

## ***Interactive comment on “Methane and nitrous oxide exchange over a managed hay meadow” by L. Hörtnagl and G. Wohlfahrt***

**Anonymous Referee #2**

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This is an interesting study of the actual greenhouse potential from CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O from an European Hay meadow. The authors used the eddy covariance method to measure fluxes of these three gases and calculated their individual warming contributions. An interesting result is that N<sub>2</sub>O seems to be as important as CH<sub>4</sub> in the overall scheme. This may be in opposition to American studies which have found that the highly episodic character of N<sub>2</sub>O emissions tended to minimize their overall impact. While I would normally recommend publication of this work, the fact that the authors used multiple linear regression analysis to explain their flux numbers makes this impossible. It is well known that CO<sub>2</sub> and CH<sub>4</sub> both show distinctly non-linear temperature dependencies. In addition, several of the authors conclusions are supported by mean values with uncertainties that are sometimes five or six times the mean value. This is very risky! Because of these issues, I recommend that the authors re-analyze their

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data and re-write this manuscript.

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