



SUMMARY ON AIRCRAFT, SHIP AND STATIONS OPERATED BY AWI

ASSW-FARO, Bergen, 26 May 2009

Hartwig Gernandt Alfred Wegener Institute for Polar and Marine Research





RESEARCH AIRCRAFT POLAR 5

Report on missions 2008 – schedule 2009

RESEARCH VESSEL POLARSTERN

Report on voyages 2008 – preliminary schedules 2009 and 2010

ARCTIC STATIONS – PARTNERSHIPS

AWIPEV Arctic Research Base, Samoylov Station, drifting station NP 35

FUTURE DEVELOPMENT OF AWI INFRASTRUCTURE

RESEARCH AIRCRAFT POLAR 5









ARCTIC AND ANTARCTIC MISSIONS ON SCIENCE AND LOGISTICS



Report on Arctic missions in 2008



Arctic (Inuvik) May/June 2008

MELTEX (Meteorology)

Arctic (LYR-Svalbard) July 2008

FMCW (Glaciology)

South America November 2008

Air-Methan (Climate),

FMCW: new high frequency radar system for mapping the internal layering of cold ice (200-300 m depth) with a vertical resolution of <1 m. Institute for High Frequency Technology, Technical University Hamburg-Harburg, AWI. **Air-Methane:** South America, GFZ Potsdam



-150

-140°

-130

-120

500 km





Studies of radiation characteristics of sea ice and sea ice-atmosphere interaction when melting starts Cooperation: Environment Canada, University Mainz, AWI



Planned Arctic missions in 2009

	High Arctic April 2009
C-GANI	PAM-ARCMIP
C-GANI	(Climate research)
	Arctic (Greenland) June 2009
Highlight PAM-ARCMIP	NEEM (Glaciology)
FIRST CERCUMPOLAR COOPERATION IN	AIR-BORNE MISSION

AARI, St. Petersburg, Russia / AWI, Bremerhaven, Germany / Environment Canada & York University, Toronto, Canada / ISAC, Bologna, Italy / NOAA Boulder, CO, USA / University of Alberta, Canada



RESEARCH AIRCRAFT POLAR 5 AWI







Pan-Arctic Measurements and Arctic Regional Climate Model Simulations



Survey flights for coordinated records of aerosol, cloud distributions, meteorological parameters, and sea ice distribution in the high Arctic



RV POLARSTERN



Report on Arctic missions June – October 2008



Greenland Sea

Oceanography, Biology, Goedesy

Fram Strait DAMOCLES (IPY)

Arctic Ocean

Geology, Geophysics, Physical Oceanography, AMEX 2008 (IPY) DAMOCLES (IPY)

Highlight ARK-XXIII/3: The long-term geological history of the Arctic Ocean Tectonic evolution of the "old" Arctic Ocean



RV POLARSTERN



RV Polarstern Expedition ARK-XXIII/3 Reykjavik Bremerhaven **RV** "Polarstern ARK-XXIII/3 Revkjavik - Bremerhaven August 12th till October 17th, 2008 Total distance covered: 10807m

Geophysics

East Siberian Sea - Makarov Basin

MCS Seismic in total 4416 km

- 1098 km with a 300 m Streamer
- 1080 km with a 600 m Streamer
- 2236 km with a 3000 m Streamer

23 Sonobuoys

Continuous ship gravity

Continuous ship magnetic



Ω

ARK XXIII/3: MSC Seismic Profiles acquired



-4000 -3000 -2000 -1000





Planned Arctic missions June – October 2009



Greenland Sea DAMOCLES ACOBAR

Fram Strait HAUSGARTEN LOOME

Greenland Sea (north)

Geophysics, Geodesy Land Operations

Cooperation(s):

- ARK XXIV/1: University of Tromsø. Environmental Centre Tromsø, Polarmiljøsenteret Tromsø
- ARK XXIV/2: University of Tromsø, Polarmiljøsenteret Tromsø
- ARK XXIV/3: Geological Survey of Denmark and Greenland (GEUS), University of Bergen, The University Courses on Svalbard (UNIS)



RV POLARSTERN



Planned Arctic missions June – October 2010



Cooperation(s):

- ARK XXV/1: University of Tromsø, Environmental Centre Tromsø Polarmiljøsenteret Tromsø
- ARK XXV/2: Bundesanstalt für Geowissen-schaften und Rohstoffe (BGR), Geological Survey of Denmark and Greenland (GEUS). Geological Survey of Canada (GSC)



RV POLARSTERN





RV POLARSTERN Cruises

2009:



ARK-XXIV/1 DAMOCLES/ACOBAR **Greenland Sea**

ARK-XXIV/2 LOOME Fram Strait

ARK-XXIV/3 Geophysics, geodesy Northern Greenland Sea

2010:



ARK-XXV/1 ACOBAR **Greenland Sea**

ARK-XXV/2 GATEWAYS Baffin Bay, Nares Strait







PARTNERSHIP FOR RUNNING POLAR STATIONS





The French-German AWIPEV Arctic Research Base is part of the International Research Community in Ny-Ålesund at Svalbard











Marine: 1217: 39%

ARCFAC

Support; 450; 14%

Public



Support

Base occupancy / Projects in 2008

4300 person days, 2600 of them scientists, 48

Scuba diving: 2 periods, 52 days, 210 dives, 10 divers, 10 projects

Marine

Atmo; 360; 11%

□ Atmo

Geo

Bio





Russian-German Samoylov Station



Key region for studies of coastal dynamics evolution of permafrost in the Siberian Arctic



Regular observations (CH4 and CO2)

Field studies



Current status:

Working and living capacity for approx. 10 scientists (186 m²)

Limited usability for winter campaigns









NP-35 - DRIFTING STATION IN THE ARCTIC OCEAN



PARTNERSHIP FOR RUNNING POLAR STATIONS









ATMOSPHERIC STUDIES IN THE HIGH ARCTIC OCEAN STRATOSPHERIC OZONE AND BOUNDARY PAYER STUDIES UNIQUE DATA FOR REGI ONAL CLIMATE MODELING





FUTURE DEVELOPMENT

OF INFRASTRUCTURE

FOR ARCTIC RESEARCH



NEW SAMOYLOV STATION





Current situation: Erosion of land-related loss of coast of about 3 m per year Coastline currently about 10 m distance to the station





AW

Samoylov erste Ausbaustufe



SCHEDULE

2009

Construction of the main building More solid construction, Higher quality material, Better isolation

Samoylov zweite Ausbaustufe



2010

Construction of station extension Total area 208 m²

2010 end of summer season Station fully operational



NEW AWIPEV BUILDING







NEW AWIPEV BUILDING





Currently AWI and IPEV consider the concept for a new station building.

The existing facilities should be accommodated in one building.

The implementation is preliminary set by 2014.



RV POLARSTERN II



BMBF decision in 2008: Replacement of RV Polarstern as a major research platform for AWI

Project structure is currently established.

According to BMBF the internal kick-off discussion is to be in 2009.

Estimated start of operation 2016.

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EUROPEAN DIMENSION





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THANK YOU!



POPA BOREAL



