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Experience in developing a method for long-term forecasting of the ice breakup time for the Vyatka River basin / Pavroz Y.A. // Hydrometeorological Research and Forecasting, 2021, no. 4 (382), pp. 99-111.

An attempt is made to develop a method for long-term forecasting of the ice breakup time for the Vyatka River basin, to identify the impact of the distribution of sea surface temperature and geopotential height in the informative regions at the levels H100 and H500 over the Northern Hemisphere on the river ice breakup.

The location and boundaries of the informative regions in the fields of H100 and H500 were revealed by the discriminant analysis, the EOF expansion coefficients of the fields of anomalies of monthly mean values of H100 and H500 for January and February and the anomalies of monthly mean sea surface temperature in the North Atlantic and Northwest Pacific were used as potential predictors.

The stepwise regression analysis allowed deriving good and satisfactory ($S/\sigma = 0.45-0.73$) complex prognostic equations for forecasting the ice breakup time for the Vyatka River basin. The essential influence of H100 and H500 geopotential height fields and the spatial distribution of sea surface temperature anomalies in the North Atlantic and Northwest Pacific in January and February on the river ice breakup time is revealed.

It is proposed to improve the method by considering the impact of air temperature, maximum ice thickness per winter, and other indirect characteristics on the processes of river ice breakup in the Vyatka River basin.

Keywords: ice regime, long-range forecast, river ice breakup, expansion coefficients, geopotential height fields, spring ice phenomena, energy-active zones of the oceans, complex prognostic equation

Табл. 2. Fig. 3. Ref. 7.