Pacific Arctic Group (PAG)
Annual meeting at NIPR, Japan
December 10-11, 2010

SAON Initiative:

Arctic Ocean Structure during the Period of IPY

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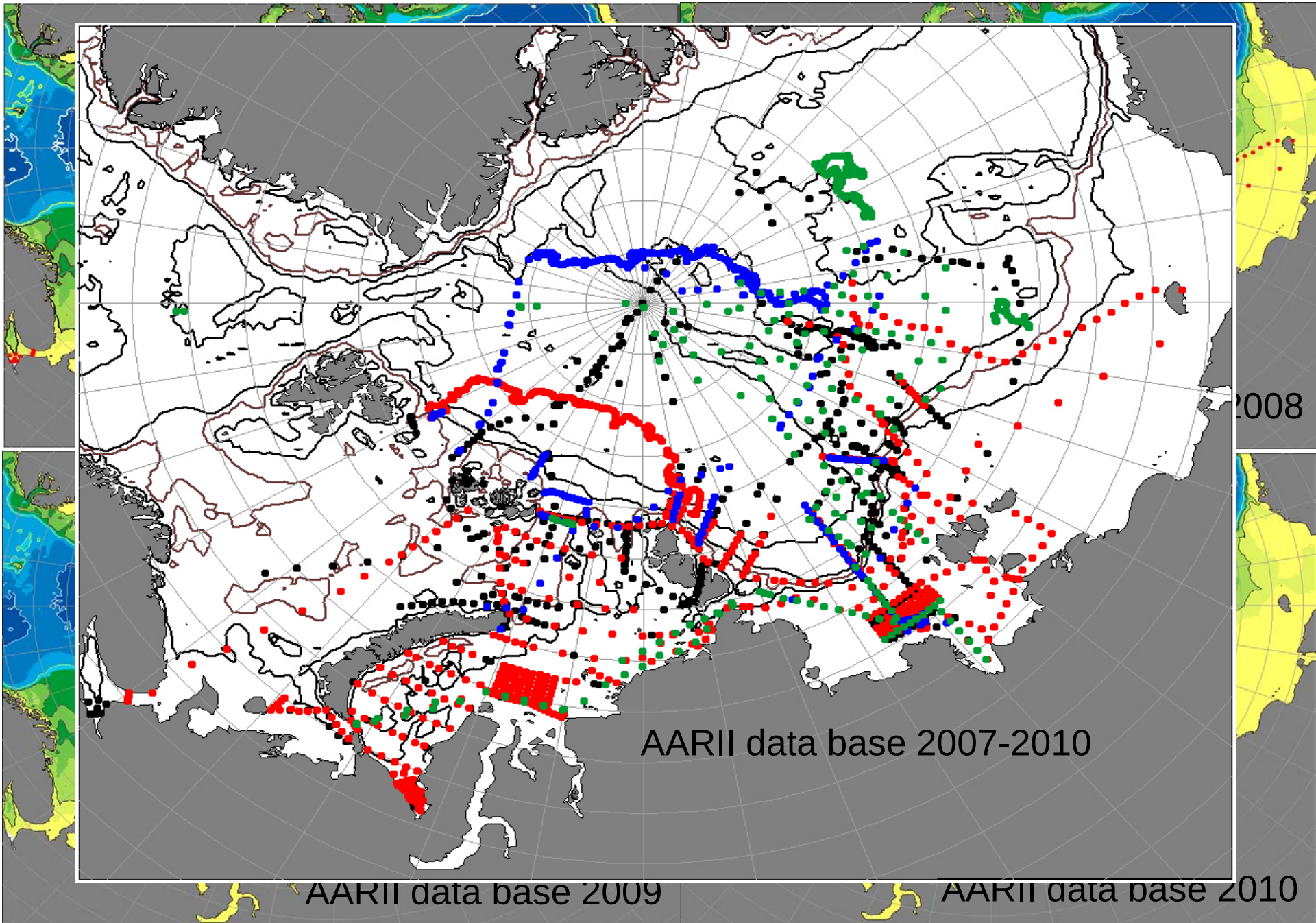
Eddy Carmack (IOS/DFO, Canada)
and others to be sought. . .

