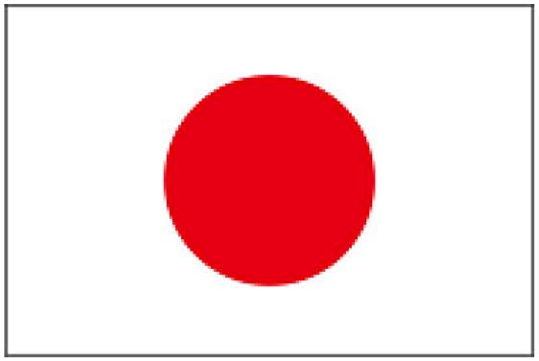
Pacific Arctic Group 2019 Spring Meeting
May 23rd, 2019 (9:00 – 15:30)
Northern (Arctic) Federal University
Arkhangelsk, Russia

Update plans for 2019 field season

JAPAN



Shigeto Nishino

Japanese Arctic cruise in 2019

Arctic Challenge for Sustainability

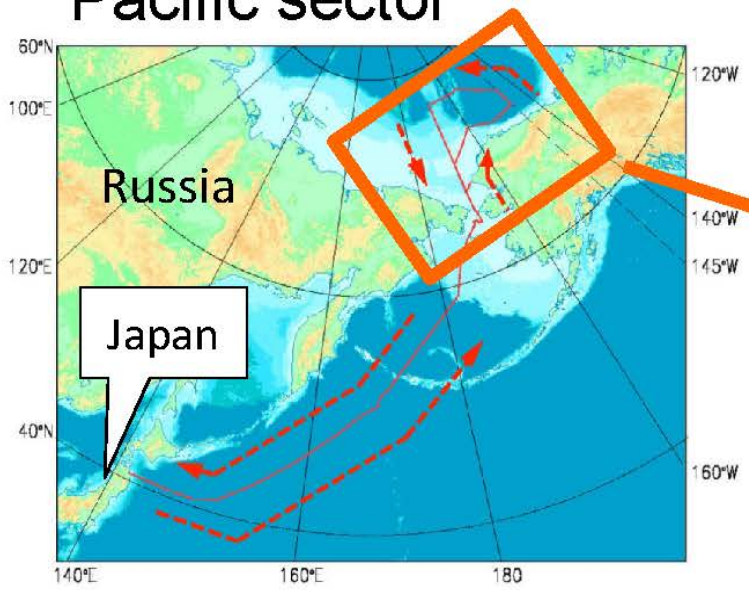
- R/V *Mirai* (MR19-03C)

27 Sep (Sekinehama, Japan) – 10 Nov (Hachinohe, Japan)

PI: Kazutoshi Sato, Kitami Institute of Technology

Plans during the R/V *Mirai* Arctic cruise in 2019

Pacific sector

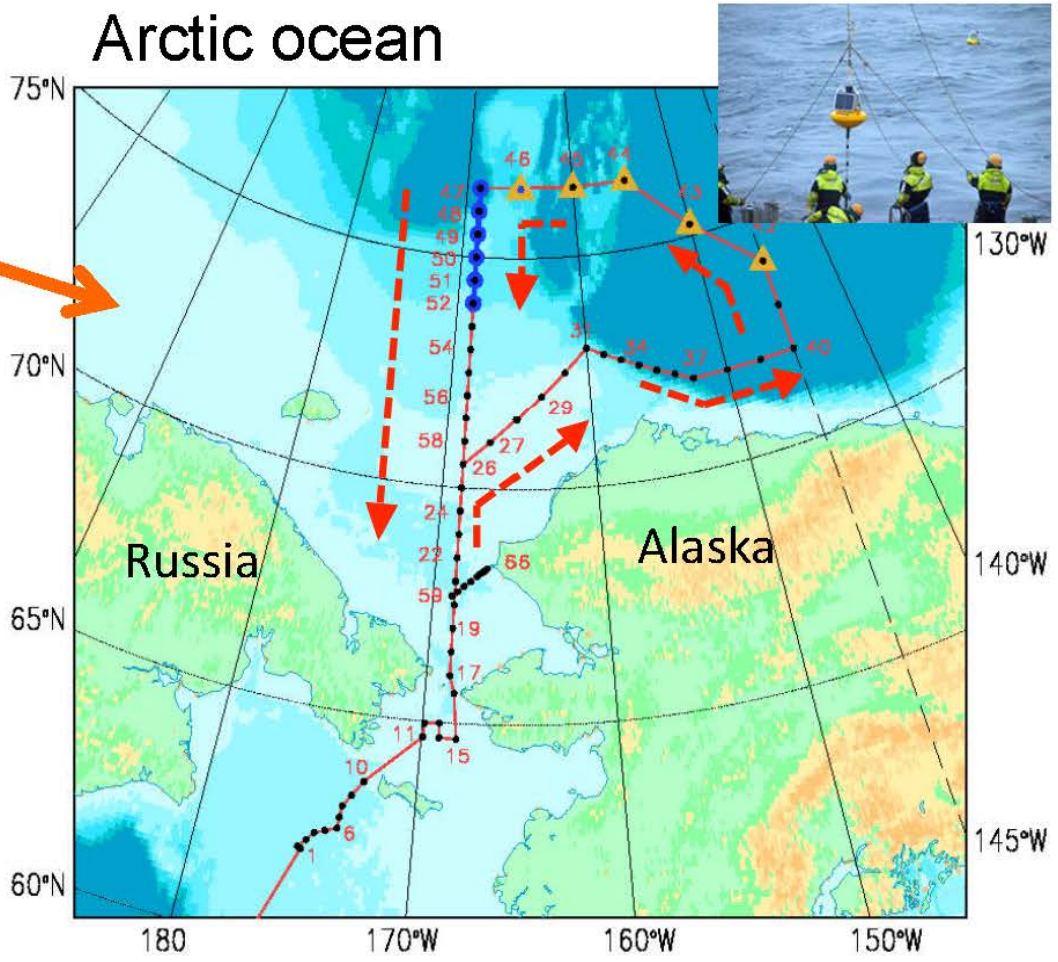


CTD profiler

NORPAC nets

Radiosonde

Arctic ocean



Black dots: CTD stations including DBO lines

Yellow deltas: Wave buoy launch positions

Blue dots: Iterative observation stations
(make a round trip every day)

