

Semi-controlled experiment in a gold mine in South Africa(19)Source location and b-value determination

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We have been carrying out micro-seismic monitoring at 2600m depth in South African gold mine. We selected seismic events with ray paths that aren't affected by inhomogeneous structure, to determine exactly the accelerometer's orientation, and located sources using P-wave direction and P-S time duration with errors less than 20m. We confirmed that source locations had great scatter by influence of curving Ray-Path, if inhomogeneous structure exist between source and site. We investigated the b-value for clusters ranging from 0.7 to 3.0. The low b-value was seen in the cluster at the narrow remnant of reef, suggesting higher stress concentration.