



Full moment tensor inversion of mining induced seismic events recorded at the Legnica-Glogow Underground Mining Induced Earthquake Observing System (LUMINEOS), Poland

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Since January 2013 a new surface seismic network LUMINEOS (Legnica-Glogow Underground Mining INduced Earthquake Observing System) is in operation to monitor induced seismicity around the mining district of Legnica Glogow Copper District (LGCP), Poland. The network belongs to the Institute of Geophysics of the Polish Academy of Sciences. The network is located above the deep copper mine "Rudna". It consists of nine three-axis short period seismometers and continuously records seismic events connected with intensive copper ore excavation at close by mines. In parallel, the mining company operates an in-mine underground seismic network, consisting of 32 short period vertical sensors. During 2013 several strong induced seismic events with $M > 2.5$ were recorded on both networks. The collected data set provides an opportunity to analyze their focal mechanisms. In this work we present the first results of full moment tensor inversion for mining induced seismic events, using both recording systems. LUMINEOS results were obtained with waveforms inversion using the Kiwi tool package (<http://kinherd.org>), while for the in-mine network, we used a first amplitude P-wave inversions. Our results suggest that both systems can be used complementary in cases of strong mining events, providing a well constrained focal mechanism and information on the rupture processes in the mine.