The Leipzig Institute for Meteorology (LIM), Germany, invites applications for

**PhD Position**

**Forecast of Warm Air Intrusions and Cold Air Outbreaks using ECMWF**

The position is 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](http://www.ac3-tr.de)) by the German Research Foundation (DFG, Deutsche Forschungsgemeinschaft). Within the TR172, LIM together with the collaboration partners (Universities of Cologne and Bremen, TROPOS and Alfred Wegener Institute) aim to better observe, understand, and simulate processes leading to the current drastic climate changes in the Arctic.

**Terms of employment**

The PhD position (65% TV-L E13) is awarded for 3 years with possible extension to up to four years. The position is open starting from January 2020. We offer a productive and interdisciplinary working group including comprehensive supervision and integration into the thriving Leipzig Graduate School on Clouds, Aerosol and Radiation ([http://www.lgs-car.tropos.de/](http://www.lgs-car.tropos.de/)).

Details are given below.

**Qualification requirements**

For the PhD position we expect strong interest in atmospheric science, in particular in cloud physics, remote sensing, radiative transfer, and climate. Applicants should have a Master in Meteorology or a related field. Experience in high-level scientific programming for data analysis is desirable. Candidates must possess excellent communication skills in written and spoken English.

**Applications**

Interested candidates should send a cover letter describing background; a CV, training and research interests; certificates; and the contact information of two referees as a single PDF to

m.brueckner[at]uni-leipzig.de.

Applications will be accepted until the end of January 2020. Review of applications will begin immediately after and continue until the position has been filled.

**Selection**

The selection for the position will be based solely on scientific merit without regard to gender, religion, national origin, political affiliation, marital or family status or other differences. Among equally qualified candidates, handicapped candidates will be given preference.
**Detailed project descriptions**

Information on the Collaborative Research Center TR172 Arctic Amplification are presented on the web page:

[www.ac3-tr.de](http://www.ac3-tr.de)

**Forecast of Warm Air Intrusions and Cold Air Outbreaks using ECMWF**

In spring 2021 airborne remote sensing in the Arctic will be used to study the cloud impact on atmospheric boundary layer processes and the energy budget. The measurements will be performed using the German research aircraft HALO within the framework of HALO-(AC)³ ([www.halo-spp.de](http://www.halo-spp.de)). With HALO, we aim to follow a Lagrangian approach to sample the same cloud system in the course of several days to investigate the embedded cloud evolution. In this regard, warm air intrusions and cold air outbreaks are of special interest. They usually persist for several days and are capable to transport large amounts of heat and moisture over huge distances into the Arctic or out of it, influencing the cloud morphology on its way. To capture the cloud formation/evolution along such transport paths from the very beginning it is necessary to forecast warm air intrusions and cold air outbreaks in time. Therefore, using reanalysis data, the successful candidate will statistically investigate synoptic patterns, which led to warm air intrusions and cold air outbreaks in the past. Based on this knowledge, the candidate will develop tools to forecast warm air intrusions and cold air outbreaks, including their point of origin and preferred direction of propagation. These forecast tools will be applied during HALO-(AC)³ for the flight planning. After the campaign, the forecasted patterns will be validated against the actually developed synoptic situations to improve the forecast tools for further usage during following airborne campaigns.