

Authors' response to reviewers' comments to Atmos. Chem. Phys. Discuss., 9, 11753-11781, 2009 "Testing aerosol properties in MODIS (MOD04/MYD04) Collection 4 and 5 using airborne sunphotometer observations in INTEX-B/MILAGRO" by J. Redemann, Q. Zhang, J. Livingston, P. Russell, Y. Shinozuka, A. Clarke, R. Johnson, and R. Levy

We would like to thank the anonymous reviewer and Sasha Madronich for their constructive and concise criticism. Below, we have addressed each of the points raised by the reviewers.

Reviewer 1, anonymous (Atmos. Chem. Phys. Discuss., 9, C2277–C2278, 2009):

- 1) Reviewer Comment: An additional reference to the aerosol uncertainty issues raise by Schwartz (2004) is *McComiskey, A., S. E. Schwartz, B. Schmid, H. Guan, E. R. Lewis, P. Ricchiuzzi, and J.A. Ogren (2008), Direct aerosol forcing: Calculation from observables and sensitivities to inputs, J. Geophys. Res., 113, D09202, doi:10.1029/2007JD009170.*

Authors' Response: We have added this paper to our list of references and refer to it on page 3, line 12 of our revised manuscript.

- 2) In the Introduction the suggestion that fine mode fraction is an indicator of anthropogenic aerosols, while not coming from the authors, but apparently accepted by them, is troubling as this suggests that fine mode aerosols produced in nature are negligible compared to man-caused aerosols; in my opinion this hypothesis is difficult to defend.

Authors' Response: We understand the reviewer's concern with the general nature of our statement and have added the second sentence given (in italics) below to page 7, line 14 of the revised manuscript: "The underlying assumption in the use of FMF as a measure of the anthropogenic fraction of total aerosol loading is that the AOD in the fine mode is due solely to combustion-generated aerosol species, while the AOD in the coarse mode is due only to mechanically-generated, natural aerosols. *We expect this assumption to be true of most aerosol contributing to extinction in the INTEX-B/MILAGRO domain with the exception of rarely encountered volcanic sources and some clean air regions that tend to have very low relative contributions to AOD.*"

- 3) Explain the notation $\pm 0.03 \pm 0.05 \text{AOD}$.

Authors' Response: To clarify the notation, we have changed the expression itself to read $\pm(0.03+0.05\text{AOD})$ in accord with Remer et al.[2008] and we have added the following explanatory text to the manuscript: "Uncertainty range estimates of $\pm(0.03+0.05\text{AOD})$, i.e., the combination of an absolute error of 0.03 plus a relative error equal to 5% of the total MODIS-derived AOD are given as blue lines [Remer et al., 2005, 2008]." (see page 9, line 22).

Reviewer 2, S. Madronich (Atmos. Chem. Phys. Discuss., 9, C4059–C4060, 2009):

- 1) My only suggestion is to improve the title, which now has too many acronyms - some of which are known only to highly specialized researchers. Specifically, MOD04/MYD04 are mentioned (but not defined) on p. 11765, and certainly are not useful in the title.

Authors' Response: We concur with the reviewer and have changed the title of our manuscript to read: "Testing aerosol properties in MODIS Collection 4 and 5 using airborne sunphotometer observations in INTEX-B/MILAGRO".