



Analysis of post-blasting source mechanisms of mining-induced seismic events in Rudna copper mine, Poland.

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Copper ore exploitation in the Lower Silesian Copper District, Poland (LSCD), is connected with many specific hazards. The most hazardous one is induced seismicity and rockbursts which follow strong mining seismic events. One of the most effective method to reduce seismic activity is blasting in potentially hazardous mining panels. This way, small to moderate tremors are provoked and stress accumulation is substantially reduced. This work presents an analysis of post-blasting events using Full Moment Tensor (MT) inversion at the Rudna mine, Poland using signals dataset recorded on underground seismic network. We show that focal mechanisms for events that occurred after blasts exhibit common features in the MT solution. The strong isotropic and small Double Couple (DC) component of the MT, indicate that these events were provoked by detonations. On the other hand, post-blasting MT is considerably different than the MT obtained for common strong mining events. We believe that seismological analysis of provoked and unprovoked events can be a very useful tool in confirming the effectiveness of blasting in seismic hazard reduction in mining areas.