Mirai cruise will be conducted in Chukchi and Beaufort seas during October 2019 for atmospheric and ocean observations

Research themes of the R/V *Mirai* Arctic cruise in 2019

1) Predictability study on weather and sea-ice forecasts linked with user engagement (PI: Dr. Jun Inoue, NIPR)

2) Physical oceanographic surveys in marginal ice zone of the western part of the Arctic Ocean (PI: Dr. Yusuke Kawaguchi, AORI)

3) Short-term changes on the plankton community in the Pacific sector of the Arctic Ocean during autumn (PI: Kohei Matsuno, Hokkaido Univ.)

4) Assessment of impacts of declining sea ice on terrestrial water cycle
(PI: Dr. Hotaek Park, JAMSTEC)

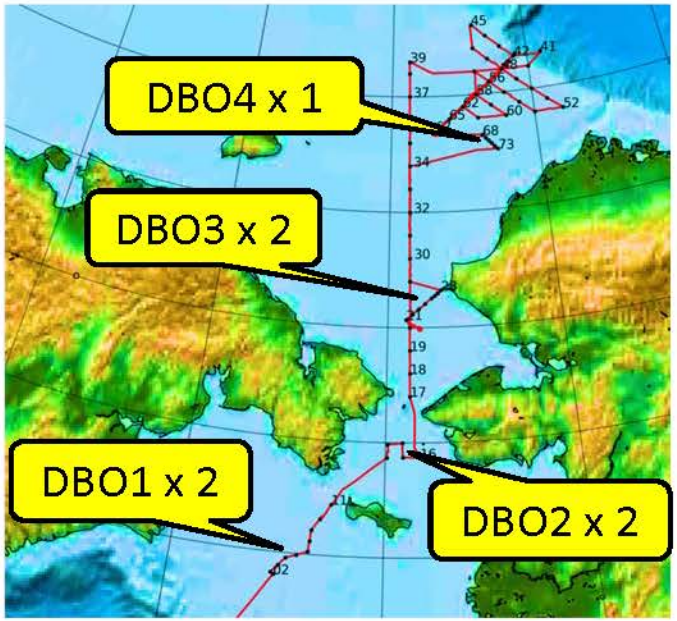
5) Ship-based observations of trace gases and aerosols over the Arctic Ocean, Bering Sea, and Northwestern Pacific Ocean
(PI: Dr. Fumikazu Taketani, JAMSTEC)

6) Ship-board observations of atmospheric greenhouse gases and related species in the Arctic Ocean and the western North Pacific
(PI: Dr. Yasunori Tohjima, NIES)

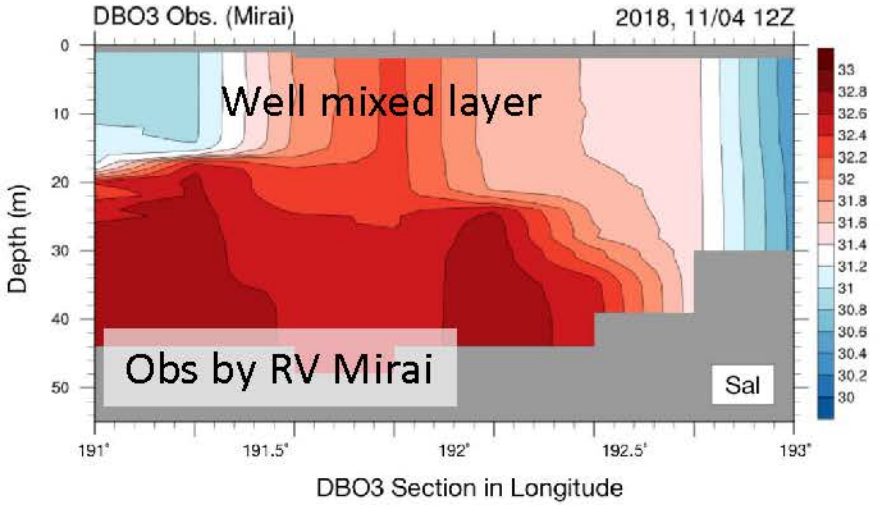
7) Spatial and temporal changes of seawater CO_2 and CH_4 in the western Arctic Ocean (PI: Dr. Akihiko Murata, JAMSTEC)

DBO 3 on 4th Nov 2018: RV Mirai vs ECCC model (YOPP activity)

Prepared by J. Inoue (NIPR)

