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## MODELING OF AIR POLLUTANTS DISPERSION FROM INDUSTRIAL SOURCES IN ENVIRONMENTAL IMPACT ASSESSMENT

Although it is commonly accepted that air pollution is dominated by local emissions many studies report that plumes of harmful pollutants can be transported by wind across oceans and continents and warn about the growing danger of air quality degradation. Air pollutants released from industrial sources in a city may have a significant impact on human health, depending on the properties and atmospheric lifetime of the pollutants. The International Agency for Research on Cancer (IARC) evaluation showed an increasing risk for a wide range of diseases, e.g. lung cancer, respiratory and heart diseases, with increasing levels of exposure to particulate matter and air pollution (IARC, 2013). Adsorption of trace atmospheric gases such as $NO_2$, $SO_2$ and $CO_2$ by carbon based aerosol particles emitted from industrial sources contributes to the evolution of concentration distribution of the trace constituents and can affect the subsequent chemical reactions in the atmosphere. In this connection, it is essential to evaluate the air quality levels of the atmosphere in order to assess the possible health impact of air pollutants. Clearly, modeling of air pollutants dispersion and deposition, in combination with air quality monitoring, are essential and complementary tools for long and short term air pollution control strategies.

In the framework of our study, we developed new approaches for urban and regional air pollution modeling, wet and dry deposition of particulate matter and adsorption of trace atmospheric gases by carbon based aerosol particles emitted from industrial sources. The developed models are used to predict the impacts of emission controls on the atmospheric concentrations and deposition of gaseous pollutants, fine and coarse particulate matter (PM2.5–10) and other air pollutants. The assessments of human exposure to various contaminants are based on contaminant concentration and on the parameters related with the exposure event e.g. characteristics of the atmospheric boundary layer, precipitation rate etc. The obtained results can be useful in the analysis of different meteorology–chemistry models including scavenging of aerosols in air pollution plumes by rain and for the assessment of human exposure to various contaminants including particulate matter and hazardous gases emitted from industrial sources.

### Biography

Boris Krasovitov currently working at the Mechanical engineering department of Ben-Gurion University of the Negev in Israel has more than twenty years of experience in physics of aerosols, air quality and air pollution control. His research focuses on air pollution modeling and scavenging of polluted aerosols and gases from the Atmosphere.

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