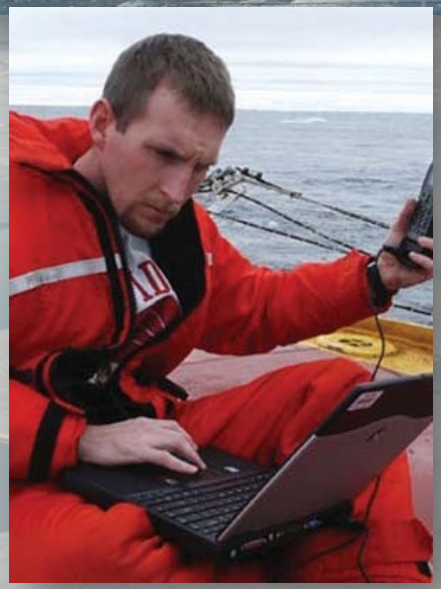
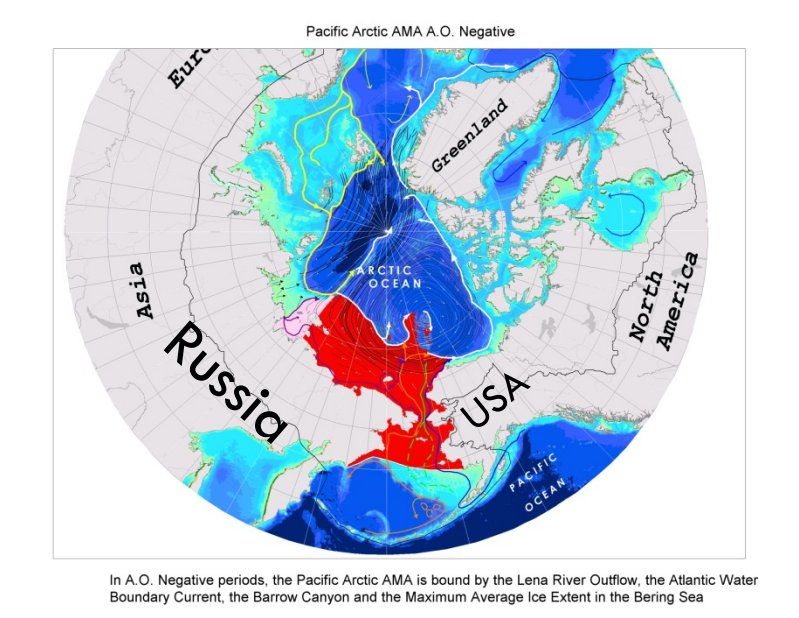
USA 2012 ARCTIC

- Russian American Long-term Census of the Arctic (RUSALCA)
- Fairweather hydrographic mapping
- USCG Healy extended Continental Shelf operations (presented by L. Mayer)
- Distributed Biological Observatory (Laurier-Grebmeier)
- Chukchi Plateau sonar servicing (Laurier)
- CHAOZ



Russian American Long-term Census of the Arctic (RUSALCA)

1. **Take observations Where Arctic sea ice reduction is a maximum in the Pacific Arctic**
2. **Monitor fresh water, heat, nutrient fluxes and transport pathways through the Pacific Gateway to the Arctic**
3. **Monitor ecosystem indicators of climate change in the Pacific Arctic**
4. **Model and forecast changes in ecosystems and Arctic wide physical systems that impact global climate and ecosystem stability**
5. **Improve Russian-U.S. Arctic science relations**
6. **Explore the unknown Arctic**

