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Calibration of seismic source parameters using BURAR (Romania) array data.

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Bucovina seismic array (BURAR) is a medium-aperture array, installed in 2002 in the northern part of Romania (47.6148^{0}N latitude, 25.2168^{0}E longitude, 1150 m altitude), as a result of the cooperation between Air Force Technical Applications Center, USA and National Institute for Earth Physics, Romania. The array consists of ten elements, located in boreholes and distributed over a 5x5 km^2 area; nine with short-period vertical sensors and one with broadband three-component sensor. Since the new station has been operating the earthquake survey of Romania territory has been significantly improved. Data recorded by BURAR during 01.01.2005 – 12.31.2005 time interval are first processed and analyzed, in order to establish the array detection capability of the local earthquakes, occurred in different Romania seismic zones. Then a spectral ratios technique is applied in order to determine the calibration relationships for magnitude, using only the information gathered by BURAR station. The spectral ratios are computed relative to a reference event, considered as representative for each seismic zone. This method has the advantage to eliminate the path effects. The new calibration procedure is tested for the case of Vrancea intermediate-depth earthquakes and proved to be very efficient in constraining the size of these earthquakes.