

Biogeosciences Discuss., referee comment RC2
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Comment on bg-2022-46

Anonymous Referee #2

Referee comment on "Variability and Uncertainty in Flux-Site Scale Net Ecosystem Exchange Simulations Based on Machine Learning and Remote Sensing: A Systematic Evaluation" by Haiyang Shi et al., Biogeosciences Discuss.,
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This study implemented a meta-analysis of current NEE prediction studies. Overall, the topic is interesting and the methodology is innovative, as few researchers in past studies have used R² or other accuracy metrics to compare models of different studies. Although the number of available models is not large, some of the findings of this study have adding-values and implications at the cross-study (different focus, data, models) level. This manuscript is of interest to BG readers (especially researchers using machine learning to predict NEE). The following issues should be clarified before acceptance.

Main comments:

- The authors have already mentioned the inconsistency between the area of the flux footprint and the area extracted from remote sensing data (e.g. 2x2 km). So, could the authors extract this information from the literature and further analyze this effect? I believe this analysis will be interesting.
- The discussion section is not in-depth enough. The authors should adequately compare the differences between some conclusions in previous studies and the findings of this manuscript.

Other comments:

- In Table 1, GPP is also used as a keyword in the literature collection? Clarify.
- In Table 2, evapotranspiration (ET) is also used as a predictor. Is ET here the latent heat observed by the flux station? Clarify.
- In Figure 8, the categories should be reordered.
- The area observed by the flux station should be larger than 100 x 100 m (usually a few hundred meters).