

Interactive comment on “Testing Hypotheses About Glacial Dynamics and the Stage 11 Paradox Using a Statistical Model of Paleo-Climate” by Robert K. Kaufmann and Felix Pretis

Anonymous Referee #1

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The authors employ the model of Kaufmann and Juselius (2013) (KJ2013) fitted with data to 391 kyr BP to simulate data up to 791 kyr BP. The main idea is to test for structural breaks by comparing the in-sample and out-of-sample fit of the simulated data. If the fits are quite different, there may have been a structural break. The main finding is that the simulated data based on the model fit using data after the mid-Brunhes event fits the observed data well prior to the event, which suggests that there is not a major structural break at that time. My overall impression is that there is a really interesting idea here. I reviewed an earlier version of this manuscript for another journal in November 2016. The authors were very responsive to my comments. I reviewed a revision for the same journal in May 2017 and recommended a conditional

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acceptance to that journal pending some very minor revisions. Although the manuscript has changed since 2017 (including the title), my comments raised here are almost the same as those raised then, adjusted for formatting, because the typos I noticed then have still not been fixed.

Comments

1. I'm not sure if it is a requirement of the journal, but the paragraph formatting (no indent, no additional spacing) makes the manuscript hard to read. 2. Pg. 3, line 7: I can't tell whether it is just one linea are all lines afterward, but the alignment is definitely off here. 3. Pg. 3, line 10: "five sections" – just a suggestion, I would write "next four sections" 4. Pg. 4, equation 2: no transpose after z_{-t-1} 5. Pg. 4, line 35: z should be z_{-t} (add subscript t) 6. Pg. 5, line 2: "identically" should be "identically" 7. Pg. 5, line 10: something is off with the spacing around α and β 8. Pg. 5, line 14: "model model" repeated word 9. Pg. 5, line 24: something looks wrong with the mathematical expression in this line... isn't $\epsilon_t=0$? 10. Pg. 7, equation 7: ω should be w 11. Pg. 7, line 19: (s) should be (S) – upper case to be consistent with equation 7 12. Pg. 11, line 14: "meridional" is correct, but I found five instances of misspelled "meridonal" in the paper 13. Supplement, equation 6: A few things off here... two equals signs? Shouldn't the index in the denominator be j and not t ? 14. Supplement, footnote 2: "\mu_j=0 implies..." – need something like "for all j " 15. Please proofread and spellcheck everything!

Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2020-58>, 2020.