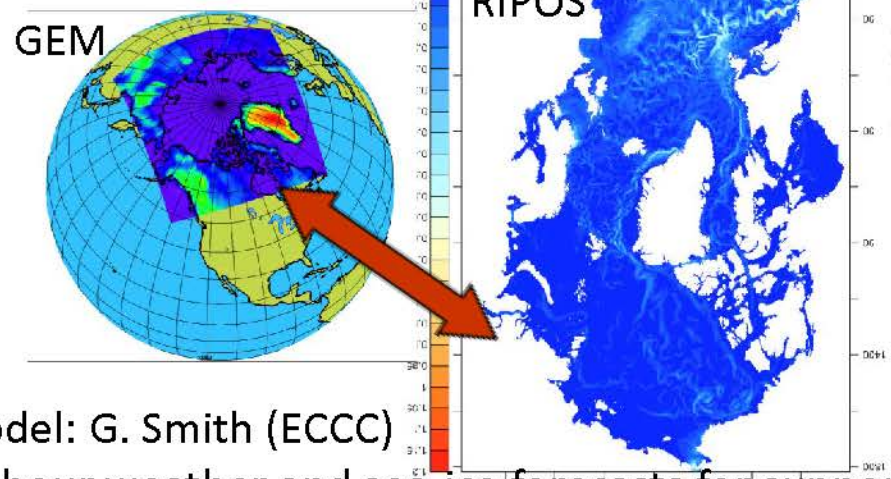


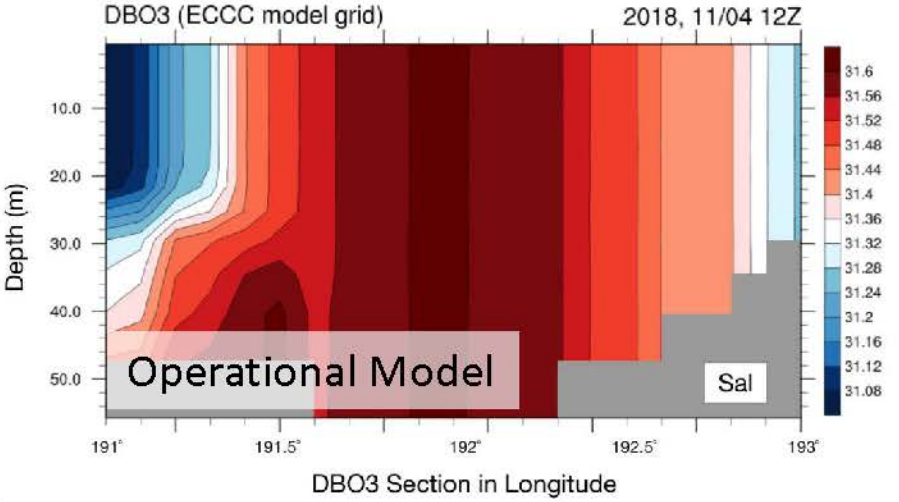
2018 RV Mirai cruise track



WMO Polar Prediction Project

Environment Canada





Plots: M. E. Hori (NIPR)

Model: G. Smith (ECCC)

48-hour weather and sea-ice forecasts for supporting navigations

Other activities

JAMSTEC mooring activities collaborated with NOAA and WHOI by US Coast Guard Cutter *Healy*

USCGC *Healy*

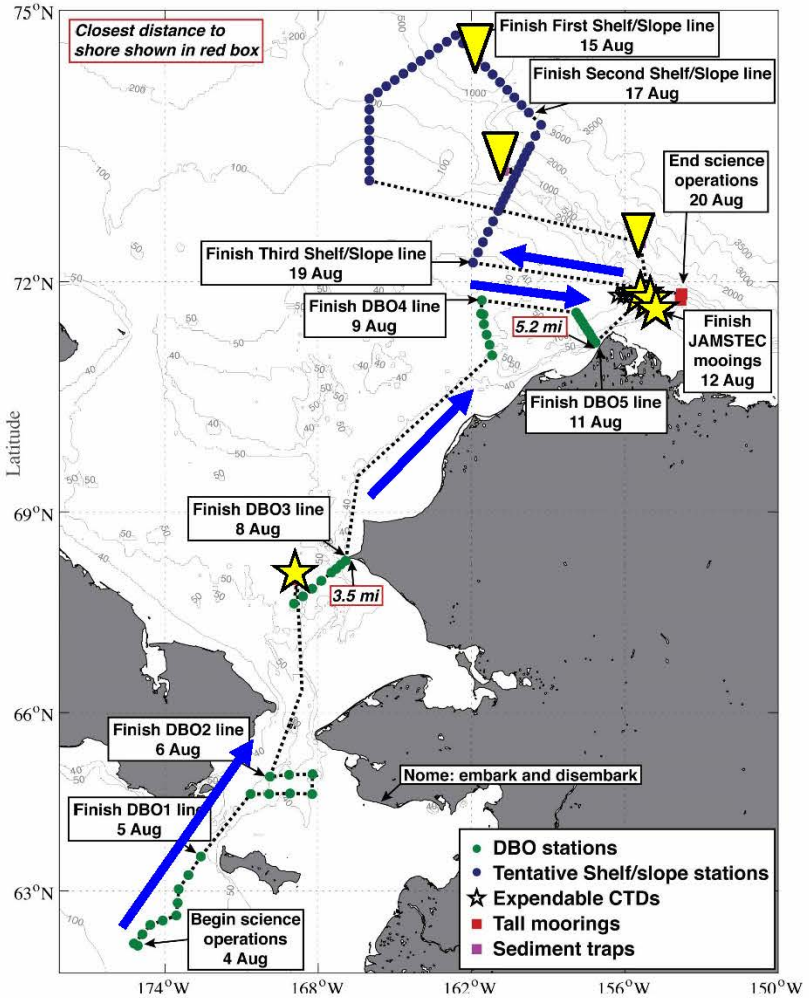
Period:

Aug 2 - 23, 2019, Nome to Nome

Participants from JAMSTEC:

Motoyo Itoh

Jonaotaro Onodera



Turn-around three moorings at the mouth of Barrow Canyon.

