



Understanding changes in the Siberian Arctic Ocean using NABOS observations

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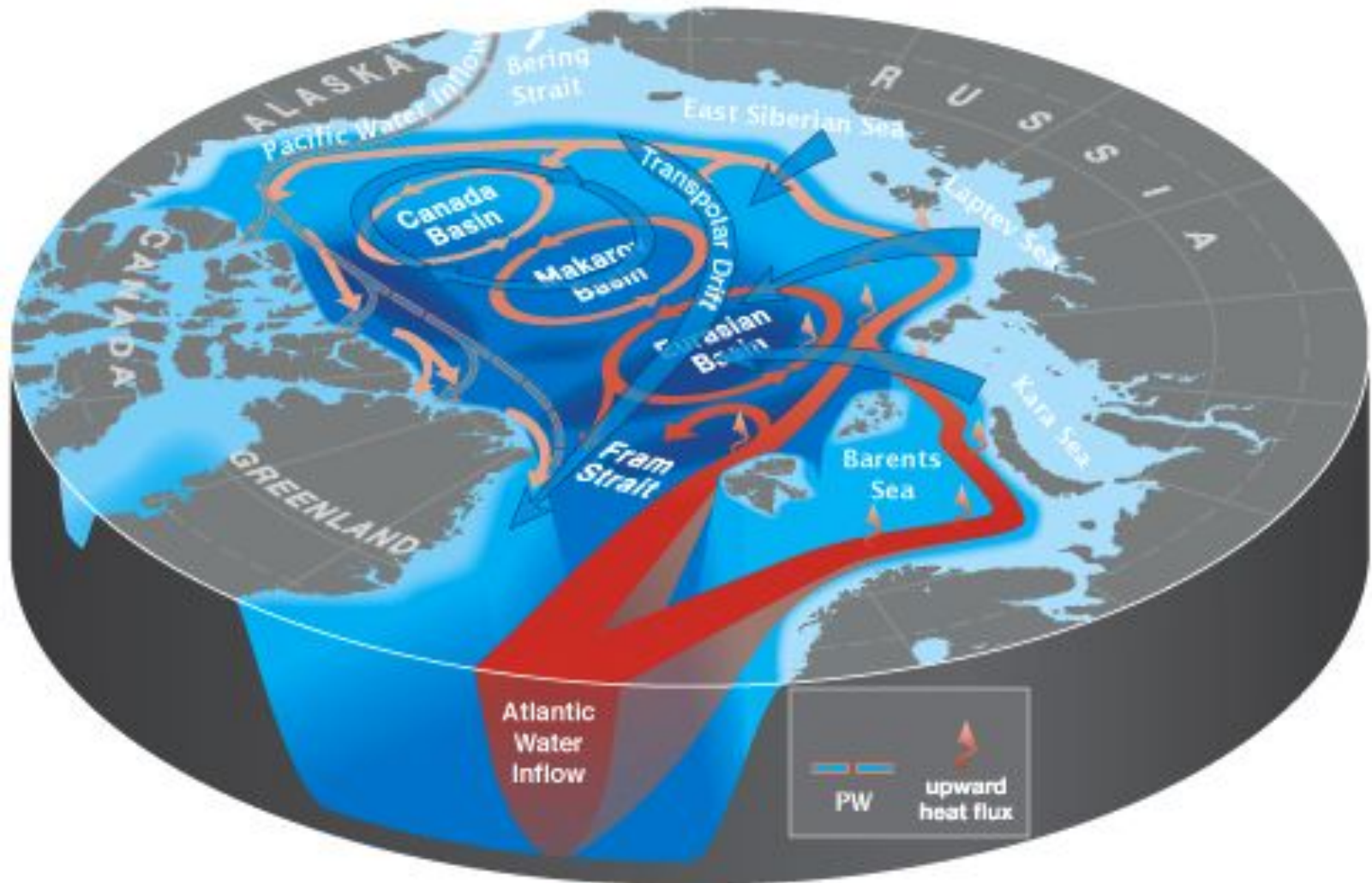
Fairbanks, Alaska



