



Using powerful vibrators for calibration of seismic traces in nuclear explosion monitoring problems

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The efficiency of functioning of the International Seismic Monitoring System (ISMS) is connected with the accuracy of the location and identification of a source of seismic waves which can be nuclear explosion. The errors in the determination of the location are caused by local and regional variations of wave hodographs. Empirical approach to solving these problems is to use events for which the locations and times are known, in order to determine a set of corrections to the regional model of wave propagation. The using of powerful vibrators for calibration of seismic traces is a new way in nuclear explosion monitoring problems. Now the 60-100 tons force vibrator can radiate the signals which can be recorded at the distances up to 500 km and can be used for regional calibration of seismic traces. The comparison of the seismic wave fields of powerful vibrators and 100-ton chemical explosion "Omega-3" at the 630-km profile, quarry explosions of the Kuznetsk basin with power from 50 to 700 tons at the distances up to 355 km showed their equivalence in the main types of waves. The paper presents the results of experiments of long-distance recording of seismic signals of powerful vibrators and detailed investigation of the velocity characteristics of the Earth's crust in West Siberia and Altay-Sayan region.