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STUDY ON THE MULTI-ANNUAL VARIABILITY OF PARTICULATE MATTER PM10 IN SUCEAVA CITY

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Abstract

Fine particulate matter and ground-level ozone are now generally recognized as the most significant in terms of health impacts. This study shows that concentrations of particulate matter up to 10 microns in diameter (PM10) in Suceava city exceeded EU limits set to protect human health during 2004-2007. In order to design effective PM10 air quality management programmes, it is essential to identify the sources affecting PM10 background levels. For this, PM10 data series were analyzed for relationship to simultaneous measured gaseous pollutants. Significant positive correlations between PM10 and NO_x, showing their common combustion origin, and very weak negative or even absent correlations between PM10 and O₃ were observed during cold seasons. During warm seasons, PM10-NO_x correlations are weaker, indicating higher contributions of PM10 non-combustion sources. Linear regression of PM10 and NO_x datasets was used to quantify seasonal contributions of non-combustion sources at PM10 levels. On an average, this was about 49% for cold season and 63% for warm season.

Key words: non-combustion sources, PM10 urban background, seasonal variability.

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