

Interactive comment on “How does internal variability influence the ability of CMIP5 models to reproduce the recent trend in Southern Ocean sea ice extent?” by V. Zunz et al.

Anonymous Referee #3

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Overall, this paper is well written and its subject is relevant and timely. I just have some minor points:

Why only use data 1979-2005? I understand that CMIP5 historical runs end in 2005, but you could probably use the 21st century scenarios that follow on. The evolution in observations since 2005 reinforces the upward trend. It'd be interesting to know if the few CMIP5 runs that do have a positive trend 1979-2005 maintain it to 2012.

I also miss a discussion of whether the degree of drift in the models after initialization affects the predictability results shown in figs 5 and 6. While there is overall little predictability, it would be interesting to know how the magnitude of the initial shock, or drift,

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affects such predictability.

I find it a bit odd that nowhere in the paper you mention the levels of significance of your computed trends. This is a good way to account for how (internal) variability and the trend relate in a timeseries- e.g., in observations, not all seasonal trends have the same level of significance. Perhaps one suggestion would be for the figures showing trends to differentiate those trends that are significant (say above 95% level) from those that aren't. I suspect this might enforce your points on the influence of the effect of internal variability on the trend.

I feel that the Summary and Conclusions section could do with some clearer language, particularly the last 3 paragraphs- they feel like they were written in a hurry, and incidentally have the highest frequency of typos in the paper.

Interactive comment on The Cryosphere Discuss., 6, 3539, 2012.

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