

Authors' response to the Editor's decision on the revised manuscript "Modeling the drivers of fine PM pollution over Central Europe: impacts and contributions of emissions from different sources"

by Lukáš Bartík et al. (acp-2023-1919)

Dear Editor,

thank you for your time and effort to review our revised manuscript and for all your comments. Please find our answer (in black) to your decision (in blue) below.

Thank you for submitting the revised manuscript that has considered the review comments and suggestions. I agree with both referees that the revisions are acceptable. However, the current abstract is too long. According to the ACP manuscript preparation guideline (see <https://www.atmospheric-chemistry-and-physics.net/submission.html>), the abstract text should be limited to 250 words or less. The referees also offered some suggestions of shortening the abstract. Please revise it accordingly.

We have shortened the abstract considering both the suggestions of both reviewers and the recommendation regarding the limit of the number of words used in it. However, in the case of the recommended limit, we have slightly exceeded it (by about 20 words) at the expense of preserving the integrity and comprehensibility of the new abstract.

In addition, we have corrected several typos that we found in the revised manuscript. These are:

line 202: 'ERA-interim' was changed to 'ERA-Interim'.

line 387: We have changed 'wind speeds wind speeds' to 'wind speeds'.

line 404: Missing unit ' $\mu\text{g m}^{-3}$ ' was added after the number 45.

line 706: We have changed 'depict' to 'depicts'.

For the sake of completeness, we notify you that we have also added or modified the information in the following sections: Code and data availability, Competing interests, and Acknowledgements. As can be seen, none of these changes, as well as the typo correction changes, affected the scientific content of the revised manuscript.

Authors' response to the Report #1 written by the Anonymous Referee #2

Dear Anonymous Referee #2,

thank you for your time and effort to review our revised manuscript and for all your comments. Please find our answer (in black) to your suggestions for a minor revision (in blue) below.

Suggestions for revision

Thanks for addressing my comments. I only have minor comments for the revised draft. The current abstract is somewhat verbose. The details about the experiment in line 11-22 seems unnecessary. Additionally, the results parts in the abstract can also be more concise. The contribution sources terms are repetitively mentioned four times between line 23-53, would it be possible to focus on the most important contributor for the emission and concentration in the abstract?

We have shortened the abstract considering both the suggestions you mentioned, i.e.:

- We have removed the unnecessary details about the experiments.
- In the result part, we have focused just on the emission categories that are responsible for the most important contributions and impacts.

Also, we have considered the suggestions of the other referee regarding the shortening of the abstract and the recommendation about the limit of the number of words used in the abstract, which the editor mentioned.

In addition, we have corrected several typos that we found in the revised manuscript. These are:

line 202: 'ERA-interim' was changed to 'ERA-Interim'.

line 387: We have changed 'wind speeds wind speeds' to 'wind speeds'.

line 404: Missing unit ' $\mu\text{g m}^{-3}$ ' was added after the number 45.

line 706: We have changed 'depict' to 'depicts'.

For the sake of completeness, we notify you that we have also added or modified the information in the following sections: Code and data availability, Competing interests, and Acknowledgements. As can be seen, none of these changes, as well as the typo correction changes, affected the scientific content of the revised manuscript.

Authors' response to the Report #2 written by the Anonymous Referee #1

Dear Anonymous Referee #1,

thank you for your time and effort to review our revised manuscript and for all your comments. Please find our answer (in black) to your suggestions for a minor revision (in blue) below.

Suggestions for revision

I would consider a minor revision because the abstract is too long. My suggestions are:

- to shorten the first part including introduction and modelling setup down to 5 rows
- to summarize the obtained results using quantitative information to describe:
 - a) the role of the different sources identified by PSAT/contributions and SOAP/impact simulations
 - b) the main differences between impacts and contributions
 - c) the sensitivity of modelled results between SOAP and VBS

We have shortened the abstract considering all the suggestions you mentioned so that we have either fulfilled them or at least approached them. Also, we have considered the suggestions of the other referee regarding the shortening of the abstract and the recommendation about the limit of the number of words used in the abstract, which the editor mentioned.

In addition, we have corrected several typos that we found in the revised manuscript. These are:

line 202: 'ERA-interim' was changed to 'ERA-Interim'.

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For the sake of completeness, we notify you that we have also added or modified the information in the following sections: Code and data availability, Competing interests, and Acknowledgements. As can be seen, none of these changes, as well as the typo correction changes, affected the scientific content of the revised manuscript.