

Editor review for “EURODELTA-Trends, a multi-model experiment of air quality hindcast in Europe over 1990-2010” by Colette et al.

Dear Authors,

upon reading your revised manuscript I found the following issues which I like you to address in the final revised paper:

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.
- 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.
- 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.
- 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.
- 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.

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.
- write acronyms always in the same way (e.g., EURODELTA in the title and Euro-delta in running text)
- P. 4 l.15: Why is a link (footnote) and a citation provided for Polyphemus, but not for the other models?
- Sect. 4: why is a $0.25^\circ \times 0.4^\circ$ grid equivalent to $25km \times 25km$? I would have expected $25km \times 40km$.
- Please note, that Copernicus Office requires “last access dates” for all provided links. Best to provide them already in the final uploaded revised version.
- P.8 footnote 2: Move footnote indicator to front. / The link does not work.

- p.9 l.19: Why is this link not provided as a footnote?
- p.9 l.28: What do you mean by “mostly”?
- p. 12 l. 3: What do you mean by “available in 4”?
- p.12 l. 24-28: Any explanation for this outcome?
- Sect. 10 is more a “Summary and Outlook” section. Please consider renaming.
- Fig.1: In my printout the light-blue boxes are hardly visible, please change the colour.
- 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.
- Fig. 4 / Fig.5: increase the font size of the labels.

Best regards,
Astrid Kerkweg