

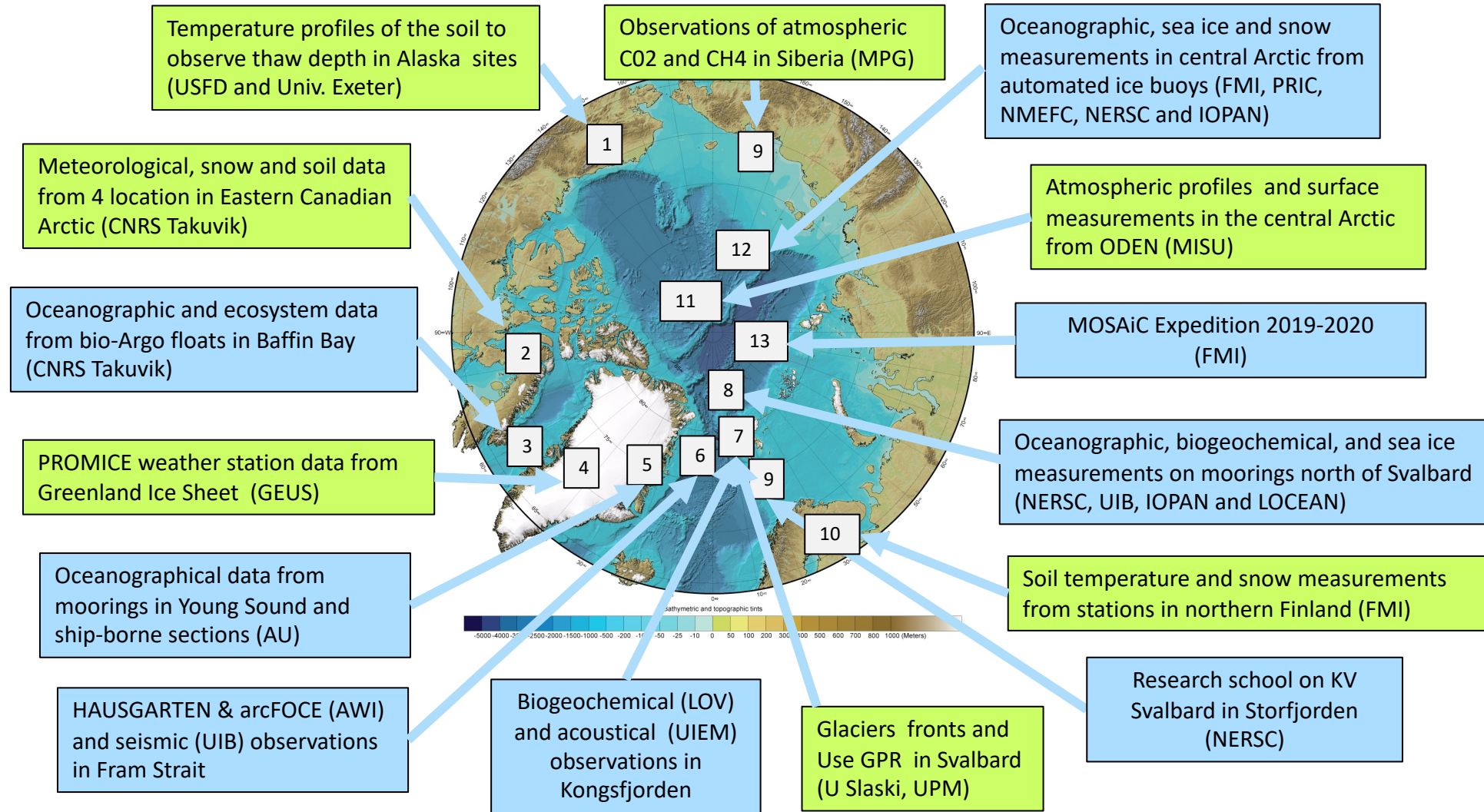
INTAROS: Integrated Arctic Observations System

