2 Ph.D. Positions in the Emmy Noether Research Group
"Understanding Clouds Across Scales"

Numerical Modeling of Turbulent Mixing Processes in Shallow Cumulus Clouds

Two Ph.D. positions are offered within the newly established Emmy Noether Research Group "Understanding Clouds Across Scales "(UCAS) at the Ludwig-Maximilians-Universität (LMU) in Munich, Germany. UCAS is funded by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft).

Position and Project Description

Clouds are an essential part of the Earth's climate system, with a significant influence on the global radiation budget. However, our understanding of clouds in the climate system is highly uncertain, in large part because of the complex network of interactions and feedbacks originating from small-scale cloud processes, in particular turbulent mixing and cloud microphysics.

Using a Lagrangian cloud model, a novel and highly detailed modeling approach, the prospective Ph.D. candidates will investigate the effects of turbulent mixing on the microphysical composition of shallow cumulus clouds (e.g., homogeneous vs. inhomogeneous mixing). The investigated scales will range from single entrainment events to individual clouds and entire cloud fields, focusing on the effects of turbulent mixing on the activation of aerosols, the condensational growth of cloud droplets, as well as the conditions influencing these processes. To verify modeling results, the candidates will have the opportunity to work with observational data obtained during the recent EUREC4A field campaign, provided by the Experimental Meteorology Group at LMU.

Specifically, the first position will primarily work on modeling entrainment and mixing processes in shallow cumulus clouds, while the second position will work on the integration of observations and modeling results. Overall, both Ph.D. positions offer a unique opportunity to work with a state of the art numerical model, engage with observational data, and be involved in a highly relevant scientific topic at one of Europe's leading research universities.

Terms of Employment

The funded Ph.D. position (75% of the German public sector's TV-L E13 pay scale) is awarded for 3 years and is open immediately. LMU is an equal opportunity employer. Women are especially encouraged to apply. Applicants with disabilities will be preferentially considered if equally qualified. The new workplace will be in Munich's city center, and the candidate will have access to extensive training and career development activities offered by LMU.

Qualification requirements

Applicants are expected to hold a Master's Degree in Meteorology, Physics, or a related field. A strong interest in atmospheric science, in particular cloud physics, will be considered advantageous for the position. Previous experiences in numerical modeling, coding/programming skills, and the operation of (parallelized) supercomputers are desirable. Candidates must possess excellent communication skills in written and spoken English.

Applications

Please send your application, including your desired starting date and the contact details of two academic referees, by email (single PDF) to Dr. Fabian Hoffmann (fa.hoffmann@lmu.de) by **15 February 2021** at the latest. Further applications will be considered until the position is filled. For questions about the position or the project, do not hesitate to contact Dr. Fabian Hoffmann (fa.hoffmann@lmu.de).

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