

Interactive comment on “Past Ice-Sheet Behaviour: Retreat Scenarios and Changing Controls in the Ross Sea, Antarctica” by A. R. Halberstadt et al.

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This is a very interesting study. The comments below might help improving the manuscript.

P4, L12-16: The definition of drumlin is incorrect. It is incorrect to define drumlins as downstream-tapering forms – morphometric data indicates that the majority of drumlins is symmetric and that drumlins wider/steeper on their lee side are as common as drumlins with wider/steep stoss than lee (see Spagnolo et al., 2009, 2011, 2012). Drumlins are defined in the paper as being over 10m high; morphometric data shows that drumlins less than 10m high are very common.

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P4, L12-16: Defining drumlins as “moulded sedimentary landforms” is reductionist and not self-explanatory. Drumlin genesis is not fully understood and there is a range of putative mechanisms, some erosional, some depositional, etc. For example, see Eyles et al., 2016 (Sed. Geology).

P4, L12-16: Following the previous comments, the rationale for grouping drumlins with crag-and-tails (asymmetric, downstream-tapering forms) is invalid. Only some drumlins are crag-and-tails or crag-and-tail-like. A genetic definition for crag-and-tails would be useful.

P4, L14-16: Sentence seems to imply that crag-and-tails are not "moulded sedimentary landforms" (that with internal structure data it would be possible to differentiate between drumlins and crag-and-tails). Reword considering previous comments.

Section 3 (Methodology): Main focus should be on the paleoglaciological reconstruction framework. Geomorphological features, their classification and glaciological significance would be presented under Methodology (instead of results), such as in a table. The same applies to other concepts that appear for the first time in the Results (e.g., flowset).

Section 4 (Results): Consider re-organizing; for example, sub-sections 4.4 and 4.5 focus on geographical areas, whereas 4.1 to 4.3 present landforms. Using more levels (e.g., grouping landforms under a specific header) could help. Some of the information presented under Results would better come under Introduction and Methodology. See previous comment.

[Interactive comment on The Cryosphere Discuss.](#), doi:10.5194/tc-2016-33, 2016.

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