An Approach for Removing FIR Filter Effect in Seismic Signals

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Abstract:

In digital seismic networks, in which symmetric impulse response of linear phase Finite Impulse Response (FIR) filters are most commonly used, seismic signals suffer from precursory signals to impulse arrivals. These effects have to be removed from the seismic record prior any analysis or interpretation. In this paper an alternative approach for removing FIR filter effects in seismic signals was developed. In the Egyptian National Seismic Network (ENSN), we choose Fayom station for studying this effect. Applying three methods of filtering, low pass filtering, wavelet analysis and also we use correction to the phase response method. The FIR is that used in the digitizer at the station itself. We find after comparing the results of all methods that the correction to the phase response method is the most effective without loss of bandwidth. Using wavelet transform: choosing a suitable wavelet (db) give also a good results.