International Polar Year status

Dr Eduard Sarukhanian,
Special Adviser to Secretary–General on IPY

IPY JC Statement

- IPY 2007-2008 started on 1 March 2007
- After two years, on 25 February 2009 **Statement of WMO/ICSU Joint Committee for IPY "The State of Polar Research"** was publicly presented to WMO and ICSU Executive Heads by IPY JC at WMO headquarters
- The Statement contains preliminary scientific and observational advances of IPY

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2008

IPY scientific advances

EC-LXI (June, 2009) noted with satisfaction the remarkable progress in the implementation of IPY and highly appreciated the work of the WMO/ICSU Joint Committee (JC) for IPY, its Sub-Committees, IPY International Programme Office, and over 50,000 participants of the IPY projects from more than 60 countries.

Council was pleased to note that during the IPY two-year period the researchers had observed exciting new phenomena, made fundamental scientific discoveries, developed new methods, advanced interdisciplinary and international links in polar science and, most importantly, gained new understanding of the role of the polar regions in the Earth system.

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IPY observational achievements

IPY achievements related to observations are:

- Extension of surface-based meteorological networks in polar regions through establishment or modernization of new stations and by the intensive deployment of automatic weather stations and upper-air systems;
- Development of new integrated observing systems in Arctic and Southern Oceans based on the wide use of modern technologies such as gliders, ice-tethered profilers, marine animals equipped with sensors, Argo floats;
- Creation of an impressive array of new satellite data and products as result of the coordinated approach adopted by the Space Agencies; and
- Implementation of new initiatives in hydrological cycle and cryosphere studies.

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IPY studies of polar atmosphere

Studies of the polar atmosphere were intensified by:

- modernization of GAW stations in the Arctic, including the establishment of new international environmental observatory Tiksi,
- modernization of observing stations in the Arctic and Antarctica, including the establishment of new Antarctic manned stations, and
- Extension of AWS networks by deployment of new AWS in the Arctic and Antarctica.

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Atmospheric Arctic Observing Sites

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Station Princess Elisabeth in Antarctica

70°S, 23°E (Courtesy IPF, Belgium)

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Halley IV station (UK)

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Neumayer station (Germany)

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Station Concordia (France, Italy)

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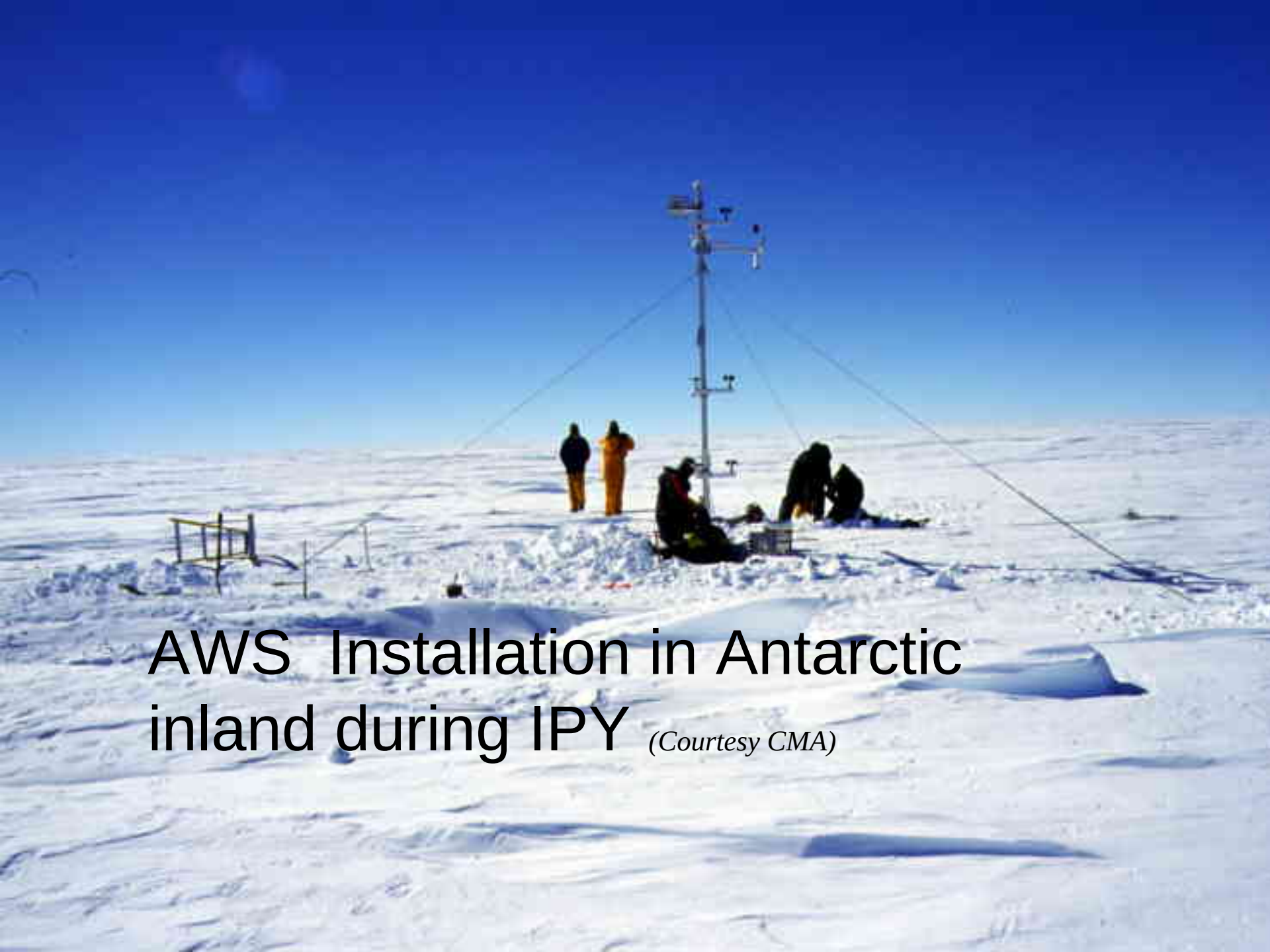

