



## **Use of measured on-road emission ratios for evaluating a gas and particle mobile emissions inventory in a developing megacity**

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Modeling the impacts of air pollution from urban areas, and eventually our ability to predict those impacts, is an important research activity that requires detailed information on the properties of the emitted gases and particles. An assessment of the accuracy of predictions from complex models heavily relies on the quantification of the uncertainties in the main model parameters, and mobile emissions in particular. In 2002 and 2003 the Aerodyne Mobile Laboratory, AML, was deployed in the Mexico City Metropolitan Area (MCMA) to characterize on-road vehicle fleet emission indices for various vehicle classes. As part of the MCMA-2006/MILAGRO field campaign the AML was again deployed in various sites across the MCMA to characterize gases and aerosols using real-time trace gas and fine particulate matter (PM) instruments. We obtained on-road vehicle emissions data in fleet-average mode and the data is used to develop an emissions inventory for the MCMA. The emissions of gaseous species are based on the SAPRC99 chemical mechanism and the PM is partitioned in its primary organic, primary elemental carbon, and primary inorganic components. The data obtained by AML and by other groups in Mexico City have also been used to validate the city's official Emissions Inventory.