

PhD position at KIT in modelling the dynamics and impacts of heat and cold waves in a warming climate with ICON-Seamless

Karlsruhe Institute of Technology (KIT), Institute of Meteorology and Climate Research

KIT is a distinguished research university that combines three core tasks – research, education and innovation – into a single mission. With 9,300 employees and almost 25,000 students, it is one of the largest institutions of research and higher education in natural sciences and engineering in Europe. KIT was awarded the title "University of Excellence" within the German Excellence Strategy launched by the federal and state governments. In the area of Atmospheric Science, KIT was ranked #1 in Germany and #8 worldwide in the 2019 Shanghai Ranking.

The Institute of Meteorology and Climate Research (IMK) participates in the KIT Centers "Climate and Environment" and "MathSEE (Mathematics in Sciences, Engineering, and Economics)" and contributes significantly to the program "Changing Earth" of the Helmholtz Association. The department "Troposphere Research" IMK-TRO (<http://www.imk-tro.kit.edu/english/index.php>) focuses on troposphere research, climate variability and change, water cycle and trace substance budgets. The Working Group "Regional Climate and Weather Hazards" focusses on an integrated analysis of extreme weather and climate events, climate change, climate variability and risk assessment. This includes both fundamental and applied research. Particular attention is given to the links between the weather, climate, regionalisation and risk assessment perspectives associated with extreme events. The department "Atmospheric Trace Gases and Remote Sensing" IMK-ASF (<https://www.imk-asf.kit.edu/english/index.php>) investigates dynamic, microphysical and chemical processes in the Earth's atmosphere, with the goal to understand, quantify and predict its natural variability and long-term changes. A particular focus lies on the investigation of the complex links and feedbacks between climate change, dynamics and transport, and atmospheric composition.

We have an open **3-year position for a doctoral candidate**. The position is part of the multi-institutional, innovative project SCENIC, an effort by a community of Helmholtz centres to study how extreme events would unfold in different climates, thereby complementing classical climate scenario methods. Focussing on Europe, SCENIC will tackle the following questions: Which processes determine extremes, and how will such processes change? What is the role of thermodynamic vs dynamic drivers of change? How do extremes unfold with major Greenland melting events or an Atlantic Meridional Overturning Circulation weakened by global warming? The PhD project will be co-supervised by Prof. Dr. Joaquim Pinto (IMK-TRO) and Prof. Dr. Peter Braesicke (IMK-ASF).

Duties: As a PhD-Student, you will analyse characteristics of heat and cold waves in a warmer climate based on a storyline approach. The candidate will conduct own simulations with the ICON model both with and without 'upper boundary nudging' for heat and cold wave events over Europe and evaluate the results. The aim is to achieve a better understanding of possible changes in the frequency, intensity and persistence of heat and cold waves in Europe in a warmer climate.

Requirements: A master degree in Meteorology, Climate Science, Earth Sciences, or related disciplines. The applicant must be proficient in spoken and written English.

Additional qualifications: For this position, previous experience with atmospheric / climate modelling and diagnostics of model data are required. The candidate should also be experienced in scientific programming (e.g., linux, python, fortran, idl, ncl, cdo, Matlab, R) and extreme value statistics.

The application should contain:

- A Curriculum Vitae.
- A cover letter stating your scientific interests and what motivates you to apply for this position.
- A list of scientific publications and conferences, if available.
- Contact details (incl. email and telephone number) of two references.

The candidates will be short-listed based on the materials in the application, the top ranked candidates will be interviewed digitally and the references will be collected.

Salary: The remuneration is based on the collective agreement of the public service in the remuneration group TVL E13.

Starting date: 01-02-2022 or as otherwise agreed.

Terms and conditions of employment: The group is based on the research campus of KIT located about 10 km to the North of Karlsruhe city centre.

Scope of employment: 75%

For further information about this position please contact: Prof. Dr. Joaquim Pinto, e-mail: joaquim.pinto@kit.edu and Prof. Dr. Peter Braesicke, e-mail: peter.braesicke@kit.edu

Please submit your application by **26 November 2021** online:
<https://www.pse.kit.edu/karriere/joboffer.php?id=106614&language=en>

The documents requested above for the application should be put together in a single PDF file and uploaded under “Complete Application Documents” in the online form.

(Note: The text on the first Website is in German language but when you click on the “apply” button, you will be forwarded to an English language online form)

KIT actively supports equality, diversity and inclusion, and as an equal opportunity employer, KIT explicitly encourages applications from women as well as from all others who will bring additional diversity to the university’s research and teaching. Applicants with disabilities will be preferentially considered if suitably qualified.

Are you considering moving to Germany to work at KIT? If so, you will find a lot of information about working and living in Germany at <http://www.intl.kit.edu/ischolar/index.php>. You are also welcome to contact the International Scholars & Welcome Office at scholar@intl.kit.edu.