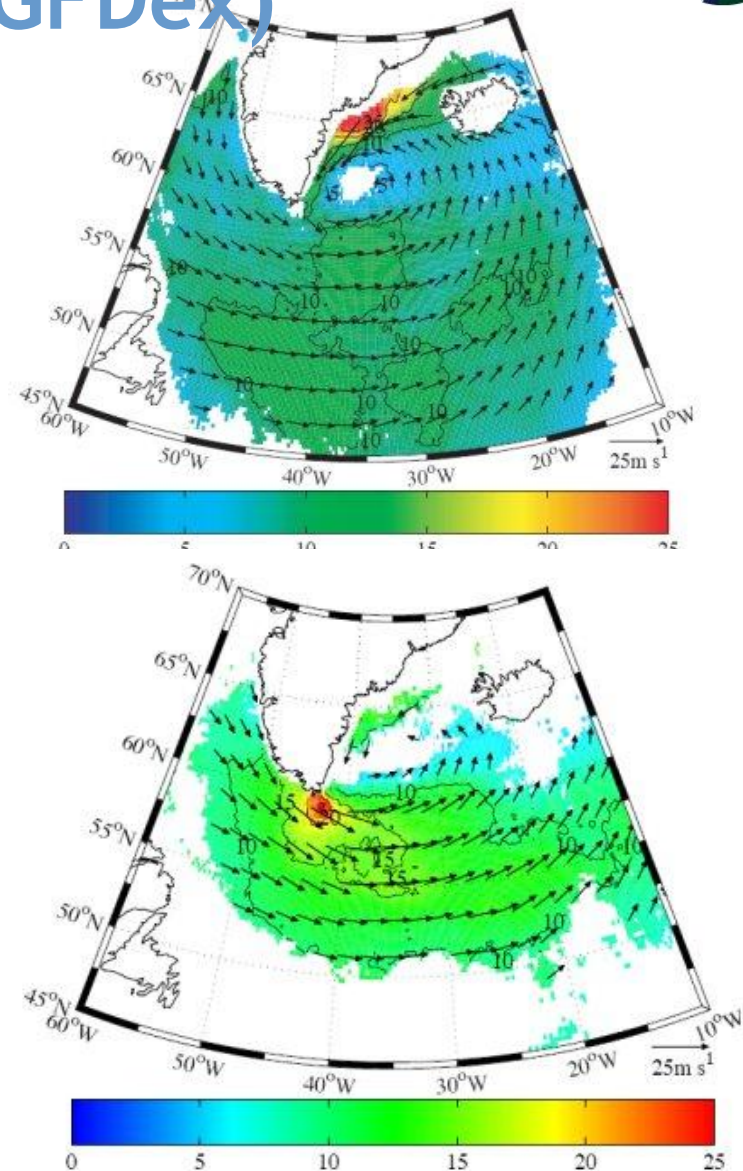


1. Greenland Flow Distortion experiment (GFDex)



(GFDex) is an international fieldwork and modelling-based project to investigate the role that Greenland plays in distorting atmospheric flow over and around it: affecting local and remote weather systems and, via air-sea interaction processes, the coupled climate system

(Dr. Ian Renfrew, Univ. of East Anglia, UK)





2. Storm Studies of the Arctic STAR

- Enhanced surface, radar, upper-air observations in eastern Canadian Arctic
- Gap flow, interaction of cyclones with topography and air-sea-ice interactions.
- Air-sea-ice interactions, orographic precipitation and ice cores.
- Over the eastern Canadian Arctic and adjoining seas. Will work with Inuit to incorporate findings for use by local communities.

