



UCD School of
Geological Sciences

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Two PostDoctoral Research Positions available

1. Computational Seismology

The seismology group at University College Dublin, www.ucd.ie/geophysics has an opening for a computational seismologist to work as an integral member of the group. The group's primary research focus is on volcano source modelling and, more recently, on microseismic noise generation in the North Atlantic Ocean. It has extensive field data sets in both these application areas. This project will include: (i) numerical simulations of wave propagation in 3D heterogeneous media with topography, (ii) time-reversal imaging of the sources of microseismic noise, (iii) calculating 3D sensitivity kernels for local/regional models and (iv) kinematic and dynamic source modelling. The successful candidate will work on code development as well as improving and using existing in-house (Finite Difference and/or Elastic Lattice Method) and publicly available software (such as SPECFEM 3D). The successful candidate will be expected to actively collaborate with members of the group on field data-driven projects in our core research areas.

The group is a member of the EU Marie Curie ITN QUEST project (www.quest-itn.org), where there are excellent opportunities for collaborations with QUEST researchers, working on similar problems.

The group has access to several local computer clusters and has a close working relationship with the Irish Centre for High End Computing www.ichec.ie

This position is funded by the Department of Communications, Marine and Natural Resources through the Griffith's Geoscience initiative.

For general queries please contact Dr Aoife Braiden, geophysics@ucd.ie

For application information, please see <http://www.ucd.ie/hr/jobvacancies/>

2. Time-reversal imaging of ocean generated microseismic sources in the Northeast Atlantic

The aim of this project is to locate the sources of microseismic noise in the near Atlantic offshore Ireland. Time-reversal imaging will be used to identify the main zones of interaction between the ocean waves and solid Earth, which act as the main sources of microseisms recorded on a dense broadband seismic network in Ireland; offshore Ireland is thought to be a 'hotspot' for microseismic noise generation. The observed microseismic noise will be propagated backwards, from the receivers towards the source region in question using 3D wave simulators capable of

handling complex interfaces and structure. The wave simulators and data will be available to the project, but the work will require adapting the software to specific tasks.

This project is linked to a bigger ocean wave observation project which deals with the spatio-temporal estimation of the ocean wave heights based on the recorded microseismic noise. Time-reversal results will be compared with a range of other source locations methods in the context of this larger project.

The successful candidate will have some programming experience (preferentially C and/or Fortran and Matlab), she/he will be able to use computational tools to calculate synthetic datasets, and open to collaborations with the other members of the research group. The position includes excellent opportunity for collaboration within EU QUEST Initial Training Network <http://www.quest-itn.org/>.

