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Comparison of performance of Double Difference and Single Event location techniques in mining environment

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Problem of precise location of mining tremors is very important not only from mining and engineering point of view, but is also crucial for some advanced seismological analysis of the mining induced seismicity such as velocity and attenuation tomography and many others. Since the mining seismicity tends to cluster in space the location techniques using this feature such like DD method should be favourable in the advanced data analysis processing. The Double-Difference relocation method allows to reduce the location uncertainty of the different events in a cluster and it also reduces the influence of the velocity structure on the location results. Comparison with Single Event location method should help evaluate if the clustering of events for particular known network configuration improves the location estimations for DD technique. In this presentation such an evaluation based on the Rudna (Poland) copper mine data set has been carried out using Bayesian inversion approach.