

Aimed at Enhancing the Effectiveness of Seismic Monitoring in West Kazakhstan

At the region of the west Kazakhstan there were no constant seismic observations for a long period of time. In 1994, seismic station AKTK was put into operation at the region of Mugodzhar Range; in 2005, at the same place, the auxiliary station of the IMS AS059 was installed. In 2003, a small aperture seismic array ABKAR was run. Absence of suitable velocity model for this territory, finally, led to significant events location errors. The report shows the estimation of seismic monitoring efficiency by stations AS059 and ABKAR: recording range depending on magnitude, estimation of dynamic parameters of seismic noise. Seismic sources of different nature in western Kazakhstan were analyzed; among them, the following ground-truth events were noted: records of peaceful nuclear explosions conducted in Soviet time, quarry blasts with known parameters and earthquakes recorded by a local seismic network. The travel-time curve for the western part of Kazakhstan was constructed; it was compared with the travel-time curves constructed using data of deep seismic sounding for the southern Ural and Mugodzhar, and region of Caspian depression, as well as with ak135 travel-time curve. For AS059 and ABKAR the station azimuthal and velocity corrections for separate seismically active regions were calculated.

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