

Interactive comment on “How much should we believe correlations between Arctic cyclones and sea ice extent?” by Jamie G. L. Rae et al.

Anonymous Referee #2

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This paper investigates correlative relationships between Arctic cyclones and September sea ice extent using two different cyclone tracking variables from three different sources (output from two climate model runs and from one reanalysis dataset). The results show that different tracking variables, model resolution and space/time comparisons can show contrasting cyclone/ice relationships, thereby emphasizing that caution is required when analyzing and interpreting such comparisons (e.g., as previously presented in the literature). This caution is noteworthy and helpful. Thus, this paper is deemed appropriate for TC after considering a few minor suggested revisions as listed below.

P2, L9, Suggest changing ‘main ice pack’ to ‘main pack ice’.

P3, L3, Consider starting a new paragraph here.

C1

P3, L12, Consider rephrasing the following: ‘aim of studying correlations between cyclones and Arctic sea ice extent’ given Reviewer #1’s comment. In other words, specifically state the overall aim of this paper, which is to show how correlations (between cyclones and sea ice extent) depend on sea ice extent, tracking variable, model resolution, and time/space windows used to make the comparison (i.e., what is then stated further down on L15-16).

P5, after L4, Consider adding another short paragraph here describing the statistics used to test differences and compute correlations.

P5, L15, Since the first reference to a figure is here, consider moving Fig 5 to Fig 1 and adjust the others accordingly.

P5, L30-31, This seems like a general statement summarizing all model/reanalysis comparisons, but then it differs from the last two statements in that paragraph. Reword the first statement to clearly distinguish it from the other points being made (and/or create a table listing these results).

P6, L14, Consider starting new paragraph here.

P8, L4, fix typo: ‘these findings’

Figs 1-4, it would be helpful and of interest to see the difference maps between GC2-N96 and GC2-N216. (This would also be helpful for interpreting the contrasting results between the 2 model runs as presented in Fig 7.)

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2017-140, 2017.