

## ***Interactive comment on “Antarctic sea ice variability and trends, 1979–2010” by C. L. Parkinson and D. J. Cavalieri***

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Response to Reviewer 2.

We thank Reviewer 2 for his/her comments that the paper “is clearly written” and “will be of interest and value to the research community”. We also thank the reviewer for pointing out specific concerns, and we address those as follows:

p. 940, lines 13-19. In order to place the results of this paper in the larger global context, we purposely mention the decreasing Arctic sea ice coverage and increasing Antarctic sea ice coverage in both the Introduction and the Discussion. However, the two-sentence paragraph in question (p. 940, lines 13-19, at the start of the Discussion) is not just repeating earlier information. In particular, the last paragraph of the Intro-

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duction (p. 933, lines 17-28) has the context of the advances brought through satellite observations, and in that context we mention that the satellite record has quantified a decrease in Arctic sea ice and an increase in Antarctic sea ice since the late 1970s. The mention of the Arctic/Antarctic contrast in the first paragraph of the Discussion (p. 940, lines 13-19) is done in a different context, emphasizing the sea ice trends rather than the satellite contribution, and it includes the important additional information that the Arctic sea ice decreases have been reported since the late 1980s and have become stronger over time. The paragraph on p. 940, lines 13-19, sets the scene for the rest of the Discussion, making it an important paragraph to retain. However, we recognize that the reviewer is legitimately trying to discourage repetition, and in that light, to accommodate the reviewer's concern, we have removed mention of the Arctic (and hence mention of the Arctic/Antarctic contrast) from the final paragraph of the Discussion.

p. 940, lines 20-26. We have added at the end of the first sentence of this paragraph a statement that the temperature changes “are likely caused at least in part by large-scale atmospheric circulation changes.”

p. 941, lines 18-21. We appreciate the reviewer's point and have consequently deleted the statement that “their likely importance is weakened”.

p. 942, lines 20-23. We appreciate the reviewer's pointing out the possible misinterpretations of these lines in the text and have consequently revamped the paragraph to eliminate both of the troublesome sentences (original lines 20-23). In line with the reviewer's concerns, in revamping the paragraph we have added a statement that the climate system is complex and has nonlinear feedbacks.

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Interactive comment on The Cryosphere Discuss., 6, 931, 2012.

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