SPECIAL CALL FOR APPLICATIONS

for an INORGANIC GEOCHEMIST

with particular analytical experience in pore water geochemistry based in ECORD Member Countries to participate in

IODP Expedition 381: Corinth Active Rift Development

An IODP Mission Specific Platform Expedition organised by the

ECORD Science Operator (ESO)

www.eso.ecord.org

The call is for scientists able to participate during the Onshore Science Party only (scheduled to start on 31 January 2018 and last for a maximum of 4 weeks, dependent on core recovery).

DEADLINE 13 October 2017

The European Consortium for Ocean Research Drilling (ECORD) offers you the unique opportunity to to join the Science Party for Expedition 381: Corinth Active Rift Development in the framework of the International Ocean Discovery Program (IODP), an international research program for drilling at sea.

The proposal upon which this expedition is based was submitted as IODP Proposal #879 'Corinth Active Rift Development'. The full proposal describing the primary drill sites, as well as up-to-date expedition information, can be found on the Expedition 381 webpage http://www.ecord.org/expedition381/.

The Co-chief Scientist for this Expedition are Professor Lisa McNeill, University of Southampton and Professor Donna Shillington, Lamont Doherty Earth Observatory.

Background and Objectives

Continental rifting is fundamental for the formation of ocean basins and hydrocarbon-bearing rifted margins, and active rift zones are dynamic regions of high geohazard potential. But much of what we know from the fault to plate scale is poorly constrained and is not resolved at any level of spatial or temporal detail over a complete rift system.

This expedition will drill within the active Corinth Rift, Greece, where deformation rates are high, the syn-rift succession is preserved and accessible, and a dense, seismic database provides a high - resolution fault network and seismic stratigraphy for the recent rift history but with limited chronology. In the Gulf of Corinth, the expedition can achieve an unprecedented precision of timing and spatial complexity of rift-fault system development and rift-controlled drainage system evolution in the first 1-2 Myr of rift history.

The expedition aims to resolve at a high temporal and spatial resolution how faults evolve, how strain is (re-) distributed, and how the landscape responds within the first few Myrs in a non-volcanic continental rift, as modulated by Quaternary changes in sea level and climate. High horizontal spatial resolution (~1-3 km) is provided by a dense grid of seismic profiles offshore that have been recently fully integrated, complemented by extensive outcrops and fault analysis onshore. High temporal resolution (~20-50ka) will

be provided by seismic stratigraphy tied to core and log data from three carefully located boreholes to sample the recent syn-rift sequence.

Two primary themes will be addressed by the drilling integrated with the seismic database and onshore data. First, fault and rift evolutionary history (including fault growth, strain localization and rift propagation) and deformation rates: the spatial scales and relative timing can already be determined within the seismic data offshore. Dating of drill core will provide the absolute timing offshore, the temporal correlation to the onshore and the ability to quantify strain rates from individual faults to the whole rift scale. Second, the response of drainage evolution and sediment supply to rift and fault evolution: core data will define lithologies, depositional systems and paleoenvironment, including catchment paleo-climate, basin paleobathymetry, and relative sea level. Integrated with seismic data, onshore stratigraphy and

catchment data, we will investigate the relative roles and feedbacks between tectonics, climate and eustasy in sediment flux and basin evolution. A multidisciplinary approach to core sampling integrated with

log and seismic data will generate a Quaternary chronology for the syn-rift stratigraphy down to orbital timescale resolutions and resolve the paleoenvironmental history of the basin in order to address the objectives.

The expedition aims to drill, core, and log up to 750m-deep boreholes at three sites in the central and eastern Gulf of Corinth. The procurement process to contract platform and drilling services is currently being undertaken by ESO, and it is envisaged that the setup will involve a geotechnical vessel equipped with a coring rig, and outfitted with ESO's laboratory containers.

Timing

Until the platform and drilling services are procured (estimated Spring 2017) all timings are provisional. It is envisaged that the offshore phase of the expedition will last a maximum of 60 days during October and November 2017, with only a subset of the Science Party participating. Offshore activities will focus on core recovery, curation, sampling for ephemeral properties, biostratigraphy, physical properties, preliminary lithostratigraphy (whole core observed at core ends and through plastic liners), and downhole logging. The cores will not be split at sea.

Subsequently, an Onshore Science Party (OSP) will be held at the MARUM - Center for Marine Environmental Sciences, University of Bremen, Germany, in February 2018 (exact dates to be confirmed), where the cores will be split. The OSP will be a maximum of 4 weeks long, the exact length dependent on core recovery. All members of the Science Party must attend the Onshore Science Party. Please see http://www.eso.ecord.org/expeditions/msp.php (and linked pages within) for an overview of Mission Specific Platforms in IODP.

Successful applicants will be invited either as an offshore-onshore participant, or as an onshore-only participant. Please note that there are no opportunities for offshore-only participation.

Expertise sought

This Special Call in particular is addressed towards Inorganic Geochemists with expertise in pore water geochemistry. The call is for scientists able to participate during the Onshore Science Party only (scheduled to start on 31 January 2018 and last for a maximum of 4 weeks, dependent on core recovery).

For further details from ESO, please contact:

David McInroy, ESO Science Manager, dbm@bgs.ac.uk

The Application Process is open to scientists in all ECORD member countries. Please download the *Apply to Sail* general application forms from the ESSAC webpage:

- Form Expedition 381: http://www.ecord.org/expeditions/apply-to-sail/

Please, fill out all applicable fields and send it to the ESSAC office by email (essac@geomar.de) with the following additional documents until **13 October 2017**:

1. **A letter of interest** outlining your specific expertise, previous involvement in DSDP/ ODP/ IODP expeditions, research interests, primary research goals of your proposed participation.
2. **CV** and **publication list**.
3. **Young researchers** must additionally provide a **letter of support** from their host institution, including information on post-cruise science support.

All applications should state how you intend to achieve the proposed scientific objectives, with information on the funding scheme and support from your institution or national funding agencies. More information can be found under: http://www.ecord.org/expeditions/apply-to-sail/

In addition to the ESSAC application, all applicants *must inform their national office or national delegate* and send a copy of the application documents. The national offices or national delegates can also provide information regarding travel support, post-cruise funding opportunities, etc.
See http://www.ecord.org/about-ecord/about-us/ and http://www.ecord.org/about-ecord/management-structure/essac/ for a list of the national contact persons.

For further information or questions, please contact the ESSAC Office:

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