

Postdoc Position in Soil Biogeochemistry

The newly formed Environmental Chemistry of the Critical Zone (ECCZ) group is offering a 2-year Postdoc 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

High latitude volcanic soils (Andisols) contain large stocks of soil organic carbon (SOC), much of which is bound to short-range order (SRO) minerals (e.g. ferrihydrite, allophane). However, changing climate patterns are impacting high latitude soils, driving hydrologic regimes towards both saturated and unsaturated soil conditions, and altering the frequency of redox cycles. SRO iron minerals have a high propensity for reductive dissolution under anoxic conditions, yet there is little information on the impact that increased iron redox cycling has on the storage or mobilization of SOC in SRO-mineral rich high latitude soils. This project will study the role of SRO minerals in SOC dynamics during redox cycling in high latitude Andisols. To do this, the project will combine field work with lab-based experiments exploiting novel methods (e.g. stable isotope tracers) and advanced spectroscopic techniques (⁵⁷Fe Mössbauer, XAS, XRD) to better predict SOC dynamics in the context of rapidly changing climate.

Main duties and responsibilities include

- Participate in field work and sample collection
- Design and execute laboratory experiments involving soil components
- 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

- PhD in a relevant field (e.g., environmental science, -chemistry, -engineering, soil science)
- Self-motivated, creative, independent
- A strong interest in environmental science research and field work
- Good organizational and communication skills
- Knowledge in wet chemistry lab techniques and a willingness to learn
- Experience with synchrotron techniques and soil methods 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
- Opportunities to further develop skills in advanced analytical methods (e.g., synchrotron XAS, XRD)
- 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:** 2 years (SNSF funding)

Application and additional information

To apply, please send the following documents as a single pdf file with the subject line **"Postdoc application_ [your name]"** before November 21, 2023 to laurel.thomas@usys.ethz.ch:

- A concise statement (2 page max.) describing your research interests and motivation for the project
- Detailed CV including contact information for 2-3 references
- Copies of transcripts from BSc and MSc studies, copies of academic qualifications

For additional information, please contact Dr. Laurel ThomasArrigo by email at laurel.thomas@usys.ethz.ch