

Constraining seismic risk models by integrating remote sensing and remote rapid visual screening (RRVS): the DESERVE experience

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Within the framework of seismic risk management, the assessment of seismic risk often requires to evaluate hazard, exposure and vulnerability at multiple spatial scales. The derivation of these models often requires a significant amount of time and resources. While the probabilistic seismic hazard assessment is not expected to change over short/medium time frames (not considering anthropogenic/induced component of the hazard that might generate local earthquake patterns), exposure models are prone to obsolescence and need to be updated in order to provide an adequate reliability. Moreover, if we consider building deterioration and renewal due to aging, the history of seismic overloads and the related repairs, vulnerability models are as well subject to temporal changes affecting the resulting risk estimates. In this presentation we discuss a rapid and efficient methodology for the scalable assessment of seismic exposure and vulnerability in urban environments. The proposed approach combines different data collection and processing techniques (including remote sensing, statistical learning, mobile mapping and geostatistics) and is designed to provide Civil Protection authorities and risk practitioners with a tool for the rapid constraining and the continuous updating of seismic risk. In the presentation we will show insights from recent activities carried out in the Dead Sea region, within the framework of the DESERVE (Dead Sea Research Venue) project. Furthermore, we will discuss the influence of uncertainties in the exposure and vulnerability components, and the importance of a consistent uncertainty assessment in managing seismic risk.