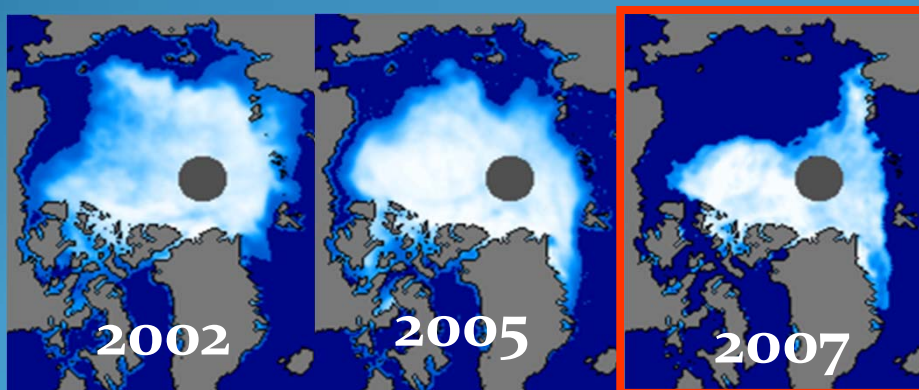
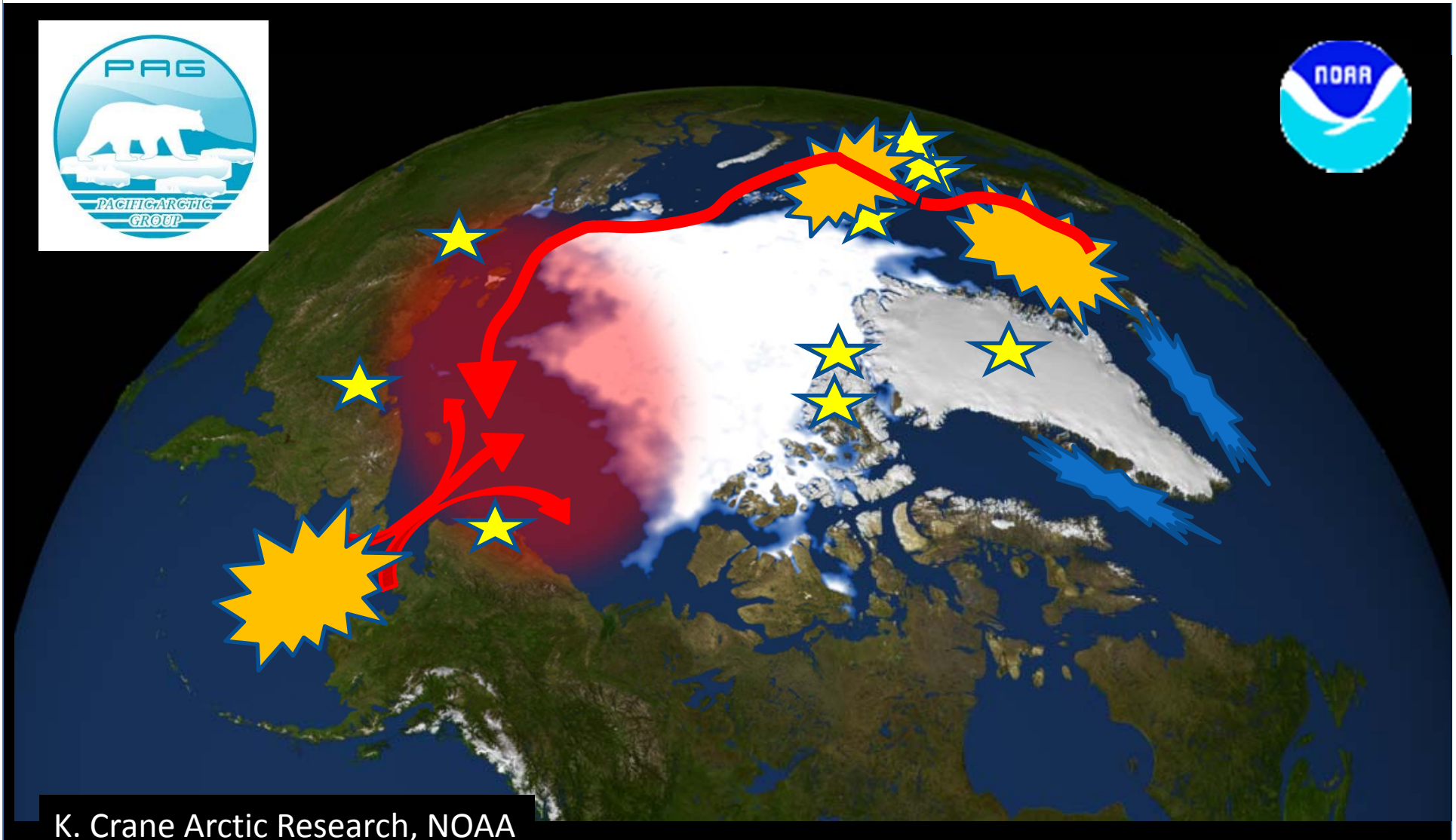


