Comment on esd-2021-57
Jan Wohland

Community comment on "Climate change impacts on solar power generation and its spatial variability in Europe based on CMIP6" by Xinyuan Hou et al., Earth Syst. Dynam. Discuss., https://doi.org/10.5194/esd-2021-57-CC2, 2021

Dear Richard Rosen,

thank you for your interest in our article and the time you spent evaluating it. Given that your comment was posted very soon after our article went online, we take the opportunity for a brief reply now while looking forward to the posting of the comments from the ESD reviewers, who are certainly highly qualified to assess our submission.

Regarding your main concern, please note that the GSEE model is documented in Pfenninger & Staffell (2016). We cite this study prominently in the Method section. Model equations and validation are given in that paper and we decided not to repeat the formulae in the interest of brevity. GSEE is the model used in the renewables.ninja dataset, which is heavily used, as for example indicated by almost 600 citations of the paper. The combination of GSEE with CMIP data is examined in detail in Müller et al. (2019), which is also cited in our manuscript. Moreover, the GSEE model is openly available on github (https://github.com/renewables-ninja/gsee), so please feel free to inspect it and raise issues there in case you spot anything.

Please further note that we directly address the issues of model uncertainty in CMIP6 by evaluating ensemble agreement and that we have also analyzed the relative role of cloud cover versus changes in clear-sky components. We’ll gladly comment on these aspects in greater detail again when providing the formal response to the reviewers.

Thanks again for your opinion.

Jan Wohland
REFERENCES
