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# Paleoenvironmental and paleoclimate variations in northeastern Brazil during the last deglaciation: an organic isotope geochemistry approach

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Northern northeastern (NNE) Brazil is mainly under the influence of the Intertropical Convergence Zone (ITCZ). For example, increased precipitation in March-April is expected as the ITCZ moves northwards due to low North Atlantic surface temperatures and high South Atlantic surface temperatures. Fluctuations in the volume and annual distribution of precipitation impact the partitioning of vegetation in NNE Brazil between Cerrado, Caatinga, Atlantic forest and Amazon forest, thereby modifying the quality and quantity of plant resources available to wildlife and potentially impacting the long-term settlement of human groups.

Assessing whether a concordance link can be drawn between human occupations recognized over at least the last 40,000 years in the Serra da Capivara National Park located in NNE Brazil and paleoenvironmental changes forms the backbone of the ANR SESAME project. The aim of the study presented here is to investigate paleoenvironmental changes in the Parnaíba River drainage basin, that encompasses the Serra da Capivara National Park, during a period of major climatic changes, id est the last deglaciation (19-11.7 cal ka BP) and of the Early Holocene.

To this end, core MD23-3670Q recovered off the Parnaíba River delta during the AMARYLLIS- AMAGAS II cruise was analyzed for the period 15.5 - 8.8 cal kBP from the point of view of organic isotope geochemistry. This approach makes it possible to partition the origin of sedimentary organic matter between continental and marine (C/N), to differentiate the predominant photosynthetic cycle of terrestrial plant ( $\delta^{13}\text{C}$  - C3 and C4) and their nitrogen behavior ( $\delta^{15}\text{N}$  - leguminous and non-leguminous) during phases marked by a massive input of continental organic matter.

The results reveal two relatively dry periods, coinciding with the Bølling-Allerød and the Preboreal, and two wetter periods, coinciding with Heinrich stadial 1 and the Younger Dryas. During the latter episodes, the essentially continental record shows notable differences, which we interpret in terms of vegetation evolution: Cerrado dominating during Heinrich stadial 1, evolving in two stages towards a mixture of Caatinga and Cerrado during the Younger Dryas.