



# ***GMES Services in the Polar Regions & The International Polar Year***

GMES Services Element Co-location 5  
March 2007, Frascati

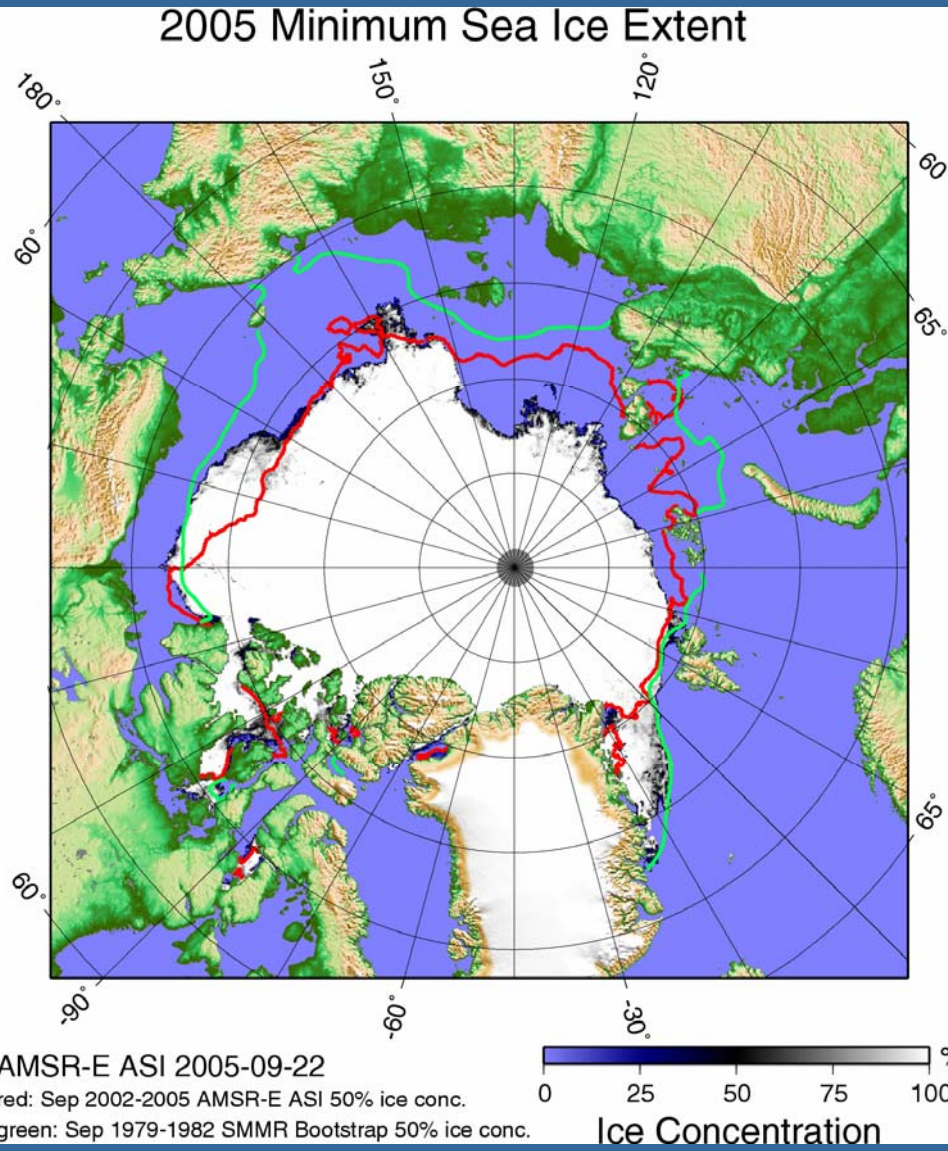
John Falkingham  
Canadian Ice Service





Polar View

# Ice is Disappearing at a Dramatic Rate in the Arctic





## ***World Attention is on the Polar Regions***

- Intergovernmental Panel on Climate Change
  - Changes in the Polar Regions will have major global impacts
  - Monitoring polar change is a global interest – European contribution to GEOSS
- Arctic Council – PAME
  - Arctic Marine Shipping Assessment
- World Meteorological Organization / Intergovernmental Maritime Organization
  - Arctic Ocean METAREAs / NAVAREAs
- UNCLOS Article 76 Continental Shelf Delineation
  - Canada, Denmark, Russian Federation, etc.

