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Climate of the Past
Discussions

Interactive comment on "Comparing the spatial patterns of climate change in the 9th and 5th millennia B.P. from TRACE-21 model simulations" *by* Liang Ning et al.

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Ning et al paper overlaps with Mi Yan et al paper, using same model simulation (TraCE-21ka) to refine our knowledge of the 4.2 ka BP event, its spatio-temporal dynamics, and causes. The paper, however, actually clouds our knowledge of the 4.2 ka BP event to that extent that it probably should be withdrawn for publication.

The paleoclimate data that inform this model simulation are not presented, listed or discussed. Simulation results are only generally described, and have little relevance to the distribution of paleoclimate proxy data for the 4.2 ka BP event (probably more than 300 synchonous records). The simulation takes 4.5 ka BP as a start date for the event,

which is erroneous, and then finds that there is no event.

The event started at ca. 4.3-4.2 ka BP in globally distributed, regionally coherent, high resolution terrestrial records. That is, synchronous records for 2-300 years drought, with only slight interruptions in some records, i.e., 3-stages, occur at 4.3 -4.2 ka BP, with a few minor and constrained regions experiencing unusual abrupt wet or cold events. These more than 300 proxy records, or another 200 lower resolution records, do not present this event beginning at 4.5 ka BP, nor at 3.7 ka BP.

Specifically, the precise data for megadrought across the NA Great Plains, across the Mediterranean from Spain to Turkey, across the Iranian plateau, across the Indian Summer Monsoon domains both in India and NE Africa, and across Tibet and north China, across Africa, and down the SA Andes, comprise more than 300 synchronous high resolution proxy records. Some isolated regions, such as the north Atlantic and NE Pacific had synchronous abrupt wet or cold events. We already know this happened at ca 4.2/4.3 ka BP, not at 4.5 ka BP.

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