Pacific Arctic Group 2016 Spring Meeting
March 13, 2016 (ASSW 2016)
at Univ. Alaska, Fairbanks, AK, USA

Update plan for 2016 field season (+ additional information)

Japan

Takashi Kikuchi (JAMSTEC)

with inputs from other Japanese scientists

Japanese Arctic Ocean observation plan in 2016

1) Japanese research vessel cruise

- **R/V Mirai Arctic cruise in August-September 2016**
  → New Arctic research project, ArCS (Arctic Challenge for Sustainability)

2) Participations in/contribution to the missions of PAG partners

- **IBRV Araon Arctic cruise**
- **CCGS Louis S. St.- Laurant cruise**

3) Others

- **XCTD observation in the Arctic Ocean (CCGS L. S. St.- Laurant)**

and more ?. . .

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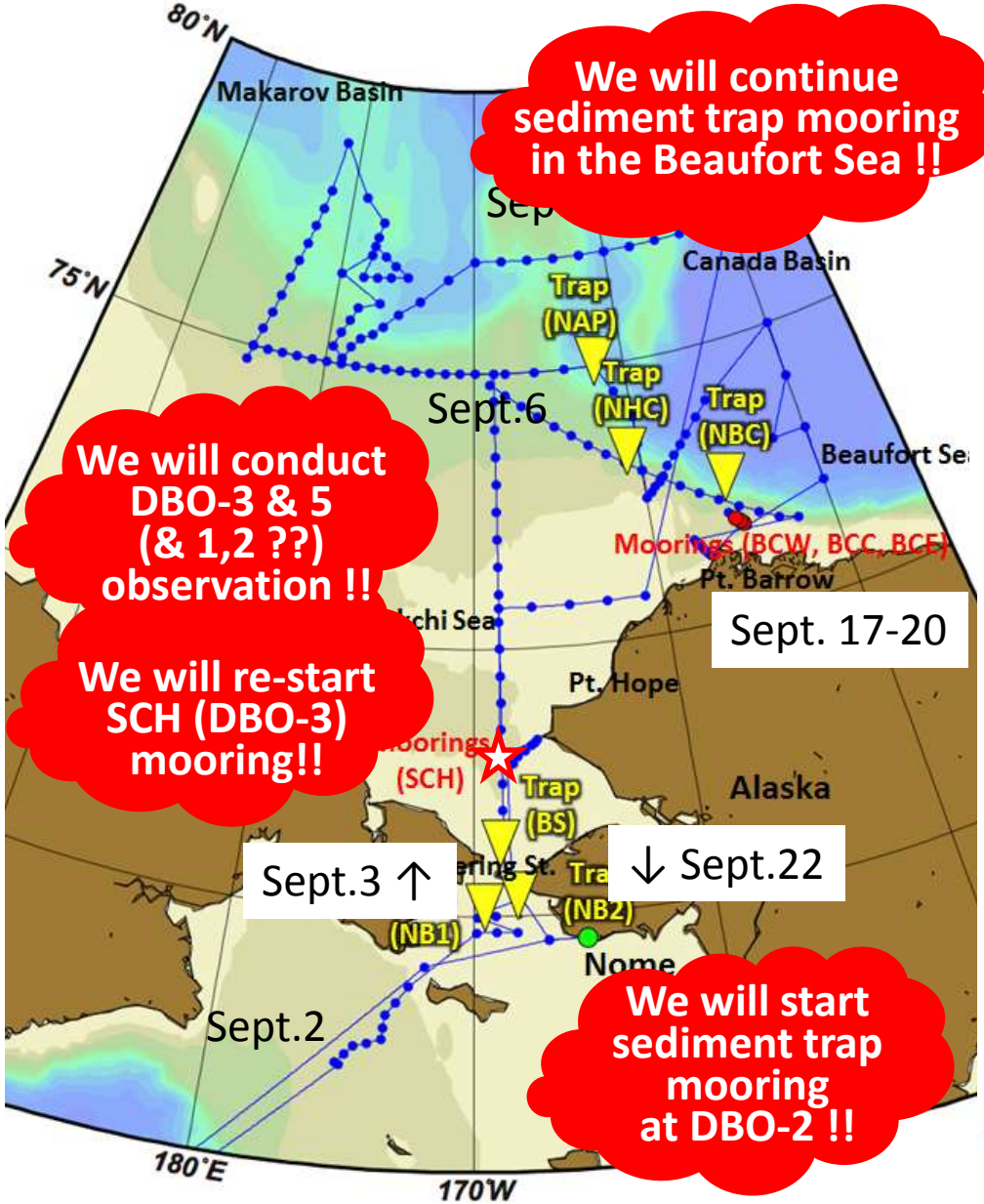
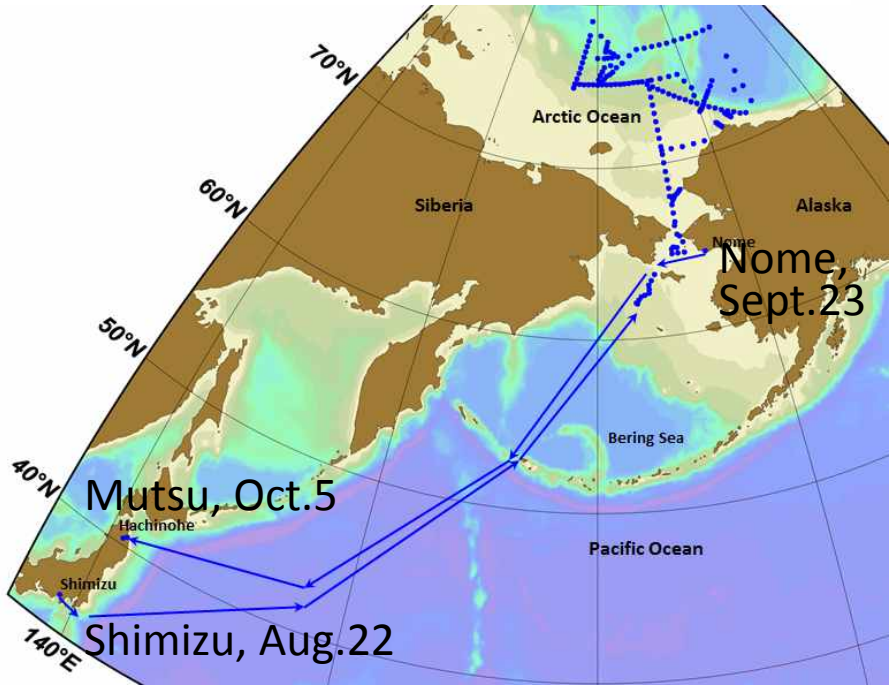
R/V Mirai 2016 Arctic cruise (Aug.-Sept.)

