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The paper presents the accuracy estimates for the simulation of meteorological characteristics obtained from the WRF model with a spatial resolution of 6 km adapted for the Caspian Sea. It was used to simulate meteorological characteristics using various parameterizations of physical processes available in the WRF model. The model was verified using data from coastal weather stations for 2021. It was found that the best results in reproducing meteorological characteristics are achieved using the Thompson graupel scheme as a parameterization of physical processes, the Tiedtke scheme as a parameterization of convection, the RRTMG scheme as a parameterization of long-wave and short-wave radiation, the MYJ scheme as a boundary layer parameterization, and the Noah Land-Surface Model as a surface layer parameterization. An analysis of the simulation results versus observational data from weather stations showed that the model correctly reproduces the modulus and direction of wind speed, air temperature, and sea-level pressure. It was found that the model correctly reproduces not only the average characteristics of wind speed, but also its extreme values, which is especially important when modeling storm surges in the Caspian Sea.

Keywords: Caspian Sea, regional nonhydrostatic atmosphere circulation model, numerical methods

Tab. 3. Fig. 5. Ref. 22.