



Declining formation of Labrador Sea Water

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Upper and Classical Labrador Sea Water (ULSW and CLSW) are prominent water masses of the North Atlantic circulation. Numerical simulations indicate that there is a strong link between the strength of the Meridional Overturning Circulation (MOC) and the formation of Labrador Sea Water. Based on comprehensive hydrography/tracer datasets from the years 1997, 1999, 2001 and 2003 we present time series of ULSW and CLSW formation rates that have been inferred from changes in the respective chlorofluorocarbon-12 (CFC-12) inventories. The results indicate a decline in the formation of ULSW during 1997-2003, while at the same time CLSW formation was absent. A comparison of this time series with an updated index of the eastward baroclinic mass transport in the upper 2000m between Bermuda and the central Labrador Sea reveals similarities in their respective decreasing trends. These results might point to climate-related changes in the ocean. However, to detect any clear correlation to changes in the Atlantic MOC a longer continuation of the formation rate time series is needed.