

## ***Interactive comment on “Effects of flooding cycles in the Pantanal on the turnover of soil nitrogen pools and emission of N<sub>2</sub>O” by L. Lienggaard et al.***

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In my study about nitrogen turnover in the Amazon floodplain I observed a peak of N<sub>2</sub>O (Koschorreck, 2005) and CH<sub>4</sub> (Koschorreck, 2000) emission shortly after drying of sediments which explained more than 90% of the N<sub>2</sub>O emission during the dry phase. I did not observe an effect of rain during the dry period. I wonder if the temporal and spatial resolution of the Pantanal study was sufficient to account for such short term emission bursts. I did not find direct evidence for the influence of temporary vegetation on microbial nitrogen cycling in the soils. In the Amazon floodplain ammonium removal by coupled nitrification-denitrification after drying of sediments was much faster than plant growth.

I also observed an impact of soil cover on nitrogen dynamics (Koschorreck and Darwich, 2003).  
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wich, 2003). The litter layer of decaying macrophytes prevented desiccation and oxidation of the soil during the exposed period. In the paper of Lienggaard et al it is not stated, if the litter layer was removed prior to measurements or if only sites without litter layer were chosen. Since I do not know the Pantanal very well, I am not sure how typical litter covered sites are. Some information about this issue in the paper would be interesting.

Koschorreck, M., 2000. Methane turnover in exposed sediments of an Amazon floodplain lake. *Biogeochemistry*, 50, 195-206.

Koschorreck, M., 2005. Nitrogen turnover in drying sediments of an Amazon floodplain lake. *Microbial Ecology*, 49, 567-577.

Koschorreck, M., Darwich, A., 2003. Nitrogen dynamics in seasonally flooded soils in the Amazon floodplain. *Wetlands Ecol. Manage.*, 11, 317-330.

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