

## ***Interactive comment on “A novel calibration approach of MODIS AOD data to predict PM<sub>2.5</sub> concentrations” by H. J. Lee et al.***

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This is an excellent article. It contains a new methodology to calibrate the AOD obtained from MODIS and subsequently to predict ground daily PM<sub>2.5</sub>. My suggestion is to accept it as is or by considering the following two minor suggestions.

The authors thank Referee 2 for his/her positive comments and important suggestions. Below are our responses to the referee's comments.

Some minor corrections/suggestions:

1. at introduction (page2/3): the authors can highlight previous attempts on correlating PM<sub>2.5</sub> with AOT by mentioning any correlation coefficients (literature).

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In the original manuscript, we stated that previous models generally predicted <60% of the variability in daily PM<sub>2.5</sub> concentrations (P9771, L18). We have added a review paper, Hoff and Christopher (2009) to highlight the previous attempts. Also several studies have been performed at Harvard School of Public Health, and they presented correlation coefficients (*r*) ranging from 0.41 to 0.59 (Paciorek et al. 2008) and from 0.38 to 0.64 (Paciorek and Liu 2009). Since the studies tested different scenarios (raw AOD, calibrated AOD, minimum number of AOD retrievals on a given day, MODIS, MISR, and GOES), the ranges of the correlation coefficients are given above.

2.2. AOD retrieval: the authors can explain more about any possible errors that may be arisen when the two channels are interpolated.

The sentence (P9772; L21) may mislead readers and has been revised. In the Collection 5 retrieval algorithm three different channels (0.47, 0.66, and 2.12  $\mu\text{m}$ ) are simultaneously inverted to finally report AOD values at the wavelength of 0.55  $\mu\text{m}$ . This approach does not introduce interpolation errors as in the case of Collection 4 retrieval algorithm (Levy et al. 2010).

Please also note the supplement to this comment:

<http://www.atmos-chem-phys-discuss.net/11/C6702/2011/acpd-11-C6702-2011-supplement.pdf>

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