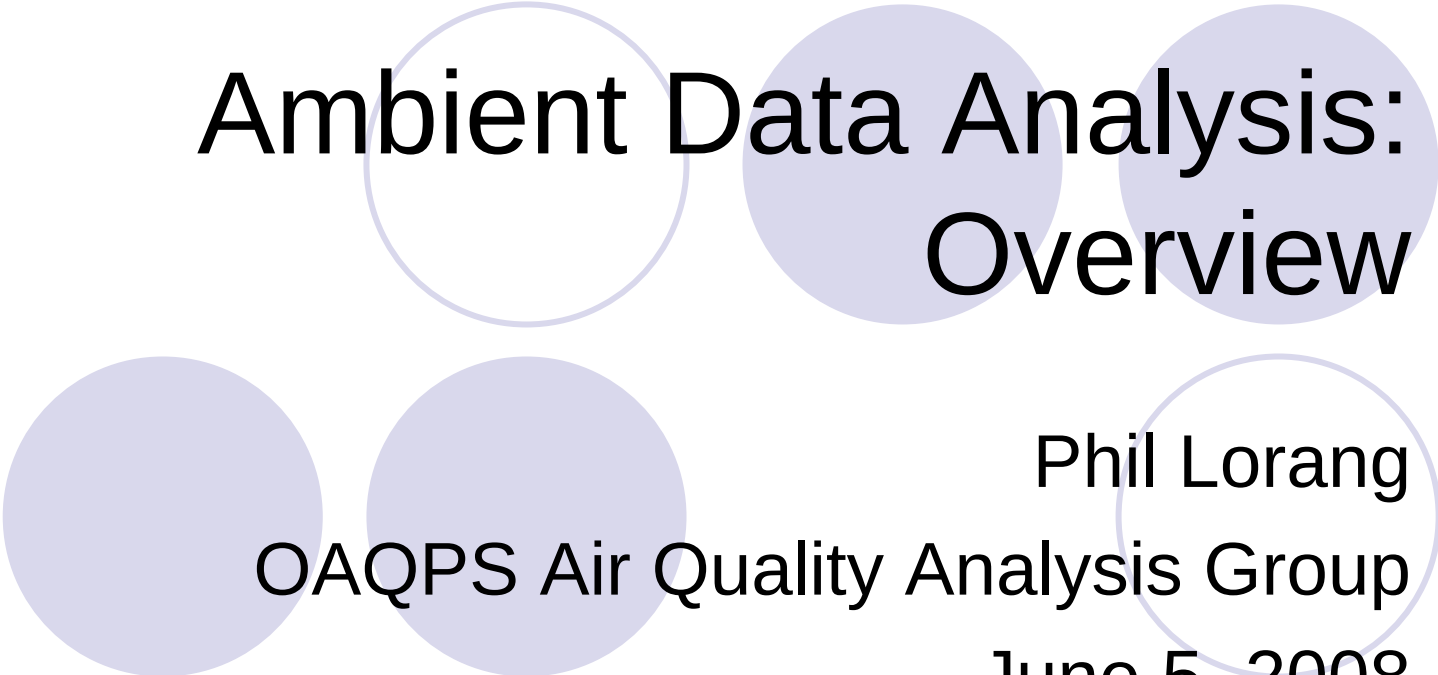


US EPA ARCHIVE DOCUMENT



Ambient Data Analysis: Overview

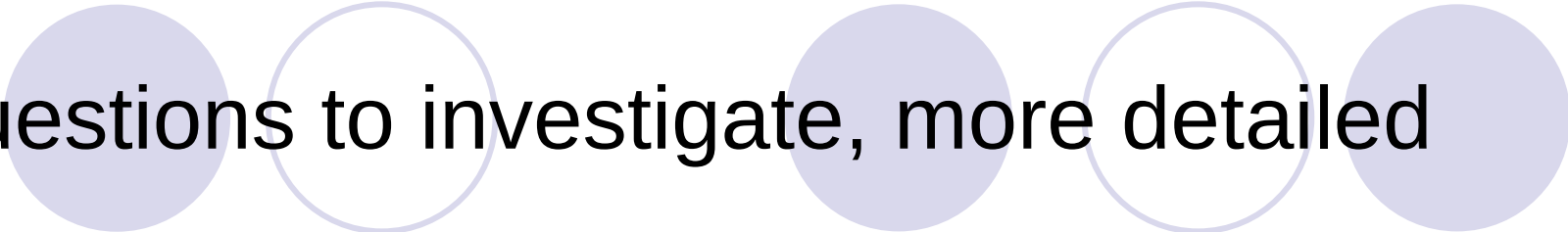
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OAQPS Air Quality Analysis Group
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Session Objectives

- Meet each other
- For the non-analysts in the audience:
 - Introduce data analysis concepts
 - Stimulate your interest
 - Help you converse with your own analysts
- For the analysts in the audience:
 - Share a few analytical approaches and data products that may not yet be familiar to you
 - Find out how far you are in developing a conceptual model for your area and supporting it via data analysis
- Answer your questions on anything related to data analysis, time permitting

What are the goals of air quality data analysis?

- The goals at this stage (before writing down a conceptual model or doing air quality modeling):
 - To gain insight on what's happening with air pollution in your focus area
 - What's the problem?
 - What's causing the problem?
 - Also, to appreciate the uncertainties within the data and in conclusions formed from the data, and whether and how they could be reduced (if this is possible)
- Later, another goal will be to validate/improve your air quality modeling platform



Questions to investigate, more detailed

- What data resources are available?
- Which way does the wind blow, and when?
- How high are concentrations at the monitors?
- How do concentrations vary by location and time? Do they vary together?
- What is the composition of the PM?
- Do different pollutants have common sources?
- What are the common and non-common sources? Where are they?
- Are the answers different in different seasons?
- Was the year under study typical or atypical?
- What can be inferred about locations without monitors?