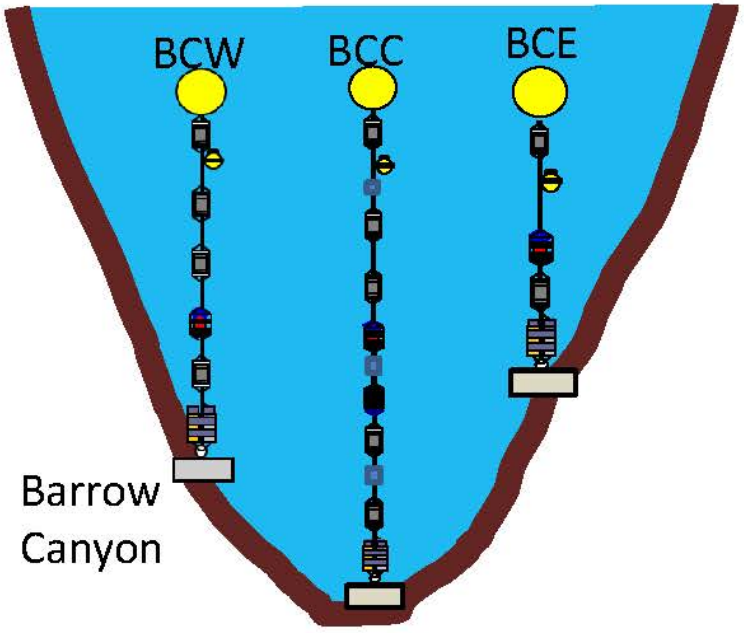
Recover one mooring at the DBO3 hotspot off Pt. Hope.

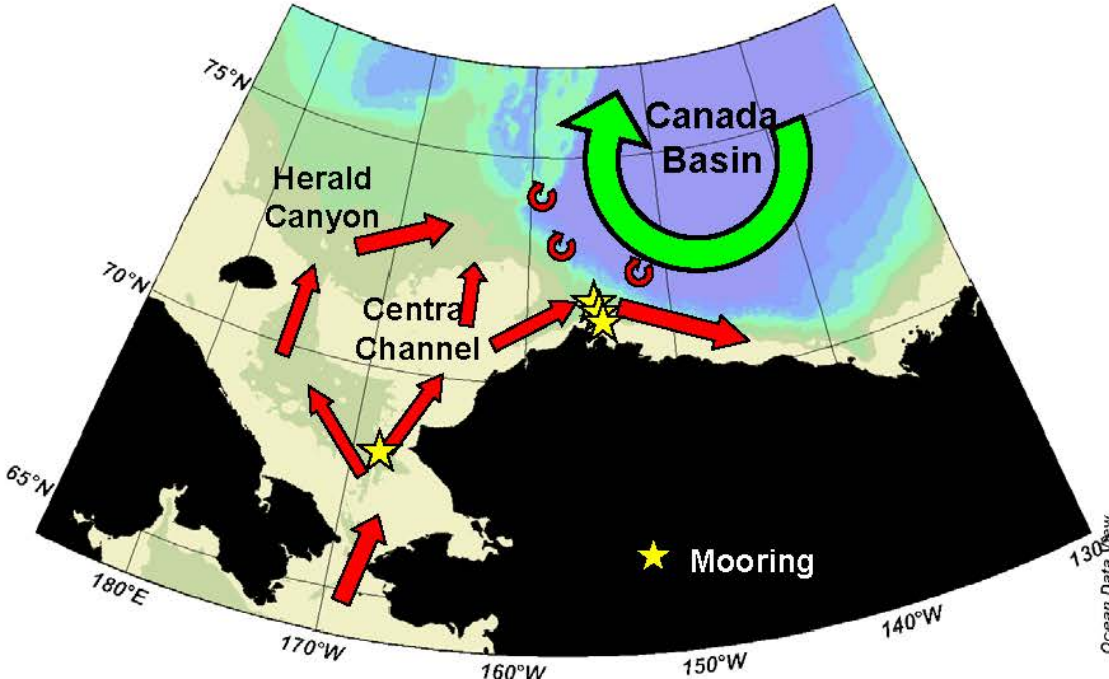
JAMSTEC mooring activities collaborated with NOAA and WHOI by US Coast Guard Cutter *Healy*

USCGC *Healy*

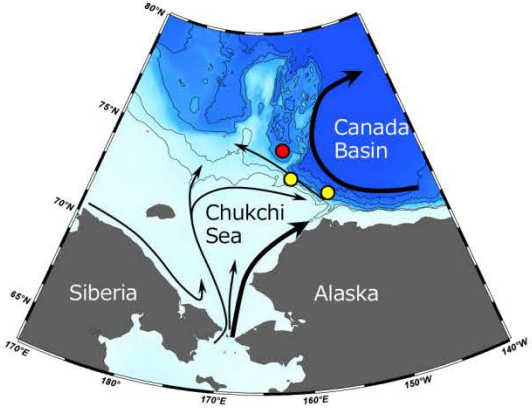
<Objectives>

The goal of this monitoring efforts is to detect and quantify on-going changes in flows, temperature and salinity of waters, phyto- and zooplanktons from the Pacific to the Arctic Ocean.

