Atmos. Chem. Phys. Discuss.,
https://doi.org/10.5194/acp-2018-917-AC1, 2018

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Impacts of climate change and emissions on atmospheric oxidized nitrogen deposition over East Asia" *by* Junxi Zhang et al.

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Received and published: 27 December 2018

Comments from Reviewer 1:

General comments:

This manuscript explores projected simulations of atmospheric oxidized nitrogen deposition to the region of East Asia and adjacent waters of the northwest Pacific Ocean, using the ACCMIP model ensemble, under various scenarios of climate and emissions changes. The study is well constructed and the presentation of the manuscript is clear, logical and thorough. The conclusions of the work (i.e. evolving influences of emis-

sion change and changes in precipitation on northwest Pacific marginal seas primary productivity) are interesting and concisely communicated, together with an indication of the limitations of the study. I recommend publication in Atmospheric Chemistry and Physics, with only minor typographic and presentational amendments.

Response: We thank the reviewer for the positive and constructive comments concerning our article. Please see the detailed responses to the specific comments below.

Specific comments:

Line 147. change to "some models"

Response: This has been revised.

Line 296. insert "deposition" after "wet NOy" ?

Response: This has been revised.

Line 307. "change are", not "change is".

Response: This has been revised.

Line 422: change to "who reported that nitrogen"?

Response: This has been revised.

Line 434: insert "from NOy" after "PP" ?

Response: This has been revised.

Lines 424 - 447. It may be worth noting in this paragraph that the projected changes in PP from NOy discussed here take no account of potential limitations on PP due to scarcity of other nutrient species

Response: We thank the reviewer for the suggestion and this has been addressed in the revised manuscript (last paragraph of Section 6).

Figures 1 – 6 and 9: These are all good figures, containing a lot of interesting infor-

mation. However, because they contain a lot of panels, it can be difficult to read the rather small lettering identifying each individual scenario. For the final version of the manuscript I would suggest having a single row of column headings (Spring, Summer, etc.) at the top of each figure and moving the row identifications (e.g. TRMM, GPCP, ACCMIP for Fig. 1) to a single column of labels beside each row.

Response: Thank you for the suggestion for improving the legibility of figures. This has been revised following your suggestion. Figures 1 – 6 and 9 now have a single row of column headings and a single column of labels.

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