



## ***Interactive comment on “Nitrous oxide fluxes and nitrogen cycling along a pasture chronosequence in Central Amazonia, Brazil” by B. Wick et al.***

**B. Wick et al.**

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Author comment to RC S245: 'review', Anonymous Referee #3

The referee suggests to more clearly define what we mean by open soil N cycle (page 511, 4.1. Changes of N transformation along the forest-to-pasture chronosequence). Here we refer to studies by Vitousek et al. (1982; Ecological Monographs 52, 155-177) on potential nitrification and nitrate mobility in forest ecosystems; the conclusions were later corroborated by Davidson et al. (2000; BioScience 50, 667-680). The authors relate that nitrate accumulates and dominates the inorganic N pool when gross rates of nitrification exceed rates of nitrate uptake by plants and microorganisms. Nitrate accumulation and predominance over ammonium is therefore indicative of an open, leaky N-cycle that leaches nitrate, and may be indicative of gaseous N losses such as N<sub>2</sub>O. The authors conclude that although the nitrate pool does not provide a direct measure of N-flux in the soil, it indicates that excess nitrogen is flowing through the

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system relative to the ability of plants and microorganisms to assimilate nitrate. We agree with the referee's suggestion and we will include a statement for clarification.

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Interactive comment on Biogeosciences Discussions, 2, 499, 2005.

**BGD**

2, S253–S254, 2005

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