Response to Anonymous Referee #2

We thank the referee for their helpful comments and our responses are in red below. Blue text is what is included in the revised version.

Anderson et al. present a chronology of post-Last Glacial Maximum Greenland Ice Sheet retreat at Scoresby Sund and Storstrømmen Isbræ based on cosmogenic nuclide ^{10}Be exposure dating. The exposure ages from erratic boulders and bedrock from these regions, when compared to radiocarbon ages and other in situ ^{10}Be-dated samples, are consistent with the timing and rates of retreat documented at other sites across east and northeast Greenland. The patterns inferred from calculated ice margin retreat rates are also consistent with modern day observations. The additional dates and constraints presented in this study contribute to a more comprehensive understanding of Greenland ice sheet dynamics, and I would recommend publication. Below is a short list of minor comments.

Minor comments

It may be beneficial to readers who are new to this topic to provide a very brief description of the use of in situ ^{10}Be along with citations (e.g., Nishiizumi et al., 1989; Lal, 1991; maybe Ivy-Ochs and Briner, 2014 for an overview/summary) so they can better familiarize themselves with the dating methods and other concepts (i.e., inheritance) discussed in this paper. We have added a sentence about the use of in situ cosmogenic nuclides with the suggested citations stated on lines 64 – 66: To record ice margin change, glacial landforms (such as erratic boulders and glacially polished bedrock) can be dated via in situ cosmogenic nuclides produced in rock surfaces (e.g. Ivy-Ochs and Briner, 2014; Lal, 1991; Nishiizumi et al., 1989).

L45: The acronym “SI” is not used elsewhere in the manuscript – would recommend removing it. On a related note, “ZI” is only used once in L92. Perhaps consider just using Zachariae Isstrom instead. These have been removed and edited.

L91-99 provides a list of already available retreat chronologies in east and northeast Greenland. In addition to the general explanation in L58-65, it may benefit the reader to explain the reasoning why additional dates from the two specific regions presented in this study are necessary. We have added additional reasoning stated on lines 68- 70: Here, we build on previous work studying the retreat history of marine-terminating glaciers in East Greenland, and present in situ cosmogenic ^{10}Be exposure ages from (i) the outer coast of Scoresby Sund, which improve age constraints at the mouth of the largest fjord system in Greenland, and (ii) near the modern ice margin of Storstrømmen Glacier, where few existing ages constrain East GrIS retreat.

Fig.3B: Consider including ages at Uunarteq and Kap Brewster, as well. We have modified Fig. 3 as suggested by Referee 1 and deleted panel 3B.

Table 2: 23DMH-CR1 is italicized in Table 2 as an outlier, but it is not italicized in Fig.5 This has now been italicized in Fig. 5

L279: 26.5 ± 0.6 ka should be 26.4 ± 0.6 ka. This has been corrected

L307: “and are inboard of the M1 moraine,” and “On the northern margin of the island…” We have made these corrections.

Fig.7: It may be considerate to define any acronyms (i.e., TCN) in the caption for those readers who first browse a paper’s figures to understand the main points before reading in detail. We have included the definition in the caption.

L397: Delete “from”. This has been deleted.

L416: Change “At the Store Koldewey Trough, located west of Store Koldewey Island…” to “At the Store Koldewey Trough, located east of Store Koldewey Island…” This has been changed to “east”.