AWS Installation in Antarctic inland during IPY *(Courtesy CMA)*

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IPY studies of polar oceans

- International multidisciplinary marine expeditions were carried out in summer 2007 and 2008 in the Arctic Ocean, implementing of IPY projects related to studies of oceanic processes, sea-ice properties and changes, interaction between atmosphere, sea-ice and ocean, marine geology and biology.
- In course of these expeditions the deployment of total 173 oceanographic moorings and arrays in the Arctic Ocean as well as new underwater and under-ice mobile observing facilities was done across the Arctic Ocean .
- IPY project “Climate of Antarctica and Southern Ocean (CASO)” was successfully carried out in the Antarctic in austral summers 2008 and 2009 with wide use of icebreakers and research vessels, marine animals equipped with sensors, surface drifting buoys and Argo floats.

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Many IPY Arctic cruises occurred in 2007-2008 …

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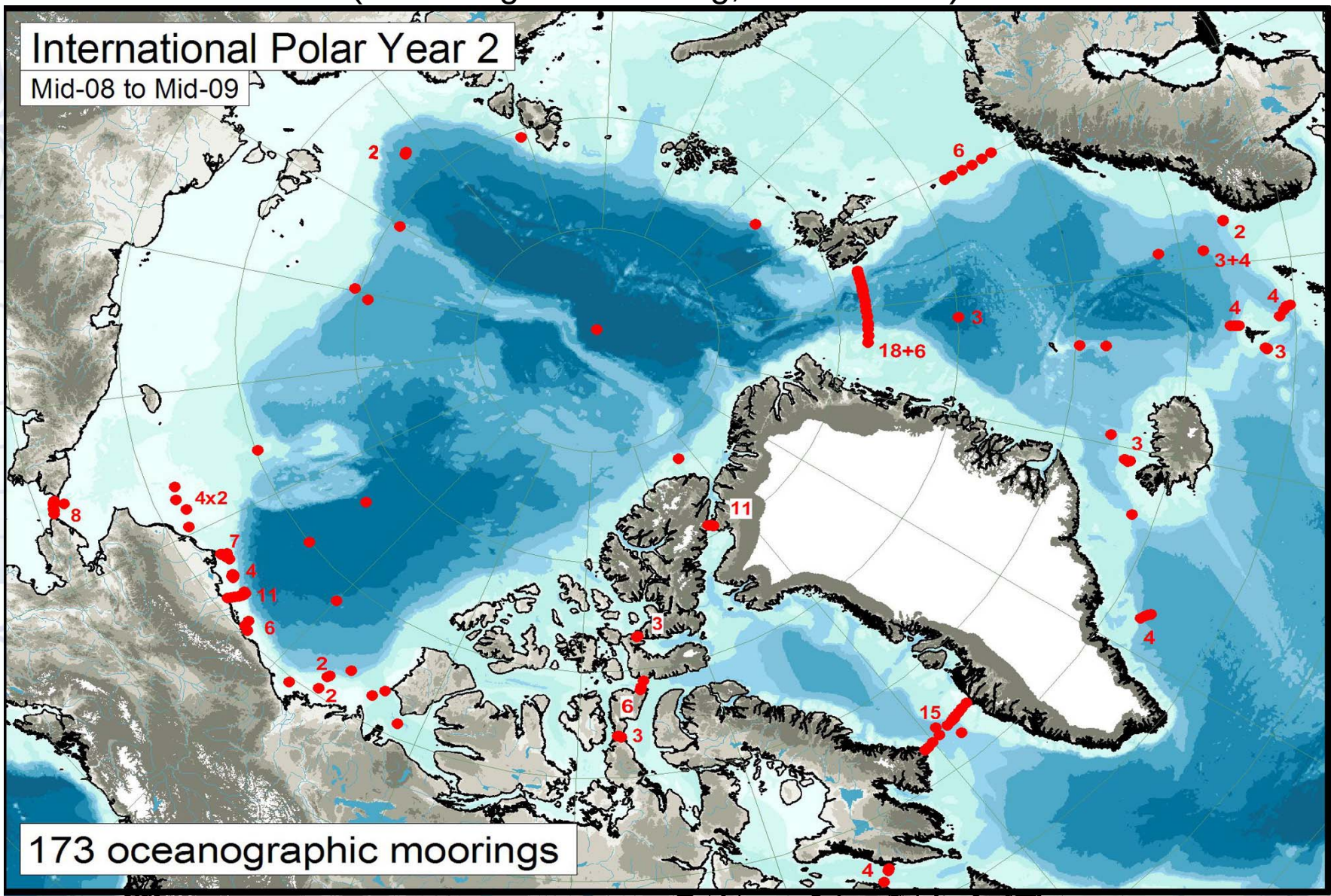
Distribution of current meters moorings and arrays across iAOOS domain in 2008

(according to H. Melling, IOS Canada)



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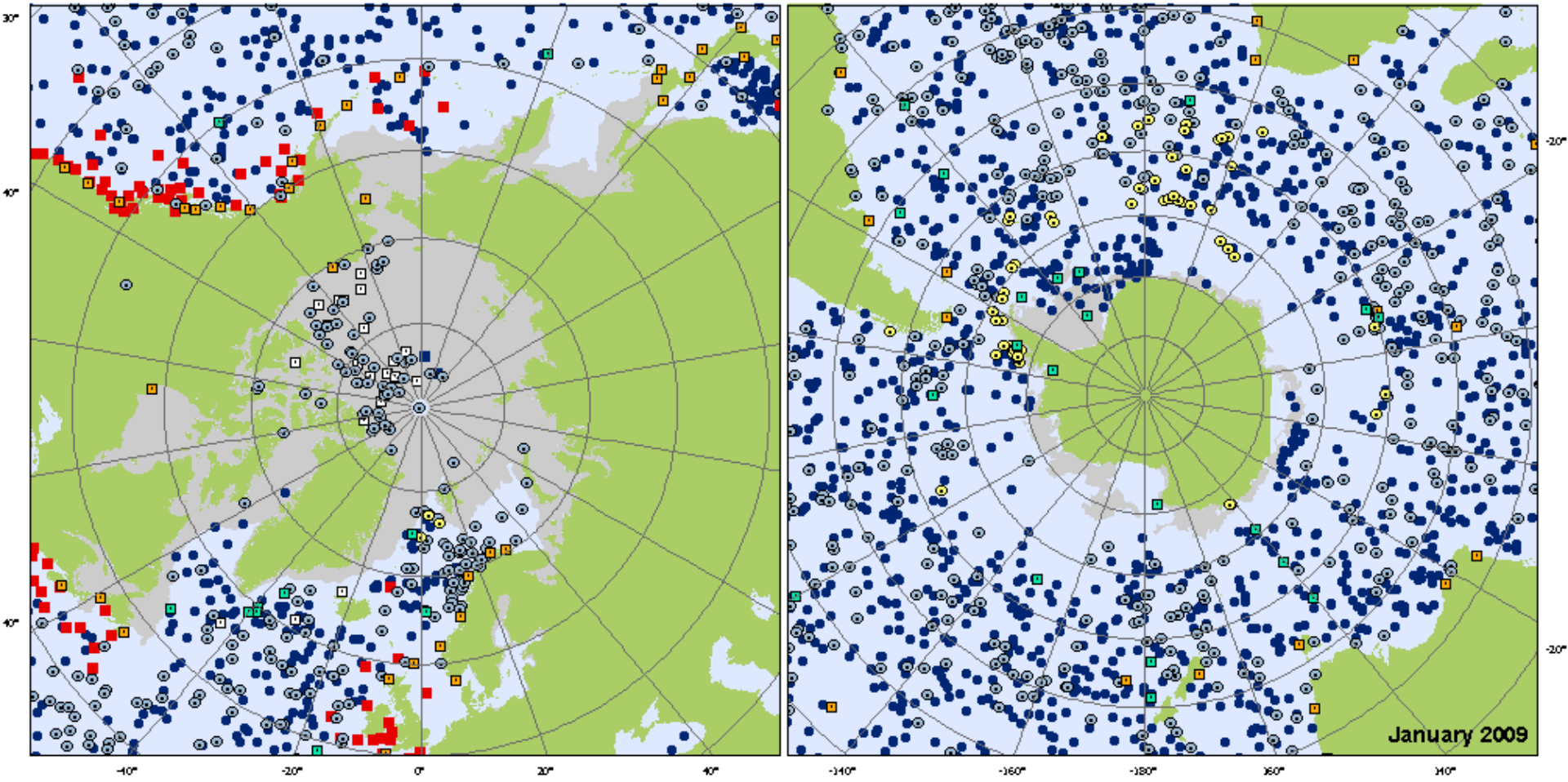
Operational near real time data from the Arctic (left) and Southern (right) ocean components of GOOS reported over the WMO GTS in January 2009.



