

Evidence of ancient hot springs on Mars detailed

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New Rochelle, NY, February 12, 2009 -Data from the Mars Reconnaissance Orbiter (MRO) suggest the discovery of ancient springs in the Vernal Crater, sites where life forms may have evolved on Mars, according to a report in *Astrobiology*, a peer-reviewed journal published by Mary Ann Liebert.

Hot springs have great astrobiological significance, as the closest relatives of many of the most ancient organisms on Earth can thrive in and around hydrothermal springs. If life forms have ever been present on Mars, hot spring deposits would be ideal locations to search for physical or chemical evidence of these organisms and could be target areas for future exploratory missions.

In the research paper entitled, "A Case for Ancient Springs in Arabia Terra, Mars," Carlton C. Allen and Dorothy Z. Oehler, from the Astromaterials Research and Exploration Science Directorate at the NASA Johnson Space Center, Houston, Texas, propose that new image data from the High Resolution Imaging Science Experiment (HiRISE) on MRO depict structures in Vernal Crater that appear to have arisen as part of a major area of ancient spring activity. The data suggest that the southern part of Vernal Crater has experienced episodes of water flow from underground to the surface and may be a site where martian life could have developed.

"Hot spring deposits are key target areas for future Mars missions," says Sherry L. Cady, PhD, Editor of *Astrobiology* and Associate Professor in

the Department of Geology at Portland State University. "Such deposits on Earth preserve evidence of the fossilized remains of the microbial communities that inhabited the hot springs over a wide range of spatial scales. The potential to find key evidence indicative of life--biofabrics, microbial remains, chemical fossils in minerals--is high when sedimentary deposits form from hydrothermal fluids. Hot spring fluids are typically laden with dissolved mineral ions that, when they precipitate out and create the hydrothermal deposit, enhance fossilization of all types of biosignatures."

Several key papers in the issue are available free online at www.liebertpub.com/ast

Source: Mary Ann Liebert, Inc./Genetic Engineering News

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