



# Pitman closeness of current records for location-scale families

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## Abstract

In this paper, the largest and the smallest observations are considered, at the time when a new record of either kind (upper or lower) occurs based on a sequence of independent random variables with identical continuous distributions. These statistics are referred to as current upper and lower records, respectively, in the statistical literature. We derive expressions for the Pitman closeness of current records to a common population parameter and then apply these results to location-scale families of distributions with a special emphasis on the estimation of quantiles. In the case of symmetric distributions, we show that this criterion possesses some symmetry properties. Exact expressions are derived for the Pitman closeness probabilities in the case of uniform $(-1, 1)$  and exponential distributions. Moreover, for the population median, we show that the Pitman closeness probability is distribution-free.

**Keywords and Phrases:** Current records, Location-scale family, Pitman closeness, Pitman-closer estimator, Quantiles.

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