

Interactive comment on “Interferometric swath processing of Cryosat-2 data for glacial ice topography” by L. Gray et al.

Anonymous Referee #1

Received and published: 10 July 2013

This paper provides a compelling demonstration of a new technique for making swath measurements with Cryosat-2 data. I can see no technical flaws, though the authors could perhaps wordsmith to make the description a bit more clear. Several of the figures could use some minor rework (eg thickening of lines – I have added specific comments below). A careful proofing for grammar would help. In particular, the authors are particularly stingy with commas (in particular before which). I have noted several instances below where a comma is needed, and my guess is I only caught about a third of the cases.

Apart from such fixes, which I consider very minor, this paper is nearly publication ready.

Minor corrections

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Abstract line 5, add “,” between “product the” and perhaps start sentence with “With” rather than “in”

Abstract line 11, try “so that” in place of “and that”

Line 14 – add “,” before “allowing”

Line 15 “order a meter with a standard deviation < 1 m” suggest “about a meter. . .”

Pg 3134L22-23 “the measurement” replace with “measurements” (to fit with produce earlier in sentence”

P3135L10 add “,” before “including”

P3135L18 Suggest reorganizing sentence to start with “This work used intermediate. . .” (remove were used) add a “,” before “but”

P3135L28 add “,” before “then”

P3136L6 add a “,” before “and”

P3136L13 “which” should be replaced with “that”.

P3136L21 add “,” between “mapping the”

P3136L27 suggest replacing “and feed” with “by the”

P3137L2 add “,” before which

P3138L13 add “,” before which

P3138L25 add “,” before which

P3140L25-26 Suggest moving “however” to between “1deg the” (1deg, however, the. . .). If left at the start, add “,” after however and then after “1deg”.

P3141L4, 18, and 25, add “,” before which

P3141L18 maybe I will find later in text, but is it worth discussing here how bright

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targets like crevasses in the amb beam could screw things up in limited areas? Or is this in not a concern.

P3142L2 where you mention 240 meter range window, it might be good to point out what this maps out to in ground range to give the reader the notion you are going to produce several km scale swath widths.

P3144L5, “,” before which

P3144L15 “mapping error of $\sim 73\text{m}$ ” add “height” or “position” before error to remove an ambiguity about which you mean.

P3145L11 “,” before which

P3147L1 add “,” after “Cap”

P3147L19 add “,” before which

P3147last line suggest “is not required” with “is avoided”

P3148L3, “,” before which

3148L8 I don't think a blanket assumption about Greenland slopes applies. For example, supraglacial lakes in Greenland form in regions with substantial slopes (by ice sheet standards). Soften statement a little with “typically” or something like that.

Figure 1: Would benefit if you could add a “cartoon” depiction of the beam pattern to show why one beam is ambiguous.

Figure 2: use (a) and (b) or Top and Bottom, but not both. I can't distinguish magenta from other colors. Doppler is not really identifiable (only some indistinguishable dots).

Figure 3. Thicken plot lines (in my copy after jpnging, its hard to distinguish colors).

Figure 4. Add units to color bar (easy to do in Matlab). Provide citation or explanation for where topo comes from.

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Figure 5. Add units to the color bar.

Figure 7. Add units to the color bar. Heavier fonts.

Figure 9. Label y-axis middle plot (e.g., number of points).

Figure 10. Label color bar. Add (lower image) after “simulated power”. Here and in the text, it would good to describe “relative” to what (e.g., I assume its not Main relative to ambiguous).

Interactive comment on The Cryosphere Discuss., 7, 3133, 2013.

TCD

7, C1053–C1056, 2013

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