



Post-blasting seismicity in Rudna copper mine, Poland - source parameters analysis.

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The really important hazard in Polish copper mines is high seismicity and corresponding rockbursts. Many methods are used to reduce the seismic hazard. Among others the most effective is preventing blasting in potentially hazardous mining panels. The method is expected to provoke small moderate tremors (up to M2.0) and reduce in this way a stress accumulation in the rockmass. This work presents an analysis, which deals with post-blasting events in Rudna copper mine, Poland. Using the Full Moment Tensor (MT) inversion and seismic spectra analysis, we try to find some characteristic features of post blasting seismic sources. Source parameters estimated for post-blasting events are compared with the parameters of not-provoked mining events that occurred in the vicinity of the provoked sources. Our studies show that focal mechanisms of events which occurred after blasts have similar MT decompositions, namely are characterized by a quite strong isotropic component as compared with the isotropic component of not-provoked events. Also source parameters obtained from spectral analysis show that provoked seismicity has a specific source physics. Among others, it is visible from S to P wave energy ratio, which is higher for not-provoked events. The comparison of all our results reveals a three possible groups of sources: a) occurred just after blasts, b) occurred from 5min to 24h after blasts and c) not-provoked seismicity (more than 24h after blasting).

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