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Temporal variation of the seismic unified scaling law parameters

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The evident heterogeneity of patterns of seismic distribution and dynamics are apparently scalable according to the generalized Gutenberg-Richter recurrence law that accounts for the fractal nature of faulting. The results of our global and regional analyses imply that the recurrence of earthquakes in a seismically prone site, for a wide range of magnitudes and sizes, can be characterized with the following relation lg N(M, L) = A + B (5 - M) + C lg L, where N(M, L) is the average annual number of earthquakes of magnitude M within a seismic area of liner size L. We continue mapping the A, B, and C parameters of the unified scaling law for earthquakes on a regional scale. When the JMA data is considered in the two consecutive 3-year intervals ending on August 1, 2002 we find the evident variation of all the three parameters within a compact area between 32N-36N and 137E-142E. In particular, the change of A corresponds up to 30-fold increase of seismic rate on the earthquake prone skeleton, which fractal dimension C collapses from 1.4-0.8 to about 0.4, the B-value switches from about 1.0+0.2 to 1.0-0.2. The changes could be related to the so-called “ongoing Tokai silent earthquake”, which according to Kawasaki (2004) started in 2001 and exceeded magnitude 7 by the end of 2002. We discuss other alternatives.