

## Response to Referee #1

We are grateful to the reviewer for their time and energy in providing helpful comments and guidance that have improved the manuscript. In this document, we describe how we have addressed the reviewer's comments. Referee comments are shown in black italics and author responses are shown in blue regular text.

*This paper represents valuable evaluations of the changes in major land carbon fluxes and plant volatile emissions, and interesting analysis of the causes behind those trends using the latest YIBs model. The topic is important and the work is very systematic. The reviewer recommends acceptance with minor revisions based upon the suggestions mentioned below.*

*1. For the section 2.1 in Page 21453, the MTE GPP product was not derived from any biosphere model. Please refer to (Jung et al., 2009) and put correct description.*

→ We have corrected it as “GPP benchmark products of 1982-2011 are upscaled from the FLUXNET eddy covariance measurements using an ensemble of regression trees (Jung et al., 2009)”.

*2. Please let the readers know whether those regional trends in Table 2 and 3 are significant.*

→ We have added “asterisks” to indicate the significant ( $p < 0.05$ ) changes for trends.

*3. In the Results part, the authors compared YIBs simulations with a lot of previous work, such as Sitch et al. (2015), Pan et al. (2011), Stavrakou et al. (2014), Naik et al. (2004), and Jeong et al., 2011. Please subtract them and merge them into the Discussion.*

→ We have moved most comparisons, e.g. Sitch et al. (2015), Stavrakou et al. (2014), and Naik et al. (2004) to a new discussion section “4.2 Comparisons with other modeling studies”. We retained comparisons with Pan et al. (2011) and Jeong et al. (2011) because these are based on observations and useful to validate our simulation results.

## Reference

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