Geoscientific
Model Development
Discussions

*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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The paper is the first full description of the ALADIN system and it is very valuable to have all its components with references to underlying research and papers for all the modelling components, in one paper.

The assembly of modelling components and their configurations into these CMCs is novel and clearly described. Most of the components have been developed during the lapse of the ALADIN history but several of them are from recent years and documented through the references but still described and explained in some detail. In addition there are some new developments mentioned in the paper, but they are more options and

not yet included as defaults in the CMCs.

There are a number of results to demonstrate aspects of the model, some already published and some that appear to be new. They are mainly there to illustrate but are not meant to document the construction of the model (which can be found in references and which is far too much to be in an overview paper like this).

The title, abstract and the presentation are all very clear and relevant. The text, language and flow through the paper are all of high quality and well written and easily readable.

The content and number of references are sufficient and there are only some aspects that need to be clarified and added to be able to compare the CMCs. In particular, ALADIN baseline CMC is not suffiently described to be able to compare with the other ones. See the detailed comments below. It is important since also the global ARPEGE often used as a host model, has the same physics package as I understand.

I would support a publication with minor revisions based on the overall scientific significance of all the components even if the paper does not attempt to present any one particular new idea of method that e.g. can be copied or reproduced. The presentation quality is very high.

Detailed comments:

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

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.

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.

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.

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.

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.

7. typo line 499 : Météo … - missing

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

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

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