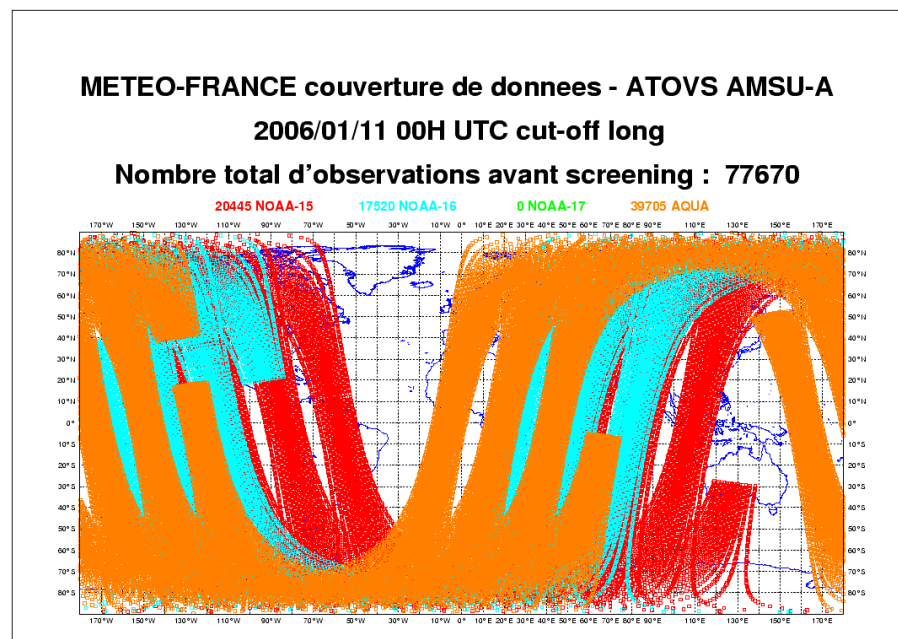
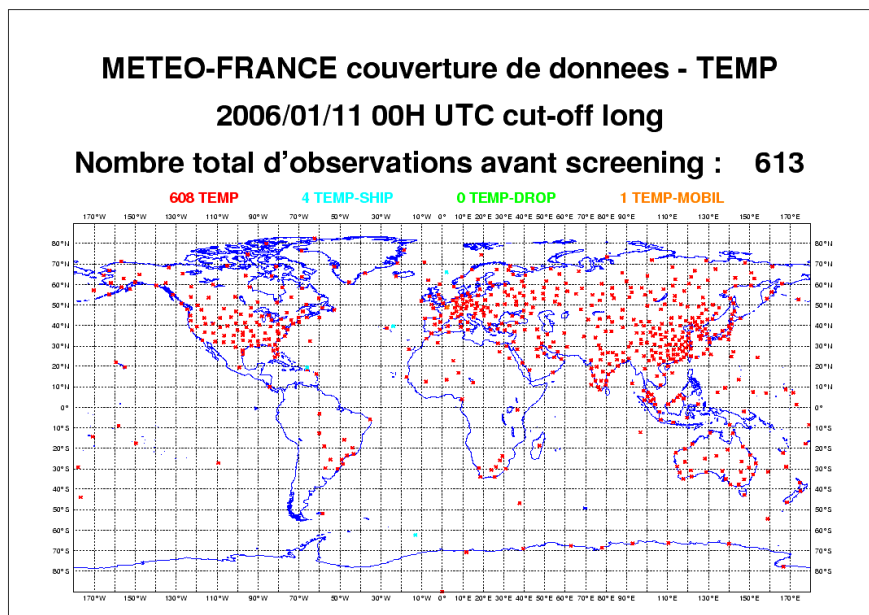
Aircraft, surface and ship-based field campaign in southern Baffin Island; September-October 2007. Flight-level meteorology, cloud physics, broadband radiation, turbulence, as well as profiles from dropsondes

John Hanesiak, University of Manitoba, Canada



3. Concordiasi

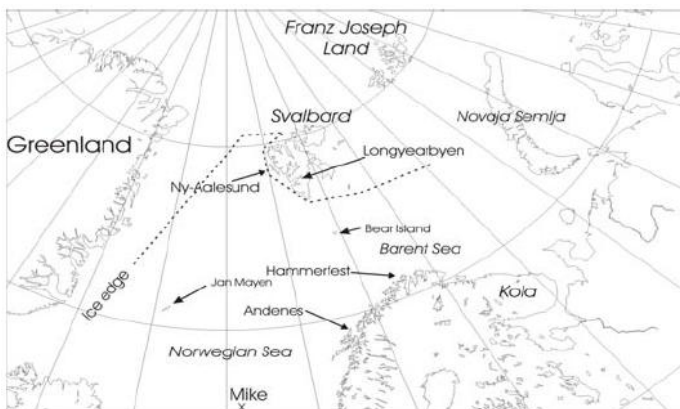
Validate and improve the **assimilation of AIRS/IASI** in numerical models.



(Florence Rabier, MeteoFrance)



4. THORPEX-IPY-Norway



- DLR Falcon from Andenes
- Satellites; IASI instrument
- New radiosonde at Franz Josef Land
- Added radiosondes at Bear Island, Kola peninsula, Ny Ålesund
- Tethered balloon system at Ny-Ålesund
- Weather balloons from Coast Guard ships
- AMDAR onboard commercial aircraft
- Weather radar Andøya
- Drifting buoys ?
- NOAA P-3 aircraft ?
- Flux mast Svalbard ?
- Radiation measurements ?

