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Climate warming during last decades: paleontological and sedimentological evidences in the Kveithola Trough, NW Barent Sea (Arctic)

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Arctic studies during the last decades demonstrated that this area is responding more rapidly to global warming than other areas of our planet. Several studies indicate that the Holocene climatic changes in the Arctic are of higher amplitude than in subpolar areas. The Kveithola Trough, located in the northwest Barents Sea, has an interesting sedimentary record associated to the oceanographic configuration and dynamic glacial history. In this area two main water masses interact: the cold, fresh Arctic Water coming from the north, and the warm, salty Atlantic Water flowing from the south.
During the oceanographic cruise EUROFLEETS2-BURSTER, seven multi-cores were collected from four sampling sites in the in the Kveithola Trough, and analysed for foraminiferal assemblages and sedimentological parameters.
The dominant foraminiferal species, recurrent in the study area, indicate that a higher influence of warm water and increasing anoxic conditions settled along of the Kveithola Trough area during the last 45 years. Other environmental parameters, such as sediment grain size, salinity, and current speed also influenced the presence and distribution of taxa within the Kveithola Trough. The composition of the benthic foraminiferal assemblages and taxonomic abundance allowed to infer significant environmental differences in the evolution of the inner and outer shelf areas and reveal last decades variability of water masses, oxygen concentration and organic matter flux to the seafloor. These preliminary evidences need confirmation by further multidisciplinary analyses of biological, sedimentological and biochemical data.