

***REACTIVE NITROGEN CHEMISTRY IN MEXICO CITY
OUTFLOW - A UNIQUE CASE***

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REACTIVE NITROGEN CHEMISTRY IN MEXICO CITY OUTFLOW - A UNIQUE CASE

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The chemistry and fate of reactive nitrogen emitted from Mexico City is examined. Measurements of NO_x, NO_y, PANs, alkyl nitrates, HNO₃, and particulate nitrate were made on board the NCAR/NSF C-130 aircraft during the 2006 MILAGRO campaign. Near- and far-field outflow from the Mexico City metropolitan area was probed by the C-130 ranging from city overflights to a distance of 1000 km from the city. Reactive nitrogen and CO measurements made on board the DOE G-1 aircraft are also used. In addition, Mexico City outflow was successfully tagged by two radio controlled CMET Balloons and the same air was measured on two consecutive days during the March 18/19 outflow event. The reactive nitrogen data is examined with regard to NO_y partitioning, ozone formation efficiency, and the ultimate fate of NO_y, as a function of time and distance from the city. The NO_x sequestration chemistry is examined using the WRFChem model. Because of the unique conditions in Mexico City with regard to altitude and climate as well as the high particle loading in the area the chemistry in the Mexico City outflow is very different compared to other mega-cities such as New York City. These differences and the resulting impacts on the region around the city will be discussed.