

Interactive comment on “The unintended consequence of SO₂ and NO₂ regulations over China: increase of ammonia levels and impact on PM_{2.5} concentrations” by Mathieu Lachatre et al.

Anonymous Referee #2

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The manuscript studies the changes in atmospheric concentration of ammonia over China for the recent past. The authors constructed emissions and performed model simulations with a regional model to investigate three reasons behind the change in concentrations. The results are compared to satellite data.

The manuscript is in general well written, but there is a need for English language editing.

The findings are useful for understanding the PM concentrations over China and potentially managing PM pollution. Specific comments:

P1L5: add the % sign to -37.5

C1

P1L6: the (g) in NO₃ is redundant as gaseous is mentioned

P2L3: This abbreviation has not been defined yet

P2L5: "Chinese emissions" can be removed since it is mentioned later in the sentence that you are

talking about Chinese emissions P2L7: ...in 2005 and *have* been...

P2L13: Is likewise the proper word to use here?

P2L13-15: Maybe break the sentence in two. The way it is now it is not easy to understand.

P2L15: put NH₄NO₃ and HNO₃ in parentheses.

P2L21: Use proper citation formatting for reference (Liu et al)

P3L6: change the quote style in "climate". Use the same quotation style throughout the document

P3L6: ECMWF abbreviation has not been defined yet

P4L15: Since you are creating emissions for years 2013, 2015, why not create emissions for 2011 also? Isn't this adding to your uncertainty?

P5L3: is piloted the correct word to use here?

P5L7: This is confusing. Basically you apply a factor that is 2011 based, on an emission inventory of 2010. How does this affect your calculations? You should either make it all 2010 based, or all 2011 based.

P7L24: correct typo on EDHAR to EDGAR

P8L3: Here you report more than 90 %, but later more than 95%. You should be more consistent.

P10L2: A comma is needed after R4

P10L12-14: either...or, not or....either

P11L13: As before, be consistent on the numbers you report.

P16L22: correct the typo on times

P16L28: All your scenarios use the respective year's meteorology. How do you attribute differences caused by emissions changes to meteorology, since everything in the model changes, except for the NO_x and SO_x emissions?

C2

P18 table: remove the zeros from the beginning of non decimal numbers

P19L1: Change the citation style on Liu et al

P20L4: Either report both reductions as negative numbers, or both as positive numbers.

P20L20: updated, not up-dated

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2018-1092>, 2018.