

Interactive comment on “Towards the closure of momentum budget analyses in the WRF (v3.8.1) model” by Ting-Chen Chen et al.

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Dear authors, This paper is very interesting and helpful. I'm giving some suggestions for the paper, as follows:

Line 51: The paper explores and gives details about the computation of the individual terms from the model output and it is mentioned that an inline budget analysis has been reported only in a few studies. Then, it should be important to mention more details about these very few studies which have developed an inline budget analysis, especially the ones that used the WRF model. Did they get the terms directly from the model using the same procedures? The present work also used the same procedure as them?

C1

Line 52: Potter et al. (2018) also used an inline budget analysis in the paper "Dynamical Drivers of the Local Wind Regime in a Himalayan Valley" published in the Journal of Geophysical Research: Atmospheres, and it should be important to cite them. Their paper has also a supplement explaining the WRF code modifications and the modified files.

Line 52: The Thesis of Moisseeva was cited in the paper, but she also published a paper "Dynamical analysis of sea-breeze hodograph rotation in Sardinia" in Atmospheric Chemistry and Physics journal. It is interesting to cite their article instead of the Thesis or to cite both. Their paper has also a supplement explaining the WRF code modifications and the modified files.

Line 193: The authors added the inline calculation for the tendency term outside of the RK3 integration loop, after the microphysics scheme. However, as explained by Lehner (2012) and Moisseeva (2014), `ru_tend`, `rv_tend`, and `rw_tend` are the momentum tendency variables calculated by the WRF model and these variables can be outputted. So, as the tendency term is being calculated by the authors, it should be informed the advantages and reasons for doing it, in comparison to using the tendency variables calculated by the WRF model.

Line 523: Although the authors made available the adapted WRF v3.8.1, it is important to mention which files were modified. It is very helpful to know it since some researchers can compare the default files with the modified files and apply the modifications in other versions of the model, or just to understand in details which modifications were done.

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C2