



Dynamics and Sources of Atmospheric Lead in São Paulo, Brazil: Preliminary Insights from High Temporal Resolution Sampling

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We present the results of a pilot study investigating the major processes that control concentrations and sources of lead (Pb) in the atmosphere of São Paulo City, Brazil. Aerosols were collected with high temporal resolution during a four-day period in July of 2005. The highest Pb concentrations measured coincided with large celebrations due to a soccer game final and the associated high traffic occurrence and large fireworks. This highlights the impact that a singular transient event can have on air quality even in a megacity like São Paulo. Under meteorological conditions nonconducive to pollutant dispersion (i.e., dry weather), Pb and particulate matter concentrations accumulated during the night, leading to the highest concentrations in aerosols collected early in the morning of the following day. The stable isotopes of Pb suggest that emissions from traffic remain the main source of Pb in São Paulo City due to the large traffic fleet, despite low Pb concentrations in gasoline and alcohol. Changes in wind directions result in different sources being dominant, such as industrial emissions from areas within the greater São Paulo Metropolitan Area.