

## ***Interactive comment on “Model–data fusion across ecosystems: from multi-site optimizations to global simulations” by S. Kuppel et al.***

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Overall I agree that this study should be published in GMD. The study is working on the very important and relevant problem of understanding how best to constrain global vegetation models and this demonstration with ORCHIDEE is a significant advance for the development of that model. On the face of it, the improvements to the model predictions appear small. Clearly the data assimilation improves the model fit, although there is remarkably little difference between single site and multi-site optimization and the authors handle this issue well. I have no comments on the text which is thorough and well written. I only have comments on the figures and figure legends.

1. Table 1 legend - nothing is underlined, I think you mean bold

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2. Could you please indicate for your figures and tables (e.g. Table 3) whether these assessments are for independent evaluation data or for the data the model was trained to.

2. ALL FIGs - it is not clear to me whether the figures relate to an average across PFTs, which specific years were considered or anything. While these fits look good, I have little idea what places in space and time they specifically relate to. You need to improve the legends to these figures to explain this.

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