



Statistics of Earthquake Influence on Buildings by means of Seismic Acceleration

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This work aims to investigate the statistics of earthquake influence on buildings by studying the correlation of earthquake parameters (magnitude, epicentral distance, azimuth, depth) with the observed seismic acceleration of different floors of a building, as well as of buildings of different age. Crete is on the Hellenic arc, a region with very high seismicity. The study exploits the significant and miscellaneous seismicity of the Southern Hellenic Arc (Greece). Structural Health Monitoring Systems (SHMs), composed by high sensitivity accelerometers, are installed in two different age neighboring buildings, each one consisting two floors, of the Technological Educational Institute of Crete (TEI) located in a suburb of the Chania city (Western Crete). Both SHMs are continuously operating more than a year having recorded a great amount of seismic acceleration data from low, medium and high magnitude earthquakes, featuring various epicentral distances and azimuths. A detailed statistical analysis is being performed in order to correlate the seismic responses of the two buildings, characterized by different vulnerability, with key-parameters of associated earthquakes. Furthermore, we examine the earthquake influence on the two buildings before and after a major nearby seismic event to investigate a possible change in the buildings vulnerability.

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