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Atmospheric Measurement Techniques Discussions

Interactive comment on "Inter-calibration of polar imager solar channels using SEVIRI" *by* J. F. Meirink et al.

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We thank the reviewer for his positive evaluation of the manuscript. Here is our response to the two minor comments.

Page 3221, line 19: This formulation not clear to me. If the calibration changes with time, shouldn't the calibration coefficients valid for the observation time be used? From the formulation I would assume that the calibration coefficient for 2009 differs from the value for 2004, but the 2009 value should be applied to 2009 data and the 2004 value for 2004 data?

EUMETSAT occasionally applies a stepwise change to the SEVIRI solar channel calibration coefficients. Specifically, during the 3 years considered for both Meteosat-8

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and Meteosat-9 this happened only once. These changes were small, between 0.29% and 1.75%. If we would report inter-calibration slopes with respect to the actual reported coefficients, sudden jumps of that magnitude would appear, and it would not be possible to directly relate the results to instrument counts. Therefore, we chose to use the coefficients in the middle of the investigated time period (January 2007) as reference for the whole investigated time period. We will modify the text as follows: 'The operational calibration coefficients are constant except for one stepwise change on the order of 1% during the investigated time periods for Meteosat-8 and -9. To avoid artificial jumps in our inter-calibration results and to keep direct traceability to the instrument counts, we have chosen to use the calibration coefficients of January 2007 as the reference for both satellites.'

Page 3223, line 20: What value was assumed for the surface albedo?

A value of 0.35 was used. Actually, the results are not sensitive to this value since we are looking at ratios of TOA reflectances, as shown in Eq. (7). An important thing to note is that the albedo is assumed to be spectrally constant. Following up on the comments of the first reviewer, this will be outlined more clearly in the paper.

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 3215, 2013.