



An overview of the MILAGRO 2006 Campaign: Mexico City emissions and their transport and transformation

<http://www.firstlight.cn> 2010-09-16

MILAGRO (Megacity Initiative: Local And Global Research Observations) is an international collaborative project to examine the behavior and the export of atmospheric emissions from a megacity. 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, concentrations, transport, and transformation processes of the gases and fine particles emitted to the MCMA atmosphere and to evaluate the regional and global impacts of these emissions. The findings of this study are relevant to the evolution and impacts of pollution from many other megacities.

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, and enlisting over 450 scientists from 150 institutions in 30 countries. Three ground supersites were set up to examine the evolution of the primary emitted gases and fine particles. 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 the MCMA's urban and regional atmospheric composition and chemistry that will take years to analyze and evaluate fully.

In this paper we review over 120 papers resulting from the MILAGRO/INTEX-B Campaign that have been published or submitted, as well as relevant papers from the earlier MCMA-2003 Campaign, with the aim of providing a road map for the scientific community interested in understanding the emissions from a megacity such as the MCMA and their impacts on air quality and climate.

This paper describes the measurements performed during MILAGRO and the results obtained on MCMA's atmospheric meteorology and dynamics, emissions of gases and fine particles, sources and concentrations of volatile organic compounds, urban and regional photochemistry, ambient particulate matter, aerosol radiative properties, urban plume characterization, and health studies. A summary of key findings from the field study is presented.

[存档文本](#)