

Reply to Editor

Comments:

The study did a generally good job in producing GPP and ET simultaneously over China. After reading through the reviewers' comments and the authors' responses, I feel there are still two issues needing to be resolved:

The first is the inconsistency between GLDAS and CMFD meteorological data. If the authors would like to publish the GPP and ET products during 2019-2020, I would suggest to at least bias-correct GLDAS data in the period using CMFD data before 2018 as the differences in GPP and ET produced by the two datasets are considerable.

The second is that the authors should avoid statements that PMLv2 performs better than other models. As reviewers pointed out, the results that PMLv2 derived GPP and ET products showed better performance may arise from its calibration using observations at 27 flux sites, which are maybe inaccessible to other models. Meanwhile, I cannot agree to conclude that PMLv2(China) performs better than PMLv2(Global) simply because the former runs using daily inputs but without process improvements. I suggest that the authors only state the GPP and ET products produced in this study are better than other currently available data of the same type.

Response:

We appreciate your thoughtful and positive comments on our work. With the help of your constructive suggestions, we believe that this manuscript will be improved substantially. Following are our responses to your two questions:

1. Bias correction of GLDAS data in 2019-2020. Yes, we agree that using bias correction of GLDAS forcings can eliminate the subsequent bias in estimating ET and GPP. After a comprehensive comparison of various bias correction methods, a widely used methodology, delta change (i.e., DC, also called change factor methodology), was selected in this study (Anandhi et al., 2011; Teutschbein and Seibert, 2012; Rasmussen et al., 2012; Hempel et al., 2013; Beck et al., 2018; Haro-Monteagudo et al., 2020). The underlying idea of the DC method is to use simulated future anomalies (i.e., GLDAS-2.1 in this study) for a perturbation of observed data (i.e., CMFD) rather than to use the simulations of future conditions directly. For each grid cell, we bias-corrected the daily meteorological data during 2019-2020 by monthly scaling factors. The details for bias correction have also been added to the manuscript.
2. Internal comparison of PML-V2 versions. We agree that it is not appropriate to claim that PML-V2(China) is better than PML-V2(Global) simply because the former runs using daily local inputs but without process improvements. As such, we have changed the description of model performance in this revision based on your suggestions and the reviewers' comments.

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