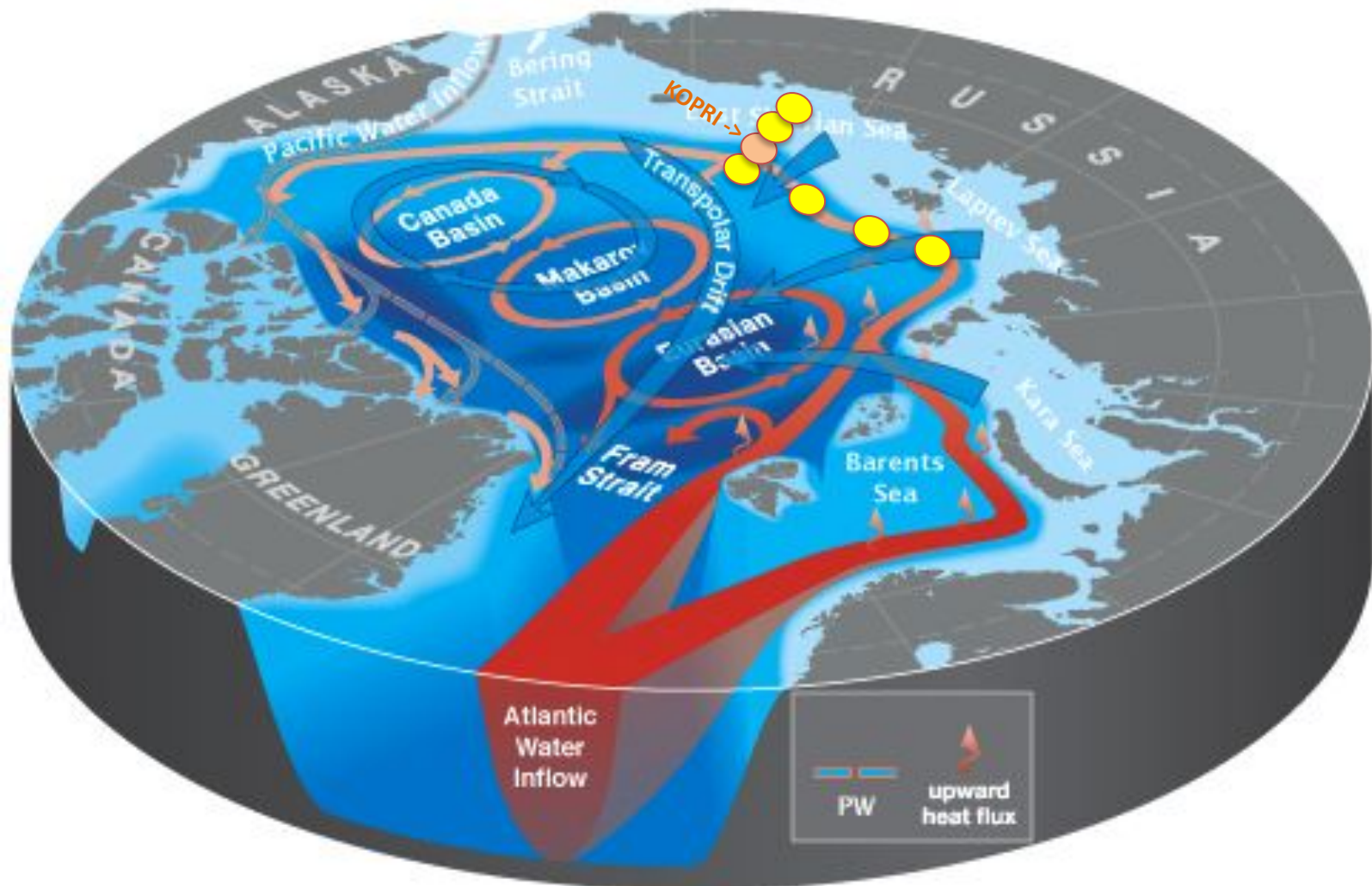
Overarching *goal* of NABOS (= Nansen and Amundsen Basins Observational System), as an element of the Arctic Observing Network, is to compile a cohesive picture of climatic changes in the Siberian Arctic Ocean.

