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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: Simple analytical relationships between Ångström coefficients of aerosol extinction, scattering, absorption, and single scattering albedo" *by* H. Moosmüller and R. K. Chakrabarty

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We particularly disagree with the comment of Anonymous Referee #2 stating "However, I don't believe the authors' derived relationships are particularly useful. I don't think anyone's spectral aerosol optical property data (especially absorption) are accurate enough to compute the type of relationships that the authors present. Therefore, I don't [think] anyone will use these expressions to analyze their data. In response, we'd like to make the following comments: 1) In the interactive discussion of Rizzo et al., (2011), the authors have already indicated that they will use and cite our manuscript in

the final version of their paper, indicating that at least someone is interested in our work. Please see http://www.atmos-chem-phys-discuss.net/11/C6743/2011/acpd-11-C6743-2011.pdf 2) In terms of analyzing existing spectral absorption and scattering data, this could readily be done. Specific areas of interest include reports of negative SAC's in conjunction with positive AACs for hematite-rich mineral dust. The question is if this would yield negative EACs that could cause blue sunsets on earth and Mars. However, we strongly feel that our manuscript should stay a "Technical Note" and the analysis of experimental data would only dilute our very focused mathematical manuscript. 3) However, we always enjoy a challenge! It is well known that in the Rayleigh regime (size parameter x«1), for wavelength-independent refractive indices SAC = 4 (why is the sky blue?) and AAC = 1. The reverse challenge to referee #2 is "What is EAC in the Rayleigh regime?". The answer is useful, but not obvious (at least for us), and can directly be derived from our Eq. (2h) as EAC = 1+3 SSA. We have inserted a brief section detailing this after Eq. (2h).

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 19213, 2011.