

Measurement of Aerosols and Trace Gases in Mexico City Outflow during Megacity Impacts on Regional and Global Environments-Mexico City Pollution Outflow Field Campaign (MIRAGE-Mex)

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This project will provide ground-based measurements of aerosols and trace gases during the Megacity Impacts on Regional and Global Environments (MIRAGE/MILAGRO) project. The instruments will be deployed at the ground-based super site north of Mexico City. Along with various other collocated measurements (including NSF-supported measurements of aerosol organic composition, volatile organic compounds, and organic nitrates), the data obtained and modeling performed will provide a very detailed picture of the concentrations and transformations of gaseous and particulate pollutants in the outflow region of a Megacity.

A Chemical Ionization Mass Spectrometer (CIMS) will be deployed to measure hydroxyl radical and peroxides, as well as sulfuric acid. A Particle-Into-Liquid Sampler (PILS) instrument will be used for rapid in-situ chemical analysis of aerosols, and additional instruments will measure gas-phase nitrogen oxides. Photochemical box models will be applied to synthesize these data.

This project will provide educational opportunities for several graduate students at the Georgia Institute of Technology, and will also develop collaborations with Mexican scientists.