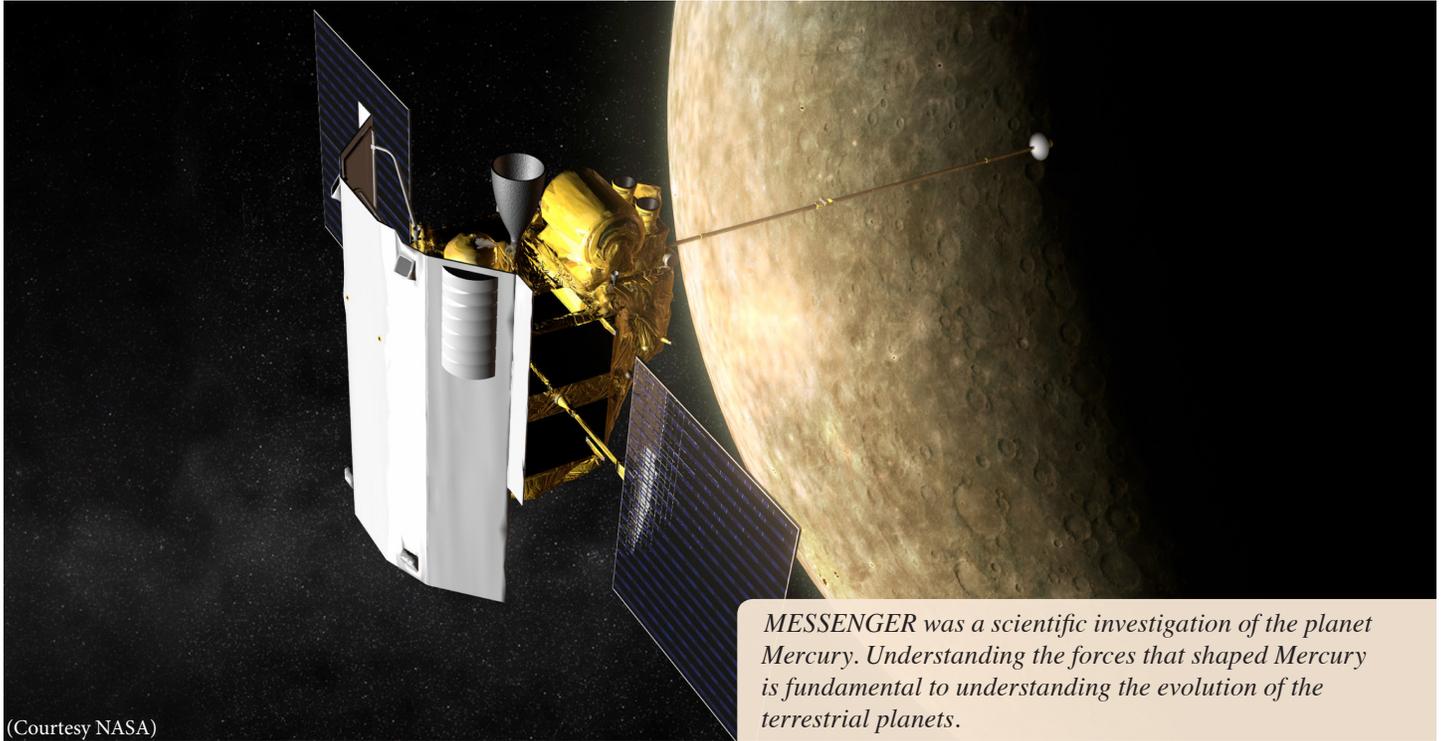


MESSENGER

Mercury Surface, Space Environment, Geochemistry,
and Ranging Mission



(Courtesy NASA)

MESSENGER was a scientific investigation of the planet Mercury. Understanding the forces that shaped Mercury is fundamental to understanding the evolution of the terrestrial planets.

Frequently Asked Questions

What is the purpose of MESSENGER?

MESSENGER investigated key scientific questions regarding Mercury's characteristics and environment during two complementary mission phases. The mission's primary goal was to increase our understanding of Mercury's density, geologic history, magnetic field, core structure, composition, and surface volatiles.

What did the MASCS instrument measure?

The Mercury Atmospheric and Surface Composition Spectrometer, which was designed and built at LASP, studied the nature of Mercury's atmosphere and measured the mineralogical composition of surface materials. Data from MASCS is helping scientists answer fundamental questions about Mercury: What is the composition of the surface? How is Mercury's atmosphere generated? Does Mercury have ice at its poles? Combining an ultraviolet spectrometer and infrared spectrograph, MASCS measured the abundance of atmospheric gases around Mercury and detected minerals in its surface materials.

Why is it important to understand Mercury?

Understanding Mercury and the forces that shaped it is fundamental to understanding the terrestrial planets and their evolution. Prior to MESSENGER, Mercury had been visited by only one other spacecraft, Mariner 10, and we knew little more about the

Quick Facts

Launch date: August 3, 2004

Launch location: Kennedy Space Center, Cape Canaveral, FL

Launch vehicle: Delta II

Mission target: Mercury orbit

Mission duration: Four Earth years (MESSENGER impacted the surface of Mercury—as planned—on April 30, 2015)

Project description: MESSENGER was a NASA Discovery mission to conduct the first orbital study of the innermost planet, which holds the key to terrestrial planet evolution.

LASP provides: The Mercury Atmospheric and Surface Composition Spectrometer (MASCS) instrument and MASCS Principal Investigator, William McClintock

Other organizations involved:

- The Johns Hopkins University Applied Physics Laboratory
- Carnegie Institution of Washington
- NASA Goddard Space Flight Center
- University of Michigan
- Southwest Research Institute

planet than its average density (the greatest of all the planets), the composition of its atmosphere (thinnest of the terrestrial planets), the fact that it possesses a global magnetic field, and its extreme variations in temperature. Data from MESSENGER has lifted some of the uncertainty about the innermost planet of our solar system.

To read more about MESSENGER MASCS, visit:

<http://lasp.colorado.edu/home/missions-projects/quick-facts-mascs>.

The Laboratory for Atmospheric and Space Physics (LASP) combines all aspects of space exploration through our expertise in science, engineering, mission operations, and data management. As an institute at the University of Colorado Boulder, LASP includes students throughout our activities. Learn more at <http://lasp.colorado.edu>.