Matthew Shupe
University of Colorado and NOAA Boulder, USA

The MOSAiC Expedition for understanding the processes of Arctic change

Arctic sea ice is declining rapidly as a result of amplified change in the Arctic relative to the rest of the earth. Many coupled processes, spanning across the atmosphere-ice-ocean system, are either driving or responding to these changes. The Multidisciplinary drifting Observatory for the Study of Arctic Climate (MOSAiC, 2019-2020) was a year-long, international, scientific expedition onboard the German research icebreaker Polarstern as it drifted with this changing sea ice across the central Arctic. MOSAiC was designed to build our understanding of the causes and consequences of the changing sea ice through a comprehensive, interdisciplinary set of observations that are the foundation for advancing knowledge and improving multi-scale models.

In this presentation we will follow the journey of Polarstern across the Arctic on this historic expedition. Along the way we will take a closer look at some of the key scientific analyses and activities that are bringing new insight into the coupled Arctic system. Among others, these will include a focus on clouds and their impacts on energy transfer to the surface; internal sea ice processes that affect ice growth; deformation of the sea-ice on multiple scales; and a unique process-based assessment of operational models.

Venue: Universität Leipzig, Faculty of Physics and Earth Sciences
04103 Leipzig, Linnéstraße 5, Lecture Hall for Theoretical Physics