Objective

To acquire available data from the Arctic Ocean during the IPY period, process the data, and assemble them into an integrated database.

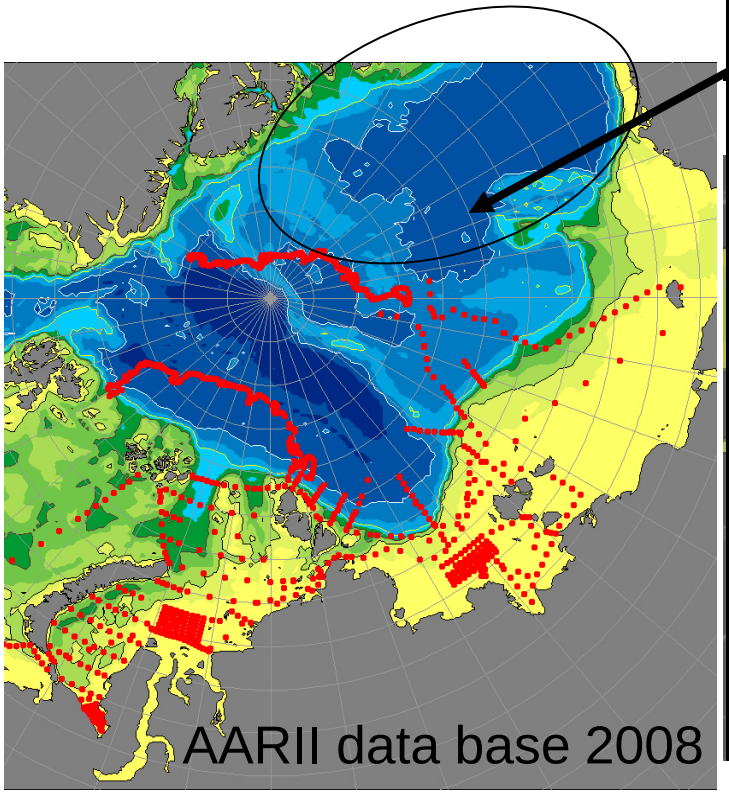
A number of datasets from US and Russia have been obtained, and all from those two countries are hypothetically available. Datasets in Japan, China, Sweden, Canada, Germany, and other countries, covering T, S, ocean velocity, and satellite SLH anomaly, will be sought.

