

Interactive comment on “High-resolution mapping of circum-Antarctic landfast sea ice distribution, 2000–2018” by Alexander D. Fraser et al.

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General comments to Reviewer 4:

On behalf of the manuscript's authors, I'd like to thank Reviewer 4 for comments to improve our manuscript. In particular, I note that Reviewer 4 has made comments in areas not mentioned by the other reviewers, so I thank you for this contribution.

1) How have authors distinguished between fast ice and ice shelves from satellites data? with fast ice, it is expected to occasionally collapse at the edge of the ice shelves.

This process is explained at lines 92 to 99. Particular care was paid to this process, although it is possible that multiyear fast ice was classified as ice shelf in some regions.

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We can add this caveat to the text.

2) Regarding the Figure 4, why are the solid line discontinuous in some places in this figure?

This is a good question. This discontinuity was described in an early draft of the manuscript but was removed in an effort to keep the manuscript concise! We can spend a few words to describe this in the figure caption. “To remove noise in regions with little fast ice, 1-degree longitude bins with less than 5,000 total fast ice edge pixels across the 18 year dataset were not plotted.”

3) Also, in the discussion section 3.2, the authors have described the results of the comparison between the East and West Antarctic regions. Is it possible to consider the reasons for the differences in terms of sea ice, ocean processes and/or atmospheric fields?

Absolutely – we strongly agree, and this is very high priority for future work. It's out-of-scope for an ESSD paper, unfortunately (and we think it's good to separate out the science drivers from the dataset anyway): “Articles in the data section may pertain to the planning, instrumentation, and execution of experiments or collection of data. Any interpretation of data is outside the scope of regular articles.” (from https://www.earth-system-science-data.net/about/manuscript_types.html)

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