

Interactive comment on “Variability of the Asian summer monsoon during the penultimate glacial/interglacial period inferred from stalagmite oxygen isotope records from Yangkou cave, Chongqing, Southwestern China” by T. -Y. Li et al.

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Dear Prof. River Chen,

Though your manuscript is now in a good shape, after evaluating your revised manuscript and responses to the referees' comments I found some minor issues/mistakes to be fixed before I can accept your submission. Line 30: change to Northern Hemisphere Line 38: change "Yangkou-inferred precipitation time series" to "precipitation time series inferred from Yangkou cave stalagmites" Line 43: change

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"could presumably related to the" to "could stem from" Keywords: Please add "Northern Hemisphere summer insolation", which is the primarily forcing of the record presented here (and not the walker Circulation) Line 52: please indicate that ASM refers to both the Indian and East Asian monsoon systems. The impression of the reader is that you refer to the East Asian summer monsoon throughout, owing to the location of your cave and comparison between the cave records in mainland China, and the additional information provided in lines 51-55 (all referring to China). First in lines 222 and 276 the required information pops up, which is too late. The statement that your site is influenced by both the EASM and the ISM should be placed at the end of the Introduction section or somewhere in the "Regional settings and samples". Lines 55-58: Please remove. This sentence does not contain any relevant information. Lines 86 and 89: month before year (e.g. October 2010, etc.). Line 103 and 133: delete all commas Line 111: add full stop/period at the end Line 142: please provide the statistical proof for your statement "there is no relationship between $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values", e.g. R-value? By eye, it seems to me that there is a relationship between $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values for black squares and white circles in Fig. 4C. Line 162: Add the, "The onset" Line 172: change to "a NH high latitude forcing of the ASM" Line 180: replace "had" by either "experienced" or "were characterized by" Line 185: replace "a" by "the" Line 186: remove "one" Line 200: replace "past five" by "penultimate", this is what you can infer from your data. Line 206: "Chinese Loess plateau record" is a record of the East Asian winter monsoon, which is the opposite monsoon season. Either clarify that the winter monsoon was also strong, or remove. Line 212: "low atmospheric d^{18}O peak at 170 kyr" does not make sense. Do you mean minimum atmospheric d^{18}O at 170 kyr? Line 215: change "Vostok ice core-inferred $\text{d}^{18}\text{O}_{\text{atm}}$ evolution" to "The evolution of $\text{d}^{18}\text{O}_{\text{atm}}$ inferred from the Vostoc ice core"; replace "of" by "in" Line 217: remove "intense", as intense photosynthesis during glacial periods is counter-intuitive. You probably mean that photosynthesis on land is more intense, which is unrelated to glacial and interglacial climate states. Line 223: it is debatable if the ISM can be seen as "a typical tropical monsoon system". If you ask the meteorologists, they would probably say no

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(because of the double ITCZ, etc.). Just remove. Add "primarily" before "driven". There are also other mechanisms at work. Line 252: remove one of the two "above normal" Lines 254-255: this is a far-fetched argument. The Makassar Strait SST is controlled by the Pacific SST because the origin of surface and subsurface water masses there is the Pacific. This is a pure oceanic connection/circulation pattern and has nothing to do with the Asian monsoon. Please remove. Line 265: remove "while" Line 267: replace "to" by "of", add "and thus" after "history" Line 270: change "One of prominent features ASM dynamics" to "One prominent feature of ASM dynamics" Lines 276-277: I am confused here. If the similarity between records from the EASM-only-dominated realm (Hulu) and EASM-ISM-dominated realm (Sanbao, Yangkou) "supports the synchronicity of both monsoon sub-system variations on orbital timescale" (lines 277-278), and "the evolution of ASM was dominated by the North Hemisphere solar insolation (NHSI) on orbital timescales" (e.g. lines 36-37), why are the depleted values during MIS 6.5 related to Pacific Walker Circulation and/or sea-level? Does it mean that the Pacific Walker Cell affected the EASM/ISM precipitation only during the MIS 6.5? Why only then? And does this mean that also the ISM is influenced by the Pacific Walker Cell, as the stalagmite records from both monsoon realms are similar? Besides, $\delta^{18}O$ values are more enriched during MIS 6.3 and 7.1, when sea-level was lower (6.3) or higher (7.1) than during 6.5. This does not really argue for a sea-level control on the ASM precipitation. You need to provide a more convincing, in-depth discussion of these "secondary forcing" mechanisms. Line 281: replace "it" by "This phase lag" Line 282: change "Proter" to Porter, this citation is missing in the reference list. Line 291: remove "orbital" Line 292: what is "meridional forcing"? This pops up in the conclusions without being addressed in the discussion. Please remove. Line 483: please indicate whether error bars are 1 or 2 sigma Line 486: "insignificant" is a statistical term and needs values (see also my comment on the Hendy Test)

Hope this helps and looking forward to receive your revised manuscript soon, Mahyar Mohtadi

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Interactive comment on Clim. Past Discuss., 9, 6287, 2013.

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