

# Institute of Oceanology PAS

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# AREX long-term monitoring program

The main aim of the long-term monitoring program AREX and annual summer cruises, carried for over 30 years in the Nordic Seas and Fram Strait by RV Oceania, is to study processes responsible for changing ocean climate and marine ecosystems along the poleward Atlantic water flow in the sub-Arctic and Arctic regions.

Every summer since 1987 large-scale surveys have been carried out by RV Oceania in the area shown in Fig. 1. *In situ* data are collected on physical oceanography, air-ocean interaction, ocean biogeochemistry and ecology. A repeated regular grid of more than 200 stations covers the Atlantic water inflow through the eastern Norwegian and Greenland seas, into the Fram Strait up to the southern Nansen Basin in the Arctic Ocean. Additionally, an extensive observational campaign takes place every year in the western Svalbard fjords. The data will be freely available from the eCUDO (IOPAN data base)

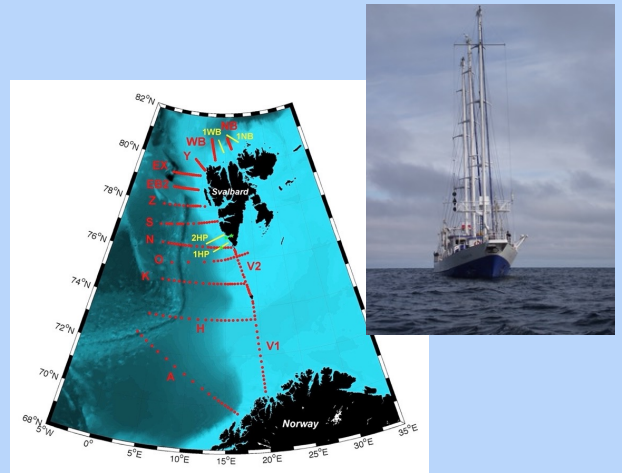


Figure 1. Data are collected every year in the regular station grid (left) by RV Oceania (right)

Time series of key ocean variables from the AREX program, allow monitoring of changes in the Arctic physical and biological environment and improving numerical simulations of ocean, sea ice and climate in the Arctic region.

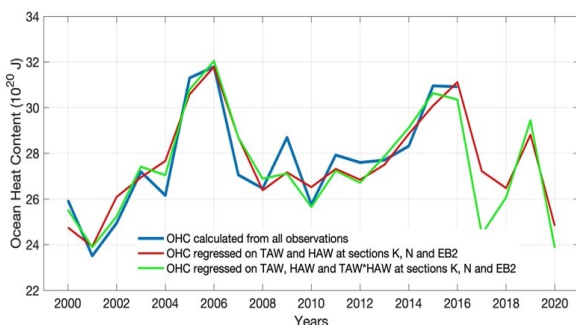


Figure 3. Time series of ocean heat content (OHC) in the Atlantic domain.

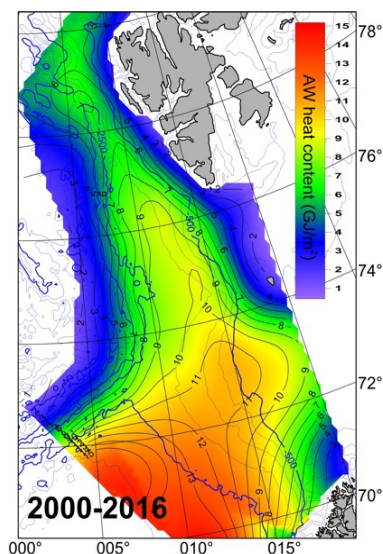


Figure 2. Mean ocean heat content of the Atlantic water from the summer surveys of RV Oceania.

