

Review for “**The GEWEX LandFlux project: evaluation of model evaporation using tower-based and globally-gridded forcing data**”

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Comment

This manuscript written by McCabe et al. evaluates four satellite-based scheme for evapotranspiration comparing to 45 tower flux measurement globally. Those models are tested by two cases of 1) tower flux forcing driven and 2) grid-based forcing driven. It is agreeable that such a model evaluation is still very important since the state-of-the-art models are still need to be developed further to reproduce energy-water-carbon cycles through different climatic and biogeochemical conditions. However, it still needs to be very carefully done to verify how each scheme performs in different conditions because it would be a key information for a further development. In that sense, this study is suggested to accomplish more deliberate analysis in the following points.

- i) Address footprint of tower flux observations and how those model is capable to explicitly treat sub-grid variability. If not, the evaluation cannot guarantee the comparisons are not biased. Screening out tower flux measurements over heterogeneous footprint also helps.
- ii) How climate zones are determined? Since those models are mainly based on energy and water balance and availability, physical criteria should be explicitly provided. In that sense, additional analysis or replacement for 3.3 over Budyko climate regime and the curve.
- iii) Provide additional information for Evaluation of grid-based forcing data quality. Knowing the character of error (i.e., phase mismatch or persistent offset) would be also very important.
- iv) If possible, aligning the analysis in previous researches with different types for models (e.g., land surface models and hydrologic models) will introduce additional values.

Additionally, this manuscript can be more concise. Remove or rephrase of speculations without any robust evidence (e.g., some sentences including ‘may’ or ‘perhaps’) would help.