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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Absorption Angstrom Exponent in AERONET and related data as an indicator of aerosol composition" *by* P. B. Russell et al.

Anonymous Referee #1

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This paper makes the case that aerosol composition can be determined using aerosol absorption Angstrom exponent and aerosol extinction Angstrom exponent. Using the author's technique, the aerosol compositions are classified as dust, biomass burning, and urban industrial. The authors make the case in a simple way, and their technique seems convincing. I am therefore recommending publication with minimal changes.

Here are a few suggestions:

(1) Many of the readers are not going to be knowledgeable about the field campaigns that form the basis of Figure 1. I would therefore add a table to the text that summarizes these campaigns. The table could list the campaign, date, location, and major goals

of the campaign. The table might be referenced in the text at the top of page 21790, where the words "region to region" are found. I wanted to know more about these regions!

(2) The earth's total aerosol loading consists of a lot of sea salt (SS) aerosol (second in mass after dust). It would be interesting to speculate where the SS aerosol would lie on Figure 5. My guess is that it would form another distinct cluster (low AAE, low EAE). If this is the case, then the method might be useful for detecting this class of aerosol – another point in its favor.

(3) I hope the figures are more legible in the final published version. My old eyes needed a magnifying glass to read some of the figure legends (Fig 1 in particular).

Typos:

(1) Line 6, page 21797. I think a closing ")" is missing.

(2) Figure 2. "acronym" should be "acronyms".

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 21785, 2009.