



TRENDS OF THE MAIN FACTORS OF THE SPRING FLOOD IN THE DESNÁ RIVER BASIN

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ABSTRACT

Many publications indicate that the observations data of the spring floods are not stationary and homogeneous. Such trends do not allow us to use the apparatus of mathematical statistics to determine the calculated characteristics. Such trends probably are not accurate, because authors usually use only one method and do not account for cyclical fluctuations. That is why a complex analysis of trends of the spring flood hydrometeorological parameters in the Desna river basin was made. Research based on an assessment of homogeneity, stationarity and cyclical fluctuations of the observations data. The stationarity of the hydrometeorological characteristics was researched on the base of the estimation of the linear trends significance at the 5% significance level. The homogeneity of the observations data was determined by the total integral curve.

The trends of the maximum spring flood water discharges, the sums of precipitation for the spring floods period, the sums of negative and positive air temperatures in winter, the maximum water equivalent of snow cover, etc., shows that the conditions of their formation are stationary and homogeneous. Their changes in time are caused by the cyclical fluctuations.

According to the results it was cartographically presented the distribution of these parameters on the Desna River Basin. Maps are constructed for the following indicators: norms of maximum spring flood water discharges, norms of maximum water equivalent of snow cover, norms of dates of maximum water equivalent of snow cover occurrence, norms of dates of the beginning and the end of the flood, norms of dates of occurrence of the maximum spring flood water discharges in the Desna River Basin. These maps were based on materials of stationary hydrological observations of 6 gauges and 10 meteorological stations on the territory of Ukraine and 2 gauges and 9 meteorological stations on the territory of the Russian Federation.

Key words: stationarity, homogeneity, spring flood, average, maps