Karlsruhe Institute of Technology

institute of geography & geoecology

WAVE – Influence of Water Level Fluctuations on Aquatic Vegetation

PhD Position in Process-based Modelling of Aquatic Vegetation (65%, 3 Years)

16 November 2026

We are looking for a motivated PhD candidate to join a DFG-funded research project investigating how water level fluctuations affect macrophytes in lakes. The project aims to combine statistical analyses of long-term empirical data from Southern Germany with process-based modelling to understand how seasonal fluctuations and extreme events, such as floods and droughts, shape the growth, distribution, functional traits and species richness of macrophytes. The model will be used to run scenarios of future water level regimes, advancing our understanding of freshwater biodiversity under climate change and supporting the management and conservation of lake ecosystems.

At Karlsruhe Institute of Technology (KIT) – Institute of Geography and Geoecology (IfGG), the research group "Vegetation Science and Biogeography" led by Sebastian Schmidtlein focuses on modelling and remote sensing of vegetation patterns to address questions of ecosystem functioning and biodiversity.

Starting date: 1 March 2027 or 1 April 2027

Your profile:

- Master's degree (completed by the start date) in geoecology, geography, limnology, hydrology, geoinformatics, bioinformatics, environmental sciences, or a related discipline
- A strong interest in vegetation ecology and freshwater ecology, particularly aquatic plants, and in the effects of climate change on lake ecosystems
- Knowledge of ecological or environmental modelling (ideally process-based) and statistical data analysis, with expertise in a programming language such as R, Python, or Julia. Experience with large environmental datasets is an advantage.
- Ability to work independently and collaboratively in an international, interdisciplinary team
- Positive, proactive attitude and problem-solving mindset
- Very good written and spoken English

We offer:

- A 3-year position (65% TV-L E13) at one of Germany's leading research universities
- The opportunity to complete a doctoral degree within a DFG-funded project
- An interdisciplinary research environment combining empirical analysis and process-based modelling
- Close mentoring by an experienced, supportive team

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- Access to high-performance computing resources
- Support for attending international conferences and for publishing in peer-reviewed, open-access journals
- Professional development opportunities, including teaching, workshops, and a structured PhD programme

Your tasks:

- Independently carry out the research project
- Analyse empirical macrophyte and water level data, and develop and apply a process-based macrophyte growth model to simulate future scenarios
- Publish research results in peer-reviewed journals and present findings at conferences

Karlsruhe offers an inspiring environment for research and a position at the heart of Europe, near France and the Black Forest. At KIT we value the diversity of our employees; different perspectives and backgrounds enrich our work. We therefore welcome applications from all candidates. Women are especially encouraged to apply. Applications from recognized severely disabled individuals are given preferential consideration when qualifications are equal.

To apply, submit a cover letter detailing your research interests and relevant experience, your current CV, academic transcripts, a list of publications (if applicable) and contact details of two academic referees. Applications should be sent via email (as a single PDF file) to lewerentz@kit.edu. Review of applications will begin on 15 December 2026 and continue until the position is filled. For further enquiries, please contact Anne Lewerentz, KIT, IfGG, Kaiserstr. 12, 76131 Karlsruhe, Germany (lewerentz@kit.edu).