



## **Multi-proxy insights into last interglacial (MIS 5e) conditions in the southern Labrador Sea: Consistencies and inconsistencies**

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Last interglacial (Marine Isotopic Stage or MIS 5e) sediments from the Gloria Drift in the southernmost Labrador Sea (Core HU91-045-91; 53.33N 45.26W) were studied for their dinoflagellate cyst (dinocyst) content and their planktic foraminiferal assemblages and isotopic compositions. While both microfossil groups clearly reveal the occurrence of typical interglacial conditions in the area, they also reflect a slightly different evolution of the MIS 5e surface water conditions. The dinocyst assemblages are dominated by the cold-temperate species *Nematosphaeropsis labyrinthus*, with the secondary assemblages being composed by temperate oceanic *Impagidinium* species and the cosmopolitan species *Operculodinium centrocarpum*. The latter species shows a steady increase during the first half of MIS 5e, mirrored by a gradual decline of the polar planktic foraminifer *Neogloboquadrina pachyderma* (s). Still, reconstructed temperatures from the application of the modern analogue technique for this interval are fairly stable, albeit that those reconstructed from the dinocyst assemblages (~10 and 17 °C for winter and summer, respectively) exceed those reconstructed from the planktic foraminiferal assemblages (~5.5 and 9.5 °C) as well as modern values (~5.5 and 10.6 °C) by several degrees. This apparent inconsistency might be partly explained by distinct conditions within the respective water depth habitats of these micro-organisms, but other factors likely intervened, such as an offset in their respective seasonal production time and/or mixing of the fossil assemblages through advection from slightly distinct production areas. The early MIS 5e trend ended abruptly with a marked event characterized by a peak of *Turborotalita quinqueloba*, the quasi-disappearance of dinocysts, and a divergent shift of the stable oxygen isotope values in the polar and subpolar foraminifer species. This might hint towards a possible meltwater-related perturbation of the prevailing upper ocean conditions.