ABSTRACT

THE COEFFICIENT ADJUSTMENT OF MODEL PARAMETER OF GAMA 1 SYNTHETIC UNIT HIDROGRAPH AT SUB WATERSHET IN BIONGA KAYUBULAN

By
Suwandy K. Idji
SN : 5114 10 088

The decrease of unit hydrograph from observed flood hydrograph is an important factor in the planning of water building. However, the problem obstacle found is about the difficulty in obtaining the hydrograph data of flood observation, then the decrease of hydrograph is developed and known as synthetic unit hydrograph (SUH). One of the SUH which is often used is GAMA 1. It is developed in Java based on emphirical and local approach as a result, the use of GAMA 1 requires a propertest as in sub watershed located in Bionga Kayubulan.

The proccess of separating the base flow and its run off uses Straight Line Method, that results a Direct Run Off (DRO). The effectiveness of rain is counted though Φ Index. DRO and effective rain get decreased into Observation Unit Hydrograph (OUH) by applying Collins Method. Futhermore, the adjustment test of GAMA 1 is conducted toward OUH. If the test indicates a significant difference of result, then the parameter coefficient of GAMA 1 is adjusted by using software Microsof Excel-Solver.

The time of rise (TR) of OUH in watershed Bionga Kayubulan is 4,5 hours and the peak discharge (QP) is 2,81 M^3/sec. Whereas, based on the result of analysis, TR of GAMA 1 is 2,84 hours and QP is 4,07 m^3/sec. The adjustment test result shows that the GAMA 1 approxiation is better then the adjusted previous GAMA 1. The value of CE before being adjusted was 0,20 and after being adjusted it reaches 0,95. The value of EV before being adjusted was 26,03% and after being adjusted it becomes 6,52%. Moreover, the value of EQP before being adjusted was 44,96% and after being adjusted it get 0%. The value of the value of AETR before being adjusted was 1,66 hours and after being adjusted it is 0 hours.

Key words: *The Coefficient Adjustment , Gama 1 Synthetic Unit Hidrograph*