

Geosci. Model Dev. Discuss., author comment AC1  
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## **Comment on gmd-2022-112**

Shizhang Wang and Xiaoshi Qiao

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Author comment on "A local data assimilation method (Local DA v1.0) and its application in a simulated typhoon case" by Shizhang Wang and Xiaoshi Qiao, Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-112-AC1>, 2022

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We thank the reviewers for their careful review of our paper and the helpful comments that improved the manuscript. We give the response in blue and cite the revised text in orange. The original comments are reproduced.

We try to address every issue that reviewers concern with as properly as possible, but we believe there must be some issues that haven't been correctly revised. For any incorrectly processed issues, we appreciate further suggestions to fix them.

We make many modifications throughout the manuscript according to the comments. The experiments are redesigned, and most discussions on results are rewritten. We add the DA experiments using different combinations of scales, discuss errors decomposed into three scales (0 km-50 km, 50 km-200km, and >200km), and show cycling DA experiments that update ensemble perturbations. More details for the Local DA procedure are added, including the examples of multiscale localization and the dimensions of matrices used in Local DA.

Please see more details in the supplement.

Please also note the supplement to this comment:

<https://gmd.copernicus.org/preprints/gmd-2022-112/gmd-2022-112-AC1-supplement.pdf>