

CE Method for Development of Japan's Stochastic Earthquake Catalogue

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Abstract : Stochastic catalog represents the events module of the earthquake loss estimation models. It includes series of events with different magnitudes and corresponding frequencies/probabilities. For the development of the stochastic catalog, random or uniform sampling methods are used to sample the events from the seismicity model. For covering all the Magnitude Frequency Distribution (MFD), a huge number of events should be generated for the above-mentioned methods. Characteristic Event (CE) method chooses the events based on the interest of the insurance industry. We divide the MFD of each source into bins. We have chosen the bins based on the probability of the interest by the insurance industry. First, we have collected the information for the available seismic sources. Sources are divided into Fault sources, subduction, and events without specific fault source. We have developed the MFD for each of the individual and areal source based on the seismicity of the sources. Afterward, we have calculated the CE magnitudes based on the desired probability. To develop the stochastic catalog, we have introduced uncertainty to the location of the events too.

Keywords : stochastic catalogue, earthquake loss, uncertainty, characteristic event

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