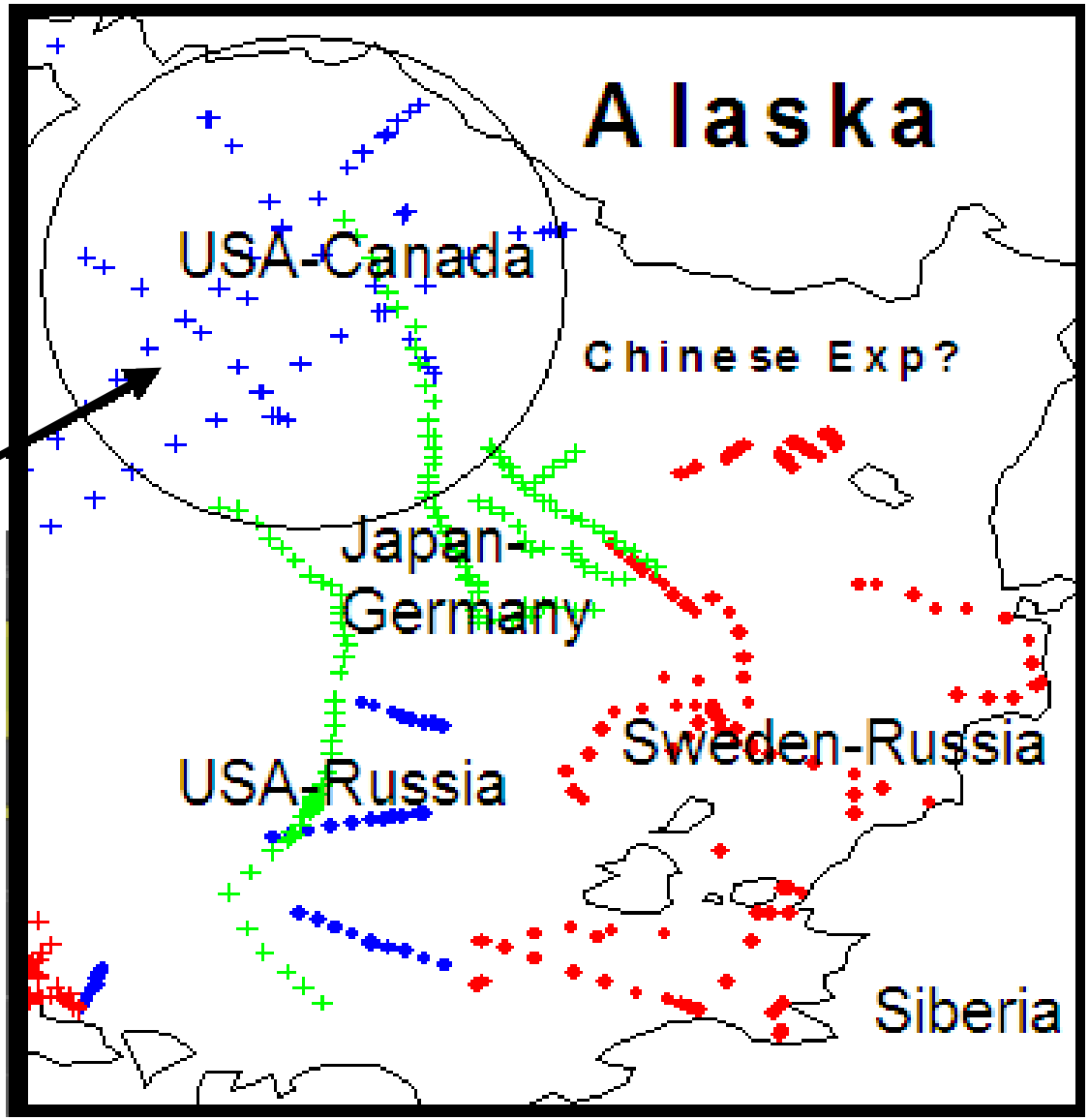
Hydrophysical observations conducted in Arctic Ocean during IPY: AARII (Russia)



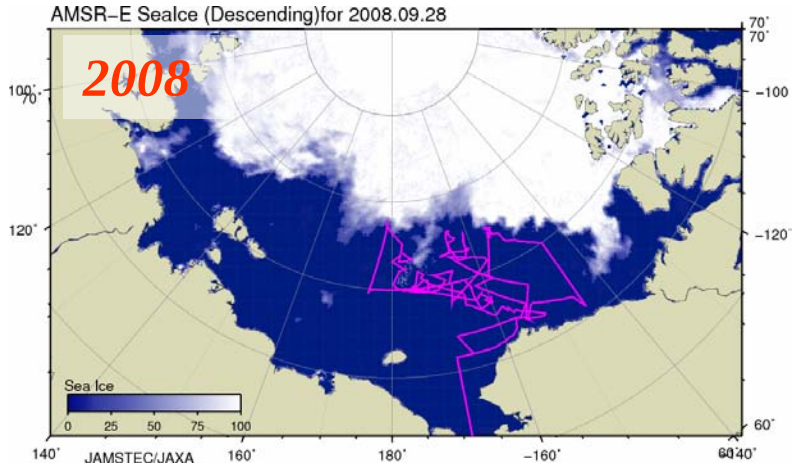
Hydrophysical observations conducted in Arctic Ocean during IPY: 2008
Russian, Germany, American, Sweden, China, ….

