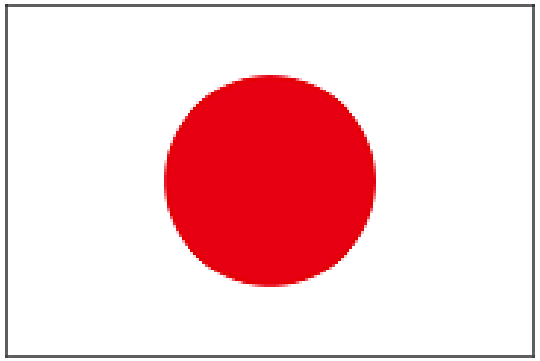
Pacific Arctic Group 2017 Spring Meeting
April 2nd, 2017 (9:00 – 17:30)
Clarion Congress Hotel
Prague, Czech Republic

Update plans for 2017 field season



JAPAN

Shigeto Nishino (presented by Takashi Kikuchi)

Japanese activities planed in 2017

- T/S Oshoro-maru cruise
  6 Jul (Dutch Harbor) – 2 Aug (Hakodate)
- R/V Mirai cruise
  23 Aug (Dutch Harbor) – 2 Oct (Hachinohe)


T/S Oshoro-maru (Hokkaido Univ.)


R/V Mirai (JAMSTEC)

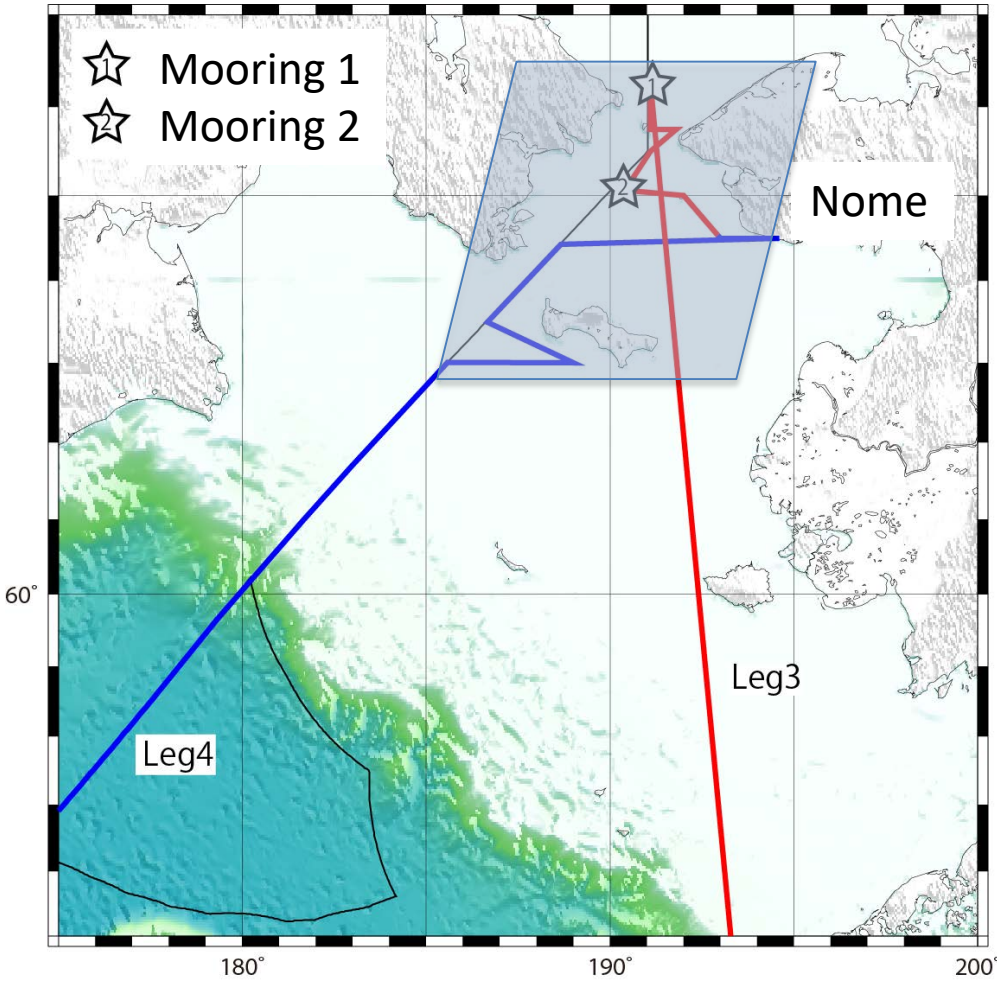
- Participation in other icebreaker cruises
  - CCGS Louis St. S-Laurant cruise (hydrography, water sampling, mooring observation)
  - NABOS cruise (atmosphere measurement, vapor/water sampling, sea ice observation)

