

Geosci. Model Dev. Discuss., referee comment RC2  
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## Comment on gmd-2021-278

Anonymous Referee #2

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Referee comment on "EuLerian Identification of ascending AirStreams (ELIAS 2.0) in numerical weather prediction and climate models – Part 2: Model application to different datasets" by Julian F. Quinting et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-278-RC2>, 2021

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This manuscript presents the exemplary application of the deep-learning-based identification methods for WCB. The method itself is shown to be computation time and data saved, and thus it is should be useful for large data analyses such as for large simulations from regional and climate models, as well as the weather forecast ensembles. Therefore, I think this manuscript is acceptable after some minor revise as follows.

(1) This manuscript is the second part of the series of the proposed deep-learning-based identification methods for WCB, so I have to go through the first part before going to this method application part. For one standalone piece, I suggest the authors to briefly describe the deep-learning method and the predictors and predictant. In the current manuscript, it is impossible to fully understand why the authors adopted the five predictors, especially there is a predictor (Line 90) from the lagrangian analyses as I understand from the first part? In my understanding, the method can improve the efficiency in WCB identification but cannot work without previous trajectory analyses, which could limit the deep-learning application.

(2) In the first part, the authors cite the following one: Quinting, J. F., Grams, C. M., and Oertel, A.: Deep learning for the Verification of Warm Conveyor Belts in NWP and Climate Models. Part II: Model application, Weather and Climate Dynamics, pp. 1–66, 2021. Did the authors submit this manuscript to Weather and Climate Dynamics before? If yes, do the authors get some comments and make some improvements.

(3) Some sentences should be corrected. For example, "South of the main storm track region and over continental regions values of less than 70% are found. " it is not clearly which value?

