

# MESSENGER flyby of Mercury

January 15 2008

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Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution of Washington

At 2:04 p.m. EST on Monday, MESSENGER skimmed 200 kilometers (124 miles) above the surface of Mercury in the first of three flybys of the planet. Initial indications from the radio signals indicate the spacecraft is still operating nominally. The first science data return from the flyby was received today, just minutes before the closest approach point with the planet, as planned.

“The engineers and operators at the Deep Space Network (DSN) in Goldstone, Calif., in conjunction with engineers at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Md., pulled off a tremendous feat, acquiring and locking onto the downlink signal from

the spacecraft within seconds, providing the necessary Doppler measurements for the Radio Science team” said MESSENGER Mission Systems Engineer Eric Finnegan of APL.

“The spacecraft is continuing to collect imagery and other scientific measurements from the planet as we now depart Mercury from the illuminated side, documenting for the first time the previously unseen surface of the planet.”

On Tuesday at noon EST, the spacecraft will turn back towards the Earth to start down-linking the on-board stored data. Measurements of this Doppler signal from the spacecraft will allow improve knowledge of Mercury’s gravity field.

## **Keeping a Rendezvous with Mercury**

Between January 9 and 13, 2008, as the MESSENGER probe approached Mercury for its first flyby, the Narrow Angle Camera, part of the Mercury Dual Imaging System (MDIS), acquired a series of images of the planet in support of spacecraft navigation. These images have been put together as frames in a movie. The final frame of the movie has the highest spatial resolution (20 km/pixel, 12 miles/pixel) and was recorded when the spacecraft was at a distance of about 760,000 kilometers (470,000 miles) from Mercury. Mercury is about 4,880 kilometers (about 3,030 miles) in diameter.

As part of MESSENGER's flyby on January 14, MDIS was to obtain high-resolution image sequences with the Narrow Angle Camera, and the Wide Angle Camera will collect images in eleven colors. The images will cover portions of the planet never before seen by spacecraft, as well as regions that were photographed by Mariner 10 in 1974 and 1975. The new data for the previously studied areas of Mercury will help scientists to interpret the data for the parts of the planet that MESSENGER will

reveal for the first time.

Source: Johns Hopkins University

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