Freie Universität Berlin

The Sedimentary Systems working group at Institute of Geological Sciences of the Free University of Berlin, Germany, invites applications for

1 PhD-Student Position in Sedimentary Systems

research assistant (Praedoc)

with 75%-part-time job

limited to 31.12.2021 (end of project)

Entgeltgruppe 13 TV-L FU

reference code: pSECCO-Chile

Project Description:

Understanding landscape response to climate change is a central problem in the geosciences today, as substantial future changes in precipitation patterns and intensity are expected. Here, we aim to investigate these responses by taking advantage of the unique vegetation and hydrological gradient along the Chilean continental margin and the climatic change over the last 20.000 years recorded in marine sedimentary archives off-shore.

This project is part of the DFG priority project "Earthshape – Earth surface shaping by biota" (Earthshape.net) in which the interaction between biological, geochemical, and geomorphological processes in landscape evolution is explored along a climate gradient in Central Chile. Within this framework, two doctoral projects will use modern river sediment and marine paleo-sediment cores to investigate how Holocene hydrological changes influenced vegetation, weathering, erosion, and sediment transport (EarthShape Project 5 SECCO - "The coupled vegetation, weathering, erosion, and sediment-export response to climate change unraveled from novel proxies in Chilean marine sediment"). The doctoral project focusing on changes over Holocene timescales will be led by Prof. Anne Bernhardt at the Free University Berlin. The project focusing on modern processes, led by Dr. Hella Wittmann-Oelze and Dr. Dirk Sachse, will be based in GFZ Potsdam. Both successful applicants will be working closely together.

Specifically, this project seeks to identify the cascade of changes in weathering, erosion, and sediment export following the large hydrologic and vegetation changes along the Chilean coast from the Last Glacial Maximum (LGM) to present. To achieve this goal, we link the disciplines of sedimentary systems research, inorganic and organic geochemistry, and biology to explore the feedbacks between changes in hydrology and vegetation, and Earth-surface processes over large spatial (the Chilean coast) and temporal (LGM to Holocene) scales.
Within this interdisciplinary project the PhD student will be trained in sediment-core analysis, radiocarbon dating, sedimentation mechanics and processes, compound

distribution and compound-specific carbon and hydrogen isotope composition ($\delta^{13}C_{wax}$ and δD_{wax}) of leaf wax n-alkanes, lithium stable isotopes ($\delta^{7}Li$) as a weathering intensity proxy and meteoric cosmogenic ^{10}Beryllium (^{10}Be) to stable ^{9}B (^{9}Be/^{9}Be) ratios to quantify weathering and erosion rates .

Requirements:

We are looking for a highly motivated candidate with a profound background in sedimentology and/or geochemistry. Candidates should hold an M.Sc. in Geosciences. Previous experience in marine sediment-core analyses, radiocarbon dating, laboratory work/ wet chemistry, leaf-wax biomarkers, stable isotopes or cosmogenic nuclide analysis is an advantage. We expect fluent English language skills. Spanish and German language are of advantage. Basic knowledge in at least one programming language is also an advantage.

It is expected that the student will present the research results at national and international conferences. The PhD thesis should be submitted in English as a collection of peer-reviewed papers (cumulative thesis).
The student will be primarily supervised by Anne Bernhardt at the Free University of Berlin but co-supervised by Hella Wittmann, Dirk Sachse; Patrick Frings at the GFZ Potsdam. The position is funded for 3 years, starting between January and March 2019. Salary and benefits will be according to the Academic Fixed-Term Contract Law (WissZeitVG). The salary scale is TV-L E13, part time (75%).

The Free University Berlin is a partner with the Geo.X consortium (www.geo-x.net). "Geo-X" forms the largest regional cluster of geoscientific expertise in Europe and offers excellent opportunities for cooperation and development with university departments to research institutions and foundations in the Berlin-Potsdam area.

Applications should include the following components: CV, letter of motivation and research interests, a record of academic degrees, including a transcript of records and two letters of recommendation. Please contact Prof. Dr. Anne Bernhardt (anne.bernhardt@fu-berlin.de for further information. All applications quoting the reference code should be sent as a single PDF file to Juliane Rohlmann (jrohlmann@zedat.fu-berlin.de) by 25.11. 2018.
We are looking forward to receiving your application.