

PARAMETRIC EVALUATION OF POTENTIAL MAXIMAL FLOW OF SOME RIVERS OF GEORGIA

Davit Kereselidze¹, Vazha Trapaidze², Zaza Gulashvili³

¹ Ivane Javakhishvili Tbilisi State University, Department of Geography, Tbilisi, Georgia (davit.kereselidze@tsu.ge)

² Ivane Javakhishvili Tbilisi State University, Department of Geography, Tbilisi, Georgia (vazha.trapaidze@tsu.ge)

³ Ivane Javakhishvili Tbilisi State University, Institute of Geography, Tbilisi, Georgia (zaza.gulashvili@tsu.ge)

One of the important natural wealth of Georgia is water resources. There are 24 000 river with different types of water supply and this water resource will be estimated approximately by 61.5 km³, on 1 km² area is distributed 900 000 m³ of water, and on 1 resident 12 134 m³. With this parameter Georgia is one of the leader countries in whole Europe.

With river water conductivity regimes is a related disaster, such as freshets and floods. This problem is very important for Georgia too, because of big number of rivers and their nature type differences. Most of rivers originate in high mountains and in particular area, at transition on the low ground, is characterized with big destructive force (energy). Main problem expressed in flooding of large areas. Modern change of climate will increase one of the dangerous phenomenon of disaster – intensity and frequency flooding and associated catastrophic processes (freshets, area overflows, landslides, etc.).

By conditions of formation, freshets on Georgia's rivers may be formed: a) by melted water, which can rich catastrophic size in period of intensive increasing air temperature and snow melting; b) by summer-autumn's intensive rains; c) by autumn's durable rains; d) by short, but intensive rains, occurred in Black Sea coast area.

For mitigation of freshet and flood results is important its detailed research, which means maximum exact calculation of charges and forecasting characters of catastrophic flood. Herewith, need to mark, that in case of suddenness of process and its sudden develop, does not always possible make measuring works timely. All this makes it difficult to identify the correlation between the stochastic processes, further observations can significantly improve the created situation, because it increases and becomes diverse economic activities of people, which in turn changes the characteristics of the objects of study and complicates their adequate identification.

We evaluated freshets and floods frequency variations of some rivers of Georgia, with methods, which provide limitation of initial statistical data. With point estimation of unknown parameters this method makes it possible to determine at what probability (Confidence Probability) gets one or the other option is a random process within the range of values (Confidence Interval).