

ATTACHMENT 4

General characterization of PMc as found in the U.S., based upon data from current network of PM₁₀ and PM_{2.5} monitors

Figures 1 - 34.

Data used in Figures 1 - 34 include PM_{10-2.5} and PM_{2.5} data for calendar years 2000-2002 extracted from EPA's Air Quality System (AQS) on May 28, 2003. Analysis for Figures 1-20 by Schmidt et al. (2003).

Figures 1 - 7. Distribution of Monthly Average PM_{10-2.5} Concentrations by HEI Region

Figures 1 - 7 illustrate monthly PM_{10-2.5} and PM_{2.5} distributions for each Health Effects Institute (HEI) region. The boxes represent the interquartile range (25th to 75th percentiles) of each monthly distribution and the line inside the box is the median of the distribution. The trend line represents the mean, and the number above each box represents the number of 24-hour average observations that were used to generate each box plot. The collection of urban monitors are summarized separately for each HEI region. Monitors were grouped by HEI region, and all valid 24-hour average values at each monitor were used in the plots.

Figures 21-34. Average Hourly PMc Concentrations

Figures 21-34 illustrate estimates of seasonal PMc at the hourly level by Metropolitan Statistical Area (MSA). PMc were calculated by taking data from sites with collocated continuous data for PM₁₀ and PM_{2.5}, converting PM₁₀ to ltp, if necessary, and subtracting the PM_{2.5} from the PM₁₀ to get PMc. For MSA's with multiple sites the data were averaged for each hour within a season. Analysis for Figures 21-34 by Mintz (2004).

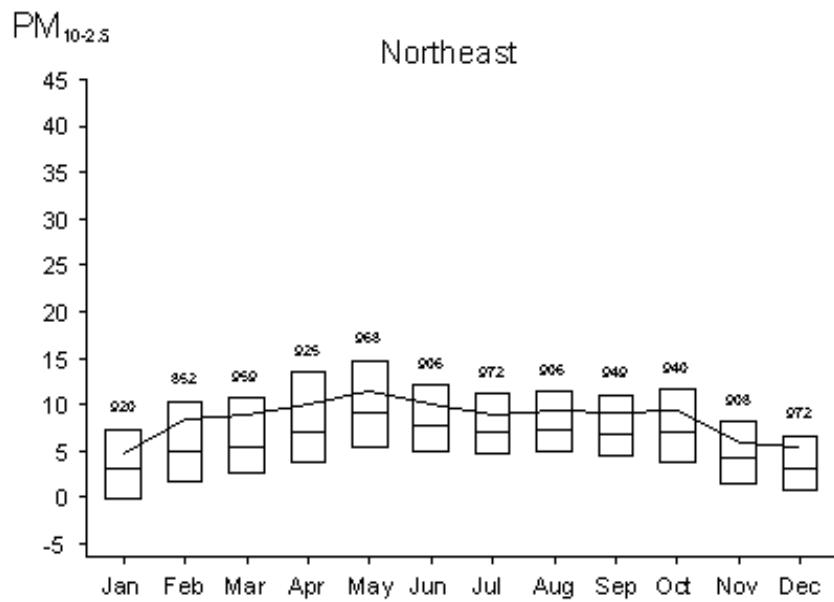


Figure 1. Distribution of Monthly Average PM_{10-2.5} Concentrations for the Northeast

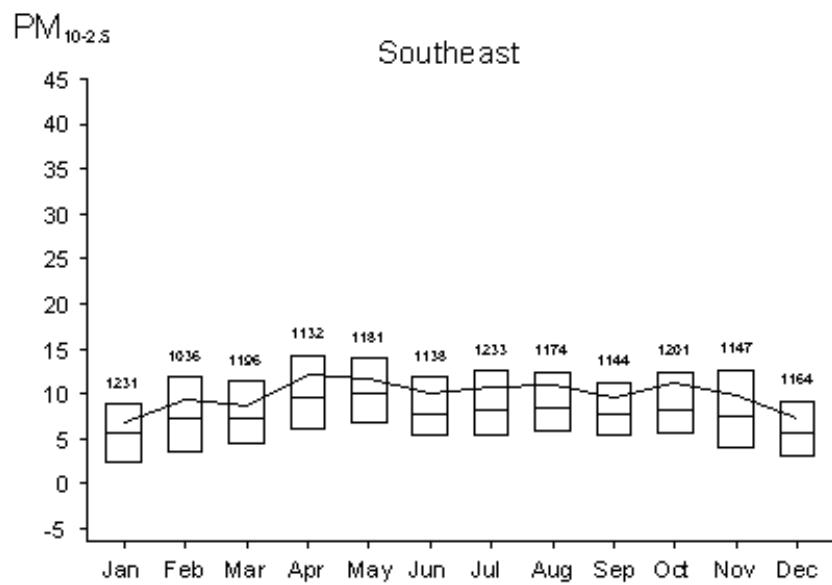


Figure 2. Distribution of Monthly Average PM_{10-2.5} Concentrations for the Southeast

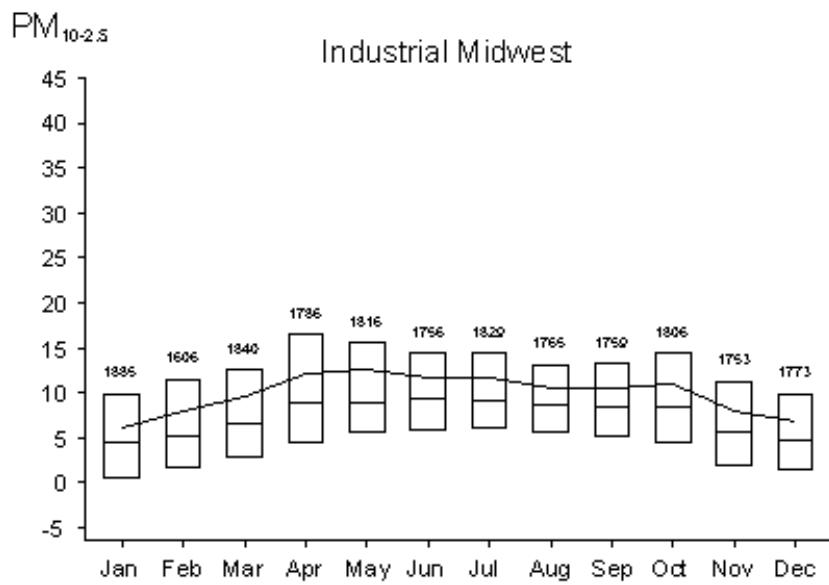


Figure 3. Distribution of Monthly Average PM_{10-2.5} Concentrations for the Industrial Midwest

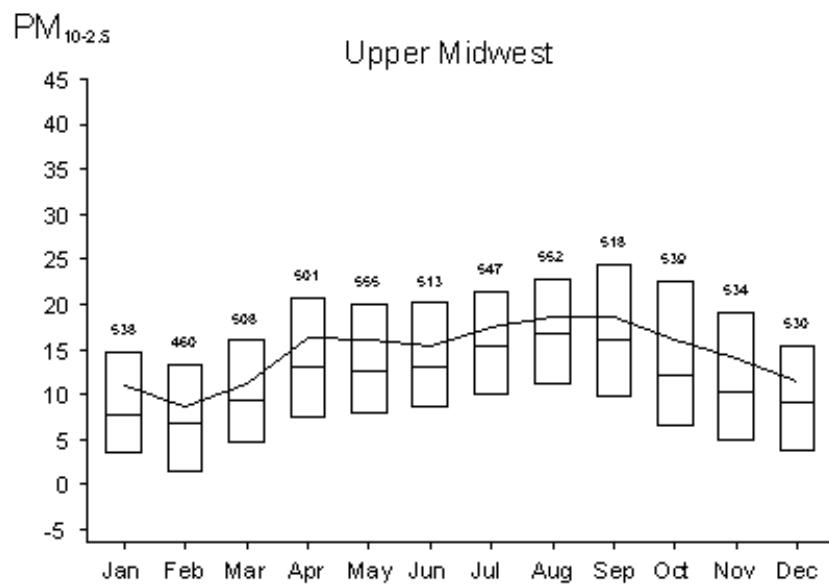


Figure 4. Distribution of Monthly Average PM_{10-2.5} Concentrations for the Upper Midwest

