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Short-term forecasting of waterspout-risk conditions for the coastal water of the Black Sea based on the improved index WRI / Kalmykova O.V. // Hydrometeorological Research and Forecasting, 2024, no. 3 (393), pp. 23-41.

The paper considers the issues of improving the quality of short-term forecasts of waterspout-risk conditions for the Black Sea coastal water. The results related to the development of new versions for calculating the regional waterspout risk index (WRI) for both the warm (WRI_{21}) and cold (WRI_W) seasons are presented. The WRI is used to identify zones of high-risk waterspout formation and subsequent localization of waterspout-risk areas of the coast. Calculations of the WRI fields are based on the output of the COSMO-Ru2 mesoscale model with a grid spacing of 2.2 km. Calculations are carried out in real time within the technology for assessing the risk of waterspouts. The skill of forecasting new WRI versions for different periods is analyzed. It is shown that the probability of waterspout detection in the warm season can reach 82% on average. At the same time, there is also a high false alarm rate (about 70%), mainly due to the excessively predicted waterspout risk in certain areas of the coast (Sochi and Tuapse). In the cold season, as expected, a significantly smaller number of waterspout-risk days is predicted as compared to the warm period. Examples of forecasts for different seasons are presented. Recommendations on the use of forecasts for preparing storm warnings are given.

Keywords: waterspout, waterspout-risk conditions, forecast, COSMO-Ru2 model, regional waterspout risk index WRI, waterspouts formation predictors, forecast technology

Tab. 3. Fig. 5. Ref. 9.