

MARAMA

Mid-Atlantic
Regional Air
Management
Association



Delaware Dept. of Natural Resources and Environmental Control, Air Quality Mgt. Section.
North Carolina Dept. of Environment and Natural Resources, Division of Air Quality
Virginia Dept. of Environmental Quality, Division of Air Program Coordination
New Jersey Dept. of Environmental Protection, Office of Air Quality Mgt.
West Virginia Dept. of Environmental Protection, Division of Air Quality
Pennsylvania Dept. of Environmental Protection, Bureau of Air Quality
Maryland Dept. of the Environment, Air & Radiation Mgt. Admin.
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MARAMA's Particulate Matter (PM_{2.5}) Data Analysis Project

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Purpose: The purpose of this project is to analyze PM_{2.5} mass and speciation data in the MARAMA region in support state and local PM_{2.5} forecasters, planners, and air quality managers.

Data Analysis to Support Forecasters: Forecasters need to know today's PM_{2.5} concentration to forecast tomorrow's PM_{2.5} concentration. While continuous PM_{2.5} monitors provide real-time data, continuous data are often not "FRM-like" (i.e. consistent with what an FRM monitor would measure if FRM data were available.) To assist forecasters with the correlation problem, MARAMA analyzed data from FRM and continuous monitors in the region and prepared a draft report titled *Correlating Federal Reference Method and Continuous PM_{2.5} Monitors in the MARAMA Region*. The report:

- Summarized the types of FRM and continuous PM_{2.5} monitors operated by state and local agencies in the MARAMA region,
- Described a method for correlating FRM and continuous monitors, and
- Provided preliminary correlations for eleven monitoring sites.

The report showed, that for most sites, a single correlation equation applied year-round is not adequate to capture the seasonal variability between FRM and continuous monitors. The analysis showed that during summer months, FRM and continuous data usually correlate quite well. This is "good news" since the worst PM_{2.5} air quality is usually observed in the summer. On the other hand, the analysis found that FRM/continuous monitor correlations are often poor in non-summer months. Winter correlations can be so poor that they do not meet EPA's Data Quality Objectives. At some sites, large adjustments are needed to make continuous data "FRM-like" in the winter and in other months. This is "bad news" since agencies are uncomfortable making large corrections to real-time data and bad PM_{2.5} air quality is observed in non-summer months.

MARAMA will seek supplemental grant funds from EPA to finalize its draft report on FRM/continuous monitor correlations.

Data Analysis to Support Air Quality Planners and Managers: In addition to analyzing PM_{2.5} data to support forecasters, MARAMA has begun a project to analyze PM_{2.5} mass and speciation data to support air quality planners and managers. This project will help state and local air quality agencies better understand the nature of PM_{2.5} pollution in the MARAMA region. PM_{2.5} data will be analyzed to determine how PM_{2.5} concentrations vary in time (day of week and seasonally) and spatially (from state to state, urban vs. rural, etc.). The relationships between high PM_{2.5} concentrations and atmospheric constituents will be examined through an analysis of speciated data. MARAMA will work closely with state and local agencies to develop a region-wide "data analysis team" of state and local data analysts. MARAMA will host conference calls to encourage and coordinate the analysis of PM data. The first in a series of conference calls for this project was held April 12, 2004.

Contact Information: For more information about MARAMA's PM_{2.5} Data Analysis Project, please contact Bill Gillespie at MARAMA at: bgillespie@marama.org or (410) 467-0170.