



The research group **Theory of Atmospheric Dynamics and Climate** at the Institute of Atmospheric and Environmental Sciences of the Goethe University in the city of Frankfurt (<https://frankfurt.de/english/about-frankfurt>) is seeking to fill a

**PhD Student position  
(E13 TV-G-U, 50%)  
(m/f/d)**

to start as **soon as possible**. The initial contract will be for three years, with the possibility for extensions for subsequent years. The salary grade is based on the job characteristics of the collective agreement (TV-G-U) applicable to the Goethe-University. Depending on success, step-wise salary increases up to 75% TV-G-U are intended.

The field of research shall be the theory of the nonlinear dynamics of atmospheric gravity waves and their efficient representation in models. The focus will be on mountain waves in the advanced parameterization framework MS-GWaM in the weather-forecast and climate code UA-ICON. The candidate will use idealized wave-resolving simulations of deep-atmosphere finite-volume code for studying the process of gravity-wave generation by flow over mountains, and use machine learning (ML) for training a corresponding source formulation in MS-GWaM. Contributions to corresponding theoretical work would be welcome. Links to research in the group using UA-ICON are intended. The whole will be embedded in the collaborative VESRI project DataWave (<https://datawaveproject.github.io/>) with international partners including Stanford University, New York University, Rice University, the UK Met Office, the École Normale Supérieure in Paris, and the Max-Planck Institute for Meteorology in Hamburg, involving novel balloon-based observations, model simulations, theoretical work, and ML.

Information on the research group can be found at <http://www.goethe-university-frankfurt.de/45681958/Theory-of-Atmospheric-Dynamics-and-Climate>. Its focus is on scale interactions in atmospheric dynamics, applied e.g. to large-scale low-frequency variability or gravity-wave dynamics. Middle-atmosphere dynamics is another field of work. Methods employed are e.g. multi-scale asymptotics, stochastics, and numerical simulations. Inquiries should be addressed to Prof. Dr. Ulrich Achatz ([achatz@iau.uni-frankfurt.de](mailto:achatz@iau.uni-frankfurt.de)).

Applicants should have a very good diploma/Master's degree in meteorology, physics, applied mathematics, fluid dynamics, or a related field. Expected is a strong background in theory and/or modeling.

The university is an equal opportunity employer and places particular emphasis on fostering career opportunities for women. Qualified women are therefore strongly encouraged to apply. If equally qualified, severely handicapped persons are given preference.

Applications with the usual documents (motivation letter, CV, diplomas, two contacts for a reference letter) should be sent **by June 13<sup>th</sup> 2021** to Prof. Dr. Ulrich Achatz([achatz@iau.uni-frankfurt.de](mailto:achatz@iau.uni-frankfurt.de)). Applications will be considered beyond this date until the post has been filled.