

## Space voyaging rock reveals insight into detecting life on other planets

October 2 2008



Photo courtesy R. Demets/F. Brandstatter - Spacecraft after landing in Kazakhstan after the experiment. Samples, including Orkney sample, are screwed onto the outside.

(PhysOrg.com) -- Intelligent life from other planets would be able to tell that Earth is inhabited if they had come into contact with a space voyaging piece of Orkney rock, scientists have revealed.

The specially prepared slab of rock was launched into space attached to a Russian spacecraft by University of Aberdeen experts in September last year as part of a European Space Agency mission.

Studies of the quarter of the rock which survived the journey have shown that if it had landed as a meteorite on another far distant planet



and been tested by an alien life form, its chemical formations would have shown that life exists on other planets.

Findings unveil that the chemical information found within the rock survived the rigorous process of atmospheric entry after 12 days orbiting the Earth. These chemicals, which exist in the rock due to biological processes and could not have been formed by chance, would have provided evidence of life on the planet from which the rock arrived.

Professor John Parnell, School of Geosciences, University of Aberdeen who led the study with colleague Dr. Stephen Bowden, will present the findings of the rock's space voyage at the Royal Observatory Edinburgh Workshop: Habitability in our Galaxy in Edinburgh next week (Wednesday 8 October).

Professor Parnell said: "The specially prepared piece of Orkney rock took part in the unmanned Foton M3 mission which aimed to examine the rock's behaviour when it was exposed to the extreme temperatures involved in it's re-entry through the Earth's atmosphere.

"Three quarters of the rock, which was about the size of a small pork pie, was burnt off in the experiment. However, the quarter which returned to Earth has shown us that if intelligent life were to have come into contact with the rock, it would have provided them with evidence that life exists on another planet.

"If they were to have scientifically analysed the rock the chemical information extracted would have indicated that the remains of some other life form had been incorporated within the rock, as those chemicals could not have existed or been created by chance. In this case, the rock contains the remains of primitive algae that lived in the Orkney region almost 400 million years ago. We would be extremely excited if we found similar remains in a meteorite arriving from another world."



"The Orkney rock was chosen for the experiment due to its robust qualities which made it most likely to be able to survive the harsh conditions endured during re-entering the Earth's atmosphere, and its organic-rich nature which gave us a chemical signature to search for after the experiment."

The rock was blasted into space along with 35 other European Space Agency experiments in life and physical sciences.

Professor Parnell said: "The findings of the experiment tell us that we should look very carefully at meteorites arriving on Earth from Mars, in case they show signs of any life that might once have existed there."

Provided by University of Aberdeen

Citation: Space voyaging rock reveals insight into detecting life on other planets (2008, October 2) retrieved 10 May 2024 from <u>https://phys.org/news/2008-10-space-voyaging-reveals-insight-life.html</u>

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