



## News

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### PATHFINDER ROVER



Nasa Tv / AP

## A robot humanizes space efforts

By Alan Boyle

MSNBC

When Mars Pathfinder landed on the Red Planet, grown men and women cheered like children. When Pathfinder's squat rover rolled over the Red Planet's surface for the first time, the world watched in awe. And when the still-healthy rover finally lost contact with Earth, children wept. Ironically, a robot clicked as one of the most appealing figures in the history of space exploration.

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LIKE THE "Star Wars" robot R2-D2, Pathfinder's Sojourner rover seemed to have a personality that set it apart from other successful interplanetary robots of the past, such as Galileo and Voyager. Even some of its operators referred to it as a "she" — perhaps because the rover was named after Sojourner Truth (1797-1883), the freed black slave who became a plain-spoken feminist and abolitionist.

The latter-day Sojourner became a star on the Internet, where fans followed its wanderings for more than three months. That's not bad, considering that the rover's designers at NASA's Jet Propulsion Laboratory expected it to work for only seven days.

For all they know, Pathfinder is still going through preprogrammed maneuvers, waiting for commands to be relayed by the now-uncommunicative lander.

Sue Kientz, a JPL technical writer who spun a children's story about Pathfinder, says the idea that the rover was all alone on Mars brought tears to the eyes of one of her readers.

"People have really felt like the rover is a being," Kientz says.

Children weren't the only ones who projected personality traits onto Sojourner: Jake Matijevic, who heads JPL's rover team, says that on occasion he thought of the contraption as a "cantankerous child" who sometimes balked at parental orders.

**AUDIO** "That's very similar to what you find with many robot systems here on Earth," he says. "They generally tend to be kind of cantankerous and somewhat awkward at times to work with, simply because the state of the art here is still in its infancy."

Despite its robotic quirks, Sojourner wildly exceeded expectations, proving even to the earthbound doubters that roving robots could do valuable science more than 100 million miles away from Earth. Thanks in large part to the rover, scientists found



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- Investigating reports about UFOs.
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that Martian rocks and soil were much more varied than previously thought — and that the Red Planet was once warmer, wetter and more Earthlike. All this has only whetted the scientific appetite for more data about how Mars evolved.

The next rover is scheduled to head for Mars in 2001, and if Matijevic has his way, future robotic explorers will **make** Sojourner's historic ramblings look like baby steps.

Future rovers will be designed to operate for a year or more, travel tens of miles away from their home base and do the sorts of things "you would expect a field geologist to do when he goes into a new site," Matijevic says. Sojourner's stepsisters will be bred to drill and scoop Martian samples, then pack them off aboard a later flight back to Earth.

Researchers hope a "sample return" mission in the early 21st century will bring back clearer evidence whether ancient Mars harbored life.

Although Matijevic has ambitious plans for future rovers, even he acknowledges that the best rover can never match a human geologist. "There's very little that substitutes for the geologist's intuition," he says.

The rover's role, Matijevic says, is not to replace men and women on Mars — but to serve as a trailblazer and helpmate, "preparing the way and giving us the hints to make the first human missions there the most productive they possibly can be."

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