The Ice Diminshing Arctic: Atmospheric, Ice, Ocean and Ecosystem Observations-Pacific Arctic Group and FARO Proposal

Kathleen Crane
Arctic Research Program
NOAA



ARCTIC SYSTEM CHANGE DETECTION AND IMPACTS: A 5 Year Plan to Address Causes and Consequences of Sea Ice Loss, Warming Atmosphere, and Changing Ecosystems



K. Crane Arctic Research, NOAA

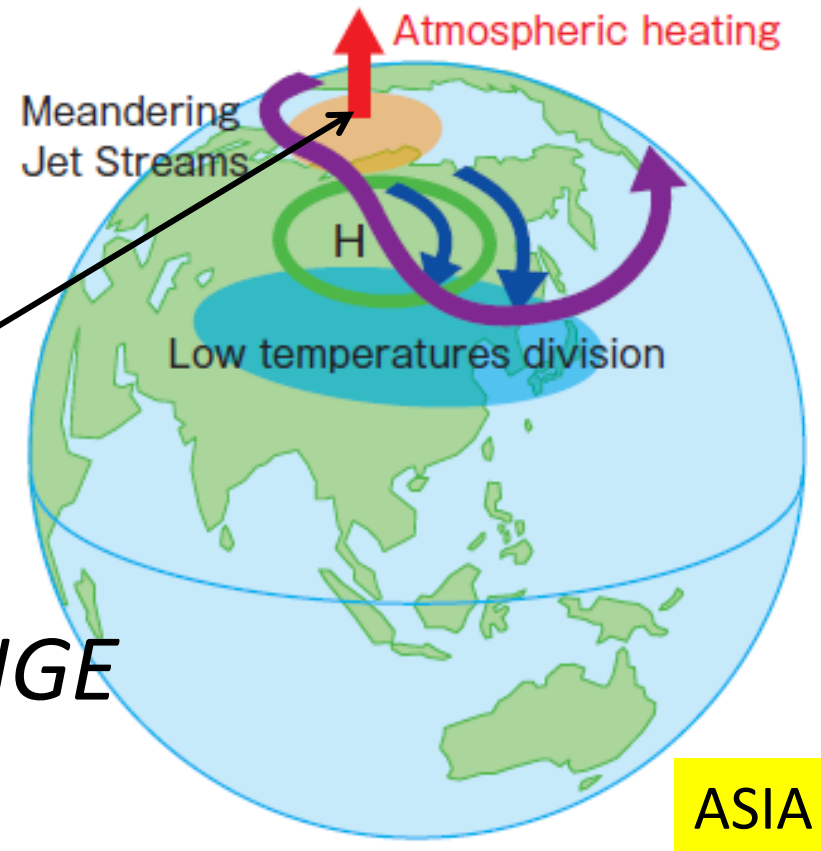


