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Biogeosciences Discussions



# *Interactive comment on* "Detailed regional predictions of $N_2O$ and NO emissions from a tropical highland rainforest" *by* N. Gharahi Ghehi et al.

**Anonymous Referee #1**

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In principle, this is a nice modelling study on N2O and NO emissions from a tropical mountain forest. Unfortunately, it is carelessly presented. Apart from a need for language editing, there are several other major issues. Given the number of established scientists among its authors, I wonder what went wrong. Is everyone just too busy with other things? Or, do the authors think it is the duty of reviewers to turn this manuscript into an acceptable paper? I am pretty busy as well. So here are just a few comments:

1) Sections 2.6 and 3.3 are identical. Why?

2) In several places, the argumentation is circular. One example is at the end of page 1498, beginning of page 1499: "For instance, N2O emissions exceeding 4 kg ha−1



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yr−1 were found in the northwestern part of the forest, which is characterized by high clay and OC contents and low pH (<4). Several authors (. . .) have shown that low pH decreases the activity of the N2O-reductase, thereby increasing production of N2O, rather than N2 from denitrification. For nitrification, it has also been demonstrated that low pH<5 or=4 values favor N2O production (. . .)"

Circularity of the argument lies in the findings of the cited authors (or similar studies) having been incorporated into the model, which in return confirms these findings. Consequently, these model results are no new information. They merely confirm the model operates as it has been asked to operate.

3) Conclusions: page 1501, last sentence: "In particular, chemo-denitrification processes on acidic soils seem to be under represented in the current ForestDNDCtropica model."

This conclusion is solely based on one of the authors' previous studies (see page 1499, lines 15-17: "Furthermore, Gharahi Ghehi et al. (2012a) suggest that high N2O and NO emissions for some sites in the Nyungwe forest are possibly due to chemo-denitrification processes."

Why does it feature as a conclusion drawn from the work presented in the current manuscript? What has the current study contributed to support this conclusion?

I am sure the senior authors of this study will find more examples of circular arguments and inappropriate statements, once they carefully read their manuscript. Equally, I am confident that they are able to make appropriate changes and corrections.

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Interactive comment on Biogeosciences Discuss., 10, 1483, 2013.