



**Media Relations Office**  
The Open University  
Walton Hall  
Milton Keynes  
MK7 6AA

Direct Lines (01908) 653343/ 653256/ 653248/652580  
Switchboard (01908) 274066  
Email [Press-Office@open.ac.uk](mailto:Press-Office@open.ac.uk)  
Fax (01908) 652247  
World Wide Web <http://www.open.ac.uk/>

# news release

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Attention: News Editors and Science Correspondents

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## **WHEN THE EARTH TURNS BAD: NEW EVIDENCE THAT MASS EXTINCTION WAS HOME-GROWN**

Two-hundred-and-fifty million years ago, at the end of the Permian period, 90 per cent of marine species disappeared and life on land suffered greatly during the world's biggest mass extinction.

The cause of this great dying has baffled scientists for decades but recent speculations invoke asteroid impacts as a kill mechanism. Yet, new data published in the current edition of *Geology* proves that the extinction cause did not come from the heavens but from the Earth itself.

Layers of rocks contain a chemical testimony of environmental change through time. Asteroids and comets are different from the Earth and when these objects arrive they leave a tell-tale chemical fingerprint in the rocks. Studies of end-Permian samples reveal no evidence of these extraterrestrial signals suggesting that the extinction must have been home grown.

The Open University's Dr Mark Sephton, who was part of an international team of scientists from Austria, the United States and the United Kingdom who examined the rock record, said: "At the end of the Permian, the Earth was a bad place to live but a good place to die. It seems that massive volcanic activity, occurring in the heart of present day Siberia, was a more likely hazard than any meteorite impact".

Results from Permian rocks appear to support the role of volcanism. There are slight concentrations of rare elements in amounts that imply deposition from sluggish oceans when atmospheric carbon dioxide levels were high and seawater oxygen levels were low.

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Dr Sephton and his colleagues believe that the source of the carbon dioxide was probably volcanic activity. Large areas of Earth's crust can be split by volcanic activity to create space in which oceans form. But when it comes to cracking continents, breaking up is very hard to do, and during the volcanic episode emissions from Siberian volcanism flooded the atmosphere leading to changes in climate and patterns of oceanic circulation.

Keen to learn lessons from the past, Dr Sephton adds: "The end Permian environmental crisis illustrates the fine balance between the Earth, climate and life. It would be sensible to consider and monitor our relationship with changes to the Earth system to avoid a future global catastrophe"

### **Editor's Note**

The article 'Geochemistry of the end-Permian extinction event in Austria and Italy: No evidence for an extraterrestrial component' which Dr Sephton co-wrote with Christian Koeberl of the University of Vienna in Austria, Kenneth Farley of the California Institute of Technology and Bernhard Peucker-Ehrenbrink of Woods Hole Oceanographic Institution in the USA, is published in *Geology* this week.

### **Contacts**

Journalists who would like to interview Dr Sephton about the findings of this research are asked to contact Gabi Nobis.

Gabi Nobis

Open University Media Relations Officer

01908 655026

[g.nobis@open.ac.uk](mailto:g.nobis@open.ac.uk)