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Nonlinear Processes in Geophysics
Discussions

Interactive comment on "An Early Warning Sign of Critical Transition in The Antarctic Ice Sheet – A New Data Driven Tool for Spatiotemporal Tipping Point" *by* Abd AlRahman AlMomani and Erik Bollt

Anonymous Referee #2

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Please note, I am a geophysist who considered the glaciology and mechanics in this paper. I do not comment on the mathematical method. In that context I would like to say it is exciting to see new mathematical methods to extract discontinuities in velocity field in glacial ice. It is interesting that one can estimate the onset of the crack formation, and perhaps with subsequent images the crack propagation. I did not assess if the method is able to show the velocity discontinuity within measurement error, but if it is a real result the method should be of interest to the cryospheric community.

Specific points

line 22: "Still, this contribution starts to change in the 21st century because of the ice

shelves cracks". This sentence is rather clunky. Ice shelf retreat? Or increased iceberg calving?

There are other places with clunky English. For example line 35 "attribute in Greenland" is not grammatically correct. r line 55 "most massive known iceberg" is not formal language. I would suggest having someone proof read for professional English who is in the field.

paragraph 37-42: Not sure if this is needed. It is a little out of context. There are other examples of information that is interesting but is out of context of the immediate point of interest, ice shelf cracking.e.g. "Interestingly, two and a half years later, it remains mostly intact and has drifted from the near Antarctica seas into the more turbulent open Arctic Ocean where it is expected to break apart more quickly." .... I would suggest a proof read focused on direct narrative in the paper.

In general the introduction could be more focused to ice shelf processes that involve it's growth and ice loss through iceberg generation.

There are spelling mistakes in the manuscript

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