Finite sample inference for extreme value distributions

Dixon, Mark J.,[*]
Anthony W. Ledford,[†] & Paul K. Marriott[†]

Abstract

The problem of small sample inference is considered for the extreme value distributions. It is shown that there exist approximate and exact ancillary statistics for these distributions and that small sample likelihood based inference is greatly improved by conditioning on them. The findings are illustrate via simulation and then by analysis of two data sets, one based on sea-levels and the other on insurance claims.

Key References: ancillary statistic, asymptotic ancillarity, conditional inference, estimator performance, generalised extreme value distribution, maximum likelihood estimation.

[*]Department of Statistics University of Newcastle-upon-Tyne, UK
[†]Department of Mathematic and Statistics, University of Surrey, UK