

Modelling Extreme Rainfall Using Adjusted Sandwich Estimator

ABSTRACT

The Generalized Extreme Value (GEV) distribution is often used to describe the frequency of occurrence of extreme rainfall. Modelling the extreme event using the independent Generalized Extreme Value to spatial data fails to account the behaviour of dependency data. However, the wrong statistical assumption by this marginal approach can be adjusted using sandwich estimator. In this paper, we used the conventional method of the marginal fitting of generalized extreme value distribution to the extreme rainfall then corrected the standard error to account for inter-site dependence. We also applied the penalized maximum likelihood to improve the generalized parameter estimations. A case study of annual maximum rainfall from several stations at western Sabah is studied, and the results suggest that the variances were found to be greater than the standard error in the marginal estimation as the inter-site dependence being considered.