

iCRAG PhD studentship HC4.2PhD1

Anatomy of early continental rifting: An integrated pedofacies, spectral gamma and paleomagnetic approach

Continental rift basins now account for more than 30% of the world's giant oilfields, so it is critical for future global petroleum exploration to gain a detailed understanding of syn-rift sedimentation and tectonics in classic examples. The Miocene to Recent East African Rift System (EARS) is the best example of continental rifting in progress anywhere in the world, and is also subject to extensive hydrocarbon exploration. In particular, the Albertine Rift Valley of the western arm of the EARS, exhibits all the classic tectonic, sedimentary, geomorphological and hydrological features of the earliest stages of continental rifting. The petroleum rift geology of Lake Albert has also previously been used by Irish exploration companies as a direct analogue for the central North Celtic Sea Basin, as it is of a similar structural size and style, with fluvio-lacustrine fill from Upper Jurassic to mid Cretaceous.

This project will use petroleum field geology around northern Lake Albert, Uganda (Exploration Area 1: Murchison Falls National Park) to develop new techniques in high resolution sedimentary fluvio-lacustrine pedofacies analysis, including their spectral gamma ray response, and calibrate these against a palaeomagnetic polarity timescale. The results will then be directly applied to re-interpret the subsurface wireline logs of North Celtic Sea Basin wells in an attempt to help de-risk the basin for future hydrocarbon exploration.

Applications are invited from students who can demonstrate a strong background in field geology and sedimentology, passion for petroleum exploration and the self-motivation needed to operate in frontier environments. Candidates must have an excellent, relevant geoscience honours degree. The project is fully funded for four years with a stipend of 17.5k per annum, includes fees for either EU or non-EU applicants, and has a projected start date of 1st September, 2016.

To apply, please send a full CV, covering letter stating why you would be ideal for this project, and the names and contact details of two academic referees to Dr Chris Nicholas at nicholyj@tcd.ie. The closing date for applications is Friday 19th August. Enquiries for further details are also welcome.

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