



## Late Holocene Variability of Atlantic Water Advection in the Fram Strait

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The Fram Strait is the only deep-water passage for Atlantic Water masses to enter the Arctic Ocean. Sediment cores from the Westspitsbergen continental margin obtained during cruise leg MSM05/5b of RV "Maria S. Merian" in summer 2007 are analyzed to reconstruct variations of Atlantic Water advection to the Arctic, the sea ice extent, and the structure of the water column during the late Holocene. Isotopic, micropaleontological, organic geochemical, and sedimentological studies of the upper 45 cm sediment of a box core and a Kastenlot core from the Western Svalbard margin ( $78^{\circ} 55' N$ ,  $6^{\circ} 46' E$ ) are used to establish multiproxy data sets with a centennial to decadal time resolution during the last 2000 cal. yr BP. Varying abundance of the recently established sea ice proxy IP25 indicates the presence of at least a seasonal sea ice cover in the Northern Fram Strait during that time. Foraminiferal oxygen and carbon isotope records and the amount of ice rafted debris also point to a cooling trend. Relative abundances of polar vs. subpolar foraminifers reveal variations in water temperature and the related intensity of Atlantic Water advection during the last thousand years. Our records furthermore allow reconstructing the environmental changes within the last centuries for an area presently responding rapidly to global warming.