

Interactive comment on “Attribution of N₂O sources in a grassland soil with laser spectroscopy based isotopocule analysis” by Erkan Ibraim et al.

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A very different method to determine N₂O emission fluxes was applied in Schäfer et al. (2012) to determine such fluxes from unfertilized grassland on the field scale. Fluxes in about the same amount, which are found and described here by Ibraim et al. in chapter 3.1 “N₂O fluxes and soil parameters”, were determined in our investigations by a tunnel, coupled to an open-path Fourier transform infrared spectrometer, which covered 500 m², from 0 up to 14 μg N₂O-N m⁻² h⁻¹. The FLEXPART-COSMO simulations had source sensitivity which originates from areas within approximately 300 m to 700 m distance to the sample inlet representing an up-scaling similar to the

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tunnel method (100 m length). Peak emissions were detected in Schäfer et al. (2012) by concurrent chamber measurements after rainfall as described by Ibrahim et al. also. Schäfer, K., Böttcher, J., Weymann, D., Von der Heide, C., Duijnsveld, W.: Evaluation of a closed tunnel for field-scale measurements of N₂O fluxes at the soil-atmosphere interface. *J. Environ. Qual.*, 41, 1383-1392 (2012); doi: 10.2134/jeq2011.0475.

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