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Supporting information for

Early to Late Holocene surface exposure ages from two marine terminating outlet glaciers in northwest Greenland

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Introduction

This supplemental material includes one map of the study area with relevant data supporting the deglaciation chronology discussed within the publication (Figure S1). Included as well are descriptions of all Tables included as a separate Excel file available for download with the online version of this publication. As referenced in the text, Tables S1, S2, and S3 include sample details relevant to the exposure age calculations, as well as the inputs and outputs for the CRONUS-Earth online calculator (v.3) (Balco et al., 2008).

**Supplemental**

**Figure S1.** Maps of study area. (a) map of area within red box in (b) with ages for each location. Red circle= location of sediment core (Jennings et al., 2011). Black circles= locations of oldest radiocarbon ages (Bennike, 2002; England, 1999). Yellow circle= location of moraine from this study with error-weighted mean exposure age of ~8.3 ± 1.7 ka (n=6). (b) Map of the North Atlantic showing the suggested paths of the warm, subsurface Atlantic water mass at the time of the Nares Strait deglaciation. White arrows= warm subsurface current, red box= approximate area of (a). sNA= subsurface North Atlantic water mass, NA= North Atlantic water mass, IC= Irminger Current, and WGC= West Greenland Current.

**Figure S2.** Two photographs of the 10Be sampling locations at the right lateral moraine at Petermann Glacier that suggests a bimodal distribution with mean ages of 2.8 ± 0.3 ka (n=3) and 0.3 ± 0.02 ka (n=3). (a) An aerial photograph taken from a helicopter looking up the tributary glacier of Petermann to the northeast. Red arrows indicate approximate sample locations. Note the moraine sections near the center and leftmost arrows at which there is an incomplete section of outboard moraine material. This suggests that material from this outboard section may be reworked into the younger material. (b) Photograph taken along the sampled moraine. Red arrows indicate the same approximate location as (a).

**Data Tables**

All data tables referenced in the text are available with the online version of this publication. Alternatively, the data tables will be accessible online through the National Center for Environmental Information website.

Table S1. Moraine surface-exposure 10Be ages and sample details.

Table S2. Sample information for calculations with for CRONUS-Earth online calculator v.3

Table S3. Age calculations with CRONUS-Earth online calculator (v.3) using the Arctic production rate of Young et al., (2013) for multiple scaling schemes