

Interactive comment on “Younger Dryas ice-margin retreat in Greenland, new evidence from Southwest Greenland” by Svend Funder et al.

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Thank you for the comments. Below we address the points raised by Richard Alley. We are grateful for the interest shown in our results and the additional references. We agree that several of our records go back only to mid/late YD, and an early YD re-advance followed by retreat cannot be excluded in these areas, (which would still make the YD a period of net ice-margin recession). However, areas with existing chronologies spanning through the YD to Allerød times - notably the Disko Bugt shelf in West Greenland and Kangerlussuaq trough in East Greenland, but also the Scoresby Sund region in East Greenland and southernmost Greenland - show no obvious change in ice margin behaviour over the Allerød/YD boundary. Furthermore, the evidence cited for YD re-advance/stillstand - moraines and grounding zone wedges on

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the shelf - has been dated mainly from the assumption that they should represent cold periods in the ice core chronology, and therefore cannot really tell us about the ice margin/temperature relation. Only a local ice cap in North Greenland experienced an initial YD advance (Larsen et al., 2016). So, at least there is at present limited evidence for YD re-advance/prolonged stillstand of the ice sheet margin. On the other hand, the majority of evidence points to retreat during the YD period. All the above said, and given the apparent variability in YD ice margin behaviour between areas, an early YD re-advance followed by retreat is still a possibility. We hope that our contribution will inspire further work on this problem, which also has a bearing on the future.

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