Coordinator: Stein Sandven, Nansen Environmental and Remote Sensing Center

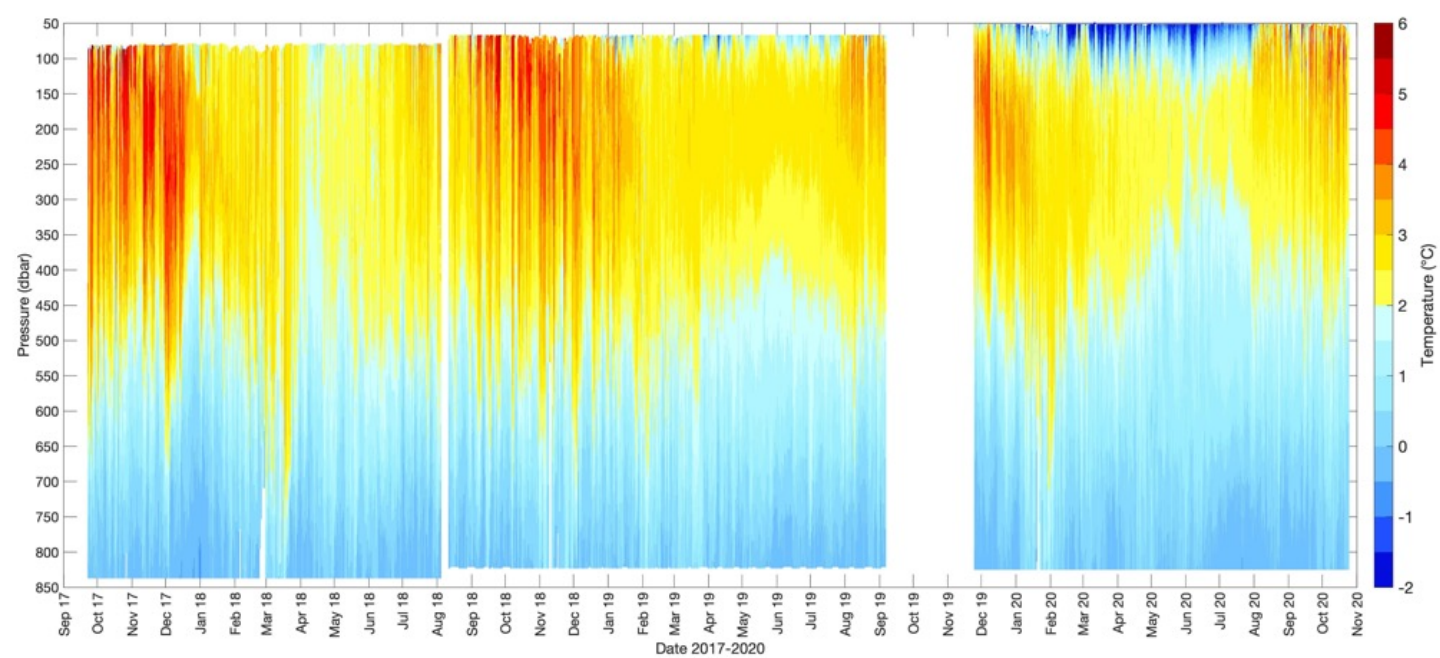
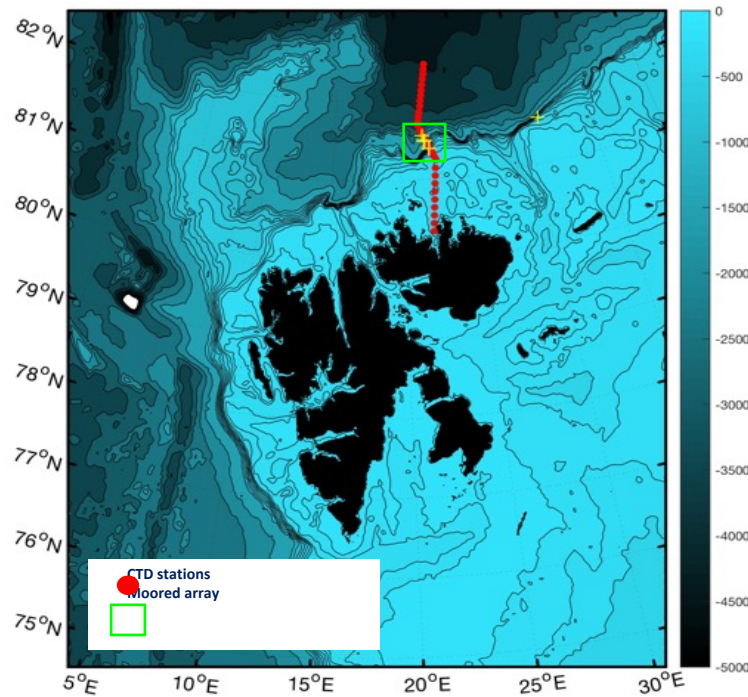
- The main objective is to develop, improve and extend Arctic observing systems for **atmosphere, ocean, cryosphere, terrestrial sciences and local communities with focus on in situ systems**
- More than 300 scientists from 49 organisations in 20 countries have been involved in the project



