



INTERNATIONAL 2007-2008 POLAR YEAR



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. 1000 m long sediment cores**
- International and interdisciplinary expeditions



<http://www.eri-aurora-borealis.eu>



German stations – a contribution to INFRAPOLAR



Coasts

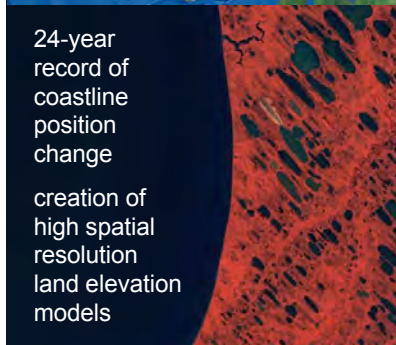
ACCO-Net: Arctic Circumpolar Coastal Observatory Network

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

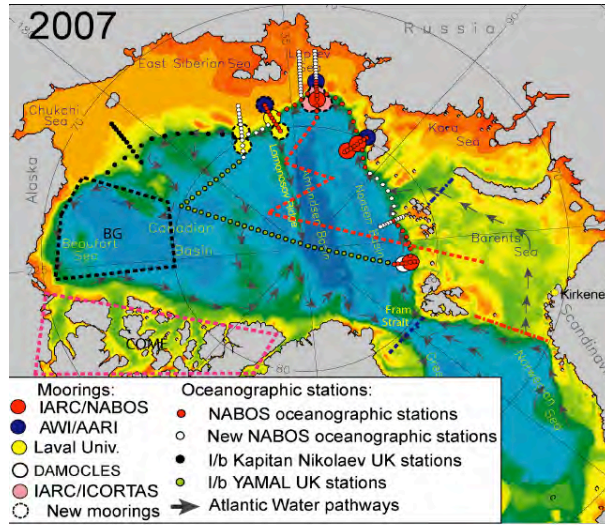
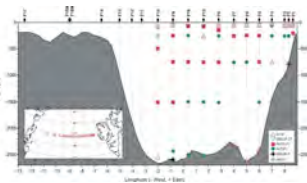
ESA IPY program provides multi-temporal satellite images for ACCO-Net sites :

- SPOT 1-4, ALOS AVNIR & PRISM
- time frame: 1986 – IPY



Ocean and ice research

German contributions to iAOOS – Integrated Arctic Ocean Observing System



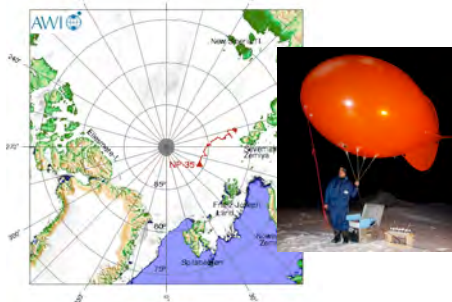
SPACE (Schauer, AWI approx): - - - - -
 COME (Carmack, BIO, work area): - - - - -
 Beaufort Gyre (BG) work area (Proshutinsky, WHOI approx): - - - - -
 Fram Strait (AWI & NPI): - - - - -
 Bjornøya (Norway): - - - - -
 FJL-N. ZEMLYA (Norway-Russia): - - - - -

Atmospheric research

Atmospheric Investigations on drifting stations

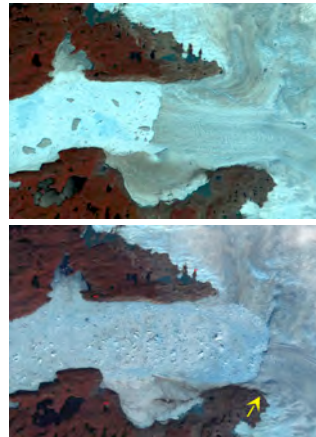
Joint German-Russian program
AWI-AARI

Tethered balloon and ozone measurements
Interpretation by regional climate model simulations



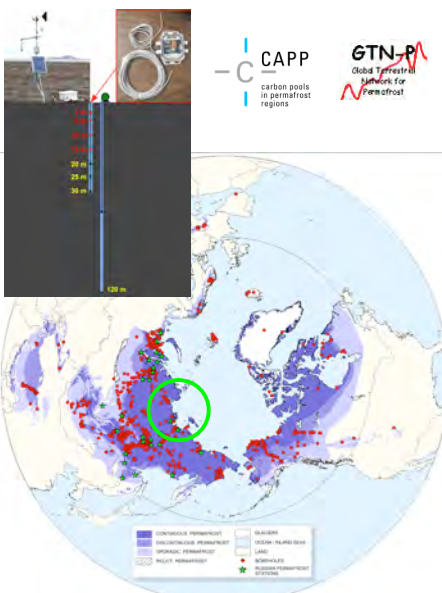
Glaciology

- 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



Permafrost

CALM, TSP (G-TNP), CAPP → INPO

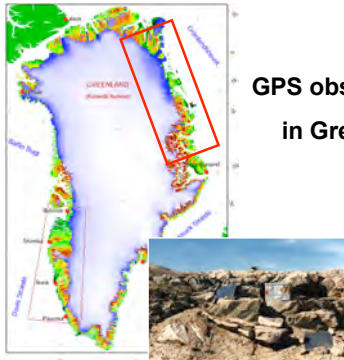


The image shows a vertical borehole with depth markers from 0 to 30 meters. To the right, there are logos for CAPP (carbon pools in permafrost regions) and GTN-P (Global Terrestrial Network for Permafrost). Below is a world map with a legend for permafrost types: continuous permafrost, discontinuous permafrost, sporadic permafrost, and frost-free regions. It also identifies tundra, ice-free tundra, and land.

Geodynamics

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



The image shows a map of Greenland with a red box indicating the location of GPS observations. Below the map is a photograph of a field station with various instruments on a rocky terrain.

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

