

3 PhD positions available in geoscience disciplines: Collaborative project between the Universities of Tübingen (GER), Vienna (AUT) and Kassel (GER)

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U N I K A S S E L
V E R S I T Ä T

We invite applications for three PhD positions to participate in a collaborative research project between the Universities of Tübingen (Germany), Vienna (Austria) and Kassel (Germany). The project will advance the process-based understanding of the sedimentological, hydrogeological and microbial-ecological controls that modulate the ability of aquifers to reduce the agricultural contaminant, nitrate, via denitrification. The proposed project aims to quantitatively link aquifer hydraulic and biogeochemical properties with the “reactivity” of aquifer sediments. Via coupled hydrogeological, sedimentological and microbiological field and lab investigations and reactive transport modelling, the project aims to yield reliable estimates of aquifer-specific reactivity estimates to feed larger scale predictive models.

Prospective PhD students will benefit from a collaborative research network at the cutting edge of various geoscience disciplines, the opportunity to participate in field campaigns at various sites across Germany and Austria and will participate in yearly multi-lateral project workshops organized at the various member institutions.

PhD (75% E13 TV-L) in Sedimentology and Organic Chemistry (Tübingen):

The successful candidate will investigate the sedimentology and organic chemistry of target aquifers from five different locations. More specifically, the candidate will be centrally involved in field sampling campaigns and lead the petrographical, mineralogical, and geochemical characterization of aquifer deposits from each field site. In addition, the candidate will also be responsible for evaluating and improving analytical techniques that will be laying the foundation for further investigations in the over-all project.

Applicants must hold an M.Sc. degree in geosciences or a related discipline. The ideal candidate should have a strong background in sedimentology and (organic) geochemistry. Preference will be given to candidates with demonstrated skills and experience in the field- and laboratory-based analysis of sediments, the application of geochemical approaches, and experimental work. The position is to be filled by November 2022, the deadline to apply is August 31, 2022. The candidate will be based at the University of Tübingen and jointly supervised by Jun.-Prof. Dr. Jan-Peter Duda and Dr. Daniel Buchner.

For further information or to submit an application, please contact Jun.-Prof. Dr. Jan-Peter Duda (jan-peter.duda@geo.uni-tuebingen.de) and Dr. Daniel Buchner (daniel.buchner@uni-tuebingen.de). In your application email, please include “WEAVE-PhD_yourname” in the subject line and attach a single PDF file that contains:

- (1) Your motivation for applying to the position and your research interests
- (2) Curriculum vitae
- (3) Copy of transcript(s)
- (4) Contact information for 2 references

PhD (75% KV B1) in Groundwater Microbial Ecology (Vienna):

The successful candidate will focus on designing and performing flow-through column experiments to quantify the denitrification activity in each investigated aquifer under varying environmental conditions. The student will also characterize groundwater and sediment-borne microbial communities and quantify their dynamic metabolic activity and potential by means of microbiological and molecular approaches.

Applicants must hold an M.Sc. degree in a biogeoscience discipline. The ideal candidate should have an in-depth understanding of biogeochemistry and microbial ecology and environmental physics. Preference will be given to candidates with demonstrated skills and experience in experimental and field work. The position is to be filled by November 2022, the deadline to apply is August 31, 2022. The student will be based out of the University of Vienna and will be supervised by Prof. Christian Griebler, head of the Unit Limnology and head of the Groundwater Ecology Group.

For further information or to submit an application, please contact Prof. Christian Griebler (christian.griebler@univie.ac.at). In your application email, please include "WEAVE-PhD_yourname" in the subject line and attach a single PDF file that contains:

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- (3) Copy of transcript(s)
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PhD (75% EG 13 TV-H) in Hydrogeology and Reactive Transport Modelling (Kassel):

The successful candidate will develop a series of reactive transport models at different scales, informed by the experimental and field results derived from the planned experiments and field work outlined above. One-dimensional models with detailed reaction networks will be based on the data collected and will be the basis for model upscaling efforts using travel-time and relative-reactivity based approaches. Ultimately, the goal of this position is to construct a virtual floodplain aquifer that mimics natural sedimentological features and their physical and reactive make-up and captures the effect of physical heterogeneity on the ability of aquifers to reduce nitrate.

Applicants must hold an M.Sc. degree in an environmental engineering or geoscience discipline. The ideal candidate should have an in-depth understanding of environmental physics and biogeochemistry. Preference will be given to candidates with demonstrated skills and experience in numerical modelling of subsurface processes. The position is to be filled by November 2022, the deadline to apply is August 31, 2022. The student will be based out of the University of Kassel, including periodic research stays at the University of Tübingen, and will be co-supervised by Prof. Dr. Adrian Mellage and Prof. Dr. Olaf A. Cirpka.

For further information, please contact Prof. Adrian Mellage (adrian.mellage@uni-kassel.de) and Prof. Olaf A. Cirpka (olaf.cirpka@uni-tuebingen.de). To apply for the position please follow the link to the [University of Kassel's recruitment website](#) and follow the instructions therein. The application should consist of a single PDF file that contains:

- (1) Your motivation for applying to the position and your research interests
- (2) Curriculum vitae
- (3) Copy of transcript(s)
- (4) Contact information for 2 references