

Organic Records of Environmental Change in Humid Region of Brazilian Amazon During the Last 40.000 yrs BP

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Organic matter analysis of a 120 cm long core collected in Lagoa da Pata lake show important changes in the environmental history of this area during the last 40,000 years. The Lagoa da Pata lake (0°17'S, 66°40'W) is located on the top of the Morro dos Seis Lagos Hill, an isolated inselberg in the extensive forested plane surface of high Rio Negro basin. The climate in the region presents mean annual precipitation around 3000 mm without dry season. Analysis of the organic matter isotopic composition by ¹³C and ¹⁵N, total Carbon and Nitrogen, sedimentary chlorophyll concentration were performed in order to determine the autochthonous and allochthonous origins. Three phases, associated to climatic changes, were identified in relation to the organic matter quality: between, at least 45,480 ± 1300 and 29,080 ± 290 B.P., the low lacustrine productivity was probably associated to a low hydrological level, indicated by low values of sedimentary chlorophyll and total organic carbon. Values of $\delta^{13}\text{C}$ around 32‰ and high C/N relation indict a woody material contribution; the second phase between 29,080 ± 290 B.P. and 12,420 ± 90 was characterised by lowest productivity attested by low sedimentary chlorophyll and total organic carbon values. The $\delta^{13}\text{C}$ values increase with medium values around -28‰. From 13,000 B.P. approximately to 9000 B.P. occurred an increase in lacustrine productivity. It probably corresponds to a lake level rise increasing the production of the system. The C/N values dropped indicting an algae organic matter contribution. The $\delta^{15}\text{N}$ decrease in this phase..