

Interactive comment on “Improving the accuracy of the AFWA-NASA (ANSA) blended snow-cover product over the Lower Great Lakes region” by D. K. Hall et al.

Anonymous Referee #1

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The authors are highly qualified remote sensing scientists with particular expertise in the remote sensing of snow. This is reflected in their understanding of the issues and products germane to the manuscript being reviewed here. However I do not feel that this manuscript demonstrates a significant step forward in the understanding of snow water equivalent derived from microwave satellite data. The major finding is that a 7-day running mean bias correction method works better than a 5-year mean bias correction. Though perhaps it is better to say the 7-day adjusts the microwave estimates to SWE estimated from station observations of snow depth. To say it is a correction implies that the station SWE estimate is correct when in fact there is limited evidence presented that this is the case. SWE is only estimated using two different

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densities, 0.3 working better than 0.2, which makes sense for snow that has been on the ground for more than several days.

Since this manuscript only looks at SWE, why doesn't it just say the study attempts to improve the accuracy of the AMSR-E SWE estimate rather than mention the ANSA product? The accuracy of the MODIS contribution to the product or the benefit of merging visible/NIR and microwave information isn't really under consideration here.

The authors should not refer to the SWE as Coop station data as they do in line 8 on page 1146. They are just gross estimates of SWE taken from the station depth observations. And how accurate are these observations considered to be?

“Lee” needs to be defined as being downwind of a lake (lines 6 and 11 on page 1144. So too should “non-storm” be defined (line 17 on page 1144.

The second sentence in section 3 on page 1144 is awkward.

The concluding section is too broad a recap of the 5-year and 7-day methodologies. I suggest rewriting it to focus on the 7-day... on what works best.

The figures look fine. However I don't see the purpose of the MODIS image in figure 1, nor actually the need for figure 2. The MODIS or blended products are not the focus of this paper. Figure 3 shows results from another study, thus again is not directly relevant to this study.

I suggest some major revisions of the manuscript prior to publishing. This will likely result in a more abbreviated version.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 9, 1141, 2012.