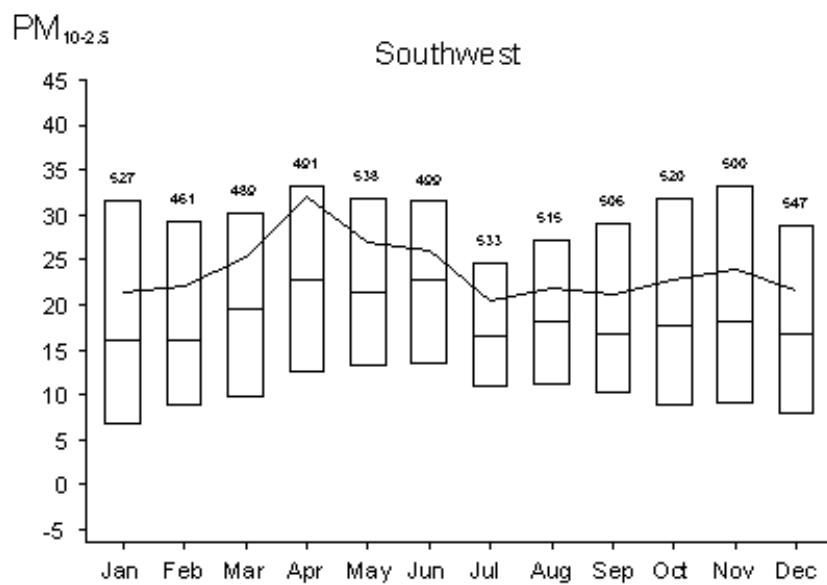


Figure 5. Distribution of Monthly Average $\text{PM}_{10-2.5}$ Concentrations for the Southwest

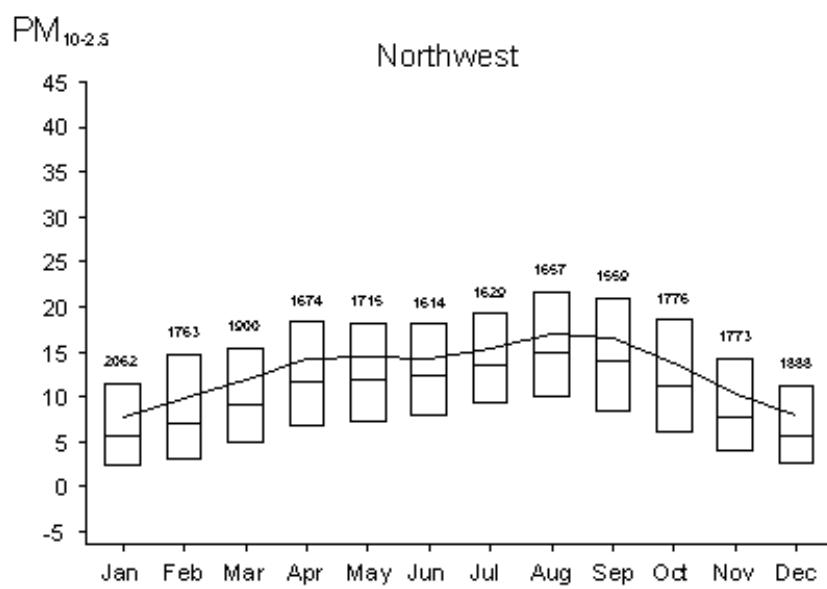


Figure 6. Distribution of Monthly Average $\text{PM}_{10-2.5}$ Concentrations for the Northwest

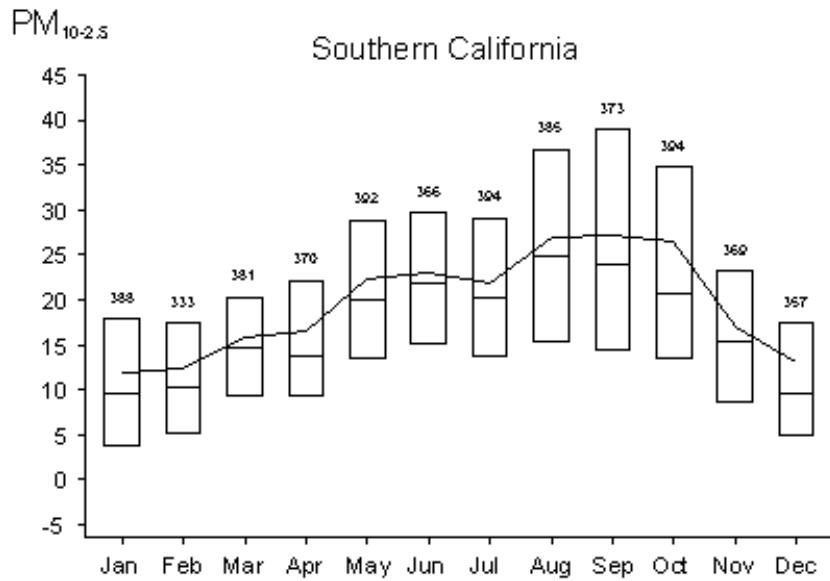


Figure 7. Distribution of Monthly Average PM_{10-2.5} Concentrations for Southern California

