

## Establishing the High Arctic Ocean Observation System (HiAOOS)

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The overarching aim of the HiAOOS project under the Horizon Europe is to improve coverage and fill gaps in the Arctic Ocean observation system, and to sustain long-term observations of ocean and sea ice variables in the central Arctic. Such observations are needed over several decades to distinguish climate change signals from natural variability, but in situ observations from the ice-covered central Arctic Ocean are few and lack long-term support. It is also important to have observing systems that can detect environmental changes including natural hazard events. HiAOOS will operate and sustain a multidisciplinary network of bottom anchored moorings, floats, and drifting buoys in the Eurasian Basin for two years. The network of moorings will integrate sea ice and ocean measurements (physical, biological, and biogeochemical) at fixed locations with a multipurpose acoustic network for basin-wide underwater geo-positioning of floats, acoustic tomography, and passive acoustics. The passive acoustics will be used to monitor vocalizing marine life, acoustic impact of human activities, and geophysical hazards (e.g., earthquakes, landslides, or tsunamis). Novel solutions will be developed and tested for improving timely data retrieval from subsurface moorings. The HiAOOS observation system aims to be part of a coordinated Pan-Arctic multipurpose observing network. To unlock all capabilities of HiAOOS, a modular digital platform for data processing and visualization is under development by Kongsberg Discovery based on their Blue Insight solution. The digital platform will be further enhanced in other projects to become a digital window for the Arctic Ocean. The Arctic Window will be used to promote HiAOOS towards users within education, research, public and private sector.