



Changes in the properties of the deep and intermediate water in the Nordic Seas in 1997-2016

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The Nordic Seas are one of the four major regions for deep water formation, that play a significant role in the global climate system.

The aim of this study was to investigate the temporal and spatial variability of the basic physical properties of deep and intermediate water in the Nordic Seas in 1997-2016. The special attention was paid to quantification of changes in temperature and salinity of the studied water masses and finding potential drivers of these changes.

In presented study hydrographic data was used for the years 1997-2016, obtained during the annual r/v Oceania cruises in the Nordic Seas region. Each summer the Institute of Oceanology, Polish Academy of Sciences performs measurements along more than 10 hydrographic sections, including about 200 stations and covering the area between the northern Norway and the northern Fram Strait. Hydrographic measurements to collect CTD (conductivity, temperature, pressure) profiles were performed using a SBE 911plus probe and extend from the surface to the bottom.

Based on the results, it has been found that in the past 20 years, deep and intermediate water in the studied region has warmed at least 10 times more than the mean global ocean temperature change. The salinity of the water masses was also changed.

This means, that changes in the properties of these waters have a much greater impact on the recently intensified climate change than previously thought. Thus, the change in the ocean circulation, dissolved oxygen content in water and carbon dioxide, as well as sea level rise may occurred much faster than previously predicted.

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