ANALISIS REGIONALISASI CURAH HUJAN BERDASARKAN KURVA INTENSITAS-DURASI-FREKUENSI DI LERENG MERAPI

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ABSTRACT

Rainfall intensity is an important data which is the most needed in hydrological analysis. The error size of hydrologic information which comes from the hydrological analysis will affects the accuracy of the design of hydraulic structure, which may cause the results will be over estimated or under estimated. The most often problems in the hydraulic design is there is no point rainfall information which represent a specific catchment area. In this case, the information of regional rain characteristic is obviously needed to establish the design scale, such as Intensity- uration-Frequency of the rainfall (IDF). This can be applied to IDF regional analysis which based on rainfall data measurement from several stations in the study area.

According to procedure of Le Minh Nhat, Yasuto Tachikawa and Kaoru Takara (2006), the advance step in developing IDF regional curve is the determination the empirical formula based on short duration rainfall data which fit to the rainfall characteristics by using Root Mean Square Error (RMSE) as indicator. The empirical formulas that applied to this research are Talbot, Sherman, Ishiguro, and Kimijima. Then, the regionalization IDF by using ArcView 3.3 software through the spatial interpolation to each parameter based on the best rain characteristics.

The research results to the 8 rain rainfall stations on Merapi slopes concludes that the Sherman formula is the best application to get empiric formula of rainfall intensity to this area. The analysis of regionalization IDF accuracy shows the relative error value in variation at some duration and return periods which is between 11,7% to 18,51%. Whereas, regionalization IDF accuracy test analysis to calculate the design flood discharge in the selected area shows large deviation values to 2, 5, 10, 15 and 20 years return periods which is 61,79%, 60,68%, 60,43%, 61,60 % and 63,45 % respectively. In order to have more accurate information, the study on the deviation design flood by using observed discharge data is required.

Key words:
regionalization, spatial interpolation, IDF curve