

Interactive comment on “Water mass evolution of the Greenland Sea since lateglacial times” by M. M. Telesiński et al.

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Telesiński¹, R. F. Spielhagen^{1,2}, and H. A. Bauch Clim Past REVIEW

General: Important paper dealing with key issues: the ID of Heinrich Events in this region, the hyperpycnal hypothesis of Stanford, the identification of YD being difficult due to effects of fresh Polar water, as opposed to glacial lake meltwater; the important role of Atlantic warm water under sea ice. I would like to see more definitive discussion of all these topics, as the authors are somewhat inconclusive. Especially, the Arctic – Mackenzie origin of Agassiz lake freshwater, because the current study region is right in the path. However, is the temporal resolution of these cores too low, like central Arctic sites, to pick up a very short glacial lake water signal?? If so please say so. The Holocene discussion is quite long and will confuse those not familiar with the regional

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oceanography. Can the authors condense or synthesis major steps in Hol. Climate, notably whether they think the 3ka “event” is of broader significance? Line 6 abstract “ice-bearing” what kind of ice? Sea ice, icebergs, ice shelves? Line 8. The YD was a freshwater event. OK, but do you mean freshwater entered the study area? A freshwater lid? Or are you referring to Mackenzie or st Lawrence YD lake water discharge? Or Greenland glacial ice melt? Line 9, replace “improvement” it was not so, if you are a member of a sea ice dwelling community, a cryophilic species or N pachyderma left. Page 5039, lines 5-10. Reword the sentence. The next paragraph, tell the reader what age period you cover, since the term “lateglacial” is not clear to everyone p. 5043 line 11. “In addition to our own data, . . .” Also, why no discussion of C14 reservoir effects in this basin? p. 5046, line 4. Do you mean Last GM? Not “late” GM ? p. 5048, line 10. Cite Hanslik 2010 reservoir paper for the Arctic General – the text seems to rely on Telesinski 2013. I hope there is not too much overlap, but that is why comments above, asking for more definitive conclusions on a number of topics would distinguish the two papers.

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