

Dear authors,

Thank you for addressing the points raised by Reviewer 1 in their second review of your article on "The tipping points and early-warning indicators for Pine Island Glacier, West Antarctica". This is a very clear article on an important emerging area of research. I list below a number of small technical corrections that should be addressed prior to publication but otherwise this article can now be published in The Cryosphere.

Kind regards,

Pippa Whitehouse

To be corrected (all line numbers refer to the non-track change version of the article):

Line 17: 'WAIS' – acronym not defined

Line 25: 'sea-level rise' should always be hyphenated. Please also check that use of a hyphen in the phrase 'early warning' is consistent throughout the text

Line 34: update the Oppenheimer et al. reference

Line 70: PIG is already defined on line 37

Line 194: pacific -> Pacific

Line 422: the relaxation time *increases* as you approach the tipping point (T_R^{-2} decreases)

Line 731: please use consistent units for basal melt rate

Suggested edits:

Line 14: 'committing a glacier to...' – MISI theory was developed to describe ice sheet behaviour but can be applied to glaciers under certain conditions. Suggesting revising the text to reflect the original purpose of the theory

Lines 23-24: sentence revised in response to reviewer comments, but grammar is now awkward

Line 30: do you mean 'increase in accumulation'?

Line 76: 'multiple smaller tipping points' – smaller than what? Are these in addition to the main three tipping points identified by your analysis?

Lines 80-81: in your response to reviewer 1 you explain the difference between early warning signals and early warning indicators; it would be useful to also summarise the difference for the reader

Line 117: 'to be more similar' -> 'to become increasingly similar'

Line 129: details of the rescaling are unclear; you do not define what you mean by 'a critical value' and it is not clear what value 0.5 (white noise) is mapped to

Line 274: 'a range of melt rates between these two states' – it is implied, but not explicitly stated, that each steady state can be related to a specific melt rate, please clarify

Line 295: 'We show results' – make it clear that this phrase relates to results presented above

Line 340: 'may have failed' -> 'may fail'

Line 361: 'this methodology' -> 'our methodology'

Line 368: delete 'that we did not identify'

Line 402: 'a +1.2°C change in ocean temperatures' – relative to what?

Figure 4 caption: 'The steady states... are plotted as dashed grey lines' – rephrase to say that the steady states plot along the grey dashed lines, and the details are shown in Fig. 4b