

Interactive comment on “Modelled deposition of nitrogen and sulfur in Europe estimated by 14 air quality model-systems: Evaluation, effects of changes in emissions and implications for habitat protection” by Marta G. Vivanco et al.

Anonymous Referee #1

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The manuscript is well structured and written. It provides a valuable comparison for modeled deposition of nitrogen and sulfur by fourteen air quality models over Europe. There is a lot of information provided from the evaluation results in the manuscript and the supplementary material. I think the article deserves publication. I have only a few minor comments to be considered by the authors.

In Section 2.1.1 the emissions used are only briefly described. Although there are references provided I would suggest to provide a little more information for Copernicus, HTAP_v2.2 and ECLIPSE_V5 emissions (eg. spatial resolution, temporal resolution).

In Section 2.2 please describe briefly how the statistical measures for each individual station are implemented in smile plots where we see the entire set of stations. It is stated that there is a tendency for the models to underestimate WSO4_S and simultaneously overestimate the gaseous pollutant SO2_S on an annual and monthly basis. Please discuss some possible reasons for this. Is there a possibility for less efficient heterogeneous oxidation of SO2?

In Section 3 it is written that “As can be inferred from AM 2.3, AQ_DK1_HTAP estimate the main contribution from the gas phase,...”. To my understanding this holds for AQ_F11_HTAP according to AM2.3 while for AQ_DK1_HTAP the highest contribution comes from the particle phase.

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