



An Overview of MILAGRO 2006 Campaign: Mexico City Emissions and their Transport and Transformation

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MILAGRO (Megacity Initiative: Local And Global Research Observations) is the first international collaborative project to examine the behavior and the export of atmospheric pollutants generated in megacities. The Mexico City Metropolitan Area (MCMA) – one of the world's largest megacities and North America's most populous city – was selected as the case study to characterize the sources and processes of emissions from the urban center and to evaluate the regional and global impacts of the Mexico City air pollution plume.

The measurement phase consisted of a month-long series of carefully coordinated observations of the chemistry and physics of the atmosphere in and near Mexico City during March 2006, using a wide range of instruments at ground sites, on aircraft and satellites. Three supersites were set up to examine the pollutant plume evolution. Additional platforms in or near Mexico City included mobile vans containing scientific laboratories and mobile and stationary upward-looking lidars. Seven instrumented research aircraft provided information about the atmosphere over a large region and at various altitudes. Satellite-based instruments peered down into the atmosphere, providing even larger geographical coverage. The overall campaign was complemented by meteorological forecasting and numerical simulations, satellite observations and surface networks. Together, these research observations have provided the most comprehensive characterization of Mexico City's urban and regional air pollution that will take years to analyze and evaluate fully.

Many interesting aspects of atmospheric chemistry in and near the MCMA are emerging and have already added significantly to our understanding of the chemical and physical properties of the city's reactive atmosphere and their impacts. This overview will present key results on meteorology and dynamics, emissions of gases and fine particles, measurements of volatile organic compounds and ambient particulate matter, urban and regional photochemistry, and aerosol radiative properties.