

CORRELATIONS BETWEEN OUTDOOR AND INDOOR PM2.5 MASS CONCENTRATIONS

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ABSTRACT

Using different statistical methods, such as cross-covariance study between indoor and outdoor contemporary PM2.5 mass concentration time sequences, cross-correlation spectra, wavelet cross-spectra, we have shown the existence of a relation, for PM2.5 mass concentrations, between indoor and outdoor environments. This phenomenon occurs both in presence of forced ventilation or air conditioning systems (as shown in this related-subject literature) and in absence of it. We put in evidence the fact that this relation is more evident for lower mass concentration values and that it is lost for higher concentrations (i.e. indoor sources or sinks and similar cases). Hence, for a better study of Indoor Air Quality, for PM2.5 mass concentrations, it should be necessary to give a correct chemical and physical characterization of this fraction of outdoor aerosol and to know its mass concentration time variations.