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Post-processing of ground-level ozone numerical forecasts using machine learning /
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Monitoring the quality of air pollutant concentration forecasts based on chemical transport models (CTMs) currently used in the technology of the Hydrometcentre of Russia indicates the feasibility of the post-processing procedure application. For the first time, artificial neural networks (ANNs) were used to correct ground-level ozone model calculations. Retrospective hourly CTM CHIMERE forecasts for 2019–2023 formed the training dataset. Experiments were carried out to select the optimal ANN settings. Results of the experimental testing of the best ANN on a week-long summer period with an episode of high ozone concentrations and a spring period with an episode of high ozone concentrations due to active tropospheric mixing are presented. The effectiveness of using ANNs to improve model forecasts of ground-level ozone and its daily dynamics is shown.

Keywords: artificial neural networks, ground-level ozone, numerical forecast of pollution, chemical transport model, CHIMERE

Tab. 5. Fig. 4. Ref. 12.