

## ***Interactive comment on “Extending the Modular Earth Submodel System (MESSy v2.55) model hierarchy: The ECHAM/MESSy idealized (EMIL) model set-up” by Hella Garny et al.***

### **Anonymous Referee #3**

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The authors introduce a new idealized and modular modeling setup and demonstrate its use in a couple of ways. I believe the paper would benefit from some restructuring – the paper goes back and forth between model setup issues (choices of values for various parameters) and scientific results which could potentially be a bit confusing to a reader. Perhaps the authors might wish to consider splitting the manuscript in two? Would it be possible to set up a github with a downloadable version of the model? I have doubts about reproducibility which the availability of the model would help to dispel. On the science front, I think the authors are up against some regime issues in dynamical core models, which it would be good to clarify. The original PK02 model shows a very large response to stratospheric perturbations in comparison with observations, and in

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the absence of a quantitative theory of how stratospheric perturbations affect the troposphere, responses of the model when planetary scale waves are forced by topography are not necessarily the "correct" response. On readability, the manuscript would benefit from some proofreading and fixing of minor typos (in particular, the quotation marks all appear reversed?).

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Interactive comment on Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2019-330>, 2019.

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