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Comment

***Interactive comment on* “Simultaneous retrieval of aerosol and surface optical properties from combined airborne- and ground-based direct and diffuse radiometric measurements” by C. K. Gatebe et al.**

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This is a very interesting paper. I have only one comment related to Figs. 7 and 8. It is known that the retrieval of complex refractive index (e. g., the imaginary part) is a very difficult task, which requires polarization measurements and even then it is not always possible. I think, authors need to look back in both figures and check, if their measurement set-up is adequate to get the parameters presented in Figs. 7 and 8. Simulations with synthetic data (with account for measurement errors, cloud contamination, and unknown surface albedo) are needed to prove the concept. It looks like the values of

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single scattering albedo are underestimated in some cases (e.g., below 0.5). For the case of Mexico city, the single scattering albedo in lower atmospheric layers is higher as compared to the upper troposphere, which is usually not the case. Sections 4.2.2 and 4.2.3 must be expanded and the error analysis must be performed.

Interactive comment on Atmos. Chem. Phys. Discuss., 9, 26491, 2009.

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