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Barents Sea Ferrybox system

The objectives of the Barents Sea Ferrybox system are to (1) Improve our understanding of short/long-term variability in physical, chemical, and biological ocean processes, (2) Provide *in situ* measurements for validating remote sensing observations and biogeochemical models including carbon cycling, and (3) Develop new sensors and instruments for measuring ocean acidification, inherent optical properties, and microplastics.

The Barents Sea FerryBox system is a suite of sensors onboard M/S Norbjørn, that makes ~30 roundtrip voyages per year between Tromsø and Svalbard. The ship is outfitted with a seawater pump system that brings seawater from ~5 m depth into an assembly of physical, biological, and chemical sensors.

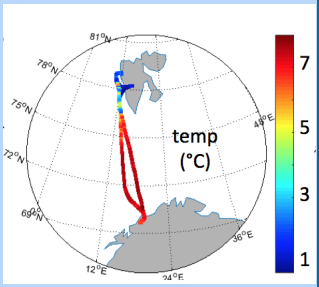

Figure 1. Left: the cargo vessel M/S Norbjørn, Right: the sailing route with surface temperature from two of the transits

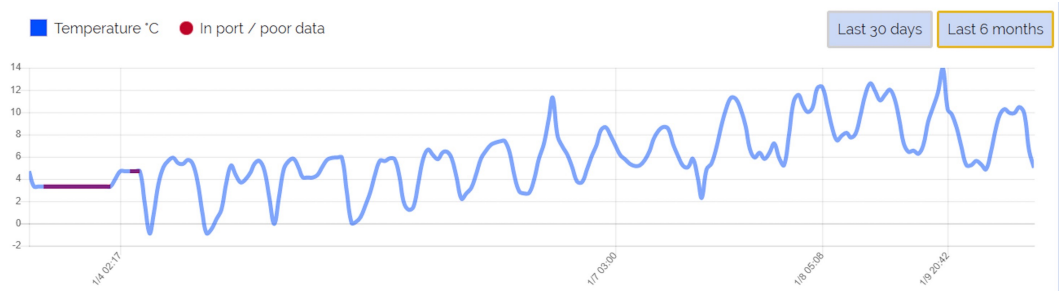

Figure 2. Time series of temperature from 15 voyages between Troms and Svalbard from April to September 2020.

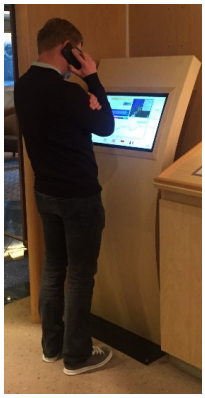

Figure 3. The data from the Ferrybox is also presented in touchscreen consoles located at various public venues.

The Ferrybox system on Nordbjørn is part of NorSOOP: Norwegian Ships of Opportunity Program for marine and atmospheric research. It supports research and monitoring of ocean acidification for the Norwegian Environment Agency. Data are also provided to Copernicus and EMODnet for use in models and satellite validation.

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