



Deglacial Changes in MOC: New Evidence Based on ¹⁴C Paleoreservoir Ages from the Indo-Pacific

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The widely accepted concept of a “Global Ocean Conveyor Belt“ is largely based on apparent ¹⁴C ventilation ages of modern ocean deepwater (Broecker et al., 1984). Per analogy, past ¹⁴C ventilation (= paleoreservoir) ages of ocean surface and deep waters can now be deduced from a suite of seven age-calibrated “¹⁴C plateaus“ in deglacial planktic ¹⁴C records with bi- to tricentennial dating resolution and paired ¹⁴C datings on planktic and benthic foraminifera (Sarnthein et al., 2007). Earlier paleoreservoir age records from key sites for monitoring ocean circulation in the Icelandic Sea and northern Pacific revealed 3D insights into significant early deglacial changes of ocean Meridional Overturning Circulation (MOC) and climate between 23 and 13 cal. ka, twice indicating opposite trends of change (reversals) in the loci of deepwater formation over Heinrich 1 (H1) stadial at ~17 and 14.7 cal ka. This initial group of monitoring sites is now enlarged by ¹⁴C records from sites in the subarctic Northeast Pacific and Santa Barbara Basin, which clearly reproduce and expand the initial findings and thus support our previous conclusions. In addition, a new surface water record of paleoreservoir ages was measured from a site off Northwest Australia, which will assist in dating and deciphering deglacial variations of the Indonesian Throughflow, an important section of global MOC.

Broecker, W.S., 1984, Nucl. Instr. Meth. in Phys. Res. *B5*, 331-339.

Sarnthein, M., et al., 2007, AGU Geoph. Monogr. 173, 175-196.