

Atmos. Chem. Phys. Discuss., editor comment EC1  
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## Comment on acp-2021-552

Barbara Ervens (Editor)

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Editor comment on "Evaluation of the WRF and CHIMERE models for the simulation of PM<sub>2.5</sub> in large East African urban conurbations" by Andrea Mazzeo et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2021-552-EC1>, 2022

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Please find an additional reviewer report below that was submitted shortly after the discussion was closed. I would like to encourage you to take these important comments into account if you consider preparing a revised manuscript.

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There is no discussion on why the modelling was performed on 2 km x 2 km resolution. Given the uncertainty in the models, their input data and the usage of the results this extra step of modelling may only have introduced extra uncertainty compared to, say, retaining the 11 km x 11 km of the emissions inventories used. The authors shall also explain why they only simulated a 1 month period and not a full seasonal cycle.

In the description of the CHIMERE model there needs to be a short description on how wet- and dry deposition of gases and particles are treated.

I did not find the **Validation of the WRF simulation** particularly impressive and I find the statement in the conclusion to be misleading *RF has proved capable of reproducing the main meteorological patterns for all domains considered.*" (line 762). For example, the overall temperature bias for the 1-month simulation is 4.1K in Nairobi – which, I believe, is the same order of magnitude as the seasonal variation of monthly mean temperatures in Nairobi. I also lack an evaluation of the WRF-model's capability of reproducing precipitation in the different modelling domains.

-There are numerous typos throughout the manuscript.

-Several of the maps provided would, in my opinion, be more useful if they, for example, show land surface type, population density, or emissions rather than height above mean sea level. The site indicators in Figs. 3, 7 and 11 need to be more clear.

-There are no units specified in Tables 3 and 4.

-The specified diurnal cycle of RH is wrong (row 405)

-The denominator of Eqs. (2) and (3) are in error.

-Explain the strict lower baseline of ca. 2 µg/m<sup>3</sup> in modelled and observed PM<sub>2.5</sub> in Fig. 8

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