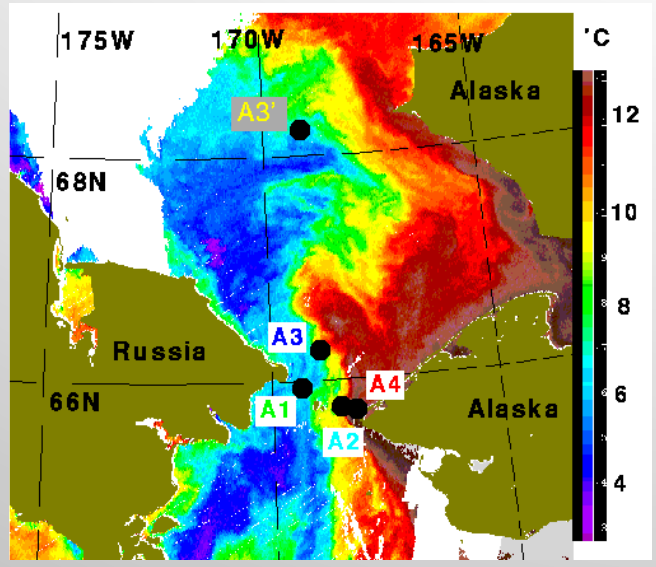


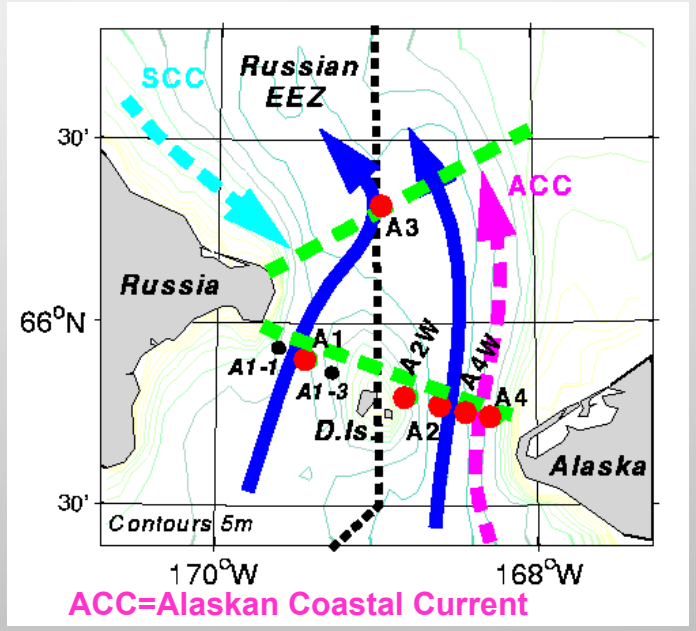
The Pacific Arctic Region

RUSALCA

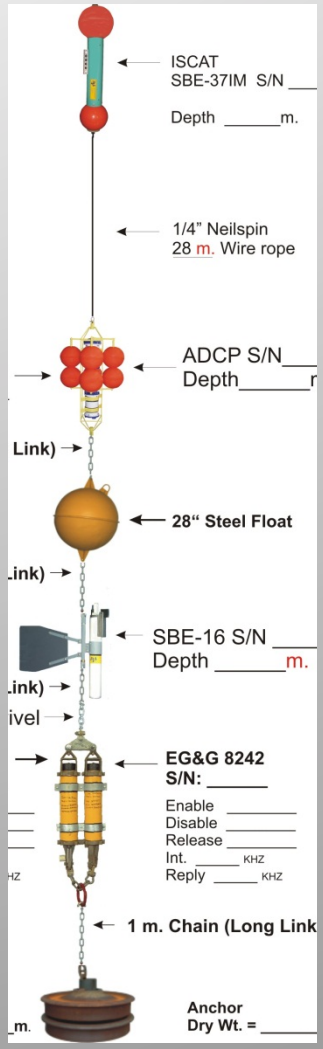
Co-funding with NSF, RAS, FWS

Leg 1-Bering Strait Moorings





ACC=Alaskan Coastal Current



Since 2007

(International Polar Year)

