

Interactive comment on “The ALADIN System and its Canonical Model Configurations AROME CY41T1 and ALARO CY40T1” by Piet Termonia et al.

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Received and published: 30 September 2017

We thank Per Unden for his comments and suggestions. We have implemented his suggestions in a revised manuscript.

Replies to his detailed comments

1. typo: line 273 p 10: In operation . . . should be operational

Reply:

This is corrected in the new version of the manuscript, see line 295.

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2. line 240 p 9 : . . . more conservative semi-Lagrangian . . . : please make the link to the same but a bit longer explanation of this scheme around line 413. Perhaps also here refer to it as COMAD to make it consistent.

Reply:

The description more extensive description of COMA mentioned in the AROME CMC part is moved to section 2.2, and lines 439-440 then refer to section 2.2.1. This should improve readability.

3. line 420 p 11 : Please make the comparison with the TKE scheme in ALADIN/ARPEGE on line 391. From the text it appears to be the same scheme albeit with some different variables but it is relevant here to state what is shared and what the differences are between the TKE schemes, or indeed if they are or could be the same or share the same code.

Reply:

The turbulence scheme used in Arome differs from the one used in Arpege/Aladin mainly on the vertical discretization of TKE defined on full levels versus half levels respectively. Both schemes have been compared in several 1D cases and the results are very similar. There is an ongoing work to share exactly the same code.

This is now explained in the text in lines 447 – 450.

4. line 439, p 16: In this way . . . of a RH-scheme . . . : I don't understand this at all. The earlier sentences all give the message that the scheme is everything but a RH scheme! Which of the "ways" just mentioned makes it a RH scheme? Please qualify and explain or change if it is an error.

Reply:

We would say that in such particular conditions (no turbulence), with this extra term, the cloud schemes acts as a RH-Scheme. We explain this now in lines 465 – 469: "In

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order to represent ...”

5. line 450 p 16 2-moment scheme . . . implemented . . . : please add something like not activated since on 441 you describe the current one moment scheme, confusing for the non-initiated.

Reply:

We added in the text “(used in research mode, not yet activated in operational)” in line 480-481.

6. Line 473 p 16: Again, please compare with ALADIN radiation on line 388. There are many common components in the basic scheme it seems.

Reply:

ALADIN and AROME used radiation schemes are the same (RRTM for LW and Foucar Morcrette for SW). There are only small differences in terms of cloud overlap assumptions and calling frequency (1h in ALADIN versus 15' in AROME).

The text has been modified to state this in line 501.

7. typo line 499 : Météo . . . - missing

Reply:

This is now corrected.

8. Before Table 2. There should be a Table for the ALADIN baseline CMC as well – to be able to compare AROME and ALARO!

Reply:

Indeed. The table is now added.

9. Figure 8. Please state if it is for the whole year of 2013 or which period.

Reply:

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This figure has been removed in reply to the general comment 3 of reviewer 1.

Please also note the supplement to this comment:

<https://www.geosci-model-dev-discuss.net/gmd-2017-103/gmd-2017-103-AC2-supplement.pdf>

Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2017-103>, 2017.

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