



Holocene paleoceanography of the NE North Atlantic: evidence from IMAGES giant piston cores

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One of the major drivers of the climate of the NE North Atlantic region is the heat and moisture brought into the region by the North Atlantic Current, which brings warm and saline Atlantic water north and into the Arctic Ocean. Modern observations show how the temperatures of these water masses have increased the last decades, and there is a pressing need to establish baselines values for the fluctuations of Atlantic water. During different studies we have studied the Holocene fluctuations of the Atlantic water coming into the NE North Atlantic region. We have based our studies on IMAGES giant piston cores and microfossil based proxy data. The IMAGES cores, MD952011 and MD2305, are located below the axis of the Norwegian Current and the West Spitsbergen Current, which today transport warm Atlantic Water to the Arctic. Additional two IMAGES cores, MD992298 and MD992305, situated in fjords recording inflowing Atlantic water have also been investigated. The temperature records reflecting both surface and bottom water masses show the same overall trend of an early Holocene maximum warming (the so-called Holocene climate optimum) followed by a cooling through mid and late Holocene, however both the timing and duration of the Holocene climate optimum varies showing a later and shorter optimum towards the north. These overall trends are caused both by solar forcing and variations of the inflowing Atlantic water.