

Response to Editor review for “EURODELTA-Trends, a multi-model experiment of air quality hindcast in Europe over 1990–2010” submitted to GMDD by Colette et al. 2016 as gmd-2016-309

Note: Editor comments are indicated in bold, answers are in regular font and changes highlighted in yellow in the revised manuscript

Major issues:

- **I recommend to change the order of the Sections 2 and 3. As reader I expect first to read about the experimental design and afterwards something about the participating models.**
 - Sections 2&3 have been swapped
- **Sect. 2: Do I understand correctly, that this is a closed experiments, i.e., only the named 8 modeling teams can contribute? Anyhow, it would be good to enable other modelling groups to perform the same experiments. For this, the description is not detailed enough. Especially, the input data should be made available as well.**
 - The experiment is not closed, and new models are still joining, although the analysis is well under way, and it there is a risk that newcomers might not be included in all forthcoming publications. The input data are available on a wiki through ESGF links that are now provided in the “data availability section”.
- **Sect. 7 the title should be “Chemical Boundary Conditions”. Or even “Lateral Chemical Boundary Conditions”. Please clarify which Boundary Conditions are applied at the model top.**
 - The title of the section has been changed to “chemical boundary conditions” and a clarification has been added to explain that the same procedure is used at the model top.
- **Both types of chemical boundary conditions are provided as monthly averages. Thus certain chemical events, especially import from outside of the domain, e.g. dust or polluted air masses advected from the U.S., can not be modelled. Please discuss the consequences for the experiment results.**
 - A paragraph has been added to make this clearer also explaining that the impact on monthly means of such events are indeed taken into account.
- **Data availability: you just refer to the model output data. What about the input data? If other groups like to compare their own model to your results they need the same input data. Please make the input data also available for everyone. Especially, as you compared your own article to the ones of CMIP6, this is the large difference between your paper and the CMIP6 papers. Those papers have been written prior to the actual conductance of the experiments in order to provide all information about the experiments including access to all required input data.**
 - The link to the wiki and ESGF input data repository has been added

Minor items:

- **all citations included in the text should not be in brackets. e.g., p.3 L45, p. 4 l. 3, p. 8 l.5 / l. 6 / l.20, p. 9 l. 4, p. 10 l. 20 /l.37, etc.**
 - I am afraid that the Output Style available for Endnote on the Copernicus website is not handling this distinction properly, I hope this issue can be handled at the typesetting stage
- **write acronyms always in the same way (e.g., EURODELTA in the title and Eurodelta in running text**

- acronyms have been made homogeneous
- **P. 4 I.15: Why is a link (footnote) and a citation provided for Polyphemus, but not for the other models?**
 - The link to Polyphemus has been removed for consistency
- **Sect. 4: why is a 0.25 0.4 grid equivalent to 25kmx25km ? I would have expected 25km x 40km.**
 - At European latitudes, a 0.4degree longitude is closer to about 25km, a clarification has been added to the text.
- **Please note, that Copernicus requires "last access dates" for all provided links. Best to provide them already in the final uploaded revised version.**
 - Access dates have been added
- **P.8 footnote 2: Move footnote indicator to front. / The link does not work.**
 - corrected
- **p.9 I.19: Why is this link not provided as a footnote?**
 - corrected
- **p.9 I.28: What do you mean by \mostly"?**
 - the sentence has been revised to explain that the agricultural sector largely dominates in European anthropogenic NH₃ emissions
- **p. 12 I. 3: What do you mean by \available in 4"?**
 - The word "table" was missing
- **p.12 I. 24-28: Any explanation for this outcome?**
 - We are afraid that investigating the processes underlying such outcomes is typically the focus of forthcoming analysis papers
- **Sect. 10 is more a \Summary and Outlook" section. Please consider renaming.**
 - renamed
- **Fig.1: In my printout the light-blue boxes are hardly visible, please change the colour.**
 - changed
- **Fig.2: The black and the blue dots are hardly visible. You should not improve the resolution (as stated in your author reply) but the (line or points) width.**
 - Improving the resolution helped to see the red points, but the size of black and blue dots is now increased
- **Fig. 4 / Fig.5: increase the font size of the labels.**
 - The font size has been increased