

## **MULTI-TEMPORAL STUDY OF LAND-COVER IN THE CORUMBÁ REGION (PANTANAL, BRASILE) BY REMOTE SENSING AND GIS TECHNIQUES.**

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This work has been realised in the framework of the EU funded project Geo-environmental dynamics of Pantanal-Chaco: multitemporal study and previsional modelling. The study area is located inside the High Paraguay river basin, at the western side of the Pantanal wetlands (Mato Grosso do Sul – Brazil). Since the '60s, in this area, farming and agriculture activities rapidly developed and arable lands and pastures replaced native shrubs and forests. The Corumbá area underwent a big urbanisation and mining activities for iron extraction. In this work a land-cover multi-temporal analysis of the last 30 years was carried to assess the human impact on the environment. A geo-coded land-cover data base for the year 1966 was built from digitisation of the existing topographic maps and stereoscopic interpretation of aerial photographs. From Landsat TM5 images land-cover data bases for the years 1986 and 1996 were built. Using DEM and sun position data a topographic normalization was realized to correct the solar lighting for areas with different exposure. The remote-sensed data were analysed through supervised classification and segmentation techniques based on the soil data, slope and its variation. Then, visual interpretation allowed to improve the results and to create the final land-cover data bases. The type, extent and location of land-cover changes were detected through statistical evaluation charts and intersections among the vectorial data-bases. The results show that large amount of native vegetation turned to urban and agricultural areas during the investigated period mainly in the surrounding of Corumbá city and in the flatlands.