

SINZaP – Intelligent Air Pollution Monitoring System – Czesław Kliś, Joachim Bronder

Summary

The paper presents a mature concept of an intelligent monitoring system of air pollution inflow and its realization in the form of a SINZaP system launched at Institute for Ecology of Industrial Areas (IETU) in 2006. SINZaP is a real time operating system resembling a neural network. It is designed for modeling of pollutant emissions and air pollutants concentrations, addressed to specialists or decision makers responsible for air quality management. For modeling of emission and air pollutants concentrations in SINZaP system, a back trajectory model – BackTrack has been used, which is based on VLSTRACK model. The essential feature of the BackTrack model is the application of back trajectories in the selection of emission sources influencing a given receptor. For modeling of trajectories BackTrack uses three-dimensional wind fields, friction velocity, Monin-Obukhov length and mixing layer height. SINZaP consists of four main modules: (1) data module including data scanner for reading public data accessible in the Internet, (2) module for preparation of meteorological data, (3) BackTrack module for simulations of pollutants emissions and simulations of air pollutants concentrations, and (4) Trainer module, the task of which is correction of input parameters for adjusting modeling and observed data.