

Review of “Speed-up, slowdown, and redirection of ice flow on neighbouring ice streams in the Pope, Smith and Kohler region of West Antarctica”

I thank Selley et al., for taking into consideration all of my (and other reviewers) suggestions. The authors made a great effort at revising the manuscript to incorporate all of the comments. There are some remaining comments to be addressed, which, when done so, I am sure the manuscript will be ready for publication.

My only major comments are on the discussion sections 4.3 and 4.4. I think section 4.3 would be improved upon if the authors incorporated more studies to strengthen their speculations regarding the stability of Dotson and Crosson ice shelves and/or included other potential mechanisms that could be at play (though not analyzed in this study). For section 4.4, I still found the discussion around MISI to be unclear. Could it happen in the PSK region? If so, on what timescale (Reed et al., 2024 suggests decadal timescale is possible)? Please also see my comment in the section below.

Minor comments:

Lines 46-48 – is the time period of the basal melt rate the same as the thinning rate? If not, can you specify? Thanks!

115-116 – Here, you say you have annual resolution for the 17.5 year study period but in the sentence before (line 112) you say 2009-2019, so what did you use for the other 7.5 years?

128-130 – These lines may fit better in the methods section.

138 – I would find it helpful if you have “Measures period 2005-2022” in this section, since the other dataset is referred to as “Sentinel-1 period 2015-2022” for consistency and clarification.

198-199 – I would suggest including more of this discussion regarding damage and buttressing in your discussion section. (See comment for lines 238-240).

Figure 5 – The figure caption is missing information on panel C. Also, for panel C the color of the font, location of the rift outlines are a bit confusing, I suggest moving the text of the years and/or making the text a different color.

222-225 – Here, the font size changed in text.

238-240 – Here you discuss the potential of Crosson, rebuttressing, however in the results (see comment on lines 198-199) you mention that there is potentially reduced buttressing from damage. How do you reconcile these two potential results and can you expand a bit more in this paragraph on that?

Discussion is overall much easier to read with new subheadings and strengthened text.

Section 4.2 – I really appreciate how you’ve strengthened this paragraph!

Section 4.3 – I agree that your results are compelling, regarding the (de)/stabilization of the ice shelves, however, I would like to see a bit more discussion about other potential mechanisms (e.g. basal melting, wave action, etc.) and how the migration of the ice divide interplays with those other processes. Though this paper below is still a preprint, I don't suggest citing it, but rather using it to inform more of your discussion on this topic, perhaps they have relevant references for this section of your discussion.

Wild, C., et al. "A Tale of Two Ice Shelves: Competing Glacial Dynamics During the Unpinning of the Dotson-Crosson Ice Shelf System, West Antarctica." *Authorea Preprints* (2024). DOI: [10.22541/essoar.172745052.28786721/v1](https://doi.org/10.22541/essoar.172745052.28786721/v1)

Lines 286-288 – As stated in my last review, I really think it's important for the authors to address the decadal timescale of which MISI occurred on PIG that Reed et al., 2024 investigates. I am only requesting a few sentences and to tone-down the conclusion that MISI may not be a major dynamical factor at short timescales, especially when this is not a primary component of the study. I am disappointed to see that they did not address this in the last round of revisions. I strongly encourage them to do this when they next revise the paper.

Line 301 – I would suggest adding the line about thinning reducing driving stress earlier in the discussion and not only including it in the conclusion.