

Interactive comment on “Capturing temporal heterogeneity in soil nitrous oxide fluxes with a robust and low-cost automated chamber apparatus” by Nathaniel C. Lawrence and Steven J. Hall

Anonymous Referee #2

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An interesting and useful paper outlining a relatively simple and robust technique for automated field chambers. Only a few minor comments on the operation and design of the chambers themselves, but I'd like to see more discussion around the construction labour costs (important if claiming "low cost" but not including them in the budget) and also the availability/cost of replacement parts - particularly if these are custom built. Some comment on the technical requirements for the data analysis would also be useful for handling such a large dataset.

Other comments: Introduction line 63. Some references to these other measurement

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types are required here. Line 65: There are a lot of automated systems that use GC's as well which need to be referenced here. These are also relatively inexpensive (<\$20,000 USD) compared to the lasers and have been used in extreme environments (e.g. Wolf 2010 in Inner Mongolia and Kiese 2003 in tropical rainforests). These need to be mentioned as existing options. Line 125: Clarify that these measurements are referring to the frame and not the "collar". Chamber base and collar are both often used to describe the same thing Line 167: I imagine this would be a major limitation in highly shrink/swell soils such as vertisols, or large vigorous crops (please comment) Line 195: What diameter and material is used for the chamber lines (I may have missed elsewhere)

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