



Deglacial and Holocene changes in the Faroe-Shetland Channel

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Faroe-Shetland Channel is the principal conduit for supply of Norwegian Sea water to the N.E. Atlantic and the primary route for inflow of N. Atlantic surface water into the Norwegian Sea. Gravity core HM03-133-25 comes from the southern end of Faroe-Shetland Channel in a pond of relatively thick Holocene accumulation. The site is swept by strong currents, yielding a high percentage of sand (20-50%) (forams and terrigenous material) throughout most of the core, but with a maximum of over 70% during Heinrich Event 1 (H-1) and a minima of 13% at 8.6 ka and 17% at 8.2 ka. This 4.7 m long core has been dated by AMS C-14 and by correlation to the AMS dated core MD99-2284 from the northern entrance to Faroe Shetland Channel. The core spans approximately the last 16 ka with low late glacial sedimentation rates (~10 cm/ka) and high sedimentation rates in the Holocene (early Holocene peak ~80 cm/ka decreasing to 16 cm/ka in the late Holocene). We have obtained isotopic records for *G. bulloides* and the endobenthic species *M. barleeanum*, as well as an Mg/Ca palaeotemperature proxy record for *bulloides* and flow speed proxy data from sand % and silt grain size. The planktonic oxygen isotope record shows light and heavy values suggesting fresher and saltier waters during alternating cold and warm episodes during the deglaciation. The Mg/Ca palaeotemperature proxy shows remarkably little change from the glacial to the Holocene, (14.5 degC, $s=1.2$, $2s$ range 12.1-16.9 degC) suggesting a relatively constant supply of warm subtropical water with a periodic overprint of increased freshwater due to melting of icebergs and possibly supply from the adjacent British Ice Sheet. There is a clear signal of flow slowdown around 8.5 to 8.0 ka presumably due to the final Laurentide meltwater event, but there is no isotopic or temperature signature to it at this location.