**Climate
of the Past
Discussions**

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Interactive comment on "Modeling a strong East Asian summer monsoon in a globally cool Earth, the MIS-13 case" *by* Q. Z. Yin et al.

Anonymous Referee #2

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The Yin et al. paper is a valuable new contribution to the understanding of the MIS-13 case. Marine isotope stage 13 is characterized by less warm interglacials and less cold glacials. Interglacials, which are more "glaciated", are coupled with an unusual strong East Asian Summer monsoon. To solve this apparent discrepancy, the authors have made a set of numerical simulations using a model of intermediate complexity LOVE-CLIM forced by different set of boundary conditions. It is argued that the coupled effects of astronomical parameters and the atmospheric wave train driven by the Eurasian ice sheet favours a strong EASM. This is a well-written and interesting paper about the complexity of the climatic system. I have only a few comments and suggestions the authors may want to consider to improve the manuscript.

The climatic paradox is not limited to the East Asian Summer monsoon. Precipitation

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and temperature extremes are also observed at other places, mainly located in the sub-tropics (if we exclude Lake Baikal). Astronomical parameters and Eurasian ice sheet can be advocated in the case of the EASM. How can temperature and precipitation extremes at other places be explained? If an explanation can be proposed, can we consider that it could also become a prevailing factor for EASM.

The authors do not talk about ocean and more especially sea surface temperatures. Monsoon intensity is driven by a thermal continent-ocean gradient. How does sea surface temperatures change at that time ?

Figure 1 shows the difference in summer precipitation over Eastern Asia. It would be interesting to draw differences which are statistically significant.

The atmospheric model has only 3 vertical layers. Could the authors provide more explanations on how the model is sensitive to relief?

Section 5 could be associated with a figure showing the main results.

Minor errors: P1271-L21 : also instead of aslo P1275-L2 : Roche is missing in Duplessy, J.C, Roche, D.M., and Kageyama, M.

Interactive comment on Clim. Past Discuss., 3, 1261, 2007.

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