

Understanding Arctic snowfall and related feedback mechanisms using microwave remote sensing, reanalysis and regional climate models

Snowfall is an integral part of the water cycle in the Arctic. However, snowfall is extremely difficult to capture both in models and observations at the relevant regional spatial scales. In close cooperation with regional climate modelers from the AWI, the postdoc will exploit the longterm record of active and passive millimeter wave satellite data sets. In order to interpret the observed brightness temperatures (AMSU/MHS) and radar reflectivities (Cloudsat), synthetic observables will be generated from regional climate model (RCM) simulations. This will require consistent treatment of active and passive radiative transfer within the Passive and Active Microwave Radiative Transfer Model (PAMTRA), including scattering by frozen hydrometeors and interaction with different surface types. Observations, reanalysis and a set of RCM simulations will be used to investigate the links between sea-ice reduction and cloud changes, the impact on snowfall, and the snowfall-to-precipitation ratio.

The position is embedded into the Collaborative Research Center TR172 Arctic Amplification: Climate Relevant Atmospheric and Surface Processes, and Feedback Mechanisms (AC)³, which was recently approved by the German Science Foundation for an initial four year period until 31 December 2019. In total, three phases are envisioned.

Requirements

- strong interest in arctic climate, processes and willingness to travel to the Arctic
- experience in microwave remote sensing of clouds and precipitation and/or model evaluation
- Master-of-Science-equivalent university degree in meteorology, geophysics, or physics
- excellent communication skills both in written and spoken English.

The position (100% TV-L E13) is awarded for up to 4 years. We offer a productive and interdisciplinary working atmosphere, including several possibilities for career development.

For more information, see <http://ac3-tr.de/> or contact Prof. Dr. Susanne Crewell: crewell[at]meteo.uni-koeln.de.