

# Hebridean rock provides clue to life on Mars

September 16 2016, by Robert Turbyne

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On Mars there are 'Marsquakes' which may produce hydrogen in the same way as on Earth. Credit: University of Aberdeen

Analysis of rocks in the Outer Hebrides has provided a tantalising clue that Mars may contain habitats which can potentially support life.

As preparations continue at NASA for a mission to Mars in 2018, researchers studying rocks on Barra and the Uists have demonstrated that hydrogen – which is essential for life – is formed by earthquakes. On Mars there are 'Marsquakes' which may produce hydrogen in the same way.

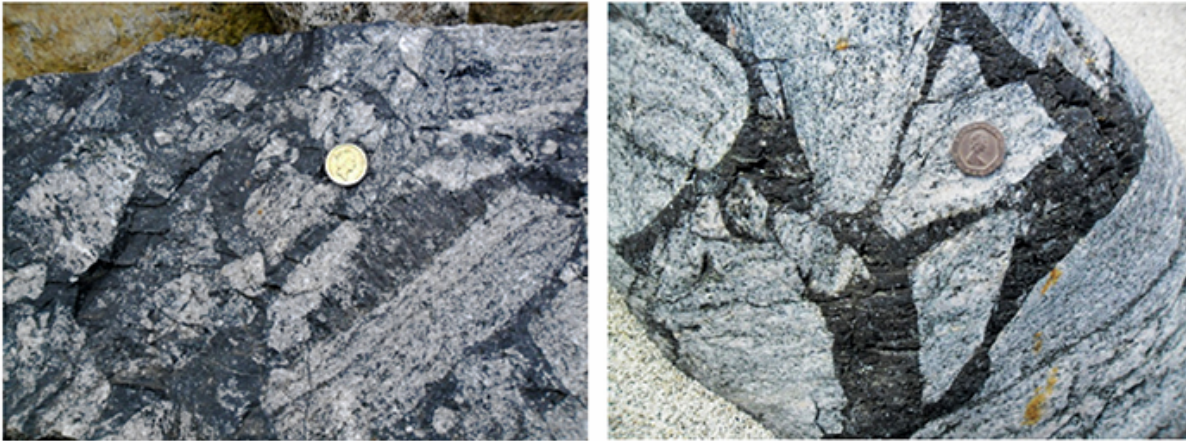
The study, which has been published in the journal *Astrobiology*, was carried out by scientists from the University of Aberdeen, working alongside colleagues from Yale University and Brock University. Their research was supported by the Science and Technology Facilities Council.

Professor John Parnell, from the University of Aberdeen's School of Geosciences, explained: "Earthquakes cause friction, and our analysis of ancient rock in the Outer Hebrides has demonstrated how this creates hydrogen.

"Hydrogen is a fuel for simple microbes, so microbes could live off hydrogen created in the Earth's subsurface as a result of seismic activity.

"This is a model that could apply to any other rocky planet, and on Mars there are so-called 'Marsquakes' that may produce hydrogen and therefore could feed life in the Martian sub-surface.

**A**



**B**



Credit: University of Aberdeen

"Our analysis finds that conservative estimates of current seismic activity on Mars predict [hydrogen](#) generation that would be useful to microbes, which adds strength to the possibility of suitable habitats that could support [life](#) in the Martian sub-surface.

"NASA has plans to measure [seismic activity](#) on Mars during its 2018 InSight mission, and our data will make those measurements all the more

interesting."

**More information:** Sean McMahon et al. Evidence for Seismogenic Hydrogen Gas, a Potential Microbial Energy Source on Earth and Mars, *Astrobiology* (2016). [DOI: 10.1089/ast.2015.1405](https://doi.org/10.1089/ast.2015.1405)

Provided by University of Aberdeen

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