- Subsurface Floats
- Moored Buoys
- Polar Ocean Profiling System
- Marine Mammals
- Surface Drifters
- OceanSITES
- Ice-Tethered Profiler
- Tide Gauges

jcommops

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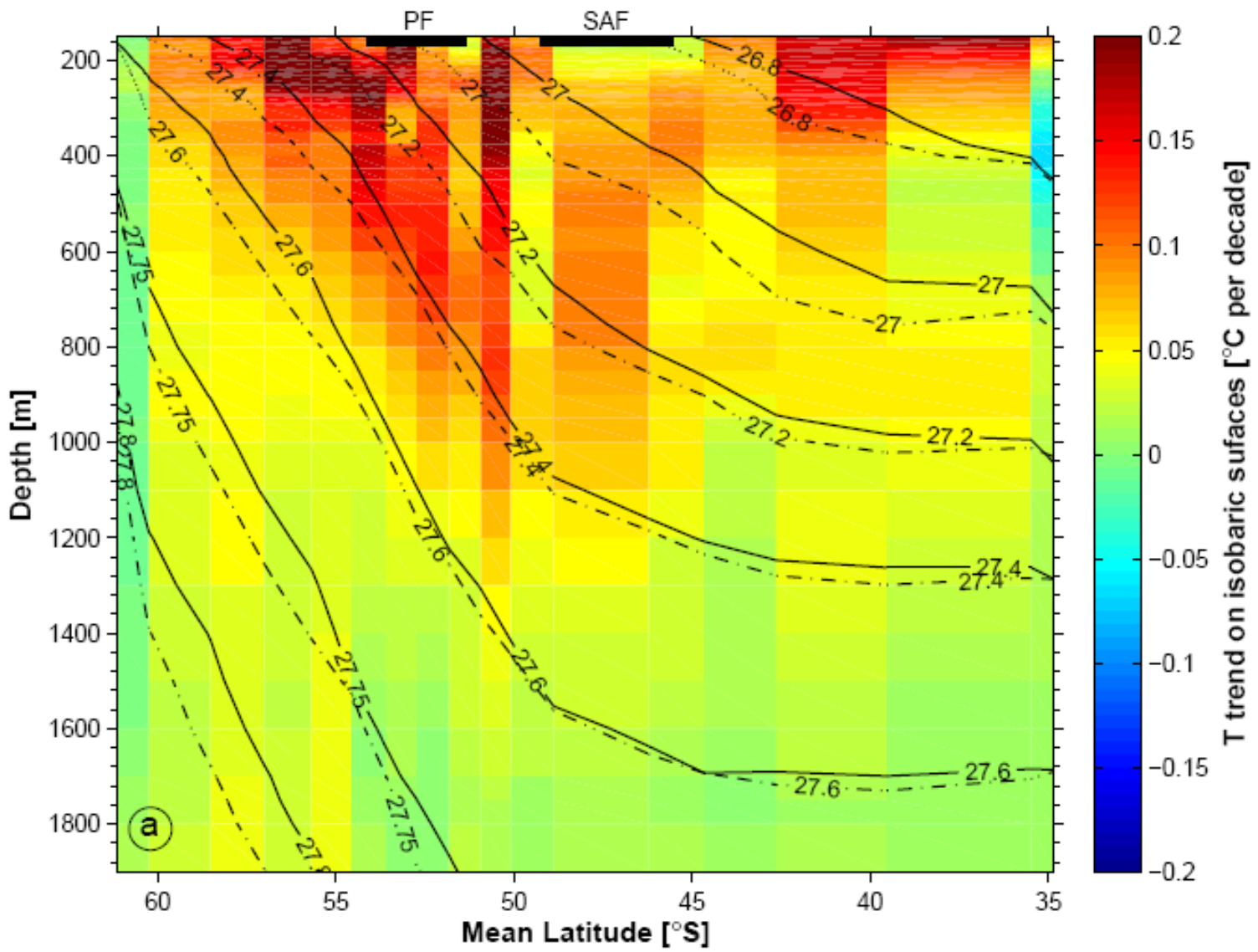
Southern Ocean Warming ...