T/S Oshoro-maru 2017 Cruise Plan

T/S Oshoro-maru 2017 Cruise Plan

- July 6 (Dutch Harbor) - July 14 (Nome)
- July 16 (Nome) - August 2 (Hakodate)

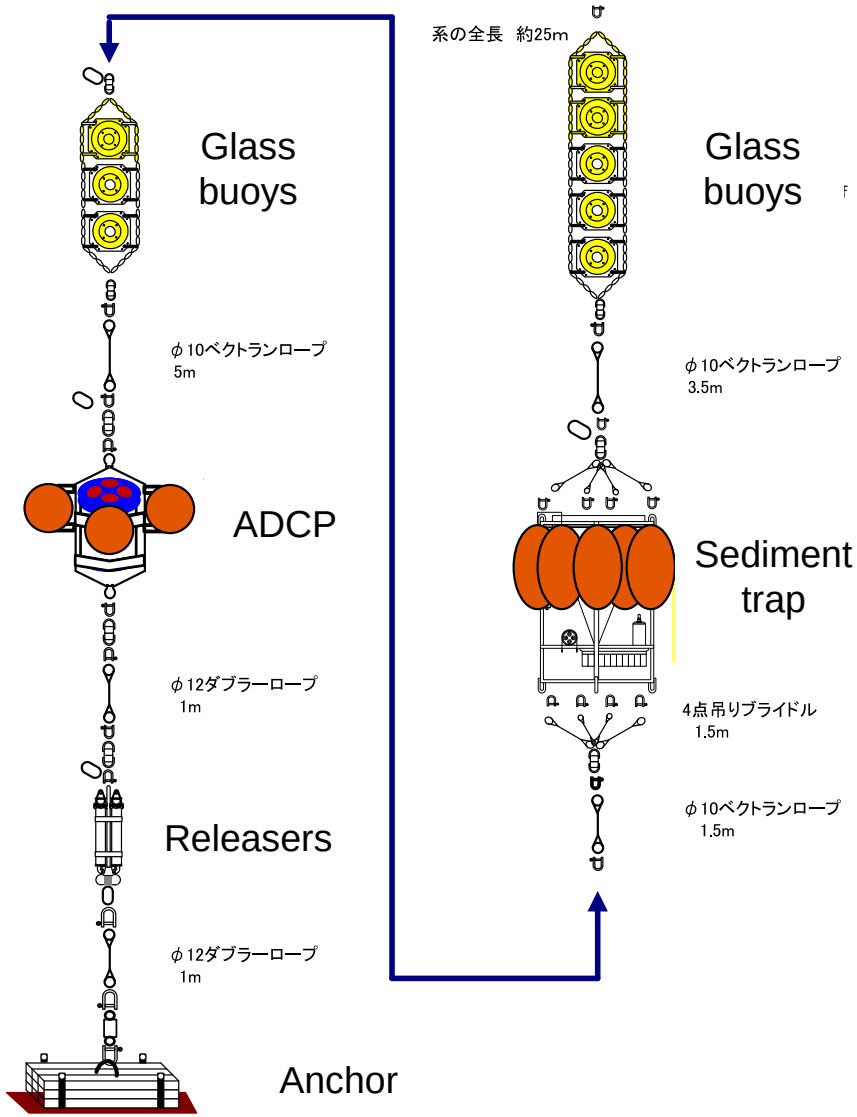
T/S Oshoro-maru V, Hokkaido University
Built in July 2014
This cruise will be her first foreign voyage.



