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**Testing and prospects of air pollution prediction technology based on CHIMERE and COSMO-Ru2ART chemical transport models** / Kuznetsova I.N., Nakhaev M.I., Kirsanov A.A., Borisov D.V., Tkacheva Yu.V., Rivin G.S., Lezina E.A. // Hydrometeorological Research and Forecasting, 2022, no. 4 (386), pp. 147-170.

The technology for numerical air pollution prediction operating in the Hydrometeorological Center of Russia is based on the calculations with CHIMERE and COSMO-ART chemical transport models (CTMs) on a grid with a horizontal step of 2.2 km using the EMEP inventory data on atmospheric emissions updated in 2013 and meteorological data of the COSMO-Ru2 atmosphere model. The paper presents the results of testing model forecasts of pollutant (NO<sub>2</sub>, CO, PM<sub>10</sub>, O<sub>3</sub>) concentrations based on continuous pollution observations in the Moscow region for 12 months. A predominant overestimation of concentrations by the CHIMERE and an underestimation by the COSMO-ART were revealed. Both CTMs mainly underestimate pollution in transport-type areas. The seasonal variability of model deviations with a sign change for each model and each pollutant was identified. The largest model deviations were observed under abnormal weather conditions: during summer heat waves and spring advection of dusty air. Taking into account the model errors established for each CTM, recommendations are formulated for producing an operational consolidated forecast using the integration of simulations with the two CTMs.

The development of the technology for numerical air pollution prediction using modified CTM versions and EMEP emissions updated in 2019 on a 0.1×0.1° grid is discussed.

*Keywords:* air pollution, numerical forecast, chemical transport model, CHIMERE, COSMO-Ru2ART, emissions, EMEP, testing

Tab. 2. Fig. 7. Ref. 28.