The Cryosphere
Discussions

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Interactive comment on "Consistent biases in Antarctic sea ice concentration simulated by climate models" *by* Lettie A. Roach et al.

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I found this an interesting read and it is a good addition to the literature, both giving a more comprehensive view of biases and to give a plausible hypothesis. I have three queries/suggestions:

Figure 1 and throughout: I'm unsure of the relevance of DJF; although the traditional meteorological austral summer season, it's arguably not particularly relevant for sea ice, particularly since you do not link analyses to atmospheric variables. However I recognise it's not obvious what the best season would be. I'd suggest showing the minimum or maximum, or if to use DJF, please give some justification (in particular why summer not winter) and mention any sensitivities to season, if found.

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Figure 2: This combines spread in information from different years and from different observational data sets. In particular the conclusion in the main text that there is 'no clear bias' at maximum is a little confusing as climatologies are not shown (I would think of 'biases' as referring to climatologies), and the discussion of this figure in the text is very brief; half a sentence or so. Also panel a) appears to be missing outliers? I suggest separating the panels into separate boxplots, particularly for observations, clarifying the multi-model vs multi-yr distinction (if possible), checking the figure caption, and expanding the discussion of this figure a little (it need not be much)

Methodological note: Please say how the regridding is performed (the method and the package used). I have certainly seen cases myself and at meetings (sorry I cannot bring a citation!) which suggest that it can affect results particularly since you are concerned with distributions rather than aggregate measures. Such methodological details are rarely stated in papers about CMIP5, but for reproducibility it they should be!

Interactive comment on The Cryosphere Discuss., https://doi.org/10.5194/tc-2017-131, 2017.