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Interactive comment on “Nitrous oxide emissions from soil of an African rain forest in Ghana” by S. Castaldi et al.

S. Castaldi

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Dear Tobias,

I am not sure that the fact that N₂O fluxes and CO₂ fluxes were determined from the same chamber makes di per se impossible to check for some possible dependency. If we optimistacally exclude technical problems, the fact that they derive from the same spot in the same moment does not mean that they must have the same behaviour. This is true only if they have some common controlling factor or if one can stimulate or co-occur with the other.

I have measured in savannas where from the same chamber N₂O was zero and CO₂ had it own trend always positive, or in forests where nitrification is inhibited by al-

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lelophatic compounds and again N₂O does something completely different from CO₂.

In any case, as you said I don't think I stated in the paper that N₂O emission depend on CO₂. I say that surprisingly their trends go better together than compared with the trend of soil water, that the increase of CO₂ would for its dynamic favour N₂O production although I do not say that I demonstrate this, I just discuss it, and I say that it is reasonable to expect that when respiration go faster probably also N₂O does the same facilitated by N mineralization and by the same factors which might accelerate, in part, soil respiration. That's it. No more speculation. Just observations.

I agree with you that hill and valley bottom would be more appropriate to describe the sites.

Finally I will read and analyse the result of experiments in Rwanda to look for more hints, although I cannot easily compare or extrapolate lab estimates with field data, thanks for the indication anyway.

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