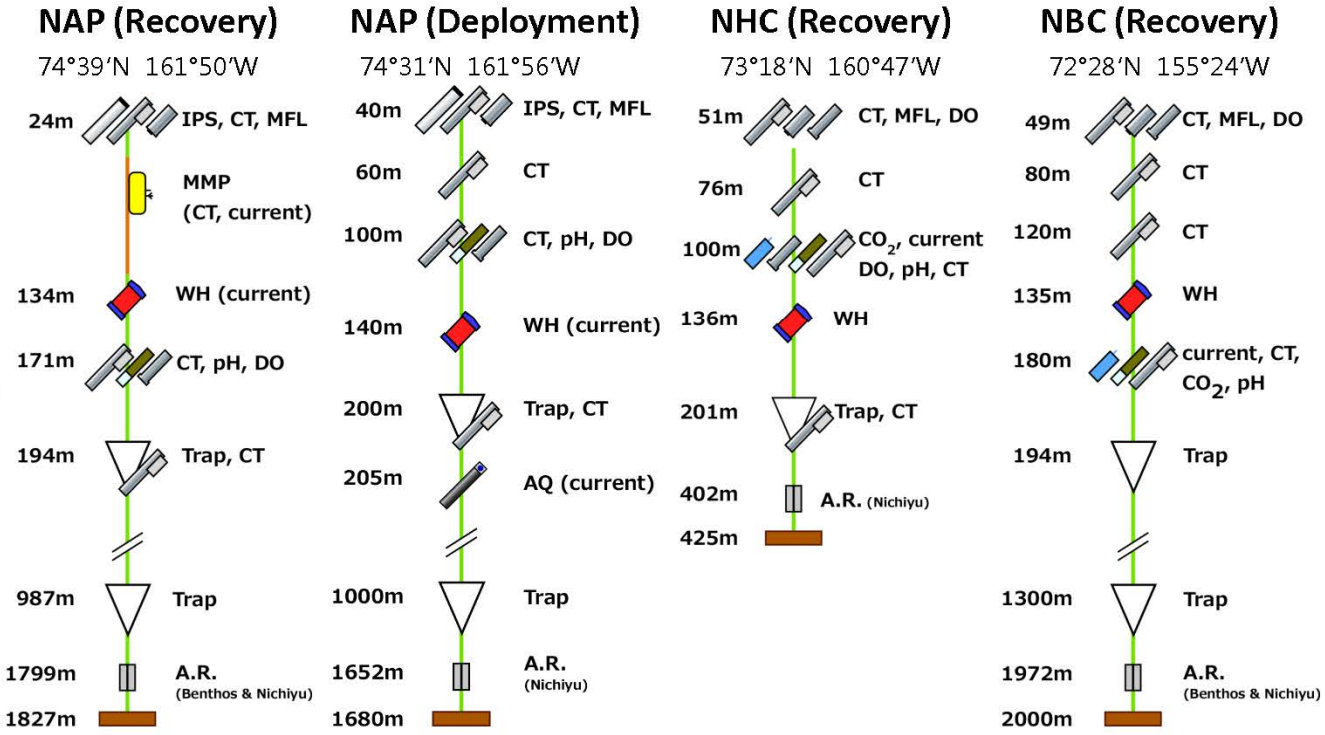




Turn-around of Sediment trap NAP, and recoveries of NBC and NHC in USCGC Healy Cruise



Deployment of NAP trap in Araon 2018 cruise



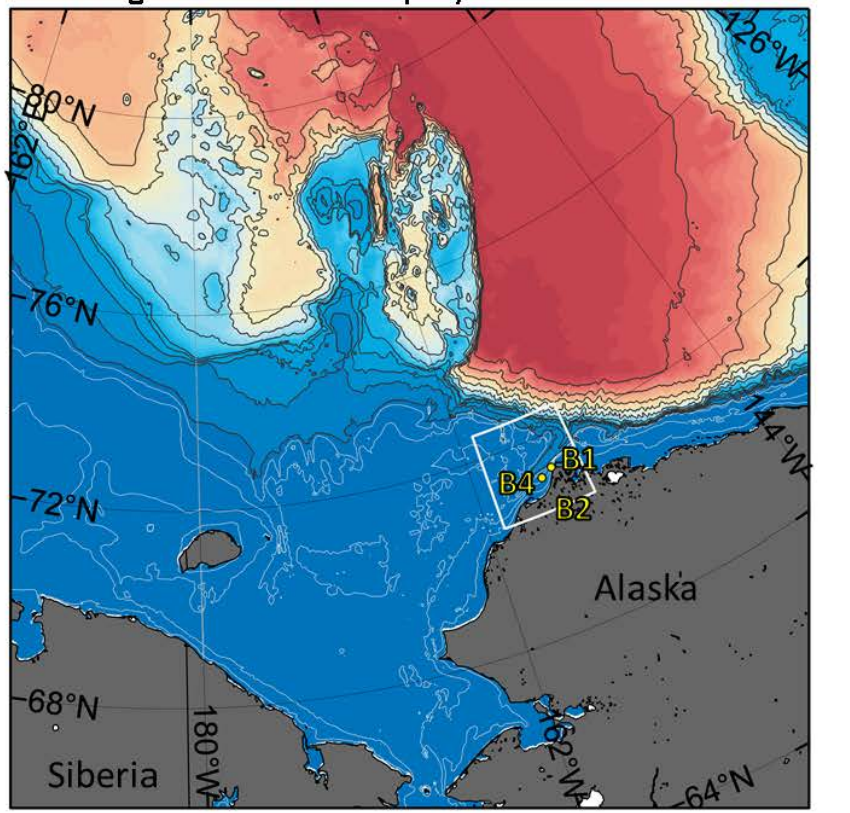
Objectives on sediment trap deployment

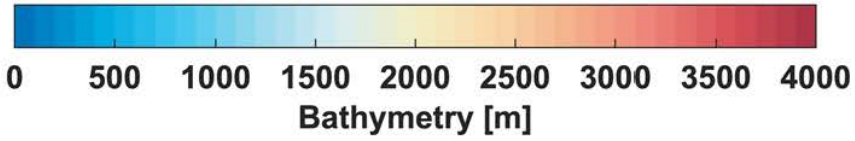
- Study on ice algae production and their role in biogeochemical cycles
- Monitoring of ocean acidification and pteropod shell density
- Transportation of Chukchi shelf materials to basin
- Cooperative research on marine ecosystems with KOPRI
- Obtaining validation data for developing numerical model

