

Bridging the gap between seismology and engineering: towards real-time damage assessment

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Abstract

The development of earthquake early warning systems over the last decade has seen a number of studies that have focused either on improving the real-time estimation of seismological parameters, or on the rapid characterization of the possible damage suffered by a structure. However, the rapid increase in real-time seismic networks with stations installed in both the free field and inside buildings now offers the opportunity to combine the experience gained from these activities to develop a comprehensive real-time damage assessment scheme that, depending upon the time frame and spatial scale of interest, can provide useful information for a risk-based early warning system or for rapid loss assessment. Furthermore, newly developed instruments, with their enhanced computing capabilities, also offer the chance to combine early-warning procedures with the monitoring (during seismic crises) of a structure's behavior. In this paper, an overview of the state of the art in this multidisciplinary field will be given, and an outlook provided as to possible future developments.