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ABSTRACTS****18 - 23 october 2009**

Title: Oxygen isotope in *Tabebuia heptaphylla* from Pantanal, Brazil: preliminary results

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Thema: 1. Forests and biodiversity

Subtheme: 1.1 State of the forests and assessment techniques

Abstract of the paper: Stable isotopes in tree growth rings reflect multiple responses to environmental conditions, and so are potentially valuable sources of paleoclimatic information with annual resolution. Oxygen isotope studies are presenting promising results when applied in trees from tropical, semi-arid or savanna regions, as a tool to understand the seasonal growth, and to extract information about climate. The Pantanal region is a heterogeneous area of 140,000 km², located in central west of Brazil, with special climate conditions. It presents, in general, only one dry season during the year, and periodic intervals of around 20 years, of strong or mild flooding years. The Nhecolandia region represents nineteen percent of the area of the Pantanal. Its natural forests are distributed as deciduous and semideciduous forests and forested savannas. The available climate data are quite recent, as there are not even 50 years series for Pantanal of Nhecolandia region. It is noticed that local conditions in Pantanal present potential to explore the information registered in the growth rings, as evidenced in *Tabebuia heptaphylla* growth rings presenting high correlation with precipitation in the growing season. As a pilot project, measurements of oxygen isotopes ($\delta^{18}\text{O}$) were carried out in *T. heptaphylla* samples, using a DBH disc of a tree with 14.5 cm of DBH. 108 sequential samples were prepared, starting from the most recent years (close to the bark). Each sample represented a 45-50 μm radial increment. The samples preparation and alpha-cellulose extraction were carried out at Embrapa Forestry, and the oxygen isotopes determination at the University of Arizona. The oxygen isotope analysis were carried out using a High Temperature Generator/Elemental Combustion System (HTG/ECS, Costech Analytical) coupled to a Delta Plus XP continuous flow isotope ratio mass spectrometer via open split interface (ConFlo III). The data show cyclicity within the growth increment expected over the course of two growing seasons.

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Full paper: -