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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Numerical analysis of earthquake response of an ultra-high earth-rockfill dam" *by* W. X. Dong et al.

Anonymous Referee #2

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General comments: In general view, this paper presents few novel theory and data, therfore, the scientific significance is not enough and it is not suitable to be published in this journal.

Specific comments: (1)The solving process of the dynamic governing equation affects the calculation precision, the authors don't show the detail of the method. (2)The number of the element is not enough. The element size has great effects on the waveform, which should small enough to ensure the authenticity of the wave propagation. For a dam with 261.5m height, the mesh size in this paper is too large. (3)For a dam in a V-shape valley, the three diamensional effects are obvious, as a result, 3D analysis is more significative than the 2D analysis in this paper. (4)What is the constitutive model used in this paper and how to simulate the damping characteristics of the rock-fill ma-

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terial? There are not enough words to explain them. (5)What is the meaning of the Young's modulus in Table 1? For the rock-fill material, the stress-strain relationship is nonlinear. The modulus is decreased with the strain increasing. It is not suitable to use elastic parameters to simulate the soil behaviour. How to obtain the elastic parameters from experiments? (6)Why authors choose El Centro seismic wave? For a real dam, it is more suitable to adopt the seismic waves at the dam site. El Centro wave cannot reflect the peak and frequency characteristics of the seismic waves at the dam site.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 1, 2319, 2013.