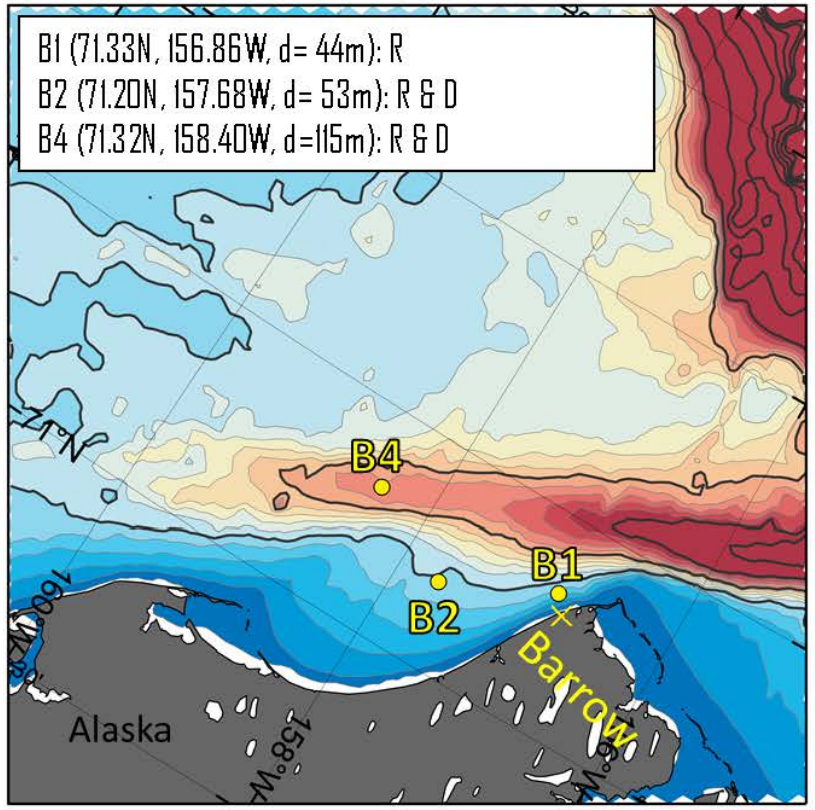
Sea-ice and oceanographic mooring operations by Hokkaido Univ./UAF in August 2019

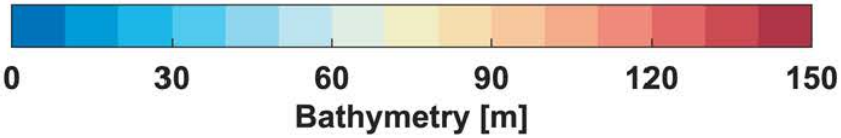
Hokkaido Univ.: Y. Fukamachi, K. I. Ohshima, D. Hirano, and M. Ito
UAF: A. R. Mahoney, H. Eicken, and J. Jones

Mooring recoveries/deployments off Pt. Barrow







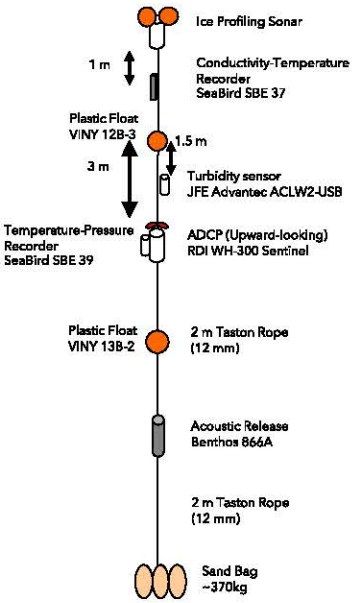


- **3 mooring recoveries (August 2017 ~ August 2019)**

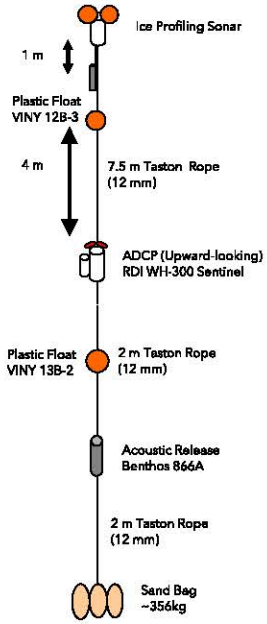
<Objectives>

To measure ice thickness by ice-profiling sonars and estimate the ice production/heat loss at DBO-5, off Pt. Barrow.

