

UPPER-TRUNCATED CUMULATIVE NUMBER-SIZE DISTRIBUTIONS

S. Tebbens (1) and S. Burroughs (1,2)

(1) University of South Florida, (2) University of Tampa

For many natural phenomena a power law relationship exists between the cumulative number of objects and object size. Many natural data sets lack the largest objects predicted by the power law and thus are upper truncated. Such data sets exhibit a predictable fall-off from the power law. We derive an equation describing the fall-off in terms of the coefficient and exponent of the underlying power law. We apply this fitting function to several upper-truncated cumulative data sets, including earthquake seismic moment, earthquake magnitude and tsunami runup height.