Comparison of the ambient concentrations of selected VOC's during the MCMA 2003 and 2006 Field Campaigns.

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During the 2003 and 2006 Mexico City Metropolitan Area (MCMA) field campaigns the Aerodyne mobile laboratory traveled throughout the region making trace gas ambient air measurements. As part of those field campaigns, a proton transfer reaction mass spectrometer (PTR-MS) was deployed and used to monitor a suite of oxygenated and aromatic hydrocarbons, which included acetaldehyde, acetone, benzene, toluene and the C2 and C3-benzenes. Ambient concentration measurements for these species made during the 2006 field campaign are presented as a function of location and includes both on-road and fixed site data. For common fixed site monitoring sites, these data are compared to measurements made during the 2003 MCMA field campaign. These hydrocarbon measurements are examined relative to one another as well as to other important trace gas species such as formaldehyde, ozone and carbon monoxide. Correlations between the different trace gas species are examined and discussed in terms of our current understanding. For instance, the concentration of benzene is observed to be highly correlated with that of carbon monoxide implying that these two species share similar dominant source, most likely vehicles. The measured on-road ratio of benzene to toluene, however, differs significantly from that observed at the fixed sites, which implies that vehicle and non-vehicle sources of toluene are comparable in magnitude.