

Geophysical Research Abstracts,
Vol. 10, EGU2008-A-11146, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-11146
EGU General Assembly 2008
© Author(s) 2008



The last millennium in Africa: a review of the main environmental changes and possible causal mechanisms.

ESCARSEL-ANR-Program (Evolution Séculaire du Climat dans les régions circum-Atlantiques et Réponse de Systèmes Eco-Lacustres) : L.Bergonzini (1), G.Buchet (2), R.Bonnefille (2), **F.Chalié** (2), F.Gasse (2), J.Guiot (2,*), C.Hély-Alleaume (2), C.Paillès (2), C.Vallet-Coulomb (2), A.Vincens (2), and D.Williamson (2). (1) DES UMR 8148 CNRS - Université Paris-Sud - F. 91405 Orsay Cedex - (2) CEREGE - UMR 6635 CNRS-UPCAM-IRD - Europole Arbois - BP 80 - F. 13545 Aix-en-Provence Cedex 04 (France) - * : Program coordinator CEREGE - UMR 6635 CNRS-UPCAM-IRD - Europole Arbois - BP 80 - F. 13545 Aix-en-Provence Cedex 04 (France) [E.mail : chalie@cerege.fr / Fax. (33) 4.42.97.15.95]

Timing and amplitude of climate changes during the Last Millennium is a controversial issue, even for the well-documented northern hemisphere. The debate around the 'hockey stick' synthetic temperature reconstruction (Mann et al., 1999), highlights the importance of a precise proxy representation understanding, and of a better knowledge of this recent period, which has a crucial weight for reports intended for policy makers (GIEC-IPCC, 2001). Climate of the past millennium is still poorly documented in the tropics and subtropics, and available data sometimes often reveal apparent inconsistencies. Here, we focuss on existing terrestrial records from the African continent. Due to the scarcity of the data, our synthetic reconstruction consider all available proxies (pollen and inferred vegetation, diatom and inferred lake-level and water salinity, geochemistry and inferred temperature,...) and all available archives (lacustrine and peat sediments, speleothems, ...). Quantitative climatic or hydrological reconstruction is used, as often as possible, applying transfer function or regional proxy modelling. Records were selected, regarding three main criteria: high data resolution, well-deciphered proxy signification (especially regarding the modern site knowledge),

and well-constrained chronology, to identify as rightly as possible, the major characteristics of the climate variability over the past 1000 years. Significant variations in the hydrological balance of investigated lakes is the most widespread pattern. This general feature shows very large spatial heterogeneity and temporal shifts, illustrating the complexity of the tropical hydrological cycle response to global climatic changes. We here investigate potential causal mechanisms for the reconstructed changes, among which solar activity, Intertropical Convergence Zone migrations, El-Niño-like conditions variability, ...

This is a contribution to the French ANR (Agence Nationale de la Recherche) Program ESCARSEL (Evolution Séculaire du Climat dans les régions circum-Atlantiques et Réponse de Systèmes Eco-Lacustres). Participants are: L.Bergonzini, G.Buchet, R.Bonnefille, F.Chalié, F.Gasse, J.Guiot (coordinator), C.Hély-Alleaume, C.Paillès, C.Vallet-Coulomb, A.Vincens, and D.Williamson.