

OSIRIS-REX

ASTEROID SAMPLE RETURN MISSION

The purpose of NASA's Origins, Spectral Interpretation, Resource Identification, Security-Regolith Explorer (OSIRIS-REx) mission is to travel to Bennu (the asteroid formerly known as "1999 RQ36") and collect a sample to be returned to Earth for analysis. Bennu is a pristine, carbonaceous asteroid containing the original material from the solar nebula, from which our solar system formed. OSIRIS-REx is one of NASA's New Frontiers missions and is led by the University of Arizona. OSIRIS-REx launched on September 8, 2016.

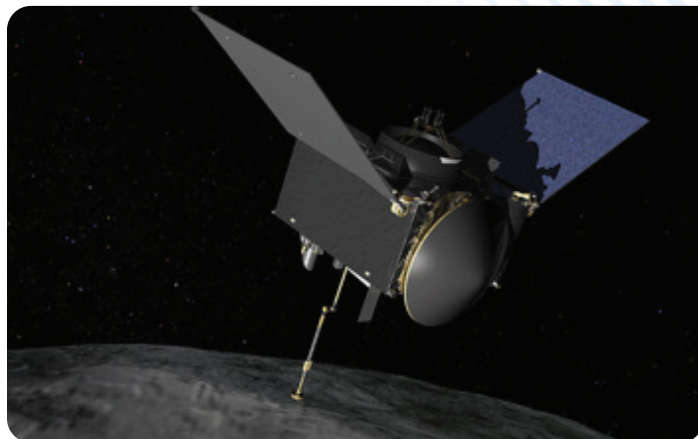
The payload for OSIRIS-REx includes the following instruments:

- **OSIRIS-REx Camera Suite (OCAMS):** Three high-resolution cameras that provide global mapping, sample site reconnaissance and characterization, high-resolution imaging, and sample acquisition records.
- **OSIRIS-REx Laser Altimeter (OLA):** LIDAR and scanning instrument that creates topographical maps of Bennu.
- **OSIRIS-REx Visible and IR Spectrometer (OVIRS):** Spectrometer that provides mineral and organic spectral maps for the mission.
- **OSIRIS-REx Thermal Emission Spectrometer (OTES):** Spectrometer that provides mineral and thermal emission spectral maps.
- **Regolith X-ray Imaging Spectrometer (REXIS):** Spectrometer that provides an X-ray map of Bennu.
- **Touch-And-Go Sample Acquisition Mechanism (TAGSAM):** Mechanism that collects the asteroid sample.

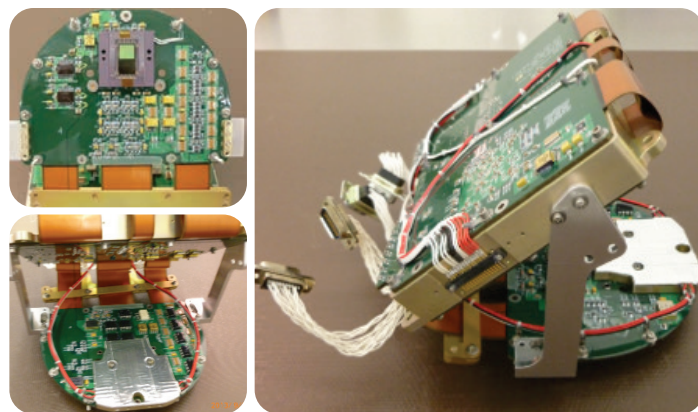
The Space Dynamics Laboratory (SDL) provided identical detector assemblies for each camera in the OCAMS camera suite.

OCAMS contains the following cameras:

- **PolyCam** is designed to acquire images and increase the resolution as the spacecraft approaches the asteroid.
- **MapCam** is responsible for searching for satellite and outgassing plumes and providing high-resolution images of the sample site.
- **SamCam** is responsible for documenting the sample acquisition process.



The OSIRIS-REx asteroid mission is tasked with capturing an asteroid sample for further analysis. Image courtesy of NASA.



OCAMS detector assemblies

DETECTOR	Teledyne Dalsa Trius
FORMAT	1024 x 1024 pixels
SHUTTER	Frame transfer
MASS	0.6 kg
POWER	5.3 W
INTERFACE	UART (command), synchronous serial (data)