

By [Gabriele 2008](#), Science News Editor

## [Messenger Will Execute Scheduled Fly-by Around Mercury on January 14](#)

### *The second spacecraft of its kind*

The Messenger spacecraft will be the second space vehicle ever to execute a fly-by maneuver of the smallest planet in the solar system, Mercury, after the spacecraft Mariner 10, which made a total of three during its study of the two inner planets. Launched in 1975, Mariner 10 was the first spacecraft to execute a controlled fly-by through the close proximity of a planet in order to obtain the so-called 'gravitational slingshot' effect, which consists in following a flying path that would bend the vehicle's trajectory and boost its speed with the help of the gravitational field provided by a planet or an object with a relatively high gravitational pull. NASA's Messenger mission is scheduled to fly-by Mercury on 14th of January. Unlike the Mariner 10, which after three fly-bys ran out of propellant, so it couldn't be controlled, Messenger will make three fly-bys after which it will enter into a trajectory that will put it in a circular orbit around the planet by 18th of March 2011. Two years later, Mariner 10 was followed by another spacecraft, Mariner 9, that was the last from the series in the Mariner program, as Mariner 11 and Mariner 12 have been re-designated into the now famous Voyager 1 and 2 missions. The primary missions of Mariner 10 were to make measurements of the planet's environment, such as atmosphere, surface, along with observations of the planet Venus. Messenger will have the task of completing the mission of the Mariner 10 spacecraft, which only mapped 44 percent of the whole surface of the planet, in order to determine if it presents icecaps, studies related to Mercury's high eccentricity orbit, and, last but not least, the testing of a series of predictions made by the Theory of Relativity. Other aspects, like the unusual high density of the planet and its weak magnetic field, will also be addressed. Mariner 10 spacecraft completed its mission on 24th of March 1975, as the attitude-control gas reserves have been depleted, and the spacecraft's orbit decayed into a permanent orbit around the Sun. It is still circling it, though the electronics must have been severely damaged by the radiations emitted by the Sun. Messenger will be the second spacecraft ever to examine planet Mercury, and will probably reveal many surprises regarding the planetary formation process and the solar system nevertheless.