Seagliders in a multi-purpose acoustic network in the Fram Strait

Monday 16 Jun 2014 at 18:00 (02h30’)

Content:
The project ‘Arctic Ocean under Melting Ice’ (UNDER-ICE), running from 2014 to 2017, aims to improve our knowledge of ocean, sea ice, and biological processes in the Fram Strait, the deepest gateway to the Arctic Ocean. This follows a previous project, ACOBAR, in which a multi-purpose system for acoustic thermometry, low-frequency passive acoustics, and glider navigation was deployed in the Fram Strait for two years. Acoustic tomography builds on accurate measurements of the travel times between positioned sources and receivers, which through inversion provide synoptic depth-range, averaged sound speed. Sound speed is converted to mean ocean temperature and currents over pre-defined ocean volumes at high temporal resolution, but low spatial resolution. Glider data can complement acoustic tomography by providing information with high spatial resolution.

Acoustic tomography data from the Fram Strait showed high temperature variability on time scales associated with oceanic mesoscale processes. By analysing Seaglider data collected in the Fram Strait from 2008 to 2012 under the ACOBAR project we hope to characterize the mesoscale variability in the Fram Strait, and in combination with acoustic modelling describe its effect on the acoustic propagation conditions. Here we present preliminary results from our study using the four years of ACOBAR Seaglider data to investigate mesoscale eddies and meanders in the Fram Strait, with a view to improving the analysis of acoustic thermometry data. We compare hydrographic data from repeated quasi-zonal glider transects along ~79°N with other data from the integrated observational system, and invite discussion of the possibilities and challenges of using glider data to complement acoustic thermometry.

Primary authors: Dr. ULLGREN, Jenny (Nansen Environmental and Remote Sensing Center)
Co-authors: Dr. BESZCZYNSKA-MÖLLER, Agnieszka (IOPAS) ; Dr. SAGEN, Hanne (Nansen Environmental and Remote Sensing Center) ; Dr. GEYER, Florian (Nansen Environmental and Remote Sensing Center)
Presenter: Dr. ULLGREN, Jenny (Nansen Environmental and Remote Sensing Center)
Session classification: POSTER SESSION

Track classification: High resolution 4D oceanic measurements by gliders and process studies (physical and biogeochemical coupling, sub-mesoscale features, air-sea interactions,...)

Type: Poster