



Enhancement of *in situ* observing systems in the Arctic under the H2020 INTAROS project

Agnieszka Beszczynska-Möller (1), Peter Voss (2), Stein Sandven (3), Hanne Sagen (3), Andreas Ahlstrøm (2), Truls Johannessen (4), Thomas Soltwedel (5), and Mathias Göckede (6)

(1) Institute of Oceanology PAS, Sopot, Poland (abesz@iopan.gda.pl), (2) Geological Survey of Denmark and Greenland, Copenhagen, Denmark, (3) Nansen Environmental and Remote Sensing Center, Bergen, Norway, (4) University of Bergen, Geophysical Institute, Bergen, Norway, (5) Alfred Wegener Institute Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany, (6) Max Planck Institute for Biogeochemistry, Jena, Germany

The H2020 project Integrated Arctic Observation System (INTAROS) aspires to increase the temporal and geographic coverage of *in situ* observations and add new key geophysical and biogeochemical variables in selected regions of the Arctic. By using a combination of mature and new instruments and sensors in integration with existing observatories, INTAROS aims to fill selected gaps in the present-day system and build additional capacity of pan-Arctic monitoring networks.

Three reference sites have been selected as key locations for monitoring ongoing Arctic changes: Coastal Greenland, paramount for freshwater output from the Greenland ice sheet; North of Svalbard (shelf to deep basin) - the hot-spot for ocean-air-sea ice interactions, and heat and biological energy input to the European Arctic; and Fram Strait - the critical gateway for exchanges between the Arctic and the World oceans. Two distributed observatories: for ocean and sea ice and for terrestrial and atmospheric measurements will be extended with multidisciplinary observations, still missing from the central Arctic and remote coastal areas. New sensors, integrated platforms and experimental set-ups will be implemented during a two-year long deployment phase (2018-2020) with an aim for sustained use in a future iAOS. New observations will be used for integration of new data products, demonstration studies and stakeholder consultations and contribute to ongoing and future long-term initiatives (e.g. OSPAR, SAON, YOPP).

Here we will address the technical development, integration and system design carried out for the selected reference sites and distributed observatories during the first phase of the project, and review new *in situ* observational efforts, implemented during the first INTAROS field season in 2018.