Fire and Air Quality in and Around Mexico City during MIRAGE

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Measurements of trace gases and aerosol optical and chemical properties from the C-130 suggest that the pollution in and around Mexico City during MILAGRO can be dominated by low temperature combustion of biomass (including coal, paper, etc.). Linear correlation is observed between the fire tracer HCN and, CO, NOy, aerosol scattering and organic content, and many NMHC. In the city, HCN concentrations are highly elevated suggesting that some of the fire source is within the Mexico City basin. For long-lived species (tau>several days), the slope of the correlation is consistent with previous laboratory and field measurements of the direct emissions from biomass burning. Scatter from the linear correlations are attributed to industrial (e.g. power plant) and vehicular emissions (using MTBE as a tracer), volcanic emissions(high SO2 & low NOx) and fresh fire plumes (as seen out the window).