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INTEGRATED ASSESSMENT OF EXPOSURE TO TRAFFIC-RELATED AIR POLLUTION IN IASI CITY, ROMANIA

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Abstract

Despite the industrial decline, air pollution continues to be a major issue in Romanian cities. As in many other urban areas, in Iasi city the traffic is one of the main sources of air pollution which has a high environmental impact, also exposing population's health to a high risk. The study focuses on the small scale examining the spatial and temporal variability of air pollution in a very important and frequently circulated crossroad, Podu de Piatra. Using various data from air pollution monitoring stations and local meteorological data, both, measurements and field observations, the study assesses the relation between traffic intensity, the presence of pollutants and the exposure of vulnerable population in an area that is one of the hot-spots of air pollution in Iasi. The objective is to apply a spatial exposure assessment model which combines proximity-based and dispersion models in order to estimate the overall impact of transport on air pollution. The GIS allows to incorporate spatial data, manage it, analyse it, and answer spatial questions. The major outcomes of this study are: the air circulation contributes to the increase of relative pollutant concentration on different sides of the streets; monitoring stations has difficulties to estimate with precision the wind speed variation; the lowest estimation of NOx have been obtained along the street in 19th April at 6 AM when the wind is perpendicular to the street axis, while the highest was record on 20th April at 18 PM when the wind is parallel to the street axis; to help assessing the representativeness of data from national air quality system.

Keywords: monitoring, dispersion, modelling, air quality, spatial exposure, sensitive population

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