INTAROS data collection 2017-2021



Oceanographic moorings north of Svalbard



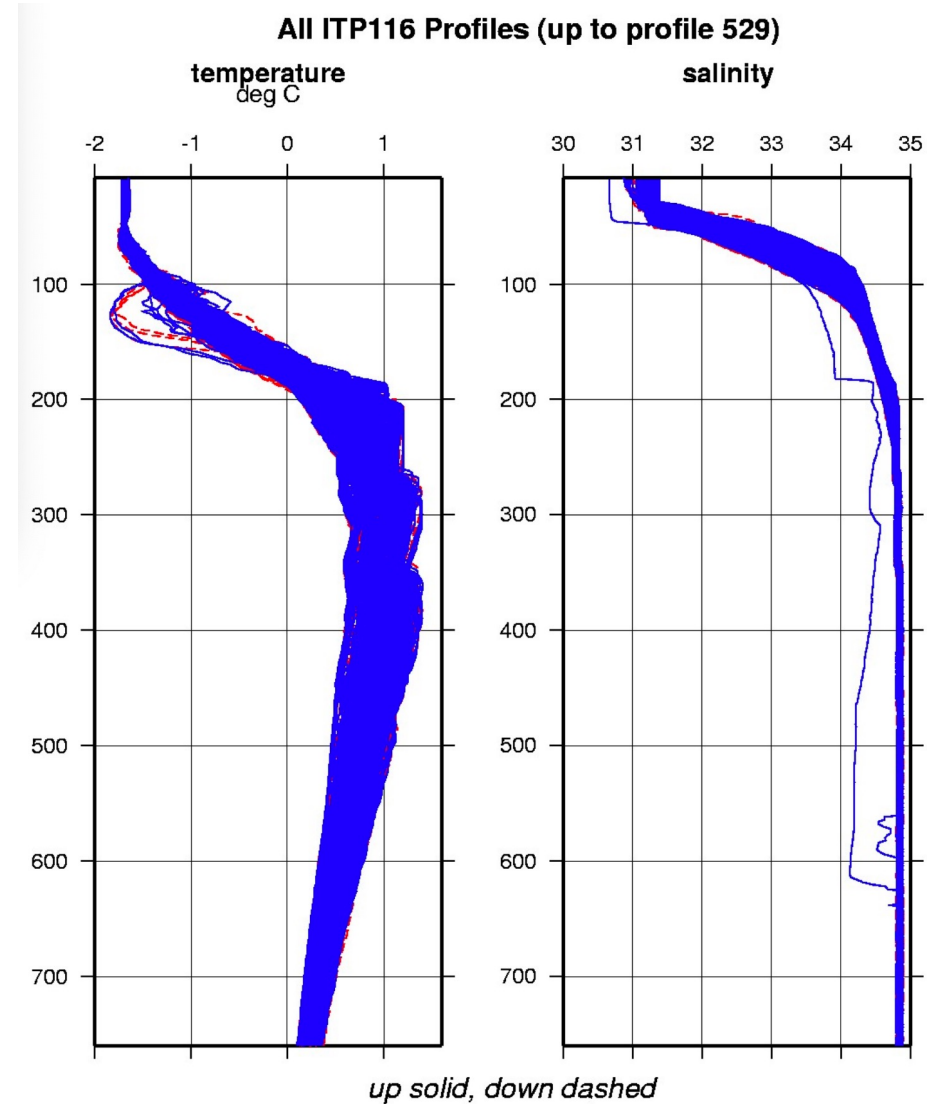
Time series ocean temperature from 2017-2020 from a McLane profiler

