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Piotr Holnicki
Systems Research Institute, Polish Academy of Sciences, holnicki@ibspan.waw.pl

Marko Tainio
Systems Research Institute, Polish Academy of Sciences, UKCRC Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge, mtk27@medschl.cam.ac.uk

Andrzej Kałuszko
Systems Research Institute, Polish Academy of Sciences, kaluszko@ibspan.waw.pl

Zbigniew Nahorski
Systems Research Institute, Polish Academy of Sciences, Warsaw School of Information Technology (WIT), nahorski@ibspan.waw.pl

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Piotr Holnicki[a], Marko Tainio [a,b], Andrzej Kałuszko[a], Zbigniew Nahorski [a,c]
[a] *Systems Research Institute, Polish Academy of Sciences, Warsaw, Poland (holnicki@ibspan.waw.pl; kaluszko@ibspan. waw.pl; nahorski@ibspan. waw.pl)*
[b] *UKCRC Centre for Diet and Activity Research (CEDAR), MRC Epidemiology Unit, University of Cambridge, UK (mtk27@medschl.cam.ac.uk)*
[c] *Warsaw School of Information Technology (WIT), Warsaw, Poland (Z.Nahorski@wit.edu.pl)*

***A*bstract:** Adverse health effects are the most important consequences of air pollution and therefore necessary to be considered in the IAM applications. Urban areas are especially important for such calculations because air pollution can potentially influence a large number of inhabitants. The high spatial variation in both emissions sources and population requires that such calculations are done with high space resolution. In this study, we quantify health burden due to local air pollution in the urban area for the Warsaw Agglomeration, Poland. From different air pollutants we considered particulate matter (PM), nitrogen oxides (NOx), sulfur dioxide (SO_2), benzo[a]pyrene (BaP) and heavy metals. The annual mean concentrations were computed by CALMET/CALPUFF modeling system, by using the emission and meteorological data from the year 2012. The spatial domain resolution of calculations was 500m x 500m. The emission fields comprised high (power generation) and low point sources (industry), mobile sources (transport) and area sources (housing). The exposure to these pollutants were estimated for the study population using information on home addresses of the population. Changes in mortality were estimated with relative risk functions obtained from literature. In Warsaw the annual mean concentrations of NOx, PM_{10}, $PM_{2.5}$ and BaP exceed the EU limit values. The population weighted exposure to the main pollutants is assessed and next, the intake fraction index (iF), attributed to the individual emission sources and for each emission category is computed. After that the adverse health effects of these pollutants are estimated and presented separately for each emission source and the air pollutant.

***Keywords*:** urban air pollution; population weighted exposure; intake fraction; adverse health effects.