

2.3-P08. Explosion Source Calibration Using a Large Data Set From Neighbouring Quarries

Calibration of explosion sources, via quarry blast monitoring is an important seismological ingredient for establishing a regional seismic nuclear discriminant. To create this calibration we are fortunate to have access to a sequence of 1790 three component recordings of quarry blasts, shot from March 2002 to January 2015. The centroid of these blasts has an estimated location 36.3E and 29.9N. All data are recorded at the Israeli NDC, HFRI, located at 30.03N and 35.03E. For each component we edit the data set to remove anomalously large amplitudes and then Butterworth bandpass filter all traces from .5 to 10Hz. Initially, we compute a mean trace without any gain correction. This averaging results in very well defined P, S and surface waves. Unsurprisingly, due to large variations in explosion yield and location variation, the computed standard deviation trace is largest in the neighborhood of the P and S arrivals. We have binned the complete set of arrivals and have grouped them according to maximum amplitude. For each bin we perform a singular value decomposition to extract the most common signal and for all components compare these signals to determine the relative scaling of the P, S and surface waves.

Primary author: YEDLIN, Matthew (University of British Columbia)

Presenter: YEDLIN, Matthew (University of British Columbia)

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