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Short-term earthquake prediction is possible

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The research deals with a problem of control over a preparation process of a severe earthquake and its express diagnostics so as to tackle a problem of providing efficient prediction.

The technique of analyzing earthquake preparation process is based on studying the energy structure of a focal area under control and plotting energy levels of the studied process according to the seismic monitoring data. Eliciting certain energy precursors and inspecting their alterations enables one to provide a dynamic (adaptive) prediction of temporal and magnitude characteristics of an expected seismic event in accordance with the data received. This technique has been tested on different seismic areas and well-studied earthquakes that occurred over the last few years and shown good prognostic qualities.

The research provides the results of the practical implementation of the aforesaid technique by KNIIGiMS seismological service. In the year of 2005 using the data of the global and regional seismic monitoring systems we carried out express diagnostics of the preparation process of severe earthquakes that cost great sacrifices in blood and treasure.

Thus, we carried out a methodologically consistent contrastive analysis, found characteristic features of the preparation and aftershock processes of the largest earthquakes of 2005 that occurred in different seismic areas. It is shown that the energy precursors elicited in the real-time mode provide an essential contrast and lead time for practical use by the services of natural hazard mitigation.