Revision of bg-2016-238 (January 2017)

Referee report on the revised version of the manuscript bg-2016-238
4 Dec 2016

GENERAL COMMENTS
The manuscript has been very carefully revised according to the suggestions of the both referees, and it has been significantly improved: It is now well focused, reads fluently and has all the necessary details for understanding how the different phases of the work were conducted.
I have no suggestions for corrections, despite the technical corrections listed below, and am pleased to recommend this work for publication in Biogeosciences.

AUTHORS REPLY: We wish to thank the reviewer for the very detailed review of our manuscript and spotting the inconsistencies, typos etc. We have corrected ALL changes as suggested (see tack changes in bg-2016-238-text-version1.docx). We have only inserted an AUTHOR REPLY where significant changes to the text had to be made.

TECHNICAL CORRECTIONS
Page 2, line 6: The verb is missing in ‘…boreal forests are known to significant stocks of organic N…’
AUTHORS REPLY: corrected and included the verb ‘be’

Page 2, line 26: Add comma after ‘forest sites’
AUTHORS REPLY: corrected

Page 3, lines 27-30: Complicated sentence, consider revising. Please check also the spelling of the words ‘aerenchyma’ and ‘potential’.
AUTHORS REPLY: We have rephrased this sentence to:

As CH₄, also N₂O production is a microbial process. The main drivers regulating N₂O production are nitrogen, such as ammonium and nitrate, temperature and factors which regulate the ratio of aerobic to anaerobic soil microsites, such as soil moisture (Butterbach-Bahl et al., 2013). In peatlands transport through aerenchyma, is also for N₂O a potential transport mechanism.

Page 4, line 25: Space missing after the full stop.
AUTHORS REPLY: corrected

Page 6, line 20: Comma is not needed after the parenthesis.
AUTHORS REPLY: corrected

Page 13, line 16: In my opinion, a comma would be a more appropriate separator between the sentences than a full stop.
AUTHORS REPLY: corrected

Page 14, line 8: Letter t missing in Turetsky.
AUTHORS REPLY: corrected
Page 15, line 4: The full word methane should be used instead of the chemical formula in the beginning of the sentence.
**AUTHORS REPLY:** corrected

Page 15, line 10: An extra full stop in the end.
**AUTHORS REPLY:** corrected

Page 15, line 19: Please check the correct quoting of Marushchak et al., 2011. The paper do not report large N2O fluxes at permafrost thaw, but from bare peat on peatlands currently elevated by permafrost, where erosion and frost action keep the surfaces bare of vegetation.
**AUTHORS REPLY:** Deleted Marushchak et al, as this reference is not appropriate

References: Please check the use of subscript/superscript letters throughout the reference list!
**AUTHORS REPLY:** corrected

Page 18, line 5 & Page 19, line 20: The links seem to be to the supplementary information, is this intentional?
**AUTHORS REPLY:** Yes, this is intentional. To clarify we have changed this by inserting ‘and’ in both cases, i.e.:
Geosci, 3, 617-621 and

Page 19, line 27: A typing error in the name of the last author.
**AUTHORS REPLY:** corrected

Page 20, lines 12-14: Unnecessary capital letters.
**AUTHORS REPLY:** this reference has been removed

Page 21, lines 14-15: The formatting of the author names differs from the other references.
**AUTHORS REPLY:** corrected

Page 22, line 1: The author surnames are Tan and Zhuang, please correct the reference.
**AUTHORS REPLY:** corrected in the reference list and test p15 line 5.

**AUTHORS COMMENT:** In addition we spotted a few other small errors and have indicated changes (see the track changed version of the manuscript bg-2016-238-text-version1.docx ).