

## ***Interactive comment on “Responses of nitrous oxide emissions to nitrogen and phosphorus additions in two tropical plantations with N-fixing vs. non-N-fixing tree species” by W. Zhang et al.***

**W. Zhang et al.**

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Responses to the comments

Reviewer #1 (Anonymous Referee #1) Received and published: 1 April 2014

But what was the result of the 3-D regression ( $N_2O = a \text{ Temp} + b \text{ WFPS} + c$ )? The way you argue you should come to the conclusion not to include the Temp and WFPS issue at all. Either you do it properly or don't.

Answer: Thank you very much for your comment. We agree with your excellent suggestion. A stepwise multiple linear regression analysis ( $N_2O = a \text{ Temp} + b \text{ WFPS} + c$ )

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have been done to interpret the relationships of  $N_2O$  emissions with soil temperature and WFPS. The results indicated that soil temperature and WFPS were the significant variables explaining the variability of  $N_2O$  emissions, with fitting of the equation as  $f(N_2O) = 1.06 \text{ Temp} + 0.38 \text{ WFPS} - 15.05$  for both plantation controls. Based on your suggestion, we have made many changes in this revision as follows.

We have added the multiple regression analysis results to the revision with Table 4 (Please see the Page 29, Lines 690-695), and also changed the order of the initial Table 4 as Table 5. (Please see the Page 16, Lines 458 and 467; Page 30, Line 696).

The sentence of “In our study,  $N_2O$  fluxes showed positive linear relationships with soil temperatures ( $R^2 = 0.32$  and  $0.35$ ) and WFPS ( $R^2 = 0.19$  and  $0.26$ , respectively for AA and EU plantation) (Table 4),” has been inserted into “4.5 Effects of soil temperature and WFPS on  $N_2O$  emission” of the Discussion section. (Please see the Page 15, Lines 439-441).

We have added the sentence as “Stepwise multiple linear regression analysis indicated that soil temperature and WFPS were the significant variables explaining the variability of  $N_2O$  emissions (Table 4).” to Discussion section of the revision. (Please see the Page 16, Lines 443-445).

Please also note the supplement to this comment:

<http://www.biogeosciences-discuss.net/11/C721/2014/bgd-11-C721-2014-supplement.zip>

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