Which parts of the Globe are responding to Arctic Change

NORTH AMERICA

NEED OBSERVATIONS FROM THE PACIFIC ARCTIC HOT SPOT

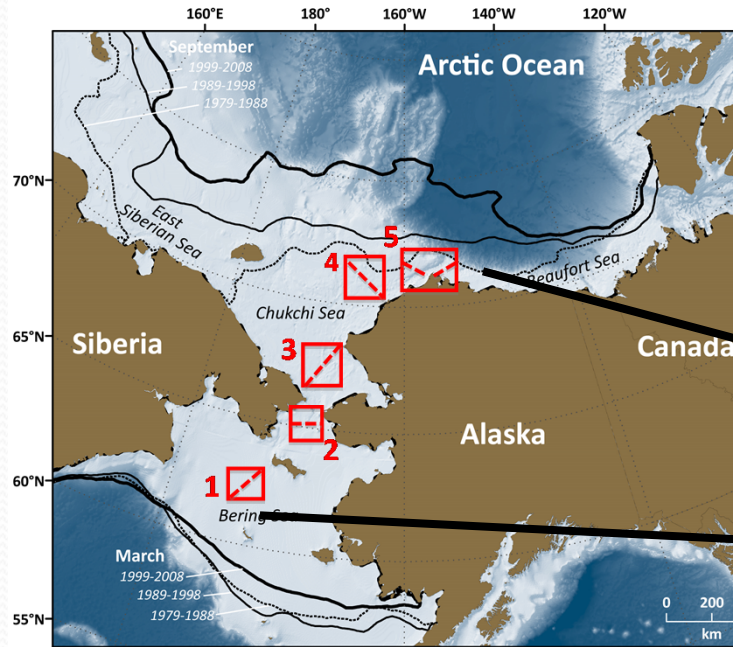
The impacts of Arctic changes on weather and climate in Japan



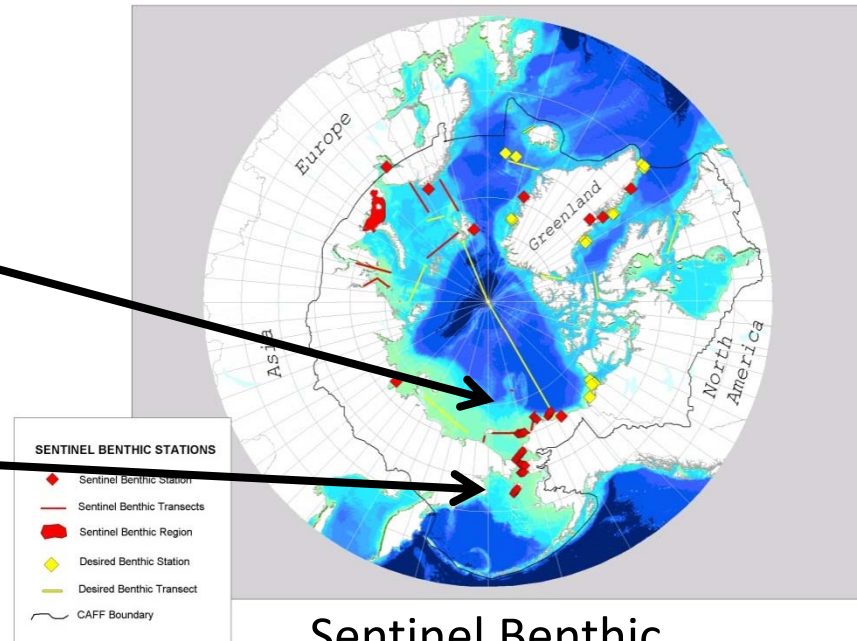
IMPACTS OF ARCTIC CHANGE ON THE MID-LATITUDES

ASIA

Relationship Between Pacific Arctic Stations and Arctic Council Marine Monitoring Plan