## ***International Polar Year 2007-2009***

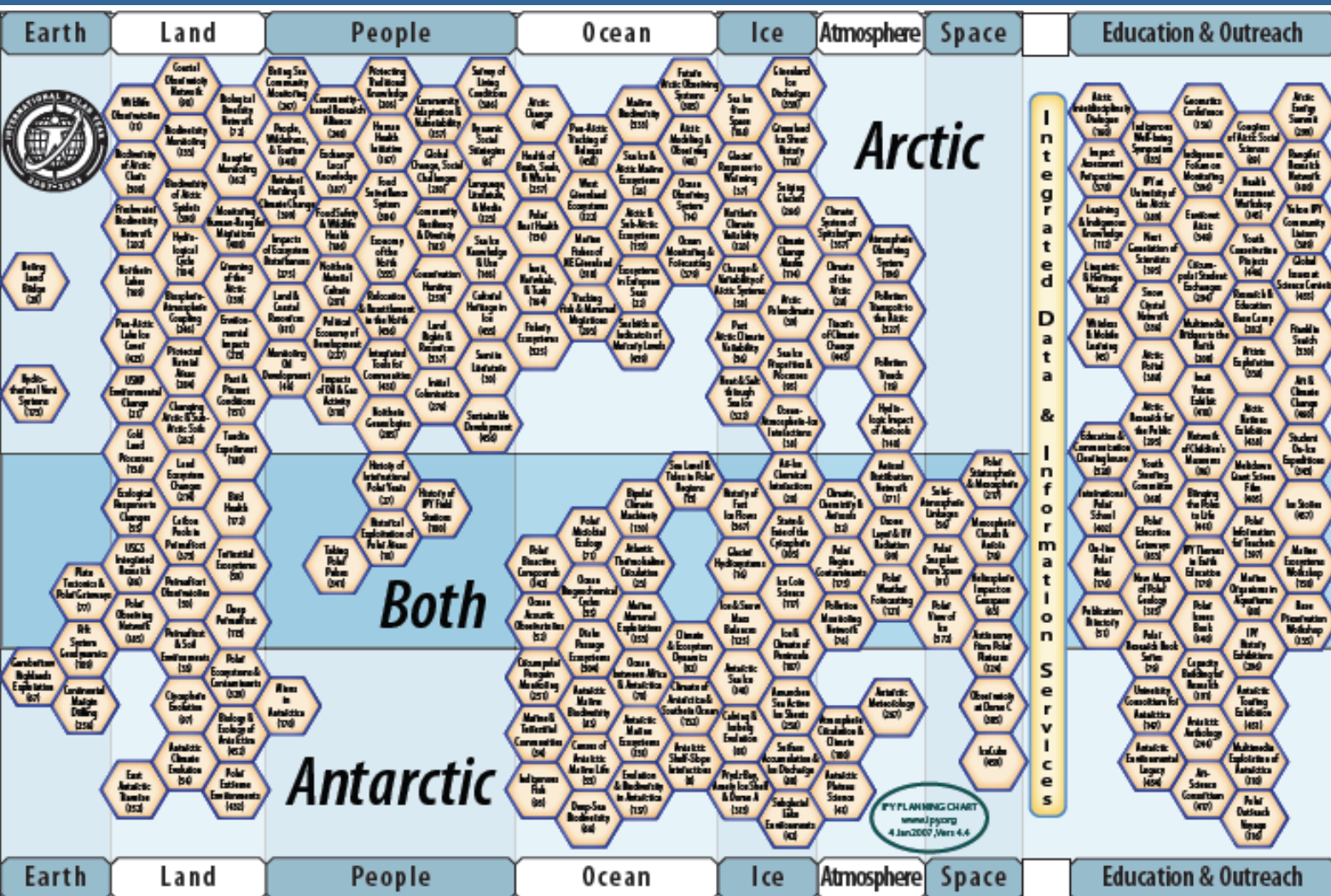
- Will raise awareness/profile and generate momentum for polar activities
  - tremendous media interest and public attention on polar regions and activities
  - unprecedented opportunity to demonstrate, follow, and participate in cutting edge science *in real-time*
  - opportunity to obtain an unprecedented quantity of *in situ* data to validate satellite earth observations
- Will be a springboard to increased understanding of, access to, and activity in the Polar Regions