(Jón Egill Kristjánsson, University of Oslo)

5. TAWEPI

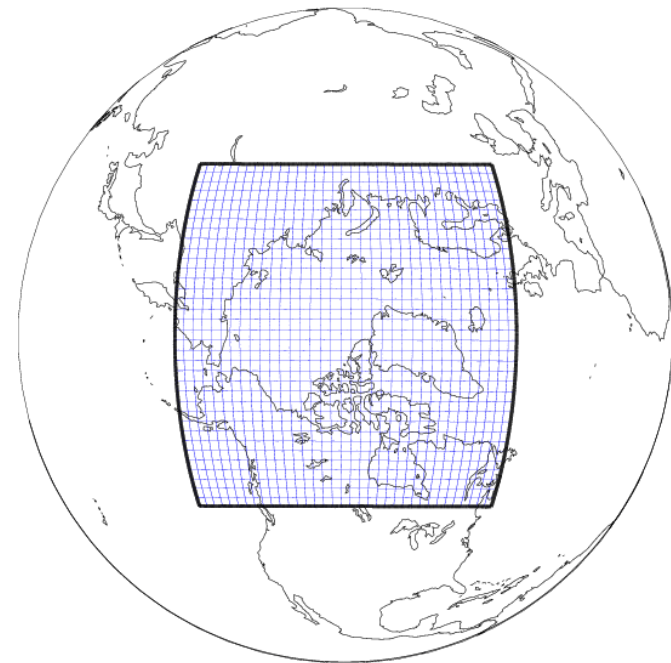
TAWEPI's Polar-Gem

(The Arctic Weather and Environment Prediction Initiative)

