

Interactive comment on “Methane and nitrous oxide fluxes from the tropical Andes” by Y. A. Teh et al.

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The authors would like to thank the referee for the thoughtful remarks and constructive suggestions provided on the manuscript; our responses to the referee’s concerns are provided below:

1. Title of the manuscript: The author is correct that the Andes is indeed a large, heterogeneous region, and we will modify the title of the manuscript in-line with the referee’s suggestions (e.g. “Methane and nitrous oxide fluxes from the Peruvian Andes”).
2. Soil trace gas fluxes: In accordance with the referee’s suggestions, we will modify the text to clarify that we only measured soil methane and nitrous oxide fluxes. We will also modify the concluding sentences from page 17420 line 23 to page 17421 line 4

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to take into account the referee's remarks. Lastly the suggested Keppler et al. (2006), Martinson et al. (2010) and Covey et al. (2012) references will be incorporated into the final draft.

3. Duration of the dataset: We were invited by the conveners of a BGD special issue entitled "Towards a full GHG balance of the biosphere" to submit our conference paper for publication. We have currently collected and analysed only the first 13 months of data. We foresee subsequent manuscripts as further data from the multi-annual field measurements, laboratory experiments and modelling are collected, collated and analysed; but feel that our current dataset already shows interesting trends, worthy of publication in this special issue. Moreover, we believe that this manuscript is timely, given current discourse over tropical methane and nitrous oxide budgets.

4. Role of soil characteristics in controlling gas fluxes: While the author does raise an important point, we would argue that the manuscript in its present form does in fact draw attention to the role of relevant landscape and soil characteristics in modulating methane and nitrous oxide fluxes, and that further modification of the text may not be necessary. For example, the role (or, lack thereof) of meso-scale topography in regulating gas fluxes is discussed in section 3.1, while section 3.4 explores the influence of soil variables in controlling trace gas fluxes. Figure 1 (available N), Table 1 (soil C/N ratios, meso-scale topography) and Table 3 (volumetric water content, WFPS, soil oxygen content, soil temperature) describes relevant soil characteristics and illustrates their relationship to trace gas fluxes. However, when composing the final draft of the manuscript, we will consider slightly revising the text to address the referee's concerns.

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