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The analysis of streamflow variability and flood wave characteristics on the two lowland rivers in Croatia

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Climate changes affect streamflow variability on the long-term and short-term temporal scale. Consequently, analysis of changes in hydrological regime, but also in intensity and frequency of short-time flood events, enables better understanding of hydraulic and geomorphological processes in rivers. Changes in streamflow variability and flood wave characteristics may lead to intensifying riverbed erosion and lowering infrastructure safety, such as bridges over rivers. The aim of the study is to analyse hydrological regime for historical data from the selected gauging stations on the two large lowland rivers in Croatia: the Sava River and the Drava River. Analysis of the magnitude, frequency, variability, and timing of streamflow is conducted. Additionally, deterministic and probabilistic approach to determination of metrics that describe hydrograph shape is performed for the different threshold levels. Results obtained from this study will help in exploring riverbed erosion processes which may entail the increased scouring around bridge piers and consecutively impair the infrastructure reliability in the changing climate.

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