

Modelling rainfall duration and severity using copula.

ABSTRACT

Malaysia experiences two monsoon periods which are usually accompanied by floods and such occurrences have been quite frequent over the past two decades. Muda river which is located in the Northern part of Malaysia has experienced major flood events which are linked to the rainfall duration and severity. Copula modelling has become popular in various fields like insurance, finance, geostatistics, hydrology, etc. In Malaysia, copula modelling of floods and rainfall have not been undertaken yet and therefore the objective of this study is to fit the copulas to the rainfall duration and severity data of a selected station in Malaysia. We found that both the rainfall duration and severity follow Gamma distributions and the Gumbel-Hougaard copula appears to be a suitable model for modelling rainfall duration and severity.

Keyword: Standardised precipitation index; Copulas; Rainfall severity; Rainfall duration.