

Puzzle of Earth's uninterrupted habitability

11 November 2015

Geological Society, Burlington House, London



Confirmed Keynote Speakers:

Professor Tim Lenton (*University of Exeter*)
Professor Toby Tyrrell (*University of Southampton*)

Convenors:

David Waltham (*Royal Holloway University of London*)
Graham Shields (*University College London*)

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 #puzzlefearth

Environmental conditions at the Earth's surface have been continuously suitable for life for more than three billion years. Temperatures, for example, have only varied by few tens of centigrade despite large changes in solar luminosity and atmospheric composition. Since the Archean, the planet has not once been rendered sterile. However, the reasons for this long-term life-friendliness remain contentious. How has Earth's climate avoided the runaway warming shown on Venus or the runaway cooling of Mars? Has Earth's relative stability resulted from geochemical feedback (e.g. through silicate weathering), the stabilizing influence of a complex biosphere (i.e. the Gaia hypothesis), good luck (e.g. purely fortuitous cancellation of solar warming by decreased greenhouse gas concentrations) or is long-term life-friendliness simply the consequence of life's extraordinary adaptability (allowing it to survive even Snowball Earth events)? This conference will bring together proponents of these various views in an attempt to forge a consensus on how to move the debate forward. This debate will be informed by data relating to the latest understanding of silicate weathering, Neoproterozoic ice ages, and the environmental history of Earth.

This meeting would be suitable for anyone interested in the long-term habitability of the Earth, its long-term climate history, geo-biochemical cycles, the highly controversial Gaia hypothesis or the likelihood of habitable worlds beyond the solar system.

Call for Abstracts

We welcome oral presentation contributions for this meeting. If you would like us to consider you for a slot in the programme, please send an abstract of no more than 400 words to Ruth Housby no later than Sunday, 5 April 2015.