Postdoctoral fellowship in Isotope Geochemistry and Experimental Petrology
Marie-Curie Initial Training Network ABYSS (ER3)

Training network on reactive geological systems from the mantle to the abyssal sub-seafloor

Host institution: Ocean & Earth Science, National Oceanography Centre Southampton, University of Southampton (UK)
Secondment institutions: CRNS Geosciences Montpellier (FR); University of Oslo (NO); University of Bremen (DE).

Ocean and Earth Science at the National Oceanography Centre Southampton, University of Southampton seeks to appoint a post-doctoral research fellow in isotope geochemistry and experimental petrology. The successful applicant will develop new isotopic experimental techniques for quantifying the rates and mechanisms of fluid-rock exchange. They will work in close collaboration with Damon Teagle (OES, Univ. Southampton), Margot Godard and Philippe Gouze (CRNS Montpellier), Bjorn Jamtveit (Univ. Oslo) and Wolfgang Bach (Univ. Bremen).

Deep, high temperature fluid-rock reactions cannot be directly observed and must be deciphered from petrographic and geochemical observations of fossil fluid-rock interactions preserved in ophiolites or recovered from ocean floor drill cores. Tracing the movement of seawater-derived isotopes through the crust is an essential tool to determine the extent of water-rock interactions along evolving temperature and hydrothermal pathways. However, isotopic measurements are often simply interpreted using non-dimensional water-rock ratios, rather than in the context of the transport of a reactive tracer through a porous media or crack network.

Methods:
This project will test and calibrate models of deep crustal mineral-fluid exchange through a suite of reactive percolation experiments, using isotopically labelled (e.g., Sr, Mg, O, H, C) hydrothermal fluids and seawater injected into lower crustal and mantle rock analogues at appropriate temperatures. Analyses of fluids and secondary minerals will be integrated with reactive tracer transport models to quantify hydrothermal fluid-rock exchange and to better estimate ocean ridge fluid fluxes.

Goals:
Geochemical and isotopic analyses of primary and secondary minerals from experimental charges and the associated reaction fluids will be integrated to develop improved reactive tracer transport models for hydrothermal cooling of the lower oceanic crust and reactions in the upper mantle.
**Requirements:** Candidates must hold a PhD in Earth Sciences and specialist experience in isotope geochemistry, experimental petrology, and/or numerical modeling of fluid-rock interactions is essential.

**This fellowship is for a period of 24 months starting no later than: 1st October, 2015.**

It is funded by ABYSS, an EU Framework 7 Marie Curie Integrated Training Network\(^1\) which brings together 10 European research groups and 4 Associated Partners from the private sector. ABYSS consists of 12 PhD students (ESR: *Early Stage Researcher*) and 3 postdoctoral fellows (ER: *Experienced Researcher*).

Recruitment will be an international process based on the principles of the European Charter and Code for Researchers and the eligibility criteria for ITN projects.

*A candidate for post-doctoral fellowship (ER) is a researcher who, at the time of recruitment, is in possession of a doctoral degree (or has at least 4 years of full-time equivalent research experience) and has less than 5 years of full-time equivalent research experience. At the time of recruitment, researchers shall not have resided or carried out their main activity in the country of their future host organization for more than 12 months in the 3 years prior to that date.*

**Salary:** Salary and monthly mobility allowances follow attractive/competitive E.U standards

To apply candidates are required to submit an application to Ocean and Earth Science at the University of Southampton via the link:

This position is for 24 months.

**Deadline for application: 9th of August, 2015**

For further information, contact:

Professor Damon A.H. Teagle ([Damon.Teagle@southampton.ac.uk](mailto:Damon.Teagle@southampton.ac.uk))

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\(^1\) ABYSS has received funding from the People programme (Marie Curie Actions) of the European Union's Seventh Framework Programme FP7/2007-2013/ under REA - Grant Agreement n°608001.