

Interactive comment on “A simple approach to providing a more consistent Arctic sea ice extent timeseries from the 1950s to present” by W. N. Meier et al.

W. N. Meier et al.

walt@nsidc.org

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We thank the reviewer for the constructive comments. We have made several edits to respond to the suggestions, detailed below, and we hope we have addressed the concerns. With these changes, we feel the paper is clearly improved.

As Reviewer 1 also noted, the underestimation by passive microwave products is indeed noteworthy. We added a sentence to Section 3, noting that an alternative approach would be to adjust the PM estimates up to Hadley. We also added several sentences of discussion in the Summary section to note the issue of underestimation of PM data and the possible overestimation by the ice charts. Finally, we note in

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Section 4.2 in the discussion of the standardized anomalies (Figure 4) that the use of anomalies has advantages in comparison with model estimates.

Minor Comments:

P2828, L16: the trend relative to the mean is a %, which needs to be relative to some baseline. One could chose to calculate the trend relative to the first value in the time-series. However, the first value may be anomalous high or low, which could make the % trend misrepresentative. Here, we follow the approach used in the NSIDC Sea Ice Index (http://nsidc.org/data/seaice_index/), though we use a 1981-2010 period to match the 30-year NOAA climate normals period, instead of the Sea Ice Index period of 1979-2000.

P2829, L1-2: We agree. We've added a reference to the SWIPA report (AMAP, 2011), which is more up-to-date than ACIA.

P2831, L8; P2834, L5; P2840, L25: This is a good point. We feel this fits best in the discussion of Table 3 near the end of Section 4.1. Two sentences are added to comment that the Jan-Mar bias between the two products is a different sign than during other months and that this will affect the seasonal cycle. We also added that this was noted in Notz and Marotzke (2012).

Section 2.1 and 2.2: We added mention of the grid in each of these sections

P2833, L26: The source data set is the same. However, the extent calculations are somewhat different, particularly the fact that the original PM grids are interpolated to the Hadley 1 x 1 degree grid. A phrase has been added to the first paragraph of Section 2.3.

P2839, L2: May 2009 was just slightly above average (0.02 st. dev.)

Technical Comments:

P2828, L2: Corrected.

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P2838, L4: We use “smaller in magnitude” because it refers to both positive and negative trends at different times of the year. There are other ways to describe this, e.g., “weaker”, but we feel “smaller in magnitude” is most clear.

Please also note the supplement to this comment:

<http://www.the-cryosphere-discuss.net/6/C1878/2012/tcd-6-C1878-2012-supplement.pdf>

Interactive comment on The Cryosphere Discuss., 6, 2827, 2012.

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