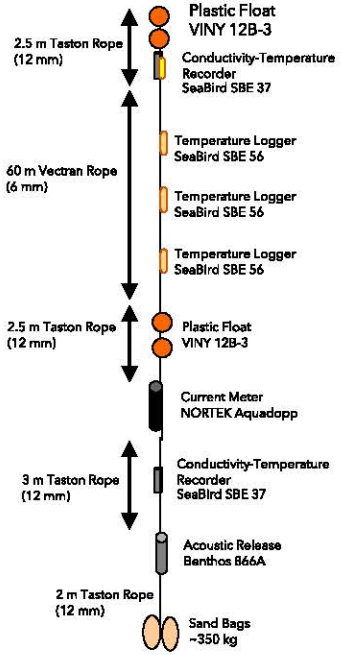
B1: Nearshore site



B2: Offshore site

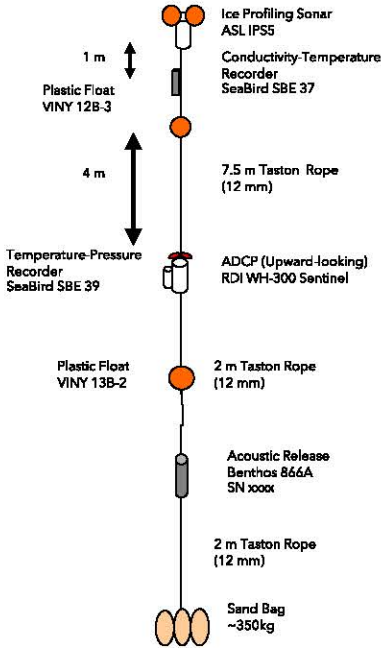


B4: Current-meter site

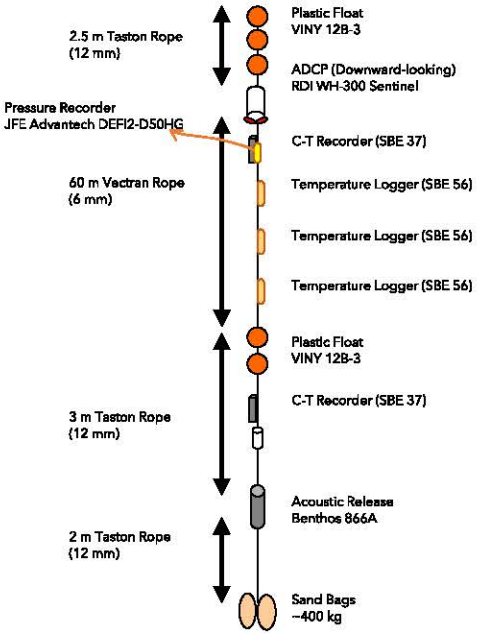


- **2 mooring deployments (August 2019 ~ August 2021)**

B2: Offshore site



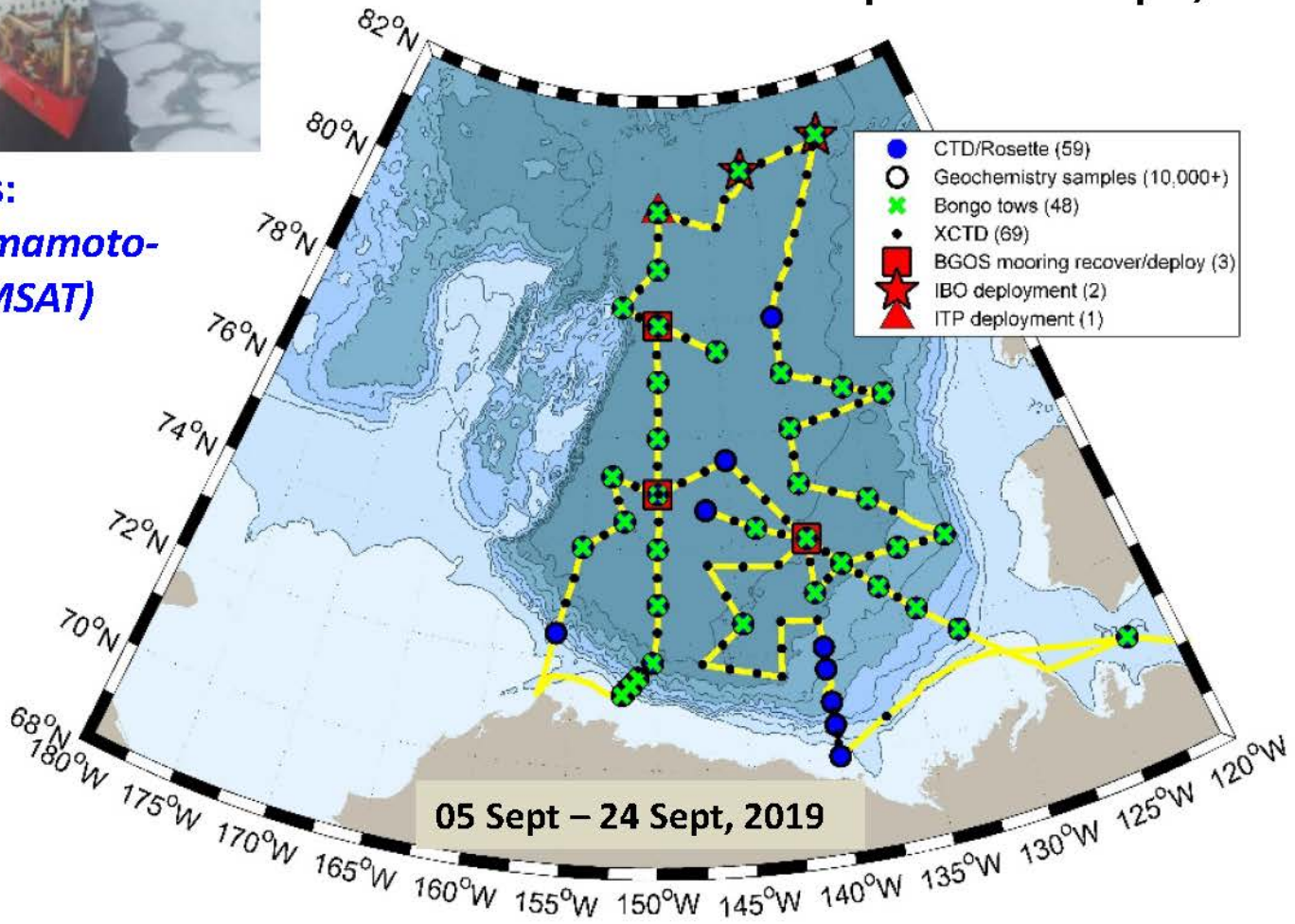
B4: Current-meter site



CCGS *Louis S. St-Laurent*

ArCS+JSPA & JOIS
Canada Basin
05 Sept - 24 Sept, 2019

Participants:
Michiyo Yamamoto-Kawai (TUMSAT)



CCGS *Louis S. St-Laurent*

<Objectives>

Seasonal variations in FW sources & ocean acidification

<Observation items>

1. Water sampling

   $\delta^{18}O$ (freshwater tracer)

