

Geosci. Model Dev. Discuss., referee comment RC2  
<https://doi.org/10.5194/gmd-2020-418-RC2>, 2021  
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## Comment on gmd-2020-418

Anonymous Referee #2

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Referee comment on "A circulation-based performance atlas of the CMIP5 and 6 models for regional climate studies in the northern hemisphere" by Swen Brands, Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2020-418-RC2>, 2021

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The paper "A circulation-based atlas of the CMIP5 and 6 models for regional climate studies in the northern hemisphere" by Swen Brands analysis regional atmospheric circulation patterns based on Lamb (1972) for a set of CMIP5 and CMIP6 models.

In general, the paper is a rich information source and an important contribution to the climate science community. In my view there are only some minor points that could be addressed differently or better.

In section 6 it might be worth mentioning that this study can serve as a basis for studies on future changes in LWT. It could be interesting to investigate, e.g. if certain LWT changes can be traced back to model families or model configurations (AOGCMs vs. ESMs).

Specific comments:

Lines 575-594: The explanation of Table 2 and the metric behind is a bit too brief in my view. It seems an interesting analysis, but I cannot fully follow the different steps resulting in the numbers of Table 2. A bit more detailed explanation here, would be good.  
Lines 621-622: I would just drop the name Commonwealth models here. It is used only once thereafter in the following sentence and does not improve the text (it might even confuse more than it helps).