University of Basel

PhD position in Tracer Hydrogeology

100% / April 2022

The Hydrogeology research group of the Department of Environmental Sciences aims to improve the conceptual and quantitative understanding of surface water-groundwater interactions and hydrogeological systems via novel and established hydrological tracer methods, and integrated surface subsurface hydrological modelling. An improved conceptual and quantitative understanding of surface water-groundwater interactions is crucial for sustainable water management, e.g., in the context of drinking water production and agriculture, especially in light of the ever increasing anthropogenic and climate-induced changes to our environment (https://duw.unibas.ch/en/research-groups/hydrogeology/).

Your position

You will develop and employ novel hydrological tracer methods and combine them with integrated surface-subsurface hydrological models using state-of-the art calibration techniques. Alongside the application of already established online tracer monitoring techniques (e.g., measurements of dissolved gases and 222Rn), you will be tasked with the development of tracers for groundwater flow path delineation based on microbial information (e.g., based on microbial environmental DNA or on online flow cytometry). A core part of your work will consist of field experiments at a one or two well-characterized riverbank filtration sites in Switzerland. In addition to fieldwork, you will conduct numerical simulations of the study site(s) with an integrated surface-subsurface hydrological model and calibrate these models against hydraulic and the different tracer data. Depending on your personal interests and skills, you may define your own research goals within this larger project framework.

Your profile

We are looking for a highly motivated candidate with a self-organized and solution-oriented work attitude. Applicants should hold a MSc in Geosciences, Environmental sciences or engineering, Hydrogeology, or related fields. Very good written and spoken English is a must. Candidates should be able and willing to conduct fieldwork over extended periods of time and hold a valid driver's license. The successful candidate should have strong analytical skills, and ideally bring along some experience in hydrogeology, the laboratory, and the field. Knowledge on the application of hydrological tracers and/or numerical hydrological modelling is a plus, as is experience in programming (Python or R).

We offer you

The PhD position is fully funded for four years, and you will be part of a dynamic new research group within the international and interdisciplinary Department of Environmental Sciences at the University of Basel as well as the Department Water Resources and Drinking Water of EAWAG. Salary and social benefits are provided according to the rules of the University of Basel.

Application / Contact

We accept online applications only, use the link below to access the online application form. Your application should include a motivation letter (max. 1 page), a CV, a copy of your MSc diploma, contact details of at least two references, and, if applicable, a description of a research project that you conducted or contributed to, stating the projects rationale, results, and your contribution (max. half page). For further information, please contact Prof. Dr. Oliver Schilling, oliver.schilling@unibas.ch. Review of applications will begin **February 14th, 2022,** but the position will remain open until filled.

https://duw.unibas.ch/en/research-groups/hydrogeology/

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APPLY