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Climate of the Past Discussions

Interactive comment on "Uniform climate development between the subtropical and subpolar Northeast Atlantic across marine isotope stage 11" *by* J. P. Helmke et al.

Anonymous Referee #1

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I enjoyed to learn about the late usefullness of our ODP "Site of opportunity" (Site 958) the sediment records of which have been coarsely outlined in a short scientific ODP report (Pflaumann et al., 1998) and now serve for a detailed study of Marine isotope Stage (MIS) 11. Basically the results of this recent study corroborate many previous assumptions on the variations of subtropical aridity and humidity in the western Sahara, with peak humidity characterizing peak interglacial times. The discussion covers pertinent aspects of a comparison of the evolution of MIS-11 with the evolution of our present MIS 1 and future climate uncertainties.

The discussion perhaps may have gained further interesting aspects, in case the de-

tailed epibenthic stable-isotope records (d13C) measured with a similar temporal resolution of 1000 yr at neighbor Site 658 near 2270 m w.d. would have been incorporated (Sarnthein & Tiedemann, 1990; Paleoceanogr. 5, 1041 pp). This isotopic record shows a major breakdown in bottom water ventilation, i.e., an incursion of Antarctic water masses 433-424 ka, that certainly marked a major Heinrich-style event during Termination V. Only after this event, when NADW circulation again was turned on, the Saharan dust discharge has stopped, hence supporting the claim of Helmke et al. that variations in North Atlantic oceanography have been crucial in controlling low-latitude climates.

The interpretation of CaCO3 variations as result of differential dilution is certainly going into the right direction. However, the discussion lacks mentioning the aspect of changing CaCO3 dissolution that certainly is an important factor at water depths of almost 3800 m w.d., where medium-saturated water masses originating from the North Atlantic have been replaced on short time scales by highly corrosive Antarctic Bottom Water, as also displayed by the epibenthic d13C signal at Site 658.

Finally, the discussion of planktic d18O signals may have gained some further detailed insights, when including the detailed findings of Ganssen (1983;MFE 37) on the different modern species-specific seasonal habitats of different planktic species along the northwestern African continental margin.

In summary, however, the paper of Helmke et al. presents a valuable contribution to the interglacial paleoclimate evolution of subtropical latitudes as result of interactions between high and low latitude forcings and potential effects on future climate evolution.

Interactive comment on Clim. Past Discuss., 4, 433, 2008.