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Climate of the Past Discussions

Interactive comment on "Centennial-scale monsoon changes since the last deglaciation linked to solar activities and North Atlantic cooling" *by* Xingxing Liu et al.

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1.In your early article (liu et al., 2015, Aeolian Research), From 6 to 13 m, this same section included two fluvio-aeolian layers at 7.2-7.5m and 10.1-10.6m. Moreover, these fluvio-aeolian layers are identified by relatively fine mean grain-size and low magnetic susceptibility during the BA and early Holocene period, according to your age model. Moreover, paleoflood events were found in middle and upper Yellow River basin during the early Holocene and BA period (Guo et al., 2017, Journal of Hydrology; li et al., 2014,QR).

Reply: We agree with the reviewer's point that these fluvio-aeolian layers at 7.2-7.5m

and 10.1-10.6m are flood slackwater deposits (SWD) (Baker et al., 1983; Huang et al., 2012, 2013; Li et al., 2014; Guo et al., 2017). The SWDs are typified by their relatively fine mean grain-size and low magnetic susceptibility, which are often preserved in backwater areas after flood recession (Huang et al., 2012, 2013; Vandenberghe et al., 2018).

2.As you mention whether Titanium in Huguang Maar Lake is a proxy for local hydrology or EAWM intensity, this record is very controversial. So, in Figure 3, I suggest you find a more reliable EAWM record to compare with your EAWM record. Moreover, I find, on the long-term interval during the Holocene, your EASM record isn't also consistent with the SMI record from Qinghai lake and δ18O record from Dongge Cave, I suggest you find other high-resolution EASM records to compare with your data, though you mention they share similar centennial-scale climate changes.

Reply: Thanks for this comment. Although whether Titanium (Ti) in Huguang Maar Lake is a proxy for local hydrology or EAWM intensity remains controversial, it's the only one high resolution EAWM record we can compare with so far. Similarly, when we discuss about centennial to millennial-scale monsoon events, we have to choose some high resolution EASM records. Here we added the record of precipitation reconstruction from Lake Gonghai (Chen et al., 2015; Liu et al., 2015, 2017) in Fig. 3 and related discussions about the long-term trend of EASM since the last deglaciation.

3.In your manuscript, you mainly discuss centennial-scale monsoon changes. But I find, after you removed the long-term trend, these remaining sequences obviously show 1 ka and 1.27 ka cycle. I suggest they represent the millennial-scale climate changes rather than the centennial-scale changes.

Reply: Thanks for this comment. We change the title into "Centennial to millennial-scale monsoon changes since the last deglaciation linked to solar activities and North Atlantic cooling".

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