

## ***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 #1**

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This study investigated 495 ka, 506 ka and 529 ka climate by EMIC (Earth system Model of Intermediate Complexity) by changing orbital parameters, ice sheets and the Tibetan Plateau (and also GHGs). The 495 ka climate is significantly different from that in the control (pre-industrial, 0ka) as in previous literatures. The authors claim the different climate in other two periods but within a small region of eastern China. Overall, response in Exp.2 (Table 2) may be significant, but differences of the responses between exp.4, 5 and 8 in Table 2 may be not significant (subtle change of model basic flow may result in different phase response. As stated before for wave train responses, the authors seem to put too much emphasis on these presumably insignificant responses. Thus the manuscript cannot be accepted in the current ingredients. The authors should reconsider significance of regional scale responses.

Page 1264: It is very important how well the model reproduces the control climate in this kind of sensitivity studies. At least the 850 hPa winds and precipitation distribution in January and July against the observations should be shown and be discussed in order to claim this model's ability.

Page 1268, second paragraph: Simulated precipitation difference between Exp.5 and Exp.4 (Fig.1a) is too regional. It is not anticipated that this particular positioning of positive and negative anomalies are significant. It is therefore dangerous to conclude an intensified East Asian summer monsoon because the significance of this regional anomalies might be small.

Page 1269, second paragraph: How can be the wavelength of the wave train simulated in this model justified? The same wavelength in five experiments by LOVECLIM does not mean that this response (wavelength and direction) is reasonable, because different models might have different wavelength, which would then lead to different or even opposite conclusions.

Page 1273: The conclusion (1) has hemispheric scale nature and is reasonable. With respect to conclusion (2), regional scale responses are very sensitive to the basic flow and that it is plausible that model basic climatology affects that much.

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

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