

Weather Clim. Dynam. Discuss., referee comment RC2  
<https://doi.org/10.5194/wcd-2022-17-RC2>, 2022  
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## **Comment on wcd-2022-17**

Anonymous Referee #2

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Referee comment on "The impact of microphysical uncertainty conditional on initial and boundary condition uncertainty under varying synoptic control" by Takumi Matsunobu et al., Weather Clim. Dynam. Discuss., <https://doi.org/10.5194/wcd-2022-17-RC2>, 2022

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The paper "Impact of combined microphysical uncertainties on convective clouds and precipitation in ICON-D2-EPS forecasts during different synoptic control" presents the impact of the perturbation of two parameters of the microphysics scheme, individually and combined, with respect to perturbation of initial and boundary conditions, in a convection-permitting ensemble based on the ICON model. The topic is an interesting one and the method of investigation proposed by the authors is sound and insightful. However, I have found the paper very difficult to read, partly due to the language and partly due to the way the results are presented and discussed. The reader is not well guided through the interpretation of the results and some statements and conclusions not well justified. Since the material of the research is very good and the methodology for sure interesting for the scientific community, I suggest to the authors to carry out a major re-writing of their analysis and findings. I provided a list of points where improvements would be beneficial. I therefore recommend the paper for a major revision.

Please also note the supplement to this comment:

<https://wcd.copernicus.org/preprints/wcd-2022-17/wcd-2022-17-RC2-supplement.pdf>