

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

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Zhang et al. (line 278) state, "The simulated extent [of the Beringian ice sheet] agrees nicely with the mapped distribution of glacial landforms... " including in Alaska for MIS4 and 6. I do not expect a numerical ice-sheet model to correctly simulate the details of the observational evidence of former glacier extent, and it is comforting that the simulation leaves some of the SW part of the state free of ice. However, asserting that the data and the model "agree" is a serious mischaracterization. A random sampling of sites in the two reconstructions to test whether they were covered by ice no not would likely fail statistically to show what is clear visually (Fig. 1, below) – the data

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and the models do not agree. Contrary to the authors' conclusion (line 469) that, "In summary, whether a pre-LGM BerIS once existed remains to be an open question," and despite their pointing to the glacial geological evidence in support of their model, the observational and geochronological data preclude an ice sheet in Alaska outside of the Cordilleran during MIS4 and 6.

Kaufman, D.S., Young, N.E., Briner, J.P., Manley, W.F., 2011. Alaska Palaeo-Glacier Atlas (Version 2). In: Ehlers, J., Gibbard, P.L., and Hughes, P.D. (eds), Quaternary Glaciations Extent and Chronology, Part IV: A Closer Look. Developments in Quaternary Science 15, Amsterdam, Elsevier, 427–445.

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2020-38>, 2020.

## CPD

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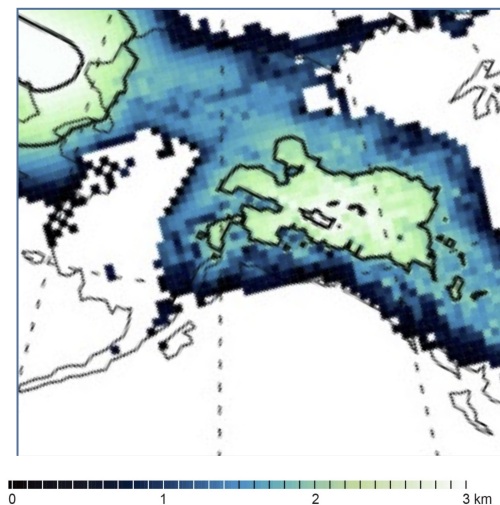
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Zhang et al. (in review) Simulated Beringian ice sheet



Kaufman et al. (2011) Alaska Paleo-Glacier Atlas

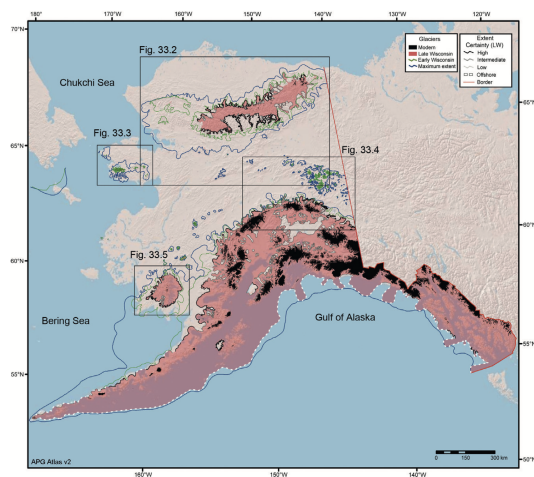


FIGURE 33.1 Alaska Paleo-Glacier Atlas v2 showing the Pleistocene maximum, early Wisconsin, late Wisconsin and modern glacier extents across Alaska.

Fig. 1.

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