


The HEI Air Quality Database

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HEI Workshop
 Air Quality Data in Health Effects Research

Newton, MA
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PM and Related Data

- EPA's Speciation Trends Network (and Supplemental Sites)
 - Meta data
 - Site characteristics
 - Population
 - Emissions
 - Measurements
 - Ambient measurements of PM and components
 - Carbon blanks
- Gases (SLAMS/NAMS/PAMS): SO₂, O₃, NO_x, CO
- Meteorology (EPA or NCDC)



http://hei.aer.com

HEI Air Quality Database

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Please send comments, suggestions, and bug reports to sour@hei.com

- About the Data
- STN Sites
 - Site browser
 - Site characteristics
 - Data characteristics
 - Create a station list
 - Look up site characteristics by station number
- Air Quality (PM and gas) and Meteorology Data Query
 - Download query results
- Advanced Site and Data Query
- Meta Data Lookup Tables
- Manage Background Queries and Saved Site Lists
- Help and User Manual
- Other data

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Locations of STN Core Sites

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Site Browser: sulfate map
 (2005 average concentration in µg/m³)




Base map:

Spatial Distribution of Annual PM_{2.5} Sulfate (2005)

"Mouse over" feature

Selection of base maps

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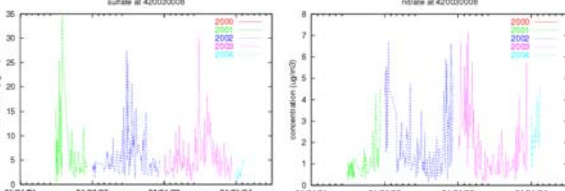



Click on Site to See Summary Graphics

- Pie chart

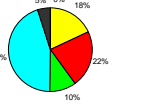
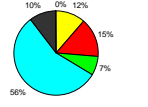
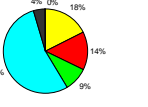
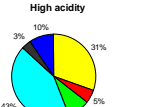

Sulfate	5.4
Nitrate	1.8
Ammonium	2.2
CM	3.9
EC	0.6
Other	0.1
- Time Series

sulfate at 420030008
 nitrate at 420030008

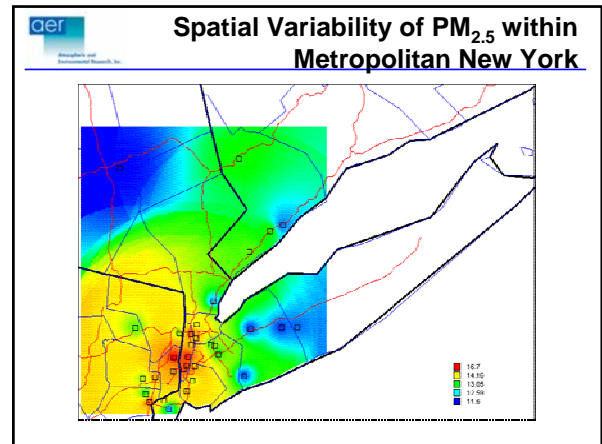
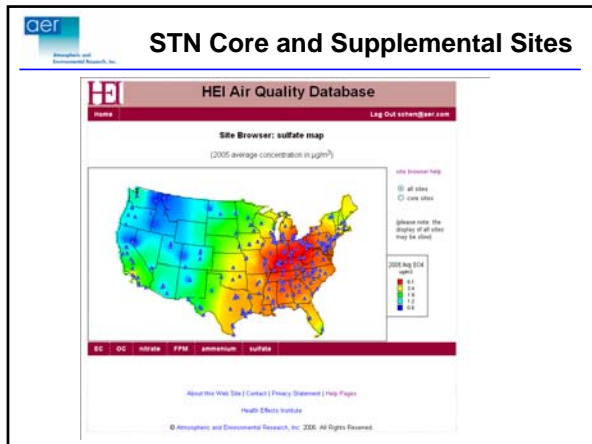




PM Composition Varies Among Cities

EI Cajon, CA High nitrate 	Commerce City, CO High EC 	Kansas City, KS High OM 
Gulfport, MS High acidity 	Pittsburgh, PA High sulfate 	

Legend: Sulfate (yellow), Nitrate (red), Ammonium (green), CM (cyan), EC (black), Other (blue)



- ### Speciation Sites Geared Towards Population Exposure Monitoring
- **Monitoring Purpose***
 - Population exposure: 237 sites (84%)
 - Highest concentration: 35 sites (12%)
 - Transport: 26 sites (9%)
 - **Setting**
 - Urban: 121 sites (42%)
 - Suburban: 113 sites (40%)
 - Rural: 49 sites (17%)
 - **Land use**
 - Commercial: 91 sites (32%)
 - Residential: 127 sites (45%)
 - Agricultural + industrial + mobile + other: 65 sites (23%)
- * Each site can have more than one monitoring purpose

Select Sites with Certain Characteristics

• click on “Latitude/Longitude” or “Cities” tab...

- ### Some Speciation Sites Have Co-located Measurements
- **Gaseous Pollutants**
 - Ozone: 135 sites (56%)
 - NO_x: 95 sites (39%)
 - CO: 55 sites (23%)
 - SO₂: 70 sites (29%)
 - All 4 pollutants: 24 sites (10%)
 - None of the 4 pollutants: 92 sites (38%)
 - **Meteorology**
 - Temperature: 241 (100%)
 - Pressure: 214 (88%)
 - RH: 54 (22%)
 - Wind speed: 75 (31%)

Finding Sites with Certain Data Characteristics

- Co-located measurements
- Measurement frequency
- Statistics of data

