

## PhD Position in Soil Biogeochemistry

The newly formed Environmental Chemistry of the Critical Zone (ECCZ) group is offering a PhD position in the Institute of Chemistry at the University of Neuchâtel (Switzerland) with Dr. Laurel ThomasArrigo. The ECCZ group aims to understand the abiotic and biotic processes that control the biogeochemical cycling of nutrients, major and trace elements, and contaminants in soils and sediments.

### Project description

Mineral phases comprising the soils and sediments of the critical zone are key components controlling and facilitating global element cycles. Under stable oxic conditions, sorption to minerals limits trace element and contaminant mobility. In contrast, under oxygen-limited conditions, redox active mineral phases, most prominently those containing iron, participate in electron transfer and undergo reductive dissolution, leading to the release of and/or speciation changes in mineral-associated trace elements and contaminants. This project will focus on the role of mineral phases in controlling trace metal speciation and mobility during redox cycles. To this end, lab-based experiments exploiting novel methods (e.g., stable isotopes as tracers) and advanced spectroscopic techniques (synchrotron XAS, XRD) will be combined in order to better understand trace element cycling through the soils and sediments of the critical zone.

### Main duties and responsibilities include

- Design and execute laboratory experiments
- Publish research results in international scientific journals
- Attend and present research at national and international conferences
- Participate in teaching and supervision of laboratory practical courses

### Your profile

- Masters degree in a relevant field (e.g., environmental science, -chemistry, -engineering, ecology, soil science)
- Motivated, creative, with a strong interest in environmental science research
- Good organizational and communication skills
- Knowledge in wet chemistry and lab techniques and a willingness to learn
- Experience with synchrotron techniques or XRD is an advantage
- Fluent English (written and spoken) is essential and basic French is an advantage

### We offer

- An inclusive and supportive working environment that encourages scientific curiosity and creativity
- Opportunities to learn advanced analytical methods (e.g., spectroscopic techniques, X-ray diffraction)
- Opportunities to attend and present at conferences and meetings
- The chance to build a scientific network in the fields of environmental and soil biogeochemistry

The University of Neuchâtel offers a stimulating research environment within a small setting. With ~4'200 students, 22% of which come from abroad, the university's small size encourages advanced training and fosters relationships between students and professors. Situated on the shores of Lake Neuchâtel between Geneva, Bern, and Zürich, Neuchâtel is a perfect place to undertake high-level research in an idyllic setting between lakes and mountains.

**Start date:** February 2023 (or upon agreement)    **Duration:** 4 years

### Application and additional information

To apply, please send the following documents as a single pdf file with the subject line **"PhD application\_ [your name]"** before November 21, 2023 to [laurel.thomas@usys.ethz.ch](mailto:laurel.thomas@usys.ethz.ch):

- A concise statement (2 page max.) describing your motivation and interest in the project
- Detailed CV including contact information for 2-3 references
- Copies of transcripts from BSc and MSc studies

For additional information, please contact Dr. Laurel ThomasArrigo by email at [laurel.thomas@usys.ethz.ch](mailto:laurel.thomas@usys.ethz.ch)