VI Simpósio Nacional de Geomorfologia / Regional Conference on Geomorphology
Geomorfologia Tropical e Subtropical: processos, métodos e técnicas / Tropical and Subtropical Geomorphology: processes, methods and techniques
Goiânia, 6 a 10 de setembro de 2006 / Brazil, Goiânia-GO, September 6-10, 2006

RELATIONSHIPS AMONG VEGETATION, GEOMORPHOLOGY AND HYDROLOGY IN THE BANANAL ISLAND TROPICAL WETLANDS OF CENTRAL BRAZIL

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ABSTRACT

The present work is a contribution to the knowledge of the physical and vegetational characteristics of the environment of the Bananal Island of Central Brazil in the Araguaia fluvial basin. The study area is a flat surface characterized by a fluvial anabranching system, the Araguaia River, which cross the Bananal plain. The system generated in the past a complex pattern of abandoned fluvial belts by avulsion and abandonment that today work as intermittent drainage channels that can be identified on the Bananal Island surface. The climate annual oscillation is marked by dry and wet season. In the rainy period, the Bananal Island floodplain is subjected to seasonal flooding between January to March. The use of a temporal series of MODIS-VI and Landsat ETM images were digitally processed, interpreted, and compared with climate and fieldwork data to allow discrimination of Cerrado phytophysiognomies. Geomorphologic map and field survey together with descriptions and mapping of vegetation allows us to obtain a map of morpho-vegetation units. The objective of the study was to define the relationships between the physical variables and vegetation distribution, which means how abiotic factors control the spatial distribution of the physiognomic types of the Cerrado biome. The results showed that the Bananal Island region consists of a complex mosaic of geomorphologic units inter related with a morpho-vegetation unit variety with influences of the rainfall, prolonged annual flooding, and neotectonic events during the evolution of the Quaternary landscape.

Keywords: Bananal Island, Araguaia River, fluvial geomorphology, Cerrado biome