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Transports and properties of overflow water south of the Denmark Strait between 1997 and 2005

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Denmark Strait is an important pathway for the overflow waters from the Arctic Mediterranean, which contribute to the North Atlantic Deep Water and force the global Meridional Overturning Circulation. Between 1997 and 2005 as a part of the VEINS and ASOF projects 4 to 6 hydrographic sections have been taken across the Greenland slope each year from just south of the Denmark Strait down to Kap Farvel. Geostrophic transports are calculated for the sections setting the velocity to zero at the minimum allowing no northward transport. The mean volume transport of the overflow water masses in the three central sections is estimated to 5.4 Sv. The variability between different years is less than 40% of the mean but shows no trend. The percentages of different water mass origins in the deep flow under two different density limits are estimated. For water denser than 1027.8 kg/m3 Iceland Scotland Overflow Water dominates while for water denser than 1027.9 kg/m3 Denmark Strait Overflow Water dominates. The transports of Iceland Scotland Overflow Water, Denmark Strait Overflow Water, Sub Polar Mode Water and Polar Intermediate Water in the deep flow are shown.