

Biogeosciences Discuss., author comment AC1
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Reply on RC2

Balázs Grosz et al.

Author comment on "Evaluation of denitrification and decomposition from three biogeochemical models using laboratory measurements of N₂, N₂O and CO₂" by Balázs Grosz et al., Biogeosciences Discuss., <https://doi.org/10.5194/bg-2021-77-AC1>, 2021

We would like to thank Reviewer II for the time and effort that they took to provide feedback for our manuscript. We have used those to improve the manuscript, and our responses to those comments are outlined below.

Answers:

We understand Reviewer 2's suggestion about two separate papers. We also considered that possibility but ultimately decided to write a longer article with all the necessary information in one place. We hope this increases both transparency and understandability for the readers. One of the main goals of this paper was to explore how we can develop and improve the denitrification sub-modules of three biogeochemical models. For this, we compared the trends of measured and modeled results. Without showing the proper description and presentation of both data sets together, we could not have as effectively compared those trends. Just citing results from a separate paper would have made understanding the modeling paper more difficult.

Generally, we don't agree with the concept of separating measured and the modeled results. It is inconvenient when citations for measured data used in modeling papers are not available or difficult to find, and often readers cannot see the measured data that the model developers used for development. Models are only as good as the data they are based on, so personally, we would prefer articles where the measured data, and a detailed description of the experiments that were used for the modeling, were readily available.

Response to numbered comments

1. We would prefer to keep the abstract as short as possible, and only include a general summary of the overarching purpose and results of the paper. However, in response to this comment, we will add a brief summary of the incubation results.
2. We agree with the comment about the inconsistency between the written text and Table 5. The reviewer cites a sentence where we summarized the general trend of cumulative fluxes (i.e. just looking at the values themselves) but did not show in the text where values were not statistically different. We will change the text accordingly.

Similarly, the reviewer cites two additional sentences where we commented on trends, without specifying that we were making a generalization based on the overall results. We will specifically include the word 'trend' when we want to make a generalization and are

not referring to a statistical difference.

3. We agree, in part, with this comment. As with most studies, we could have used our data to explore additional questions, but to keep the paper to a reasonable length, we needed to focus on presenting and discussing data that directly related to the objectives of the paper. We would, in fact, be inclined to follow the suggestion of Reviewer 1, and further decrease the number of tables and figures. That said, for the information we do include in the discussion, it is clearly important to have appropriate citations. For the incubation, we did deliberately put our data in the context of other studies; it is unclear from the comment here, whether the reviewer felt that there were too many? Similarly, we did provide supporting citations for our modeling-related discussion. We would, of course, be open to specific suggestions with respect to missing and/or unnecessary citations, but it was unclear what exactly was meant by the reviewer's comment that the citations were not appropriate.