

# U.S. EPA PM<sub>2.5</sub> Forecasting Plans and Activities

## Major Steps in Developing PM<sub>2.5</sub> Forecasting Methods

1. Develop a historical database with PM<sub>2.5</sub> (FRM and continuous) and meteorological data.
2. Develop climatology to understand the characteristics and frequency of PM<sub>2.5</sub> episodes.
3. Conduct analyses of the air quality and meteorological data to understand the processes that produce PM<sub>2.5</sub> episodes in a particular region (i.e., a conceptual model).
4. Develop forecasting methods or tools based on the conceptual model, data availability, complexity of the PM<sub>2.5</sub> episodes, and other factors. Potential types of methods include criteria and statistical equations.
5. Set up forecasting pilot program at STI's office. (The methods will be transferred to your agency at the end of the pilot program).
6. Conduct PM<sub>2.5</sub> forecasting during late-winter and spring 2003 and send the forecast daily to your organization. STI staff will be available to answer questions and help educate your staff about PM<sub>2.5</sub> forecasting. During the pilot forecasting, no forecasts will be released to the public without your approval and acceptance.
7. Evaluate forecasts using several different verification metrics. Conduct an independent evaluation of the forecast accuracy and performance.

## Deliverables

Deliverables from this project will directly help you set up or enhance your local PM<sub>2.5</sub> forecasting program and include the following:

- Report that discusses all aspects of the forecasting development (analysis and guidelines). The report will include data sets, conceptual models, statistical results, and final forecasting tools and will contain sufficient detail to educate your agency about the forecasting tools.
- Daily PM<sub>2.5</sub> forecasts for current- and next-day concentrations for late-winter and spring 2003.
- Centralized forecasting software system that provides forecast guidance to your local forecasters and helps lead them through the daily forecasting process.

## Contacts

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Other subcontractors: Joe Cassmassi (South Coast AQMD), Bill Ryan (Penn State), and Battelle

## **Information Needed**

Air quality data and other relevant information are needed to develop forecasting techniques and to operationally forecast PM<sub>2.5</sub> each day. Listed below are the data and information needed from your agency.

### **One-time requests (Winter 2003)**

1. Any historical continuous (hourly) PM<sub>2.5</sub> and PM<sub>10</sub> data collected at your air quality sites that are not currently in EPA's Air Quality System (AQS) database, as well as details about the sites. We prefer to receive the data in the raw data format common to the Aerometric Information Retrieval System (AIRS) and AQS.

Details:

- List of continuous sites and monitoring equipment at each site
  - Site location information (latitude, longitude, etc.)
  - Information describing quality control applied to these data
  - List of personnel to contact regarding monitoring or data issues
2. Information on any existing forecasting programs, including information on how the predictions are generated and any specific local tools that are currently used.

Details:

- Any reports or articles on air quality and/or meteorology in your region
  - List of personnel to contact regarding air quality or meteorological issues
3. Any information about your outreach program for PM<sub>2.5</sub> or planned use of the PM<sub>2.5</sub> forecasts.

Details:

- List of people and organizations to receive the daily forecast. Please include name/organization, phone number, and e-mail address.

### **Operational requests (present-April 2003)**

1. Real-time hourly PM<sub>2.5</sub> and PM<sub>10</sub> data sent to the AIRNow Data Management Center (DMC). Ideally, these data are already automatically being delivered via FTP on an hourly basis to the DMC in the AIRNow OBS data file format. If this process is not already occurring, then we ask that you focus on implementing this data transfer before working on any of the other requests mentioned in this document.
2. To the extent possible, participate in periodic discussions about the PM<sub>2.5</sub> forecasts.

Please send this information to:

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