Doctoral position (m/f/d) on *Tree-water-relations*

Project B3.1 within the Collaborative Research Center (CRC) 1537 - ECOSENSE

Who we are:

In ECOSENSE we explore new ways to quantify ecosystem processes and stress impact of climate change by developing novel sensor principles and measurement methods (https://uni-freiburg.de/ecosense/). We established a comprehensive infrastructure and sensor network in a nearby forest including three canopy access towers.

For our second phase starting this July we are seeking 15 doctoral researchers from environmental and engineering sciences. ECOSENSE offers highly interdisciplinary research and training in a cooperative and vivid working environment.

In project B3 (Sensing water potentials from leaf to stand scale) we will investigate continuous water potential dynamics and plant water fluxes across the soil–plant–atmosphere continuum to identify hot spots and moments of water stress in the ECOSENSE Forest. Our project partners will develop and apply novel, minimally invasive sensor solutions for distributed measurements complemented by scalable proxies for water potential tracking at the stand scale.

The doctoral researcher will be part of the Chair of Ecosystem Physiology, which is a dynamic and vivid team, strongly involved in ECOSENSE. The group is well-connected nationally and internationally, as well as within the University of Freiburg and Faculty of Natural Resources and Environment.

Your Task:

Within **ECOSENSE** you will establish a comprehensive sensor network of sap flow, dendrometer and water potential sensors in the ECOSENSE forest on European beech and Douglas fir. The central aim is to gather continuous water potential data across the soil-root-plant-atmosphere continuum to investigate the impact of extreme events (e.g. heat and drought) and species interactions on tree adaptation strategies, including the role of capacitance. A clear focus is on the application of (novel) measurement technologies to collect continuous water potential data, such as optical dendrometers, microtensiometers and psychrometers. While the majority of measurements will be conducted in the field, you will also measure continuous water potentials in laboratory and climate chamber settings as part of controlled experiments and calibration of novel sensors developed by our partners. You will work in close collaboration with the doctoral researchers remote sensing who will a) link tree-level water potential measurements with remote sensing principles and b) develop and calibrate novel sensors to enable highly distributed measurements of water potentials in the ECOSENSE forest. All collected data will be linked to the results of other projects in ECOSENSE to identify hot spots and hot moments of stress at different scales in the ECOSENSE forest.

Your qualifications and contributions to ECOSENSE:

- You hold a Master's degree in Environmental Sciences, Geoecology or related fields
- Excellent background in ecosystem and plant physiology, including plant water fluxes and potentials
- Experience in field work (in the forest including tall towers) is a plus
- Experience with sap flow, water potential, dendrometer and psychrometer sensors is a plus
- Enthusiasm for novel technical applications and technological developments
- A high degree of autonomy, responsibility, flexibility, team spirit and organizational skills
- Excellent English skills
- Great enthusiasm for working in a large interdisciplinary project and interest in collaborative research
- Drivers license is a plus

What we offer

- An exciting interdisciplinary topic with a high socio-ecological impact

- A salary according to TV-L E13 (75%)
- Contracts will initially run for three years with an option of extension until the end of the CRC's second phase, which will be June 2030.
- Modern laboratory equipment and a highly qualified, multicultural team, which will cooperate with you and support you along your professional growth.

The work on your dissertation will be strengthened by the CRC's own integrated Research Training Group (RTG) providing a tailored qualification program for all our doctoral candidates. Within this RTG all early career researchers will form a tight group of scientists being connected across the borders of disciplines fostering a constant and mutual exchange.

The funding of the here advertised position is still subject to the DFG's final approval for a second phase by midst of May 2026.

Please upload all documents (letter of application, CV, credentials, letter of recommendation) via the official system (Job Offerings) of the University of Freiburg (https://uni-freiburg.de/stellenangebot/00004903/). The deadline for applications is the **15th of April 2026**.

For any questions regarding the position, please contact Simon Haberstroh (simon.haberstroh@cep.uni-freiburg.de).