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Red-yellow-white laterites, clay depleted soils and Podzols in the plateaus of the middle east part of the upper Amazon Basin (Jaú National Park) – structure, mineralogy and genesis[1]

Laterites rouge-jaune blanchâtre, sols lessivés en argile et podzols sur les plateaux de la partie moyenne est du bassin Amazonien supérieur (Jaú National Park) – structure, minéralogie et genèse

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Soil landscape on the right bank of the lower course of the Rio Negro consists of large and elongated plateaus and narrow flood plains aligned in two crossed directions (NE-SW and SE-NW). In a 70há key area interpretation of aerial photograps at scale 1/100 000 permits to distinguish the followings geomorphological units from downslope to upslope positions: (1) the main rivers (Unini and Jaú) showing endless meanders and frequent oxbow lakes within the Holocene flood plain (várzea), (2) the Pleistocene flood plain slightly elevated and dissected, (3) two paleovaley weakly dissected and aligned in NE-SW direction, (4) the small hills of the edge of the plateaus covered by forest and drained by a dense network of tributaries, (5) the forest plateaus located 10m above mean river level and showing numerous depressions of different size and shape and (6) very large and flat bottom depressions covered by savannah (campina), some of them being captured by the longest and deeper river tributaries. Three toposequences crossing the reliefs of the forest plateau were selected. This study shows two lateritic soil. The first one, located on a flat surface near the large depression, derived from the sandstone. The second, located on a plateau, higher than the flat surface, derived from a mottled clay that was originated from the weathering of the sandstone. From the bottom both soils are changed from lateritc soils to podzol. This study permits to distinguish three steps in the formation of the large depressions. The three steps links the enlargement of the depressions to (1) the expansion of localised perchede watertables in the upper soil layer of the laterites and (2) the successive development under aquic conditions of three processes: redoximorphism (exportation of iron), clay depletion (exportation of silicium and aluminium), and podzolisation (redistribution and exportation of organic matter). It is therefore suggested that internal geochemical erosion has increased from the edge to the centre of the plateaus whereas retrograde superficial erosion has progressed upslope from the tributaries of the main rivers.

Keywords : Upper Amazon Basin, red-yellow-white Laterites, clay depleted soils and podzols, redoximorphism, clay depletion and podzolisation, aquic conditions
Mots clés : bassin Amazonien supérieur, laterites rouges-jaunes blanchâtres, sols lessivés et podzols, hydromorphie, lessivage d'argile et podzolisation, conditions aquiques