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Application of atmospheric electric field strength measurements and machine learning methods in predicting daily precipitation in the summer months: A case study for the city of Nalchik / Bekkiev A.M., Mashukov I.Kh., Shapovalov V.A. // Hydrometeorological research and forecasts. 2025, no. 3 (397), pp. 77-91.

The paper considers a relevant problem of short-term forecasting of daily precipitation using meteorological information and data obtained from measurements of the electric field strength of the atmosphere, but without involving data on past precipitation values. The studies showed high efficiency of applying artificial intelligence in solving the problem, in particular, machine learning methods such as gradient boosting models, decision trees, and neural networks. The data for the study over the period from 2020 to 2025 were obtained from the Nalchik weather station (Russia, WMO ID 37212) and the EFM-100 electric field strength meter installed on the roof of the High-Mountain Geophysical Institute building.

Keywords: precipitation forecast, machine learning, gradient boosting, decision trees, neural networks, time series, meteorological data, spectral analysis, wavelet analysis

Tab. 2. Fig. 2. Ref. 21.