ABSTRACT

ARMA models are obtained with parameters chosen to fit real accelerograms time series of different records. The maximum likelihood technique is used to estimate the parameters. A random set of accelerations is generated for each event and used to establish statistically valid structural response spectra. From a sample of real acceleration, the mean and variance of response spectral ordinates are obtained for damage predictors namely peak linear displacement, ductility demand and hysteretic energy demand and compared to spectra based on single acceleration records. These Models are used to assess the damage potential in acceleration records.