

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

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Received and published: 14 June 2012

We agree with the reviewer's comment that the paper is an update to earlier work, but as Reviewer 2 notes the paper is useful as a reference. Regarding the inclusion of 2011 data, these data have not been processed and quality controlled at GSFC. Doing this would take many months, and furthermore, would mean that this paper would cover a different time period than the companion paper for the Antarctic, which has already been accepted for publication. Having similar analyses for both hemispheres for the same time period may be useful for future studies of hemispheric interconnectivity.

We have now included the Stroeve et al. reference in our revised discussion.

While there are valid criticisms to using the Student t test, this test is still widely used.

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Because of the various problems with the Student t test and other tests of statistical significance, we provide the R ratio (estimated trend to its standard deviation). The R value avoids the assumptions made in using the Student t distribution. The larger the R value the more robust the trend. We indicate the standard 95% and 99% levels of significance only to provide a comparison with other studies. This is clearly stated in the paper. Undertaking an autocorrelation analysis of these time series is well beyond the scope of this paper.

We agree with the Reviewer that the Summary and Conclusions section provides only a brief summary of factors contributing to the sea ice decline. The focus of this paper is on the observed sea ice decline and not on the processes involved. Nonetheless, we have complied with the Reviewer's concerns by adding to the discussion and deleting the sentence that the Reviewer objected to regarding the future of the sea ice cover.

Interactive comment on The Cryosphere Discuss., 6, 957, 2012.