Geophysical Research Abstracts, Vol. 9, 11560, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-11560


# Late Holocene climate variability in Western Sahara

**T.J.J. Hanebuth** (1), H. Lantzsch (1)

(1) Department of Sedimentology/Palaeoceanography, Faculty of Geosciences and DFG-Research Center Ocean Margins (RCOM), University of Bremen, Germany, (thanebuth@uni-bremen.de)

The termination of the “African Humid Period” (AHP) occurred rather abruptly around six to five kyr (calibrated thousands of years before present) responding to declining insolation and associated with a trend towards modern-style hyperarid conditions. Here we present an outstanding sediment record from a shelf mud belt off Mauritania. It is located just at the boundary between the Atlantic Ocean climate system with its associated strong trade winds northernmost summer position of the modern Innertropical Convergence Zone (ITCZ). The silt record covers the past 5.2 kyr in decadal resolution without any time gap and behaves like a terrestrial archive although the origin is a shallow-marine environment.

Between 5.2 and 2.4 kyr, a general aridification trend after the termination of the AHP is accompanied by frequent swings back to more humid conditions indicating recurrent northward shifts of the ITCZ every 500 years. Short-lasting episodes of extreme drought are found at 4.2 and 2.8 kyr lasting for 200 years, exactly during times when Egyptian, Akkadian and also Mauritanian civilizations experienced their most existential crises. The Roman Warm Period (RWP) is expressed by a surprising return towards humid conditions, lasting for 500 years, but is remarkably associated with significant dust input. This observation, recorded for the first time from this region, claims for an interpretation that the ITCZ did no move northward during the RWP in Western Africa but for a far southward expansion of the Mediterranean humidity plume under a persistent trade-wind regime.

Accelerating dust mobilization is observed over the past 2 kyr, with strongly reduced summer monsoon with dominance of the Atlantic-related trade winds. Intensified wind erosion occurred during the Medieval Climate Anomaly and as two heavy dust events probably coincident with the Spörer and Maunder Minima.

This exceptional record shows different response pattern during the individual climatic episodes claiming for control mechanisms having changed in the younger past due to temporary switches and final shift from a strong monsoonal system to Atlantic-climatic dominance.