Particulate matter levels in a South American megacity: the metropolitan area of Lima-Callao, Peru

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 The temporal and spatial trends in the variability of PM10 and PM2.5 from 2010 to 2015 in the metropolitan area of Lima-Callao, Peru, are studied and interpreted in this work. The mean annual concentrations of PM10 and PM2.5 have ranges (averages) of 133?45 ?g m?3 (84 ?g m?3) and 35?16 ?g m?3 (26 ?g m?3) for the monitoring sites under study. In general, the highest annual concentrations are observed in the eastern part of the city, which is a result of the pattern of persistent local winds entering from the coast in a south-southwest direction. Seasonal fluctuations in the particulate matter (PM) concentrations are observed; these can be explained by subsidence thermal inversion. There is also a daytime pattern that corresponds to the peak traffic of a total of 9 million trips a day. The PM2.5 value is approximately 40% of the PM10 value. This proportion can be explained by PM10 re-suspension due to weather conditions. The long-term trends