

## ***Interactive comment on “Comparing the spatial patterns of climate change in the 9<sup>th</sup> and 5<sup>th</sup> millennia B.P. from TRACE-21 model simulations” by Liang Ning et al.***

### **Anonymous Referee #1**

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In this paper, Ning et al. studied the spatial patterns of temperature, precipitation, and circulation anomalies during the latter part of the 9th and 5th millennia B.P. by using model simulations. They suggested that the long-term decline of insolation caused the cooling of North Atlantic passing a threshold around 4500 years B.P., and lead to a reduction in the AMOC and associated teleconnections across the globe. The result will help us to a better understanding of the 4.2 ka event. I think this is a very good paper and could be published in CP after minor revisions. Here are my comments and suggestions. 1. line16-17: I can't understand this kind of discription. You are discussing the climate change during the late 9th and 5th millennia BP, but use 9200-8800 versus 8800-8000a BP, 4800-4500 versus 4500-4000 a BP to defined them. It makes me con-

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fused. 2. The English is generally good, however, I think it could still be benefit from a native English speaker. For example, line 42, "around" better be "superimpose"; line 61: "about" should be "drought"; line 62: "have" should be "had"... 3. line 65-70: here talk about the record of 4.2 ka drought. I suggest to move this paragraph to the end of the first paragraph. 4. line 85: positive NAO, or negative NAO? 5. line 143-145: unclear. Do you mean the temperature during (4800-4500 a BP) minus temperature during (4500-4000 a BP) ? or the inverse? 6. line 152-154: consistent with paleoclimate reconstructions (Tan et al., 2018, EPSL) that indicate a weaker East Asian monsoon (Wang et al., 2005). This pattern is similar to the situation during the LIA in China (Tan et al., 2018, QSR), and some of the megadroughts happened in recent centuries (Cook et al., 2010). 7. line 172-173, why do you choose 8.8 ka as a dividing line? why not 8.5 ka? 8. line 188, revise "from" to "during"?

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