



The last interglacial in the northern North Atlantic and adjacent areas : Evidence for a more zonal climate than during the Holocene

Anne de Vernal (1), Claude Hillaire-Marcel (1), Bianca Fréchette (1), Nicolas Van Nieuwenhove (2), Henning Bauch (2), and Frédérique Eynaud (3)

(1) UQAM, GEOTOP, Montréal, Canada (devernal.anne@uqam.ca), (2) IFM-GEOMAR, Kiel, Germany, (3) EPOC, Université Bordeaux 1, France

We document climate conditions from the last interglacial optimum (LIO) or marine isotope stage 5e (MIS 5e) from terrestrial and oceanic sedimentary archives. Terrestrial climate conditions are reconstructed from pollen assemblages, whereas sea-surface temperature and salinity conditions are estimated from dinocyst assemblages and foraminiferal data (both assemblages and stable isotope composition of carbonate shells). LIO data from the eastern Canadian Arctic and northern Labrador Sea led to reconstruct much higher summer air temperature and sea-surface temperature than at present by about 5°C. Data from southeastern Canada and southern Labrador Sea also suggest more thermophilic vegetation and warmer conditions although the contrast between LIO and the Holocene is of lesser amplitude. On the whole, the terrestrial and marine data sets from the northwest North Atlantic and adjacent lands suggest limited influence of southward flow from Arctic waters through the east Greenland and Labrador Currents as compared to the modern situation. The compilation of sea-surface reconstructions from the northwest and northeast North Atlantic indicate much reduced longitudinal contrasts of temperatures than at present, thus a more zonal pattern of circulation. The reconstructions also indicate a lower sea-surface salinity than at present, thus stronger stratification of upper water masses, which would be compatible with a reduced North Atlantic deep-water formation.