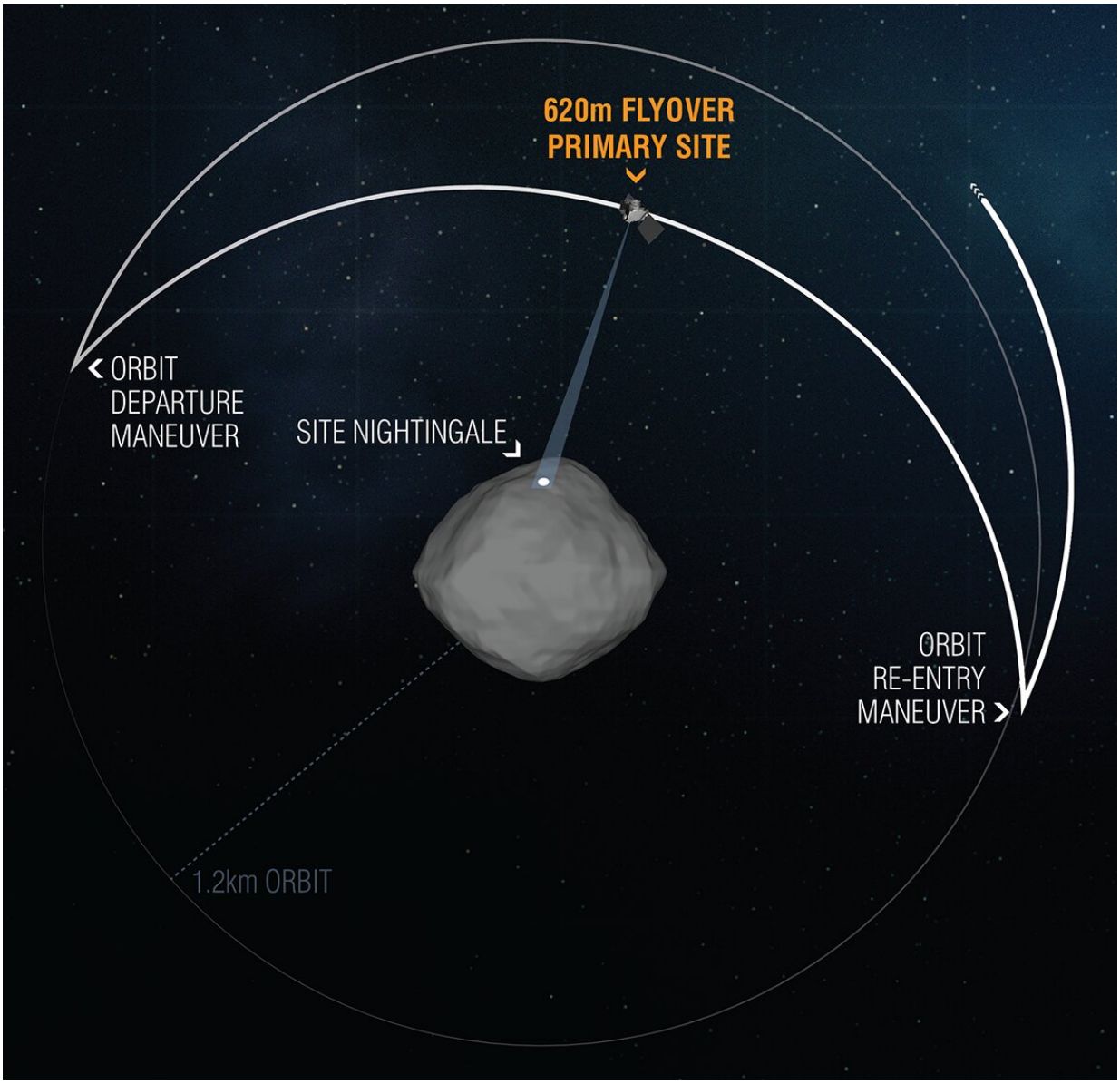
OSIRIS-REx completes closest flyover of sample site nightingale

January 23 2020, by Nancy Neale Jones



During the OSIRIS-REx Reconnaissance B flyover of primary sample collection site Nightingale, the spacecraft left its safe-home orbit to pass over the sample site at an altitude of 0.4 miles (620 m). The pass, which took 11 hours, gave the spacecraft's onboard instruments the opportunity to take the closest-ever science observations of the sample site. Credit: NASA/Goddard/University of Arizona

Preliminary results indicate that NASA's OSIRIS-REx spacecraft successfully executed a 0.4-mile (620-m) flyover of site Nightingale yesterday as part of the mission's Reconnaissance B phase activities. Nightingale, OSIRIS-REx's primary sample collection site, is located within a crater high in asteroid Bennu's northern hemisphere.

To perform the pass, the spacecraft left its 0.75-mile (1.2-km) safe home orbit and flew an almost 11-hour transit over the asteroid, aiming its science instruments toward the 52-ft (16-m) wide sample site before returning to orbit. Science observations from this flyover are the closest taken of a sample site to date.

The primary goal of the Nightingale flyover was to collect the high-resolution imagery required to complete the spacecraft's Natural Feature Tracking image catalog, which will document the sample collection site's surface features—such as boulders and craters. During the sampling event, which is scheduled for late August, the spacecraft will use this catalog to navigate with respect to Bennu's surface features, allowing it to autonomously predict where on the sample site it will make contact . Several of the spacecraft's other instruments also took observations of the Nightingale site during the flyover event, including the OSIRIS-REx Thermal Emissions Spectrometer (OTES), the OSIRIS-REx Visual and InfraRed Spectrometer (OVIRS), the OSIRIS-REx Laser Altimeter (OLA), and the MapCam color imager.

A similar flyover of the backup sample collection site, Osprey, is scheduled for Feb. 11. Even lower flybys will be performed later this spring—Mar. 3 for Nightingale and May 26 for Osprey—as part of the mission's Reconnaissance C phase activities. The spacecraft will perform these two flyovers at an altitude of 820 feet (250 m), which will be the closest it has ever flown over asteroid Bennu's surface.

Provided by NASA's Goddard Space Flight Center

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