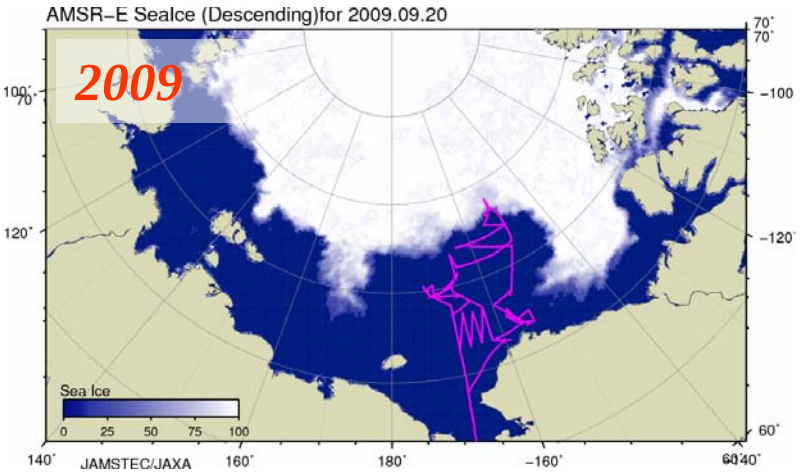
T/S observations
in the Pacific
Sector of Arctic
In 2008