Moorings, Lagrangian drifters (buoys), multi-disciplinary ship observations are the means for monitoring climate changes.

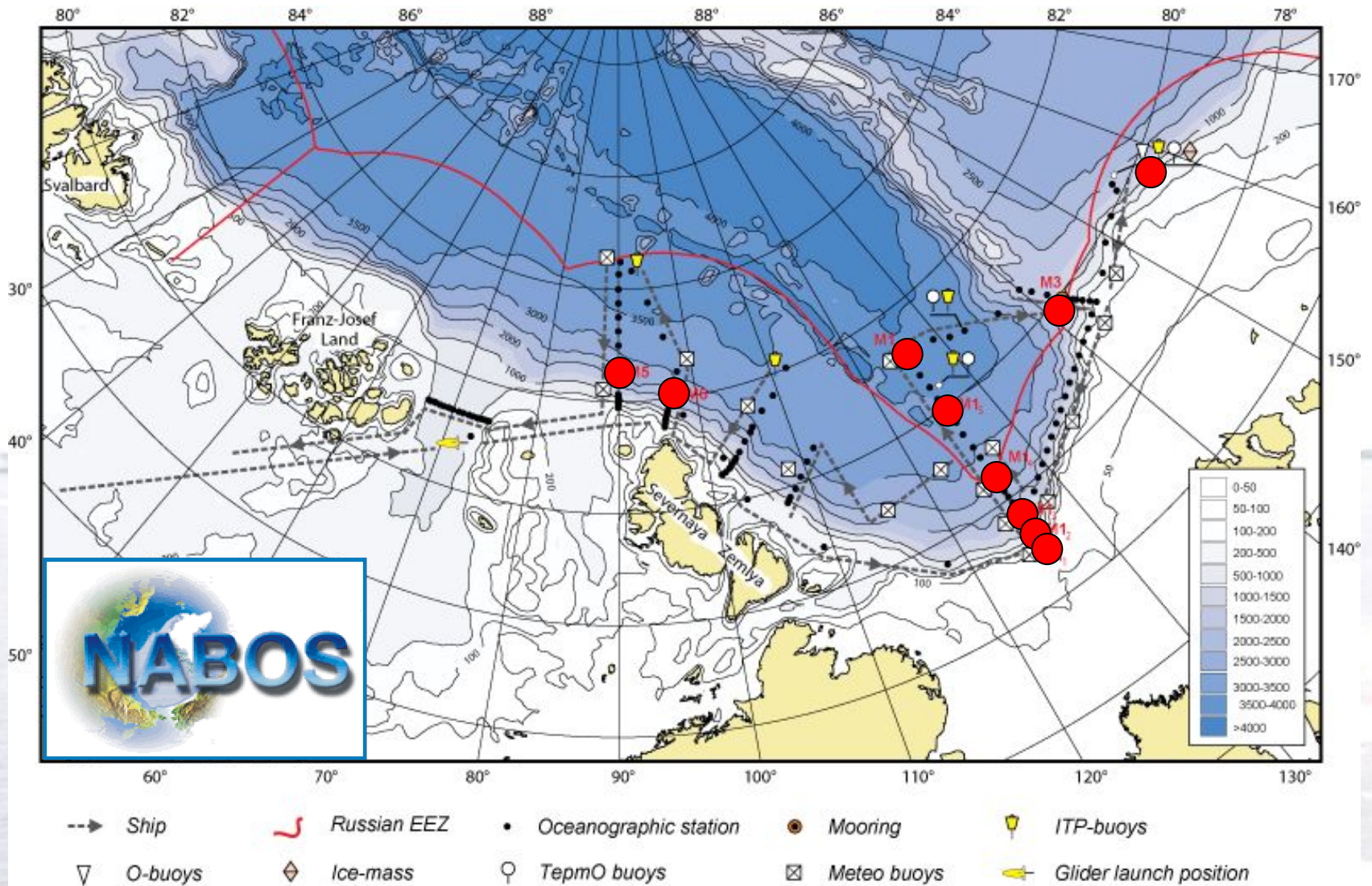
Schematic circulation of the Arctic Ocean



