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Interactive comment on "Strong tidal variations in ice flow observed across the entire Ronne Ice Shelf and adjoining ice streams" *by* Sebastian H. R. Rosier et al.

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We thank Ryan Walker for his helpful comments and suggestions for our manuscript. We have included his points below in italics, together with our response to each point in bold.

Page 1, Line 15) The citations are out of order here (and a few other places).

Citations are now ordered consistently throughout

Figure 1) I'd like to see the ice front marked on this, if it doesn't make the figure harder to read. If that doesn't work, please give the distance between the amphidrome and

ice front.

Added the ice front as a magenta line

Figure 2) At least on the version I printed out, there's not that much color contrast C1 between medium and dark blue. Also, it would be good to give the ice stream names in this caption, so it's not necessary to look ahead to Figure 3.

Done

Figure 3) Could you label at least one contour so it's easier to see ice velocity?

Added labels to the ice velocity contours

Page 3, Line 4 ff.) This paragraph should also mention Anandakrishnan et al (2003) on Bindschadler ice stream, which is a case of more or less diurnal forcing causing more or less diurnal response. Also, it's a bit odd to refer to FRIS in a paragraph about behavior different from your observations here, considering that FRIS is part of your domain.

A sentence has been added, discussing the Bindschadler ice stream observations. With regards to the second comment, this paragraph is not aimed at highlighting different responses from our own observations but is giving an overview of the tidal response of ice streams/shelves around Antarctica. We dedicate a separate paragraph talking about the very different Msf response because that is largely our focus but we do also go on to discuss other tidal frequencies such as the semidiurnals and diurnals.

Figure 7) Which components had SNR > 2? Just the ones in Table 1?

What we mean here is that the reconstructed displacements are made by including every tidal constituent with an SNR > 2 as determined from the original data for each site. Re-worded slightly to make this clearer.

Page 12, Line 5) Carlson Inlet isn't shown on any of the maps.

This is now named in Fig 3b.

Page 12, Line 6) More quantitatively, what are you considering to be fast or slow flow?

Given that this is a very general statement we don't feel that attributing specific cut-off values is appropriate. Presumably with a much higher measurement precision the Msf signal would be observable even on slower moving portions of the shelf and coastal ice streams. Changed the wording slightly to hopefully make our point clearer.

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