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Slip distribution of M5.5 Orkney earthquake using minig networks at close distance

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There are very dense seismic networks around the gold mining area in South Africa to monitor the earthquakes associated with the mining. The M5.5 Orkney earthquake which occurred on 5 August 2014 10:22 UTC close to the Moab Khotsong gold mine, is recognized as one of the strongest events that occurred near the South African mining areas. Investigatation of this earthquake is quite important issue for safe mining and understanding the seismicity of the region. This is an exceptional case of a moderate magnitude earthquake recorded by a subsurface network at very close distance. We model the seismograms of the Orkney earthquake recorded on surface and subsurface mine stations. We determine the slip distribution for the earthquake and evaluate the effects on the results using different stations distributions and different ranges of parameters, such as frequency range, number of time windows, and rupture velocity. The best model shows a slip distribution with an area of large slip a few kilometers to the north of the hypocenter, and another area a few kilometers to the south at slightly greater depth.