

Responses to 3rd review

“Tracking Air Volumes for Assessing the Effect of Urban Aerosols on Convective Precipitation: A Multi-Member Modeling Study”

by Keil et al.

We thank the editor and the reviewer for their continued constructive feedback. Below, we provide responses to each remaining comment. Our responses are shown in [blue text](#).

Reviewer #1

The manuscript reads well, with a clear description of the methodology and box analysis of convective events. The authors did a commendable job redoing the significance test using the bootstrap method. In the document author’s response to reviewers, the figure showing the difference between the t-test and the bootstrap significance was helpful to know that the results didn’t change. Nice work!

[We thank the reviewer for the positive feedback.](#)

Minor edits

1. Line#174 Please rewrite (D0, D1, D2) as “with domains: D0, D1, and D2.”

[Changed.](#)

2. Line#212 Please rewrite as “The spin-up lengths for domain D2 are 24 h, 21 h, 18 h, 15h, and 12 h”

[Changed.](#)

3. Line#259: Is it “horizontally from all grid points “?

[The reviewer is correct. We changed "each grid points" to "all grid points" in the revised manuscript.](#)

4. Line#268: rewrite as “sufficiently represent”

[Changed.](#)

5. Line#270 replace “To partially compensate for the limited ensemble size, a bootstrap significance test was applied” with “To partially compensate for the limited ensemble size, the grid cells within the analysis box are considered to represent the variability in cloud processes. So, the bootstrapping significance test is applied as follows.”

[Replaced accordingly.](#)

6. Line#296-298 – Please include references to support this argument

[We added Prein et al. \(2015\) as a reference to support this argument.](#)

7. Line#335 – delete “Upper-level”

[Deleted.](#)

8. Line#359 – replace “convective processes” with “precipitation processes”

Changed.

9. Line# 500 – delete “single” from “single convective clouds

Deleted.

References:

- Prein, A. F., Langhans, W., Fosser, G., Ferrone, A., Ban, N., Goergen, K., Keller, M., Tölle, M., Gutjahr, O., Feser, F., Brisson, E., Kollet, S., Schmidli, J., van Lipzig, N. P. M., and Leung, R.: A review on regional convection-permitting climate modeling: Demonstrations, prospects, and challenges, *Reviews of Geophysics*, 53, 323–361, <https://doi.org/10.1002/2014RG000475>, 2015