Preliminary analysis of fine PM during the 2006 MILAGRO (MIRAGE) field campaign. PART I: DATA VALIDATION FOR AEROSOL MODELING.

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As part of the MIRAGE (MILAGRO, http://mirage-mex.acd.ucar.edu) field campaign, particulate matter in size ranges of 1, 2.5 μm was collected at the T1 site (located »35 km NE downwind Mexico City) from March 5th- 31st, 2006. Scientific objectives related to this database are focused on application of different aerosol modeling tools (Part II of this work). In this part a discussion of data validation and findings related is presented. Overall, highest concentrations of fine PM are present during the morning sampling periods (PM1, »90% and PM2.5, »70% of the time) suggesting a combination of transport of emissions from the Valley of México and combustion processes nearby T1 are occurring. Although electroneutrality balances are achieved for both PM size ranges on the different sampling periods, it is noted that levels of concentration (neq/m3) found at the MIRAGE site (100-500 neq/m3) are significantly lower than those observed in Mexico City, reported previously around 200-1000 neq/m3. A considerable amount of crustal species is observed in the 2.5-1 μm size range. Additional analysis of K/Na ratio supports this finding and also suggests the dominating emissions in PM1 are of anthropogenic origin while in the PM2.5-1 size range are of crustal origin.