T/S Oshoro-maru 2017 Cruise Plan

- Nutrient supply mechanism to maintain high biological production
- Recovering/deployment of sediment trap and ADCP at two stations
- Distribution of carbonate, macro and micro nutrients, organic gas and their flux from sediment
- Primary productivity distribution related to water mass
- Water mass definition using dissolved organic carbon
- Relationship among productivities of fish, benthos, seabirds and planktons
- Transportation, accumulation and sources of contaminants in Arctic marine biology

Mooring (Sediment trap) diagram and photos from R/V Mirai in 2016



R/V Mirai 2017 Arctic Cruise Plan

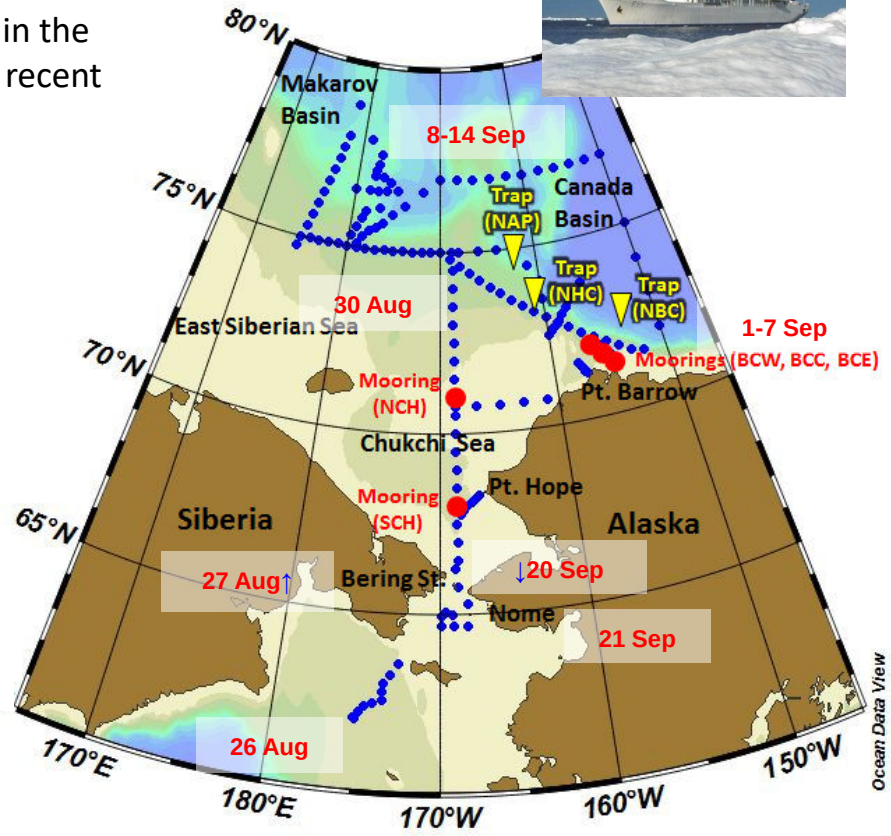
Overview of the R/V Mirai Arctic Ocean cruise during Aug. – Sep. 2017

- **The Research Vessel Mirai (R/V Mirai)** belonging to Japan Agency for Marine-Earth Science and Technology (JAMSTEC) will conduct hydrographic, marine biogeochemical, and meteorological surveys in the Arctic Ocean during August - September, 2017.

- **The objective of this cruise** is to quantify on-going changes in the ocean, atmosphere, and ecosystem, which are related to the recent Arctic warming and sea ice reduction.

-**The observational activities** consist of CTD/XCTD/UCTD, drifting buoy deployments, mobile float observation with camera and sensors, optical measurements, water samplings, plankton net samplings, sediment samplings, visual observation of marine animals by binoculars, ship-board ocean current and surface water monitorings, meteorological measurements and samplings, radiosondes, Doppler radar, sea bottom topography, gravity, and magnetic field measurements, and mooring and sediment trap recoveries and deployments.

