

***Interactive comment on “MODIS 3 km aerosol product: algorithm and global perspective” by L. A. Remer et al.***

**Anonymous Referee #2**

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This manuscript demonstrates the new 3 km MODIS AOD product. In a clear and to the point fashion, it demonstrates the strengths and highlights the concerns that arise when applying the 10 km algorithm at this finer resolution. It will be of interest to the product's potential users, and is of good quality and presentation. I have a few minor comments, but in general this manuscript is acceptable for publication.

The manuscript provides a wealth of valuable figures, but it seems to lack a direct comparison of the 10 km and 3 km products as the features of the given figure often have multiple explanations. For example, Figure 7 demonstrates the 3 km global mean AOD in July to be higher than the 10 km product, but it remains unclear whether this results from pixels of the same location being having a higher value or additional sampling of higher-valued regions. The histograms of Figure 9 show a relative shift towards

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higher AOD at 3 km, but again it is ambiguous as to whether this change corresponds to sampling differences.

It would be beneficial to provide a comparison between the 10 km and 3 km products that are not only collocated with AERONET, but also with each other. I would suggest that Figures 11 and 12 be expanded to include a more closely collocated comparison across each of the 10 km, 3 km, and AERONET AODs. That is, MODIS-AERONET scatter plots using the same radius from AERONET for both the 10 km and 3 km products, and only using instances for which both products were present. It would also be helpful if some statistical measures were provided on these Figures.

Minor comment

p. 73 L15 – Channel 7 is given as  $2.13 \mu\text{m}$  here and throughout the manuscript, as compared to  $2.11 \mu\text{m}$  used in Levy et al., AMTD, 2013. These should be consistent, or the difference explained.

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Interactive comment on Atmos. Meas. Tech. Discuss., 6, 69, 2013.

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