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**A Hybrid Estimator for Density with Extremes**

*Abstract:* Extreme weather events that are often important in assessing the impact of climate on our society and the natural environment. To model a non-parametric long tailed distribution, the developed kernel density and logspline method may lack of accuracy in the tails, while the General Pareto Distribution (GPD) do not give the information to the non-extreme section of the data. This study is about a hybrid statistics model combining the logspline method with a parametric GPD tail, by which we can learn about the whole density of the variable and give a more accurate estimation on the probability of the extreme events.