



Session 15

Earthquake hazard assessment towards seismic risk mitigation in Urban Areas

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Recent seismic events (like Van 2011, Turkey; Amatrice-Norcia 2016-2017, Italy; Canterbury 2010-2011, New Zealand; Puebla-Morelos 2017, Mexico) have shown that urban areas are increasingly vulnerable to earthquake-induced damage and present remarkable levels of risk. In many cases, large metropolitan areas in the world (such as the San Francisco bay area, Istanbul, and Lisbon) are situated close to the seismic sources that are capable of producing large earthquakes and, consequently, pose considerable threat to such areas. Developing risk reduction measures requires detailed seismic hazard models and a quantitative description of the ground shaking on a fine spatial scale. To this end, great efforts have been spent to increase the knowledge about site response through detailed ground response analyses and microzonation studies aimed at defining areas that are susceptible to site effects. Nowadays, such effects can be incorporated into seismic hazard using probabilistic or deterministic approaches.

In this session, we would like to welcome different and innovative methodologies and practices aimed at improving standards in seismic hazard and risk assessments throughout the presentation of databases, models, and applications that are suited to the urban areas. This session covers many earthquake engineering aspects and topics, including strong ground motion observations and estimations, broadband ground motion simulations, extensive estimation of site effects in urban areas of earthquake prone regions together with risk management issues based on the implementation of local hazard estimates in building codes and urban planning practices.