

DRAFT STANDARD FORM C

PRELIMINARY CRUISE REPORT

Cruise name/number:	R/V ARAON / U2023-007
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Authorizations:

Coastal State	Authorization Document Number	National Participant(s)
United States of America	U2023-007	Korea Polar Research Institute (KOPRI)

Scientist in charge of reporting:

Name:	Eun-Jin Yang
Country/Nationality:	Republic of Korea
Affiliation:	Korea Polar Research Institute
Address:	Department of Polar Ocean Science, Korea Polar Research Institute Apt/Suite: 26, Songdomirae-ro, Yeonsu-gu, Incheon 21990
Telephone:	+82-32-760-5334
Email:	eijyang@kopri.re.kr
Website (for CV and photo):	http://www.kopri.re.kr

Brief description of scientific objective:

The expedition was a part of an ongoing project on the Korea-Arctic Ocean Warming and Response of Ecosystem (K-AWARE) Project of the Ministry of Oceans and Fisheries, Korea. The objectives of K-AWARE are to identify key environmental parameters (physical and biogeochemical) in rapid transition due to the sea-ice decrease in the western Arctic Ocean (Chukchi and East Siberian Seas) and predict environmental change patterns. The cruise consisted of one leg include DBO (Distributed Biological Observatory) study sites (St.3 – St.8) located in the Northern Bering Strait and Chukchi sea (Fig. 1).

The research methods were: temperature, salinity, water velocity, DO, fluorescence, PAR, transmission, Light intensity, primary production (carbon uptake rate), new production (nitrate uptake rate), regenerated production (ammonium uptake rate), phytoplankton abundance and biomass, phytoplankton pigment, microzooplankton abundance and community, micro-and meso-zooplankton grazing, zooplankton abundance and community, zooplankton respiration, chl-a concentration, size fraction chl-a concentration, Ichthyoplankton composition and abundance, photochemical efficiency of phytoplankton, microbial community and abundance, eDNA, micronekton and fish biomass and species (acoustic camera), images and sizes of marine particles and plankton (UVP6), Transparent exopolymer particles (TEP), Lipid biomarker, Suspended sediment concentration, EK80 Scientific wide-band echo sounder, water clarity, Macromolecular composition of phytoplankton (Protein, Lipid, Carbohydrate), Trace metal(Concentration, Speciation, Isotope composition), hyper-spectrometer profiler*, apparent optical properties, inherent optical properties; pCO₂*, DIC, Total alkalinity(TA),PH, $\delta^{18}\text{O}$ of seawater, CDOM, FDOM, nutrients, DOC, DON, POC, PON, $\delta^{13}\text{C}$, $\delta^{15}\text{N}$; black carbon, particulate amino acid, DO¹³C; black carbon*, wind*, air temperature*/humidity*, air pressure*, radiative fluxes* (shortwave up/down, longwave up/down), atmospheric vertical profile (air temperature, humidity, pressure, wind), all sky optical image*, cloud/aerosol normalized relative backscatter*, Ozone, Aerosols* (ions, water-soluble organic carbon, water-soluble organic nitrogen, total carbon, total nitrogen).

* Measurements some items (underline) were performed continue between stations

Update on anticipated dates for delivery of final results:

Metadata:	30th August, 2025(2 years after the completion of the voyage)
Raw Data:	30th August, 2025(2 years after the completion of the voyage)
Processed Data:	30th August, 2025(2 years after the completion of the voyage)
Data Analysis:	30th August, 2025(2 years after the completion of the voyage)
WODC Data Registration (if applicable):	

Append image or URL illustrating the route of the platform, locations where measurements were taken, and actual cruise track:

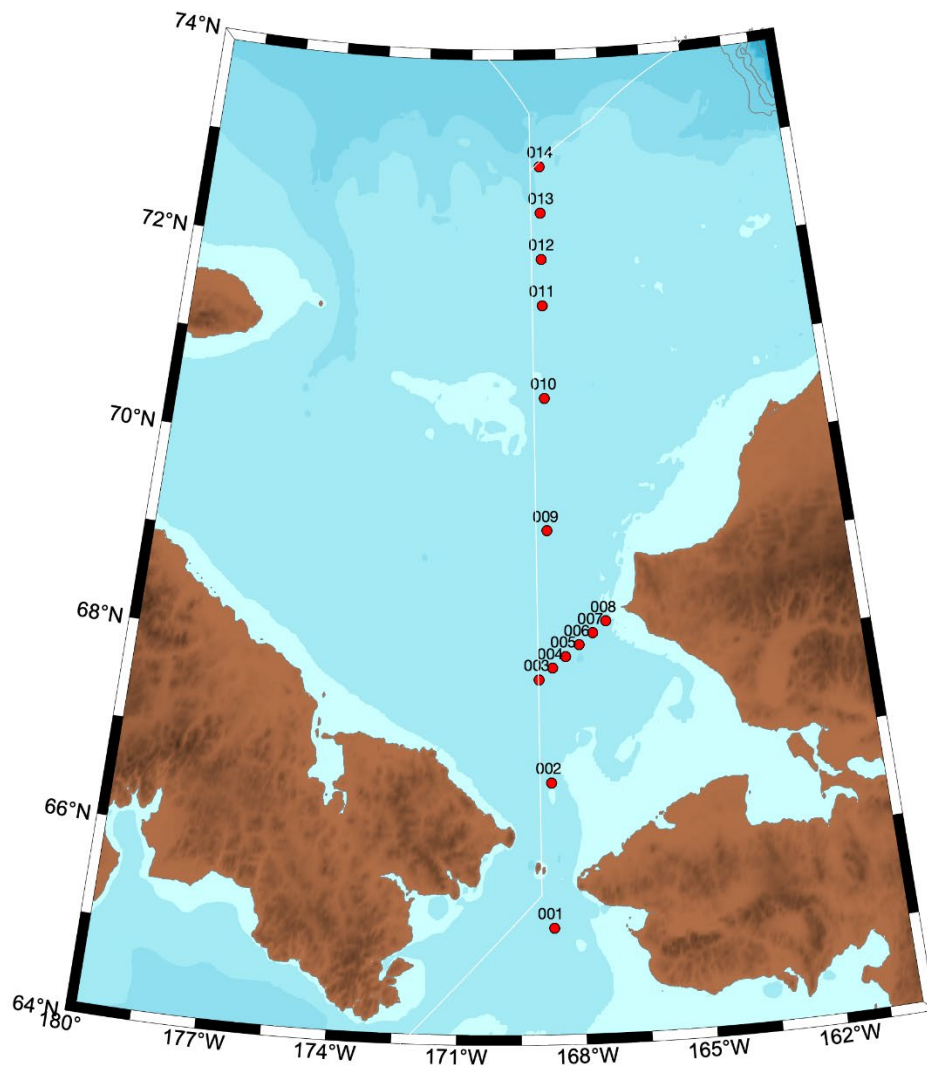


Figure 1. A station map of the Araon Arctic cruise (Stations 01 – 14) within the US EEZ. Black circles represent study stations. Work/transit in the US EEZ was performed during the period from 1th August to 4th August, 2023