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Biogeochemical response to a freshwater-induced weakening of the meridional overturning circulation

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It has been postulated that a possible cause of millennial-scale, warming-cooling cycles of the last glacial period, such as the Younger Dryas, is changes in the thermohaline circulation triggered by the discharge of low density meltwater into the North Atlantic. Such a strong change in deepwater formation would also alter the distribution of biogeochemical tracers. Using the Bern3D coarse resolution ocean general circulation model, we investigate the biogeochemical response of PO_4, CO_2, O_2 and export production to changes in circulation due to an input of freshwater in the North Atlantic. We compare model results to Cd/Ca ratios from sediment cores.