

## PhD Model-Data Fusion in Soil Crop Modelling

The Soil Science Department of the University of Kassel is seeking for a highly motivated PhD for a research project funded by the Federal Office for Agriculture and Food, subject to final project approval. The PhD position, remunerated as with 50% with pension and health insurance benefits, is initially offered for 3 years, extendable after evaluation for up to 2 years. Earliest starting date is 01.12.2022.

In the project *digitalisation in organic agriculture (DigiPlus)*, the University of Kassel together with the “Hessische Staatsdomäne Frankenhäusen” will establish a digital twin of an organic farm, testing commercially available information communication technology, and develop and use intelligent sensor systems to monitor animals, food quality, and fluxes and the evolution of state variables in the soil-crop system. One target will be to establish robust methods for recommender systems for in season field management options based on plausible soil-crop models assisted by data assimilation and machine learning algorithms.

### Your tasks:

As part of the project *DigiPlus*, you will be embedded in a highly motivated, young, and dynamic team working on the topic of model-data fusion in the soil-crop system. You will be co-supervised by a PostDoc in the same project.

Your research field will be model-data fusion in a Bayesian framework. You will be using numerical soil-crop models, and, depending on interest and experience, work on high-performance computers. You are expected to be an active and communicative member of the project and the department of Soil Science, and are responsible for the sound development of new findings and methods in the above-mentioned areas, the writing of scientific publications, and independently contribute to the agile project work in the research network.

**Your profile:**

- A Master of Science in Physics, Agricultural Sciences, Meteorology, Geoecology, or a closely related subject
- Knowledge of the energy, water and material balance of the vegetated soil surface is expected
- Knowledge of process modelling of dynamic plant growth/land surface modelling
- Willingness to learn Bayesian statistics and methods of model-data fusion are expected
- A strong drive to learn scripting languages such as R or Julia, documentation of codes and version control
- A secure knowledge of spoken and written English is required and the knowledge of German is an advantage, willingness to learn German is expected

For further questions, please contact Dr. rer. nat Tobias KD Weber ([tobias.weber@uni-kassel.de](mailto:tobias.weber@uni-kassel.de)).

**As an employee of the University of Kassel**

- you will be offered an interesting and diverse range of tasks within the framework of a modern and ambitious university,
- you will be provided the opportunity and supported to complete a PhD,
- you will be part of an interdisciplinary team with a good and collegial working atmosphere,
- you will have the opportunity to participate in professional and interdisciplinary further education measures,
- your workplace is located in the city of Witzenhausen with good public transport connections, which you can currently use for free.

**Application deadline:** 09 November 2022

Please enclose the following documents with your application: Letter of motivation providing ideas you want to work on, your CV and course list, and, if any, a current list of publications, as well as references and any certificates you may have stating the key word ‘35540’. Please send your application to [bewerbungen@uni-kassel.de](mailto:bewerbungen@uni-kassel.de) or apply [here](#):

The documents will be deleted after the position has been filled.