

Interactive comment on “MODIS 3 km aerosol product: applications over land in an urban/suburban region” by L. A. Munchak et al.

Anonymous Referee #1

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This paper uses sun-photometer and airborne HSRL measurements from the DISCOVER-AQ campaign to evaluate the MODIS 3-km aerosol product and compare to the 10-km product. The authors use case studies to demonstrate possible benefits and detriments of the 3 km product, and they also use campaign-wide statistics to quantitatively evaluate the product. A major finding of the paper is that uncertainty in the surface reflectance of urban areas limits AOD retrievals over these regions, particularly for the 3-km product, where there are fewer pixels used in the retrieval method.

This is a critical paper to be published to educated users of the new 3-km product on its benefits and shortcomings, and therefore it deserves to be published in ACP. I have several minor comments to be addressed.

P1689 L5: “five minute sections”. Is this “minute” as in time, or “minute” as in “degrees, C324

minutes, seconds”?

Section 3.3: The authors never explicitly state that the Lidar is on the plane.

P1693 L12: What is the standard error in airborne HSRL retrievals?

Throughout: The authors jump between using SP and AERONET. It was never clear to me if when they use AERONET if they mean the permanent AERONET stations, not the temporary SP stations for DISCOVER-AQ, or if they meant all SPs.

P1694 L15: “retrieved exactly”. Exactly?

P1695 L22: “suburban”

P1698 L27: “u” instead of a μ in micrometers

Interactive comment on Atmos. Meas. Tech. Discuss., 6, 1683, 2013.