

Geosci. Model Dev. Discuss., referee comment RC2 https://doi.org/10.5194/gmd-2020-428-RC2, 2021 © Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on gmd-2020-428

Anonymous Referee #2

Referee comment on "The SMHI Large Ensemble (SMHI-LENS) with EC-Earth3.3.1" by Klaus Wyser et al., Geosci. Model Dev. Discuss., https://doi.org/10.5194/gmd-2020-428-RC2, 2021

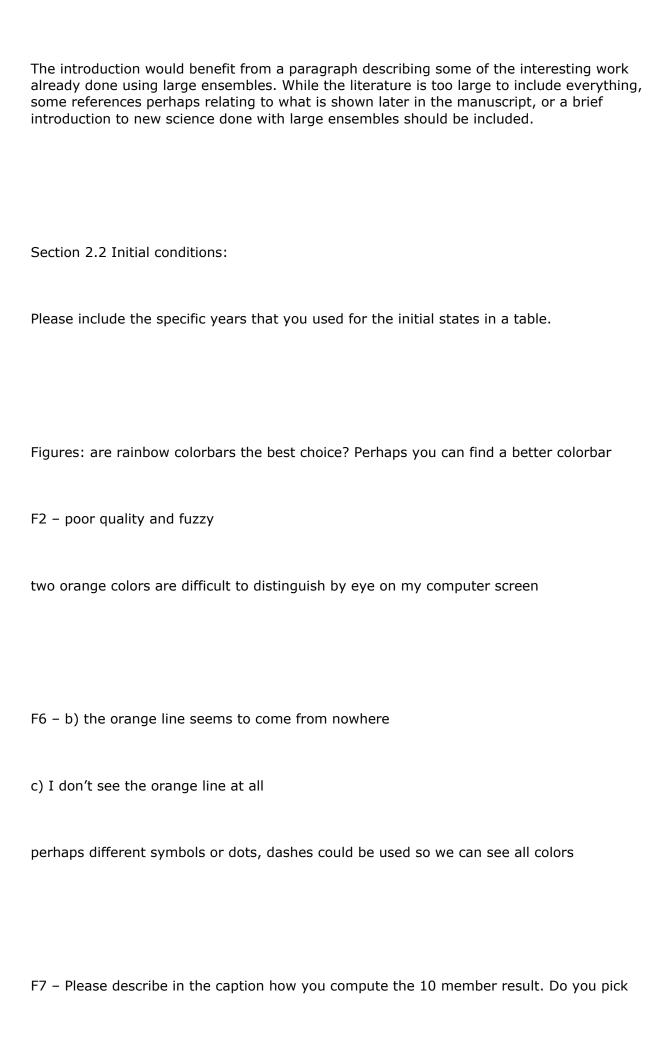
Review of The SMHI Large Ensemble (SMHI-LENS) with EC-Earth3

This paper is written as an overview/introduction to the SMHI-LENS. The paper is well written and provides a sufficient introduction to this model. However, the paper misses some relevant literature in the introduction, need some more detail on the initialization of the ensemble and could use minor changes to the Figures to help with interpretation by the reader. I recommend that the paper is revised before it is accepted.

Comments are as follows

Section 1:

While this provides a good introduction, it is unclear why the authors cite specific large ensembles and not others (see line by line comments).



one set of 10 members or resample 10 members many times?

Given most large ensembles have 30 members, as you note in your introduction. It would be good to do this for 30 members as well as 10 members and add a panel to the Figures. Would it be worth considering precipitation for these Figures as well given the pathway dependence of this variable:

e.g https://journals.ametsoc.org/view/journals/clim/30/11/jcli-d-16-0441.1.xml

https://agupubs.onlinelibrary.wiley.com/doi/full/10.1002/2016GL070869

https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018JD028821#:~:text=We%2 0find%20a%20robustly%20larger,GHGs%20across%20all%20available%20models.&text =This%20is%20because%20of%20a,by%20the%20GHG%20atmospheric%20forcing.

Line by line comments:

Line 34- This is also shown using large ensembles in the following two papers:

https://esd.copernicus.org/articles/11/491/2020/

https://iopscience.iop.org/article/10.1088/1748-9326/ab7d02/pdf – this could also be compared to the results on line 185-186 in the discussion

Line 46 – MPI-GE is not MPI-ESM-LR but MPI-ESM1.1 – additionally the correct acronym for this large ensemble is MPI-GE not MPI-ESM-GE

Line 46 – I am confused about the choice of models introduced here. The large ensemble archive introduced by Deser et al 2020 includes more models, why not introduce all of the ones in this archive?

