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The Spatio-Temporal Distribution of Particulate Pollution in Metro Manila, Philippines

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The absence of long-term, consistent, quantitative air quality measurements in Metro Manila has made it difficult to assess the present state of air pollution in the National Capital Region of the Philippines. Between August 2000 and June 2004, ambient particulate pollution was monitored through gravimetric and elemental analysis of samples collected from 5 sites in Metro Manila. The results of monitoring indicated that PM2.5 (rather than PM10) was the pollutant of concern in the region. The number of PM2.5 exceedances, assuming USEPA gravimetric standards (24-hour average of 65 ug/m3), far outpaces that of PM10 (24-hour average of 150 ug/m3), thus highlighting the concern for this particular pollutant. Geographically, PM2.5 is observed to be highest at the traffic site and lowest at the urban background site. Source apportionment through Positive Matrix Factorization (PMF) identified 5 major sources influencing particulate pollution levels dominated by mobile source contributions in all sites. In terms of temporal distribution, most sites indicated differences of less than 10% between wet and dry seasons, with the latter registering slightly higher PM10 and PM2.5 levels. (This study was made under the Asian Regional Research Programme on Environmental Technology, Air Quality component, funded by the Swedish International Development Cooperation Agency and coordinated by the Asian Institute of Technology, Bangkok, Thailand)