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Testing seismicity models of earthquakes with magnitude greater than 5.0 in Kanto, central Japan

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We performed N-, L- and R- tests for three seismicity models in a retrospective way. The first one is the model with which seismic hazard maps in Japan are estimated and published, the second and third one are PPE and EEPAS model, respectively, which are optimized by one of the authors to the seismicity in the region. The first model is constructed taking the configuration of three plates; Eurasia (North American), Pacific, and Philippine sea plates into consideration and depth ranges of cells are limited by descending plate boundaries. On the other hand, probabilities of an earthquake are estimated for regularly spacing cells in either PPE or EEPAS model. Accordingly, the PPE and EEPAS models are reconstructed compatible to the first one for comparisons. In this study, expected values and standard deviations of the test scores are not estimated from simulated catalogues of randomly generated earthquakes with the respective model but in an analytical way directly estimated with the expected numbers of earthquakes in the cells. Results of a preliminary study suggest that the EEPAS model is the best among the three. However the testing period of two years is too short to get conclusive results which will be obtained by farther tests including longer period.