News Release

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BOULDER SCIENTIST CELEBRATES TWO YEARS
EXPLORING MARS WITH NASA ROVERS

For a Boulder scientist, January 2006 marks the beginning of not just another new year, but the beginning of a third year rolling across Mars with NASA's enormously successful rovers, Spirit and Opportunity.

Bill Farrand is a geologist on the science team for the Mars Exploration Rovers that landed on the Red Planet in January 2004. From his base of operations at the Space Science Institute, Farrand helps plan science activities for the rovers through his analysis of data provided by the Panoramic cameras, or "Pancams," on board each of the rovers.

"It has been tremendously exciting to work on this mission," said Farrand. "When I think of how much more we have been able to accomplish as a result of the rovers' longevity, I am just astounded. We have made Mars into a place that people can look at on a daily basis, through the public websites, and see someplace new."

As of January 1, Spirit will have been active on the dusty surface of Mars for more than 710 "sols" – the name given to days on Mars, which are just slightly longer than Earth days. The Opportunity rover will have passed 690 sols at that time. Their original life expectancy was only 90 sols.

A Martian year is nearly two Earth years long, thus both of the rovers have been operating for over a full Martian year.

Their startling longevity is not the only amazing fact about the rovers. Since they began their mission, both robots have returned more than 40,000 Pancam images to Earth for scientists to study, and many of those images have been turned into eye-popping, full-color and three-dimensional panoramic views.

Another goal NASA set for mission success was the expected distance the rovers should be able to traverse on Mars – a mere 600 meters (1,970 feet). Spirit's odometer currently reads at more than 5.5 kilometers (3.4 miles), while Opportunity has covered more than 6.5 kilometers (4 miles).

Both rovers have survived multiple "life-threatening" incidents. Spirit had a near-fatal software glitch early in its mission, and in December 2004 was running dangerously low on solar energy

input before a strong wind – perhaps a Martian dust-devil – cleared most of the dust that had settled onto its solar panels. Opportunity became mired in a sand dune during its traverse, taking over 40 sols to dig itself out.

Each rover has found evidence for the past action of liquid water on the Martian surface. Opportunity has found rocks consisting largely of salts – like those left behind when a lake or sea evaporates – and abundant BB-sized iron-rich spheroids called "blueberries" that are evidence of liquid water passing through the sediments. Spirit has also found rocks which have been greatly altered by the activity of water.

“We have really been rewriting the book on our knowledge of Mars with Spirit and Opportunity, Farrand said. “I feel very privileged to be a part of this ongoing and historic enterprise.”

Images taken by the rovers are available at http://marsrovers.jpl.nasa.gov and http://www.marsquestonline.org.

The Space Science Institute is a nonprofit organization that carries out world-class research in space and Earth science, together with innovative science education programs that inspire and deepen the public’s understanding of planet Earth and its place in the grander Universe. The Institute's integrated research and education programs span planetary science, space physics, astrophysics, astrobiology, and Earth science.

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