

## **SOIL EROSION MODELLING IN THE PANTANAL AREA**

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Soil erosion is a central topic of the human impact on Pantanal region. During the last 30 years farming and agriculture activities rapidly developed in this area; arable lands and pastures replaced native shrubs and forests, causing great increase in soil loss. This work is realised in the framework of the EU funded project Geo-environmental dynamics of Pantanal-Chaco: multitemporal study and previsional modelling. Computer models allow to simulate some scenarios and foresee short-term and long-term variations, provided that suitable input data are available. The chosen mathematical model was SWAT (Soil and Water Assessment Tool), set-up by USDA (United States Department of Agriculture) researchers. It is a continuous time model that operates on a daily time step and subdivides the investigated river basin in a number of sub-basins. Its objective is to predict the effect of rainfalls, temperatures, landuse, soil type, hydrology, land management on water, sediment and agricultural chemical yields. Moreover, the SWAT model interface (although still in development) allows direct linkage with GIS environment, making more easily the input and output data management. Some Pantanal watersheds have been considered for simulation, using the multitemporal GIS data regarding physiographic characters and antropic activities, particularly where the area was subjected to important land cover changes and suffered many transformations during the past thirty years (large deforestation, agricultural and grazing use of the available soil). The simulation results are presented.