- **Planned schedule** is as follows.
  - 23 Aug: Depart from Dutch Harbor
  - 26 Aug: Northern Bering Sea
  - 27 Aug: Bering Strait
  - 30 Aug: Northern Chukchi Sea
  - 1-7 Sep: Near Pt. Barrow
  - 8-14 Sep: Canada and Makarov Basins
  - 20 Sep: Bering Strait
  - 21 Sep: Nome (US scientists disembark)
  - 2 Oct: Hachinohe, Japan; immigration&unloading

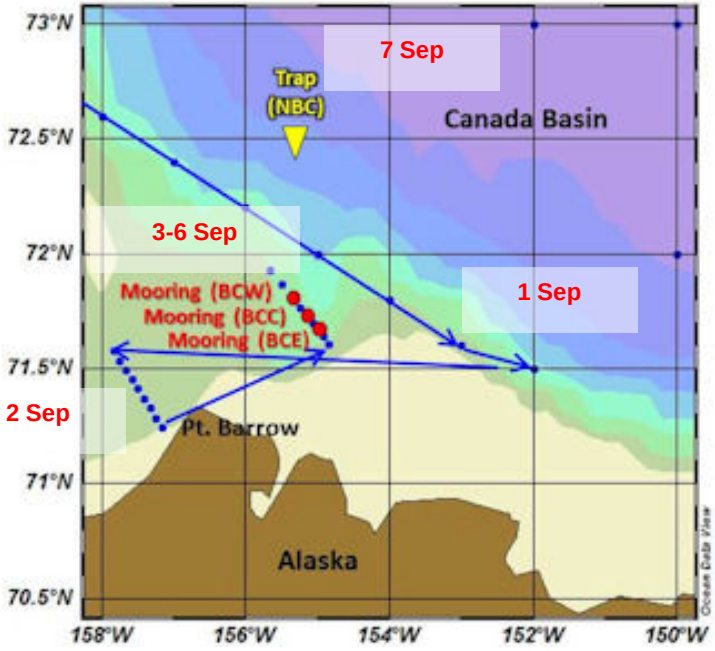


Geographical areas of the intended work and locations of sampling stations in the Arctic Ocean. Planned points of stationary observations are represented by blue dots. Locations of moorings and sediment traps are represented by red circles and yellow triangles, respectively. The stations and schedule are subject to change due to weather, sea ice, and other conditions.

Planned schedule around the Barrow Canyon

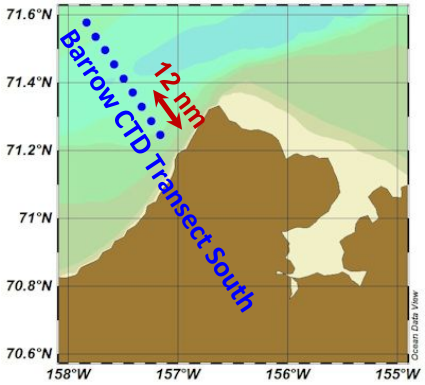
- **Planned schedule around the Barrow Canyon** is as follows.
  (The stations and cruise tracks are subject to change due to weather, sea ice, and other conditions.)
  - 1 Sep: Chukchi shelf slope
  - 2 Sep: Barrow CTD Transect South
  - 3 Sep: Barrow CTD Transect North
  - 4 Sep: Moorings (BCE, BCC, and BCW) recoveries
  - 5 Sep: Moorings (BCE, BCC, and BCW) deployments
  - 6 Sep: Optional extra day
  - 7 Sep: Sediment trap (NBC) recovery & deployment

Planned schedule with map



- The stations nearest to the coast within 12 nm are on the Barrow CTD Transect South (Stas. 007, 008, and 009; see tables).

The stations nearest to the coast



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

▽ Sediment Trap Mooring

NBC	72	28.32	N	155	24.51	W

● Physical oceanography Moorings

BCE	71	40.37	N	155	0.05	W
BCC	71	44.03	N	155	9.69	W
BCW	71	47.76	N	155	20.73	W

- **Contact person** (PI of the cruise):

Shigeto NISHINO (JAMSTEC)
E-mail: nishinos@jamstec.go.jp
Tel: +81-46-867-9487

● Barrow CTD Transect South

sta. 001	71	34.70	N	157	50.30	W
sta. 002	71	32.20	N	157	45.20	W
sta. 003	71	29.80	N	157	40.10	W
sta. 004	71	27.30	N	157	35.00	W
sta. 005	71	24.80	N	157	29.90	W
sta. 006	71	22.30	N	157	24.90	W
sta. 007	71	19.80	N	157	19.90	W
sta. 008	71	17.30	N	157	14.90	W
sta. 009	71	14.80	N	157	9.90	W

