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Scaling laws for the distributions of recurrence times for forest fires in Italy

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Recurrence times, defined as the time between consecutive fire events above a certain size in a given region, is calculated for a catalog compiled by AIB/FN for all Italy. The probability densities of the recurrence times, defined essentially as the box histogram normalized by the size of each box and by the number of recurrences is found to verify the following scaling law, Dw(t) = Rw f(Rw t), where t is the recurrence time, Dw(t) the probability density for the space-time-size window w, Rw is the rate of occurrence if fires in w, and f is the scaling function [1]. The shape of the scaling function, possible explanations of the results, and the similarities and differences with earthquakes [2] are discussed.

[1] A. Corral, L. Telesca and R. Lasaponara, preprint, 2007

[2] A. Corral, Phys. Rev. Lett. 94, 108501 (2004)