8 moorings with upper and lower sensors

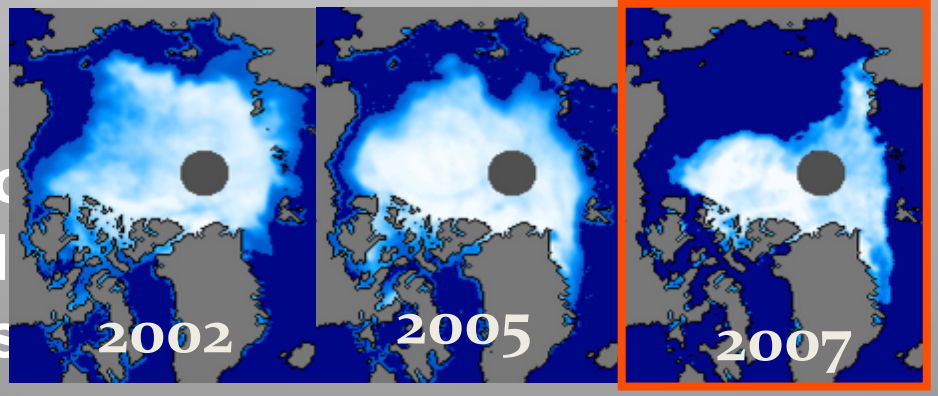
RUSSIAN AND USA SIDES LINKED

With

- Nutrient sens

- Whale Record

-pH and pCO2 s

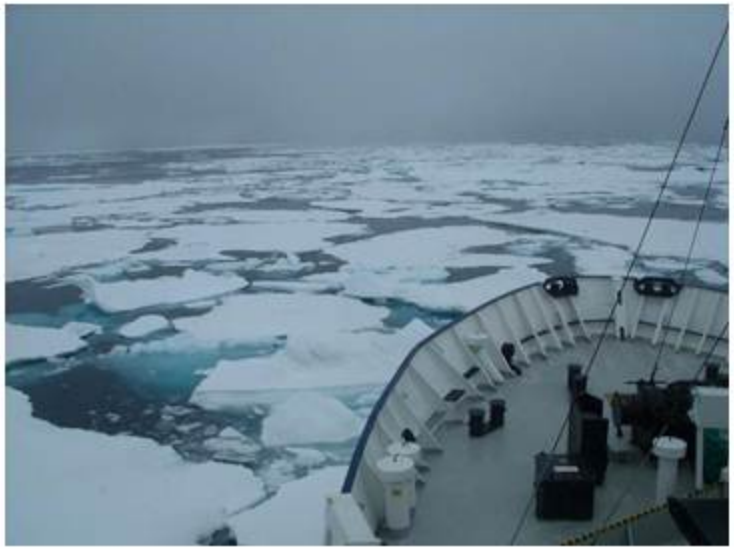


BERING STRAIT MOORING RECOVERY

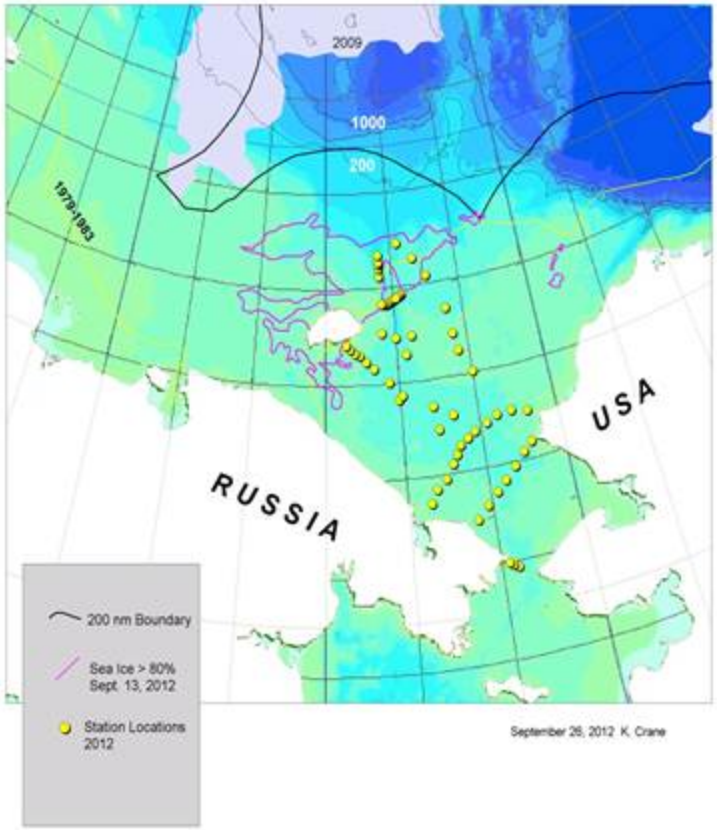
Kotzebue to Anadyr

Two years of growth

RUSALCA Leg 2 Stations



2012 RUSALCA Leg 2 Stations



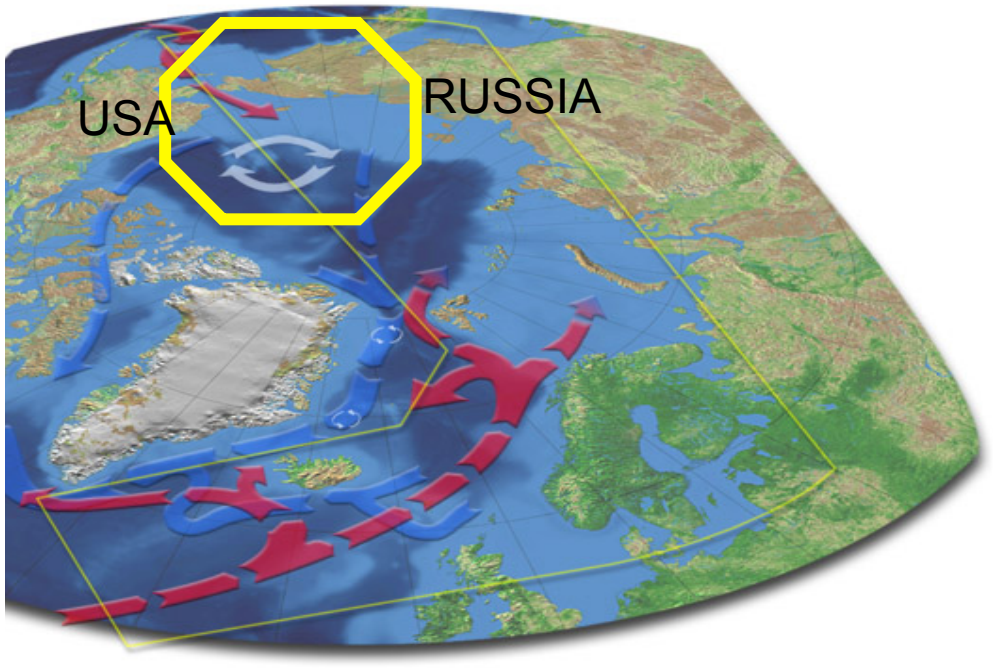
Full permission was granted to carry out investigations in Russian Territorial waters

10 yr REVIEW of the RUSALCA Program

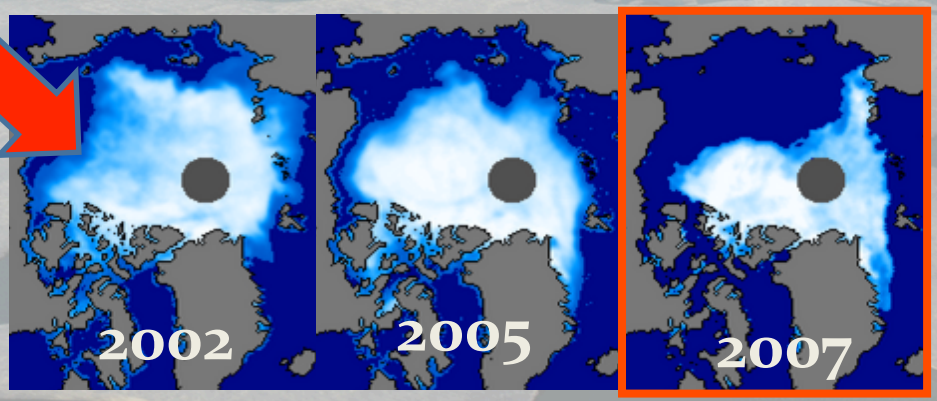
- 2013- program review
- Data analysis and synthesis for two years
- Potential Restructuring of the program science plan
- Question: Should we maintain the Bering Strait mooring array? Should NOAA only be responsible for part of the mooring array?
- How will we integrate NSF and ONR into the US operations performed by NOAA?
- RUSALCA Should continue to be an umbrella for joint US-Russian projects to work in the Pacific Arctic.
- Opportunities to have GEOTRACES (NSF funded) work under the umbrella of RUSALCA – to track changes in oceanographic transport pathways as a consequence of climate change in the Arctic – 2014 or 2015

