

Response to Reviewer Comments

Dear Reviewer and Editors:

We are sincerely grateful to the editor and reviewer for their valuable time for reviewing our manuscript. The comments are very helpful and valuable, and we have addressed the issues raised by the reviewer in the revised manuscript. Please find our point-by-point response (in blue text) to the comments (in black text) raised by the reviewer. We have revised the paper according to your comments (highlighted in red text of the revised manuscript).

The authors have attended many of my previous comments in their response, improving the clarity of the manuscript. However, some key responses were not added to the final version. Therefore, I suggest them to include these details.

Response: Thank you for your recognition of our work and for your valuable feedback. As per your request, we have undertaken revisions throughout the manuscript.

Minor suggestions:

1. You mentioned that the surface resolution data is 10 m, but the rest of the model is 200 m. How do they interact? (That was my previous question; sorry if it wasn't clear enough)

Response: Thank you for your question. To clarify, the 10 m underlying surface data were used to accurately describe urban morphological parameters. These data were matched the nested grid before being implemented in the UCM. We have added clarification in the revised manuscript (lines 141-142). Please let us know if further explanation would be helpful.

2. It'd be useful to include part of the response to the question regarding

lightning models in WRF in your manuscript.

Response: Thank you for the suggestion. We have added the lightning model details to the manuscript (lines 131-133).

3. Please include the explanation of the chosen day in the manuscript, as in the response

Response: Thank you for the suggestion. We have added the chosen day details to the manuscript (lines 147-150).

4. The response to including a figure for Table 1 was not attended. Is it because it is too much work to do it?

Response: Thank you for your continued interest in improving our manuscript's clarity. We acknowledge that creating a visual representation of Table 1 would indeed be valuable, and we regret not including it initially. The omission was not due to workload considerations, but rather because our parameter modifications in WRF-UCM were primarily numerical adjustments that don't lend themselves to intuitive graphical representation. Future work will explore effective methods to visually represent such numerical parameter experiments.

5. Please include part of the response regarding the last comment on the mechanism explanation.

Response: Thank you for the suggestion. We have added the mechanism explanation details to the manuscript (lines 338-342).

6. Text typos. L45 "researchers"

Response: Thank you for catching this. We have corrected and conducted a full proofreading of the manuscript to ensure no other typos remain.