



3D Mapping of Water Column and Seabed Features in the Kveithola Trough (South Svalbard)

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We present the results by water column and seabed data integration of different acquisition systems in a key role area like the Arctic Region with several implications in global warming and climate change. Data were collected during the Arctic Marine Geophysical Campaign “High North 17” onboard Alliance Ship, in the Kveithola Trough, a glacially-carved trough (trough mouth fan) located in the North-West of Barents Sea continental shelf, between Bear Island and South Svalbard. This trough is characterized by E-W direction over 90 km in length and less than 15 km in width and an average water depth of 300-350 m. In particular the acoustic data collected by multi-beam echo sounder are processed to perform a high resolution 3D mapping of the seabed and the water column with typical products as bathy-surfaces, backscatter mosaics and sediment classification. This approach permitted the detection, the recognition and the identification of several spatial feature anomalies, highlighting in the area two main target like schools and gas plumes. The acoustic data integration by ground truths of seabed and water column biogeophysical parameters with CTD, Rosette, Glider, Box corer produced a 3D mapping of these features in terms of nature and morphodynamics.