**Atmospheric
Chemistry
and Physics
Discussions**

Interactive comment on "Relating aerosol absorption due to soot, organic carbon, and dust to emission sources determined from in-situ chemical measurements" *by* A. Cazorla et al.

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Some areas for consideration and revision are below.

1. Please find these papers (and references therein) which use AAE and EAE as well as other methods for aerosol classification using AERONET data.

Giles, D. M., B. N. Holben, T. F. Eck, A. Sinyuk, A. Smirnov, I. Slutsker, R. R. Dickerson, A. M. Thompson, and J. S. Schafer (2012), An analysis of AERONET aerosol absorption properties and classifications representative of aerosol source regions, J. Geophys. Res., 117, D17203, doi:10.1029/2012JD018127.

Giles, D. M., et al. (2011), Aerosol properties over the Indo Gangetic Plain: A mesoscale perspective from the TIGERZ experiment, J. Geophys. Res., 116, D18203, doi:10.1029/2011JD015809.

2. On page 3454-3455, in regards to AERONET data, AAE is computed using SSA by first determining the absorption aerosol optical depth (AAOD), where AAOD = AOD(extinction) * [1-SSA] for each wavelength. Please also mention how you obtained the scattering AOD (e.g., AODsct = AODext-AODabs).

3. In Table 2, using AERONET sites such as "Philadelphia" and "Sandy_Hook" have a very small contribution when compared to nearly two decades of GSFC data. Please discuss why these sites were chosen or consider using sites with larger data volume.

4. On page 3456, more discussion and references to previous work are needed with respect to the classification thresholds shown in Figure 1. For example, could you provide more discussion on the thresholds (e.g., AAE of 1.0 and 1.5 and SAE of 1.0 and, 1.5 and diagonal mixed category (AAE 1.5, SAE 1.5 to AAE 1.0, SAE 1.0)) used for determining the aerosol classification?

5. How do you explain AAE values less than one? Please see Giles et al., 2012.

6. Can you provide uncertainty estimates on the AAE and SAE derived from in situ aircraft data?

7. AERONET principal investigators should be acknowledged based on the AERONET data usage policy. http://aeronet.gsfc.nasa.gov/new_web/data_usage.html