● Barrow CTD Transect North

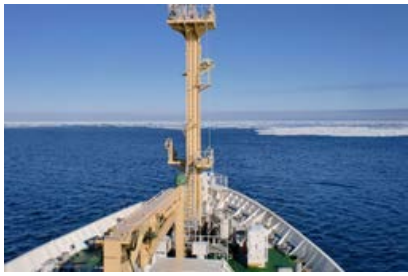
sta. 010	71	36.52	N	154	50.63	W
sta. 011	71	38.48	N	154	55.19	W
sta. 012	71	40.83	N	154	58.42	W
sta. 013	71	41.90	N	155	3.91	W
sta. 014	71	44.05	N	155	7.16	W
sta. 015	71	45.91	N	155	14.27	W
sta. 016	71	48.74	N	155	17.60	W
sta. 017	71	51.99	N	155	29.73	W
sta. 018	71	55.90	N	155	39.41	W

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.

R/V Mirai 2017 Arctic Cruise Plan

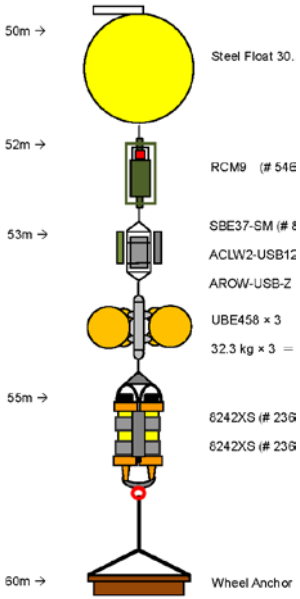
- Predictability study on weather and sea-ice forecasts linked with user engagement (National Institute of Polar Research)
- Ship-borne observations of trace gases/aerosols over the Arctic (JAMSTEC)
- Ship-board observations of atmospheric greenhouse gases and related species in the Arctic ocean and the western North Pacific (National Institute for Environmental Studies)
- How plankton responses to multi stressors such as ocean warming and acidification? (JAMSTEC)
- Response of phytoplankton community under environmental change (Hokkaido Univ.)
- Comparison of zooplankton with differences in net mesh-size, spatial distribution of zooplankton and standing stock and material flux role of Appendicularians (Hokkaido Univ.)
- Seasonal distribution of krill-eating top predators and their prey in the Chukchi Sea during fall (Hokkaido Univ.)
- Spatial and temporal changes of seawater CO2 and CH4 in the western Arctic Ocean (JAMSTEC)
- Observational study on environmental changes in the Pacific Arctic Ocean with intensive surveys in the shelf slope area (JAMSTEC)



