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Climate of the Past Discussions

Interactive comment on "Paleometeorology: visualizing mid-latitude dynamics at the synoptic level during the Last Glacial Maximum" *by* M. B. Unterman et al.

P. Valdes (Referee)

P.J.Valdes@bristol.ac.uk

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General comments: This is a short, interesting but slightly unusual paper in that it focuses on describing the changes in synoptic meteorology in a high resolution simulation of the Last Glacial Maximum. The high resolution provides a unique opportunity to investigate this.

Overall, this is a fairly shallow treatment of storm tracks. The paper illustrates the potential rather than develops it in depth. This is a missed opportunity. The results are presented clearly but I would have liked to see more discussion (perhaps in the introduction) on the reasons for doing such work. The paper has a tendency to come

over as "we had the tools so we did it". It would be possible to strengthen the paper by expanding the intro to better justify the work, and spending more time discussing the results in the context of other papers on storminess at the LGM.

If at all possible, it would be good to also include a comparison to an equivalent analysis at T42. It is possible to use the tracking algorithm at this coarser resolution and it would be interesting to see the added value of using T170.

Related to this, it would be good to relate these results to previous work by Kageyama on storm track changes in the PMIP models. Although a different method of analysis, and with lower resolution models, the results and broad conclusions are very similar. This is particularly true for the changes in the North Pacific/Alaska. Most PMIP models see a warming of Alaska. However, the text of this paper (e.g. page 1888) implies that high resolution was the only way of capturing such a response whereas my impression is that high resolution made the effect somewhat stronger.

Technical comments: (a) Much is made of the hourly archiving of model output but it would be interesting to know if less frequent archiving (say every 6 hours) would have been sufficient. This would greatly reduce the archiving needs of such work and would be more practical for other modellers. (b) The description in the methods section includes a lot of details of the boundary conditions but it could do with improving on the actual runs performed. I needed to re-read this and the start of the next section several times before I fully understood it. A simple table stating that 3 simulations are used in paper (climatological output, modern boundary conditions), (climatological output, LGM), (synoptic output, LGM) + length of all 3 runs + length of spinup.

Interactive comment on Clim. Past Discuss., 5, 1883, 2009.