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## ***Interactive comment on “NASA LaRC airborne high spectral resolution lidar aerosol measurements during MILAGRO: observations and validation” by R. R. Rogers et al.***

**R. Rogers**

raymond.r.rogers@nasa.gov

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We thank the reviewer for these useful comments. The technical comments have all been addressed. For the comment on the time notation, we chose to use fractional hour consistently throughout. The specific comments are addressed below.

SPECIFIC COMMENTS Page 8828 line 17: “The dry aerosol scattering measured by the nephelometer”. Was the air dried merely by its passage through the nephelometer (c.f. Waggoner, Ahlquist and Charlson, Appl. Opt. 2886-2889 (1972)) or was the air passed through a drying unit. Please describe briefly.

The sample was dried through ram heating and cabin temperature higher than ambient.

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A sentence has been added to clarify this in the paper.

P 8828 Eq. (3). This is a fairly generic equation for describing the effects of humidity on particle scattering. Given that there is a wide range of different behaviors reported in the literature for different aerosol types (e.g. sea salt versus continental sulfate), would the authors provide further comment on the range of applicability of this equation and of the values they have assumed for the gamma exponent?

Correction – the humidified suite was onboard the DC-8, not the C-130, which clarifies why an average gamma value for the campaign was used for these profiles. This average gamma value is representative of the aerosols in and near the Mexico City region, and are influenced by many aerosol types and mixtures over the campaign. As mentioned in McNaughton et al., [ACPD 2009], the f(RH) system was tested in its flight configuration, with the results showing scattering measurements for ammonium sulfate and sea salt (from a filtered North Pacific subtropical gyre seawater standard) to be within 25% of the values calculated from size distributions calculated for salt densities and optical properties at 80% relative humidity [McNaughton et al., ACPD 2009]. A sentence has been added clarifying the calibration of the f(RH) curve.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 8817, 2009.

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