Sentinel Benthic Regions, Stations and Transects



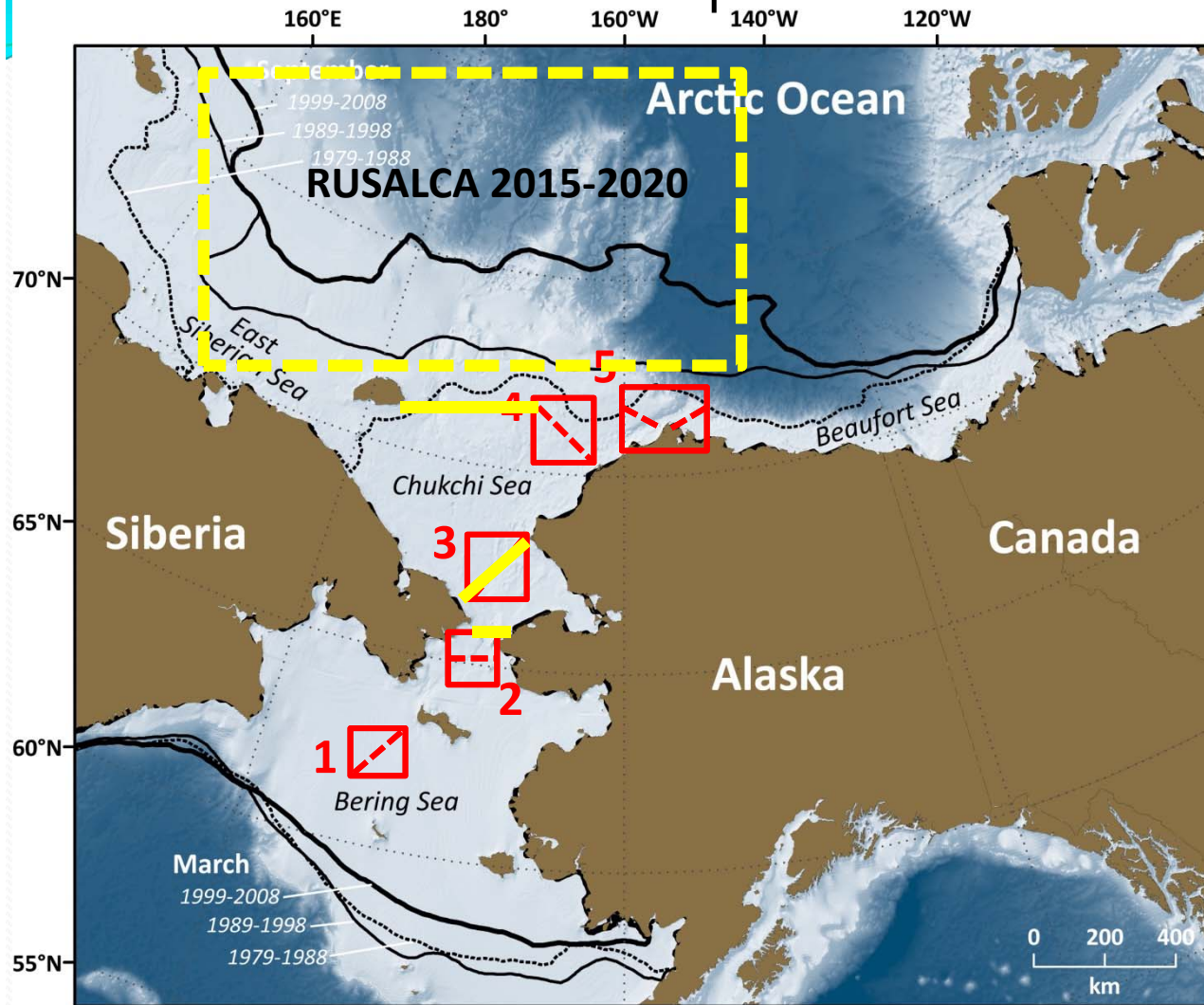
Sentinel Benthic Stations (Arctic Council)

The Distributed Biological Observatory:
Linking Physics and Biology under conditions of sea ice loss.

