



Trinity College Dublin

Coláiste na Tríonóide, Baile Átha Cliath

The University of Dublin

PhD in Sea Level Change (4 years, fully funded)

Project: Common Era Atlantic Sea Level Change

This PhD forms part of the multi-institution, Marine Institute/European Regional Development Fund-funded project A4: *Aigéin, Aeráid, agus Athrú Atlantaigh (Oceans, Climate, and Atlantic Change)*. The successful candidate will work as part of a dedicated research group comprising four other PhD students and three postdoctoral researchers based in Trinity College Dublin (PI: Dr Robin Edwards) and Maynooth University (PI: Dr Gerard McCarthy).

Project Description

Quantifying regional variations in sea level rise is one of the Grand Challenges set by the World Climate Research Programme. Understanding the expression of Atlantic variability on the Irish shelf is important for translating globally averaged rates of mean sea level rise (SLR) to the regional and local scales at which coastal policies and management are enacted. Changes in North Atlantic circulation are potentially significant drivers of spatially variable SLR. One of the few consistent regional sea level predictions in the CMIP5 suite of models, is an increase in sea level on the western margin of the North Atlantic due to a declining Atlantic Meridional Overturning Circulation (AMOC). The predicted spatial pattern of changing AMOC strength is likely to be evident in saltmarsh-based, geological reconstructions of relative sea level (RSL) change along the North American coast, although additional data are required to test this hypothesis. Model predictions of regional sea level change on the eastern margin of the North Atlantic in response to a declining AMOC are much less consistent, whilst observations of Irish RSL are comparatively sparse and of limited duration, precluding trans-basin analysis. Bridging this fundamental data gap is possible by integrating new RSL information via data archaeology, field survey and geological reconstruction.

This PhD project will contribute to addressing this knowledge gap by:

- 1) Using saltmarshes as 'geological tide gauges' to produce new RSL records of change from the Atlantic coasts of North America and Ireland
- 2) Using these new records to test the proposed fingerprint of AMOC-related change along the western Atlantic margin (USA), and establish whether related signatures can be detected along the eastern Atlantic margin (Ireland).

Eligibility and Details

Applications are invited from students who are interested in improving our understanding of sea level change and ocean circulation variability in the North Atlantic region by developing relative sea-level records from saltmarsh environments. Applicants will have a passion for field and laboratory work, and a keen interest in developing new skills as part of an inter-disciplinary, international research group. Candidates must have an excellent undergraduate or masters degree in Earth Science, Geology, Physical Geography, Oceanography or a related subject.

This project will commence no later than February 2020. The successful applicant will register as a full-time PhD student based in Geology in the School of Natural Sciences, Trinity College Dublin. They will be expected to undertake fieldwork in Ireland and the USA, as well as present results at national and international conferences.

Applicants should hold a full (clean) driving license.

Fees and Stipend

The project will cover full tuition fees at the EU student rate for a period of four years full-time study. In addition, the student will receive a stipend of €18 000 per year. UK applicants will be considered as EU students for the duration of this project.

The project will cover half the tuition fees at the non-EU student rate for a period of four years full-time study. Non-EU candidates should contact Dr Robin Edwards in advance of submitting their application.

Applications Process

Candidates should send the following as a single PDF file to robin.edwards@tcd.ie

1. A full curriculum vitae
2. A cover letter stating why you are interested in the project and what makes you an ideal candidate for this PhD position
3. Names and contact details of two academic referees

Applications will remain open until a suitable candidate is found.

Enquiries for further details should be directed to Dr Robin Edwards.

Contact Details

Dr Robin Edwards

Email: robin.edwards@tcd.ie

Webpage: <https://www.tcd.ie/Geology/people/robinedw/>

Trinity College Dublin, the University of Dublin

Trinity is Ireland's premier university, with a proud tradition of excellence stretching back to its foundation in 1592. The oldest university in Ireland, and one of the oldest in Europe, today Trinity sits at the intersection of the past and the future, and is ideally positioned as a major university in the European Union. Our 47-acre campus is located in the heart of Dublin city centre and is home to historic buildings dating from the University's establishment, as well as some of the most cutting-edge teaching and research facilities in Ireland.

Further details of Geology at Trinity, the School of Natural Sciences and Trinity College Dublin in general can be accessed at:

<http://www.tcd.ie/Geology/>

<http://naturalscience.tcd.ie/>

<http://www.tcd.ie/>