Atmospheric
Chemistry
and Physics
Discussions

Open Access

ACPD

Interactive
comment

Interactive comment on "Analysis of atmospheric ammonia over South and East Asia based on the MOZART-4 model and its comparison with satellite and surface observations" *by* Pooja V. Pawar et al.

Frank Dentener (Editor)

frank.dentener@ec.europa.eu

Received and published: 21 December 2020

Dear authors,

I have taken note of the rebuttal to the reviewer's comments.

Several (main) concerns have voiced with regard to the use and quality of surface observations for comparison, the use of coarse resolution model and low temporal resolution for comparison with IASI satellite data, and issues with the gas-particle partitioning.

Although the responses were to some extent addressing the reviewers concerns, I

Printer-friendly version

Discussion paper

encourage the authors to avoid relaying issues for 'future work', and where appropriate extend the analysis with some sensitivity studies.

Further discussion is warranted wrg to quality issues of surface observations: information on calibration procedures, and in particular for what it means for this study should be described carefully.

In particular, I would like to see a somewhat more in depth discussion on the potential biases derived from mismatch of temporal matching and boundary layer dynamics in the MOZART model, in particular in winter when high atmospheric stability prevents mixing, and IASI may not observe all NH3 close to the surface. A case study with higher temporal (and spatial) resolution for a limited and more frequent output and realistic assumptions on IASI effective kernels may be helpful to illustrate the sensitivity of results.

Likewise some first order estimate of the impact of applying a temporal profile on agricultural NH3 emission would be preferable.

I encourage the author to resubmit, taken the review comments and my instructions as much as possible into account.

Interactive comment on Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2020-639, 2020.