Lead: Agnieszka Beszczynska-Möller, IOPAN

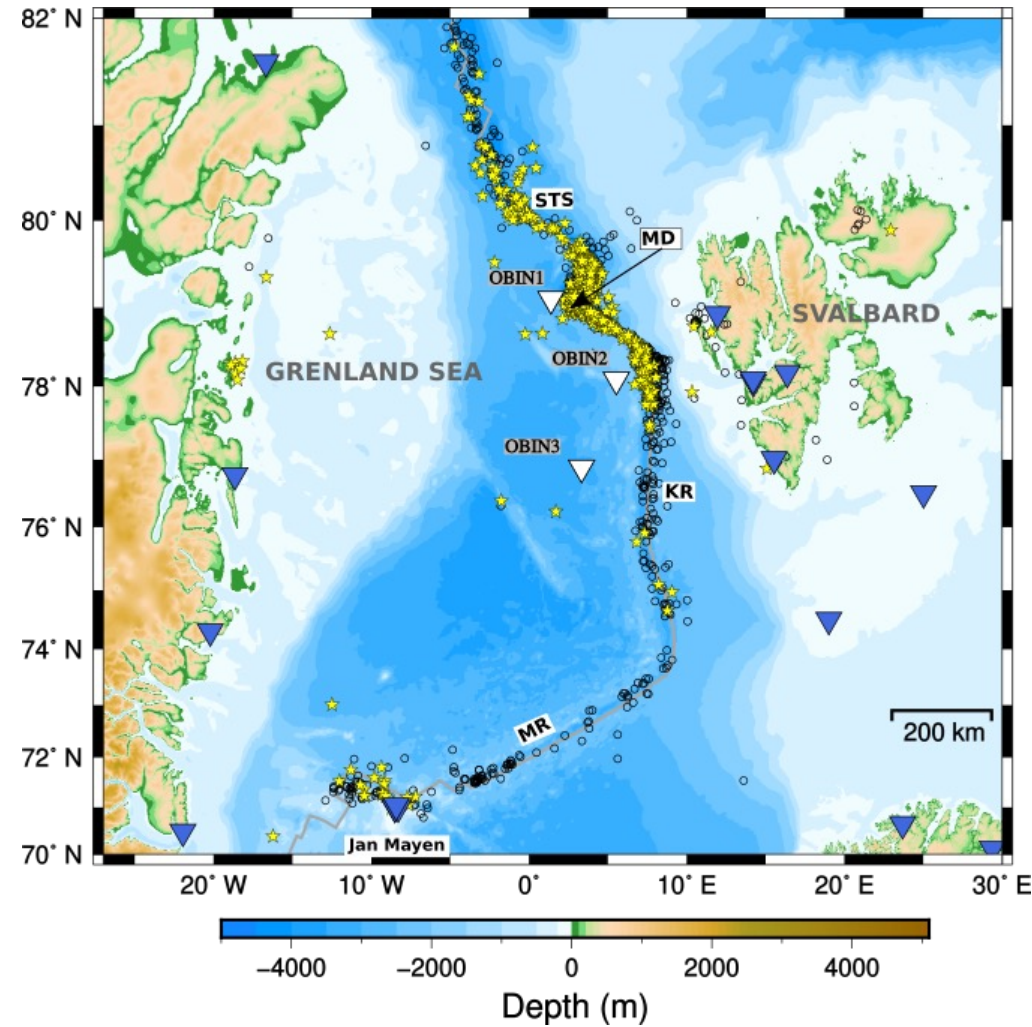
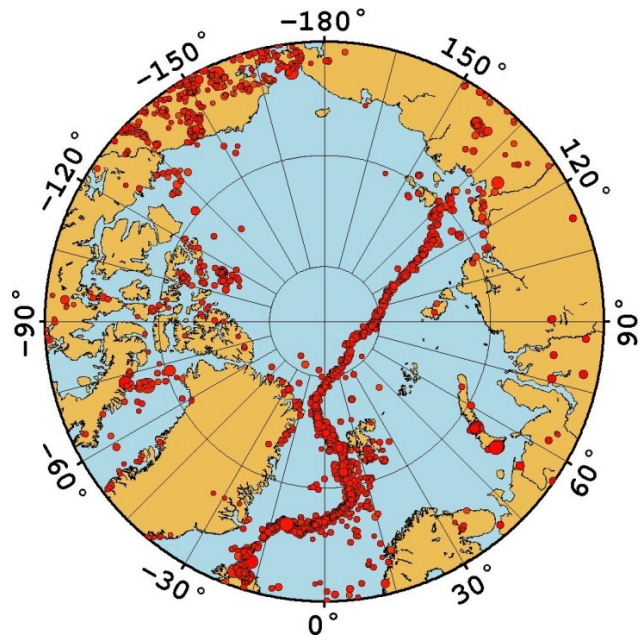
Objective: Monitor the inflow of Atlantic water into the Arctic Ocean in the key area where strong ocean-atmosphere-sea ice interactions result in significant heat loss and water mass transformation