Polar View

# IPY Approved Proposals – Jan 2007



228 total

121 Arctic

42 Antarctic

65 Bi-Polar

166 science

52 outreach

## ***Polar View is well-positioned for IPY***

- Extensive list of respected operational service providers
- Wide range of polar information products and services
  - sea ice and icebergs
  - river and lake ice
  - snow
  - glaciers
  - climate change adaptation indicators

### **OPERATIONAL SERVICE PROVIDERS**

British Antarctic Survey  
C-CORE

Danish Meteorological Institute  
Finnish Environment Institute (SYKE)  
Finnish Institute of Marine Research  
Finnish Meteorological Institute  
Hatfield Consultants Ltd.

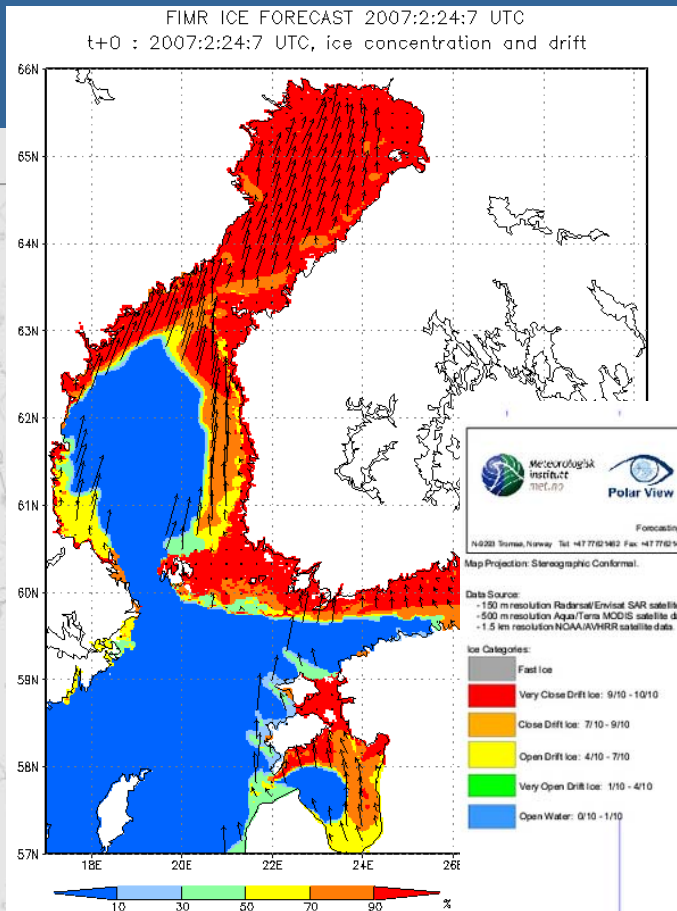
IFREMER  
ISAC-CNR

Noetix Research Inc.  
Norwegian Meteorological Institute  
Norwegian Polar Institute  
Stockholm University



Swedish Meteorological/Hydrological Inst.  
University of Bonn  
University of Bremen  
University of Cambridge (DAMTP)

Vexcel  
Vista

# Regional Ice Charts and Forecasts



February 21st 2007

Met.no  
Forecasting Division for Northern Norway  
See Ice Service  
N-220 Tromsø, Norway Tel: +47 7762 1462 Fax: +47 7762 1461 email: ice.no@met.no