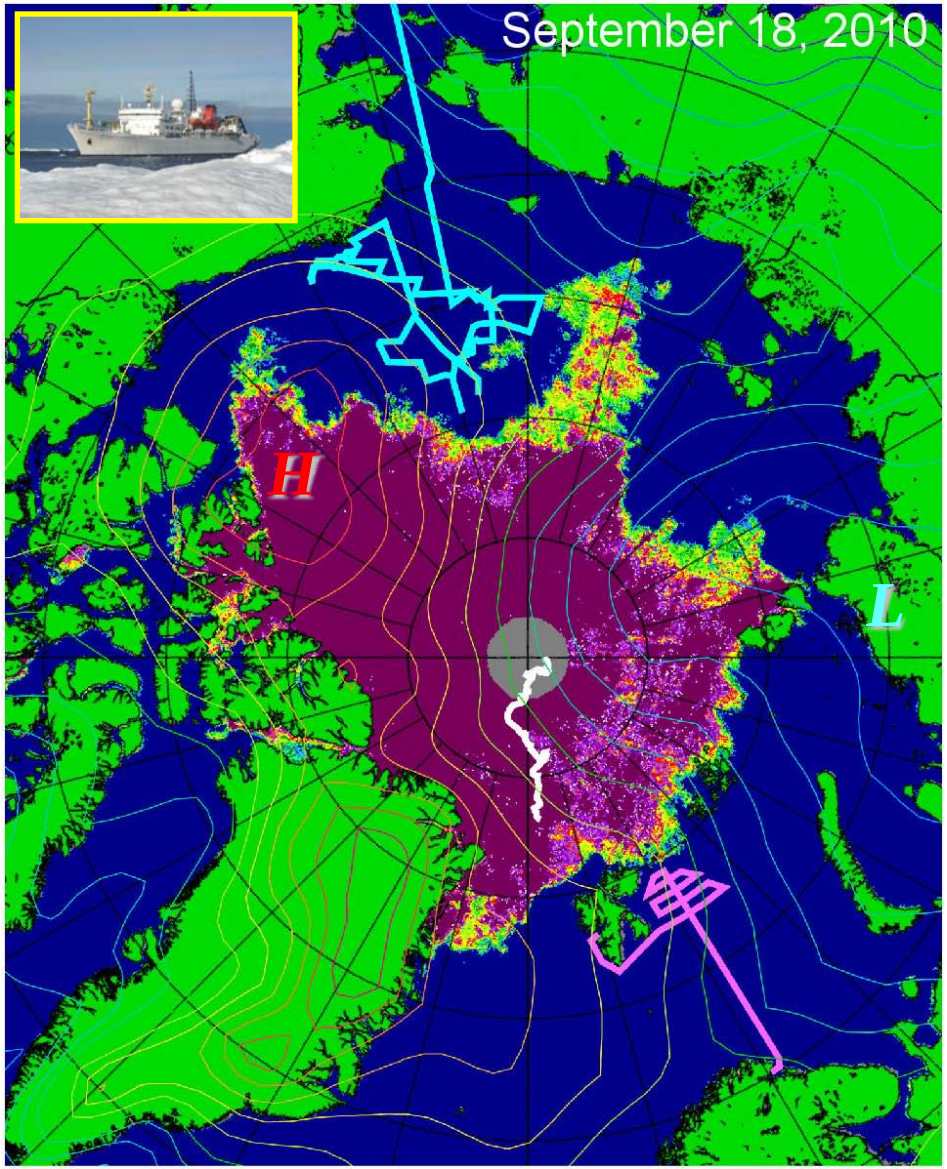


R/V Mirai Arctic Ocean cruise in 2008, 2009, 2010

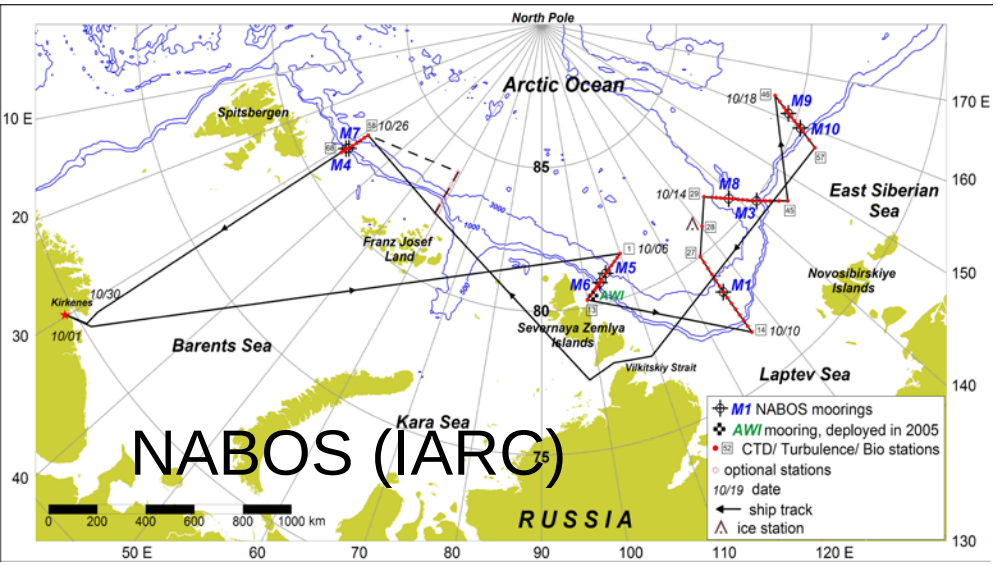




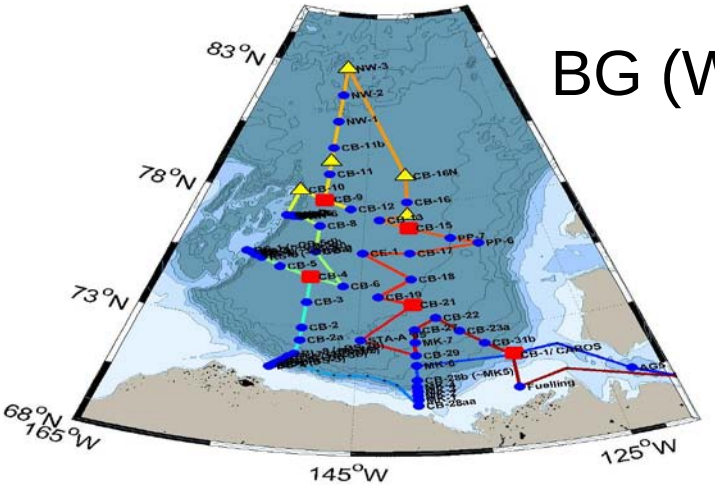
2010



Mooring observations in the Arctic Ocean during IPY:

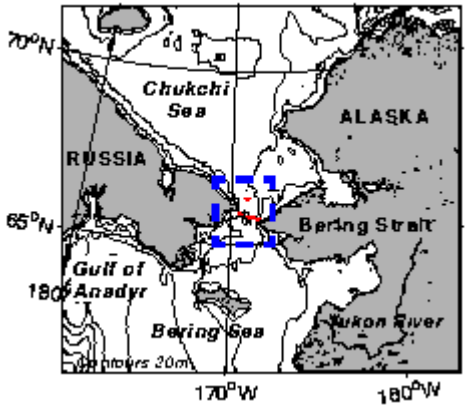


NABOS (IARC)

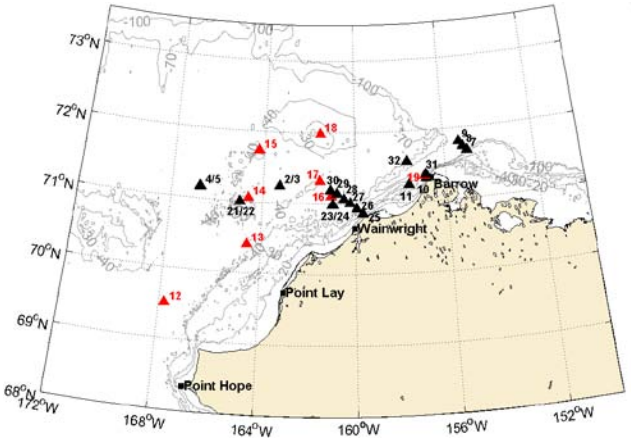


BG (WHOI)

