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## AMOC step-wise inception during the present interglacial recorded by Nd-isotopes.

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**The Atlantic Meridional Overturning Circulation (AMOC) and the production rate of the North Atlantic Deep Water (NADW) are major components of the North Atlantic climate-system, with important hemispheric climatic influences. The post-glacial history of the AMOC, as reconstructed from Nd-isotopes ( $\epsilon\text{Nd}$ ) in biogenic minerals and sediments, demonstrates its sensitivity to freshwater fluxes, leading to concerns about its near-future response to the ongoing accelerated Greenland/Arctic ice melting. Whereas the early Holocene inception of the deep NADW components originating from the Nordic Seas has been well documented from such  $\epsilon\text{Nd}$ -data, information on the status of its western, shallower and most sensitive component, the Labrador Sea Water (LSW), is still missing. New  $\epsilon\text{Nd}$ -measurements in corals from the Labrador Slope provide the means to fill this gap. These data demonstrate that convection in the Labrador Sea was fully implemented by ca. 4 ka BP only, i.e., well after the final demise of the Laurentide ice-sheet. The time- and space-transgressive pattern of the full AMOC inception implies more complex driving mechanisms than meltwater fluxes only. Whereas the late Holocene neo-glacial cooling trend could have played here a minor role, the penetration and strengthening of the Irminger Current into the Labrador Sea has likely been the driving force.**

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