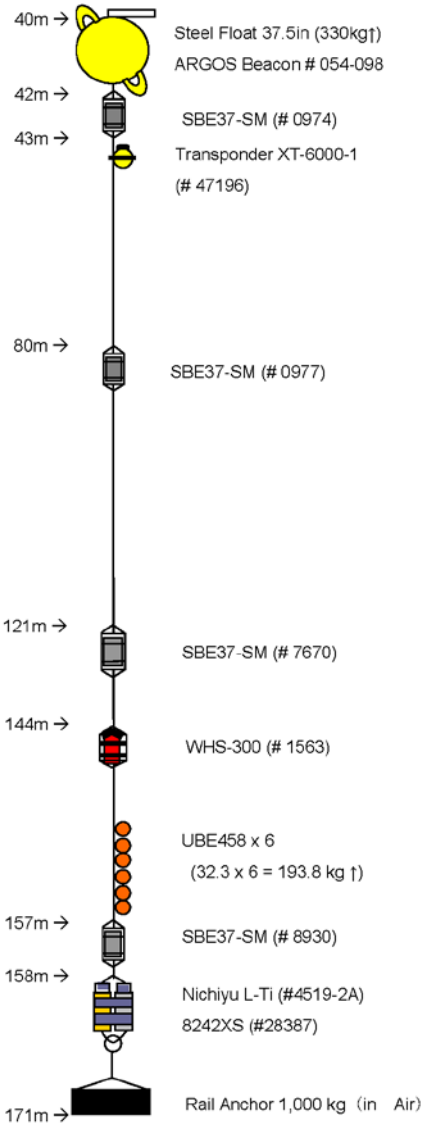


Mooring diagrams

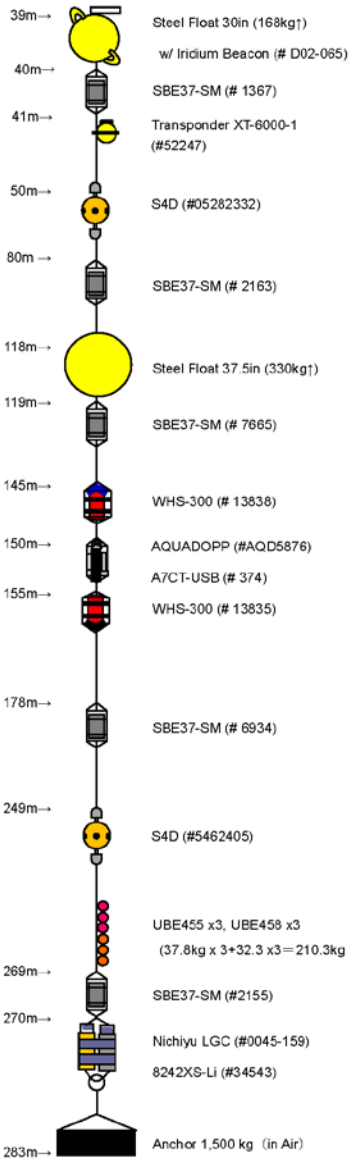
SCH



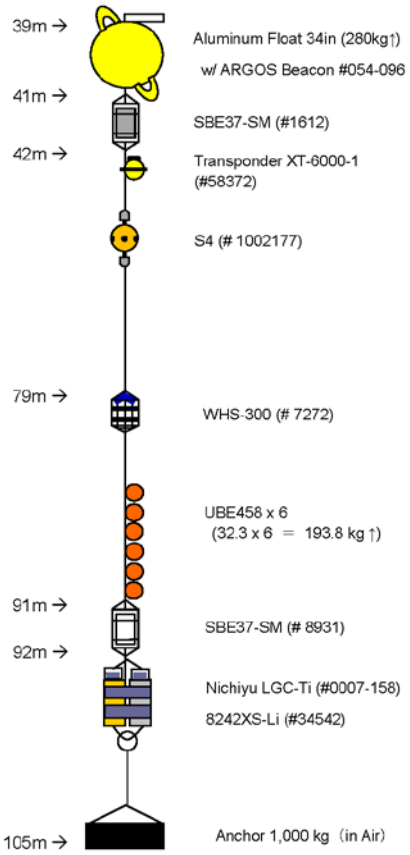
BCW



BCC



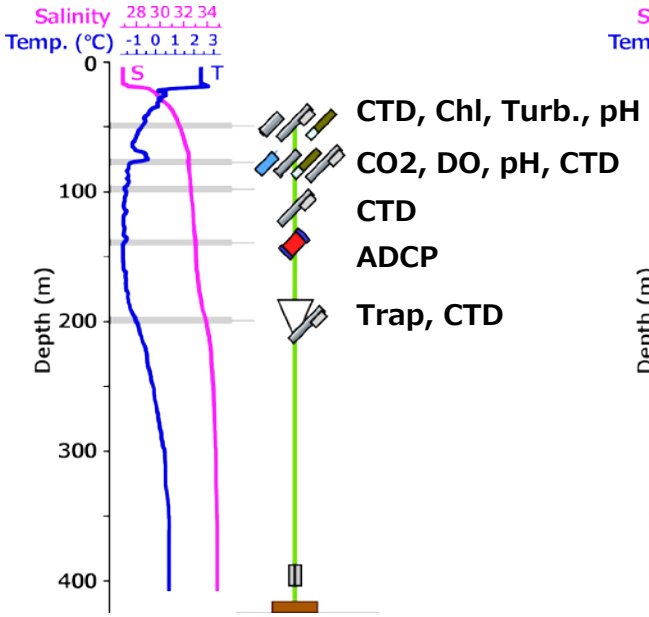
BCE



Sediment trap diagrams

NHC

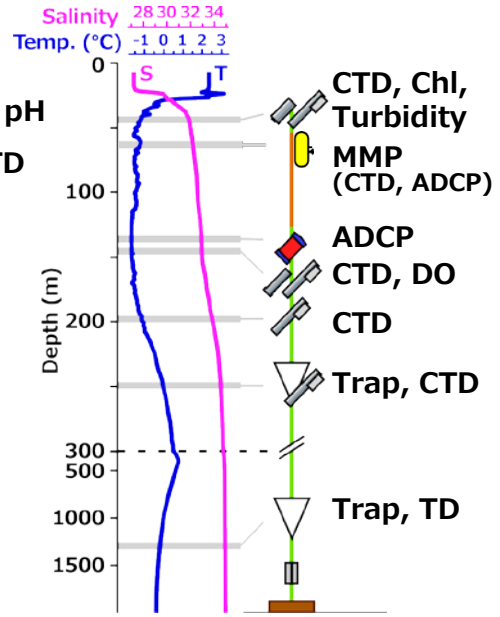
(73°18.17'N 160°46.95'W)



425 m water depth

NBC

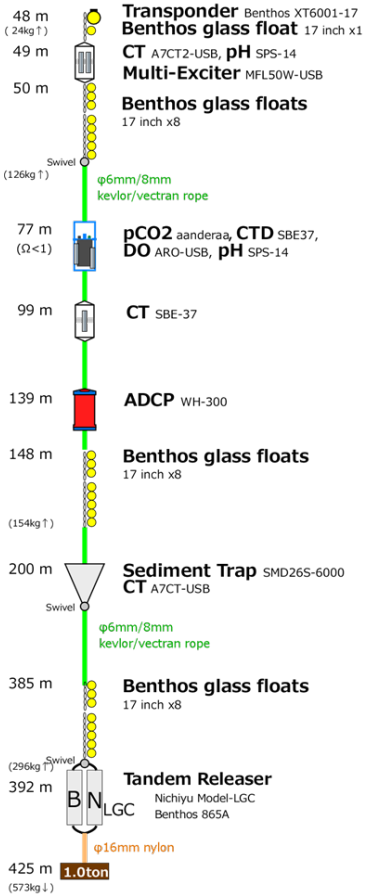
