



Comprehensive analysis of seismic activity at the ultimate scale of the Earth

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In line of the intermediate-term monitoring of seismic activity aimed at prediction of the world largest earthquakes the seismic dynamics of the Earth's lithosphere is analysed as a single whole, which is the ultimate scale of the complex hierarchical non-linear system. The present study demonstrates that the lithosphere does behave, at least in intermediate-term scale, as a typical non-linear system that reveals classical symptoms of instability at the approach of catastrophe, i.e., mega-earthquake. These are (i) transformation of magnitude distribution, (ii) spatial redistribution of activity, (iii) rise and acceleration of activity, (iv) change of dependencies across magnitudes of different types, and other patterns of collective behaviour. The observed global scale seismic activity implies the state of criticality in the last decade.