



Evolution of properties related to ULSW formation during winters 2005-2007

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The western subpolar gyre is a key region for the Atlantic meridional overturning circulation (MOC). Different types of Labrador Sea Water (LSW) are locally ventilated and formed here by oceanic winter-time convection and thus injected into the deep and cold branch of the MOC. Upper LSW (ULSW) is the lightest contributor. Recent results based on hydrographic and tracer data collected during summers indicate a downward trend in the formation of ULSW. Direct ship observations during winter time are, however, barely available.

Hydrographic profiles provided by the Argo float program close this gap, since recent available profiles allow to study the temporal and spatial evolution of ULSW-related properties in the winters of the years 2005-2007. We thus analyze and compare the wintery density evolution and mixed-layer depths in the Labrador and Irminger Seas.

The layer thickness of ULSW is divided into different density classes. These classes are investigated with respect to revealing the greatest thickness change over the last three years. Corresponding results from summer data are compared to existing results based on CTD profiles from earlier years.