   DIC and TA (freshwater tracer & acidification index)

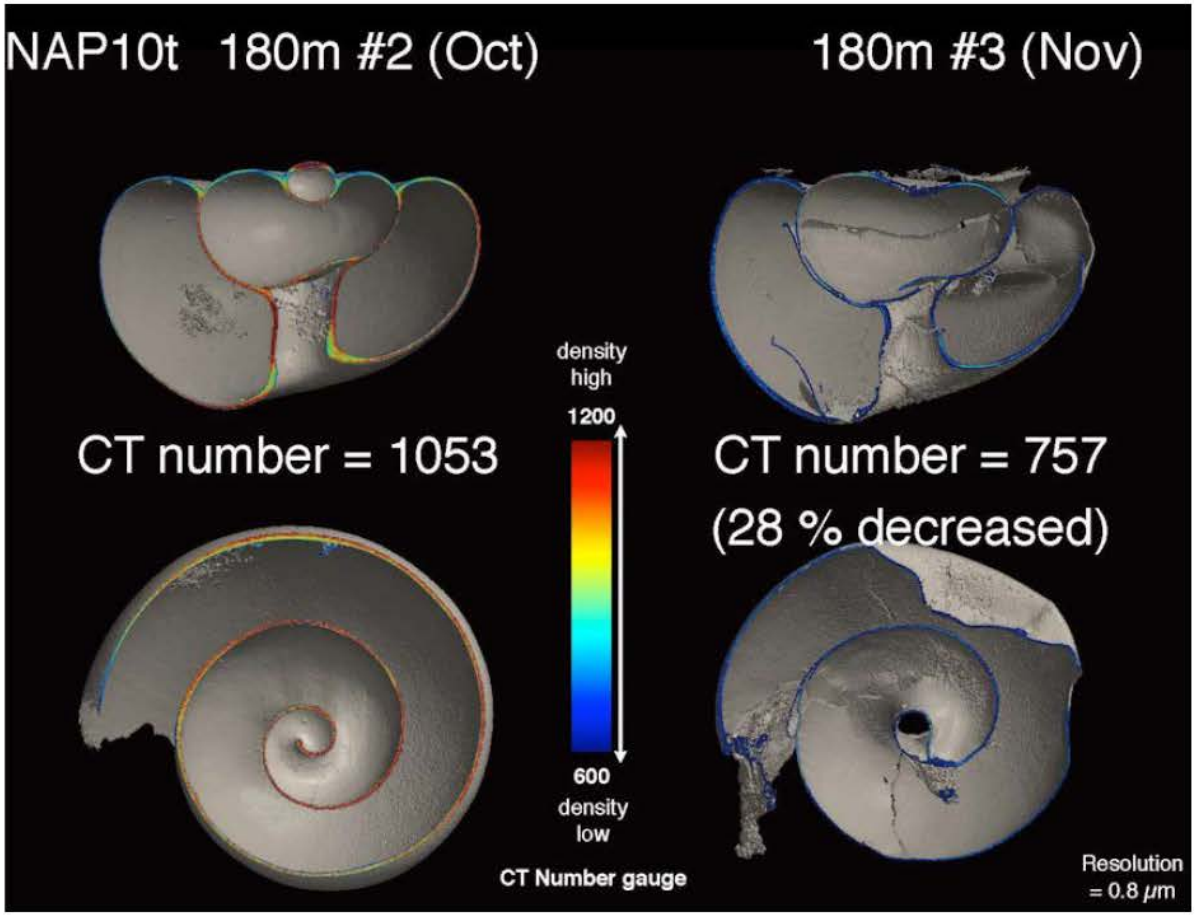
2. Plankton net towing

   collect pteropods from several layers (surface layer, 0-50m, 50-100m etc.)

   analyze shell density using MXCT

- No RAS recovery/deployment this year.

MXCT: Micro X-ray Computed Tomography



(photos by Dr. Kimoto, K., JAMSTEC)

SGLI/GCOM-C was launched!
December 23 2017

JAXA
GCOM-C
Global Change Observation Mission - Climate

http://suzaku.eorc.jaxa.jp/GCOM_C/index.html

Scientific achievements

Bering and Chukchi Seas from SGLI/GCOM-C in spring (250 m spatial resolution on April 19th 2018)