Bering Strait



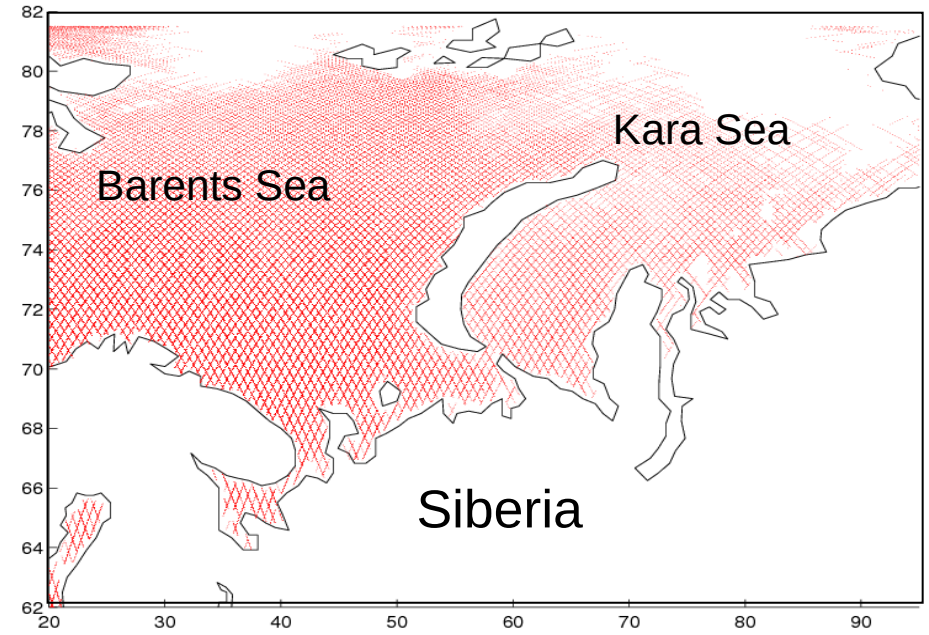
Chukchi Sea

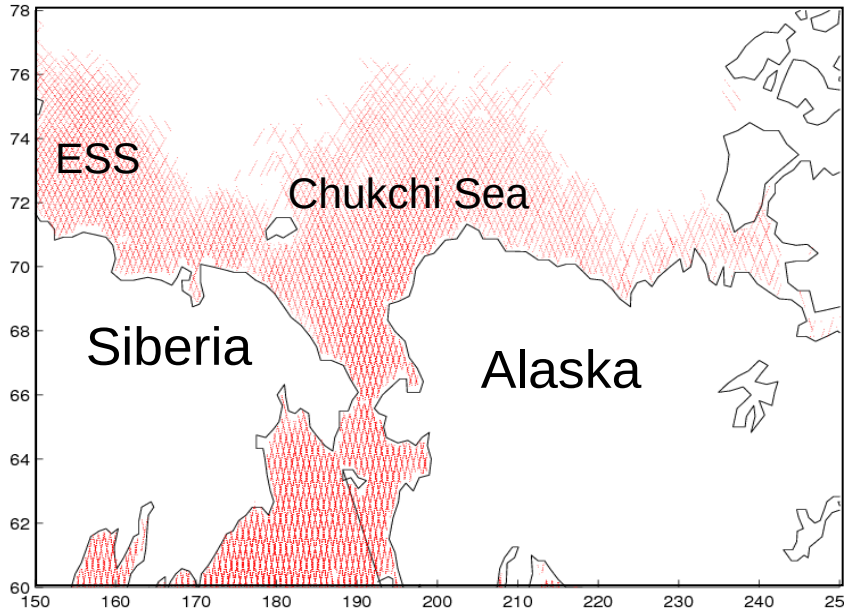


Other mooring projects:

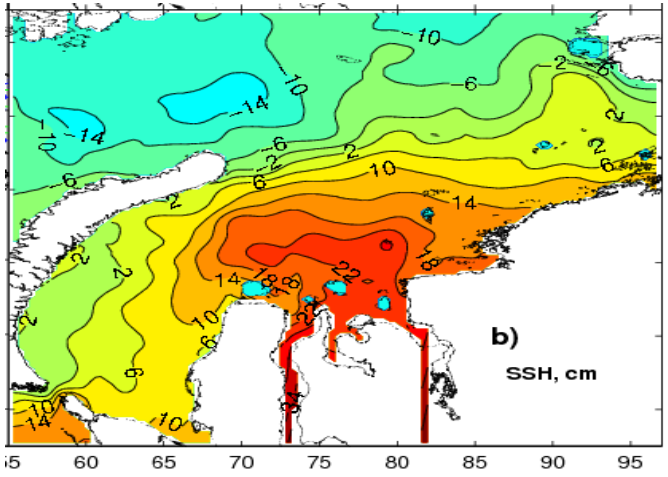
Fram Strait (AWI)
Barents Sea
Norwegian Sea
Canadian Straits
ect.

ERS-2 altimetry anomaly observations in Arctic Ocean





Mean Dynamic Topography, Kara Sea



ERS-2 SSH anomaly and MDT for different regions (Kara, Barents, Chukchi Sea, ES seas, etc) can be used for analysis of the circulation in the ice-free regions.

Objective

To acquire available data from the Arctic Ocean during the IPY period, process the data, a

There Is a need to merge into ONE base with metadata

A ... d all from those ... an, China, Sw... g T, S, ocean velocity, and ... sought.

Subtask 1:
Compile complete metadata for each available dataset, convert them to a common format, if necessary, and post the metadata on the internet.

