

## **Airborne Measurements of Aerosol Physio-Chemistry and Optical Properties of Aerosols**

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This project is designed to conduct a comprehensive set of measurements of the optical and physical properties of aerosol particles using an instrument suite operated on the NSF C-130 aircraft during the 2006 Megacities Impacts on Regional and Global Environments (MIRAGE) Campaign to be conducted in Mexico City and the Intercontinental and Megacity Pollution Experiment (IMPEX). The instrument suite includes Condensation Nuclei Counters (CNCs), a Tandem Volatility Differential Mobility Analyzer (DMA), Optical Particle Counters (OPCs), aerodynamic particle sizing, a three-wavelength nephelometer, a three-wavelength particle soot absorption photometer (PSAP), and a Fast Mobility Particle Sizer (FMPS).

This combined instrumentation suite will allow measurements of ambient in-situ aerosol size-distributions, microphysical and optical properties, and physio-chemical characteristics. The results will be used to improve the understanding of changes in the mixing state of aerosols and their physical, chemical and optical properties over the urban-to-regional-to-global transition, and to verify and refine the interpretation of model and satellite products.

One post-doctoral student and one graduate student will receive support under the auspices of this project. Both will be involved in the field campaigns and in subsequent data analysis. Final data will be made available to the community via data archives and websites.