Increase ability to monitor and assess environmental conditions under changing climate scenarios through **new collaborations and partnerships**



Arctic system changes in the Pacific Arctic Ocean: Causes and Impacts: RUSALCA 2015-2020



[modified by Karen Frey from Grebmeier et al. 2010, EOS 91]

- DBO sites (red boxes) are regional “hotspot” transect lines and stations
- Chukchi RUSALCA sites are considered to exhibit high productivity, biodiversity, and overall rates of change
- Northern RUSALCA sites will serve as a change detection array for the identification and consistent monitoring in the Pacific Arctic Ocean ,
- Sites occupied by national and international entities with shared data plan



Combined Track lines

Considerations for 2014-2019 sampling



2 U.S. Russian DBO lines



12 Repeat hydrographic lines

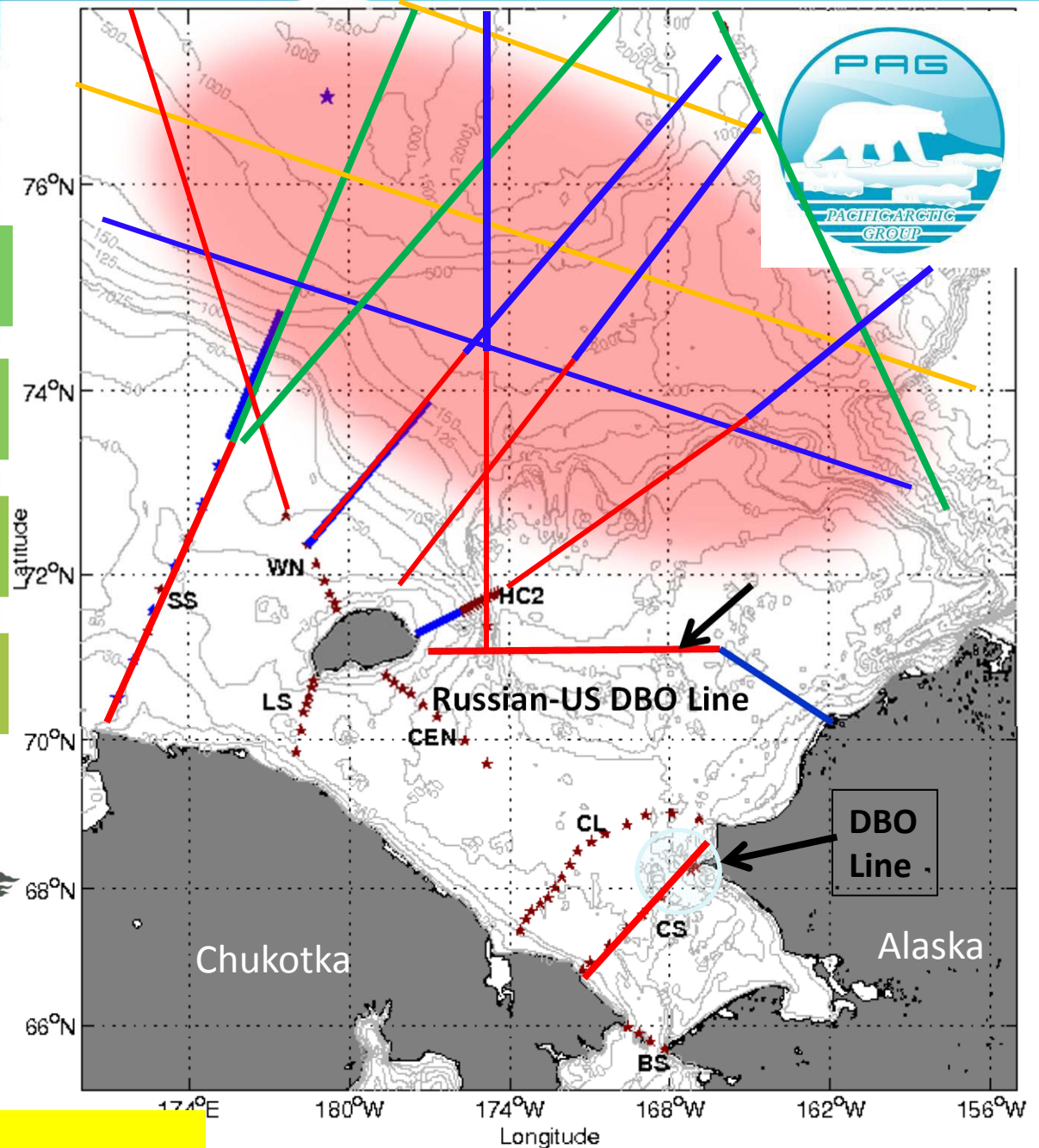


Ecosystem and Methane



RUSALCA + Korea, China, Japan, Canada, Germany, Sweden?

PAG + Others



PAG 2015-2020 synoptic surveys:



Measurements



atmospheric
profiling, BL,
& dynamics



gases, aerosols,
clouds & precip.



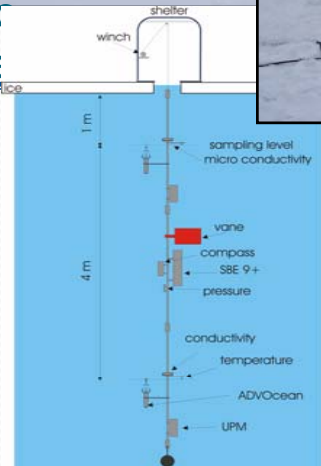
