

Figure captions SI Supplementary materials

Figure SI 1. Photographs of the Lopé savanna, illustrations of some swamps with studied fossil sediments and some seeds used for datings.

Figure SI 2. Photographs and logs of the core segments for the six marshes

Figure SI 3. Common elements used to provide composite sediment depth (cd) of the second sampling campaign. The first single blue line are the XRF values from core Avaatech core scanner (EDYTEM Laboratory) and second are the aligned with MATCH program (Lisiecki and Lisiecki 2002) on the red line of XRF values obtained with an Innov-X XRF portable analyzer on the first cores from which dates and other data were obtained.

Figure SI 4. PCA analysis to the better XRF elemental data analyzed with the Avaatech core scanner (Al, Si, S, K, Ca, Ti, and Fe). Color gradient illustrate the contribution of each element to the PCA (in %).

Figure SI 5. XRF elemental data obtained with the Avaatech core scanner; percent of Carbon content (C), $\delta^{13}\text{C}$, percent of Nitrogen (N), $\delta^{15}\text{N}$ and data obtained by LOI :percent of water (hum), percent of Organic Mater (OM) and percent of CaCO_3

Figure SI 6. Age-depth models and stratigraphic logs of the six studied cores.

Figure SI 7. Comparison of Carbon amount (%) obtained during measurements of stable isotopes and % of Organic Matter obtained by LOI.

Figure SI 8. Evolution of Carbon amount *versus* Azote amount (C/N) obtained during measurements of stable isotopes for the six studied sediment cores.

Figure SI 9. Bulk $\delta^{15}\text{N}$ values of the six studied sediment cores.