

Interactive comment on “A Procedure to Select Earthquake Time Histories for Deterministic Seismic Hazard Analysis: Case Studies of Major Cities in Taiwan” by Duruo Huang and Wenqi Du

Anonymous Referee #1

Received and published: 27 March 2017

The common procedures for DSHA and GM-selection were applied in the case studies for six Taiwan sites (cities). The review comments are listed as followings: 1. Based on the DSHA results, all the controlling seismic sources of the six study sites are the area sources. However, the criteria for assigning the locations (hypocenter or the rupture plane) of the earthquake scenarios of the area sources were not provided. For example, the controlling magnitudes of the study sites b and c (Kaohsiung city and Taichung city) are Mw6.5 and Mw7.3, respectively, but, the RSs are similar to each other as shown in Figures 4. It means that a shorter source-to-site distance was assigned to the site b than that to the site c. What are the criteria for assigning the locations (hypocenter or the rupture plane) of the earthquake scenarios (the worst-case?)? It

[Printer-friendly version](#)

[Discussion paper](#)



should be noted that the area source models (Cheng et al., 2007) were developed for PSHA, and might not be adequate for the DSHA. In this paper, the upper-bound magnitude of area-source zone C, Mw7.1, was used for the DSHA scenario, however, the magnitude of Mw7.1 came from a historical event occurred in the subduction zone with a focus depth more than 70km. This paper may not assign a more likely earthquake scenario for the DSHA, even for the worst-case. Similar questions can be found on the other study sites.

2. The DSHA spectra are similar to each other for most of the study sites; however, the earthquake records from the GM-selection are quite different (I was surprised by these results). For example, the RSs of the Taichung and Chiayi cities are the same. But, the GM-selection results are different. More discussions on this or providing of other detail conditions of the GM-selection would be helpful.

3. Furthermore, it seems that the RSs (as shown in Figures 4) of the study sites were generated from the “attenuations for the hanging-wall and rock sites (Lin et al. 2011)”, not the ones shown in Table 2 (for hanging-wall and soil sites). I suppose that this minor mistake is not important, but a correction of Table 2 will be better and appreciated. And, do you think the specific hanging-wall attenuations are good for the area sources? It's questionable for the cases with very short distance.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., doi:10.5194/nhess-2017-33, 2017.

[Printer-friendly version](#)[Discussion paper](#)