

Название публикации:

Air pollution by road traffic and its measurement methods

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Аннотация:

Background: Environmental problems of cities are associated with excessive concentration of population, transport and industrial enterprises in relatively small areas with anthropogenic landscapes formation, far from the state of ecological balance. The present study is aimed at developing recommendations for environmental measures aimed at the management of anthropogenic tendencies, forecasting the state of air pollution, carrying out the necessary environmental measures and developing a system for managing road influences on the urban environment. Material and Methods: Assessment of air pollution and conclusions about the need to develop technical and organizationally-technical measures to reduce emissions of vehicles is based on the analysis of the concentrations of impurities obtained by calculation and instrumental methods. In the course of the study, the methods of statistical processing and analysis of measurement data were used. Toolkit for modeling the state of the atmosphere and programming allowed developing a software calculation complex that automates and visualizes the analysis tasks of the traffic flow. Results: The authors substantiate the toolkit for assessing the environmental situation of the city and identify patterns of its formation. The intensity of traffic flow on the streets of the city – highways is defined. The regularities of pollution fields' formation depending on the territory and intensity of traffic flows are revealed. The software to calculate the map of the city atmosphere pollution by motor transport emissions is developed. Conclusions: The task is solved of a comprehensive assessment of air pollution degree in the city by impurities emitted from the exhaust gases of cars, separately from pollutants coming from stationary sources of pollution. The study allows predicting the effectiveness of various environmental measures related to civil construction, construction of new roads, regulation of traffic flows. © 2018 Kurnykina et al.

Ключевые слова:

Air emissions, Air pollution, Cars, Computer program, Concentration calculation