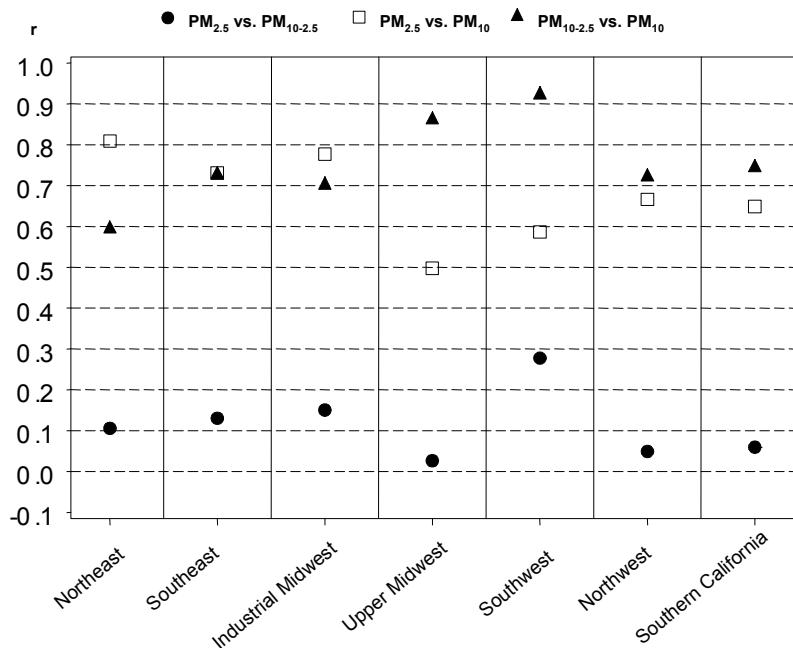


Figure 8. Regional Correlations of 24-hour Average PM by Size Fraction

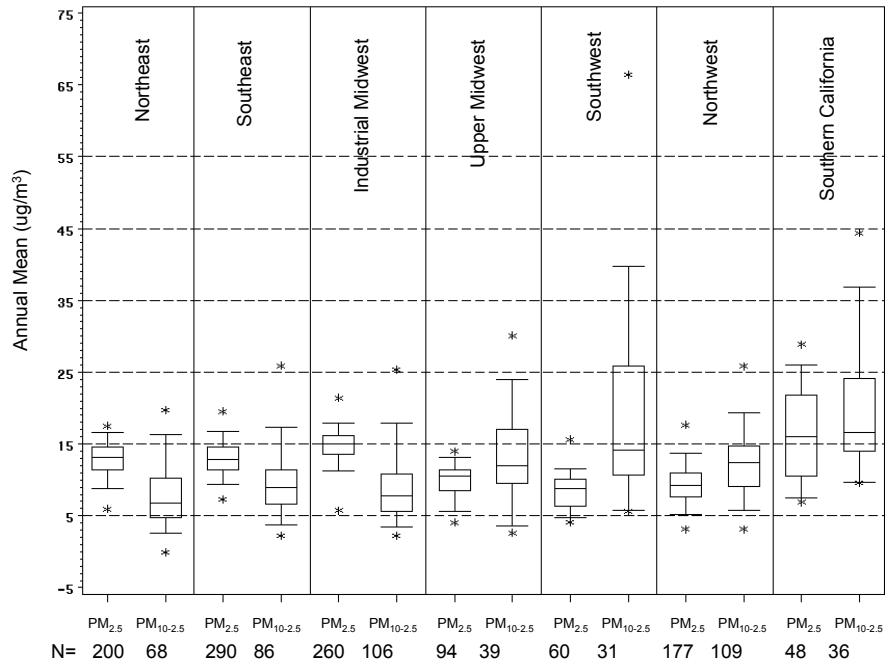


Figure 9. Distributions of Annual Mean PM_{2.5} and PM_{10-2.5} Concentrations by Region, 2000-2002

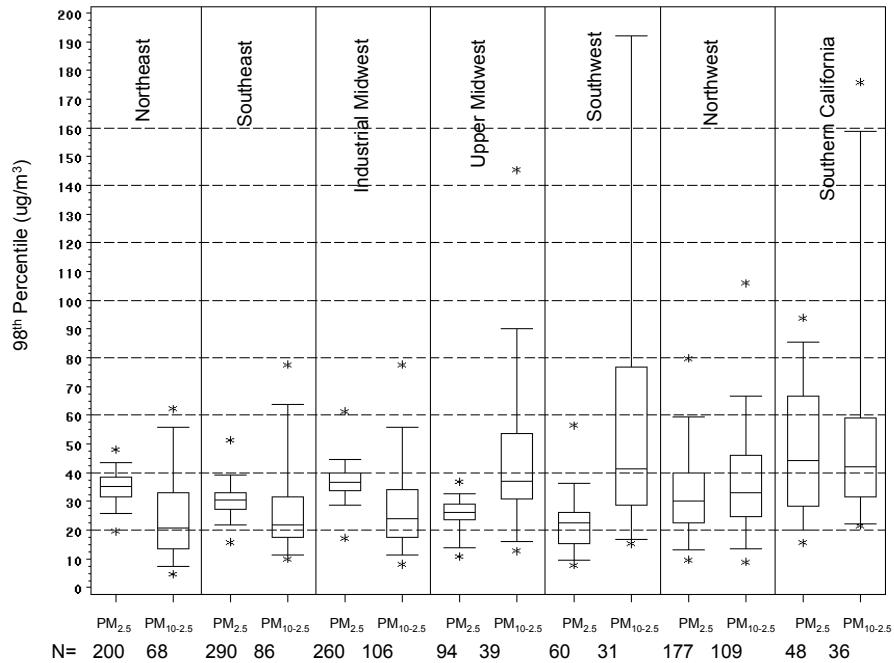


Figure 10. Distributions of 98th percentile PM_{2.5} and PM_{10-2.5} Concentrations by Region, 2000-2002

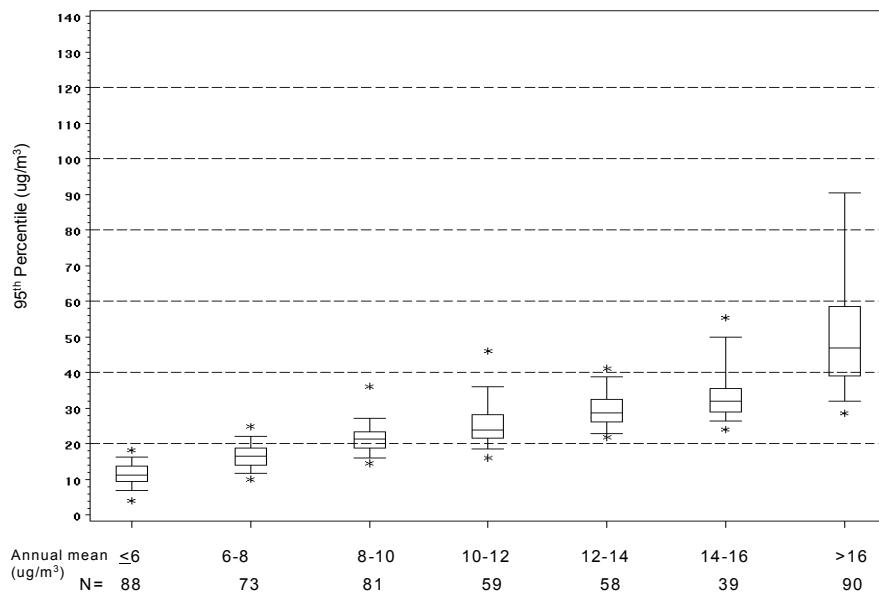


Figure 11. Distribution of 95th Percentile PM_{10-2.5} Concentrations by Annual Mean Interval, 2000-2002

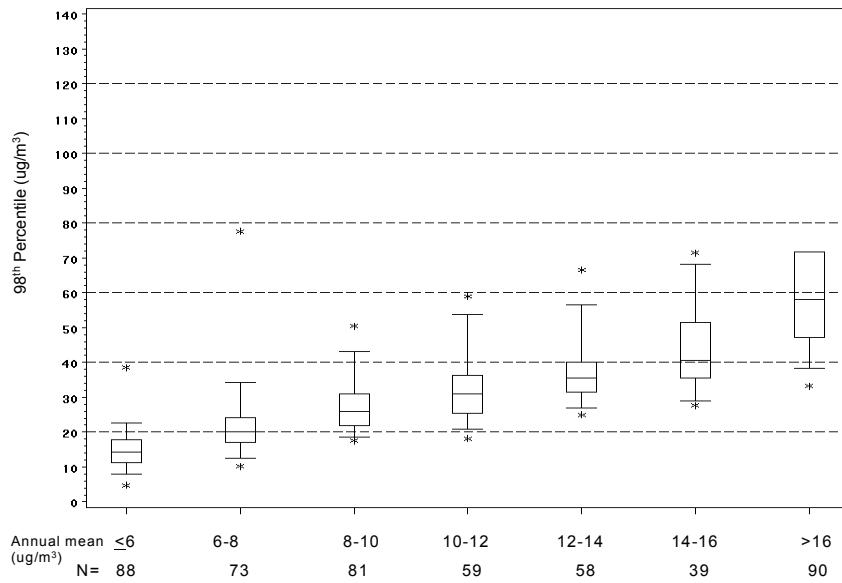


Figure 12. Distribution of 98th Percentile PM_{10-2.5} Concentrations by Annual Mean Interval, 2000-2002

