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THE PREDICTION OF DAILY OUTFLOW FOR AN UNGAGED MOUNTAINOUS BASIN

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ABSTRACT

To evaluate the daily outflow from a 212-km² basin in a mountainous part of the downstream Amur river, which has no rain gages, a modeling approach is needed. The average basin rainfall during a rainfall period (RP) and antecedent river discharge are used as model inputs. Estimating average basin rainfall is described by Fedorovski (this issue) and involves transfer of rainfall data from two permanent stations located more than 50 km away from the basin. The transformation of rainfall into streamflow is based on the Generalized Flood Pattern Method (GFPM). During method development, selected floods are averaged for rainfall durations of 1-6 days and ordinates of unit floods (UFs). It was established that eleven types (patterns) of generalized UFs exist depending on the rainfall duration and location of daily rain maximum in the RP. The flood hydrograph is calculated by multiplying the ordinates of the selected UF by total flood volume, which is derived from the empirical relationship between total rainfall and flood volume. The daily outflow is the sum of the flood hydrograph, flow from the previous flood, and base flow.

Reference: Fedorovski, A. and A. Mezencev; *The Prediction of Daily Outflow for an Ungaged Mountainous Basin*, *Journal of Environmental Hydrology*, Vol. 6, Paper 6, June 1998.

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