**Climate
of the Past**

Discussions

Interactive comment on "Mid-Holocene climate change over China: model-data discrepancy" *by* Yating Lin et al.

Anonymous Referee #1

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Review of CP-2018-145 entitled "Mid-Holocene climate change over C 1 hina: model-data discrepancy" by Lin et al. The model-data comparison of climate change during mid-Holocene (MH) is an important issue to validate the results from Global Circulation Model (GCM) against the proxies gathered from dataset. Based on the new pollen dataset and Inverse Vegetation Model (IVM),This study provideda quantitative reconstruction of climate variables during MH over China was provided and compared to the simulation results from 13 models in PMIP3. A large discrepancy on the temperature anomaly between model-data at both annual and seasonal scale was depicted, mainly due to the failure of capturing vegetation change during MH by models, which is very helpful for better understanding the climatic changes during MH, and also pinpoints the possible way to reconcile model and data by accurately simulating the non-linear

responses of vegetation and hydrology in GCMs. The manuscript can be accepted for publication after minor revision. A few basic comments and some issues to deal with as follow: 1. Since it's a quantitative model-data comparison based on pollen dataset, in which 91 records were digitized from published papers. More detailed information about the data should be provided, like the age control, pollen assemblages from around 6 ka at each site. 2. As mentioned in the manuscript, there is a difference in vegetation inputs for the MH period among models in PMIP3, a table for detail information should be given. 3. The disparity of temperature anomaly during MH among models could be resulted from the difference in pre-industrial (PI) simulation. Authors should prove that there is no any clear relationship between PI temperature and temperature change (MH-PI). 4. Some references are missing in the reference list. such as the citations in Table 3.

Interactive comment on Clim. Past Discuss., https://doi.org/10.5194/cp-2018-145, 2018.