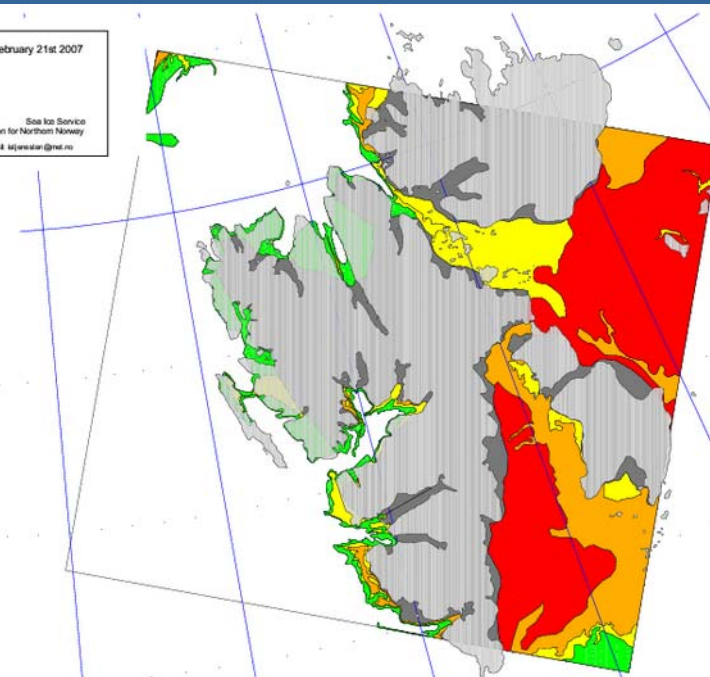
Map Projection: Stereographic Conformal.

Data Source:  
- 150 m resolution RadarSat/Envisat SAR satellite data.  
- 500 m resolution Aqua/Terra MODIS satellite data.  
- 1.5 km resolution NOAA/NWRR satellite data.

