

Interactive comment on “The East Asian summer monsoon at mid-Holocene: results from PMIP3 simulations” by W. Zheng et al.

Anonymous Referee #2

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This manuscript investigates the East Asian summer monsoon climate by the mid-Holocene simulations of 10 PMIP3 models. The model median, not the ensemble mean, is used for the analyses. This strategy may be justified because the model simulations are not symmetrically distributed around the ensemble mean. Results presented are not surprising, i.e. similar to the PMIP2 results. Discussions about omega 500 and precipitation is a kind of tautology, and does not explain why. Discussions also mention "topography," but PMIP3 models have higher horizontal resolution than the PMIP2 models, and then topography should have been better represented in PMIP3 than in PMIP2. The present manuscript does not answer why there are changes between PMIP2 and PMIP3, such as larger spread in precipitation in new PMIP3. This needs to be further elaborated. Therefore, the reviewer requests major revisions of the manuscript.

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Major comments (1) What is new by the PMIP3 models compared with the findings by the PMIP2 models? It is not clear. A simple comparison in Figure 5 is not enough. More insight analysis is needed. (2) page 3258, line 27, "The lack of vegetation ... ": Is it true? Any references? (3) page 3259, 2nd paragraph: Any speculation why the PMIP3 model spread becomes larger than the PMIP2 model spread?

Minor comments (1) page 3256, line 3: "The southwesterly from the Indian Ocean" should be "The southwesterly from the Indian Ocean and southerly from the tropical western Pacific Ocean" (2) Figure 3. The reviewer can not see any setwise meridional displacement of the monsoon rainbelt. Simulated main precipitation belt persists over South China even in mid-summer. (3) Meiyu front is not represented by PMIP models. Models only capture Meiyu rainband. (4) page 3258, line 20: For PMIP2 range in Fig. 5, are outliers excluded or not? If not, contrary to the text here, PMIP3 models show larger inter-model variability.

Technical matters (1) page 3256, line 15, page 3257, lines 17 and 20: "Plateau Tibetan" should be "Tibetan Plateau."

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