Modelling annual maximum river flows with generalized extreme value distribution

ABSTRACT

A good understanding of probability distribution of annual maximum river flow is believed to improve water resources planning and design. Based on the annual maximum river flow record over 20-48 years at 9 individual river sites in Sabah, the data set are fitted into generalized extreme value (GEV) distribution with maximum likelihood estimator. Both stationary and non-stationary models are considered. Likelihood ratio test shows that most of the river flows are stationary. Over a homogeneous region, a parent distribution with common shape parameter is found well describing the behavior of selected annual maximum river flow. Hence, 10- and 100-year return levels are estimated using the single model