



## Enrichment

# Magellan

After it was launched in May 1989 by a space shuttle, the spacecraft *Magellan* began its long journey to Venus, the planet closest to Earth. By August 10, 1990, *Magellan* began to orbit Venus. Once in orbit, the spacecraft started radar mapping the topography of the planet. By October, it had mapped about 1.5 percent of it.

*Magellan* orbited Venus by flying a route that took it over the planet's poles. It would fly over the north pole and then the south pole and back again, taking about 1 1/4 hours to complete one orbit. In that time it would record information on the part of Venus it was flying over—a stretch of land about 17,000 km long and 20 km wide. Venus rotates on its axis once every 243 Earth days, and so after 243 days the spacecraft was able to map almost the whole planet. *Magellan* gathered information about the planet in six cycles of 243 days each.

### Close-up Details

*Magellan* sent to Earth radar images of Venus. Its radar was able to detect features only 120 meters across—ten times smaller than anything ever detected on Venus before.

The spacecraft revealed many features of the planet's surface, including volcanic mountains and craters as large as major American cities.

### Second Time Around

After completing the mapping of Venus, *Magellan* started mapping the planet again. Once scientists received the second set of maps, they began to use the two sets to compare sites on Venus. In studying the maps, they looked for changes that may have occurred between the times the two sets of maps were completed.

*Magellan* helped scientists learn a lot about Venus. It sent back pictures of lava plains, lava channels, and millions of volcanoes. Because there were only a few impact craters, scientists deduced that the planet's surface is relatively young—about 500 million years old. This figure, which may seem extremely old to us, is not considered old in a geological sense. Scientists saw little, if any, evidence of the kind of erosion that is caused by water. And they saw just a small amount of erosion caused by wind. *Magellan's* mission ended on October 12, 1994, when the spacecraft was no longer able to maintain radio communications with Earth.

1. What might scientists conclude if a new space probe mapped Venus in 2005 and showed new lava plains not seen on the earlier maps?

---



---



---

2. Radar images sent back to Earth in October 1990 showed that Venus's surface has faultlike cracks. Based on the information available in October 1990, could we generalize that the entire planet has these cracks?

---



---



---