



ALFRED-WEGENER-INSTITUT
HELMHOLTZ-ZENTRUM FÜR POLAR-
UND MEERESFORSCHUNG



The Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research (AWI) is a member of the Helmholtz Association (HGF) and funded by federal and state government. AWI focuses on polar and marine research in a variety of disciplines such as biology, oceanography, geology, geochemistry and geophysics thus allowing multidisciplinary approaches to scientific goals.

PhD position “Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC)³” (m/f/d)

Background

The section Physics of the Atmosphere at the **Alfred Wegener Institute (AWI) in Potsdam, Germany**, invites applications for a **PhD position (m/f/d)** funded within the Transregional Collaborative Research Center TR172 on “Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC)³” (www.ac3-tr.de) by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft).

Within the TR172, AWI together with the collaboration partners (Universities of Leipzig, Cologne and Bremen, TROPOS) aim to better observe, understand, and simulate processes leading to the current drastic climate changes in the Arctic. Specifically, the title of the **PhD project** at AWI is: **Moisture intrusions into the Arctic: Process understanding and impacts**

Tasks

Focus of this PhD project will be the systematic assessment of anomalous atmospheric moisture transport into the Arctic, related processes and its climate impacts. Moisture intrusions contribute to Arctic amplification due to the modification of longwave downward radiation and cloud radiative effects.

To better understand these processes and their impact on the surface energy budget, limited-area ICON model simulations are performed and reanalysis and observational data are analyzed. The latter include the exploitation of water vapour, cloud and radiation information from in-situ measurements and satellite data. The analysis includes on the one hand individual events during the MOSAiC expedition and on the other hand long-term characteristics of different seasons and regions in the Arctic. High-resolution modeling will be applied to analyse and understand paths and transformation of air masses during moisture intrusion events into the Arctic.

Overall, the objectives of the dissertation include:

- performance and evaluation of the ICON-NWP model applied on an Arctic-focussed domain,
- sensitivity studies to clarify atmospheric and surface factors (e.g. sea ice edge) important for air mass transport and transformation,
- quantification of surface and tropospheric warming in the Arctic related with anomalous moisture transport.

Requirements

- Master degree in meteorology, physics, oceanography, geosciences, or related fields
- Good skills in statistical data analysis and scientific programming (R, Python, Fortran, C, Matlab, or similar)
- Good English language skills are expected
- Interest in atmospheric physics and dynamics is expected
- Experience in climate modelling, working with reanalysis and climate model data, and working with Unix-like operating systems is an advantage.

Further Information

For further information, please contact **Dr. Annette Rinke** (Annette.Rinke@awi.de, +49(331)288-2130).

This position is limited to 3 years, starting June 1st, 2021. The salary will be paid in accordance with the Collective Agreement for the Public Service of the Federation (Tarifvertrag des öffentlichen Dienstes, TVöD Bund), up to salary level **13 (66%)**. The place of employment will be **Potsdam**.

All doctoral candidates will be members of AWI's postgraduate program [POLMAR](#) or another graduate school and thus benefit from a comprehensive training program and extensive support measures.

The AWI is characterised by

- our scientific success - excellent research.
- collaboration and cooperation - intra-institute, national and international, interdisciplinary.
- opportunities to develop – on the job, aiming at other positions and beyond AWI.
- a culture of reconciling work and family – an audited and well-supported aspect of our operation
- our outstanding research infrastructure – ships, stations, aircraft, laboratories and more.
- an international environment – everyday contacts with people from all over the world.
- having an influence – fundamental research with social and political relevance
- flat hierarchies – facilitating freedom and responsibility
- exciting science topics, with opportunities also in technology, administration and infrastructure

Equal opportunities are an integral part of our personnel policy. The AWI aims to increase the number of female employees and therefore strongly encourages qualified women to apply.

Disabled applicants will be given preference when equal qualifications are present.

The AWI fosters the compatibility of work and family in various ways and has received a number of awards as a result of this engagement.

We look forward to your application!

Please forward your application by **April 11th 2021** exclusively online.
Reference number 21/72/D/Kli-b

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