

## ABSTRACT:

The long term rainfall characteristics of an area are best understood if the statistical distributions describing the various rainfall parameters have been modeled. The distributions can be used in applications that need rainfall information such as stormwater management, agriculture and many others. In this paper the suitability of four different types statistical distributions in modeling wet spell duration in Peninsular Malaysia have been tested. Hourly rainfall data, of 10 to 22 years period, from 12 representative stations spread across the Peninsular were collected. Four statistical distributions, namely, Generalized pareto, Exponential, Gamma and Beta distributions were proposed to model the distribution of the wet spell. Kolmogorov-Sminov, Anderson-Darling and Chi-squared goodness-of-fit tests were used to evaluate the model fitness. Based on 6hr storm separation time; the mean rainfall frequency ranges from 115 to 198 events per annum. Statistics of duration shows that Kuala-Lumpur receives the lowest mean duration of 4.08hr per event while Khota-Bahru receives the highest value of 10.47hr. Goodness-of-fit indicates that Generalized pareto, exponential and Gamma distributions can be used at 5% level of significance. However, Generalized pareto is found to fit better than the remaining distributions.