

Interactive
Comment

Interactive comment on “New estimates of Arctic and Antarctic sea ice extent during September 1964 from recovered Nimbus I satellite imagery” by W. N. Meier et al.

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Response to Reviews of “New estimates of Arctic and Antarctic sea ice extent during September 1964 from recovered Nimbus I satellite imagery” by W.N. Meier et al.

General Comment:

We thank the three reviewers for their very constructive comments. We have made all of the recommended changes except Reviewer #1’s request to change the blue dots to green dots in Figure 6. In our original imagery and in the electronic version and a printed version, the blue and black dots contrasted well. Green did not seem to be a significant improvement and may cause problems of contrast with the red dots for some

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color blindness.

Reviewer #1

“Visible” added to beginning of abstract

The abstract text has been rewritten to be clearer and more consistent with the later statement. The “stable” period we suggest is from the 1960s through the 1970s. While conditions remained relatively stable through the 1980s, there was a downward trend from nearly the beginning of the passive microwave record, with an acceleration in the past decade.

Resolution and size information of the imagery added to the third paragraph of Section 2.

Page 41, Line 19: We admit to potential confusion between median and average and we mixed terminology. We have rephrased the text to be consistent. For total extent, a single number, an average over a range of years can be simply computed by average extents over all of the years, which is what we have done. Ice edge location (e.g., edge on a map) in passive microwave fields is based on a 15% concentration threshold. Over a period time, using a simple average results in a conflation of the time period and the spatial variation in determining the edge. For example, over a 10-day period, a grid cell that has 100% ice for two days and 0% ice for 8 days has an average of 20% concentration thus would be counted in the extent in a 10-day average. But this isn't really representative of the conditions at that location for that period, which is ice-free 8 out of the 10 days. Conversely, a grid cell that has 20% concentration for 7 days and 0% for 3 days, would have an average of 14% and would be “ice-free” in the average even though it was considered “ice-covered” 7 out of the 10 days. Thus a median is a better representation of the passive microwave ice edge. We've made the terminology consistent for when we use “median” (ice edge location) and when we use “average” (total extent value) and added text in the 2nd paragraph of Section 4.1 to be more clear.

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Page 42, Line 1: Yes, we generally mean “south of the ice edge”. This has been clarified.

Page 42, Line 6: The text has been modified to be more clear on the Predoehl analysis.

Technical corrections: All technical corrections were made other than the change to green dots in Figure 6, explained above.

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