

## ***Interactive comment on “Dynamics of ammonia exchange with cut grassland: synthesis of results and conclusions of the GRAMINAE Integrated Experiment” by M. A. Sutton et al.***

### **Anonymous Referee #1**

Received and published: 6 February 2009

The authors present a synthesis of an intensive empirical and theoretical study on ammonia exchange above a farmland site. The objectives are to answer five main questions on 1. nature and quantity of bi-directional flux components, 2. impacts of management on fluxes, 3. conditions that lead to significant advection fluxes. 4. effects of multiphase air chemistry on vertical fluxes, and 5. technical options to measure vertical flux divergence, caused by, e.g., advection and air chemistry. These questions are obviously very interesting and important and this comparably short part of the paper is clearly the most relevant and interesting regarding synthesis.

Unfortunately the authors also try to summarise major findings from individual work

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packages of the experiment given the objective of the manuscript in a too lengthy and too detailed manner. The presented figures are rather busy and are much closer to raw data than to synthesis graphs. A good synthesis should synthesise general figures from cases, relate findings where relevant to one another and cleanse data from unnecessary detail in order to emphasize the key synthesis findings. If, anyway, a summary of key findings is relevant at all, it should be shortened to maximum five manuscript pages. The main messages should be expressed as text; figures can be omitted by referring to the individual papers of the special issue. Only present figures that show synthesis results!

In my view the manuscript needs major revision, i.e. shortening. Other than summarising, synthesis is a method of creating something new by discussing elements on a higher level. The Authors should focus on exactly this innovative aspect of their work and extend it with conclusions from the outcomes of the experiment as a whole.

I'm looking forward to discussing a heavily shortened and focussed version of this manuscript in more detail.

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Interactive comment on Biogeosciences Discuss., 6, 1121, 2009.

## BGD

6, S66–S67, 2009

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