

Caltech: NASA Grant For New Work On Mars With Rovers

When it comes to longevity, the Spirit and Opportunity rovers on Mars are giving some real competition to the pink bunny from those battery advertisements. The two rovers in a couple of months will celebrate their second anniversary on the red planet, even though their original missions were only 90 days.

With no end to the rover missions in sight, NASA has selected a planetary scientist at the California Institute of Technology to see if he and his team can learn new things about the ground the rovers are currently rolling on. With any luck, the researchers will uncover further evidence about water or water vapor once present on the planet's surface.

Oded Aharonson, assistant professor of planetary science at Caltech, was chosen as part of the Mars Exploration Rover Participating Scientist Program. Aharonson and seven other investigators have been selected from 35 applicants.

According to NASA, the eight successful proposals were chosen on the basis of merit, relevance, and cost-effectiveness. Aharonson and the seven other finalists will become official members of the Mars Exploration Rovers science team, according to Michael Meyer, lead scientist for the Mars Exploration Program.

"Spirit and Opportunity have exceeded all expectations for their longevity on Mars, and both rovers are in good position to continue providing even more great science," said Meyer. "Because of this, we want to add to the rover team that collectively chooses how to use the rover's science instruments each day."

Aharonson's proposal is formally titled "Soil Structure and Stratification as Indicators of Aqueous Transport at the MER Landing Sites." In nontechnical talk, that means the researchers will be using the rovers to look at Martian dirt and rocks to see if liquid water has ever altered them.

The search for evidence of running water on Mars has been a "Holy Grail" for the entire exploratory program. Although the details of how life originally evolved are still largely conjectural, experts think that liquid water is required for the sort of chemistry thought to be conducive to the emergence of life as we know it.

Although there is no liquid water on the Martian surface at present, Opportunity has found geological evidence that water formerly flowed there. Thus, Aharonson will be looking for the telltale signatures of ancient as well as more recent aqueous transport and alteration.

"My experiments would normally take a couple of weeks, but it's not clear exactly how much time we'll devote to them," Aharonson said. "If we find something interesting, it could be much longer. But we might also cut the time shorter if, for example, we come upon an interesting rock we want to look at more closely."

Aharonson will work with a new Caltech faculty member, John Grotzinger, who comes from MIT as the Fletcher Jones Professor of Geology and is already a member of the rovers' science team. In addition, Caltech postdoctoral researcher Deanne Rogers will be involved in the research.

Spirit and Opportunity have been exploring sites on opposite sides of Mars since January 2004. They have found geological evidence of ancient environmental conditions that were wet and possibly habitable.

They completed their primary missions three months later and are currently in the third extension of these missions. NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, manages the Mars Exploration Rover project for NASA's Science Mission Directorate.

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