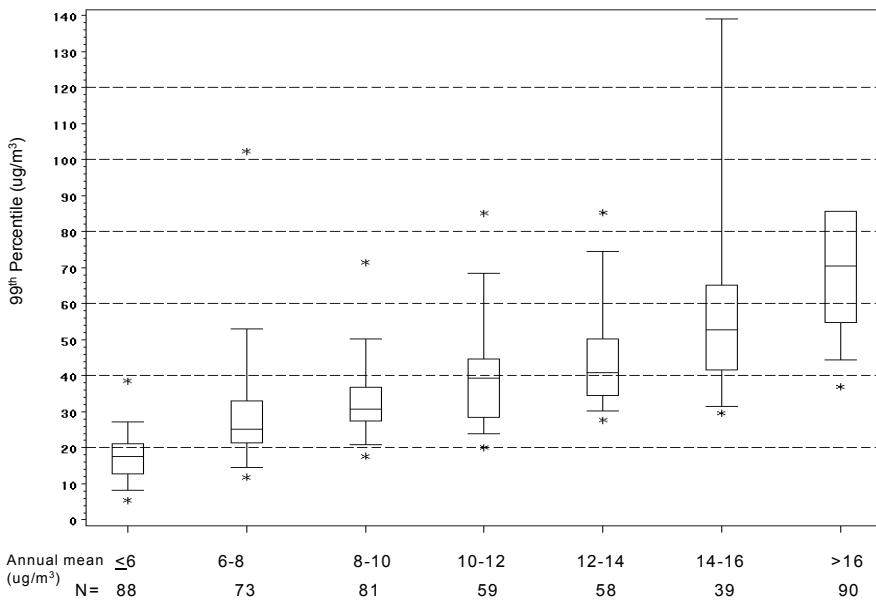


Figure 13. Distribution of 99th Percentile PM_{10-2.5} Concentrations by Annual Mean Interval, 2000-2002

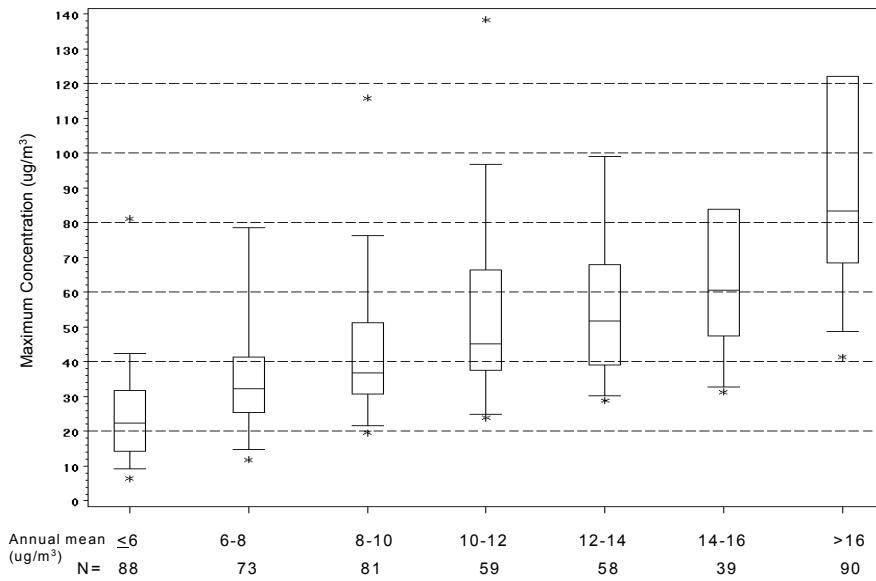


Figure 14. Distribution of Maximum PM_{10-2.5} Concentrations by Annual Mean Interval, 2000-2002

