

## **MILAGRO Campaign Closing Ceremony Statement**

**(March 30, 2006, Mexico, D.F.)**

The largest attempt to characterize the atmospheric effects of a major megacity concludes today in the Mexico City Metropolitan Area (MCMA), the world's second largest megacity, to help understand air quality and climate in urban areas. Researchers from the U.S. Department of Energy (DOE), the Molina Center for Energy and the Environment (MCE<sup>2</sup>), the National Center for Atmospheric Research (NCAR), the National Aeronautics and Space Administration (NASA), Mexican Scientists, and scientists from a number of European nations all have successfully completed the first stage of this unprecedented effort by gathering data from both ground and airborne platforms and collecting samples for further detailed analysis.

The effort is part of MILAGRO, the Megacity Initiative: Local and Global Research Observations program, funded by the National Science Foundation, NASA and the Department of Energy, and the Mexican Agencies, which include National Institute of Ecology of SEMARNAT, CONACyT, and PEMEX. This effort was coordinated by Dr. Luisa T. Molina of the Molina Center for Energy and the Environment, Dr. Jeff Gaffney of the DOE Argonne National Laboratory, and Dr. Sasha Madronich of the National Center for Atmospheric. The effort included a number of aircraft operations that were based in Veracruz, three major field sites, mobile laboratories, as well as a number of educational activities that were held in Mexico City during the month of March.

Large urban areas are known to be significant sources of aerosols and precursor gases that can affect regional air quality and global climate. For many years, air quality has been one of the main environmental issues in urban areas, particularly in megacities, defined as areas with more than 10 million residents. Population growth and increasing industrialization have resulted in a higher demand for energy, greater use of fossil fuels and more emission of pollutants into the atmosphere. The main emissions that affect air quality include sulfur oxides, nitrogen oxides, carbon monoxide and atmospheric particles, or aerosols, mostly consisting of soot, sulfates, nitrates and organic matter. The completion of the data gathering is just the beginning as scientists from Mexico and the United States and Europe will be studying and examining the results of this study for years to come. The goal is to determine and understand key atmospheric processes of aerosols and gases as they relate to weather, climate, and urban and regional air quality.

The MILAGRO campaign has successfully brought together an international research team of hundreds of scientists and students to the Mexico City Metropolitan Area, where they have collaborated with a large group of Mexican investigators and Mexican governmental agencies in both scientific and educational activities. This important activity not only is providing the world community with a critical data set for evaluation of atmospheric processes of relevance to the world's megacities, but also is providing important scientific training to the many students working on the project. The mentoring by MILAGRO scientists will continue long after this initial data gathering as the results are evaluated and modeled.

The initial goal of MILAGRO was to conduct measurements of pollutants. Now those results will be studied to understand the atmospheric processes involved in their distribution in the environment and their impacts. The four simultaneous measurement campaigns that were successfully completed in March 2006 include:

- [MCMA-2006](#) that focuses on the generation processes of pollutants in the MCMA, their dispersal, transport and transformation in the atmosphere, the exposure patterns and effects on human health;
- [MIRAGE](#) that is aimed at understanding the chemical and physical transformations of the gaseous and particulate pollutants;
- [INTEX-B](#) that focuses on the long-range transport of pollution; and
- [MAX-Mex](#)– that is examining and characterizing aerosols, especially their transport, transformation and chemical and optical properties.

The current research is a more extensive version of MCMA-2003 Campaign coordinated by Dr. Luisa T. Molina which involved the first extensive environmental measurements in the MCMA. The MILAGRO science teams have spent the past two years designing the details of the research effort so that they dovetail into a comprehensive measurement plan. They have now completed the first part of the study, gathering the data and samples, and beginning mentoring students in educational activities.

Now the real work begins in evaluating the results and continuing the strong collaboration between all the researchers in MILAGRO.