

Characterization and Apportionment of Primary and Secondary Organic Aerosols during the MIRAGE-Mex Experiment Using GCMS and LCMS Methods

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This project will attempt to characterize the composition and sources of atmospheric aerosols during the Megacity Impacts on Regional and Global Environments, the Mexico City Pollution Outflow field campaign, by integrating gas chromatography mass spectrometry analysis of organic aerosols with liquid chromatography based methods that have been widely used in the aquatic chemistry field. The project will focus on polar molecules and macromolecules (molecular weights ranging from 300-2000 atomic mass units) which are believed to originate from atmospheric processing but are expected to exist in primary emissions.

This study is expected to result in the enhancement of tools used to study complex organic mixtures in atmospheric aerosols and lead to a greater understanding of the origin and composition of these aerosols, as well as their impacts on climate forcing, human health and the ecosystem.

A post-doctoral scholar and two undergraduate students will participate in atmospheric chemistry research under the auspices of this project. One undergraduate student will participate in the field operations of the project and a second will have the opportunity to work on analytical methods used for organic aerosol analysis.