Pacific Arctic Climate-Sea Ice 2014-?

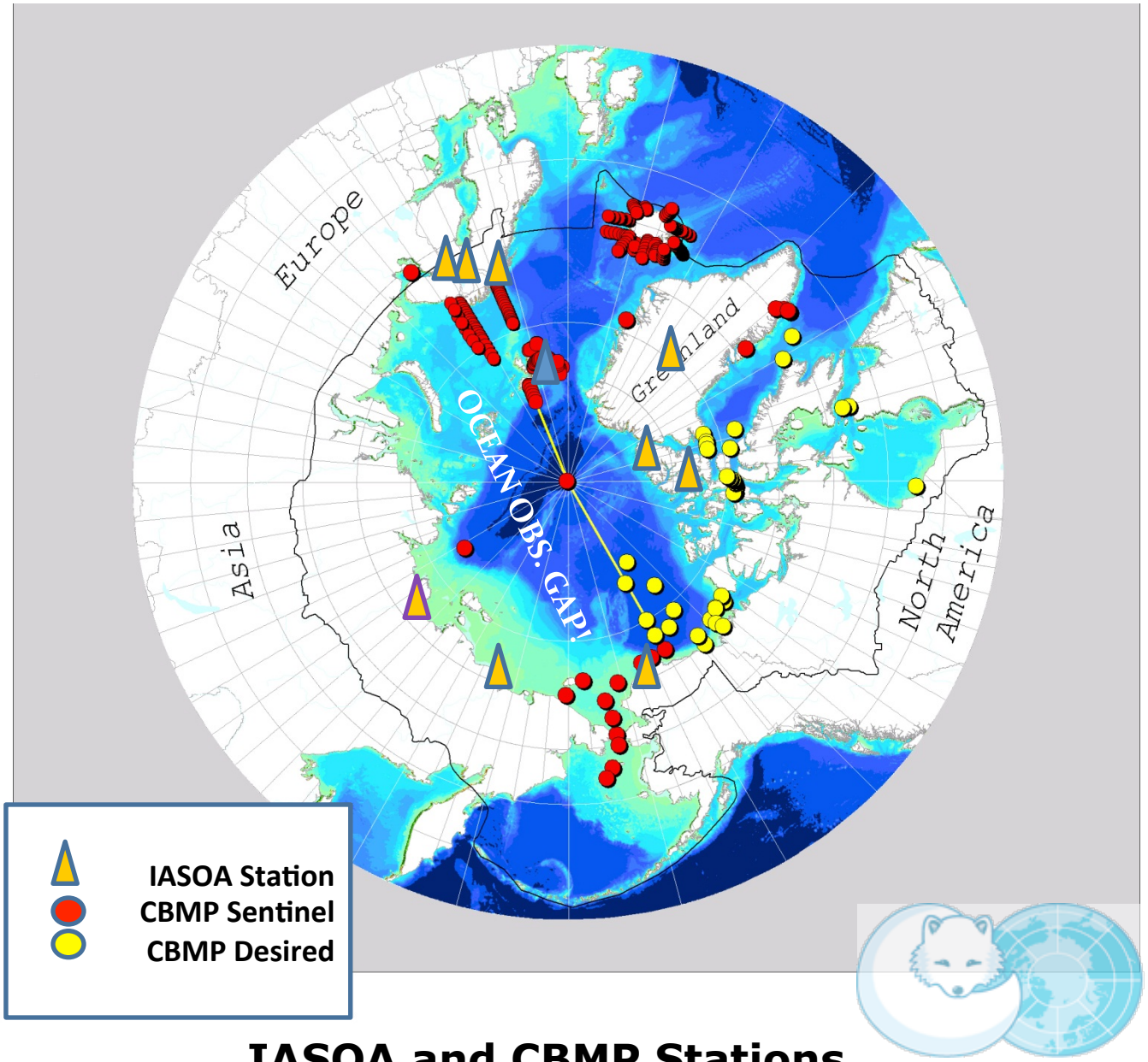
- Observations where Arctic sea ice is reducing rapidly
- Regional physics and ecosystem response to change
- NOAA-Roshydromet Arctic collaboration
- Bering Strait fresh water, heat, and nutrient fluxes
- (AARI-NOAA)



