



## About Exponential Damage Functions

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In order to estimate future damage caused by natural hazards, it is desirable to know the damage caused by single events. So called damage functions provide for a natural catastrophe of certain magnitude a specific damage value. However, in general, the functional form of such damage functions is unknown. We analyze the magnitude of recorded damage data and find Zipf's law, i.e. a power-law distribution density with exponent  $\alpha \approx 2$ . Natural catastrophes are caused by extreme events. Since it has been shown that these can be well described by Generalized Extreme Value (GEV) statistics, we are able to analytically relate the two distributions and obtain an exponential damage function, providing an average damage value for certain magnitude.