

International Research Training Group ArcTrain: Processes and impacts of climate change in the North Atlantic Ocean and the Canadian Arctic

The DFG-funded International Research Training Group ArcTrain, a collaborative project between the University of Bremen, the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, and a consortium of eight Canadian universities invites applications for a

PhD position

in the area of paleoclimate modelling in the framework of project HB-10: ***Modeling the effect of climate extremes on planktonic foraminifera***

Fossil shells of planktonic foraminifera are the prime source of information on surface water conditions in high latitudes. Their oxygen-isotopic composition helped identify, trace and characterize large-scale meltwater events. This isotope signal is biased towards the time and depth of maximum production and it may entirely exclude information from habitat states that are not conducive for the survival of foraminifera species or for their calcification, such as hyposaline meltwater lenses that may develop under highly stratified conditions. Based on recent progress in modeling the distribution of planktonic foraminifera globally at a species level, the project seeks to quantify the potential bias of foraminifera-based oxygen-isotope records due to meltwater-induced variations in the depth habitat and seasonal succession of planktonic foraminifera. Towards this goal the project will extend a foraminifera ecosystem model by a module to compute species-specific oxygen-isotope composition of the modeled foraminiferal shells. The foraminifera-ecosystem model will be coupled to an oxygen-isotope enabled version of the Community Earth System Model (CESM). We will use the full setup to study the effect of hydrographic extremes (including release of meltwater) during the late Quaternary. Furthermore, the project will assess the effect of past warm phases on the fate of calcite production in the North Atlantic and Arctic. We are looking for a highly motivated, skilled individual, who has strong interest in numerical modeling and understanding the complex interplay between the various components of the high-latitude climate system. The PhD student will be part of the Micropaleontology as well as the Geosystem Modeling group at the MARUM and the Faculty of Geosciences, University of Bremen. During a research stay at the University of Quebec sensitivity experiments and data-model comparisons will be carried out.

Requirements:

- Completed MSc or equivalent degree in geosciences, ecology, environmental sciences or applied mathematics or related fields
- Experience in numerical modeling and scientific computation (e.g. Unix/Linux shell scripting, Fortran, supercomputing environments)
- Applicants should be fluent in English, have excellent writing skills and enjoy working in an international and interdisciplinary team.

The position is for a fixed term of 3 years. It is funded by the German Science Foundation (DFG). The earliest starting date is October 1st, 2016. Salary corresponds to 2/3 TV-L E13.

Applicants should submit under the reference number **A86/16 (HB-10/2)** their letter of motivation, a CV including copies of certificates, a publication list if applicable, and contact information of two referees. Documents should be submitted electronically as a PDF file (maximum size 2 MB) to ArcTrain coordinator, Gabriella Wehr (gwehr@marum.de). The call is open until the position is filled. The review of applications will commence on June 1st 2016.

The University of Bremen has received a number of awards for its gender and diversity policies and is particularly aiming to increase the number of female researchers. Applications from female candidates, international applications and applications of academics with a migration background are explicitly welcome.

Disabled persons with the same professional and personal qualifications will be given preference.

Further enquiries can be addressed to
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