Open PhD position in Geomicrobiology and Environmental Systems Analysis

‘Simultaneous minimization of arsenic mobilization and N₂O emissions in rice paddy soils’

We are seeking a PhD student to investigate the optimum balance between the production of the greenhouse gas N₂O and immobilization of the toxic metalloid arsenic (As) controlled by the application of N-fertilizer in traditional water-logged rice cultivation. Our goal is to decipher under which fertilizing conditions optimum food quality and low climate impact can be achieved. We will combine experimental data collection with environmental systems analysis (mathematical modeling) in order to extrapolate from our experimental conditions to large-scale systems and environmental conditions. Specifically, we will collect rice paddy soil at a field site in China, use lab incubation experiments (soil slurries, pure microbial cultures), rice growth experiments and greenhouse gas measurements. In combination with a mathematical model to be developed that represents the respective underlying processes and interactions, the obtained data will be analyzed to evaluate under which conditions most As is immobilized and least N₂O is released.

The candidate will be given many opportunities to be creative and innovative, to apply state-of-the art geochemical analyses, microbial physiological studies, microscopic and spectroscopic techniques, modelling approaches, and to work on a challenging, highly relevant topic within a large network of (inter)national collaborators.

Requirements:

- Strong background and/or interest in Geochemistry, Biogeochemistry, Climate and Soil Sciences
- Ability to work independently and in a team
- Excellent management and communication skills
- Highly motivated for interdisciplinary research
- Good computer and language (English) skills
- Programming experience (e.g. Matlab, R or similar)

Start date for successful applicants is spring 2020. Employment (TVL E13, 65%, 3 years) will be arranged by the University of Tübingen. The university seeks to raise the number of women in research and teaching and therefore urges qualified women to apply. Disabled persons will be preferred in case of equal qualification.

For more information and to apply, please send a CV, motivation letter and overview of techniques and methods previously used by email before January 15th, 2020 to: Prof. Dr. Andreas Kappler (andreas.kappler@uni-tuebingen.de), Geomicrobiology, Center for Applied Geosciences, University of Tübingen, Germany. https://uni-tuebingen.de/de/104138