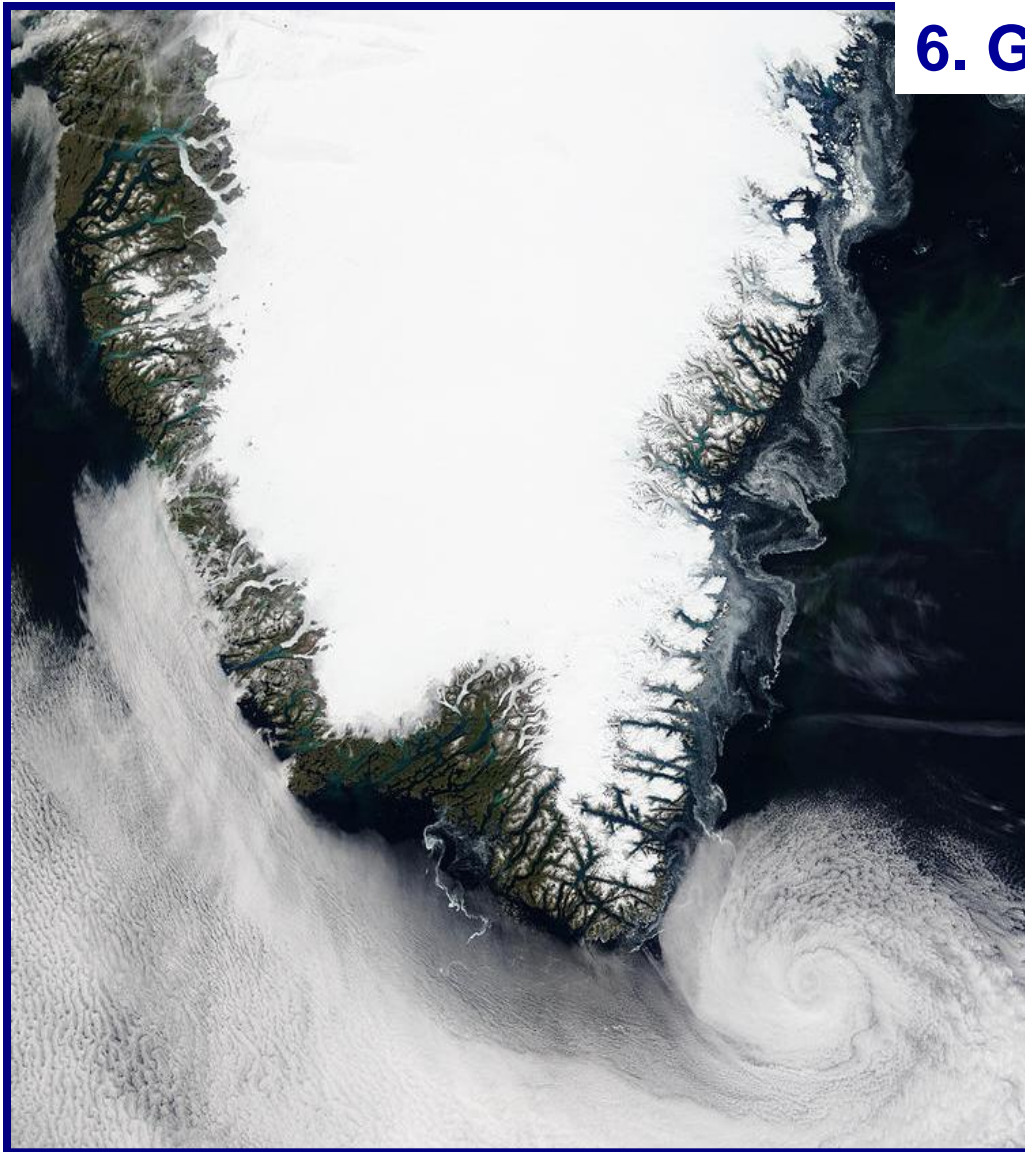


- An important component of this proposal is to develop a regional Numerical Weather Prediction (NWP) system (10-15km horizontal resolution) over the Arctic in support of the IPY projects, like THORPEX and field measurement campaigns.
- **EXPECTED ADVANCES:**
 - Improvement of environmental forecasting from a few hours to two days for warning, health, transport, planning and security.
 - Unprecedented high resolution time series of analyses of environmental parameters for miscellaneous studies (impact, adaptation, health, ...)

(Dr. Gilbert Brunet, Proposal Leader,
Meteorological Research Division,
Canada)



6. Greenland Jets



27 July 2002 1425
UTC (MODIS
Terra)

(Dr. Andreas
Dörnbrack, DLR,
Germany)

(Andreas Dörnbrack, DLR Germany)



7. GREENEX

- Conceptual model of atmospheric response to orography leading to downstream development. Forecasting of small-scale weather phenomena, including extremes.
- Meso- and fine-scale flows in the vicinity of orography and sea ice and downstream weather development. Scale interactions.
- Over the N-Atlantic, Europe and globally.

Automatic meteorological high-temporal resolution ground observations in Iceland.

Flights associated with DLR, Germany and Univ. East Anglia, UK.

(Haraldur Ólafsson, University of Iceland)

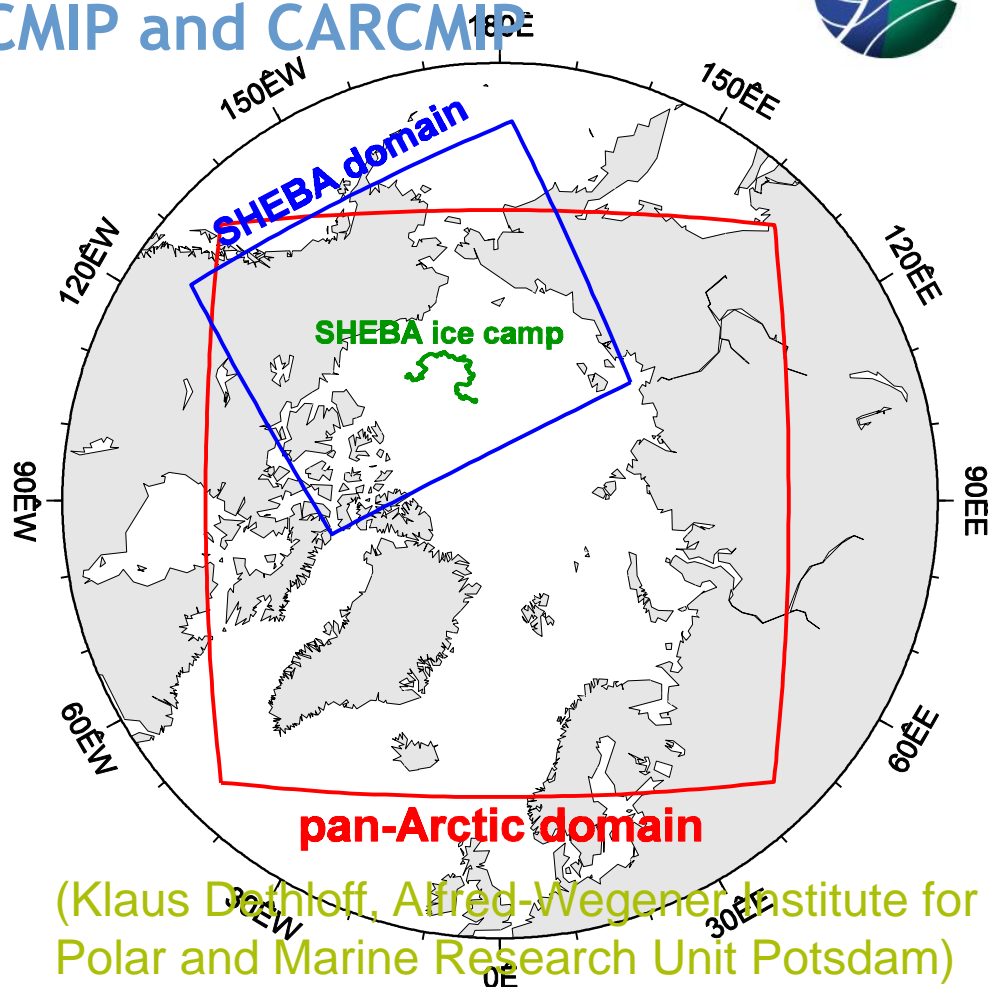
8. Arctic Regional Climate Model Intercomparison project ARCMIP and CARCMIP



