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An Extension of the Generalized Extreme Value Distribution

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Abstract : A q-analogue of the generalized extreme value distribution which includes the Gumbel distribution is introduced. The additional parameter q allows for increased modeling flexibility. The resulting distribution can have a finite, semi-infinite or infinite support. It can also produce several types of hazard rate functions. The model parameters are determined by making use of the method of maximum likelihood. It will be shown that it compares favourably to three related distributions in connection with the modeling of a certain hydrological data set.

Keywords : extreme value theory, generalized extreme value distribution, goodness-of-fit statistics, Gumbel distribution
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