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## 1. Data Set Description:

During the summer of 2000, a team of investigators collected gas and particle phase measurements in a tunnel in the Houston area. The primary objective of this study was to provide data for estimating vehicular emission factors and composition profiles, as part of the TexAQS2000 program. Measurements were collected on each day during the August 29, 2000 (Tuesday) through September 1, 2000 (Friday) period. Sampling was conducted during the 1200 - 1400 CDT and 1600 - 1800 CDT time periods each day. Measurements collected during the study included nitrogen oxides, carbon dioxide, carbon monoxide, ammonia, fine particulate matter (PM<sub>2.5</sub>), and individual hydrocarbon species.

### The data set should be cited as follows:

Allen, D., M. Fraser, J. Price, and W. Lonneman. 2002. NARSTO EPA\_SS\_HOUSTON TEXAQS2000 Washburn Tunnel Air Quality Monitoring Data. Available on-line via [NARSTO Data and Information](#) at the Atmospheric Science Data Center at NASA Langley Research Center, Hampton, Virginia, U.S.A.

The [Houston Supersite](#) is one of several Supersites that was established in urban areas within the United States by the U.S. Environmental Protection Agency (EPA) to better understand the measurement, sources, and health effects of suspended particulate matter (PM). The overall goals were to characterize the composition and identify the sources of particulate matter in Southeastern Texas, to develop and test new methods for characterizing fine particulate matter, and to collect data on the physical and chemical characterization of fine particulate matter that can be used to support exposure and health effects studies.

Specific objectives were to: 1) Collect physicochemical data on fine PM over a 16 month sampling period (August 2000 - November 2001) in Southeastern Texas; use the data to identify sources and to characterize spatial and temporal variability in fine PM source contributions and composition. 2) Compare the spatial and temporal variability in fine PM source contributions and composition in southeastern Texas to variability throughout the United States. 3) Examine the physical and chemical processes that govern PM formation and transformation in Southeastern Texas. 4) Develop a combined database on PM, gas phase air pollutants and meteorological variables, suitable for testing models of the formation and fate of fine PM; this objective was achieved by coordinating with a large, integrated ozone and PM field study conducted during the summer of 2000.

The [U.S. EPA Particulate Matter \(PM\) Supersites Program](#) was an ambient air monitoring research program from 1999-2004 designed to provide information of value to the atmospheric sciences, and human health and exposure research communities. Eight geographically diverse projects were chosen to specifically address these EPA research priorities: (1) to characterize PM, its constituents, precursors, co-pollutants, atmospheric transport, and its source categories that affect the PM in any region; (2) to address the research questions and scientific uncertainties about PM source-receptor and exposure-health effects relationships; and (3) to compare and evaluate different methods of characterizing PM including testing new and emerging measurement methods. Data collected by these projects are publicly available at the NARSTO Permanent Data Archive, NASA Langley Atmospheric Science Data Center. Data users should acknowledge the U.S. EPA Particulate Matter (PM) Supersites Program and the project investigator(s) listed below.

## 2. Sample Data Record/Data Format:

Data files are in the NARSTO Data Exchange Standard (DES) format that is described in detail on the [NARSTO Quality Systems Science Center \(QSSC\) web site](#). The files follow a tabular layout and are stored as ASCII comma-separated values files (.csv). The DES does not rely on row position to identify specific information, but uses a tag to describe the information contained in the row. The DES is a self-documenting format with three main sections: the header contains information about the contents of the file and the data originator; the middle section contains metadata tables that describe/define sites, flags, and other codified fields; and the final section is the main data table that contains key sampling and analysis information and the data values. Descriptions of the standardized metadata fields are also available on the QSSC web site.



### 3. References:

- Garnes, L.A. 2001. Size Distributions of Organonitrates in Ambient Aerosol Collected in Houston, Texas. M.S. Thesis, Chemical Engineering, University of Texas, Austin, USA.
- Laurent, J-P. 2002. Size-distributions of carbonyl and aliphatic groups in ambient aerosol collected in Houston, Texas. M.S. Thesis, Environmental and Water Resources Engineering, University of Texas, Austin, USA.

### 4. Contact Information:

#### Investigator(s) Name and Title:

Name: Fraser, Matthew  
E-mail: mpf@rice.edu

Name: Lonneman, William  
E-mail: Lonneman.Bill@epamail.epa.gov

Name: Price, Jim  
E-mail: jprice@tnrcc.state.tx.us

Name: Allen, David  
E-mail: allen@che.utexas.edu

#### Data Center:

The User and Data Services Office at the Langley Atmospheric Science Data Center is involved throughout the system to monitor the quality of data on ingest, to ensure prompt replies to user questions, to verify media orders prior to filling them, and to ensure that the needs of the users are being met.

If you have a problem finding what you need, trouble accessing the system, or need an answer to a question concerning the data or how to obtain data, please contact the User and Data Services staff.

Telephone: (757) 864-8656  
FAX: (757) 864-8807  
E-mail: [support-asdc@earthdata.nasa.gov](mailto:support-asdc@earthdata.nasa.gov)  
URL: <http://eosweb.larc.nasa.gov>

### 5. Acknowledgement:

When data from the Langley Atmospheric Science Data Center are used in a publication, we request the following acknowledgment be included: "These data were obtained from the NASA Langley Research Center Atmospheric Science Data Center".

The Langley Data Center requests a reprint of any published papers or reports or a brief description of other uses (e.g., posters, oral presentations, etc.) of data that we have distributed. This will help us determine the use of data that we distribute, which is helpful in optimizing product development. It also helps us to keep our product-related references current.

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Langley DAAC Help Desk: Phone (757) 864-8656; E-mail [support-asdc@earthdata.nasa.gov](mailto:support-asdc@earthdata.nasa.gov)

