

Modeling univariate block maxima by the generalized extreme value distribution constitutes one of the most widely applied approaches in extreme value statistics. Next to maximum likelihood, estimation based on matching probability weighted moments provides the most common estimation strategy, in particular for negative shape parameters. Within a traditional sampling scheme and a new sampling scheme involving certain piecewise stationarities, it is shown that the latter estimator may be improved by calculating block maxima in an overlapping way. Irrespective of the serial dependence, the estimation variance is shown to be smaller for the new estimator, while the bias often stays the same or varies comparably little. The results are illustrated by Monte Carlo simulation experiments and are applied to a common situation involving temperature extremes in a changing climate.

Keywords: Asymptotic normality, extreme value statistics, Marshall–Olkin distribution, return level, temperature extremes.