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Preliminary paleohydrological interpretation of an Amazon floodplain system based on seismic stratigraphy: Varzea do Lago Grande do Curuai, Pará, Brazil.

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The aquatic lacustrine ecosystems are depositional environments that register in yours sediments the process that occurs on the own site and in the all drainage basin. The Amazonas River and its tributaries are followed along your upward and downward course by several floodplains that cover a large area of environs 300.000 km2. These sites are dynamic and complexes systems. Floodplains affect the erosion the transport and the sedimentation flux in the system and it has a special importance for carbon cycle due yours high productivity. In the floodplains systems the sediment deposition occurs in a different scale of time period. In these work, we study the “Varzea Grande do Curuai” which size varies from 1340km2 during the dry season, to 3600 km2 during the wet season, according to the level of the river. This floodplain is located on the southern margin of the Amazonas River, close to the city of Óbidos, Pará-Brazil, in the Lower Amazonas. The floodplain contains several white water lakes such as Grande, Poção, Santa Ninha and Salé Lakes, and black water lakes such as the Curumucuri and Açaí Lakes. These lakes are connected to each other and to the Amazonas River by small channels, some of which are permanently connected to the river and others not, depending on the variations of the water level. The purpose of this work is to reconstruct past sedimentary processes using seismic stratigraphy profiles realized all along the floodplain lakes and sediment cores collected at strategic sites. The sedimentary patterns observed in the seismic profiles are horizontal layers, highly reflective unpenetrated levels and paleochannels that could have been formed during the Holocene. The larger quantity of paleochannels along the lakes has been observed in the Grande and Salé lakes. The paleochannels in the Grande Lake would indicate a migration of actual depositional ridge that separates the floodplain from the river. In the Salé Lake, the paleochannels indicate that the region has suffered hydrological alterations. A comparison between the images of the floodplain in two different seasons (flooded and dry) with the stratigraphy profile, indicate that at sites that are emerged in the dry season there is no penetration of acoustic waves, the bottom of the lakes forming then a strong reflector.These sediments are hard due to a lower water content. The typical layers found in almost all the lakes were planar strata, characteristic of lacustrine sedimentation. These strata are covering the paleochannel structures and a second lower horizontal strong reflector. It should indicate a past environment where the water level was lower; the sediment surface was exposed during low water periods and eroded by channels draining the water to a lowered river during the lowering water season. This lower river and floodplain levels must be related to a lower sea level and/or to a dryer or more contrasted climate during the Holocene.