Böning et al, *Nature Geoscience*, 2008

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IPY Space Activities

One of most impressive results of IPY is a significant progress achieved towards obtaining a comprehensive IPY legacy satellite dataset based on polar snapshots with following key objectives:

- Pole to coast measurement of Antarctic Ice Sheet surface velocity;
- Annual, basin-scale measurements of Arctic sea ice motion;
- Circumpolar, fine resolution measurements of Antarctic sea ice kinematics
- High spatial resolution measurements of polar glacier elevation;
- Pan-Arctic view of lake and river ice break-up dynamics;

(*more in STG5 presentations***)**

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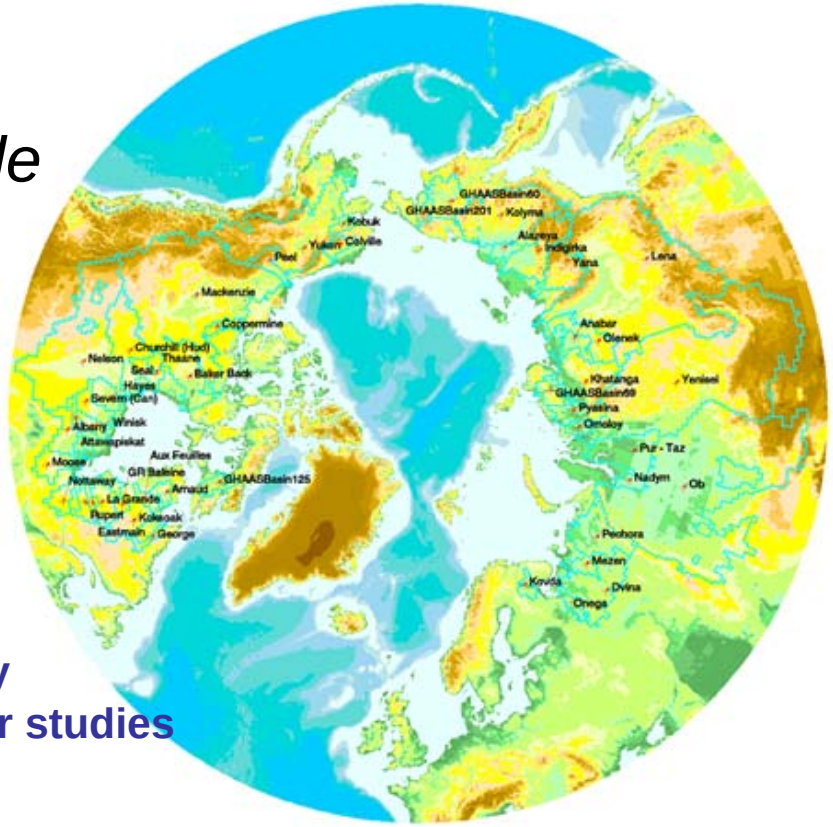
WCRP
World Climate Research Programme

Arctic HYDRA

Advances in the establishment of an Arctic hydrological cycle observing system and advances in polar hydrology

IPY Project 104:

