

Tectonic influence on the origin of the *Pantanal Setentrional*, northern Amazonia, and on its late Quaternary Fan-Shaped Fluvial Deposits

D. F. Rossetti¹, H. Zani¹, E. H. Cremon¹

¹Instituto Nacional de Pesquisas Espaciais – INPE, Caixa Postal 515 - 12227-010 - São José dos Campos - SP, Brazil {rossetti, [hzani](mailto:hzani@dsr.inpe.br)}@dsr.inpe.br; edipocremon@yahoo.com.br

ABSTRACT: The Amazonas drainage basin is currently developed in the largest continental sedimentary basin of the world. This basin remains to be characterized despite its high interest to approach the dynamics of large tropical river systems. Available geological maps depict this region as one covered by Miocene to Plio-Pleistocene units, mostly represented by the Solimões and Içá Formations, respectively. However, an increasing number of publications has contributed to demonstrate that Western Amazonia constituted a highly dynamic depositional site also in the late Quaternary to Holocene. In particular, an extensive wetland area in northern Amazonia, great part included in the interfluvium of the Negro and Branco Rivers, was a site with active sedimentation during this time interval. This area is known as *Pantanal Setentrional*, by comparison with a largest wetland in Central Brazil, the *Pantanal Matogrossense*. The latter was inserted in the international literature because it is a humid area with the most impressive record of megafan systems, with the Taquari megafan been the largest and better studied one. In addition to the typical shape, deposits formed in association with megafans result, in great part, from sedimentation within distributary channels. Unlike tributary river systems, distributaries lose discharge by downslope stream bifurcation. The evolution of megafan complexes takes place through development of several prograding lobes fed by highly unstable distributary fluvial channels that often change their position through avulsions. A condition for megafan characterization is the presence of contemporary channels that distribute the flow radially outward from its apex. The characterization of megafan systems is still inadequate to understand their origin in the several geological settings and, particularly, to differentiate them from tributary fluvial systems. These depositional sites have been most often associated with settings undergone to tectonic activity in a geologically recent time. However, it is not clear yet whether the development of megafans are triggered by dry climate or active tectonics, or both. Many further examples of megafan systems must be recorded in order to provide a model that can explain their various occurrences in different regions of the globe. This investigation will provide information to discuss if the *Pantanal Setentrional* wetland in Northern Amazonia is a recent sedimentary depression formed by tectonic subsidence, which was filled with significant volumes of fan-shaped sediments, including megafans. Because the recognition and genesis of megafans in continental areas are issues of current debates, results derived from this work have the potential to contribute in establishing a model for the occurrence of these depositional systems in tropical areas with characteristics similar to the Amazonian lowlands.

Palavras-Chave: northern Amazonia, late Quaternary, fluvial distributary system, tectonics