

Different performance of an earthquake model for different types of earthquakes?

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An earthquake probability model may perform differently for different types of earthquakes (shallow or deep, interplate or intraplate, fault types, etc.). Imoto et al. (2016) reported that the model for moderate earthquakes in Kanto, central Japan with the parameters of a and b values in the Gutenberg-Richter formula have been tested and resulted in a probability gain exceeding five for interplate earthquakes, but this is not the case for intraplate earthquakes. In this paper, we examine a model with the a-value parameter. We selected about 60 targets of moderate size that occurred in a zone between 5km above and 20km below the Pacific plate surface from 2000 to 2014. The a value is defined as the number of earthquakes with magnitude of 2. and larger that occurred within 20km in radius and ten years of the point of interest. Comparing two distributions of a-values, the conditional (point of a target earthquake) and the background distributions, the model may pass the L-test. However, the conditional distribution of interplate earthquakes differs from the expected distribution, suggesting that our model performs better for interplate earthquakes than for intraplate ones.

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