

Interactive comment on “The 1-way on-line coupled atmospheric chemistry model system MECO(n) – Part 2: On-line coupling” by A. Kerkweg and P. Jöckel

Anonymous Referee #2

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This paper describes a flexible model system for online coupling of chemistry and meteorology between the ECHAM5 model within the Modular Earth System Submodel System (MESSY) with a number of arbitrary domains of the regional model COSMO. Such an approach is clearly more efficient than saving the appropriate fields at run-time for later input into the regional models.

There is no doubt that the developed system will be highly valuable in examining chemistry in multiple model domains. I am sure the effort to produce this coupled system will pay off in the forthcoming science. However, I feel the paper needs additional work and a major restructuring before it can be published in GMD. I have two major comments

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regarding the work.

1. Often this paper reads like documentation on how to run the model. I feel that this is not appropriate for a journal article and should be part of model documentation available elsewhere. It seems to me the type of information appropriate to publish is information useful to groups NOT running this particular model. For example, it does not seem to me that details on the namelist fields are of particular interest to other groups. Items of interest might include:

- i) documentation of the equations the model is solving so that the results of studies using the model can be better interpreted
- ii) new algorithms so that other modeling groups can use the information in designing their own models.

The current paper is oriented towards new computational algorithms – however, in my opinion to be publishable the paper must:

- a) filter out the details not useful to other modeling groups
- b) demonstrate what is really new in the coupling algorithm described and compare it to other methodologies of coupling different domains. For example “CPL6: The new extensible parallel coupler for the community climate model” (Craig et al, The International Journal of High Performance Computing Applications 2005) gives an example of a coupler used in climate models. This is not the first paper to describe coupling between different domains.

2. I also feel that to be publishable the paper needs to show some results. It is not clear to me that the coupling described is any more than theoretical. Does it work, and if so how efficient is it? As an example the paper referenced above (Craig et al, 2005) gives an entire section on results including how the coupler scales with number of processors. If the paper is oriented towards computation then perhaps showing a computational result might be the most appropriate. At any rate, I think it is important

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to show some results.

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