

## ***Interactive comment on “Past ice sheet-seabed interactions in the northeastern Weddell Sea Embayment, Antarctica” by Jan Erik Arndt et al.***

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Received and published: 16 January 2020

### General comments:

The manuscript presents a new compilation and interpretation of new and older multi-beam bathymetry data from the continental shelf near the Brunt Ice Shelf in the Weddell Sea. It provides the first detailed past ice sheet reconstruction for this area and discusses processes forming some specific, unusual morphological features. The detailed paleo-ice sheet history for large parts of the Weddell Sea is still uncertain and therefore, this is an important contribution to this discussion. In addition, the observations and discussion of features formed outside fast ice streams. The paper is well written and structured, and I have only some minor comments:

C1

### Specific comments:

The observed ramps (type H) and related ridges (type E) are discussed in detail and are a centerpiece of the paper. It would be good to also compare these features to the ones described by Jakobssen et al. 2011 (<https://doi.org/10.1130/G32153.1>). They describe the movement of melange of broken-up ice shelf in Pine Island Bay including smaller iceberg plow ridges.

Line 268: Could the ramps 5 and 7 actually be some kind of GZW? It seems possible that the GZW in the top right of figure 4 extended along H5 and H7. The absence of MSGL in this part likely indicates lower ice movement, as stated in the text, so these GZW would receive less sediment and be smaller. It seems that the events forming the ramp6 is overprinting any older features.

### Technical comments:

Line 111/112: The text states that x-radiographs were taken every 2 cm. Aren't X-radiographs usually combined into a continues image? Are the 2cm a resolution or a stepping interval?

Line132: It might be worth mentioning that the ice slap is not moving fast, so 14/17 year intervals are fine.

Line 226: add space between "landward" and "shelf"

Line 288: add space between "such" and "topographic"

Line 291: Maybe use a different phrase instead of "supposed" here. Maybe something like "These studies suggest that hill-hole pairs occur . . ."

Line 413: add space between "stresses" and "that"

Line 471: Is the reference to figure 8a is correct here? It seems Fig 9b would be more appropriate here.

C2

Line 530: Specify the “most ice of this drainage area . . .” to avoid misunderstanding that most ice of the EAIS was flowing through the study area.

Line 779, Figure 9: Add a note that the black line represents modern ice and ice shelf edge. Line 780: change “see Fig. 9a” to “see blue line in Fig 9b”

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Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2019-271>, 2019.