

Interactive comment on “Three years of sea ice freeboard, snow depth, and ice thickness of the Weddell Sea from Operation IceBridge and CryoSat-2” by Ron Kwok and Sahra Kacimi

Anonymous Referee #1

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The paper is almost flawless, with results and discussions complete. It is also very well organized and structured making the case study approach easy to follow and make comparisons. However, there are few confusing sections which could be clarified (see below).

1) Introduction

(Page 1, lines 1 to 8): One of the biggest differences between the Arctic and the Antarctic sea ice is with its associated snow cover (eg. how thick the snow cover is and its corresponding variable geophysical properties including its freeboard). I think the authors should briefly summarize the observed differences in snow covers on Antarctic

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versus Arctic sea ice and how they likely influence (and complicate) ice freeboard and thickness retrievals from radar altimetry.

Line 13: "Remote sensing issues" ?? The author needs to briefly describe what these issues are. "to determine freeboard" snow or ice?

Page 3: "Data description" should be 2, not 1. And section numbering should be corrected throughout thereafter.

Page 4 and throughout thereafter: The authors should really consider simplifying the symbol notations if possible. It looks very confusing, small and complicated. Too many subscripts within a subscript (for e.g. snow depth from the snow radar in line 25). This causes sections 2.2 and 2.3 to be read in a very unclear and confusing manner.

Table 3: Even though the table shows differences and correlation between derived and measured freeboard, the "/" symbol is confusing. Please consider changing.

Figure 2: No coordinate info in the map figures for the flight lines. Something needs to be added for visual geo-referencing.

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2018-98, 2018.

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