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An improved algorithm for calculating a meteorological indicator of pollution dispersion in surface air (MIPD) using the COSMO-Ru7 configuration forecast data with a discreteness of 1 hour is presented. Using the MIPD as a function of the transport rate and thermal stratification in the atmospheric boundary layer, precipitation and advective temperature changes, the entire range of atmospheric conditions affecting the dispersion of pollutants is divided into three types: weak (the first type), moderate (the second type), and strong (the third type) dispersion. The worst conditions for the pollutant dispersion are provided by the MIPD of the first type; the set of meteorological parameters that determines it corresponds to adverse weather conditions (AWC) that contribute to the accumulation of pollutants in surface air. The proposed detailing within each type of MIPD in the form of subtypes can be useful for predicting AWC for single sources. Illustrations of the MIPD connection with fluctuations in the level of air pollution during the AWC episodes are given using automated measurements of pollutant concentration and fixed network measurements. An algorithm for the probabilistic forecasting of the MIPD, that allows taking into account the uncertainty of the forecast when issuing AWC warnings, is proposed and implemented.

Keywords: meteorological conditions of air pollution, adverse weather conditions, numerical prediction

Tab. 3. Fig. 4. Ref. 16.