

Chemical characterization and ^{210}Pb dating in wetland sediments from Nhecolândia Pantanal Pond, Brazil

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Pantanal is an immense area located in the central region of South America. It is recognized as one of the world largest freshwater wetlands. As such the area has an extremely rich and abundant variety of fauna, birds and flora. This natural ecosystem and its biodiversity have been affected by urban contamination, irregular use of the land, uncontrolled tourism, excessive agricultural insecticide utilization, etc. In order to verify possible changes in this environment, a study was developed in Nhecolândia Pantanal Pond, Mato Grosso do Sul State, Brazil. Two sediment cores (SM1, 57 cm long and SM2, 44 cm long) were collected in 2001. The cores were sliced every 2 cm resulting in 29 samples at SM1 and 23 samples at SM2 cores. The elements As, Ba, Br, Ce, Co, Cr, Cs, Eu, Fe, Hf, La, Lu, Na, Nd, Rb, Sb, Sc, Sm, Ta, Tb, Th, U, Yb, Zn and Zr were determined by instrumental neutron activation analysis technique (INAA). The validation of the methodology was carried out by certified reference materials analyses. Most of the elements and rare earths analyzed showed lower concentrations when compared with NASC (North American Shale Composite) and earth crust values. Only Br, Hf and Zr showed concentrations slightly higher, probably due to water level variations during the flooding periods. Concentration variations were observed with depth. Factorial analysis, mode R, was applied to the chemical data. The radioactive ^{210}Pb was used to determine sedimentation rates and the sediment age. A mean sedimentation rate of 0.61 cm y^{-1} was found for the SM1 core, which is in agreement with data from literature for this type of ecosystem.