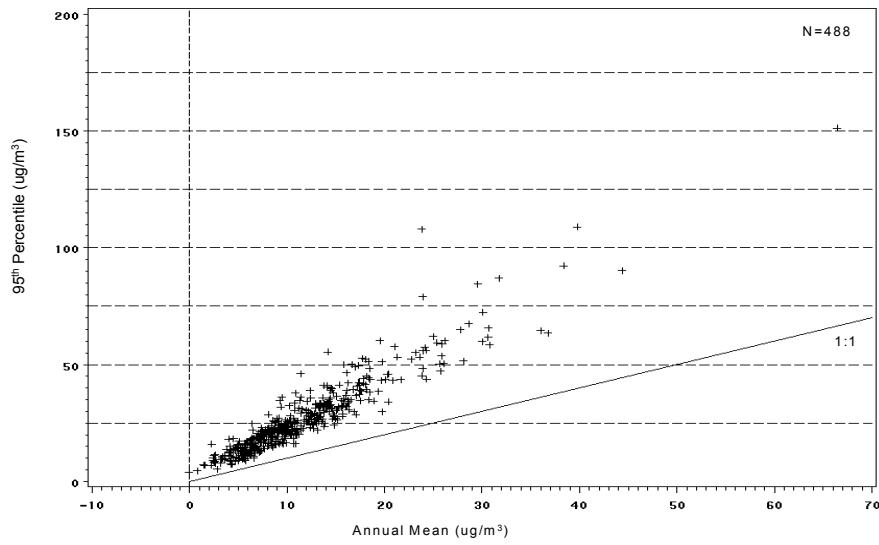


Figure 15. Annual Mean versus 95th Percentile $\text{PM}_{10-2.5}$, 2000-2002

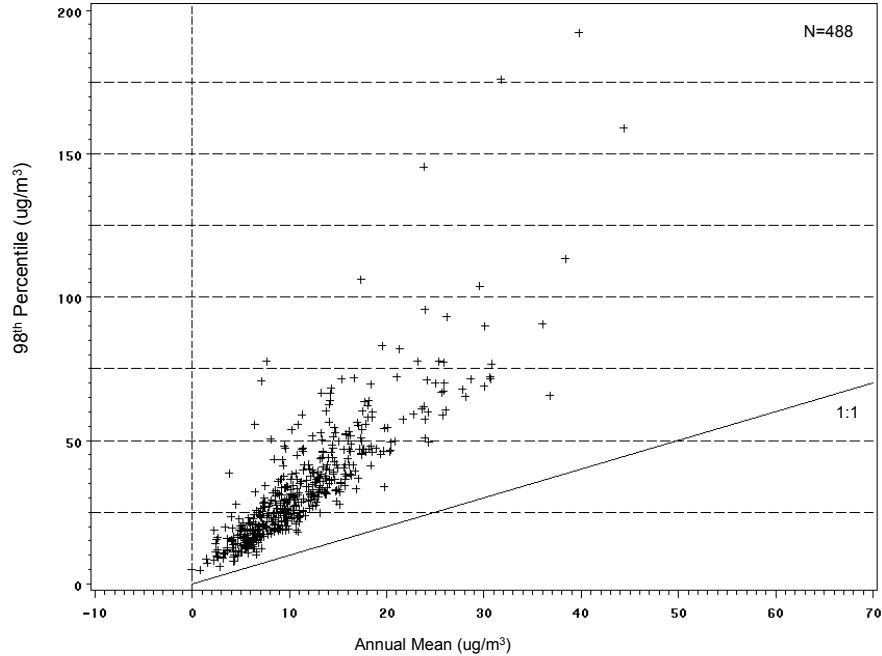


Figure 16. Annual Mean versus 98th Percentile $\text{PM}_{10-2.5}$, 2000-2002

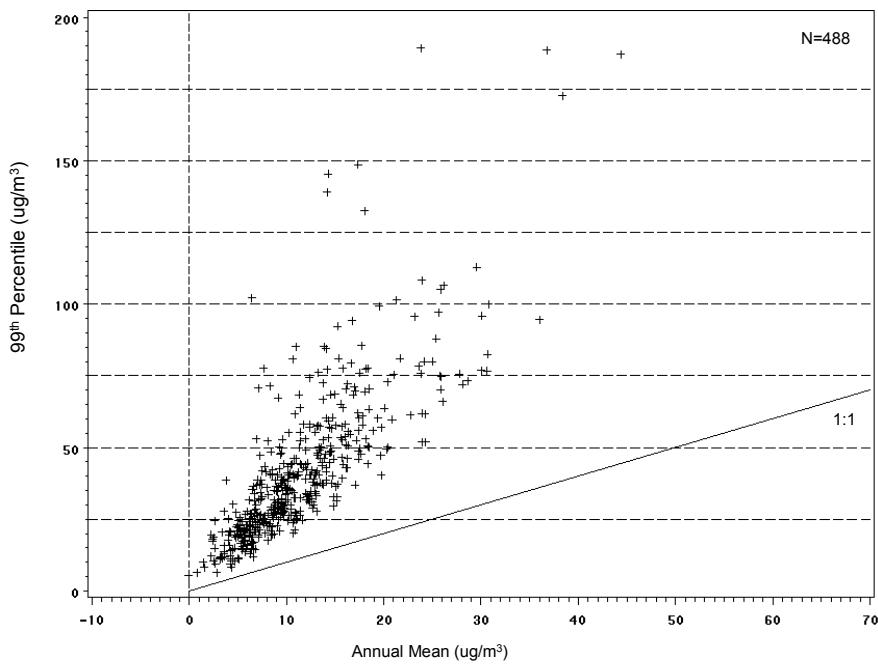


Figure 17. Annual Mean versus 99th Percentile PM_{10-2.5}, 2000-2002

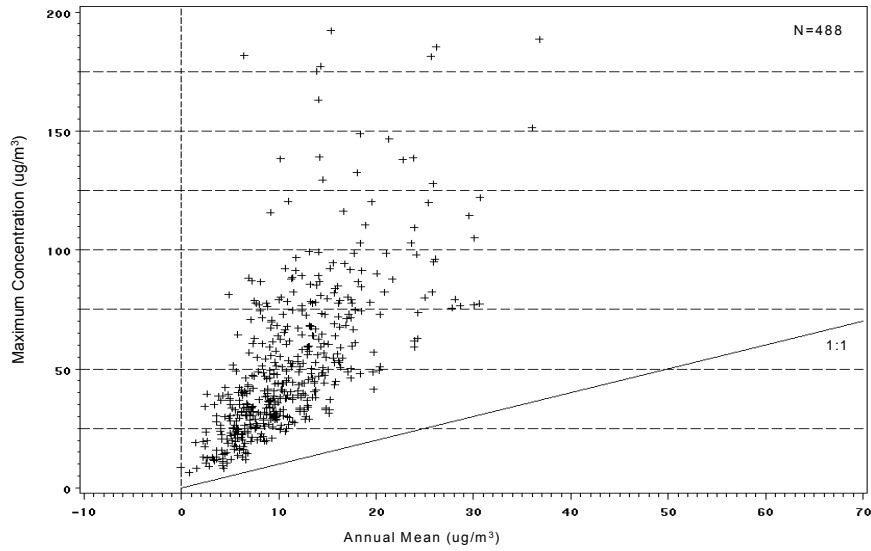


Figure 18. Annual Mean versus Maximum PM_{10-2.5}, 2000-2002

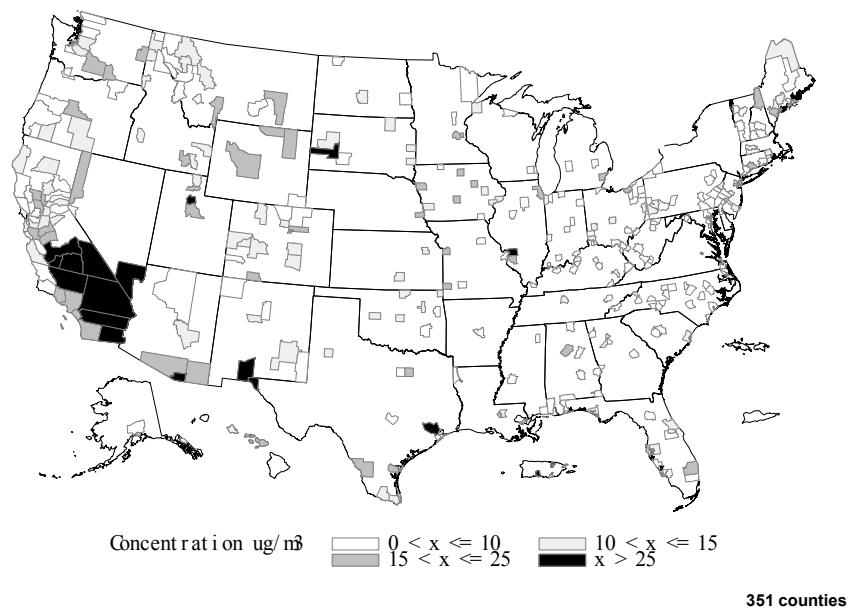


Figure 19. County Max Estimated Annual Mean PM_{10-2.5} Concentrations (ug/m³), 2000-2002

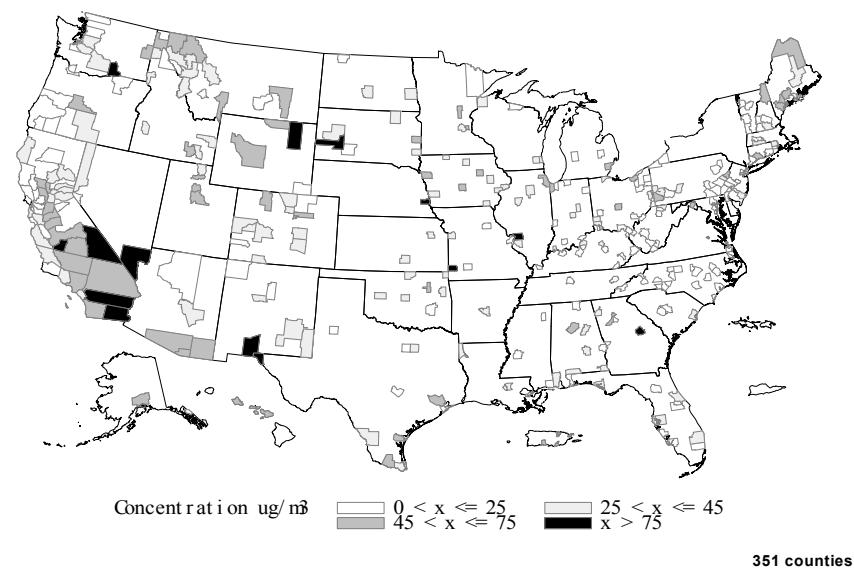


Figure 20. County Max Estimated 98th Percentile 24-hour PM_{10-2.5} Concentrations (ug/m³), 2000-2002

