

Interactive comment on “Wet-season spatial variability of N₂O emissions from a tea field in subtropical central China” by X. Fu et al.

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This is an interesting paper about the spatial variability of N₂O emissions from a tea field. Several points should be addressed by the authors before the paper can be published in BG:

1. Please elaborate in detail the major novelty of this paper compared to the study from Li et al., 2013. Simply referring to dry season in one paper and to wet season in the other is not sufficient. In addition, comparing dry and wet season should be done carefully as half an hour sampling cannot represent an entire season. It is suggested in the abstract that soil properties should be included in interpolation methods. To my opinion, such an achievement would be required before final publication.

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2. The paper should refer to and discuss process-based biogeochemical modelling approaches (e.g., DNDC). Which implication do the results of the paper have for existing models and process understanding (see e.g., Butterbach-Bahl et al., 2013)?

3. Provide more details on the size of the static chamber (e.g., volume). Please also explain why the chamber volumes were not ventilated (air mixing to avoid concentration gradients)? Could this potentially cause random sampling errors that have influenced the spatial distribution of the emissions?

4. It would be important to see the spatial distribution of the error of the interpolation (kriging variance) on a map.

References:

Li, Y., Fu, X. Q., Liu, X. L., Shen, J. L., Luo, Q., Xiao, R. L., Li, Y. Y., Tong, C. L., and Wu, J. S.: Spatial variability and distribution of N₂O emissions from a tea field during the dry season in subtropical central China, *Geoderma*, 193, 1–12, 2013.

Butterbach-Bahl K, Baggs EM, Dannenmann M, Kiese R, Zechmeister-Boltenstern S.: Nitrous oxide emissions from soils: how well do we understand the processes and their controls? *Phil Trans R Soc B* 368: 20130122, 2013 (<http://dx.doi.org/10.1098/rstb.2013.0122>).

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