

NASA Selects Site on Asteroid Bennu for Sample Collection Mission

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Context: After a year scoping out asteroid Bennu's boulder-scattered surface, the team leading NASA's first asteroid sample return mission has officially selected a sample collection site.

- OSIRIS-REx is NASA's project to travel to near-earth asteroid called Bennu and bring a small sample back to Earth for study. The mission launched Sept. 8, 2016
- Bennu was likely formed in the Main Asteroid Belt between Mars and Jupiter, and has drifted much closer to Earth since then. Because its materials are so old, Bennu may contain organic molecules similar to those that could have been involved with the start of life on Earth.
- NASA's first asteroid sample return mission OSIRIS-REx (Origins, Spectral Interpretation, Resource Identification, Security, Regolith Explorer) has officially selected a sample collection site on the asteroid Bennu's boulder-scattered surface.
- It concluded that a site located in a crater high in Bennu's northern hemisphere designated "Nightingale" is the best spot for the OSIRIS-REx spacecraft to snag its sample.
- The site Nightingale is located in a northern crater that is 140 meters wide.
- The crater also is thought to be relatively young, and the regolith is freshly exposed which means the site would likely allow for a pristine sample of the asteroid, giving the team insight into Bennu's history
- The other candidate sites apart from Nightingale were

Sandpiper, Osprey, and Kingfisher all of which were chosen for investigation because these potential sampling regions on asteroid Bennu pose the fewest hazards to the spacecraft's safety while still providing the opportunity for great samples to be gathered.

- Nightingale ranks the highest of any location on Bennu, the site still poses challenges for sample collection. As per NASA, any significant disturbance to Nightingale's surface would make it difficult to collect a sample from that area. That is why the mission also selected Osprey as a backup sample collection site.