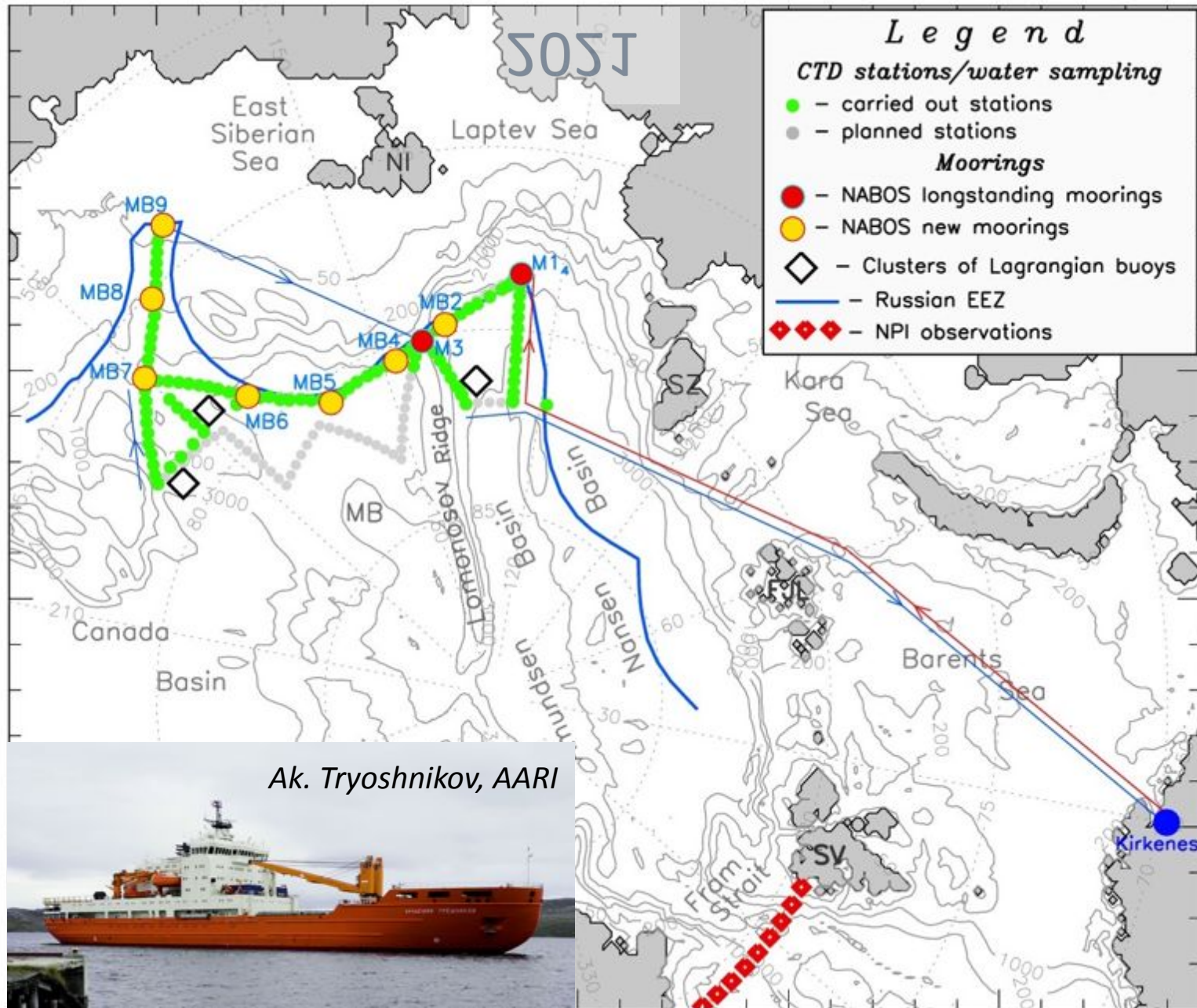
Schematic circulation of the Arctic Ocean



