1
2

FAST MOMENT MAGNITUDE ESTIMATIONS FROM P-WAVE SPECTRAL PARAMETERS OF VRANCEA REGION WITH USE OF BREWS (BUCHAREST RAPID EARLY WARNING SYSTEM)

1

Grzegorz LIZUREK[1] Alexandru MARMUREANU[2] and Jan WISZNIOWSKI[3]

1
2

Since the Vrancea region earthquakes are occurring within range between 60 to 200km and the stations are placed in close epicentral distance from the source zone the best and most robust method for fast spectral level determination was to use the P wave trains. Because of the location of events the incident angle of the P waves was high and the data quality was very good. The algorithm of spectral level determination was based on up to 3 second window from first P wave arrival on the accelerometer stations. Then the FFT and spectrum were determined for displacement seismograms obtained by integration of original records. Upon well known relation of Seismic Moment and Spectral Level the estimates of M_0 was calculated and then the estimates of Mw based on Hanks and Kanamori, 1979 formula was also calculated. The testing procedure and site correction values were also prepared. They were be based on about 100 events from magnitude range between 3.5 up to 6. The P wave spectral approach for magnitude estimation allow for the relatively fast additional determination of magnitude complementary for the routine magnitude determination in BREWS.

1
2

REFERENCES

1

Hanks, T. C., and H. Kanamori (1979), A moment magnitude scale, J. Geophys. Res., 84(B5), 2348–2350, doi:10.1029/JB084iB05p02348

[1] Ph. D., Institute of Geophysics Polish Academy of Sciences, Warszawa, lizurek@igf.edu.pl
[2] Ph.D., National Institute for Earth Physics, Magurele, maramura@infp.ro
[3] Ph. D. Eng., Institute of Geophysics Polish Academy of Sciences, Warszawa, jwisz@igf.edu.pl