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Quarry Blast Discrimination for the Events Near BURAR Array (Romania) Using Different Specific Techniques

Since 2002, when the Bucovina (BURAR) array was installed in the north-east of Romania, numerous small-magnitude events were detected, characterized by impulsive first arrival phases. Since most of these events occurred during day time, the purpose of our work is to apply different discrimination techniques to identify the quarry blasts events generated in the array neighborhood. It is important to demonstrate that these small events belong to quarries located near array in order to use them to calibrate travel times, slowness or/and backazimuth. First, we compared the spectra of the waveforms recorded for the studied events with those of events classified as earthquakes. The analysis revealed that in most cases for the events characterized by small magnitudes,the P-wave spectral amplitudes were greater than the S-wave spectral amplitudes, this behavior being typical for quarry blasts. We investigated in parallel the Rayleigh waves'behavior for the two types of events together with their spectrograms. Since the approach proposed in this paper led to reliable results, it can be further extended to be applied to other three-components broadband stations located in different regions where low magnitudes events with similar characteristics are recorded.

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