Deployment of ITP from KV Svalbard near the North Pole

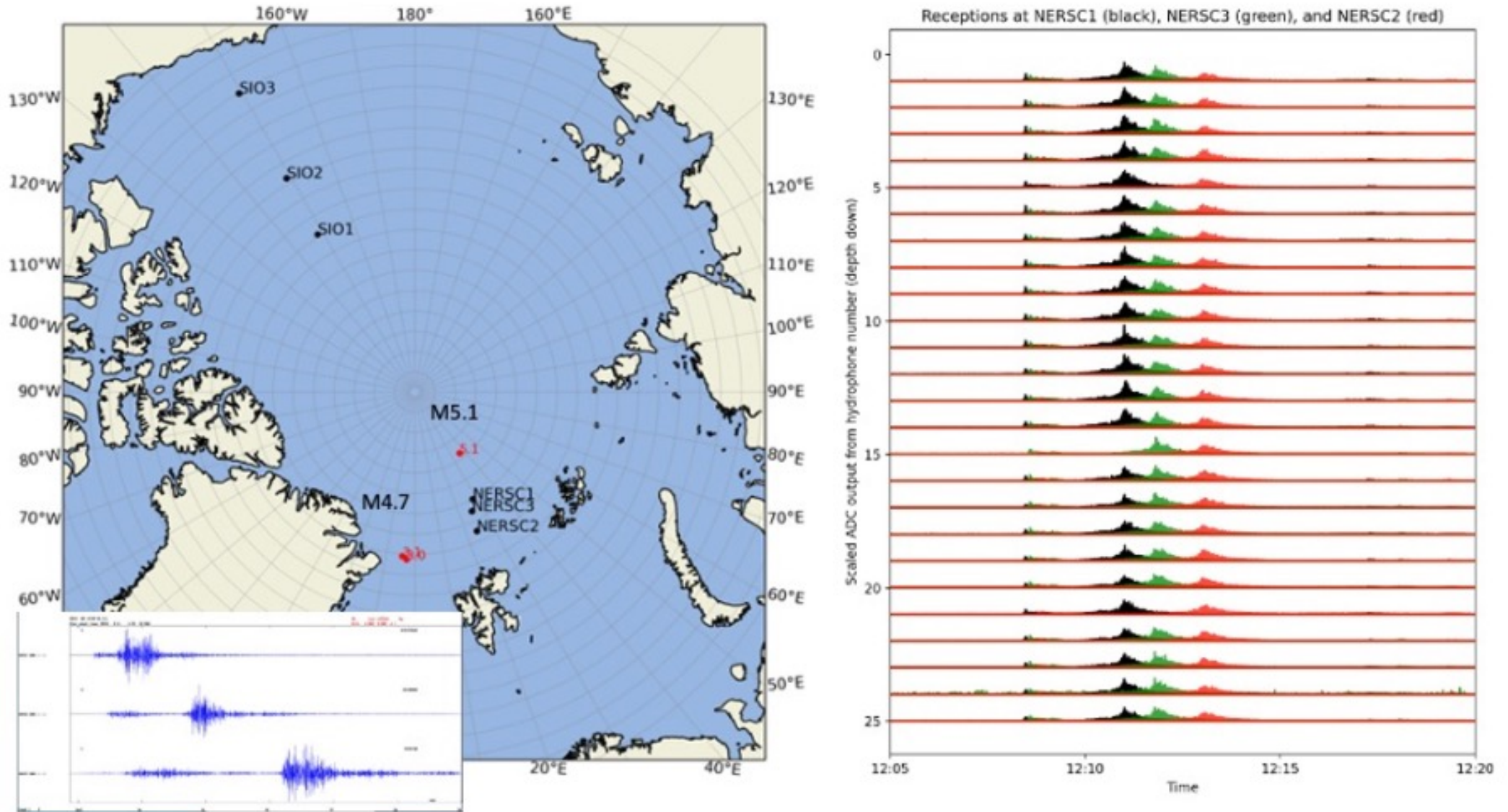


Geohazards in the Arctic: earthquakes



OBS deployments:
Ocean Bottom Seismometers

Observing earthquake from CAATEX moorings

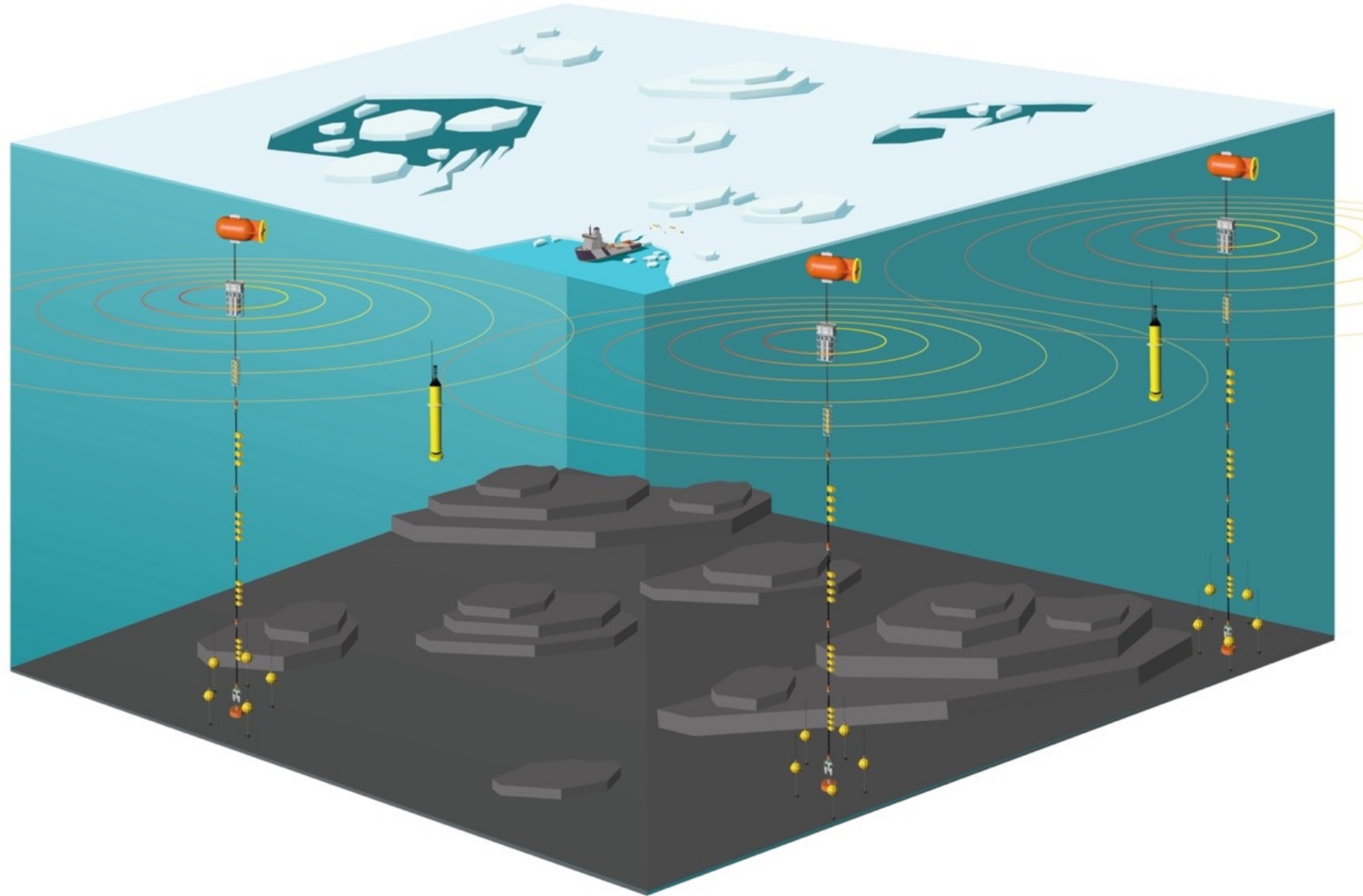


Outlook for next 5 years

The goal is to develop and exploit the High Arctic Ocean Observing System based on multipurpose moorings and drifting floats

The system will also provide UW-GPS in support of floats/gliders under the ice.

