

## Seismic Hazard and Risk Assessment (SHandRA): the Greater Caucasus and Crimea

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We continue applying the general concept of seismic risk analysis in a number of seismic regions worldwide by constructing regional seismic hazard maps based on morphostructural analysis, pattern recognition, and the Unified Scaling Law for Earthquakes (USLE). The USLE generalizes the Gutenberg-Richter relationship making use of naturally fractal, multiscale distribution of earthquake sources of different size in a seismic region:  $\log N(M,L) = A - B \cdot (M-6) + C \cdot \log L$ , where  $N(M,L)$  is the expected annual number of earthquakes of a certain magnitude  $M$  within an seismically prone area of linear dimension  $L$ . The parameters  $A$ ,  $B$ , and  $C$  of USLE are used to estimate, first, the expected maximum magnitude in a time interval at seismically prone nodes of the morphostructural scheme of the region under study, and then to map the corresponding expected ground shaking parameters including macro-seismic intensity. After a rigorous testing against the available seismic evidences in the past (e.g., the historically reported macro-seismic intensity), such a seismic hazard map is used to generate maps of specific earthquake risks for population, cities, and infrastructures (e.g., those based on census of population). The methodology of seismic hazard and risks assessment is illustrated by application to the territory of Greater Caucasus and Crimea.