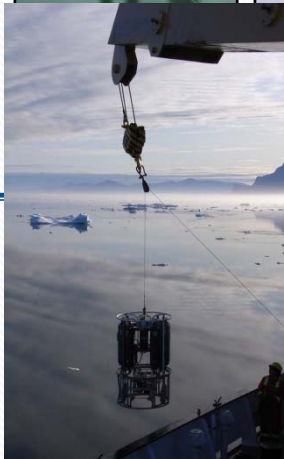
aircraft
+ UASs



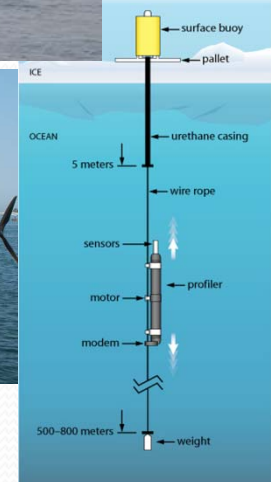
ocean / ice
ecosystems



buoys,
AUVs,
gliders



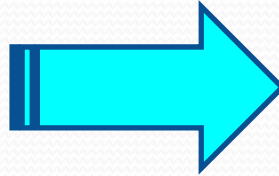
leads & ocean surface



ocean state,
profiling, &
dynamics



PACIFIC ARCTIC DATA



**Sustaining Arctic
Observing
Network (SAON)**

The SAON *vision* is that users should *have access to free, open & high quality data that will realize pan-Arctic & global value-added services & provide societal benefits.*

To attain that vision, SAON's *goal* is to enhance Arctic-wide observing activities by facilitating partnerships & synergies among existing 'building blocks', & promoting sharing & synthesis of data & information.

The CBMP MEMG directly supports the SAON vision & goal using the Circumpolar Marine Biodiversity Monitoring Plan as a tool to achieve this



Co-Funded-BUDGET

- Synoptic survey of the region where Atlantic and Pacific waters mix.
- Vessels from PAG, RUSALCA, SWERUS, others?
- Shared scientist participation on RUSALCA
- Coordinated sampling and observations
- DATA sharing operations
- TIME frame: two expeditions between 2015 and 2020.