The Institute of Meteorology and Climate Research, Department Troposphere Research (IMK-TRO), at the Karlsruhe Institute of Technology (KIT), Germany invites applications for

1 PhD position in the field of subseasonal weather prediction

embedded in the project ASPIRE – Advancing Subseasonal Predictions at Reduced computational Effort funded by the European Research Council (ERC) through a Starting Grant. The research of the PhD student will focus on

Identifying source regions and pathways of tropical forecast errors towards the extratropics

About the project

The current frontier for weather prediction is the so-called subseasonal time scale of two weeks to two months ahead. To take preventive measures at an early stage, reliable forecasts on this time scale are becoming increasingly important for many socio-economic sectors. Subseasonal predictability can be gained from modes of variability in the Earth system. ASPIRE will focus on some of these, namely modes of tropical convective variability. The goal of the PhD project is to better understand the extent to which errors in short-term forecasts in the tropics influence sub-seasonal weather forecast skill in the European region. In a first step, you will use statistical methods to identify in which tropical regions these errors have a particularly detrimental impact on forecasts in the European region. Later in the project, you will investigate to what extent known modes of tropical convection (MJO, equatorial Rossby waves, Kelvin waves) have an influence on the propagation of errors. Based on the gained knowledge, you will implement methods that allow to sub-sample from ensemble forecasts those scenarios that promise improved forecast skill.

About us

We offer an exciting and dynamic work environment in a newly established Young Investigator Group at KIT, one of the largest institutions of research and higher education in natural sciences and engineering in Europe. Interactions with the renowned KIT-based research groups on Atmospheric Dynamics (Prof. Peter Knippertz), Tropical Meteorology (Prof. Andreas Fink), and Large-scale dynamics and predictability (Prof. Christian Grams) are part of the position. Beyond KIT, collaborations with researchers in "Waves to Weather" during its third phase (2023-2027) are envisaged and we support research visits to internationally renowned research institutions. Networking and training opportunities for early career researchers are offered at KIT.
Your qualifications
We are looking for a highly motivated candidate with a Master's degree in meteorology, physics or data science, with experience in implementing complex statistical models. Scientific expertise in atmospheric dynamics and knowledge of common modes of tropical convection are further desirable. Technical requirements include very good skills in analyzing model data in NetCDF/GRB format, good scientific programming skills (e.g., python), and good knowledge of required libraries in the field of statistical modeling. It is expected that the successful candidate publishes results in scientific journals, engages in project reports, and is willing to present results at international conferences and workshops. Good English language skills in oral and written communication and willingness to travel are therefore required.

Details
The position is offered for 3 years (75% E13 TV-L salary, depending on the fulfillment of professional requirements), starting on 1 September 2023. The position is based at the Campus North location of the Institute of Meteorology and Climate Research, Department Troposphere Research (IMK-TRO), Karlsruhe Institute of Technology (KIT), Karlsruhe, Germany.

Application
Please send your application, including (1) CV, (2) documentation of scientific degrees, and (3) motivation letter describing scientific background, training, and research interests as one pdf file of less than 5 MB to julian.quinting@kit.edu. Please do also include the contact details of two referees in your CV. Review of all applications will start on 15 June 2023 and will continue until the position is filled. We aim to balance the number of employees (f/m/d). Therefore, we explicitly encourage applications from women as well as from all others who will bring additional diversity to the group. Preference will be given to persons with recognized disabilities among equally qualified applicants. For further information about this position please contact Julian Quinting (julian.quinting@kit.edu).