

Air pollution is one of the major environmental problems. It can result in adverse health impacts such as morbidity, mortality, cancer and carcinogenic effects. High population density in cities contributes to the importance of the problem in urbanized areas..

The third biggest city of the Czech Republic, Ostrava, which is the subject of this thesis, is one of the most polluted areas in the country. The main air pollutants of concern are suspended particles and poly aromatic hydrocarbons. Ostrava is also one of the most polluted areas from the European perspective. It is an industrial city, where significant portion of the national heavy industry is concentrated. Local heating and traffic are other sources of air pollution. There is also a potential influence from a near-by industrial area in Poland.

This thesis deals with long term time series, including air pollutants (PM10, SO<sub>2</sub>, NO<sub>2</sub> and CO), meteorological variables (temperature, rainfall, duration of sunshine) and socio-economic factors (e.g. unemployment rate, number of registered vehicles, investments into environment, fuel consumption in industry, e.t.c.). This study also looks at the close down effect of industrial operations in Ostrava within last 35 years.

Both concentration of pollutants and emissions showed significantly decreasing trend since 1983. Currently, suspended particles represented by PM10 show stagnant and sometimes slightly increasing character. Socio-economic variables did not show a significant correlation with air pollution. Close down effect or open effect of industrial operations showed, with few exceptions, an increase in PM10 and SO<sub>2</sub> concentrations when an operation was opened and a decrease when an operation was closed down.

Key words:

Urban area, Emission, PM10, SO<sub>2</sub>, Industry