

PM SUPERSITES PROGRAM BACKGROUND

The “PM Supersites” is an ambient monitoring research program that will provide information of value to the atmospheric sciences, and human health and exposure research communities.

Based on an extensive review of the scientific criteria and standards for PM, on July 18, 1997, the EPA Administrator published revised National Ambient Air Quality Standards (NAAQS) for PM and added standards for PM_{2.5}. In taking this action, the Administration recognized the scientific uncertainty associated with effects, exposure, concentrations, and source-receptor relationships, as well as management alternatives for PM_{2.5}. These revised standards, and the associated scientific findings and uncertainties, stimulated national concern about exposure to, and health effects from, PM. This concern resulted in Executive and Congressional direction and funding to EPA. In its direction, Congress called for a broad spectrum of research by parties within and outside EPA based on recommendations prepared by the National Research Council (NRC) and funds appropriated by Congress for EPA. The success of much of the intended research depends on the availability of air pollution samples and data obtained through ambient air quality monitoring. Congress emphasized that the Agency is to be guided by the National Research Council's Committee on Research Priorities for Airborne Particulate Matter and the Committee's recommendations contained in the March 1998 report “Research Priorities for Airborne Particulate Matter: I. Immediate Priorities and a Long-Range Research Portfolio.” Electronic copies of this and the second report in the subject series, released in August 1999, “Research Priorities for Airborne Particulate Matter: II. Evaluating Research Progress and Updating the Portfolio” can be obtained from “<http://www.nap.edu>”. To plan and prioritize activities, EPA developed a PM “Supersites Conceptual Plan” (U.S. EPA, Office of Air Quality Planning and Standards and Office of Research and Development). The PM Supersites Conceptual Plan benefitted from scientific discussions held during a public PM Measurements Research Workshop held in Chapel Hill, N.C. on July 22 and 23, 1998, which was attended by about 200 members of the atmospheric, exposure, and health effects research communities. To commence the PM Supersites Program, EPA selected two initial sites: Atlanta GA and Fresno CA. These sites, henceforth referred to as Phase I Supersites, were non-competitively selected by virtue of 1) ongoing and planned research activities (objectives for which very closely align with those of the PM Supersites Program), and 2) distinctly different airsheds (e.g., atmospheric chemistry, sources, etc.) represented. Seven additional sites, henceforth referred to as Phase II Supersites, were competitively selected cooperative agreements awarded in January 2000. The Phase II Supersites are as follows:

Location	Institution	Principal Investigator
Baltimore MD	University of Maryland at College Park	John Ondov
Fresno CA	Desert Research Institute	John Watson
Houston TX	University of Texas at Austin	David Allen
Los Angeles CA	University of California at Los Angeles	John Froines
New York NY	University at Albany, State University of New York	Kenneth Demerjian
Pittsburgh PA	Carnegie Mellon University	Spyros Pandis
St. Louis MO	Washington University	Jay Turner

Each Phase II recipient developed, as part of the pre-award application competition, a project-specific hypothesis-based data analysis plan, details of which were incorporated into each Supersite application. These hypotheses were developed by each recipient, and can be categorized according to the three general program objectives defined in the PM Supersites Conceptual Plan:

- (1) Characterize particulate matter: to obtain atmospheric measurements to characterize PM, its constituents, precursors, co-pollutants, atmospheric transport, and source categories that affect the PM in any region. This information is essential for understanding source-receptor relationships and the factors that affect PM at a given site (e.g., meteorology, sources, transport distances). This information is also essential for improving the scientific foundation for atmospheric models that investigate exposure and risk management questions.
- (2) Support health effects and exposure research: to obtain atmospheric measurements to address the research questions and scientific uncertainties about PM source-receptor-exposure-effects relationships. Examples of these questions include, "What is the relationship between sources, ambient PM concentrations, human exposures, and health effects such as respiratory tract disease and mortality?" and "What is the biological basis for these relationships?"
- (3) Conduct methods testing: to obtain atmospheric measurements that will compare and evaluate different methods of characterizing PM (e.g., emerging sampling methods, routine monitoring techniques, and Federal Reference Methods). Testing new and emerging measurement methods ultimately may advance the scientific community's ability to investigate exposure and effects questions significantly.

To augment Phase I and II project-specific data analyses, EPA solicited applications (7/00 through 9/00) for an “Integrated Data Analysis Project” (IDAP). The principal goal of PM Supersites IDAP is to address each of the three program objectives, as described above, from a broader (i.e., national, regional) perspective that requires synthesis of data beyond that collected by any individual Supersite. Award of this ‘third phase’ cooperative agreement is expected during March / April 2001.