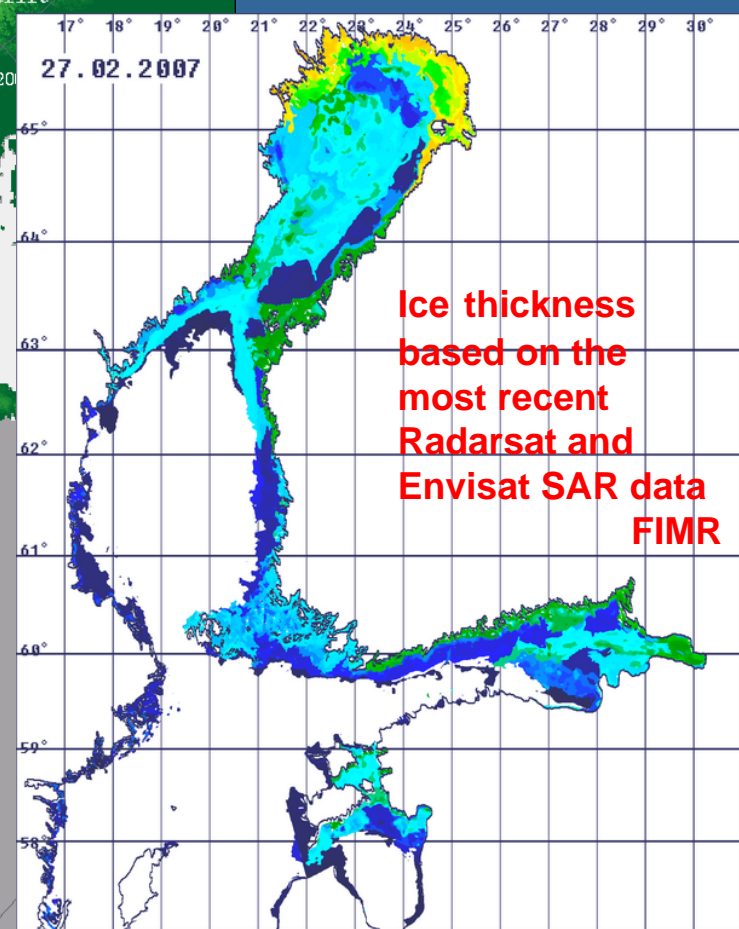
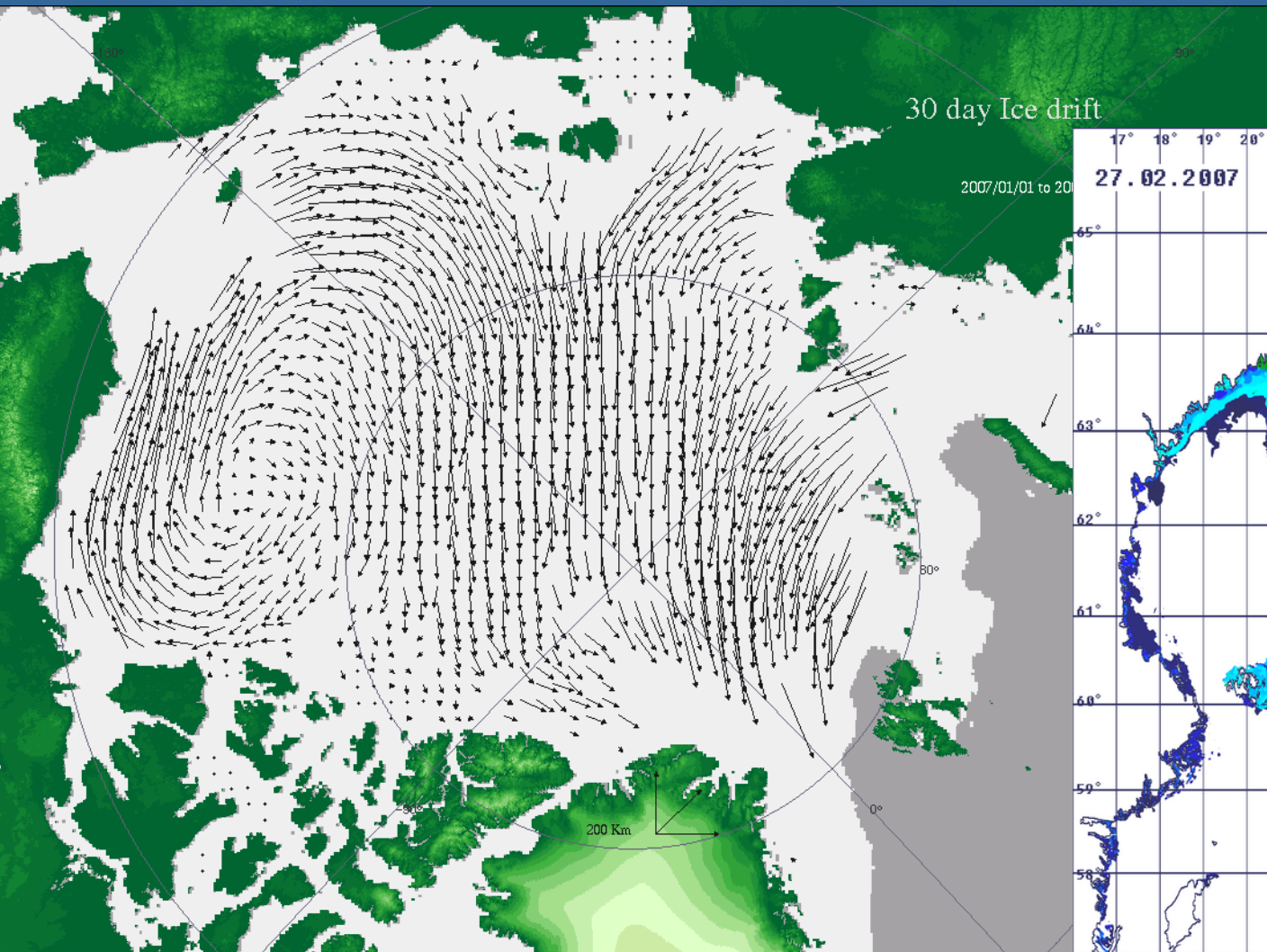
- Ice Categories:
- Fast Ice
  - Very Close Drift ice: 9/10 - 10/10
  - Close Drift ice: 7/10 - 9/10
  - Open Drift ice: 4/10 - 7/10
  - Very Open Drift ice: 1/10 - 4/10
  - Open Water: 0/10 - 1/10

