Geophysical Research Abstracts,
Vol. 10, EGU2008-A-09423, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-09423
EGU General Assembly 2008

Abrupt hydrographic changes in the Bay of Bengal during the Holocene

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Continuous and high resolution climate records from the Holocene are rare in the tropics. We present well-dated surface paleo-temperature and salinity records based on δ^{18}O–Mg/Ca measurements (planktonic foraminifera *Globigerinoides ruber*) from high-sedimentation rate core MD77-176 located in the Bay of Bengal. This core provides a unique opportunity to better understand natural millennial variability and abrupt changes of the Indian monsoon.

The δ^{18}O and salinity show a global trend towards heavier δ^{18}O and higher salinity values throughout the Holocene that indicate a weakening of the summer wet monsoon resulting from a decrease of orbitaly-driven summer insolation over the continent. Such a trend has been already observed in Oman, in the Arabian Sea and in Chinese cave records (Fleitmann et al., 2003; Overpeck et al., 1996; Wang et al., 2001). Superimposed on this trend, two rapid increases of δ^{18}O are observed at 8.4 ka and 5.2 ka CA. These transitions, described here for the first time in the Bay of Bengal, appear to be synchronous with transitions towards drier conditions described in tropical Africa and on the Arabian peninsula (Fleitmann et al., 2003; deMenocal et al., 2000; Gasse, 2000).

Such rapid humid-arid transitions cannot be driven by the gradual change in insolation across the Holocene. Fully-coupled ocean-atmosphere model simulations (Claussen et al., 1999) suggest that they may result from a positive feedback associated with changes in vegetation cover and their impact on albedo. We will discuss the implica-

tions of a possible connection between aridification episodes in Africa and the Bay of Bengal.

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