Planned schedule is as follows.

22 Aug: Depart from Shimizu, Japan
2 Sep: Northern Bering Sea
3 Sep: Bering Strait
6 Sep: Northern Chukchi Sea
7 -16 Sep: Canada and Makarov Basins
17-20 Sep: Barrow Canyon
22 Sep: Bering Strait
23 Sep: Nome, Alaska, US
4 Oct: Hachinohe, Japan
5 Oct: Sekinehama (Mutsu), Japan

Cruise PI: Dr. Shigeto Nishino (JAMSTEC)





Courtesy from Dr. Nishino (JAMSTEC)

R/V Mirai 2016 Arctic cruise (Aug.-Sept.)

Research on-board

- Predictability study on weather and sea-ice forecasts linked with user engagement (meteorology, wave, droplets/spray icing)
- Ship-borne observations of trace gases/aerosols in the marine atmosphere
- Ship-board observations of atmospheric greenhouse gases and related species in the Arctic ocean and the western North Pacific
- How plankton responses to multi stressors such as ocean warming and acidification (Sediment trap mooring)?
- Primary production and transportation of organic materials in the northern Bering and the southern Chukchi Seas
- Comparison of zooplankton with differences in net mesh-size, and standing stock and material flux role of Appendicularia
- Seasonal distribution of short-tailed shearwaters and their prey in the Bering and Chukchi Seas
- Elucidation of the variability of freshwater in the Arctic Ocean
- Mooring observations in the Barrow Canyon and southern Chukchi Sea
- Observational study on the variability of physical and chemical environments in the Pacific Arctic Ocean
- and more . . .

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R/V Mirai 2016 Arctic cruise (Aug.-Sept.)

For Alaskan Eskimo Whaling Commission (AEWC)

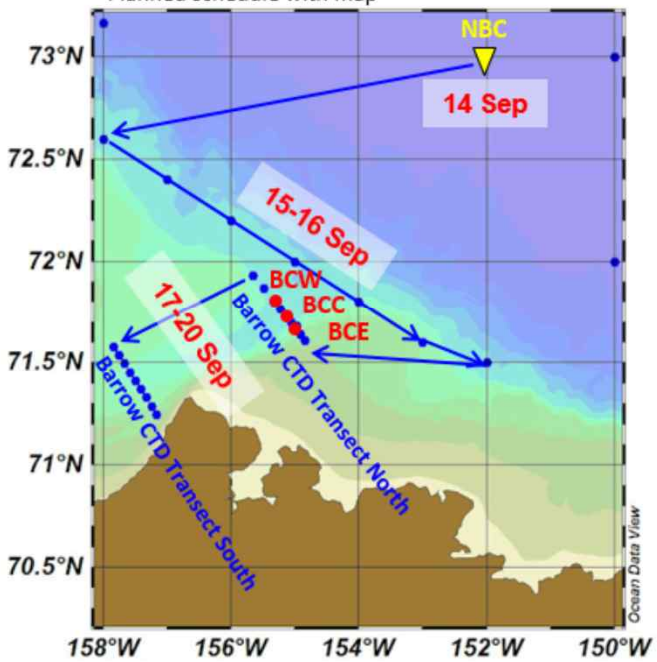
1 pg description of the planned schedule around the Barrow Canyon

- **Planned schedule around the Barrow Canyon** is as follows.
(The stations and cruise tracks are subject to change due to weather, sea ice, and other conditions.)
14 Sep: Sediment trap (NBC) deployment
15-16 Sep: Chukchi shelf slope
17 Sep: Moorings (BCE, BCC, and BCW) recoveries
18 Sep: Moorings (BCE, BCC, and BCW) deployments
19 Sep: Barrow CTD Transect North
20 Sep: Barrow CTD Transect South, leave this area
22 Sep: Bering Strait
23 Sep: Nome

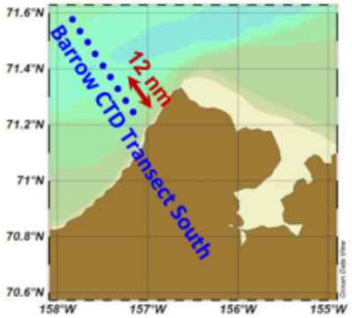
- The stations nearest to the coast within 12 nm are on the Barrow CTD Transect South (Stas. 016, 017, and 018; see tables).

- All the sediment trap and physical oceanographic moorings are distant from the coast >30 nm. The locations are shown in the table below.

