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Discussions

Interactive comment on "Subglacial topography and ice flux along the English Coast of Palmer Land, Antarctic Peninsula" *by* Kate Winter et al.

Anonymous Referee #2

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The manuscript by Winter et al. is a well written presentation of a new ice thickness data set covering nine ice streams and glaciers draining parts of Palmer Land on the Antarctic Peninsula into George VI Ice Shelf and Stange Ice Shelf, respectively directly into Bellingshausen Sea. The authors calculate the mass flux across the survey ice stream and glacier as show case for an application of the new ice thickness data set.

The chosen structure is clear and the used data are easily accessible as described. Several suggested minor changes are given below.

Paragraphs 3.1 and 3.2 provide only very brief information on the RES hardware and obtained data and need to be complemented. It would be helpful, if either in paragraph 3.2 or 7 the used RES profiles are listed.

The wave propagation speed in ice (0.168 m/ns, L168) is in contradiction to the ice density (916,7 kg/m3, L 161) used for calculation of the ice fluxes. Using the equation given by Kovacz et al., 1995, the propagation speed should be 0.1684 m/ns (916,7 kg/m3), respectively the density 923,3 kg/m3. Why was a density of 916.7 kg/m3 chosen?

In addition to the suggested adjustments above, the authors might consider to re-arrange paragraphs 4 and 5, so the structure of Results and Discussion is the same.

Suggested adjustments/corrections:

- L 14/15, etc. including figures: Please correct spelling of ERS, CryoSat, and GRACE Ice Stream. According to https://geonames.usgs.gov are these ice streams spelled in the same way as the satellites.

- L46, 48, 54, 74, 402, 405, 409, 410: Please replace IPR for RES as introduced in L12.

- L 102 ff: The data repository contains two data sets (1 and 4 microsecond). This fact and how they are recorded should be explained in this paragraph.

- L 107: Jeoffry et al. 2018 provide hardly more details on the deployed RES system (PSAIN-2) then given here. Corr et al. 2007 seems be a more suitable reference (cited by Jeoffry et al.). at least for an earlier version of PASIN2.

- L 114: Please provide version no and source for PROMAX (similar to ReflexW om L 129).

- L 121: Please provide reference for OIB data used.

- L 131: Please provide version no and reference to the free OpendTect package.

- L 135ff: Similar to L 102ff, please point out which of the two available data sets you are referring to.

- L 148, 276, 308, 315, 317, 326, 367, 369: Please replace ">" by suitable wording or exact value.

- L 151: Which data set in the repository contains the high-resolution ice thickness measurements?

- L 177: The argument, only the largest ice streams and glacier are presented in paragraphs 4 and 5 is irritating, respectively not correct, because the not presented Enivsat Ice Streeam and GRACE Ice Stream are not the smallest among the covered ice stream and glaciers, see Figure 2c.

- L 190, 210, 226, 246, 255, 276. 291: Please use same format for all given fluxes, preferably using two digits.

- L 227, 228, 403: Please replace numbers and "x" by words.

- L 487-489: Jeoffry et al, 2018: Pages and DOI need to be updated: p. 711-725 and https://doi.org/10.5194/essd-10-711-2018.

- Figure 1: Please improve readability of given names and labels, e.g. Stange Ice Shelf, and mark the investigated area in the overview inset. Please provide at least to labels/tics per side.

- Figures 3-7: It would be helpful to provide the exaggeration factors of the radargrams.

- All Figures: two clearly different colour scales would make it easier to distinguish between bed elevation and flow speed.