PhD position at KIT within the project "Improving atmospheric river forecasts with enhanced observations in moisture source regions (NAWDIC-AR)"

The Karlsruhe Institute of Technology (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 on 19 July 2019. In the area of Atmospheric Science, KIT is ranked #1 in Germany by the Shanghai Ranking.

The Institute of Meteorology and Climate Research - Troposphere Research (IMK-TRO) 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. Our Working Group "Regional Climate and Weather Hazards" (http://www.imk-tro.kit.edu/english/7144.php) focusses on an integrated analysis of extreme weather and climate events, regional climate change, climate variability and risk assessment.

The North Atlantic Waveguide, Dry Intrusion, and Downstream impact Campaign (NAWDIC) is a new initiative for an international field campaign (between 12 January – 20 February 2026) focusing on mid-latitude atmospheric dynamics with the aim to provide detailed observations for improving the understanding and modelling of the mesoscale tropopause structure, the dry intrusion air stream – planetary boundary layer interaction, and their relation to high impact weather in the North Atlantic region in winter. The NAWDIC measurement campaign and the associated science projects are funded by the DFG (https://www.nawdic.kit.edu/117.php). The "Improving atmospheric river forecasts with enhanced observations in moisture source regions (NAWDIC-AR)" project is part of the NAWDIC consortium and will focus on improvement of forecast of Atmospheric Rivers and their impacts.

We have **one open PhD position for 3 years**

The goal of NAWDIC-AR is to improve Atmospheric River forecasts by incorporating additional observations from moisture source regions. Our hypothesis is that airborne observations from dropsondes in the warm sector of a cyclone will improve forecasts of its intensity and the associated atmospheric river, whereas additional observations in the cold sector will improve forecasts of subsequent cyclones. The extensive deployment of KITsondes from the research aircraft HALO during the NAWDIC campaign will be a crucial component of this project. We will evaluate data denial experiments from the two main global meteorological centres to assess the overall impact of the KITsonde on model performance. We envision that KITsonde observations during NAWDIC will provide a deeper insight into the processes involved in cyclone and atmospheric river development.

The KIT PIs are Dr. Alexandre Ramos, Dr. Julian Quinting and Prof. Dr. Joaquim Pinto.

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

Additional qualifications: Basic knowledge of atmospheric dynamics. Experience in statistics, diagnostics and scientific programming (e.g., python, R, fortran, cdo, Matlab) are required. Ideally, knowledge in boundary layer physics, analysis of extensive datasets, weather prediction and forecast verification. German language skills are helpful but not mandatory.

The application should contain (all in one PDF):

- A Curriculum Vitae.

- A cover letter stating your scientific interests and what motivates you to apply for this position.
- A list of scientific publications.
- 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: 01-10-2025 or as otherwise agreed.

Terms and conditions of employment: IMKTRO is based on the two research campuses of KIT; the Ph.D. will be working at Campus North located about 10km north of Karlsruhe.

Scope of employment: 3-years PhD student 75%

For further information about this position please contact: Alexandre Ramos (alexandre.ramos@kit.edu) and Joaquim Pinto (joaquim.pinto@kit.edu)

Please e-mail the documents requested above for the application all in one pdf file by **7 July 2025** to the above mentioned PIs**.**

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.