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Biogeosciences Discussions

Interactive comment on "Investigating the stomatal, cuticular and soil ammonia fluxes over a growing tritical crop under high acidic loads" *by* B. Loubet et al.

Anonymous Referee #2

Received and published: 30 December 2011

General comments: This paper presents two months of ammonia flux measurements using a new ammonia analyser (ROSAA, RObust and Sensitive Ammonia Analyser) and process based modelling of these flux measurements. It is a valuable contribution to the field of biosphere/atmosphere ammonia exchange. However the paper would benefit from more discussion of the implications of the findings. In addition, some more details on the development of the ROSAA analyser would be helpful. What is new about this analyser? What is the expected improvement of this analyser compared with existing ammonia analysers? What is the measurement range?

Specific comments: Page 10318: l. 23-24: Specify the time period over which this

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significant decrease of sulphur and nitrogen has occurred.

Page 10319: l. 1: Include more up to date references on ammonia emissions.

Page 10321 l. 14: What is meant by 'accounting for the measured gaseous acid concentrations at the site.'

l. 25: What is the distance between the measurement site and the AgroParisTech experimental farm?

Page 10323 1. 13: Apart from the patent registration, is there any other reference for the ROSAA analyser?

Page 10328 l. 5: Why are averaged concentration values given for June and July 2010 when the experimental period covered May and June 2010? What other reasons could account for the differences between the ROSAA analyser and the DELTA measurement technique?

Page 10335 l. 14: In the abstract and conclusions it is stated that the ammonia concentrations were largely influenced by advection from the nearby farm. However, although the final paragraph of section 3.2 acknowledges that the concentration increased when the wind was blowing from the farm there is no real assessment of how the advection may have affected the concentration and flux measurements.

Technical corrections:

Page 10318: l. 24: change 'lead' to 'led'

Page 10321 l. 11: Inconsistency with term: 'mini-wed'. Use the same term throughout manuscript (mini-WEDD or mini-wedd).

Page 10327 l. 6 & 8: Inconsistency with rain event (10 to 12 June or 11 June).

l. 26: The standard deviation is stated as up to 20 ppb NH4 in the text and 22ppb in the legend of Figure 3.

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8, C5102–C5104, 2011

Page 10334 l. 7: Change ‘North’ to ‘north’ l. 8: Change ‘West’ to ‘west’

Page 10335 l. 2: Change ‘explanation’ to ‘explanations’

l. 22: Change ‘North’ to ‘north’ and ‘West’ to ‘west’

Page 10336 l. 16: Change ‘partitioning’ to ‘partition’.

Figure 5b: Include concentration units and wind direction on figure.

Interactive comment on Biogeosciences Discuss., 8, 10317, 2011.