The Institute for Physics of the Atmosphere at
Johannes Gutenberg-Universität Mainz invites applications for a

PhD position (m/f/d)

funded within the Transregional Collaborative Research Centre 301

TPChange – The Tropopause Region in a Changing Atmosphere

by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft).

Within TPChange we aim to improve the understanding of relevant multiscale processes in the tropopause region and to specify their impact on composition, dynamics and ultimately on future climate and climate variability. The PhD candidate will work in project B09N:

The role of UTLS moisture for the extra-tropical mean circulation

UTLS moisture is poorly represented in state-of-the-art numerical models. Moisture and clouds in the UTLS couple to the dynamics by radiative temperature tendencies and thereby impact on circulation. In particular, the impact on the extra-tropical mean circulation – the midlatitude jet – which exhibits a crucial link to regional surface climate, is not yet well understood. The overarching goal of this position is to improve our understanding by quantifying the role of weather-scale processes in the extra-tropical storm tracks. The project thereby offers work on an exciting and highly relevant topic.
The successful applicant will i) design and perform numerical experiments of idealized storm-track scenarios with the operational model of the German weather service, ICON, ii) diagnose cloud and moisture structure and their radiative impacts in these experiments, and iii) use a potential-vorticity framework to quantify individual contributions to changes to the mean state, thereby linking transient, synoptic-scale processes to the large-scale flow.
The work will be jointly supervised by Michael Riemer and Annette Miltenberger, who will provide their extensive experience and expertise in atmospheric dynamics, moisture and cloud processes, as well as modeling with ICON. The project will build on diagnostic frameworks available in their groups. Within TPChange, the project is well connected. In particular, key collaborations are planned with Felix Plöger (Forschungszentrum Jülich, project C03) and Thomas Birner (Ludwig-Maximilians-Universität München, project C05).

Requirements

The successful candidate is required to hold an MSc (or equivalent) in Meteorology, Physics, or a closely related discipline and to communicate very well in English. A strong background in atmospheric dynamics and demonstrated skill in scientific programming are distinct advantages. The ideal candidate further has experience in one of the three main aspects of the project (setting up idealized numerical experiments; moisture and cloud processes; storm-track dynamics), demonstrates good analytical as well as scientific writing skills, and enjoys working in a collaborative environment.

Employment conditions

The wage classification of the job is EG 13 TV-L (75 %) and the place of employment will be Mainz. The targeted starting date is 1st January 2026 and the project will last until 30th June 2029.

Applications and deadline

Please send applications with reference to the code **B09-PHD-JGU** as one single pdf file to **tpc_jobs@uni-mainz.de**, including your CV, a motivation letter, copies of relevant certificates, contact information of two potential referees, and your preferred starting date.
Review of all applications will start on **27th November 2025** and will continue until the position is filled.
For further information, please contact mriemer@uni-mainz.de.

TPChange offers a comprehensive and structured training for early career researchers. In addition to self-organised activities such as workshops, trainings and a guest program, the successful candidate will have the

opportunity, if desired, to pursue international research visits. The consortium conducts an ambitious program to gradually enhance gender equality on all career levels.
Johannes Gutenberg-Universität Mainz actively supports equality, diversity and inclusion, and as an equal opportunity employer, Johannes Gutenberg-Universität Mainz 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.

We look forward to your application!