Probabilistic seismic hazard analysis on long fault source

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When we are defining the geometry of a long fault source in PSHA, we seek for the geological or geophysical evidence. In a complex tectonic environment such as plate boundary region, the defining of the fault is important, thus logic tree combining the evidence of existing geological or geophysical survey is added in. We then use these facts to divide a fault system into several segments or defining two faults individual even though they are close to each other. But we often face a situation that the earthquake does not always occur on existing fault. And sometimes the magnitude of an earthquake does not go with the length of a fault as we expected. It seems like the applying of logic tree may still miss some of the possibility of one source due to the incompleteness of field survey. However, as we know that the principle of PSHA already considered the possibility of different size of length and magnitude of a fault. So, another way to describe a long fault source is to consider the fault system as a whole and setting up a range of length and magnitude.

 In this study, we apply both method mentioned above to two cases in Taiwan. One is on the east boarder of Taiwan, the Longitudinal Valley fault. The other located in Taiwan Strait is called Binhai fault. And the comparison of these two methods will be shown as result.

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