

PhD in Geochemistry at the University of Bern

We are offering a PhD position at the Institute for Geological Sciences of the University of Bern on the topic “*Quantifying redox reactions in the subducting slab: Insights from in situ analysis of Fe, C, and S in high-pressure metamorphic rocks*” as part of an Ambizione project led by Dr. Jesse Walters. The PhD project will examine the impacts of redox reactions in subducted continental crust, and how these reactions may be coupled to the cycling of Fe, C, and S between Earth’s surface and interior. This project aims to quantify how plate tectonics maintains or alters the redox gradient between Earth’s surface, where the atmosphere contains free oxygen, and the more reduced mantle. The PhD student will gain a variety of microanalytical skills, including specialized techniques in electron probe microanalysis and synchrotron-based X-ray absorption for measuring element oxidation state, as well as bulk rock and wet chemical analysis. The student will also employ thermodynamic modeling to compare predicted reactions with those observed in the natural samples. Additionally, the student will conduct fieldwork in southwestern Norway in their first year.

The student will benefit from the vibrant research groups at the University of Bern (https://www.geo.unibe.ch/index_eng.html) conducting studies on metamorphic and geochemical processes. In particular, the project will be carried out in collaboration with Prof. Jörg Hermann, Prof Daniela Rubatto, Prof. Thomas Pettke, and Prof. Pierre Lanari at the University of Bern. Prof. Hermann will also serve as co-supervisor for the PhD student. The Institute of Geological Sciences is also host to state-of-the-art analytical laboratories (e.g., EPMA, SEM, LA-ICP-MS, MC-ICP-MS, Raman and FTIR spectrometers), wet chemical laboratories, and sample preparation facilities.

The applicant should hold a Masters degree (or equivalent) in the Earth and planetary sciences and a keen interest in petrology and geochemistry. Experience in microanalysis, wet chemical analysis, X-ray spectroscopy, and/or equilibrium thermodynamics is beneficial, but will also be acquired during the course of the project.

The application must include a cover letter (max. 2 pages) in which the student discusses their research interests and relevant experience, a full academic CV, transcripts of academic degrees, and contact information for 2 to 3 referees. Applications and questions regarding the application should be submitted to Dr. Jesse Walters (thegeojesse@gmail.com). **Applications will be evaluated starting on the 1st December, 2023, and continue until the position is filled.** The project is planned to start in April of 2024.