Estimation of the extreme value parameters with interval censored and non-censored data

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Abstract: When historical extreme measurements exist, they are typically not accurate. They are usually known to be bounded by upper and lower values. It means we have interval-censored data. These data are combined with accurate measurements which are not historical and are more recently collected. This situation is motivated by a real data example with historical data. We deal with several approaches for the estimation of the parameters of the distribution tail in such a case. We focus on robust estimation and also possible maximum likelihood approaches. The different estimation methods are compared analytically and by simulations.