

## **The effect of alternative seismotectonic models on PSHA results – a sensitivity study for the case of Israel**

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Israel lies on an active plate boundary – with the Dead-Sea Transform (DST) separating the African plate on the west from the Arabian plate on the east. According to the historical, biblical, and archaeological records, devastating earthquakes with recurrence intervals of  $\sim 100$  years are responsible for the repeated destruction of cultural centers in this region. However, the instrumental catalog is very poor due to the combination of its young age, sparse spatial coverage, and moderate seismicity. Therefore, some significant knowledge gaps exist, leading to large epistemic uncertainty when conducting seismic hazard analysis.

One of the main sources for epistemic uncertainty is the definition of the underlying seismotectonic model. While the geological community has put a major effort into locating and parameterizing active faults, the only published seismotectonic model for SHA purposes is that of Shamir (2001), which treats all seismic sources in the region as seismogenic areal sources.

In this presentation, three alternative seismogenic models and the range of their associated seismological parameters, are used for conducting a full PSHA analysis for two sites in Israel. The three alternative models contain both areal and linear sources and vary from each other in their spatial distribution, slip rates, locking depth, and segmentation. A sensitivity study is conducted on the PSHA results, following the propagation of uncertainty from input to output. Finally, the input parameters which control the epistemic uncertainty are identified, so that future research can be focused on reducing uncertainty, and therefore, hazard.