



Nonlinear Soil Response During the 2008 Wenchuan, China Earthquake

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A magnitude $M_s=8.0$ earthquake occurred on May 12, 2008 in Sichuan, China. Surface rupture and severe damages observed during the great event. Liquefaction also reported in the Chengdu plain. The nonlinear soil response should be occurred during the strong shaking of this event. During the Wenchuan earthquake, National Strong Motion Observation Network System of China obtained a large number of acceleration records from the main shock (~ 460 free-field strong motion stations). In this study, the strong motion records are used to identify the nonlinear site effects during the 2008 Wenchuan, China earthquake.

The horizontal-to-vertical spectral ratio has become popular in study of the site effect and the determination of the predominant period of a site. Wen et al. (2006) extended this method to identify the nonlinear soil response during strong motion events. Due to only the main shock records are available now, we can identify the soil response is linear or nonlinear based on variation of the predominant frequency with time using the moving window spectral ratio method.