THE PROBABILITY DISTRIBUTION OF DAILY RAINFALL DISTRIBUTION IN KLANG VALLEY

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ABSTRAK

Taburan hujan harian di Lembah Klang, Selangor dipilih kerana banyak berlakunya banjir kilat. Sistem asal perparitan dan infrastruktur telah pun direkabentuk berdasarkan data hujan, tetapi kapasiti jaringan perparitan tidak mencukupi untuk menampung air hujan apabila hujan lebat berlaku dalam masa yang singkat yang akan menyebabkan perubahan iklim global. Antara objektif kajian ini adalah untuk mengenalpasti kebarangkalian taburan hujan harian di Lembah Klang, Malaysia. Kajian ini telah dispesifikasikan kepada lima daerah di Lembah Klang antaranya, Petaling Jaya, Wilayah Persekutuan, Gombak, Klang dan Hulu Langat. Data siri tahunan diambil dari tahun 1995 sehingga 2015 daripada 17 stesen. Dalam kajian ini, Normal dan Log-Pearson Type III digunakan untuk menganalisa kebarangkalian yang sesuai. Berdasarkan analisis kebaikan penyuaian, taburan Log-Pearson Type III membuktikan ia adalah taburan yang paling sesuai untuk data taburan harian di semua stesen untuk Lembah Klang bagi kedua-dua ujian Chi-Square dan Anderson-Darling.

ABSTRACT

Distribution of daily rainfall in Klang Valley in Selangor was selected because many flash flood events were occurred. The existing system of drainage and infrastructures were designed based on historical rainfall data, but the capacity of the drainage network will not be sufficient enough with high intensive short duration rainfall which is expected to change due to global climate alteration. The main objective of this study was to assess the probability distribution of daily rainfall distribution in Klang Valley, Malaysia. The study has been specified into five districts in Klang valley which is Petaling Jaya, Wilayah Persekutuan, Gombak, Klang and Hulu Langat. The annual maximum series data were collected from year 1995 until 2015 from 17 stations. In this study, Normal and Log-Pearson Type III are identified to evaluate the best fit probability. Based on the analysis of goodness of fit tests, Log-Pearson Type III distributions prove to be the most appropriate distribution for annual maximum daily rainfall at all stations under study for Klang Valley river basin for both Chi-Square and Anderson-Darling test.