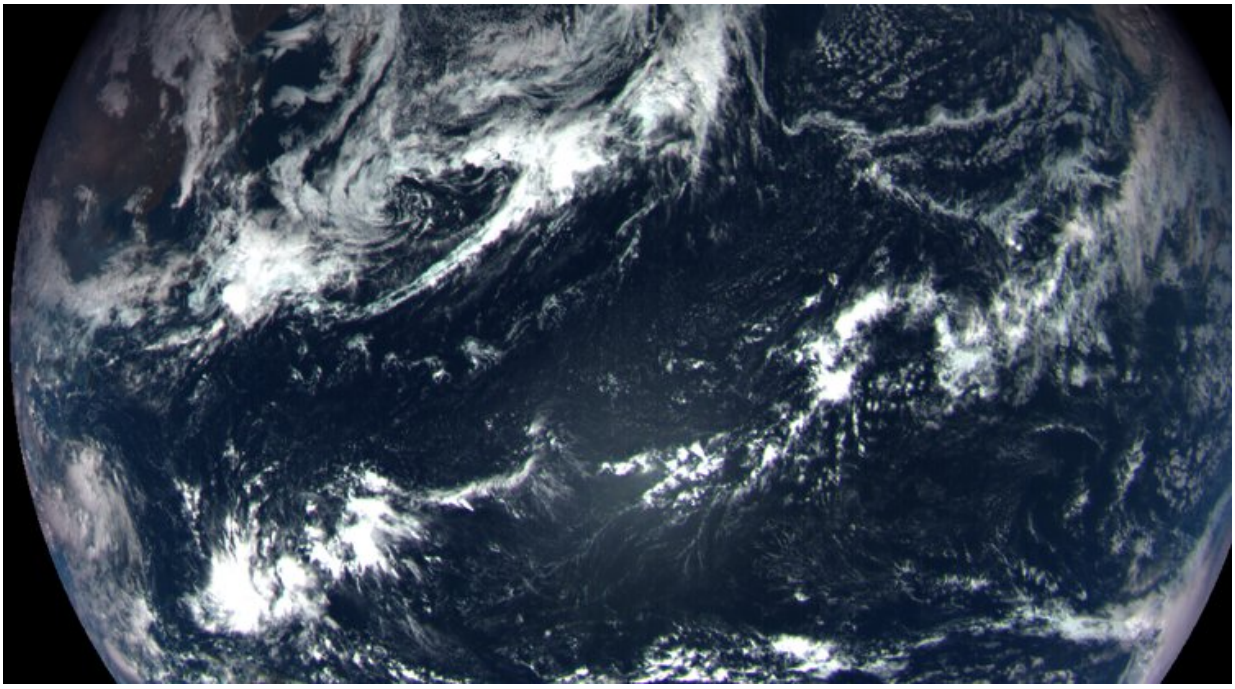
OSIRIS-REx cameras and spectrometers tested during Earth flyby

October 5 2017



On Sept. 22, at a distance of 105,600 miles, the OSIRIS-REx MapCam captured this color image of Earth. Dark "icicles" at the top of the image were caused by short exposure time. Credit: University of Arizona

On Sept. 22, OSIRIS-REx soared under the South Pole, coming within 10,600 miles of Earth before using the planet's gravity to slingshot itself onto the path to the asteroid Bennu.