Bering Strait Heat Triggers Ice Melt: Increase of 2 to 6 x 10^{20} J/ yr



Arctic Council Endorsed Observing Networks



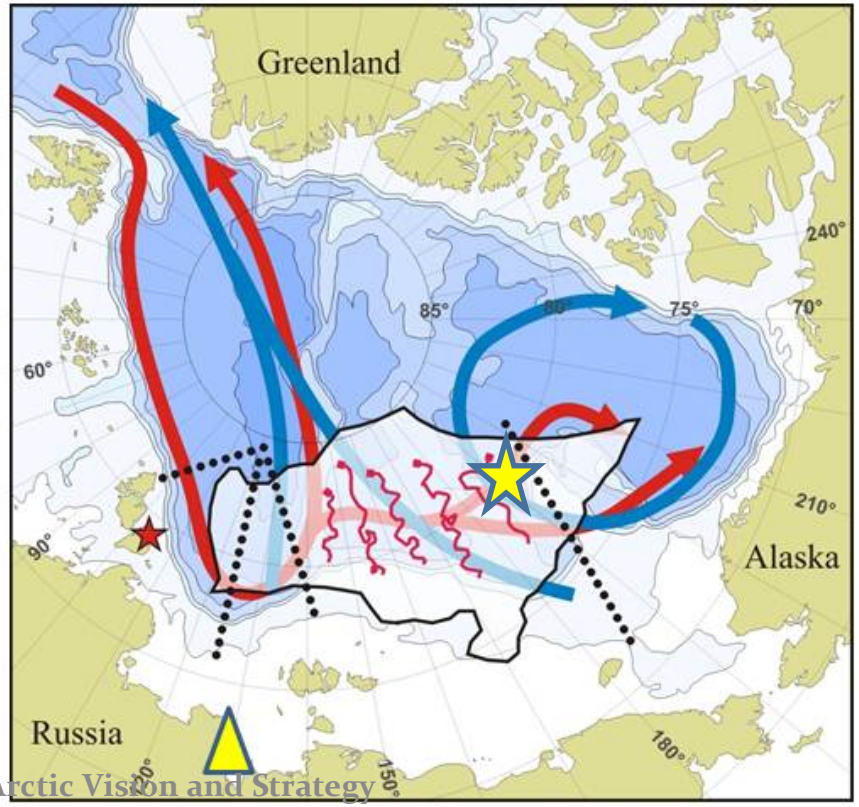
IASOA and CBMP Stations

FUTURE GAP Observations:USA-PAG?

Activity Under the Memorandum of Agreement Between Roshydromet and NOAA

Structure, variability and heat transport of Atlantic Water in the Arctic Ocean and interaction with Pacific waters- sea ice response

proposed Roshydromet-NOAA OBS: (1) locations of mooring lines /CTD sections are shown by black dots; (2) red squiggles - expected trajectories of the ITP floats; (3) position of land station, which is planned to be installed on cape Baranova - marked by red star; (4) highlighted area, circled by thick black line, demonstrates the region of extreme ice loss in summer 2007; (5) blue and red arrows depict general pattern of surface currents and AW flow respectively 6) Yellow Triangle is the Tiksi Observatory



Possible Drift Station