Particulate absorption and its variation with mixing status observed in-situ over Mexico

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Light absorbing particles of urban and rural origin were measured in-situ from C-130 aircraft in the troposphere over Mexico during MIRAGE. Thermal analysis of aerosol size distributions and direct measurements of mutiwavelength visible light scattering and absorption enabled evaluation of optical properties of the strongly light absorbing carbon with and without volatile coating material. Absorption was reduced by 0-30% as particles were heated to 400 oC to evaporate those coatings. This preliminary analysis is being extended to identify effects of such factors as presence of refractory weakly-absorbing organic mass, thermal decomposition, pyrolysis and thermophoresis.