Atmos. Chem. Phys. Discuss.,
https://doi.org/10.5194/acp-2018-133-RC1, 2018

Atmospheric Chemistry and Physics Discussions

Interactive comment on "How are NH_3 dry deposition estimates affected by combining the LOTOS-EUROS model with IASI-NH_3 satellite observations?" *by* Shelley C. van der Graaf et al.

Anonymous Referee #2

Received and published: 11 July 2018

The paper investigates the effects of using satellite-derived NH3 levels in a chemistry transport model on the modeled NH3 concentrations and deposition fluxes. The paper is interesting and easy to follow. I am in favor of its publication in ACP provided it address the points below.

General Comments

- Can the authors elaborate on why results are different in the two years? - Is meteorology playing a role here? Is it possible to validate the meteorology to enrich the discussions? - In addition, both the original and IASI inferred NH3 concentrations are overestimated both years. Can the authors discus why? Is it overestimation in emis-

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Discussion paper

sions or underestimation in deposition? - Why are the deposition fluxes not evaluated against observations?

Technical comments

Page 1 Line 33: . . .do not show strong improvements. . ..

Page 2, Line 30: . . .ALLOW us to . . .. . .

Section 2.2. needs some more explanation of how the uncertainty is calculated.

Section 2.4.1. needs more information on the temporal variation of emissions, in particular NH3.

Page 8, Line 16: Erisman (1993) estimated. . ..

Page 9, Line 16: . . .dry deposition fluxes IN Eq. (3):

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