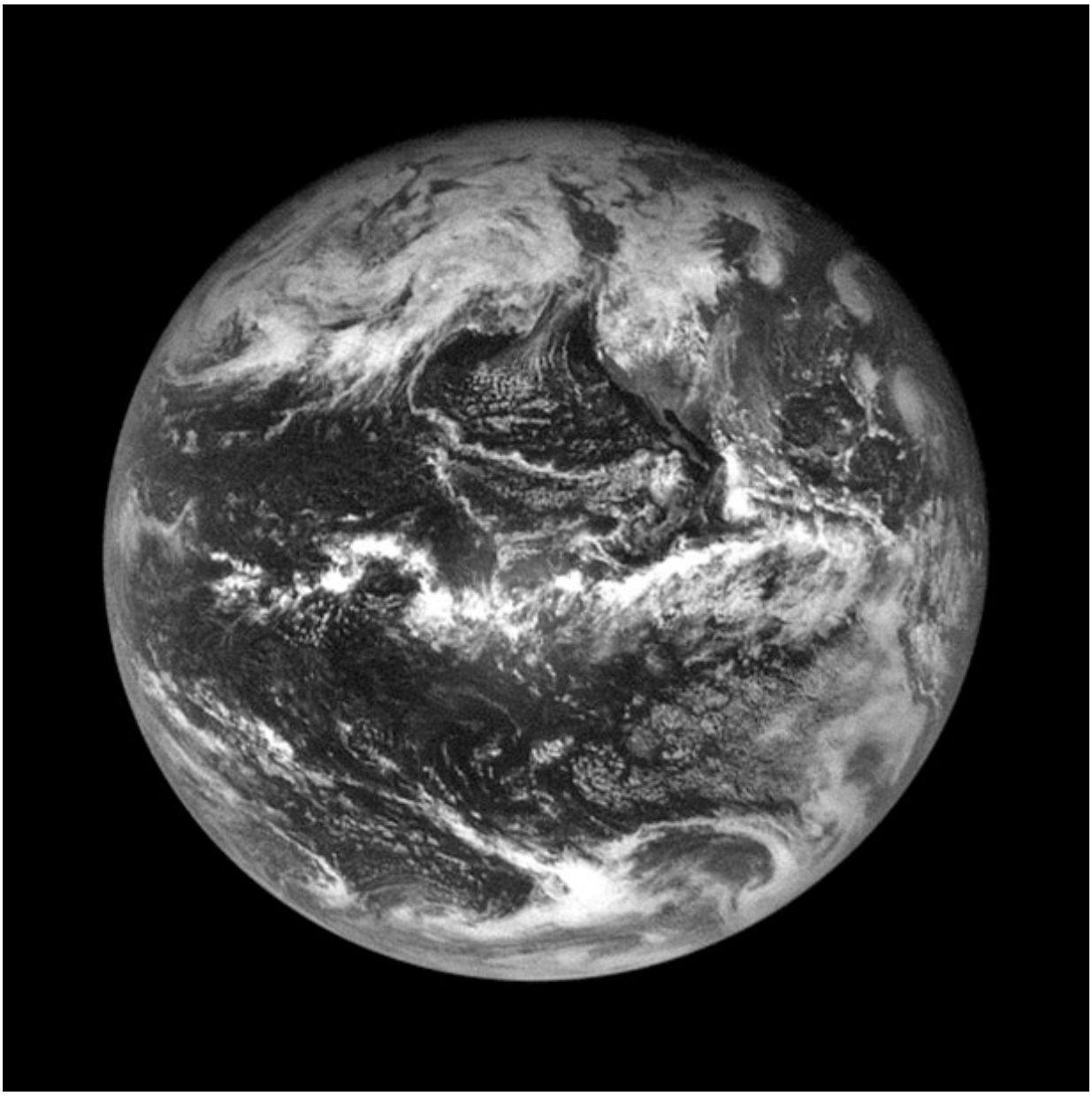
The flyby was the perfect opportunity for the OSIRIS-REx team to calibrate and test the science instruments on the craft—and exercise the team.

"It's really important that all of the team members know where they fit in the processes and that the lines of communication are well understood," said Heather Enos, deputy principal investigator of the mission led by the University of Arizona.

NavCam 1—a navigational camera operated by Lockheed Martin—captured OSIRIS-REx's first black-and-white image of Earth, taken at a distance of 69,000 miles. Hurricane Maria and the remnants of Hurricane Jose can be seen in the upper right of the image.

About 37,000 miles farther away, MapCam snapped a series of images of Earth, using five different filters. The mission's image processing team at the UA combined the images to create the color composite of Earth.

MapCam is designed to photograph Bennu, a body that reflects only 4 percent of the sunlight that hits it; it is darker than coal. Earth is much, much brighter than that, so the image had to be taken using extremely short exposure times, causing the appearance of dark "icicles" at the top of the color portrait of Earth.



A black-and-white image of Earth captured by the spacecraft's NavCam, at a distance of 69,000 miles. Credit: University of Arizona

"MapCam was taking the data as quickly as it can," principal investigator Dante Lauretta said. "There was just some noise left on the detector. We won't have any of those features when we're at Bennu."

As it flew away from Earth, OSIRIS-REx aimed its spectrometers at our home planet. Those instruments performed a unique observation: collecting spectral data over Earth's entire visible surface.

"We'll be doing some interesting science with it, so stay tuned," Lauretta said.

OSIRIS-REx is scheduled to get up close and personal with the 4.5 billion-year-old asteroid in November 2018. After searching the sky around Bennu for other bodies, assessing the asteroid's risk of impact with Earth, using the spectrometers to analyze its chemistry and collecting a sample from its surface, OSIRIS-REx will return to Earth in 2023.

From the mission, researchers hope to learn more about the origins of life and the solar system.

Provided by University of Arizona

Citation: OSIRIS-REx cameras and spectrometers tested during Earth flyby (2017, October 5) retrieved 26 April 2024 from https://phys.org/news/2017-10-osiris-rex-cameras-spectrometers-earth-flyby.html