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Climate of the Past Discussions

Interactive comment on "Mid-Holocene ocean and vegetation feedbacks over East Asia" *by* Z. Tian and D. Jiang

Anonymous Referee #2

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Major comments:

In the present study, the authors separate ocean and vegetation feedbacks by appropriate settings of GCM experiments. These GCM experiments are able to give important results if both the purpose of the study and the method of analysis are appropriate. However, I recommend that this paper should be rejected by following reasons.

1) The authors spent major part of pages by "averaging values over China and comparing them with PMIP results". Because China includes many regions with different geographical and climatological characteristics (e.g. Tibetan Plateau, monsoon regions, inland arid regions and northeast regions), averaging over China reduces and mixes signals of specific independent mechanisms in different regions. As far as China, averaging inside political border does not represent scientific information from model

results (for both PMIP results and GCM results by the authors).

2) Related to 1), it is not clear why the authors compare results with PMIP results so often. Do the authors intend to interpret the discrepancy of PMIP models by this feedback analysis? Just for confirming the reproductivity of common large-scale response of GCMs?

3) It is ambiguous what aspect or mechanism of nature (or behavior of PMIP models?) the authors are going to reveal in the present study. It is not discussed if T31 GCM is able to resolute what the authors are going to reveal. On the other hand, there are too many topics in the present study (and less analysis for understanding of each topics). Feedback analysis, comparison with PMIP results and comparison with geological evidences can be published as individual three (or more) papers if the authors carefully select purposes, choose appropriate methods and consider robustness of mechanisms in T31 resolution.

Since setting of these six GCM experiments in the present study is very good, they provide unique material for feedback analysis, interpretation of PMIP results and interpretation of discrepancy between data and model. I encourage the authors to analyze these results again with careful selection of purposes and methods.

Minor comments:

Page76, Line9. Difference of 0.0003K seems insignificant.

Page84, line4. It is better to show precipitation itself because it is a fundamental variable of climate.

Page89, line 12, 0.0003K is insignificant.

Page91, 4.2 Dynamic vegetation feedback. It is better to show vegetation distribution in each 6ka experiments.

Interactive comment on Clim. Past Discuss., 9, 75, 2013.