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Contrasted ocean conditions in the northwest North Atlantic during marine isotope stages (MIS) 11, 5e and 1

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Cores raised during the IODP Expedition 303 in the north Atlantic were analysed to document paleoceanographical conditions during recent interglacials (cf. Hillaire-Marcel et al., Marine Geol. 2011). Two key sites illustrate conditions in the inner vs outer Labrador Sea, respectively at the southwest Greenland margin (Eirik Ridge Site 1305; 57˚N-48˚W) and the southern Labrador rise (Orphan Knoll Site 1302/1303; 50˚N-45˚W). Special attention was paid to marine isotope stages (MIS) 11 (ca. 424-324 ka), 5e (ca. 128-117 ka) and the Holocene (last 11,000 years). The microfossil content of sediments (dinocyst notably) and the isotopic composition of foraminifers indicate significant differences in the conditions that prevailed during these 3 interglacial stages. Optimal conditions with regard to sea-surface temperatures (SSTs) prevailed during MIS 5e (anomalies of about + 5˚C) at both sites. However, occurrence of ice rafted debris (IRD) and variations in salinity suggest meltwater discharge along the Greenland and Labrador margins during the last interglacial. On the contrary, during MIS 11, SSTs were similar to modern off Greenland or slightly lower at Orphan Knoll, but salinity was higher at both sites and IRD close to nil, whereas both sites are presently under iceberg routes. Stable oxygen isotope values in the mesopelagic *Neogloboquadrina pachyderma* left coiled (Npl), are generally not unlike values observed during MIS 9 or 7, i.e., slightly higher than those which characterized MIS 5e and the present interglacial, particularly in the outer Labrador Sea. This points to either a higher salinity and or a lower temperature in the subsurface water layer occupied by Npl. Low IRD, high salinity together with relatively high ^{18}O values in foraminifers suggest limited influence of meltwater from ice cap and sea ice during MIS 11, especially the first part of the interglacial.