OSIRIS-REx Return to Earth

The OSIRIS-REx spacecraft, which is the size of a large passenger van, left Earth aboard a rocket launched from Cape Canaveral, Florida, on September 8, 2016. Once released from the rocket, it orbited the Sun for a year until it passed by Earth again. At that point, our planet's gravity helped propel the spacecraft toward Bennu, which also orbits the Sun but at a different angle than Earth.

After OSIRIS-REx arrived in the asteroid's orbit, in December 2018, it got to work. With its special cameras and spectrometers, it began photographing and mapping Bennu's surface to determine the best site from which to collect samples. Scientists were surprised to learn, from the photographs the spacecraft sent back, that the asteroid's surface was much different from what they had expected. Instead of being relatively smooth, it was rocky and cratered, so finding a sample-collection site posed challenges. Eventually they chose a site about the size of a tennis court, located in a crater.

The time for the rendezvous arrived in October 2020. To carry out its task, the spacecraft did not actually land on the asteroid but instead slowly descended toward the surface and extended a robotic arm. A collection device at the hand-end of the arm then released a sudden puff of nitrogen gas that sent up a cloud of dust and rocks from Bennu's surface. More than two ounces of these materials were captured in a special container in the collection device, which then closed and retracted into the spacecraft. Even though this seems like a miniscule amount considering the effort involved, it's the largest sample ever collected from an asteroid, and the first asteroid sample by the United States.

On May 10, 2021, OSIRIS-REx began its flight back toward Earth. Its container of asteroid dust and rocks, enclosed in a special capsule, is expected to parachute down to the Utah desert on Sept. 24, 2023.

The OSIRIS-REx pane of 20 stamps will be issued as Forever stamps.