

CORDEX-WRF v1.3: Development of a module for the Weather Research and Forecasting (WRF) model to support the CORDEX community

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Summary

The authors described the addition of CORDEX variables to the WRF model. Something that is truly needed in the community and will go a long way to help with reproducibility of the diagnostics for CORDEX as well as improving time to science for CORDEX participants. I recommend acceptance of the publication after a major revision.

Code development suggestions

I would also recommend the authors contact the WRF development team and see about inclusion of this module in the standard release of the code. It will make it easier for new CORDEX participants and make this available to the broader WRF community.

It might be worth exploring *Runtime IO* as implemented by WRF. This will enable users to pick which variables to include and which to exclude, allowing for more flexibility.

Major Comments

One of my main concerns with the paper is that it will only be understood by users with a deep knowledge of the WRF code. I have a very deep understanding of the WRF code and still found the manuscript hard to follow. If this is acceptable, then it is fine, but some cleaning up will improve the readability of the manuscript.

The authors often refer to the levels of data required by CORDEX (Core Tier1 Tier2). It will be very helpful if a table is included with all the required variables in the different levels and indicate which are included in the new module and which compiler flag activates them.

The authors also go on to say that some additional post-processed is needed. What exactly is still needed and how should a user go about getting it done. I fully appreciate that not all components are provided, just some expansion on what is needed and left to the CORDEX participant will made this much clearer.

On page 6 there is a long list of variables which are available with the various compiler options. This shorthand list is not very helpful. Again, a table that the authors can point too will be better. If variables need to be called out, long names are going to make this much easier to read.

In a number of places, the authors say users need to make code changes. Is there a guide available so users know what to do? If yes, refer to it. Similarly, is it left to user to add new bits to the namelist, or are there examples? Please mention.

The authors provide a list of namelist options, but it is unclear if some of them are preferred/required by CORDEX. Please either say clearly that CORDEX does not have a preference and leaves it up to the research to pick which diagnostic method to use, or indicate which method is needed by CORDEX.

The term “generic” is introduced on page 11. I would like some explanation of what ‘generic’ means here. It becomes clear later, but will be helpful to have some explanation here. Also, if the authors have a table as mentioned above, it can be used to indicate which diagnostics are scheme dependent and to which schemes.

Explain eta levels somewhere. Not all readers will be familiarly with the term and concept.

The manuscript can definitely benefit from an English speaker to review it for readability.

Minor Comments

Figure 1 is not very useful.

The word “specie” is used in a number of places. The correct word is “species”. Specie refers to money.

Page 3 line 1: add an explanation of what netCDF is.

Some of the major English errors I picked up. There can be more.

Page 3, line 3

Page 5, line 4

Page 8, line 28

Page 9, lines 7 and 11

Page 11, line 16

Page 16, line 3

Page 24, line 25

Page 30, line 5

Page 37, line 8

Page 41, line 26