2013-2018

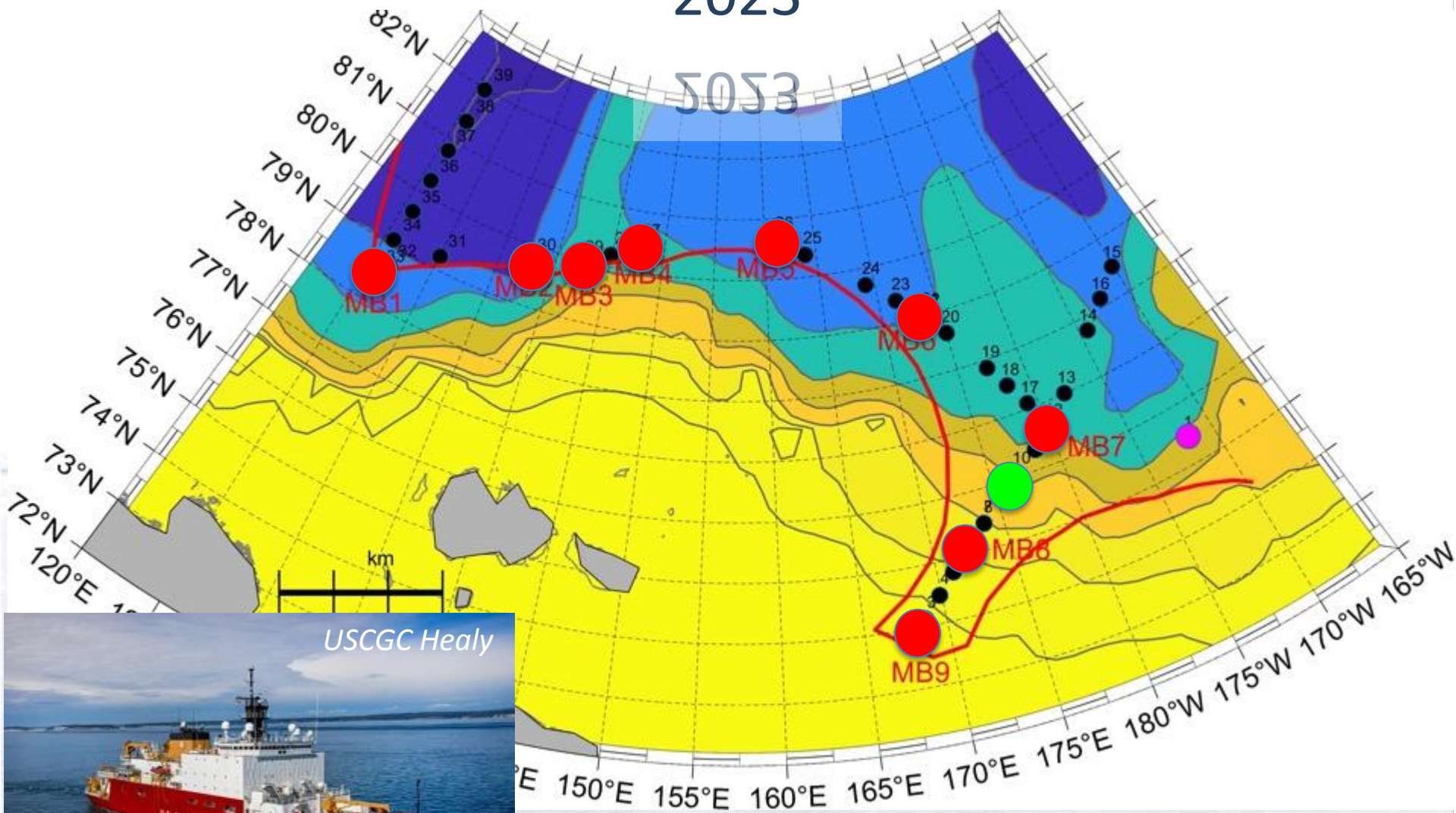


2021



2023

5053



USCGC Healy



Participants of the 2023 cruise



2023 cruise accomplishments

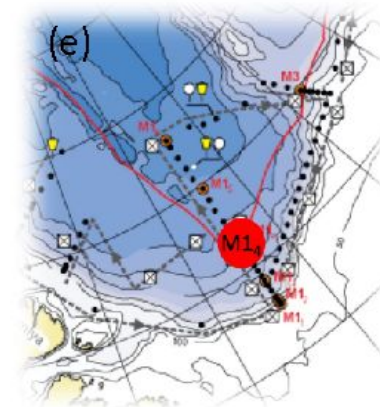
