

## PhD student position on aquatic methane biogeochemistry at the Department of Functional and Evolutionary Ecology (DFEE)

A **3-year PhD position** is available joining the Groundwater Ecology group at the DFEE, University of Vienna. The PhD student will conduct research within the framework of the Austrian Science Fund FWF-WEAVE Grant “**Methane e-scape**” on methane ebullition in aquatic ecosystems. This project is a collaboration between the WasserCluster Lunz, the Global Change Research Institute, CAS (CZ) and the University of Vienna.

### Project description

Aquatic ecosystems are a major source of the potent greenhouse gas methane (CH<sub>4</sub>), accounting for half of the *global methane emissions*. The most significant escape routes of CH<sub>4</sub> from *freshwater ecosystems* to the atmosphere are diffusion, ebullition, and plant-mediated CH<sub>4</sub> fluxes. *Ebullition* means the escape of CH<sub>4</sub> as gas bubbles directly from the sediments through the water column and to the atmosphere, which results from the low solubility of CH<sub>4</sub> in freshwaters. The high *spatiotemporal variability* of CH<sub>4</sub> emissions hinders our ability to upscale and extrapolate regional to global GHG fluxes.

**Our aim** is to develop high-resolution, small-scale environmental data sets paired with geomorphic information within and across different stream ecosystems in parallel with measurements of CH<sub>4</sub> concentrations, fluxes, sediment production, and methanogens that are key to an improved understanding of the global freshwater CH<sub>4</sub> budget

The researcher will use a combination of molecular methods such as qPCR, amplicon sequencing and physico-chemical analysis to investigate sources and mechanisms of methane ebullition. Furthermore, we will apply meta-genomics and -transcriptomics to identify the main microbial groups and pathways involved in methane production.

The successful candidate will benefit from a collaborative and international research network. The Vienna Doctoral School of Ecology and Evolution provides training for the personal development of young scientist and helps to advance their skill set and manage their research project.

### Requirements

Interested candidates (f/m/d) must have a MSc degree in a relevant field. Students with experience in biogeochemistry, geobiology and/or microbial ecology are particularly encouraged to apply. Experience with molecular techniques such as nucleic acid extractions, DNA amplification and bioinformatic skills, would be highly beneficial. Motivation, creativity and curiosity are essential assets. Willingness to conduct fieldwork in stream environments traveling (to the Czech Republic and within Austria) is required. We thrive to be an inclusive, welcoming and safe environment for people of all backgrounds, ethnic identities and gender identities. Good verbal and written language skills in English are necessary.

### How to apply

For your application, submit a letter of interest and your CV including publications and names of two references and send to Clemens Karwautz (clemens.karwautz@univie.ac.at). **Deadline** for the application is April 14<sup>th</sup> 2024. The **preferable starting date** is 1<sup>st</sup> August 2024.