Vacancy for

Postdoc position in Large-Scale Karst Modelling

within the research project "Global Assessment of Water Stress in Karst Regions in a Changing World (GloW)" funded by the Emmy-Noether Programme of the German Research Foundation (DFG).

We invite applications for a TV-L 13 position, 100% for 2+2 years, starting August 1st 2018 (or at earliest convenience).

This position will deal with the development and application of a global karst simulation model. A previously established karst database with hundreds of observed karst spring discharge and karst catchment discharge time series will be used to develop and test a distributed karst groundwater model. Year 1 and 2: firstly, pilot areas that have a higher observation density will be considered before applying the model on all available observations. Secondly, a global map of karstification, that is being developed by a PhD candidate, will be used to apply and evaluate the model in all karst regions across the globe. Year 3 and 4: firstly, the tested model will be applied to estimate water stress in all karst regions by contrasting simulated water availability with estimated water sectoral demand (industry, domestic, agriculture). Secondly, the future water stress will be assessed using climate and land use change projections.

The Postdoc will be responsible for the development and application of the large-scale model. She or he will co-advice the PhD candidate to develop the necessary data sets to upscale the model to all karst regions worldwide and closely collaborate with the PI of the project (Dr Hartmann), who will provide a model for global karstic recharge estimation. The model will be developed based on previous experience in catchment-scale karst modeling with lumped and distributed approaches. While development and testing at the pilot sites will be performed on a high-performance PC, the global application of the model will be run in parallel on a cluster at Freiburg University computation services (Black Forest Grid, Rechenzentrum University of Freiburg).

All applicants should have a PhD degree in hydro(geo)logy, environmental engineering, environmental sciences or in a closely related field. We encourage applications from enthusiastic dedicated individuals with strong programming skills (Matlab, R, Python, C++) as well as good experience in (large-scale) modeling who enjoy working in the multi-disciplinary team of the GloW project. A strong record of publications in international journals and the interest to write for interdisciplinary journals are essential. While the group language is English, German language skills are a welcome asset.

Within our group, we offer an interdisciplinary, international work environment with great possibilities for career advancement through the University of Freiburg Research Services (https://www.frs.uni-freiburg.de/en?set_language=en). The development at testing of the model will be supported by experienced large-scale groundwater modelers at the University of Freiburg and the University of Bristol. The application of the model and the assessment of present and future water demand will be advised by collaboration partners at the International Institute of Applied Systems Analysis (http://www.iiasa.ac.at) at Laxenburg, Austria. Frequent visits of relevant conferences and of the collaboration partners are foreseen.

The University of Freiburg is an equal opportunity employer and is committed to increasing the proportion of women scientists. Consequently, we actively encourage applications from qualified women. We also welcome applications from candidates with severe disabilities who will be given preferential consideration in case of equal qualification.

Please send your application including a cover letter, CV, your 2 most relevant papers, a summary of your PhD thesis, certificates of your MSc and PhD and the names and contact details of at least two potential references in <u>one</u> pdf-file to Andreas Hartmann (andreas.hartmann@hydmod.uni-freiburg.de). Application deadline is May 31st 2018.