

Interactive comment on “Using an antidiffusive transport scheme in the vertical direction: a promising novelty for chemistry-transport models” by Sylvain Mailler et al.

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Received and published: 12 February 2021

Dear Astrid Kerkweg,

Thank you for reminding us for the requirements of *Geosci Model Dev*, including two shortcomings in our title:

1. “The main paper must give the model name and version number (or other unique identifier) in the title.” : Here we feel that the model (toyCTM) is just a *ad hoc* framework that we have built in order to test some changes in transport strategy. The choice to use a *ad hoc* framework for this study is a way for us to make clear that the application of

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the methodology we propose here is actually independant of any particular CTM. This corresponds to the appreciation of Referee 1 : “The central question addressed by the authors, of how to efficiently address the issue of numerical diffusion in CTMs, is important and timely”. Therefore, we would largely prefer not to make the reader feel in any way that the transport strategy we propose is linked to this particular framework. Actually, we feel that our findings have the potential for a wide use in chemistry-transport models, not at all restricted to the present academic case (this feeling seems to be shared by Referee 1 as well).

2. “In order to simplify reference to the “antidiffusive transport scheme”, please add a name or acronym and a version number in the title of your article in your revised submission to GMD.” : To take this comment into account as well as a suggestion of Referee 1 to rephrase the title, we propose to resubmit the manuscript with the following updated title, including the exact reference to the transport scheme we test :

“Using the Després and Lagoutière (1999) antidiffusive transport scheme: a promising and novel method against excessive vertical diffusion in chemistry-transport models.”. This scheme has no widely recognised name so far, so that we feel that the reference to its original authors is the best accurate reference to it.

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-304>, 2020.

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