

Implementation of a Non-Poissonian Model in a Low-Seismicity Area

Authors : Ludivine Saint-Mard, Masato Nakajima, Gloria Senfaute

Abstract : In areas with low to moderate seismicity, the probabilistic seismic hazard analysis frequently uses a Poisson approach, which assumes independence in time and space of events to determine the annual probability of earthquake occurrence. Nevertheless, in countries with high seismic rate, such as Japan, it is frequently use non-poissonian model which assumes that next earthquake occurrence depends on the date of previous one. The objective of this paper is to apply a non-poissonian models in a region of low to moderate seismicity to get a feedback on the following questions: can we overcome the lack of data to determine some key parameters?, and can we deal with uncertainties to apply largely this methodology on an industrial context?. The Brownian-Passage-Time model was applied to a fault located in France and conclude that even if the lack of data can be overcome with some calculations, the amount of uncertainties and number of scenarios leads to a numerous branches in PSHA, making this method difficult to apply on a large scale of low to moderate seismicity areas and in an industrial context.

Keywords : probabilistic seismic hazard, non-poissonian model, earthquake occurrence, low seismicity

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