- div: ++
- div: +
- conv: 0
- conv: +
- conv: ++

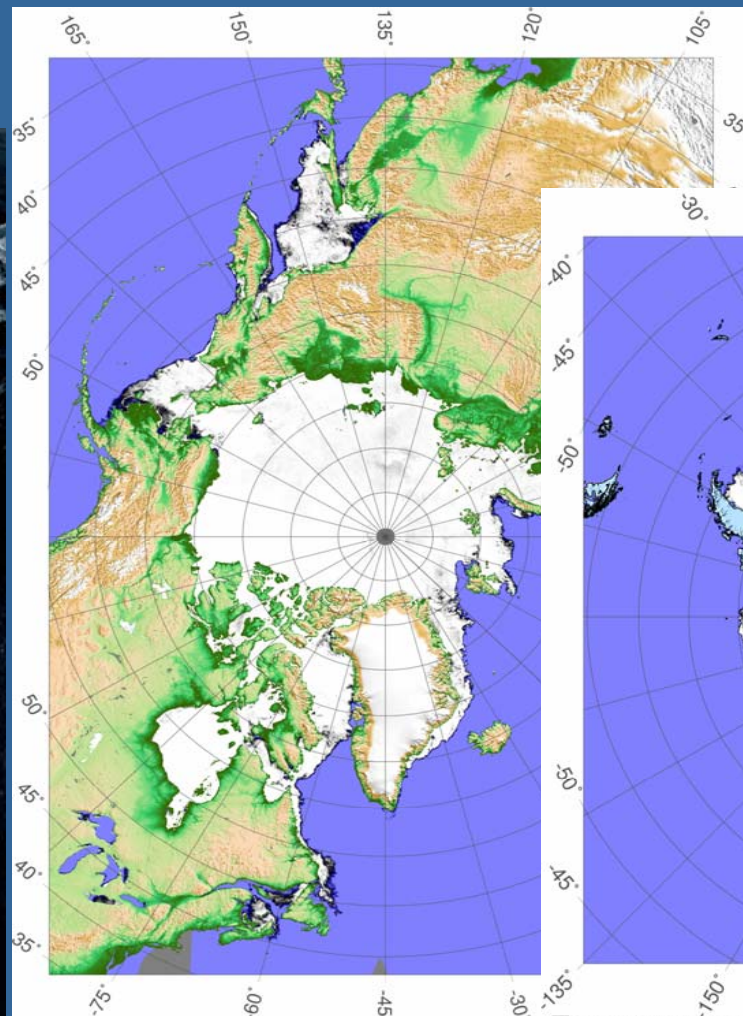
Sat 24 Feb 2007 00Z +00h  
valid Sat 24 Feb 2007 00Z