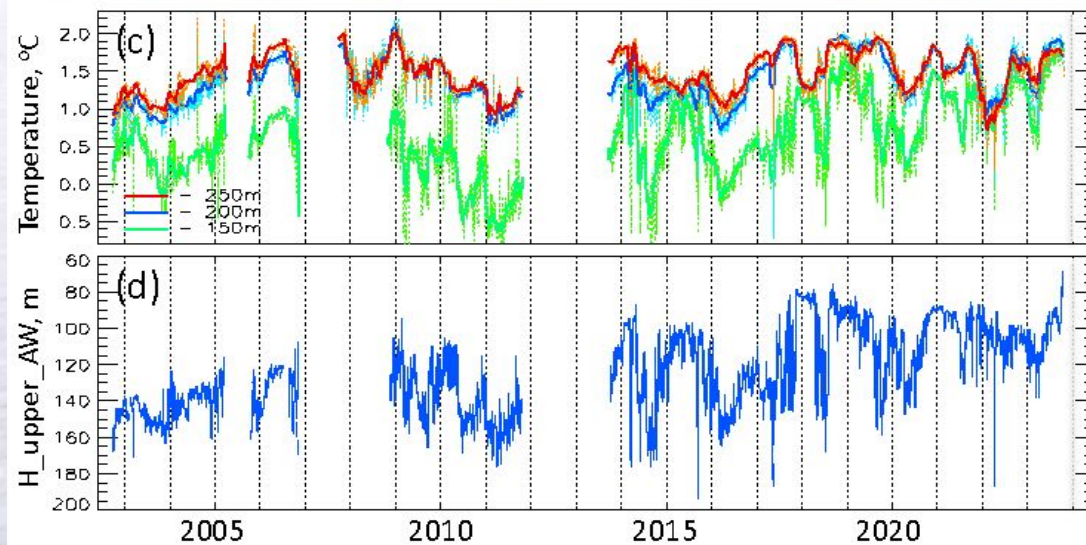
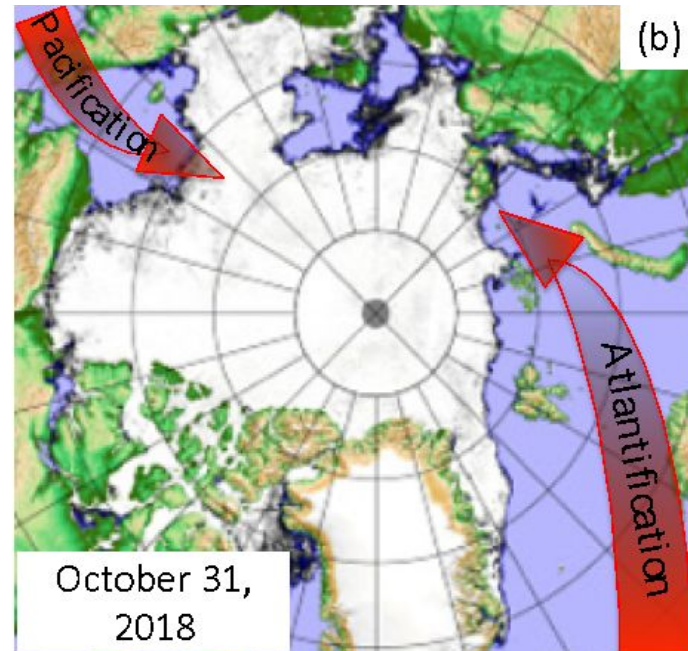
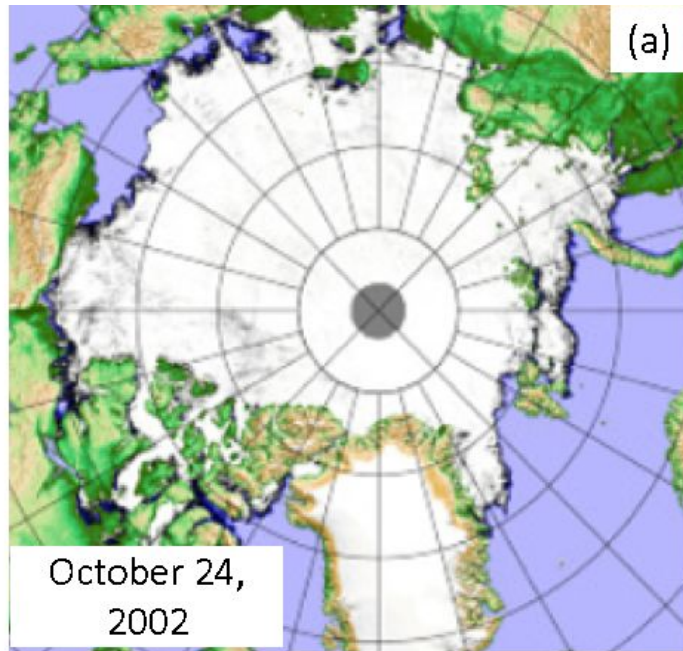
The 37-days long cruise aboard the USCGC *Healy* was a success:

