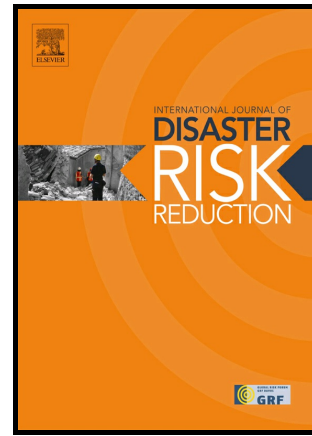


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Preliminary Methodology for Qualitative Assessment of Earthquake Hazards to Historical Monuments in Israel

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ABSTRACT

Historical and archaeological monuments are widespread throughout Israel and many of them are deteriorating but still draw numerous visitors. Since damaging earthquakes are inevitable, there is an urgent need to retrofit these monuments, yet budgets are limited. The Israeli Antiquity Authority (IAA) has identified the most valuable monuments and asked the Geological Survey to conduct an earthquake hazard evaluation and rank those by level of hazard.

Accordingly, we have developed the following systematic, qualitative method to assess the hazards. First, we established scales that describe the level of hazard in any given site for each of the earthquake induced effects: surface rupture, ground shaking and amplification of ground motion, slope failure, liquefaction and tsunami. We then assessed the degree of hazard at each of the monuments' sites, but realized that the outcomes did not accord with the historical experience. Consequently, we introduced importance weighting to the earthquake effects, as each of them has a different damage potential. We also applied a correction factor to compensate for the different frequencies of damaging earthquakes across the country, as indicated by the historical experience.

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