Subtask 2:
Acquire the original observational data in their final QC form, convert to a common format if necessary, and post the original observational data on the internet to make them available to the international science community.

Objective

To demonstrate the value of the integrated dataset, a few initial products will be produced.

Subtask 3:
The integrated database will be used to produce mean temperature and salinity fields for the summer and winter period, using statistical and interpolation method.

Subtask 4:
The integrated database will be used to calculate characteristics and produce fields or patterns of the upper layer, halocline, Atlantic layer, and bottom layer.

Subtask 5:
The integrated metadata base will include search, filtering, and extracting software tools. It will also include the packages for downloading the T/S gridded 3D fields needed for numerical modeling and/or 4 dimensional data assimilation studies.

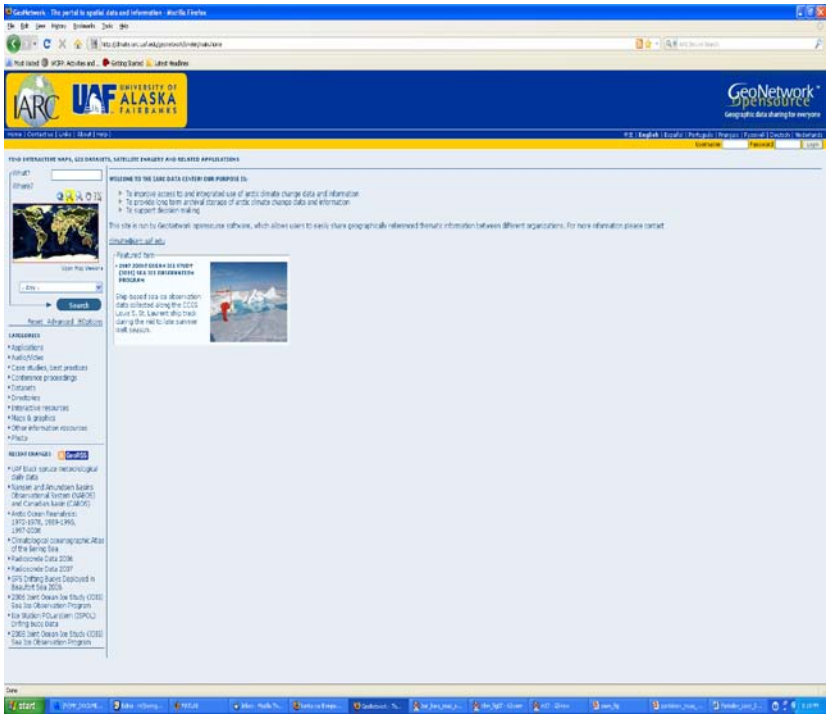
Proposed work

Development of the international metadata base for a period of IPY:

1. *Assemble in situ observations (T, S, velocity) from the open data sources: National and university data bases. Conduct preliminary analysis and QC of the in-situ observations.*
2. *Assemble references for in-situ observations from the secured data sources.*
3. *Assemble and pre-process the satellite observations of the sea surface temperature and sea surface height anomaly.*
4. *. . . . more*

Download the data and references into the Geophysical Network web server
http://climate.iarc.uaf.edu/geonetwork

USA, Russia, Japan, China, Sweden….



http://climate.iarc.uaf.edu/geonetwork

Expectd outcome product

- *This project will result in the development of an oceanographic IPY metadata base that will include the major portion of the in-situ and satellite observations in the Arctic Ocean.*
- *The database will be available to the international scientific community.*
- *Efficient search, filtering, extracting, and interpolation software will be an essential part of the database.*
- *The metadata base will include the information and references for non-open data sources, which can be requested by potential users themselves.*

- *Conventional analysis of the complied database will result in the development of an Arctic Ocean 2007-2010 hydrographic atlas, which will include the maps of spatial distributions of T, S, and related oceanographic parameters as well as the patterns of these characteristics along the key transects.*