



INTAROS

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Platforms and technologies for Arctic Ocean Observing Systems

Workshop 29-30 April 2019
organized by the Nansen Center
as part of the INTAROS project

Start: 29 April 1300, adjourn: 30 April 1600

Venue: Grand Hotel Terminus,
Zander Kaaes gt. 6, 5015 Bergen

Introduction

The possibilities to build up in situ observing systems in the Arctic are expected to increase in the coming years as a result of more human activities in the region. Many countries, in particular the Arctic countries, the EU, and several Asian countries, plan to increase their research efforts and to participate in the exploitation of resources and development of transport systems, and thus play a role in the economic development in the region.

It is a logistical and technological challenge to obtain regular observations from the ocean under the sea ice cover. Observing technology and platforms developed for open ocean are not necessarily applicable in ice-covered areas e.g. floats and underwater vehicles. The installation costs are high in the Arctic, and it is a major challenge to establish funding mechanisms to secure sustainability of ocean observing systems in the Arctic.

A major objective of the INTAROS project is to develop and implement observation systems for atmosphere, ocean and seafloor, sea ice, marine ecosystem, glaciology, other terrestrial themes. In this workshop we invite Norwegian institutions working with development of platforms, sensors, data production and systems for the ocean observations, with focus on Arctic regions.

The workshop present opportunities and challenges related to: (1) sensors and platforms that are adapted to and can operate year-round in a harsh Arctic environment, (2) how to implement year-round data collection, and if possible including near real time (NRT) data transmission to data centres, and (3) integration and visualization of multidisciplinary data from distributed repositories.

Ocean Network Canada (ONC) has been invited to give a talk about cabled observatories for ocean observing systems. ONC is a large Canadian infrastructure for ocean observations (<http://www.oceannetworks.ca/about-us>). ONC operates large scale deep sea cabled systems as well as local scale cabled system in coastal areas including Cambridge Bay in the Arctic, (<http://www.oceannetworks.ca/installations/observatories/arctic/cambridge-bay>), which is ice-covered most of the year. To handle the massive amount of data coming in from these observatories, ONC has developed an advanced information system including data integration and visualization.

Agenda

29 April 2019 13:00 – 18:00 and 30 April 2019 09:00 – 16:00

Session 1: Introduction and background

Stein Sandven, NERSC : Welcome and introduction

Jon Børre Ørbæk, Research Council of Norway: Sustained Polar and Ocean Observation as seen from RCN

Marianne Kroglund, Norwegian Environment Agency: Arctic Monitoring and Assessment Programme (TBC)

Session 2: Fixed ocean observing systems

Scott McLean, Ocean Network of Canada. Invited talk: Cabled Ocean Observatories – Regional to Community Scale.

Anders Hermansen, Equinor, and Espen Johnsen, Institute of Marine Research: Cables in Lofoten. (Speaker and title TBD)

Mathilde Sørensen, University of Bergen, Department of Earth Science: Improving seismological monitoring capacity in the Arctic with Ocean Bottom Seismometers

Hanne Sagen, NERSC, Multipurpose acoustic networks in an integrated Arctic Ocean Observing System.

Bjørn Rønning: Borealis Submarine Cable System - Connecting Europe and Asia over the North Pole.

Sebastian Gerland, Norwegian Polar Institute: Oceanographic moorings in the Arctic (**confirmed that a person will come**)

Session 3: Moving systems including sea ice platforms and drones

Lionel Camus, Akvaplan-NIVA: Surface and subsurface gliders off Lofoten.

Kai Sørensen, NIVA: Ocean monitoring along shipping routes using Ferrybox systems.

Jørgen Berge, University of Tromsø, the Arctic University of Norway: Ice-tethered observatories

Rune Storvold, NORCE/NORUT: Airborne surveillance of arctic sea-ice properties using drones.

Atle Gran, Kongsberg Maritime: Hugin and Seaglider – Mobile platforms from Kongsberg Maritime Subsea

Kjell Arne Mork, Institute of Marine Research: NOR ARGO – Ocean observing system using autonomous profiling floats (**not confirmed**)

Mats Granskog, Norwegian Polar Institute: Ice Observing System using automated ice-buoys (a person from NPI is expected)

Session 4: Robust Sensor technology for sustained observations

Peter James Thomas, NORCE/CMR: Distributed Fiber Optic Sensing

Anders Tengberg, Aanderaa Data Instruments/Xylem: Cold water systems using multi-parameter platforms and smart-sensors from Aanderaa/Xylem

Gunnar Sagstad and Bård Sagstad, SAIV AS: Presentation of sensors and systems provided by SAIV AS

Truls Johannessen, University of Bergen, Geophysical Institute: Novel technology to monitor the biogeochemical cycles in an Arctic environment

Session 5: Emerging systems for data integration and visualization

Laurent Bertino, NERSC: Assimilation of various sources of data in the Copernicus Arctic Marine Forecasting Center.

Scott McLean, Ocean Network of Canada. National Oceanographic Data Management

Øivin Arnes, DNV GL: Integrating observations in environmental risk assessments

Helge Sagen, Institute of Marine Research: Applications of marine data from Norwegian Marine Data Centre – NMDC

Torill Hamre, NERSC: Service development using integrated Arctic Observation System (iAOS).

Øystein Godøy, Norwegian Meteorological Institute: Data management, SIOS and NorDataNet in the Global and Polar Data System Context

NN, NORCE/UiB: Visualization of Geohazard data **(not confirmed)**

Panel discussion and recommendations for improved observing in the Arctic oceans. What should be included in an observing systems ? Who should the systems serve ? What is the benefit of ocean observing in the Arctic for the society ?