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Focal Mechanisms as Criterion for Explosions Discrimination

Recommends using first motion of P-wave for filtration of phenomena. Positive shifts should be observed in first arrivals of longitudinal waves in all directions from an explosion. Our practical observations showed that it is not always possible to discriminate an explosion using these criteria. In some cases on the seismograms of the same explosion obtained in different azimuths from an epicenter both positive and negative shifts were observed in first motions. Nuclear explosions. In Caspian depression focal mechanisms were constructed for 19 nuclear explosions which were mistakenly entered in a catalogue of earthquakes focal mechanisms. Calibration explosions. Calibration experiments Omega-2 and Omega-3 were conducted. Distribution of signs for two explosions was almost the same, and this resulted in identical solutions of the explosions focal mechanisms. One of nodal planes has extension which coincides with fault orientation at which an explosion chamber was installed. Industrial blasts. Focal mechanisms are constructed quite often for this type of explosions conducted in quarries. Thus, it is not always possible to identify definitely an explosion using such criteria as “first motion of P-wave” and “focal mechanism”. Abnormal cases by these criteria were revealed among explosions of different types: nuclear, cali-bration, quarry.

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