



Fully funded PhD Studentship available

Earth & Ocean Sciences
School of Natural Sciences
National University of Ireland Galway

Identifying and targeting Ireland's deep groundwater resources using seismic reflection data.

Project Description

Groundwater resources make up about 16 percent of Ireland's public water supply, but the nature and extent of the resource distribution at depth (>100m) is poorly understood. The broad context of this project is to develop a better understanding of deep groundwater resources in Irish limestones using existing seismic data sets.

Anecdotal and field evidence suggests that deeper groundwater resources are largely untapped and uncharacterised. The aim of this project is to model water-bearing features using existing seismic and drill data, and to develop a direct detection method for locating these deep-seated, water-bearing features.

These data sets will be used to characterise the appearance of deep-seated karst features, allowing for the development of synthesised seismic sections. Original seismic data sets will then be reprocessed with the aim of highlighting water-, air- or water and air-filled features. The approaches developed can be used to identify potential deep groundwater resources, and these resources could have multiple users: including augmenting and enhancing water supplies, providing a stable saline water resource for desalination, and providing targets for geothermal use (at local and district level, for agricultural use, and to data centres as potential independent sources of heating and cooling).

The candidate will be registered and based at the National University of Ireland Galway, but will be working closely with researchers at the Dublin Institute of Advanced Studies (DIAS).

Requirements

Candidates should hold or anticipate a good primary degree (First or Second Class Honours) in an appropriate discipline (e.g. Geology, Earth Sciences or a related discipline). The successful candidate should be highly self-motivated, display excellent written and oral communication skills and have some background and interest in groundwater. The successful candidate will ideally have additional research experience (e.g. MSc) in hydrogeology and/or geophysics.

Funding

This 48-month project is funded by the Irish Centre for Research in Applied Geosciences and the Fellowship provides an annual stipend of €18,500 per annum (plus University fees) over four years. Funds for project costs are also provided.

Start Date: November 2022 (application deadline September 30, 2022).

Further Information

Dr Tiernan Henry: tiernan.henry@nuigalway.ie.

To Apply

Please submit an electronic copy of your Curriculum Vitae with contact details for two referees and a letter stating your interest and suitability for the position to:

Dr Tiernan Henry (tiernan.henry@nuigalway.ie)