Involves extensive Pan Arctic collaboration



Submitted proposals to Horizon Europe in spring 2022

(1) HiAOOS-High Arctic Ocean Observing System

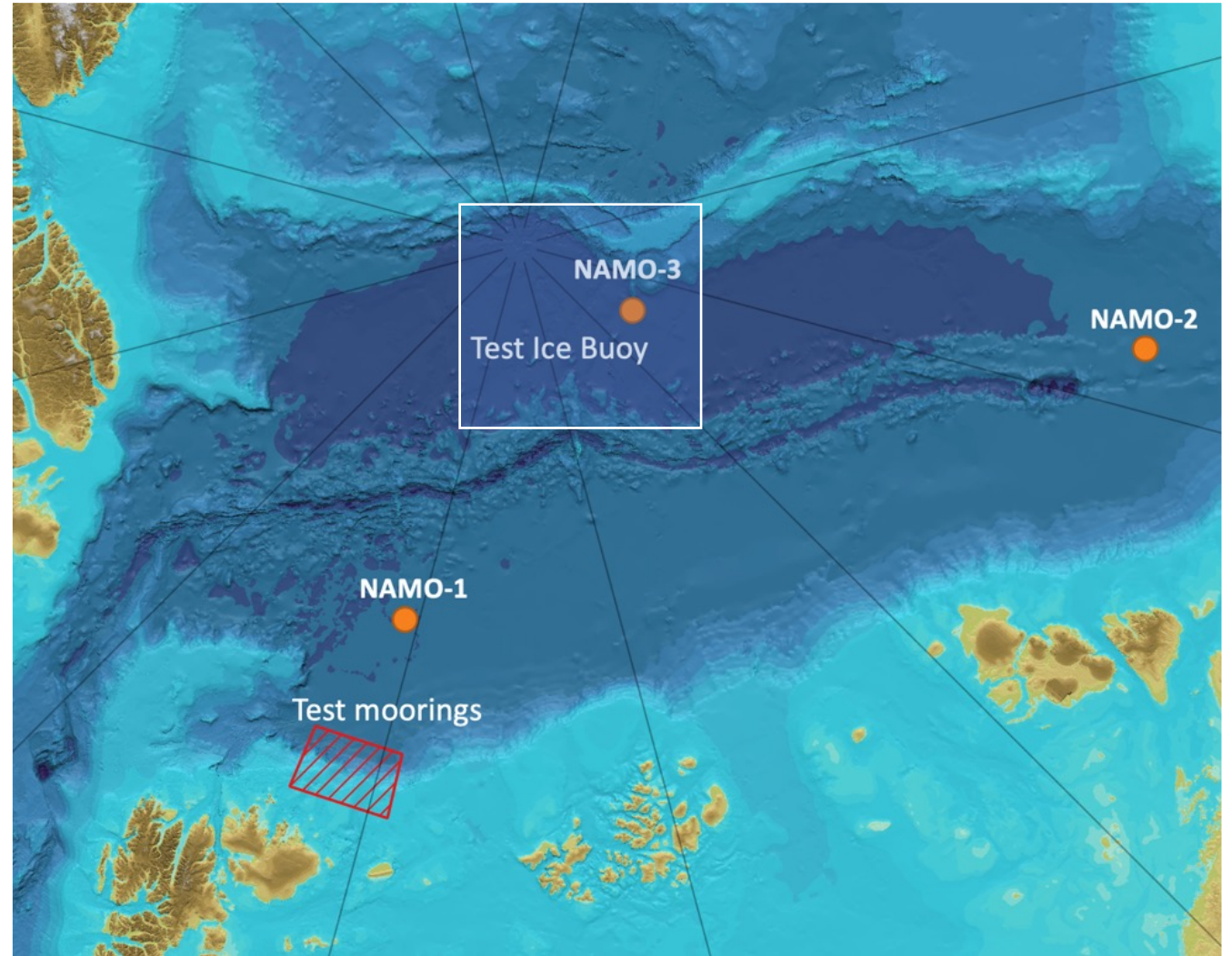
Call: HORIZON-INFRA-2022-TECH-01

- Multipurpose mooring network, new generation of moorings,
- Digital methods for scientific exploitation and innovation of the system.

(2) OBEMA – Observing platform for environmental monitoring

- New ice-buoys with GNSS positioning in collaboration with industry

Call: HORIZON-CL6-2022-GOVERNANCE-01



INTAROS Roadmap: how to improve and sustain the observing capacity in the Arctic

Main conclusions:

- Strengthen **collaboration between countries, programs and institutions** involved in planning, implementing and funding the observing systems
- Develop **streamlined data delivery chains** from sensors to users in collaboration between researchers, technology experts and service providers
- Adapt the observing systems to **evolving technologies** regarding sensors, platforms, data transmission including Arctic broadband, and digital methods to process and manage the growing amount of data



Useful Arctic Knowledge: Partnership for Research and Education (UAK)

- UAK is funded by **INTPART - International partnerships for excellent education, research**, a program under the Research Council of Norway
- Collaboration between Norway, Canada and USA
- Duration 5 years (2018-2022)
- Funding of meetings, workshops, research school and exchange visits.
- Follow-up proposal 2022-2027: UAK-2





UAK Research school onboard KV Svalbard

20-30 June 2020

- **Title: “Ocean observing technology and data management”**
- Participants: 10 MSc and PhD students, 6 instructors
- Scientific topics: oceanography, ocean acoustics, marine optics and seismology
- The students learned about practical field experiments with instruments for data collection, data handling and data publication.





Second UAK Research school KV Svalbard

5-18 June 2021

12 students and 7 instructors from 9 countries

- Navigation in ice
- Focus on collecting ice and ocean data when working on ice
- Deploy and retrieve drifting ice buoys and acoustic buoys
- Recover oceanographic moorings in sea ice
- Use of drones and AUVs
- Satellite remote sensing and in situ observations