Planned schedule with map



The stations nearest to the coast



▽ Sediment Trap Mooring

NBC	73	0.00	N	152	0.00	W

● Physical oceanography Moorings

BCE	71	40.00	N	155	0.00	W
BCC	71	44.00	N	155	7.00	W
BCW	71	48.00	N	155	20.00	W

- **Contact person** (PI of the cruise):
Shigeto NISHINO (JAMSTEC)
E-mail: nishinos@jamstec.go.jp
Tel: +81-46-867-9487

● Barrow CTD Transect North

sta. 001	71	36.52	N	154	50.63	W
sta. 002	71	38.48	N	154	55.19	W
sta. 003	71	40.83	N	154	58.42	W
sta. 004	71	41.90	N	155	3.91	W
sta. 005	71	44.05	N	155	7.16	W
sta. 006	71	45.91	N	155	14.27	W
sta. 007	71	48.74	N	155	17.60	W
sta. 008	71	51.99	N	155	29.73	W
sta. 009	71	55.90	N	155	39.41	W

● Barrow CTD Transect South

sta. 010	71	34.70	N	157	50.30	W
sta. 011	71	32.20	N	157	45.20	W
sta. 012	71	29.80	N	157	40.10	W
sta. 013	71	27.30	N	157	35.00	W
sta. 014	71	24.80	N	157	29.90	W
sta. 015	71	22.30	N	157	24.90	W
sta. 016	71	19.80	N	157	19.90	W
sta. 017	71	17.30	N	157	14.90	W
sta. 018	71	14.80	N	157	9.90	W

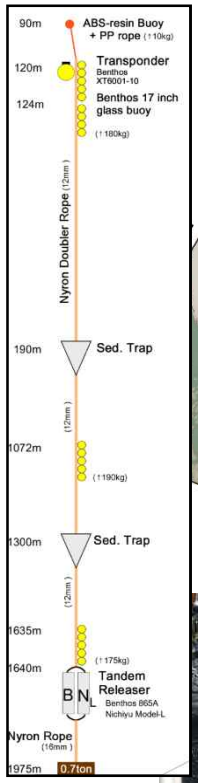
Maps and tables of CTD (and/or XCTD/UCTD), sediment trap (NBC), and moorings (BCE, BCC, and BCW) locations around the Barrow Canyon. The stations and cruise tracks are subject to change due to weather, sea ice, and other conditions.

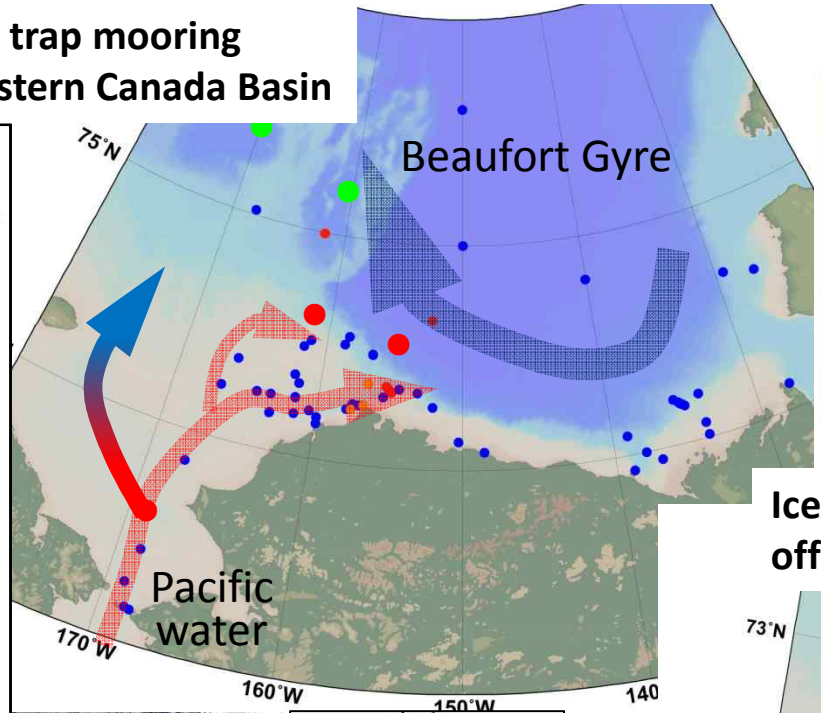
Pacific Arctic Group 2015 Fall Meeting
October 28, 2015
at KOPRI, Incheon, Japan

