Comparison of GEV and Gumble's distribution for Development of Intensity Duration Frequency Curve for Flood Prone Area in Sabah

ABSTRACT

Rainfall data has a significant role in hydrological design which is, it's produce the intensity duration frequency curve. IDF curve gives critical information that needed in the design of water management infrastructure, it gives information by showing the mathematical relation of rainfall intensity, recurrence interval of the storm and duration of storm. This paper aims to compares and develop IDF curve using two frequency distribution which is generalized extreme value distribution (GEV) and Gumbel distribution (EV1). Then, the best fit distribution for flood-prone area in Sabah will be choose and determined from the two-mentioned distribution. The goodness of fit test that used to determine the best distribution is chi-square test, it works by determining the differences between observe data value from Weibull formula and the estimated values from GEV and Gumbel's distribution method. After that the chi-square value for GEV and Gumbel is compared to the critical value from chi-square table at significant level of 5%. From the Chi-square test, it is concluded that Gumbel's (chi square value Tandek:0.47952, patiu:1.0531, babagon: 1.026931, Ulu Moyog:0.382415) shows a better fit distribution compared to GEV distribution (chi square value Tandek:59.7598, patiu:16.5746, babagon: 3.3555347, Ulu Moyog:22.1315)