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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Study on the influence of seafloor soft soil layer on seismic ground motion" *by* Jingyan Lan et al.

Jingyan Lan et al.

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Dear Referee 1. We appreciate your positive comments on the manuscript. I will revise or explain the following three comments one by one. 1. The word "Plane" indicates the meaning of inputting seismic waves in a two-dimensional plane, and of course it is no problem to remove them. 2. We replot the figure 1, changed it to a color picture, and improved the quality. The new figure 1 is as follows: 3. The Fourier spectra of Kobe and El Centro waves are supplemented in this paper. The new figure 2 is as follows: 4. In this paper, the estimation formula of grid size is given in formula 10, $\Delta l \leq (1/10 \sim 1/8)\lambda$. The main reason for the difference between the grid input of SV wave and P wave is that the propagation velocity of SV wave and P wave is different, refer to formula 11, $\lambda = V/f$. Where,Δl is the maximum grid size, λ is the minimum

input wavelength, f is the highest frequency of seismic wave, V is the wave velocity of seismic wave. By substituting the soil parameters into the above formula, we can get the value of Δl=3m in the form of SV wave input and Δl=17m in the form of P wave input. In order to improve the simulation accuracy, the mesh size of SV wave input is 2m$\times$2m, and that of P wave input is 5m$\times$5m. Thank you for providing us with comments and suggestions on our manuscript.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2020-177/nhess-2020-177-AC1-supplement.pdf

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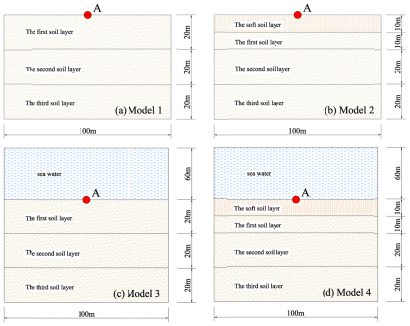

Figure 1. Four typical free field models

Fig. 1.

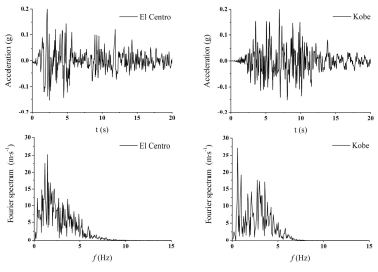

Figure 2. Acceleration time history curve of seismic waves

Fig. 2.