Geoscientific Model Development Discussions

Geosci. Model Dev. Discuss., referee comment RC1
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Comment on gmd-2021-276

Anonymous Referee #1

Referee comment on "EuLerian Identification of ascending AirStreams (ELIAS 2.0) in numerical weather prediction and climate models – Part 1: Development of deep learning model" by Julian F. Quinting and Christian M. Grams, Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2021-276-RC1, 2021

The authors have developed a model for identifying warm conveyor belts in gridded datasets that do not have the required output for calculating trajectories. The model used is based on convolutional neural networks. The model is trained and tested using a limited set of variables from ERA Interim against trajectory calculations using a more complete dataset. The model shows good skill in identifying warm conveyor belts and significant improvement on the previous logistic regression models used by the authors.

The paper is well presented and fully justifies the conclusions. The results of this paper are very significant and it will be interesting to see the warm conveyor belt perspective in applications such as seasonal forecasting and climate modelling where the trajectory approach was not possible. I recommend the paper is accepted as is.