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# Statistical modelling of extreme temperature in Peninsular Malaysia

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## Abstract

Extreme temperature events bring significant effects on the environment and society. Consequently, investigating the best fit for extreme temperature data is important for hydrological study and event forecasting. The main aim of this study is to determine the best fit probability distribution for monthly and annual extreme temperatures. The maximum temperature data at monthly and annual time scales were obtained from MMD ( Malaysia Meteorological department). The temperature data for 40 years were fitted to the 10 probability distributions for each station. The parameters of the distributions were estimated by the maximum likelihood method and L-moment method. Besides,

three goodness of fit tests, namely Kolmogorov-Smirnov (K-S), Anderson-Darling (A2) and Chi-Squared Error (CSE) test were applied to evaluate the performances of the distributions. The best fit distribution was selected based on the lowest test scores from the summation of the three goodness of fit tests. The results of this study showed that Generalized Extreme Value distribution was selected as the best-fit distribution, followed by Log-Pearson 3, 3 Parameter Lognormal, Generalized Log Logistic and Gamma distributions. The results of this study can be used as a reference for development planners, agricultural sector, water management agencies in hydrological planning and disaster management. © Published under licence by IOP Publishing Ltd.

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