

Hydrological changes during the Late-glacial times in northern Brazil inferred from sediments of Caço Lake.

Abdelfettah Sifeddine
Abdel.Sifeddine@ird.fr

Andre Gustavo

Bruno Turcq

Renato Campello Cordeiro

Ana Luiza Spadano Albuquerque

Jeremy Jacob

Jorge João Abrão

Philip A. Meyers, Mohammed Boussafir

Two cores from Caço Lake, Maranhão State (North Brazil) record different histories of sediment accumulation on the margin and center of the lake that reflect changes in lake level. Seismic profiles, mineralogy and organic geochemical studies, backed by ^{14}C dating, reveal variable hydrological and climatic conditions over the last 20 Kyr. During the Last Glacial Maximum, regional climate was predominantly dry but was interrupted by short humid phases as reflected by a succession of very thin layers of sand and organic matter. The late glacial climate was relatively wet and included two rapid lake-level increases accompanied by forest expansion. The two wet phases were separated by a phase where the lake level remained stable and the forest changes were marked by the development of cool “Podocarpus” forest. These humid climate periods differed significantly from present day conditions in this region. Comparing with other South America records, we conclude that Late Glacial humid conditions were controlled by the increase of monsoonal precipitation and an ITCZ shift to its North position during SH summer resulting from Atlantic tropical SSTs increase and orbital cycles changes. The period marked by the stability of Caço lake level and the development of cool “Podocarpus” forest corresponds to the Heinrich event (H-1) which imprints changes in the monsoon precipitations and consequently changes in the hydrological and forest composition in the Northern Brazilian hinterland.