



## ***Interactive comment on “Contribution of the nongrowing season to annual N<sub>2</sub>O emissions from the continuous permafrost region in Northeast China” by Weifeng Gao et al.***

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The authors present a study that investigates N<sub>2</sub>O emissions from three swamp forests in permafrost region of NorthEast China. Specifically the authors aim at addressing the contribution of non-growing season N<sub>2</sub>O emissions to the annual budget - clearly a challenge to derive reliable data with sufficient temporal resolution in permafrost regions.

While the aim of the study become clear, the authors tend to "oversell" their results in various places in the manuscript. The fact that they focus on the swamp forests only

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comes out at a late stage while the title suggests something very different. While the could be of potential interest to the readers of BG, the current version of the manuscript can not accepted for publication for various reasons.

Overall, the results cover both, growing and non-growing season data. The non-growing season data has considerably less temporal coverage - while it also remains unclear how long the actual growing season lasts - yet no uncertainty estimates given the accumulated numbers. At the same time, the analysis of driver variables is superficial and needs considerable work. The discussion is a loose list, sometimes a chaotic list of studies and what these found, thus it is extremely difficult for the reader to know, whether the numbers and facts presented are part of this study or another study. The actual discussion of the results however is lacking.

Some more minor comments, which need to be addressed nevertheless: No hypothesis given, The conclusion is a repetition of the results, Gapfilling procedures to derive annual budgets are not explained in detail, and many more which can be found in the commented PDF file.

While this may not be the answer the authors would like to receive, I would like to encourage them to take the time to work on the manuscript following the suggestions provided and possibly submit to BG again.

with kind regards

Lutz Merbold

Please also note the supplement to this comment:

<https://bg.copernicus.org/preprints/bg-2020-305/bg-2020-305-RC2-supplement.pdf>

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