

## ***Interactive comment on “Comparison between MODIS and AIRS/AMSU satellite-derived surface skin temperatures” by Y.-R. Lee et al.***

### **Anonymous Referee #2**

Received and published: 19 December 2012

#### Minor Revision:

1) The proper terminology for the EOS data is "Collection 5" rather than "version 5". This should be changed in the text. Also a table or list should be included of the actual version numbers of the products with appropriate time periods. Each "Collection" is composed of numerous "versions", each of which span a different time period. It is critical in this work to clearly identify which product versions from each collection were used in the analysis.

2) The use of the word "trend" needs to be qualified in each instance used in the paper to identify if the rate of change is statistically significant or not. The use of the word trend should be replaced with "rate of change" unless the rate is greater than the 95%

uncertainty in which case it should be identified as a 'statistically significant trend'. Showing tables or figures with insignificant trends is highly misleading and should be strongly discouraged.

3) Additional description should be include on the method for computing 95% confidence intervals. This is a key aspect of the paper but is not explained adequately.

Major Revision:

The major problem with this paper is the treatment of the surface temperature comparison at high latitudes (both poles). The authors appear to be unaware that the AIRS/AMSU product includes sea ice temperature for ocean scenes which are covered by frozen ocean, whereas the MODIS SST product is for "non-frozen ocean" only and explicitly excludes sea ice! Gridding the SST into 1 degree bins in the Arctic ocean is highly inappropriate, unless this is done with much greater care than the authors have demonstrated. This explains why the MODIS SSTs are never below 270K whereas the AIRS/AMSU skin temperature can be 20 or 30 degrees colder. This is a completely inappropriate comparison and the interpretation of the result given in the paper is incorrect and misleading. The authors appear to be unaware that MODIS product MOD29E1D <http://modis-snow-ice.gsfc.nasa.gov/?c=MOD29E1D> contains the MODIS sea ice temperature product.

Required correction, either 1) Remove all data from grid cells containing sea ice from the analysis, OR 2) include MOD29E1D in the analysis.

This paper can not be published with the current set of figures and analyses because they are an unfair representation of the MODIS products. I would like a chance to review a revised version of this paper to confirm that the analysis has been corrected.

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Interactive comment on Atmos. Meas. Tech. Discuss., 5, 7431, 2012.

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