Environmental dynamics and evolution of the soils erosion phenomena in the Arica-Açu and Arica-Mirim rivers basins (Mato Grosso, Brazil)

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The objective of this work is the analysis of the environmental dynamics and the evolution of the soil erosion phenomena in the last thirty years in two sub-basins of the Cuiabá River (Pantanal Matogrossense, Brazil). The Pantanal is a large wetland highly sensitive to anthropic impact. This region experienced, during the last decades, important land-cover transformations, which caused denudation and accelerated erosion of soil. The soils erosion was studied using the quantitative method of the Universal Soil Loss Equation (USLE), which estimates soil loss by sheet erosion. The USLE factors were stored and analysed through GIS data bases. The *CP* factor was calculated taking into account the multi-temporal land-cover data obtained from topographic maps of the '70s and from interpretation of Landsat TM images (1985 and 1996). Algebraic computation among such factors in the ARC/INFO© Grid environment allowed us to obtain the annual average soil loss (*A* - $tons \cdot hectare^{-1} \cdot year^{-1}$) for the '70s, and years 1985 and 1996. The multi-temporal soil loss data base showed that the systematic deforestation and the increase of agricultural areas and pastures induced a significant change of the erosion rate. As a consequence silting phenomena developed in the alluvial flat of the study area. The integration of Remote Sensing, GIS and fieldwork techniques represented fundamental tools for the realisation of the work. (European Union Fund).