

Peter H. Daum¹

Atmospheric Sciences Division
Environmental Sciences Department
Brookhaven National Laboratory
Upton, New York.

From August 1 to September 15, 2000 over 250 scientists and technicians from over 40 organizations participated in TexAQS 2000, a major air quality study focused on Houston, Texas. The study was one of the largest, most comprehensive and sophisticated studies of urban air quality that has ever conducted in the US. The study included over 300 scientists and technicians from over 40 organization including state and federal agencies, universities and industries. For the most part each of these organizations came with their own funding and set of objectives with a common interest in understanding various features of the air quality problems in the US..

Houston currently has one of the most severe ozone problems in the US, and one of the primary motivations for conducting the study was to provide the state and local organizations responsible for addressing this problem with the scientific and technical information necessary to develop an effective control strategy. The scientific community was attracted to the study because there are two unique features to the problem that are not seen elsewhere. First, the region contains an unusual mix of sources. In addition to the usual mix of NO_x and VOC from transportation, the greater Houston area contains significant point sources of NO_x, from power plants, VOC from the petrochemical industry, and biogenic VOC from the lush vegetation in the area. This leads to an observed VOC/NO_x 2-4 x higher than typically found in urban areas and this will have a significant effect on the rate and efficiency of ozone formation. Second, previous studies have found that ozone episodes in the Houston area are frequently association with land sea/breeze flow reversal, and this has interesting implications for the many cities in coastal regions that have air quality issues.

Resources for the program included five aircraft; major chemistry sites at Laporte airport adjacent to the Houston Ship Channel, and on the 62nd floor of Williams Tower on the west side of Houston; EPA funded (U. of Texas GC-ARCH Program) aerosol/chemistry sites located up-in- and downwind wind of the Ship Channel, and; a

well developed ozone/aerosol monitoring network supported by TNRCC, the City of Houston, and a consortium of industries in the Houston area. Meteorological resources included five wind profilers, and three rawinsonde launch sites. Conditions were ideal for an air quality study with a major O₃ episode occurring during late August, early September. The large array of surface and airborne measurements deployed in the program resulted in an unprecedented characterization in space and time, of the concentrations of O₃/aerosol precursors, intermediates, and product species in eastern Texas over a range of conditions.

ACKNOWLEDGEMENTS

The author gratefully acknowledges the support of the Texas Natural Resource Conservation Commission, the Department of Energy, the Environmental Protection Agency, the National Oceanic and Atmospheric Administration, and numerous other state and local organizations for making TexAQS 2000 possible.

¹*Corresponding author address:* Peter H. Daum, Atmospheric Sciences Division, Building 815E, Brookhaven National Laboratory, Upton, NY 11973; e-mail: phdaum@bnl.gov.