



On Mechanistic Explanation of the Shape of the Universal Curve of Earthquake Recurrence Time Distributions

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Abstract

This paper outlines an idea for an explanation of a mechanism underlying the shape of the universal curve of the Earthquake Recurrence Time Distributions. The proposed simple stochastic cellular automaton model is reproducing the gamma distribution fit with the proper value of parameter γ characterizing the Earth's seismicity and also imitates a deviation from the fit at short interevent times, as observed in real data.

Thus the model suggests an explanation of the universal pattern of rescaled Earthquake Recurrence Time Distributions in terms of combinatorial rules for accumulation and abrupt release of seismic energy.

Key words: stochastic cellular automaton, earthquake recurrence time, avalanches, toy model of earthquakes, Markov chains.