

Earth Syst. Dynam. Discuss., referee comment RC1
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Comment on esd-2022-37

Wei Li (Referee)

Referee comment on "Reconstructions and predictions of the global carbon budget with an emission-driven Earth system model" by Hongmei Li et al., Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2022-37-RC1>, 2022

The authors assimilated physical data products into the MPI-ESM and used a CO₂ emission (rather than CO₂ concentrations) driven approach to reproduce the interannual variations of each carbon fluxes in the global carbon budget. The results show that the MPI-ESM prediction system has the ability to predict the global carbon budget for the next year. This study provides a novel approach to advance the carbon flux prediction under the global carbon project. I think this manuscript is well written, and the message is very clear and well supported by the figures. This manuscript was submitted to another journal previously, and I was one of the reviewers. I was very surprised why it was not accepted by that journal after two rounds of revisions. At that time, I raised some concerns about the novelty and details of LUC simulations and CO₂ concentrations. But I notice that the authors already addressed my previous concerns in this version submitted to ESD. Therefore, I would recommend publication of this manuscript.