and continues through Feb. 20. On each observation day, the spacecraft's MapCam camera will take 135 survey images that will be processed and examined by the mission's imaging scientists at the University of Arizona, Tucson. The study plan also includes opportunities for MapCam to image Jupiter, several galaxies, and the main belt asteroids 55 Pandora, 47 Aglaja and 12 Victoria.

Whether or not the team discovers any new asteroids, the search is a beneficial exercise. The operations involved in searching for Earth-Trojan asteroids closely resemble those required to search for natural satellites and other potential hazards around Bennu when the spacecraft approaches its target in 2018. Being able to practice these mission-critical operations in advance will help the OSIRIS-REx team reduce mission risk once the spacecraft arrives at Bennu.

Provided by NASA

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