The Arctic Hydrological Cycle Monitoring, Modelling and Assessment Program (Arctic-HYDRA)

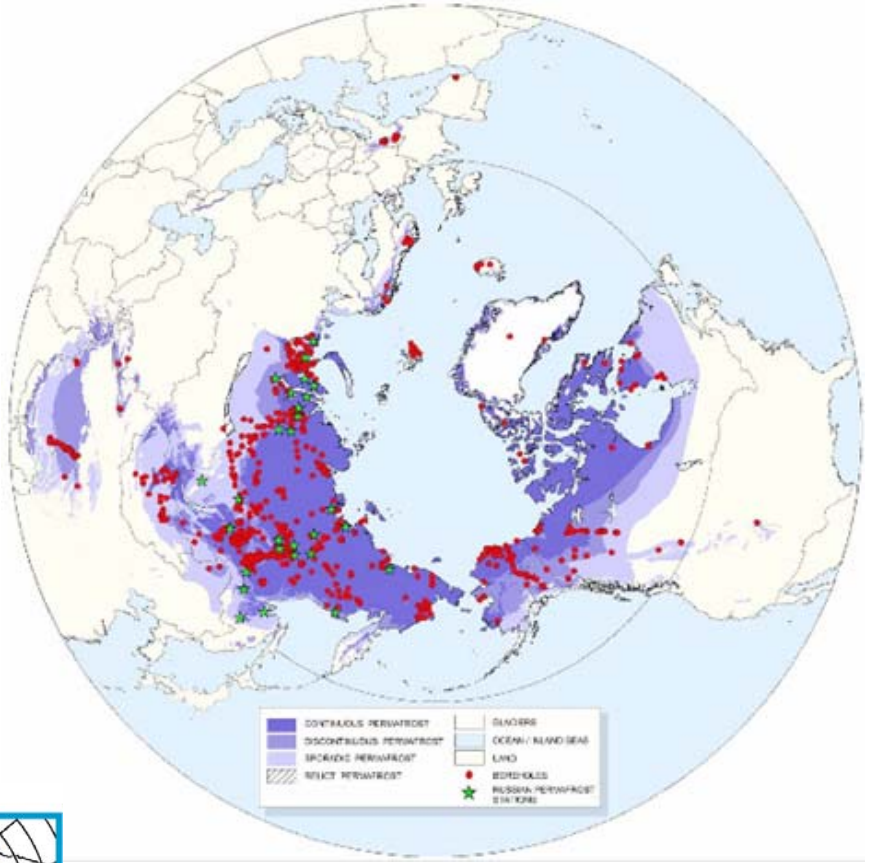


Arctic-HYDRA promotes a fully pan-Arctic perspective for its IPY water studies

http://www.arcticportal.org/arctichydra

A strong step forward in permafrost monitoring

IPY Project 50:
Thermal State of Permafrost (TSP)



TSP ≤ 0 °C
Thermal State of Permafrost
INTERNATIONAL PERMAFROST ASSOCIATION
INTERNATIONAL POLAR YEAR

TN-P
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IPA

www.ipa-permafrost.org

IPY 2007-2008 to continue

Recognizing that success of IPY had inspired many nations to continue projects beyond IPY “official” period, WMO and ICSU Executive Councils agreed to extend IPY and to announce formal closure of IPY on 12 June 2010 at IPY Science Conference Oslo, Norway.

- Large-scale IPY projects are continued their field experiments in the Arctic and the Antarctic in 2009,
- JC, its Subcommittees, IPY IPO, and other IPY mechanisms are still in working mode.

Joint Committee Report on IPY

To summarize IPY 2007-2008 (2009?) history, IPY achievements and lessons learnt JC at its eight session (February 2009) decided to prepare a Report titled "Understanding Earth's polar challenges: The International Polar Year 2007-2008" and present it to IPY Oslo Science Conference.

The first draft is planned to be prepared by 20 December 2009.

IPY Oslo Science Conference (8-12 June 2010)

The IPY Oslo Science Conference will gather the full community to celebrate the remarkable accomplishments of this IPY, to display and explore the richness of IPY data, and to chart future directions for polar and global science.

Under Theme 5 “New frontiers, data practices and directions in polar research” we have session 5.5 "Space for Polar Science", in which we would like to encourage you to submit an abstract highlighting exciting new scientific results from your IPY satellite remote-sensing based research, and potentially from combinations of satellite and in-situ field observations (STG5, *agenda item 12*)

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Thank you!

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