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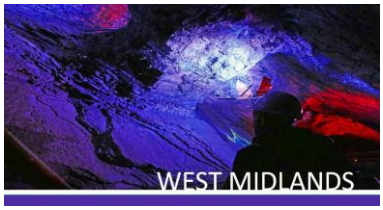

Recipes for making the Earth

Tim Elliott
(Professor of Isotope Geology, University of Bristol)

13th December 2022 | Zoom Video Conference | 6:30pm start

Abstract:

The main ingredients usually invoked to make planets are primitive meteorites, the chondrites. Although believed to be broadly representative of the solar disk from which planets grew, there are subtle differences in the compositions of different chondrite groups. An important question has therefore been, what quantities of the different chondrites are needed to make the Earth. It transpires that one answer is obtained by considering elemental compositions and another using their isotopic characteristics. I argue that this dilemma is resolved if elemental abundances are modified by vapour loss as a natural consequence of the energetic process of collisional planetary accretion. So overall, a respectable Earth can be made from a starting composition of enstatite chondrite that has been wantonly over-cooked.

About the Speaker:

Tim Elliott is Professor of Isotope Geology at the University of Bristol. He is primarily interested in the formation and evolution of the rocky planets, a quest which started in trying to understand the production of melts in the current tectonic regime on Earth. He uses isotope ratio measurements as his tool of choice.

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This has involved the pleasurable distraction of analytical mass-spectrometry. The insight afforded by precise isotope ratio measurement has also tempted Tim to dabble in occasional attempts to reconstruct past conditions on the Earth's surface.

In his career, Tim has greatly appreciated the new vistas provided by the opportunity to work in the US (Lamont Doherty Geological Observatory of Columbia University) and the Netherlands (Vrije Universiteit, Amsterdam) following valuable training in some of the flatter parts of England. Bristol has been a happy home for the last two decades, where he co-established the Bristol Isotope Group and discovered the wonders of multi-collection plasma mass-spectrometry.

Forthcoming Talks:

The WMRG is constantly on the lookout for fascinating talks. If you would like to present, know someone who is willing, or would like to request a subject please contact the WMRG committee (details below) and we will try our very best to accommodate your requests.

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