

INVITED TALK
Thursday 10 March 2022 – 13:00-14:00
University of Patras

Professor PAUL R.D. MASON
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Brief bio:

BSc in Geology, Durham University, UK, 1989-1992
PhD, Birkbeck College, University of London, 1992-1995
PDRF Imperial College London, 1995-1997
Utrecht University, 1997 - onwards

- Appointed Professor in 2017;
- Education Director since 2020

Talk title: *Emergence of the Earth's earliest landmass(es)*

The growth of the continental crust through geological time has been accompanied by an increase in landmass. Land currently makes up 27.5 percent of the Earth's surface. Oceans first appeared in the Hadean eon, between 4400 and 4200 million years ago, creating a dominant 'water-world'. It remains unclear when the first significant amounts of crust emerged above sea level, with widely diverging estimates for the Paleoproterozoic from zero to tens of percent. Answering this question has major implications for determining the onset of the carbonate-silicate weathering cycle, nutrient delivery to the oceans and biological evolution. In this talk, I will outline a new method for calculating the extent of the crust between 3600 and 3200 million years ago using strontium isotopes in hydrothermal barites. Our results show that the onset of crustal weathering into the ocean basins matches the appearance of the first extensive greenstone belts and the first convincing traces of microbial life. Geological and biological evolution on the early Earth were most likely intimately interlinked.