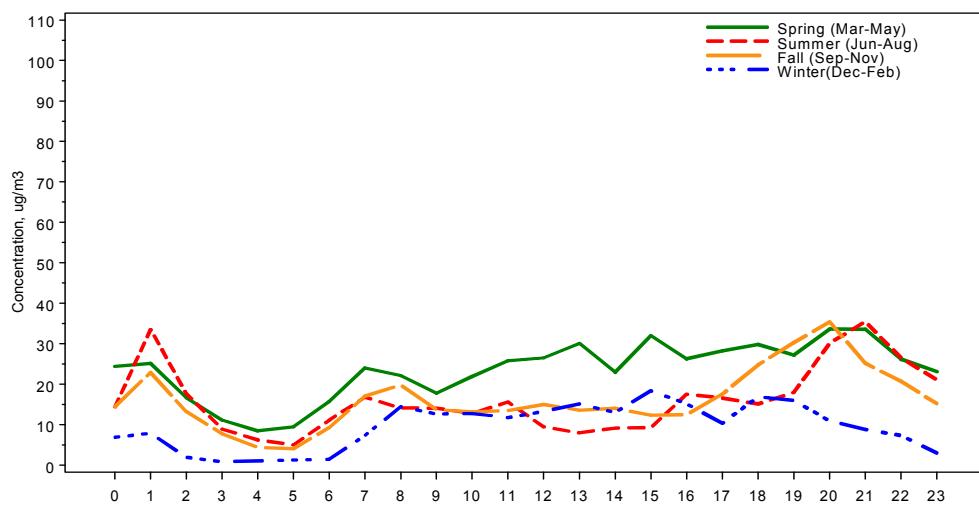


Figure 21. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Albuquerque,NM

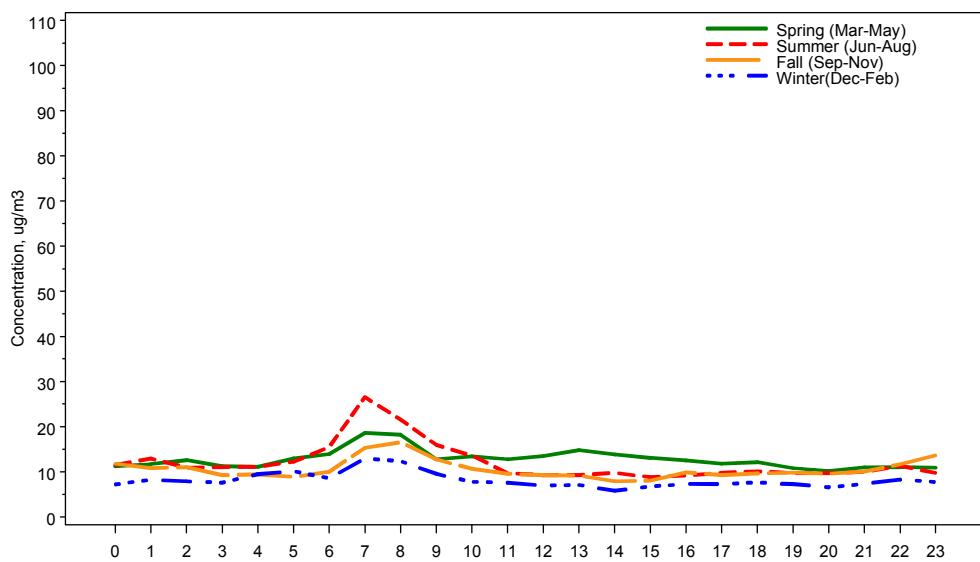


Figure 22. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Birmingham, AL

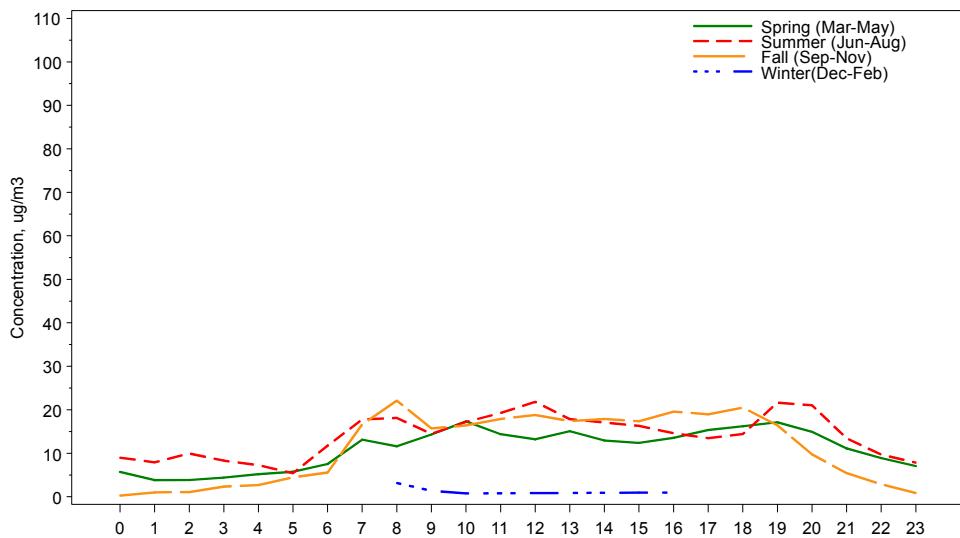


Figure 23. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Chico-Paradise, CA

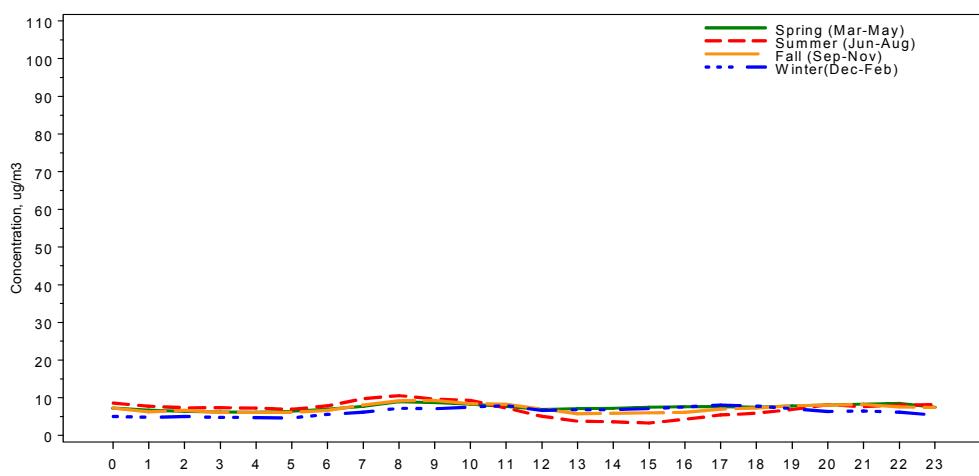


Figure 24. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Cincinnati, OH-KY-IN

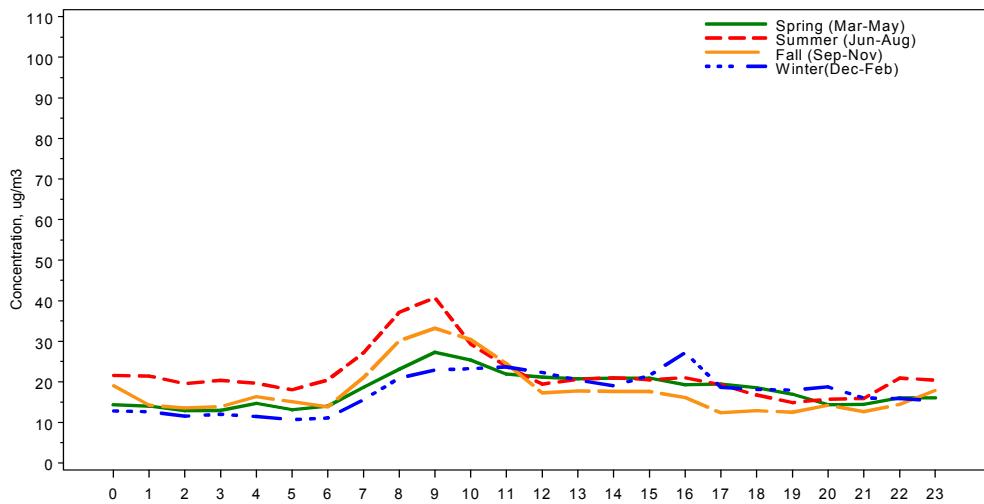


Figure 25. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Cleveland and Loraine-Elyria, OH