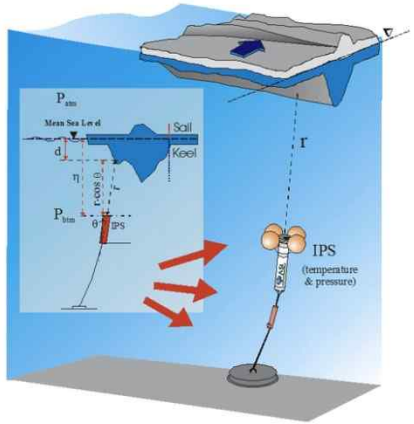
2015 Mooring missions in the PAR region

Mooring Location in Beaufort/Chukchi seas

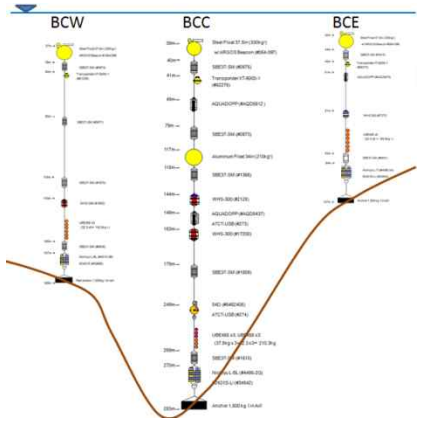
Sediment trap mooring
in the western Canada Basin





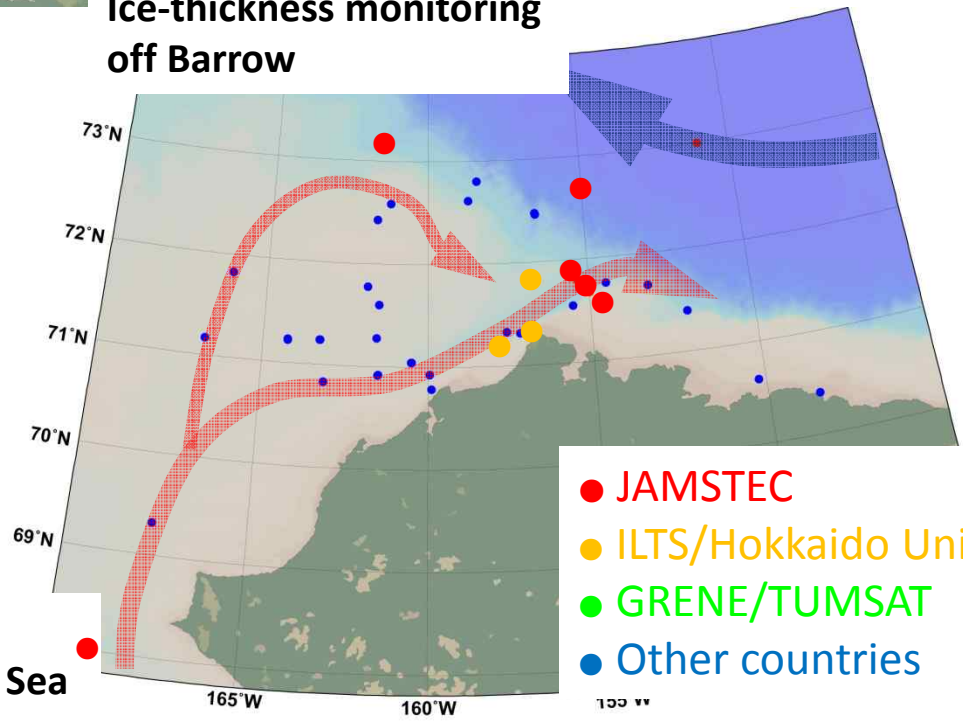


Long-term monitoring
At the mouth of Barrow Canyon



Biological hotspot
in the southern Chukchi Sea

Ice-thickness monitoring
off Barrow



- JAMSTEC
- ILTS/Hokkaido Univ.
- GRENE/TUMSAT
- Other countries

AGU PUBLICATIONS

JGR

Journal of Geophysical Research: Oceans

RESEARCH ARTICLE

10.1002/2015JC011318

A wind-driven, hybrid latent and sensible heat coastal polynya off Barrow, Alaska

