Section Atmospheric Physics

Understand the role of the polar atmosphere in the global climate system.

1. Observations of key polar climate processes
2. Development of process models for individual subsystems
3. Improvement of their representation in earth system models and analysing polar feedbacks and global links
Long term meteorological observatories in the Arctic and Antarctic – AWIPEV and Neumayer
AWI's long-term observatories are strategically located in key regions of climate change and obtain high-quality observational data for the international science community.
First GRUAN site

Nov. 2012: Marion Maturilli (AWI) and Holger Vömel (GRUAN)
Climate change in Arctic and Antarctic

- **Arctic**: +1.5°C / decade
- **Antarctic**: +0.0°C / decade

Annual Mean Surface Air Temperature

- Winter (DJF): +3.0°C / decade
A major international research initiative under IASC to improve the representation of Arctic processes in weather forecast and climate models.
Reaching the central Arctic in winter

1893-1896: Drift of the Fram

Fridtjof Nansen
Expedition concept

- Central Observatory: RV Polarstern
- Distributed network of satellite stations
- Operations of research aircrafts and helicopters
- Extend vertical and geographical coverage
- Drift summer 2019 to summer 2020
- Visits by icebreakers from MOSAiC partners
- Broader geographic coverage & supply

Meteorological observations will be carried out based on GRUAN standards