



EGUsphere, referee comment RC2
<https://doi.org/10.5194/egusphere-2022-433-RC2>, 2022
© Author(s) 2022. This work is distributed under
the Creative Commons Attribution 4.0 License.

Comment on egusphere-2022-433

Anonymous Referee #2

Referee comment on "Evaluation of global teleconnections in CMIP6 climate projections using complex networks" by Clementine Dalelane et al., EGU Sphere,
<https://doi.org/10.5194/egusphere-2022-433-RC2>, 2022

The authors have used the complex network framework to evaluate climate models. By combining several new metrics with the existing d-MAPS methodology, they have widened its applications. The work highlights complex networks as powerful tools to evaluate the realistic representation of the global teleconnections by various models, which the authors use to investigate the biases in CMIP6 models. The authors have also taken into account non-stationarity of the teleconnections have addressed the problem using evolving networks constructed over sliding time windows, showing that this approach could add a new perspective to our understanding of climate change. A very detailed study has been conducted to not only evaluate connectivity in individual SST and Z500 networks but also linkages in the cross-networks between the SST and Z500 domains to take into account the coupled ocean-atmosphere variability.

The manuscript is well-written, the methodology well-explained and the findings are presented in a concise manner with clear evidences. I believe the manuscript is suitable for publication in ESD following only one minor revision. While reading the abstract, it was not clear that the authors have taken into account non-stationarity of the teleconnections, as they only mention that they construct networks for two century-long coupled reanalyses. After reading into much detail, long way into the paper (section 3.2.2), one realises that indeed the authors have already addressed this point. I suggest this to be highlighted by adding a sentence in abstract to avoid confusion, as this is an important point when looking at climate projections in the context of climate change.