Hydrodynamic-statistical method of forecast of dangerous precipitation and incurred floods and landslides over the Central and East Europe

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This report presents the results of application of a short-term (up to 12-24-36 hours) automated method of forecast of dangerous precipitation in different seasons over the Central and Eastern Europe. The method is based on statistical interpretation of output hydrodynamic forecast of the hemispherical model. The statistical decisive rules for diagnosis and prognosis of dangerous precipitation for the warm and cold seasons were calculated separately using the data samples of objective analysis in accordance with the data on precipitation over the Central and East Europe. The problem of choose of informative vector-predictor is decided by method of diagonalization of correlation matrix and choosing of factors from blocks of connection predictors. The probabilities of two grades of precipitation, connected with discriminant function, are calculated in the nodes of the grid of 150x150km, covering the territory of Central and East Europe.

The conditional probability of floods and landslides is also calculated automatically in the nodes of the grid according to the duration of forecasted dangerous precipitation of different grades.

The paper presents the examples of the forecast of floods and landslides at the territory of the Northern Italy and in Central East and Southern Europe.