

Editor comment on Gouldsbrough et al.: *A machine learning approach to downscale EMEP4UK: analysis of UK ozone variability and trends*

Thanks for submitting a revision of your manuscript in response to the two reviews. As both reviewers had major concerns about the study, I had asked them for a second review. Please respond to the comments by Reviewer#2 on the revised version of the manuscript.

While the reviewer remains sceptic about your study, I think that it could stimulate further discussion and could be a starting point for further studies. Therefore, I favour publication in ACP. However, I agree with reviewer#2 that when revising the manuscript you omitted a lot of the information from the response to the reviewer comments. I understand that you are concerned about the length of the manuscript and I agree, that it should not become much longer, but at the same time I feel that some additional information might be useful for the readers.

Therefore, I ask you to prepare a new minor revision of the manuscript taking into account the new review and the following aspects.

Remarks on Response to Reviewer #1 (no 2nd review received)

- Add the explanation on the interpretation of SHAP value to the manuscript. I think is necessary as SHAP values are not a widely known metric.
- Add a statement about not including emissions to text (3rd comment by Reviewer #1).
- The response argues with a citation of Ren et al. (2020); this reference along with the argument of Liu et al and Ren et al achieving similar correlation values should be added to the text.

Remarks on Response to Reviewer #2 (numbers referring to major comments from reviewer's first review):

1. ok
2. The text in section 3.1. in version 5 of the manuscript remains less detailed than the response to the reviewer as subsection 3.1 remained largely unmodified – please change and add details to the manuscript.
3. Please add the Table from your response to the appendix and summarise the results briefly in the main text also addressing the reviewer's concerns about the representativeness of model.
4. ok