

## ***Interactive comment on “Cryostratigraphy, sedimentology and the late Quaternary evolution of the Zackenberg Delta, Northeast Greenland” by Graham L. Gilbert et al.***

**Anonymous Referee #1**

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**General comments** The paper includes a detailed facies description of the Zackenberg Delta in North-eastern Greenland. This based mostly of cryostratigraphic description and correlations, supported by sediment observation and analyses and geochronology. It is a solid work, which reveals further parts of the deglaciation history of Northeast Greenland.

**Specific comments** The abstract seems to be quite short and general. It is more a description of the Zackenberg Delta landscape than a summary of the objectives, methods and conclusion from the paper. I would like to recommend to rewrite and to extend the abstract. Grain size measurements are mentioned in the methods (Measurements included descriptions of sediment type, grain size, sorting . . .) but it was nothing written

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about the analyses. It would be important to know, how the grain sizes were determined. The geochronology is given too little consideration, both in methods (only four lines) and in results (chapter 6, Table 2). It would be good to extend the explanation in the methods and the interpretation in the result chapter. More than half of Table 2 contain data from IRSL feldspar measurement, with different abbreviation (IR50, pIRIR225). But nothing is mentioned in the method, result and discussion chapters.

**Technical corrections** p3 l15. p4 l16, p12 l5 early Holocene p3 l26, p10 l9, l11, Figure 1 and 2 caption Zackenberg lowlands p5 l13 a system adapted from Murton, (2013) and (French and Shur, (2010). p8 l9/10 The cryofacies abbreviation (Po, La, Su and D) should be named when the facies are firstly mentioned. p11 l11 the Zackenberg Basin p12 l4 in the late Weichselian p12 l6/7 Something seem to be missing in this sentence: Permafrost landforms, such as ice-wedge polygons, podsols also began to form during this time p12 l22 . . . of formerly glaciated fjord-valleys from . . . Table 2 The abbreviation for the feldspar-IRSL-dating are not explained

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