Many types of data and ready-to-wear data products are available

- Routine air monitoring data – yours, ours, and others’
 - PM2.5 mass and species, PM10, ozone, HAPs, other gases, wet deposition, etc.
 - Archived PM filters
 - Important to ask about and understand the “meta data”!
 - Multiple websites are available to help summarize and visualize the data, before using a spreadsheet or statistical software on your own
- Meteorological data
 - National Weather Service (complete met); OAQPS keeps a “most used variables” data set current which could be shared.
 - At NCORE and other monitoring sites (limited met)
- Emission inventory data
 - Point sources and county totals: tables and visualizations
 - Gridded versions, with as much detail as you can handle
- Census data, traffic estimates, land use types, etc.
- EPA-prepared nation-wide estimates of concentrations:
 - NATA for HAPs
 - CDC PHASE for ozone and PM2.5
 - Predictions of future-year ozone and PM2.5, from national rule projects

Many types of local analysis can shed light on the detailed questions

- Cross-pollutant correlations
- Temporal patterns
- Spatial interpolation of air concentrations
- Model/monitor data fusion
- Trajectories
- Emissions summaries and visual displays
- Drilling down through NATA outputs
- Meteorological “normalization” of AQ trends
- Wind and pollution roses
- Non-parametric regression to identify source areas
- Source-receptor modeling to identify source types
- Urban increments
- Land use regression modeling
- Air quality modeling
 - Gridded
 - Dispersion
 - Hybrid



Session Plan



- 3 Presentations

- Getting to the data and to pictures of the data

- David Mintz, OAQPS

- Source Apportionment: Baltimore Example

- Ellen Baldrige, OAQPS

- Data Analysis for MP Planning (including non-parametric regression)

- Donna Kenski, LADCO/MRPO

- Panel discussion, including more OAQPS practitioners: Q&A