Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

1919 2019 100 JAHRE WISSENSWERFT Universität Hamburg

Faculty/Department: Mathematics, Informatics und Natural Science

Seminar/Institute: Meteorological Institute

The University of Hamburg invites applications for **three Research Associates** for the project A2 'Clouds and tropical circulation' within the framework of the DFG Cluster of Excellence **'CliCCS - Climate, Climate Change, and Society'** in accordance with Section 28 subsection 3 of the Hamburg higher education act (Hamburgisches Hochschulgesetz, HmbHG). The positions commence on 1. July 2019 or earlier.

CliCCS is an ambitious research program at Universität Hamburg and its partner institutions. Funded by the German Research Foundation (DFG), it is part of Germany's Excellence Strategy.

The program aims to understand climate changes, taking into account internal variability, extreme events, and unexpected side effects, addressing the natural and social spheres as well as their interactions. Thus CliCCS' overarching research question is: Which climate futures are possible and which are plausible? CliCCS will investigate how climate changes and how society changes with it, thereby feeding back on climate. It will identify those climate futures that are consistent with both climate and social dynamics (possible), and those we expect to unfold with appreciable probability (plausible).

All three positions are remunerated at the salary level TV-L E13 and call for 65 %*.

The fixed-term nature of these contracts is based upon Section 2 of the academic fixed-term labor contract act (Wissenschaftszeitvertragsgesetz, WissZeitVG). The term is fixed for a period of 3 years.

The University aims to increase the number of women in research and teaching and explicitly encourages women to apply. Equally qualified female applicants will receive preference in accordance with the Hamburg act on gender equality (Hamburgisches Gleichstellungsgesetz, HmbGleiG).

PhD candidates are members of our graduate school IMPRS-ESM which aims to help young academics thrive through all stages of their training, for more information please check the link: IMPRS-ESM

Responsibilities:

Duties include academic services in the project named above. Research associates can also pursue independent research and further academic qualifications.

*Full-time positions currently comprise 39 hours per week.

Specific Duties:

Topic 1: **diabatic processes in the upper troposphere**

PhD1 will study the factors influencing upper tropospheric humidity and high-level clouds in the tropics with the goal to better understand high-cloud feedbacks on climate. The candidate will test emerging ideas concerning the role of radiation in the middle and upper troposphere, exploring the role of water vapor variability, ice clouds and mid-level convection. He/she will be using idealized and realistic numerical simulations and deploy insights from modelling to pose process related questions to satellite observations.

Topic 2: **spatial organization of precipitation in shallow convection**

PhD2 will study controls of spatial organization of precipitation in shallow convection. He/she will analyze the role of variability of updrafts and cloud top heights to deposit moisture aloft and to initiate precipitation. The candidate will explore machine learning approaches to detect structures of clouds and precipitation from limited samples such as airborne measurements and will be involved in the EUREC4A campaign.

Topic 3: **propagation of organized tropical convection**

PhD3 will apply the balanced/unbalanced decomposition of global circulation to study the role of large-scale Rossby modes in the subtropics on the zonal propagation of organized tropical convection along the equator (e.g. Madden–Julian oscillation). The candidate with enthusiasm for numerical modelling will employ a hierarchy of models to evaluate nonlinear features of dry and moist Rossby and Kelvin wave dynamics in the tropics and their impact on the mean tropical circulation.

PhD1 and PhD2 will be members of the newly established CliCCS working group on drivers of tropical circulation, which is a joint working group between the University of Hamburg and the Max Planck Institute for Meteorology. The group aims to better understand the tropical heat budget, its link to the circulation system, and how these respond to warming. The focus is on process understanding and the interplay between the tropical circulation and its different diabatic drivers such as radiation, microphysics, and surface fluxes. PhD3 will be a member of the theoretical meteorology group at the University of Hamburg and coupled to the above CliCCS working group.

Requirements:

A university degree in a relevant field; good programming skills; fluency in English language; interest in tropical clouds and circulation. PhD1 and PhD2 are expected to have a strong interest in working with observational data (satellite or airborne) as well as numerical models. PhD3 is expected to have a strong interest in dynamics and numerical modelling of geophysical fluids.

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Severely disabled applicants will receive preference over equally qualified non-disabled applicants.

For further information, please contact Ann Kristin Naumann (ann-kristin.naumann @mpi-met.mpg.de), Stefan Bühler (stefan.buehler@uni-hamburg.de for PhD1), Felix Ament (felix.ament@uni-hamburg.de for PhD2) or Nedjeljka Žagar (nedjeljka.zagar@fmf.uni-lj.si for PhD3) or consult our website at https://www.mi.uni-hamburg.de/en/arbeitsgruppen/cliccs-circulation.html and https://www.cliccs.uni-hamburg.de/.

Applications should include a cover letter incl. a statement on preference for topic 1, 2 or 3, curriculum vitae, names of two referees, and copies of degree certificate(s) submitted as one single PDF file. The application deadline is 28. February 2019. Please send applications to: cliccs-jobs.cen@uni-hamburg.de. Keyword: A2PhDs

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