Atmos. Chem. Phys. Discuss., 9, C3115–C3116, 2009
www.atmos-chem-phys-discuss.net/9/C3115/2009/

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aerosol characterization in Northern Africa, Northeastern Atlantic, Mediterranean Basin and Middle East from direct-sun AERONET observations" *by* S. Basart et al.

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Received and published: 21 July 2009

Point 1. The referee doesn't specify which of the fine/coarse Aeronet products to compare our results to. In fact, AERONET posts both the "official" fine/coarse products from the Almucantar inversion (Dubovik method) and the direct-sun fine/coarse fraction retrievals (O'Neill algorithm). The latter products bear the statement "These data are PROVISIONAL only", that is, they still need to be validated.

As proposed in O'Neill, 2009 (reference included in the manuscript), the empirical

graphical method of Gobbi et al. (2007) could be represented by analytical functions in (α, α') space (the space formed by continuously differentiable Ångström exponent and its spectral derivative), and the outputs of the Gobbi's graphical method (used in our study) are a subset of the products retrieved from the SDA (Spectral Deconvolution Algorithm) combined with the FMC (Fine Mode Curvature) algorithm, both implemented by O'Neill. Therefore, the Aeronet products obtained by the O'Neill algorithm would be the most comparable to our results. In our opinion, considering the Aeronet O'Neill retrievals are "provisional" such a comparison appears to be beyond the scope of this paper. To be significant, a validation/comparison of our results and the "provisional" O'Neill ones would need a paper on its own. Therefore, we believe it is not useful to include such a validation in our paper.

Point 2. Fig. 7 will be substituted by a Table, the coordinates will be deleted in Table 1, and Figs. 5 and 6 will be modified to improve their appearance. Since the emphasis of the study is on coarse-mode mineral particles, we believe that it is not necessary to add the average annual fine fraction (per season) and the aerosol water AOD due to humidity growth. However, the average annual AOD (per season) is shown in Fig.5.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 7707, 2009.