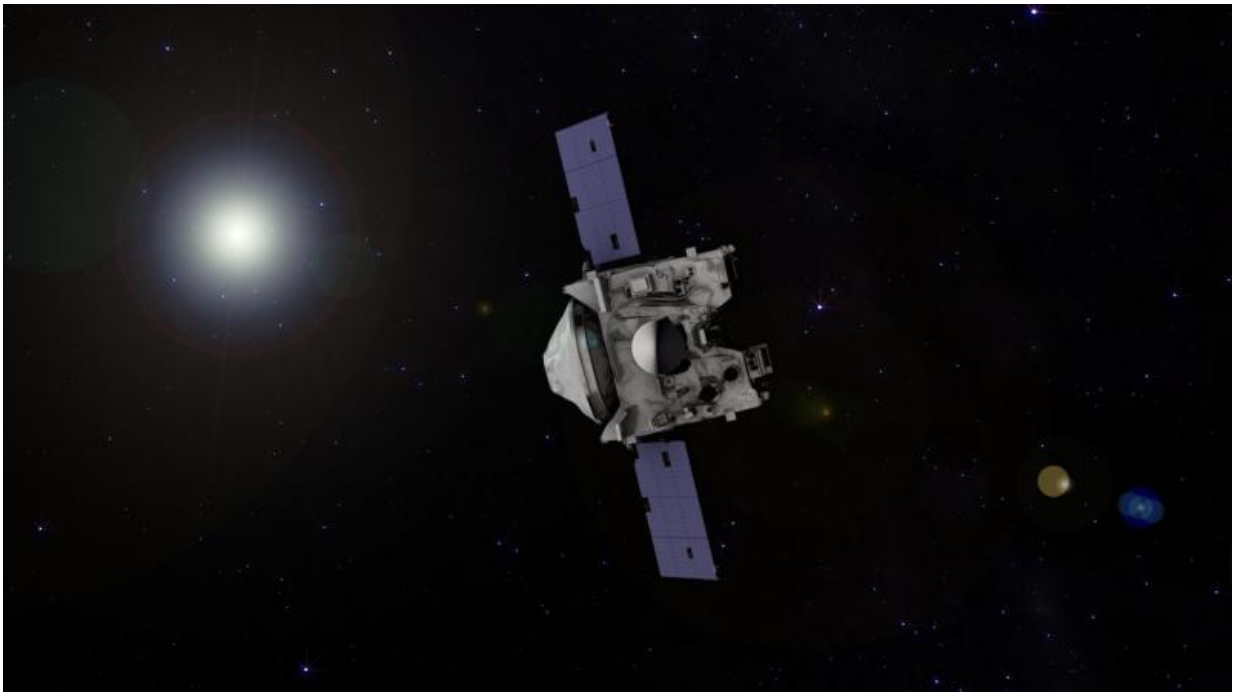


NASA's asteroid sample return mission successfully adjusts course

August 28 2017



Credit: NASA

NASA's OSIRIS-REx spacecraft fired its thrusters to position itself on the correct course for its upcoming Earth flyby. The spacecraft, which is on a two-year outbound journey to asteroid Bennu, successfully performed a precision course adjustment on Wednesday to prepare for the gravity slingshot on Sept. 22.

This [trajectory correction maneuver](#) was the first to use the [spacecraft's](#) Attitude Control System, or ACS, thrusters in a turn-burn-turn sequence. In this type of sequence, OSIRIS-REx's momentum wheels turn the spacecraft to point the ACS thrusters toward the desired direction for the burn, and the thrusters fire. After the burn, the momentum wheels turn the spacecraft back to its previous orientation. The total thrust is monitored by an on-board accelerometer that will stop the maneuver once the desired thrust is achieved.

High-precision changes in velocity, or speed and direction, will be critical when the OSIRIS-REx spacecraft operates near Bennu. Because Bennu is so small, it has only a weak [gravity](#) field. Therefore, it will only require tiny changes in velocity to do many of the maneuvers that are planned to explore and map the asteroid.

The Aug. 23 maneuver began at 1 p.m. EDT and lasted for approximately one minute and 17 seconds. Preliminary tracking data indicate that the maneuver was successful, changing the velocity of the spacecraft by 1.07 miles per hour (47.9 centimeters per second) and using approximately 16 ounces (0.46 kilogram) of fuel.

OSIRIS-REx will fly by Earth on Sept. 22 to use our planet's gravity to propel the spacecraft onto Bennu's orbital plane. As of Friday, Aug. 25, the spacecraft is about 10.3 million miles (16.6 million kilometers) from Earth.

The mission team has another minor Earth-targeting maneuver tentatively planned for Sept. 12. Over the next few weeks, the navigation team will process daily spacecraft tracking data from Wednesday's maneuver to determine whether the additional [maneuver](#) is necessary before the Earth gravity assist.

Provided by NASA

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