German involvement in observatory systems for the IPY and beyond

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Contribution to icebreaker capability

Polarstern
- Bipolar vessel
- Biological, geological, geophysical, glaciological, chemical, oceanographic, and meteorological research
- International and interdisciplinary expeditions

Aurora Borealis
- Operates autonomously (no additional icebreaker support needed)
- Year-round deployment: Polar Areas and open ocean
- Location of deployment: Central Arctic, Arctic basins, Antarctic Shelf Seas
- Drilling of approx. 1080 m long sediment cores
- International and interdisciplinary expeditions

http://www.awi-aurora-borealis.eu
Coasts

**ACCO-Net:** Arctic Circumpolar Coastal Observatory Network

IPY lead project for network of coastal observatory sites for monitoring and detecting change in the coastal zone, including:

- coastal erosion and nutrient and sediment flux
- land-based sea ice observations
- coastal change and socio-economical activity
- changes to ground ice
- Biodiversity inventories, land-ocean biological links

**ACCO-Net**

ESA IPY program provides multi-temporal satellite images for ACCO-Net sites:
- SPOT 1-4, ALOS AVNIR & PRISM
- time frame: 1986 – IPY

41 coastal monitoring sites

24-year record of coastline position change
creation of high spatial resolution land elevation models
Ocean and ice research

German contributions to iAOOS – Integrated Arctic Ocean Observing System

Atmospheric research

Atmospheric Investigations on drifting stations
Joint German-Russian program AWI-AARI

Tethered balloon and ozone measurements
Interpretation by regional climate model simulations

Glaciology

• focus on ongoing rapid change of outlet glaciers, including acceleration, thinning, and retreat of ice front
• providing an enhanced model on ice discharge from Greenland
German contributions to the Polar Earth Observing Network (POLENET)
deployment of autonomous observatories at remote sites:
GPS, seismics, gravity, tide gauges, ..., to investigate polar geodynamics

GPS observations in Greenland

Germany’s wishlist (non exhaustive)

- Streamline access to the Arctic (logistics, licensing…)
- Strengthen the role of IASC as the platform for international collaboration within the Arctic research realm (and ultimately as the SAON watchdog)
- Support initiatives aiming at coordinating and facilitating polar station access and logistics (e.g. INFRAPOLAR)
- Embed SAON into a bipolar framework (e.g. SAON and PANTOS through the SCAR/IASC partnership)
Thank you