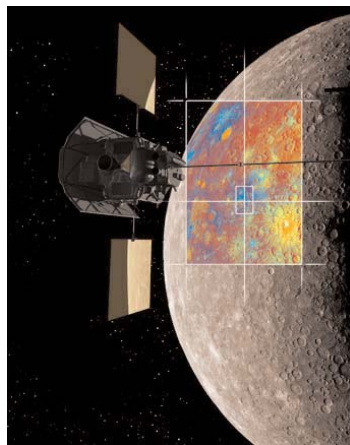


THE MESSENGER MISSION TO MERCURY



MESSENGER is an unmanned NASA spacecraft that will be launched in 2004 and arrive at Mercury in 2011. It is only the second spacecraft to study Mercury, and the first since the 1970s, when Mariner 10 rendezvoused with the planet. MESSENGER is the first spacecraft to observe Mercury from orbit and not just fly by. Its observations will allow us to see the entire surface of the planet for the first time.

The acronym MESSENGER stands for MERcury SURface SPace ENvironment, GEochemistry and RANging. The name highlights the scientific topics of the mission, but it is also a reference to the name of the ancient Roman messenger of the gods, Mercury, after whom the planet is named.

Sending a spacecraft to Mercury is complicated. The planet is so close to the Sun that MESSENGER will be exposed to up to 11 times more sunlight than it would in space near Earth. To prevent the intense heat and radiation from having catastrophic consequences, the mission has been planned carefully to make sure the spacecraft can operate reliably in the harsh environment. To rendezvous with Mercury on its orbit around the Sun, MESSENGER will use a complex route: it will fly by Earth once, Venus twice, and by Mercury three times before entering into orbit around Mercury.

The MESSENGER spacecraft is built with cutting-edge technology. Its components include a sunshade for protection against direct sunlight, two solar panels for power production, a thruster for trajectory changes, and fuel tanks. The instruments aboard MESSENGER will take pictures of Mercury, measure the properties of its magnetic field, investigate the height and depth of features on Mercury's surface, and in general observe the properties of the planet and its space environment in various parts of the electromagnetic spectrum and via particle radiation studies.

During its mission, MESSENGER will attempt to answer several questions about Mercury. How was the planet formed and how has it changed? Mercury is the only rocky planet besides Earth to have a global magnetic field; what are its properties and origin? What is the nature and origin of Mercury's very tenuous atmosphere? Does ice really exist near the planet's poles?

Mercury is an important subject of study because it is the extreme of the terrestrial planets (Mercury, Venus, Earth, Mars): it is the smallest, one of the densest, it has one of the oldest surfaces and the largest daily variations in surface temperature—but is the least explored. Understanding this "end member" of the terrestrial planets holds unique clues to the questions of the formation of the Solar System, evolution of the planets, magnetic field generation, and magnetospheric physics. Exploring Mercury will help us understand how our own Earth was formed, how it has evolved, and how it interacts with the Sun.

For more information about the MESSENGER mission to Mercury, visit <http://messenger.jhuapl.edu/>

MESSENGER Mission Timeline

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|------|------------|---------------------|
| 2004 | Aug 2 – 13 | Launch |
| 2005 | Jul 29 | Earth Flyby |
| 2006 | Oct 23 | Venus Flyby I |
| 2007 | Jun 4 | Venus Flyby II |
| 2008 | Jan 14 | Mercury Flyby I |
| 2008 | Oct 6 | Mercury Flyby II |
| 2009 | Sep 29 | Mercury Flyby III |
| 2011 | Mar 18 | Enter Mercury Orbit |