(72°28.32'N 155°24.51'W)

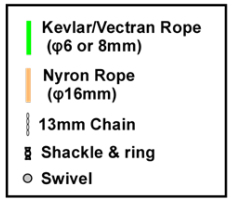


2000 m water depth

NHC16t

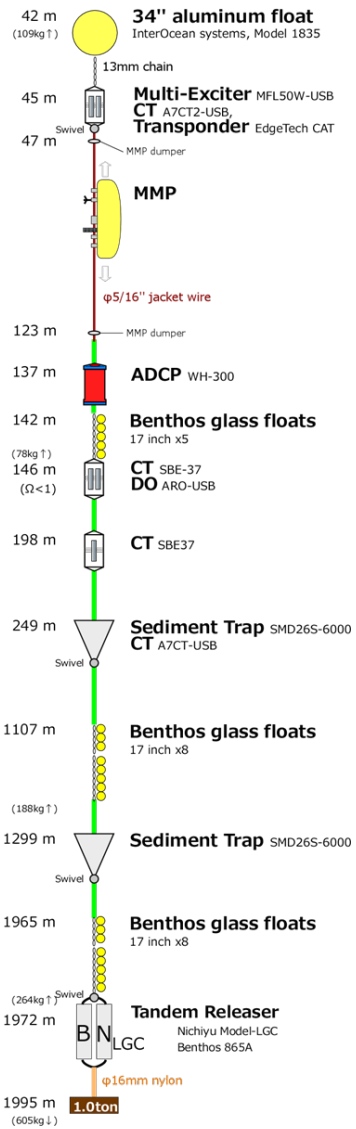
73°18.1658'N 160°46.9514'W
425 m water depth





NBC16t

72°28.3208'N 155°24.5086'W
1995 m water depth



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T/S Oshoro-maru (Hokkaido Univ.)


R/V Mirai (JAMSTEC)