Participating models:

1. ARCSyM (USA)
2. COAMPS (S,USA)
3. HIRHAM (D,DK)
4. CRCM (CAN)
5. RCA (S)
6. RegCM (N)
7. REMO (D)
8. PolarMM5 (USA)

- 1-year simulations (Sep.97–Sep.98) for a small domain (SHEBA domain)
- 10-year simulations (1990–2000) for a pan-Arctic domain within GLIMPSE



(Klaus Dethloff, Alfred-Wegener-Institute for Polar and Marine Research Unit Potsdam)

SHEBA = Surface Heat Budget of the Arctic Ocean

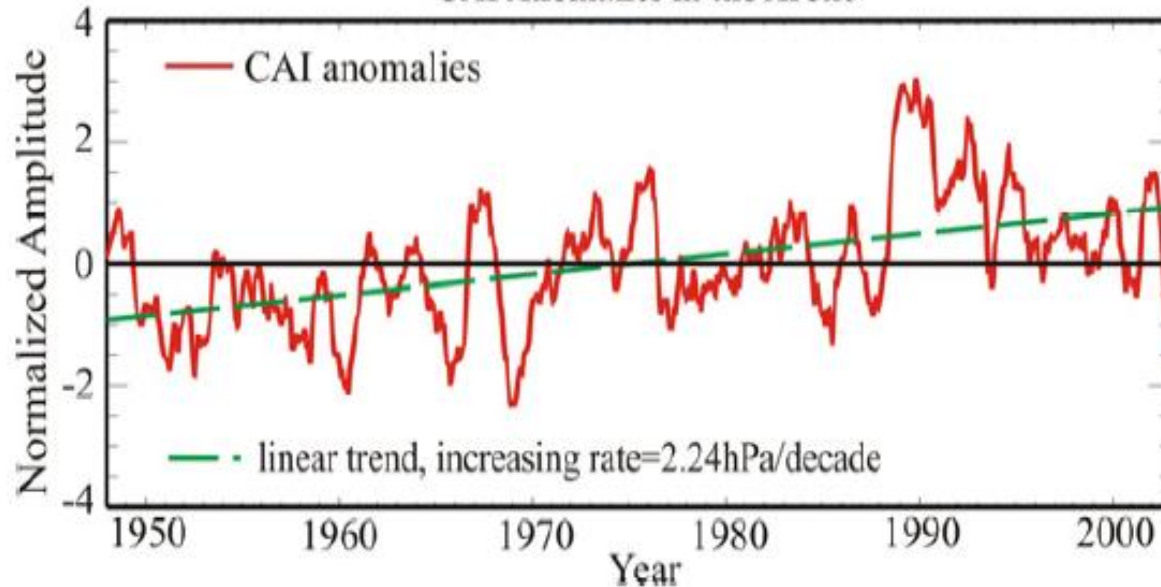
- Green: Trajectory of the SHEBA ice camp in the Beaufort-Chukchi sea (1997–1998)

9. Impacts of Surface Fluxes on Severe Arctic Storms, Climate Change and Arctic Coastal Oceanographic Processes



Arctic cyclone activity intensified:

CAI Anomalies in the Arctic



ï The Arctic cyclone activity apparently intensified in the second half of the 20th century.

ï The dramatic increase of cyclone activity around 1990 corresponds well to the AO amplification.

Change in Arctic Storms climate – Zhang et al. 2004 J. Climate

(Will Perrie, Bedford Institute of Oceanography, Canada)



10. THORPEX Pacific Asian Regional Campaign (T-PARC)

- The goals of T-PARC are to increase the understanding of factors that limit our ability to predict both high-impact weather over the densely populated regions of East Asia's Pacific Rim and the downstream effects of these processes on weather events over North America

A major international research campaign will have field phase in 2008.

(David Parsons, NCAR)