

DOI: <https://doi.org/10.37162/2618-9631-2025-4-52-73>

Comparison of temperature and wind speed forecasts for the COSMO-Ru/icon configurations in the European part of Russia for six months of 2025 and during the episode of adverse meteorological conditions in Moscow / Revokatova A.P., Kuznetsova I.N., Kirsanov A.A. // Hydrometeorological research and forecasts. 2025, no. 4 (398), pp. 52-73.

The current technology for forecasting the meteorological indicator of pollution dispersion (MIPD) used at the Hydrometcentre of Russia is based on the COSMO-Ru6ENA configuration forecasts. Due to the transition to using ICON-Ru system forecasts with a 6 km horizontal grid spacing, model calculations of temperature and wind at the levels of 1000, 925, and 850 hPa for the COSMO-Ru6ENA and ICON-Ru13/6N29 configurations were compared with radiosonde data over the European Part of Russia. An advantage of ICON-Ru forecasts over COSMO-Ru was revealed using the test sample. A joint analysis of ICON-Ru forecasts of meteorological characteristics with observational data from the Ostankino TV Tower and a radiosonde station revealed characteristic features of the forecasts of temperature and wind speed profiles. These results are of practical importance for predicting pollution dispersion conditions. The results of the MIPD forecast verification using pollutant concentration measurements at the TV tower and Mosekomonitoring surface monitoring stations during the episode of adverse meteorological conditions at the end of March 2025 confirmed the connection of type 1 MIPD (weak dispersion) with increased pollutant concentrations at urban-type stations and indicated reasonability of using the ICON-Ru system data for MIPD forecasting.

Keywords: adverse meteorological conditions, meteorological indicator of pollution dispersion (MIPD), verification, atmospheric pollution, ICON-Ru, COSMO-Ru

Tab. 2. Fig. 9. Ref. 14.