

Interactive comment on “Rapid waxing and waning of Beringian ice sheet reconcile glacial climate records from around North Pacific” by Zhongshi Zhang et al.

Zhongshi Zhang et al.

zhongshi.zhang@uni.no

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Dear Lev,

Thanks for reading and commenting on our paper.

We agree with you to precisely simulate an ice sheet needs to find good parameters for an ice sheet model and to use high-resolution climate models. This is our future task. However, the motivation of our current paper is not to unequivocally resolve the ice sheet limits.

Our motivation is to test which ice sheet scenarios can well explain the climate evidence

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from around the North Pacific, the Laurentide-Eurasia-only ice sheet scenario, or the scenario with the BerIS involved. In our simulations, we demonstrate that, without the BerIS or only with mountain glacials over NE Siberia-Beringia, the Laurentide-Eurasia-only ice sheet scenario (even the widely used ICE6G reconstructions) fails.

Without answering the question why the Laurentide-Eurasia-only ice sheet scenario can reconcile the climate evidence from around the North Pacific, it is quite unfair to reject the possibility of the BerIS only based on uncertainties in ice sheet modelling. We think a fair rejection should point out the mistakes in the reconciliation within the BerIS scenario and the climate evidence from around the North Pacific revealed in our current study.

We fully understand that the Laurentide-Eurasia-only ice sheet scenario is the main-stream concept today. However, to further strengthen this concept, there are two questions that should be answered. 1) What forcing limits the growth of ice sheet over NE-Siberia, since the buildup of an ice-sheet there is not hampered by the absence of precipitation. 2) How to reconcile the temperature evidence from around the North Pacific within the Laurentide-Eurasia-only concept?

We appreciate that you agree science needs such challenges. However, to reject the possibility of the BerIS now will make few scientists be willing to rethink above questions.

Best regards

Zhongshi Zhang

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