

# **Modeling the Extreme Rainfall Data of Several Sites in Sabah using Sandwich Estimator**

## **ABSTRACT**

When the extreme data were obtained from several sites in a region, spatial extreme analysis is always been considered. In this paper, we model the annual maximum rainfall data by using generalized extreme value distribution. We fit the model independently for each site to prevent extreme value complex modeling. However, it also cause the statistical assumption of dependency between sites been violated. Therefore, we applied the sandwich estimator to correct the variance of the model. We also consider an analysis of small sample sizes of the observed data. The method of penalized maximum likelihood estimation was carried out to improve the inference of the model. In the end, the return levels of the annual maximum rainfall data were computed by using the corrected model.