**Biogeosciences
Discussions**

Interactive
Comment

Interactive comment on "Nitrous oxide fluxes from tropical peat with different disturbance history and management" *by* J. Jauhiainen et al.

Anonymous Referee #2

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REVIEW OF JAUHIAINEN ET AL 2011: BIOGEOSCIENCES DISCUSSIONS: doi 10.5194/bgd-8-5423-2011

GENERAL COMMENTS 1. Overall this paper contains useful information on N2O emissions from tropical peatland under different land uses and degradation. It also reviews previous published work. However, it should not be published in its present form 2. The manuscript needs to be checked by a native English speaker. English grammar and presentation requires major improvement. In its present form the rationale is difficult to follow and the importance of much of the work described is lost. 3. The manuscript also needs to be restructured. Some parts of the text need to be realigned from methods to discussion, from results to discussion, from results to methods, etc. For example: a. P. 5430, l. 10-15 & l. 18-27 – move to discussion b. P.5431, l.18 – 20

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– move to methods c. P. 5432, l. 1-3 – move to methods d. P. 5432, l. 24-27 – move to discussion e. P. 5433, l. 1-6 – move to discussion f. P. 5436, l. 27-29 – move to introduction g. P. 5437, l. 1-7 – move to introduction 4. There are numerous places where the text meaning is unclear, confusing or ambiguous. More details are provided below.

SPECIFIC COMMENTS The following are examples of areas that need to be addressed and there are many other lesser points that should be picked up in the redrafting of the manuscript. 1. Mention of possible N2O formation pathways and microorganisms involved should be made in introduction. 2. There is confusion between study sites (based on land uses) and gas monitoring locations (how many per site and where). On p. 5427 5 gas flux monitoring sites (land uses) are mentioned but there are in fact 6 (see Fig. 1). 3. Under Methods, 2.2., p. 5427 et sequel it would be clearer if different sub-sections were allocated to the various topics, e.g. 2.2.1 gas sampling, 2.2.2 water table monitoring, 2.2.3 data analysis. At present they are rather mixed up and overlapping. Temperature measurement is referred to in methods but does not feature in either results or discussion. Leave it out. 4. P. 5427, l. 26-28. I wouldn't expect the agriculture and burned locations to exhibit hummock and hollow microtopography. 5. The presence of canals is mentioned in a few places (e.g. p.5428, l.27, p.5431, l.8, p.5431, l.20) and it is not clear where these are, on which sites, or what their significance is. They should probably be mentioned in description of the study sites. It seems that in some of the drained sites gas measurements were taken at different distances from canals but this is not mentioned in the methods. 6. Much of the results sections is discussion. There needs to be a clearer presentation of the results, preferably in a table that includes, ranges, means and SD/SE. Some statistical comparison to identify differences would be useful. 7. Figure 2 is too small and difficult to read. It is not clear why there are two diagrams for site DF with different scales on the X-axis and different points. What do the upward pointing arrows signify? 8. The legend to Fig 3 mentions five gas flux monitoring locations. Are these at different distances from a canal/drain or are they random? 9. Also in Fig 3 arbitrary lines are drawn to indicate 'arbitrary cut off

points' to delineate 'highly deviating fluxes' from the rest. Some explanations should be provided on how these were chosen especially since they differ on the two sites.

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