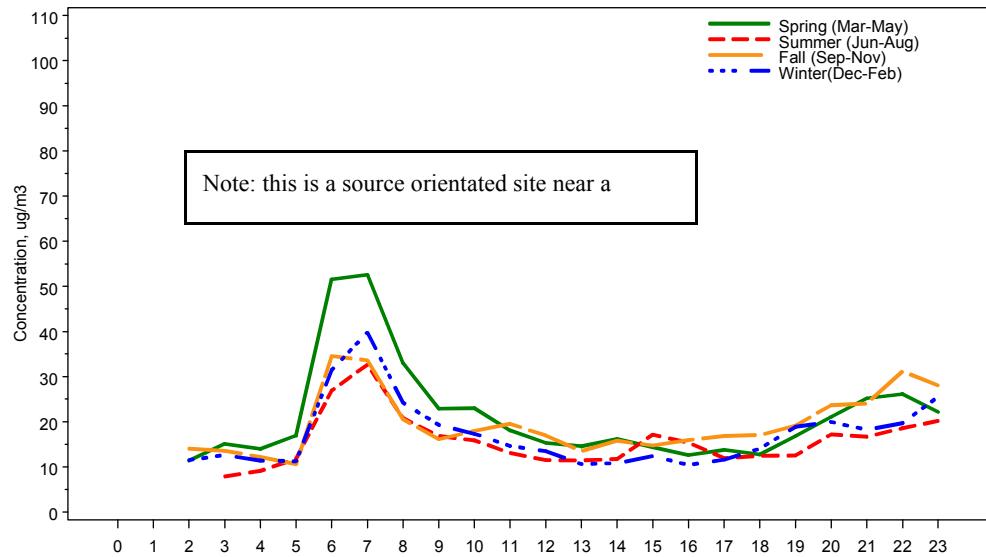


Figure 26. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Columbia, SC

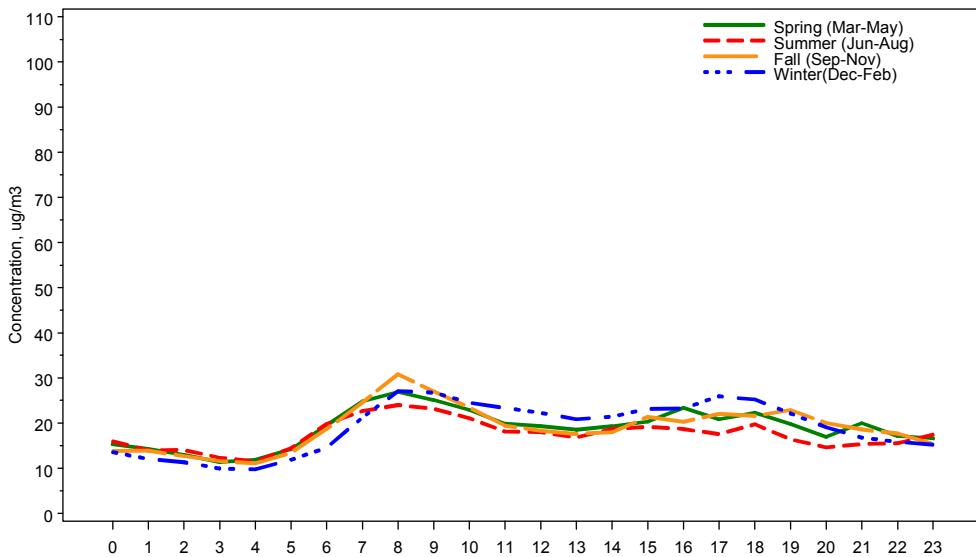


Figure 27. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Denver, CO

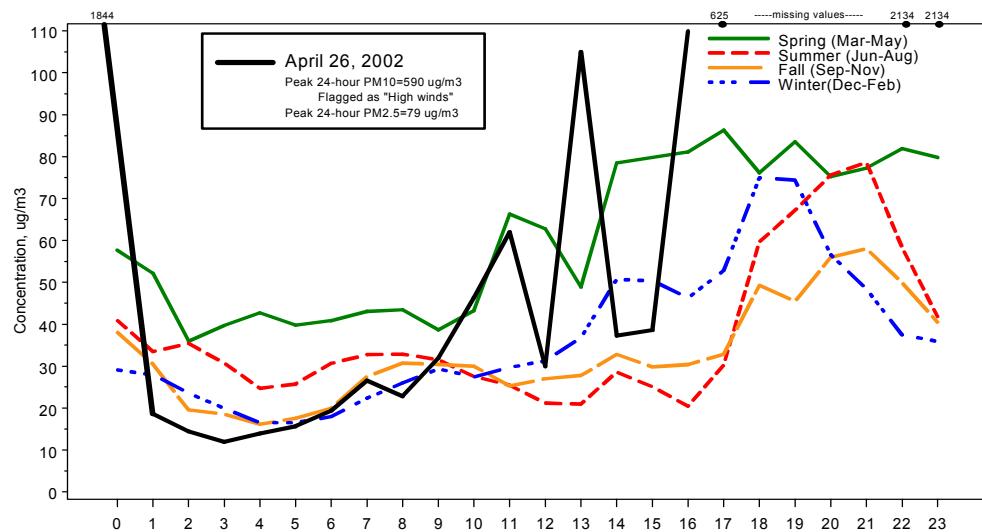


Figure 28. Average Hourly PM10-2.5 Concentrations, 2000-2002 - El Paso, TX

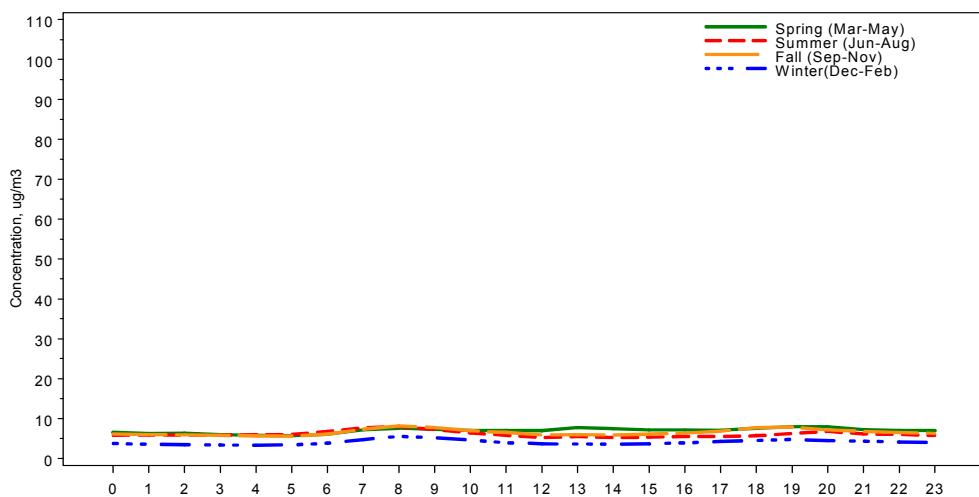


Figure 29. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Greensboro-Winston Salem-High Point, NC

