DOI: https://doi.org/10.37162/2618-9631-2022-1-89-107

Wind upwelling forecast for the Russian Black Sea coast / Silvestrova K.P., Myslenkov S.A., Repkov D.S. // Hydrometeorological Research and Forecasting, 2022, no. 1 (383), pp. 89–107.

The paper presents a forecast system for wind Ekman upwelling for the Black Sea coast. The system is based on the calculation of the upwelling criterion, which depends on the wind speed and wind direction and the thickness of the upper mixed layer. The archived wind forecast was extracted from the COSMO-Ru07 model. The upwelling forecast with a lead time of 24–72 hours was calculated for three points off the Crimean coast for the period from May to November 2019. The quality of upwelling forecasts was assessed using in situ water temperature measurements in Balaklava, Foros, and Partenit. The comparison showed that 50% of the cases of a significant temperature drop for Foros and Balaklava are successfully predicted with a lead time of 48–72 hours. The cases of the significant temperature drop are rare in the study region, so the result is unsatisfactory. A part of cases that were not predicted by the system are probably downsurge upwellings or the horizontal advection of cold water.

Keywords: upwelling, Black Sea, upwelling forecast, COSMO-Ru07, sea temperature

Tab. 1. Fig. 5. Ref. 36.