

PhD-Student Position in Earth Surface Isotope Geochemistry: Carbonate Weathering

We welcome applications for a 4 year PhD position in the Geochemistry group at the Institute of Geological Sciences of the Freie Universität Berlin, Germany. You will work within the ERC-funded project ***“Devendra - Deciphering the Effect of Vegetation and Erosion on basalt and carbonate weathering by Novel Denudation Rate Approaches”***. The task is to work on weathering of carbonate rock. In a parallel project, a second PhD student will explore the weathering of basalt rock at the same locations.

Rationale: The chemical weathering of rocks on the Earth’s surface draws down atmospheric CO₂, balancing emissions from volcanoes and maintaining Earth’s climate at habitable temperatures. Basalt and carbonate rocks are particularly crucial in this balance, because they are efficiently weathered. Two doctoral projects will apply a novel geochemical tool- the ratio of the cosmogenic isotope beryllium-10 rained out from the atmosphere to stable beryllium-9 released by weathering. We will perform field work along a global climate gradient. We will sample soil profiles and rivers from tropical islands over mediterranean landscapes to cold climates. These samples will be processed in modern geochemical laboratories for measurements of the rare cosmogenic isotopes by accelerator mass spectrometry.

The results of DEVENDRA will be used to refine the global weathering models used in Earth’s carbon cycle and the consequences for Earth’s climate on geological time scales, to predict the trajectory of anthropogenic CO₂ in coming centuries, and to estimate the potential for negative CO₂ emissions as global method for mitigating global warming by artificially-enhanced weathering.

Within this interdisciplinary project the PhD student will be trained in geomorphic and hydrologic field methods, geochemical methods such as XRD, XRF, BET, Sr stable isotopes and meteoric cosmogenic ¹⁰Beryllium (¹⁰Be) as well as ⁹Be (¹⁰Be/⁹Be) ratios to quantify weathering and erosion rates of carbonate.

The PhD student will benefit from a unique collaboration between a University (FU Berlin) and a Geo-Research Centre (GFZ Potsdam). You will be employed at Freie University Berlin and will be supervised by Prof. Friedhelm von Blanckenburg. They will be co-supervised by Dr. Hella Wittmann-Oelze at GFZ Potsdam. The Freie Universität 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. The salary will be that of a 75% E13 position within the german public service payscale.

We are looking for motivated candidates with a background in geochemistry, soil sciences, or isotope geochemistry. Applicants should hold a M.Sc. (or Diploma) in Geosciences, Hydrogeology, or comparable disciplines. Good oral and written English language skills are required, while German language skills are of advantage. Basic knowledge in a programming language and a driver’s license are also an advantage. A minor share of undergraduate course teaching within the FU Geociences curriculum is expected.

Applications should include a CV, letter of motivation, records of academic degrees including a transcript of records, and the names and addresses of two potential referees. Please contact Prof. Dr. Friedhelm von Blanckenburg ([f.v.b\[at\]fu-berlin.de](mailto:f.v.b[at]fu-berlin.de)) for further information. All applications quoting the reference code should be sent as a single PDF file to our secretary ([britta.ernst\[at\]fu-berlin.de](mailto:britta.ernst[at]fu-berlin.de)) by 08. August 2023.

The Freie Universität Berlin strives to increase the proportion of women in research and strongly encourages qualified women to apply.

Closing Date: 8. August 2023 **Application Keyword:** Devendra-2

Further Details on the [DEVENDRA Project](#) [Official Job Advert](#) at FU Berlin

Further Questions: Prof. Friedhelm von Blanckenburg [f.v.b\[at\]fu-berlin.de](mailto:f.v.b[at]fu-berlin.de)