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Atmospheric Measurement Techniques Discussions

Interactive comment on "Uncertainties of satellite-derived surface skin temperatures in the polar oceans: MODIS, AIRS/AMSU, and AIRS only" *by* H.-J. Kang et al.

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Comments for referee (Dr. J. M. Blaisdell) We thank the reviewer very much for the valuable comments. Detailed response to the comment is given below.

Q1) The authors should be more clear about which forecast model data the AIRS-only system uses to determine its surface classification. The only data value which is used is a surface temperature from the forecast, used to determine whether the surface should be treated as liquid or frozen (and not used in any way as a temperature first guess.) The AIRS-only retrieval system uses a temperature rather than a sea ice

fraction from the forecast; this study shows the extent to which an ice forecast derived other microwave satellite data might improve the AIRS-only product.

A1) As mentioned by Referee #1 (Dr. Blaisdell), AMSU-A observations in any step of the physical retrieval process and the quality control methodology. The AIRS only algorithm has utilized the forecast surface temperature from the NOAA Global Forecast System (GFS) in order to determine whether the oceanic surface is highly likely to be liquid or frozen, instead of AMSU observations (Olsen, 2013a; Susskind et al., 2014). This study suggested that the ice forecast derived from other microwave satellite data could improve the AIRS only product from the better accuracy of surface classification. The text has been revised to compensate for the information of the forecast model data which have been used to affect surface type in the AIRS only algorithm (New Version; Lines 171-173, and 504-505).

Please also note the supplement to this comment:
http://www.atmos-meas-tech-discuss.net/8/C1918/2015/amtd-8-C1918-2015-supplement.pdf

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 4451, 2015.