**New Google Mars Reveals the Red Planet in 3-D**

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Google has landed on Mars!

Tucked into Monday's media release for the launch of [oceans](http://science.nationalgeographic.com/science/earth/surface-of-the-earth/oceans-underwater.html) in Google Earth was [another, quieter announcement](http://blogs.nationalgeographic.com/blogs/news/breakingorbit/2009/02/3d-google-mars-great-swans-of.html): A module for exploring [Mars](http://science.nationalgeographic.com/science/space/solar-system/mars-article.html) is now part of the popular 3-D mapping tool. Users can move through alien trenches, see through the eyes of robotic visitors, and toggle between natural color, "night vision," and other topographic views of the red planet. Virtual Mars is based on pictures from the many orbiters and landers—past and present—that have been sent to study Martian landscapes.

Much of the imagery used in Google Mars 3-D is already publicly available and easy to access on sites across the Internet, noted project leader Noel Gorelick. The value of the new tool is that it "gets the data together in the same place and at the same time in an easy-to-use package," he said. Mars scientist Ashwin Vasavada of NASA's Jet Propulsion Laboratory (JPL), who was not involved with the project, agreed. "We spend the money to send craft to study Mars, but compiling all that data isn't something NASA has the resources to do," Vasavada said.

**Google in Space**

A 19-year NASA veteran, Google's Gorelick was once the self-described "computer guy" for the THEMIS imager on NASA's Mars Odyssey orbiter. After joining Google in 2006, Gorelick used NASA images to build the two-dimensional, Google Maps-like application Google Mars. Then he began processing data from NASA, the European Space Agency, the U.S. Geological Survey, and other organizations to create a 3-D global picture. At its base, Google Mars 3-D is the mixture of four or five different space probes, including the Viking probes, Mars Global Surveyor, and the [Hubble Space Telescope](http://science.nationalgeographic.com/science/space/space-exploration/hubble.html).

Once Gorelick's team had collected enough images to map the entire planet, "we ran the whole thing through a food processor to turn it into something we liked," Gorelick said. Lighter colored, horizontal stripes laid over the base image show where the map contains pictures from higher-resolution cameras, including the HiRISE imager aboard the Mars Reconnaissance Orbiter. Pictures from HiRISE are currently being used to help scientists decide where to land the Mars Science Laboratory (MSL), a [car-size rover set to launch in 2011](http://blogs.nationalgeographic.com/blogs/news/breakingorbit/2008/12/next-mars-rover-held-up-until.html).

According to Gorelick, friends of his on the MSL team are excited about using HiRISE data within Google Mars 3-D as a planning tool for the rover. By creating 3-D tours, for example, scientists anywhere could pick a landing site, plot a course, and find targets for scientific study or do hazard assessments.

"We're not only able to see features, we can see if the rover can get there," said JPL's Vasavada, who is deputy project scientist for the new Martian rover. "For rocks and boulders, we can use a single image" to tell if there are obstacles in a given path, he said. "But to do things like [navigate] slopes … this would definitely be a good tool to use in an exploratory way. "I totally believe it's useful for scientists." And with 500 million downloads and counting since its June 2005 launch, Google Earth and its various iterations continue to be popular tools for the tech-savvy public. According to Gorelick, anyone could use the tool to create personalized tours, build fanciful Martian cities, or even act as citizen scientists. "What I like most" about Google Mars 3-D, Gorelick said, "is that scientists and nonscientists alike can put their own data into Mars."