

VERIFICATION OF THE WEATHER RESEARCH AND FORECASTING MODEL (WRF) FOR THE DOMAIN OF SILESIA VOIVODESHIP AND UPPER SILESIA METROPOLITAN REGION

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Abstract

The paper presents the analysis of the statistical errors of the meteorological parameters predicted by the WRF (Weather Research and Forecasting) model. The model is used for forecasting air pollution in the Silesian Voivodeship with an accuracy of about 70-80%. Thus, the main idea of the research was assessing to what extent the error in the forecast of meteorological parameters affects the error of the air quality forecast, which can be evaluated using the system InfoSMOG – MED for the inhabitants of the Silesian Voivodeship at www.slaskiesmogstop.pl. It was also investigated how the reduction of the mesh size of the forecast of meteorological parameters affects the error of the forecast of these parameters, which was necessary for the next project SMART. The research was carried out for 3 computational domains: Poland, Silesian Voivodeship and Upper Silesia Metropolitan Region, each with a different grid resolution. The predicted temperature and wind speed data were compared with the measured data from the Polish synoptic stations and the stations of the METAR airports meteorological shield located in the respective domains. In addition, the error of the predicted parameters was investigated in the grid where the climatological station is located in the Śląskie Planetarium in Chorzów.

Keywords: Meteorological forecast, WRF model, Model error.