- Mooring operations: Eight moorings were recovered, and nine moorings were deployed for the next two-year cycle.
- CTD casts: 45 stations.
- Water samples: 3,313 water samples for 12 different parameters.
- Radium samples: 44 stations for a total of 95 samples.
- Recovery/deployment of chemistry sensors:
 - two moored radium (Ra) samplers were recovered after two-year deployment and two Ra samplers were deployed
 - one methane sensor was deployed.

Special THANKS to:

- The crew of the USCGC “*Healy*” for facilitation and support of our cruise
- Her Capitan Mrs. Michele Schallip
- The STARC team
- The NSF’s Office of Polar Programs and personally Frank Rack and Roberto Delgado

Mooring observations tell the story about sea ice loss



Examples of the utility of the program

In compliance with Arctic Observing Network requirements, all NABOS data is archived at the NSF Arctic Data Center.

- ✓ 2013–2015 NABOS CTD archive saw an astounding **2.6k** downloads.
- ✓ 2018–2023 NABOS CTD data were downloaded **1.7k** times.
- ✓ > 150 peer-reviewed papers published.
- ✓ Researchers from 17 countries took part in our cruises.

Plans: 2025 cruise

The same spatial pattern as in 2021 including:

- 10 moorings to recover and 9 moorings to deploy,*
- Multidisciplinary survey,*
- Deployment of Lagrangian drifters,*
- 1-2 one-day ice camps,*
- New ecological component as a part of our proposed Siberian Distributed Biological Observatory (S-DBO) initiative.*

Needed: 25 ship time days and 20-25 berths.

Plans: 2027, 2029, and 2031 cruises

Renewal 2026 – 2031 proposal will be submitted in spring.

2027, 2029, and 2031 cruises