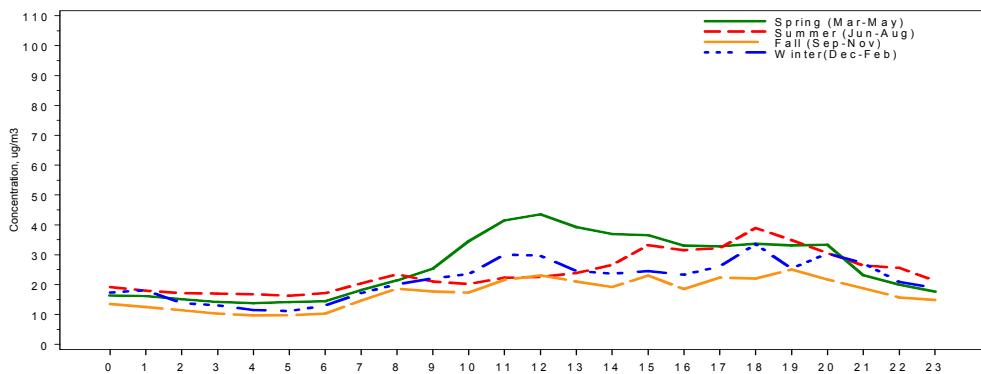


Figure 30. Average Hourly PM10-2.5 Concentrations, 2000-2002 - McAllen-Edinburg-Mission, TX

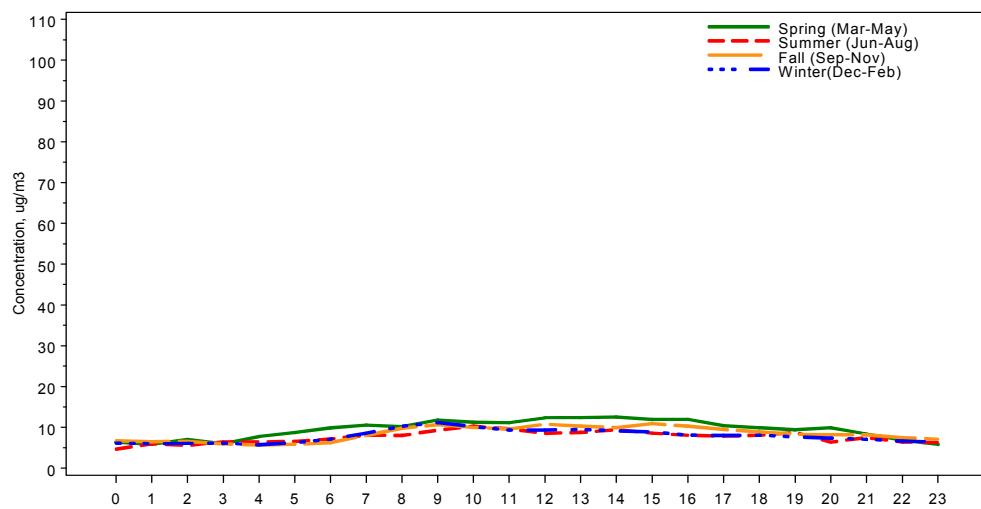


Figure 31. Average Hourly PM₁₀-2.5 Concentrations, 2000-2002 - New York, NY

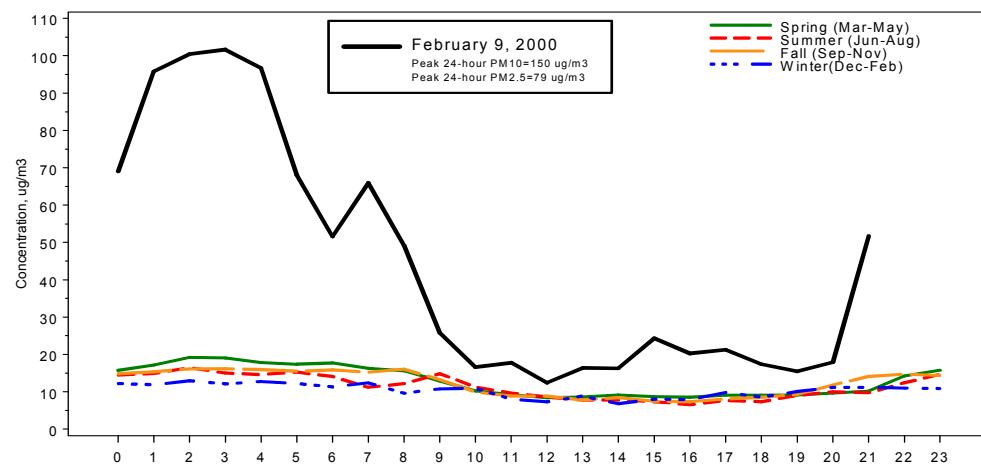


Figure 32. Average Hourly PM₁₀-2.5 Concentrations, 2000-2002 - Pittsburgh, PA

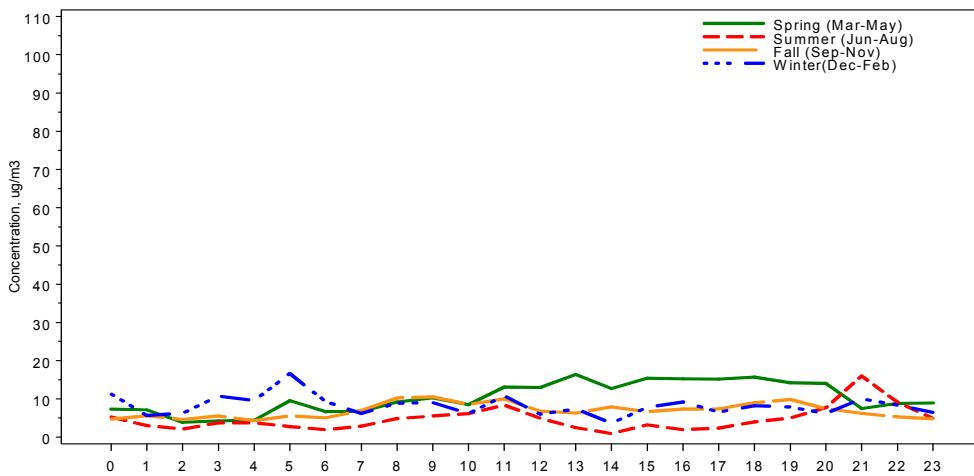


Figure 33. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Pocatello, ID

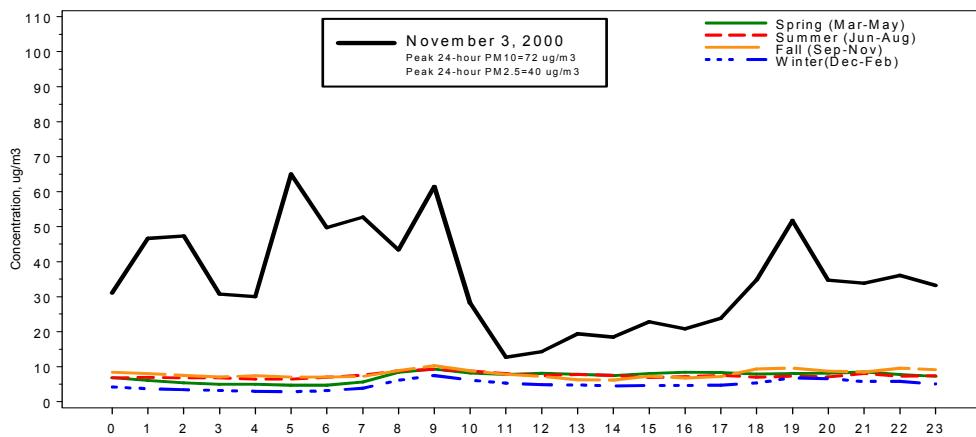


Figure 34. Average Hourly PM10-2.5 Concentrations, 2000-2002 - Raleigh-Durham-Chapel Hill, NC