Key Points:
- Nature of the Barrow Coastal Polynya (BCP) formed off the Alaska coast in

Daisuke Hirano[1], Yasushi Fukamachi[2], Eiji Watanabe[3], Kay I. Ohshima[2], Katsushi Iwamoto[1,4,5], Andrew R. Mahoney[6], Hajo Eicken[7], Daisuke Simizu[1], and Takeshi Tamura[1,8,9]

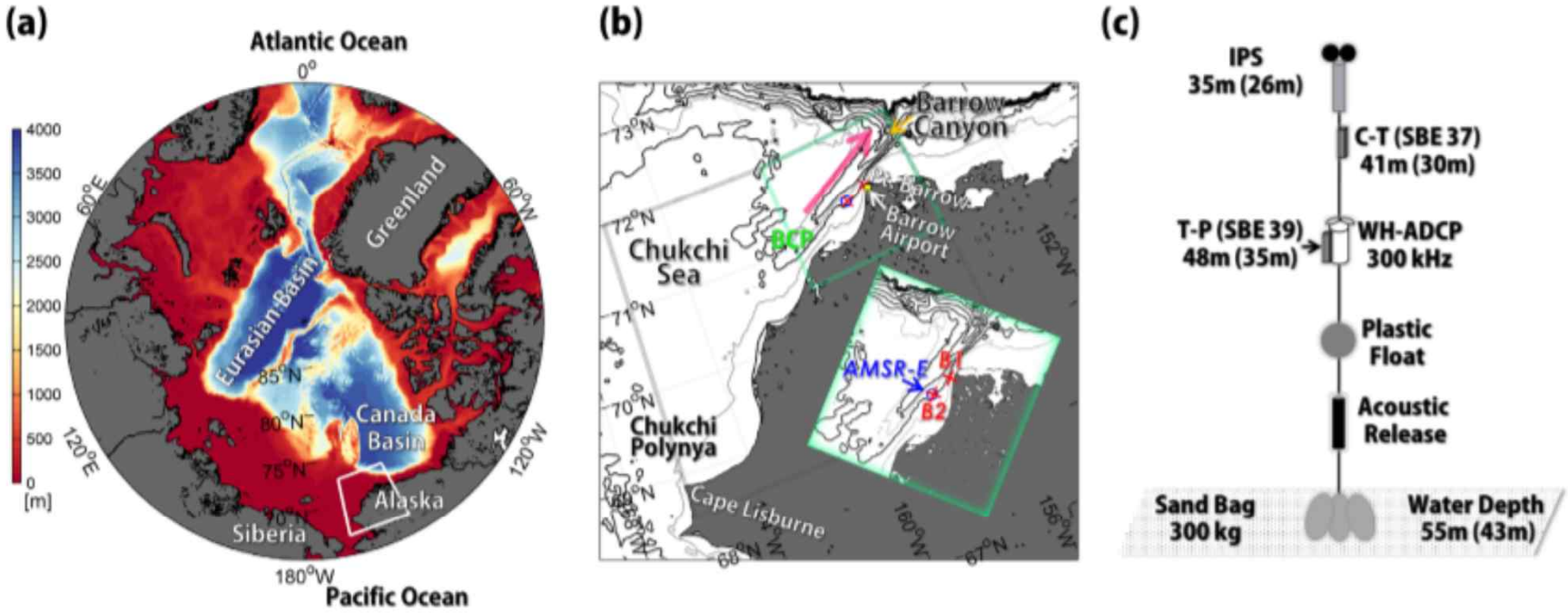
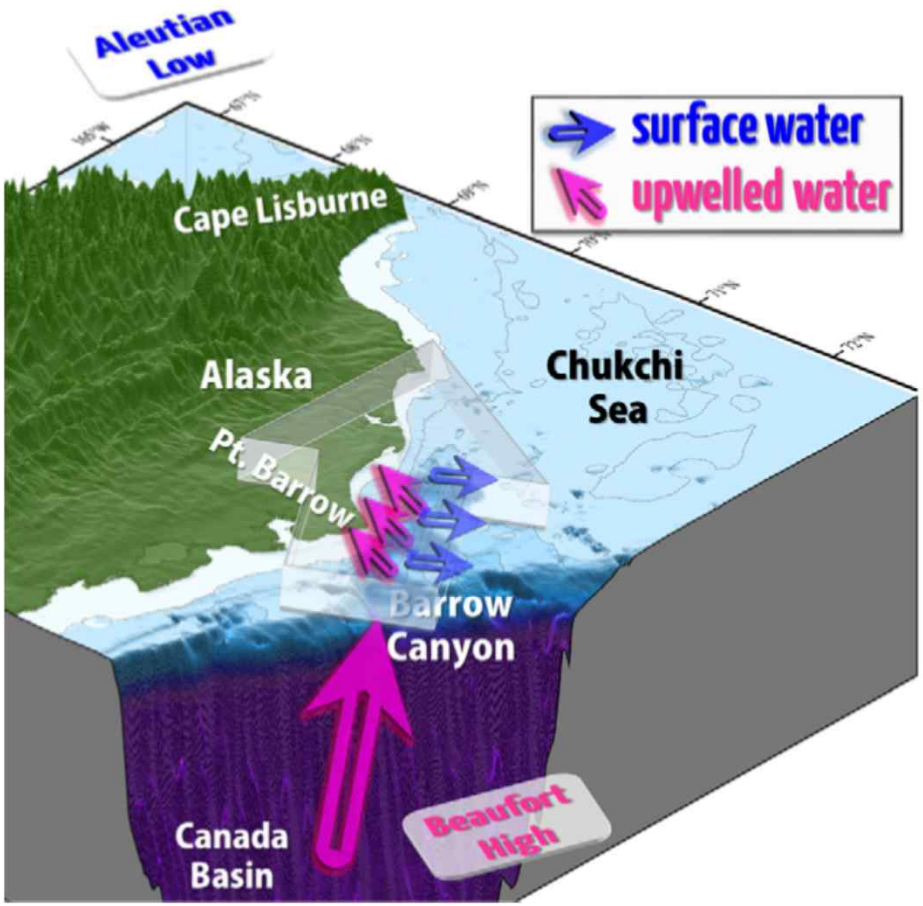
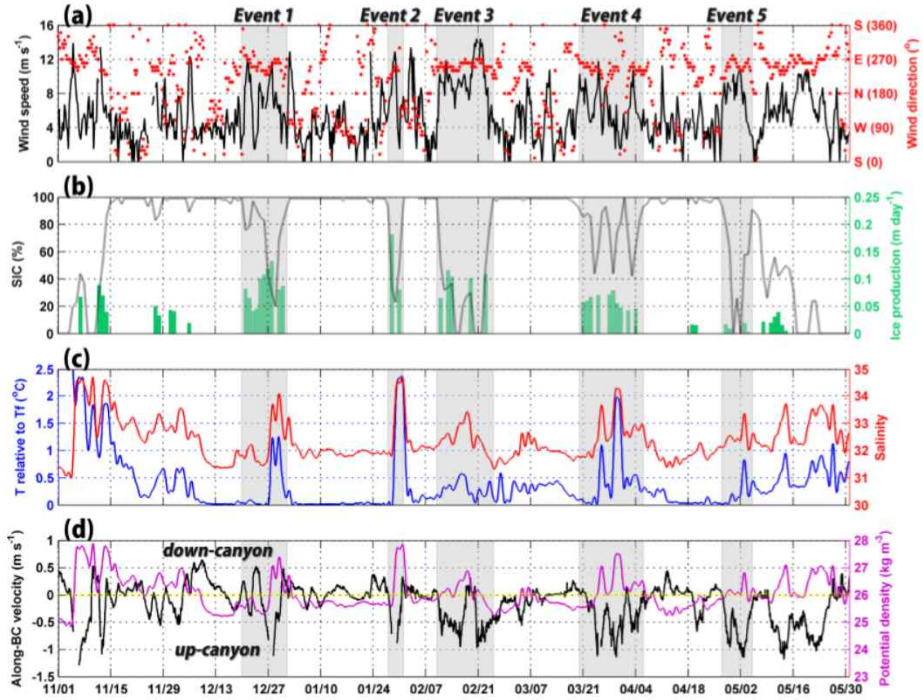
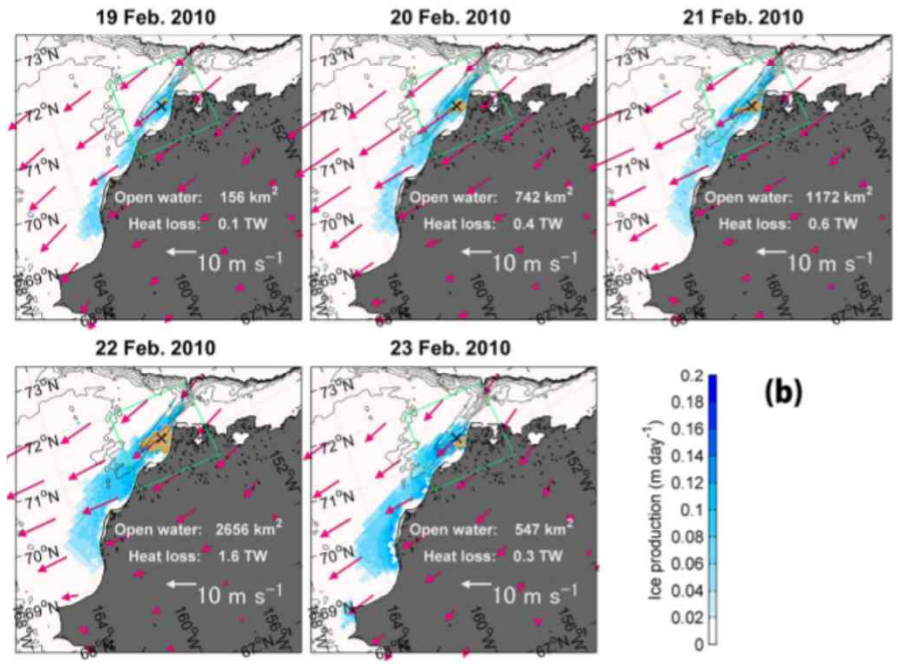


Figure 1. (a) Bathymetry of the Arctic Ocean from the International Bathymetric Chart of the Arctic Ocean (IBCAO version 3.0). The enclosed region is shown in Figure 1b. (b) Bathymetry around the mooring sites on the northeastern Chukchi shelf. The gray and green-enclosed regions represent the Chukchi Polynya and Barrow Coastal Polynya (BCP), respectively. Inset at the bottom right is the region around the mooring sites in the BCP. Red crosses represent moorings B1 (71.33°N, 156.89°W, water depth of 43 m) and B2 (71.23°N, 157.65°W, water depth of 55 m). Blue circle represents the location of the nearest AMSR-E grid point to B2 (71.25°N, 157.69°W). Yellow square near Pt. Barrow indicates the location of Barrow Wiley-Post Airport. Direction of along-Barrow Canyon (63°T: 0°T corresponds to the north) is also indicated by the pink arrow. (c) Mooring configurations at B1 and B2. Nominal depths of instruments are indicated for B2 and B1 (in parentheses).

A wind-driven, hybrid latent and sensible heat coastal polynya off Barrow, Alaska
(Hirano et al., 2016, JGR-Oceans)







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