



Fine Scales Climatology in Saline Lakes at the Pantanal of the Nhecolandia, Brazil

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The Pantanal, located between 16°S and 20°S and 58°W and 50°W at the centre of South America, is considered as the world's largest wetland (Por, 1995). The Nhecolândia, where the present study was carried out, is a sub-region of the Pantanal plain that corresponds to the southern part of the alluvial fan of the Taquari River. A distinctive feature of the Nhecolândia is the presence of thousands of saline and freshwater lakes co-existing in close proximity (Barbiero *and al.*, 2004). In the dry season, freshwater lakes and saline lakes are the last waterholes for wild animals and for cattle farming. Since a few years, we noticed a diminution of water level and an increase of toxic ions concentration (arsenic, fluoride, .). The ecosystem is now threatened by many projects of development and by an expansion of agriculture (deforestation).

As part of the transdisciplinary program 412/03 CAPES/COFECUB¹, the hydrological, physical and biochemical conditions of the Nhecolandia are now studied. The

¹CAPES/COFECUB is an international scientific cooperation between France and Brazil.

objective of this program is to understand the complexity of this environment. This paper presents the microclimatic part of this program.

The aim of this study is to identify the saline's climate, particularly evaporation which induces more than 90% of chemical transformation (Barbiero *and al*, 2002). Experiments are done with seven fixed and unfixed meteorological sensors located along a transect starting from the centre of the saline to the limits of the grassland, crossing all landscape features : saline lake, sand beach, "cordilheira" (3-4 m high sand ridge) covered by savana vegetation ("campo cerrado") and grass(land) of the saline environment. Spatial and temporal variability of the saline climate (temperature, humidity) according to the season and the weather type would be identified with fixed measurements. Mobile measurements are dedicated to study local aerology (wind, nocturnal and diurnal breezes).

First results evidence: (1) a strong spatial variability of temperature and humidity according to land cover type (mud of the saline periphery, sand, savana vegetation and grassland) ; (2) a breeze system with diurnal and nocturnal alternation between the saline lake and the "cordillera".

These results highlight the existence of a specific saline's microclimatic system. In 2005, futher microclimatic measurements would be done with the coming installation of sensors (*Bac A*, *Piche* evaporation) and meteorological stations (DAVIS "*Weather Monitor 2*" with hygrometry, wind, temperature and pluviometry measurements).