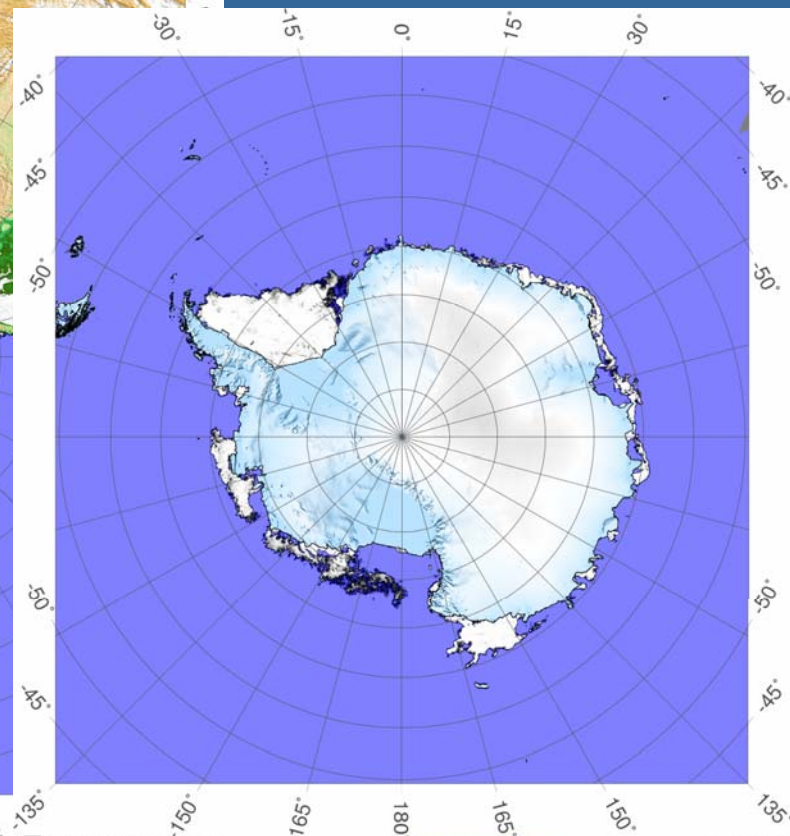
# Automated Satellite Data Analysis



# Near Real Time Processed Satellite Images



Feb 23 2007  
ASI ver. 5.2, AMSR-E, Grid: 6.25 km



Feb 23 2007  
ASI ver. 5.2, AMSR-E, Grid: 6.25 km

# A Strong Connection to Users



Alberta Environment  
 BSH  
 Canadian Ice Service  
 Consorzio PNRA (Italy)  
 Danish Navy  
 European Environment  
 Agency  
 Finnish Maritime  
 Administration  
 Finstaship Ltd.  
 FMI  
 HTC, Sachs Harbour  
 Ice Advisors Ltd.  
 Icelandic Meteorological  
 Office  
 Icelandic National Energy  
 Authority  
 International Ice Patrol  
 Kemijoki Ltd.  
 Lapland Regional  
 Environment Center  
 LFU, Baden-Wuerttemberg  
 LFUWG, Rheinland-Pfalz  
 Makivik Corporation  
 Mayor of Arctic Bay  
 Ministry of Nature  
 Protection, Sakha Republic

Mohn-Sverdrup Center  
 Municipality of Wood Buffalo  
 National Ice Center  
 Natural Resources Canada  
 NL Dept. of Environment and  
 Conservation  
 Northern Village of  
 Kangiqsualujjuaq  
 Norwegian Coast Guard  
 Norwegian Institute of Nature  
 Research  
 Norwegian Water and Energy  
 Directorate  
 NSDIC  
 OryxQuest Yacht Race  
 Parks Canada  
 Pole Position Spitsbergen  
 Provincial Airlines Ltd.  
 Royal Arctic Line  
 SMHI  
 Swedish Coast Guard  
 Swedish Maritime Administration  
 SYKE  
 UK Met Office  
 Volvo Ocean Race  
 Yukon Department of Environment

## ***IPY Collaboration with JCOMM ETSI***

- Joint Commission for Oceanography and Marine Meteorology (JCOMM) Expert Team on Sea Ice
  - Intergovernmental Oceanographic Commission
  - World Meteorological Organization
- ETSI coordinates national ice service activities to support safe navigation in ice frequented waters
  - Supported by the ad hoc International Ice Charting Working Group as a technical advisory body



## ***Integrated Ice Information for IPY***

- ETSI, IICWG and Polar View constitute the most extensive network of stakeholders for sea ice information
  - National ice services
  - Operators of the Global Digital Sea Ice Data Bank
  - Operational service providers
  - Researchers
  - End users (public, commercial and research)
- ETSI turned to Polar View as a partner to provide integrated, global ice information for IPY

## ***A Natural Partnership***

- Polar View has technical and scientific expertise through its partners and service providers
  - and a strong user base
- ETSI has legitimacy and stability of a formal international organization supported by national governments
  - all of the national ice services



# *Integrated Ice Information for IPY*

- Joint ETSI-Polar View website for Arctic and Antarctic sea ice information
  - Convenient point of access for comprehensive ice-related information
  - Products contributed by ETSI members and created by Polar View
  - “One-stop-shop” offering a complete range of products and services that respond to user information requirements
  - Integration of data and products from different sources and multiple service providers
- A Lasting Legacy beyond IPY
  - Vehicle for standardization of sea ice products
  - Operationally robust - sustainable beyond IPY



## ***IPY and GMES***

- IPY science can provide feed back to improve services (validation, better algorithms, user feedback)
- IPY will provide a “spring-board” to reach new users and establish new GMES Services in the Polar Regions
- IPY will strengthen the network of polar communities and create lasting momentum:
  - continuing demand for Polar View services
  - adoption of national and international policies based on the availability of GMES Services in the Polar Region

## *Way Forward*

- A significant user community has been established through years of validations, pre-operations and operations
  - hundreds of users / thousands of satellite products
- A strong network of polar communities exists that GMES can use to build upon
  - an integrated approach to Marine Core Service delivery
- Users depend on continued access to EO satellite data and continued stable funding mechanisms
  - Polar View-ETSI collaboration could be the nucleus for coordinated access to data for the national ice services



# *The Polar Future*

