

Interactive comment on “Investigating uptake of N₂O in agricultural soils using a high-precision dynamic chamber method” by N. J. Cowan et al.

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We thank the reviewer for the constructive comments on our manuscript.

Page 8127, line 12-13: Some of the studies cited on N₂O uptake by agricultural soils were carried out at N-limited forest sites. Yes, we made an error in the list of papers we cited. This sentence will be re-worded, and the references changed in a revision.

In response to the work shown in Savage et al 2014, we would emphasise that our measurements appear very similar in terms of frequency distribution between -2 to 2 $\mu\text{g N}_2\text{O-N m}^{-2} \text{ h}^{-1}$ in soils with low fluxes. The definition of detection limit is likely to be the main source of difference between our values. We use a 95 % confidence interval based on propagating the uncertainties in chamber volume, temperature, and

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pressure, and in the regression of concentration versus time. Savage et al (2014) “calculate the 95 % confidence intervals around the slope of the change in concentration over time and then bins fluxes and defines the MDF as the flux bin interval at which >67 % of the calculated fluxes have confidence intervals that do not include zero”, based on Verchot et al., (1999). This comes down to using 1 x sigma (Savage et al, 2014) or 2 x sigma (ours) as a metric of the error distribution, and we prefer our simpler method.

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 8125, 2014.

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