Estimation of Empirical Green's Tensor Spatial Derivative Elements: A Preliminary Study using Strong Ground Motion Records in Southern Fukui Prefecture, Japan

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To demonstrate the applicability of the empirical Green's tensor spatial derivative (EGTD) method, proposed by Plicka and Zahradnik (1998), for simulation of near-field strong ground motion records, I estimated the EGTD from velocity waveforms between 0.2 and 1 Hz. I used data from seven events (M $_J$3.7–4.2) in the southern part of Fukui Prefecture, Japan, observed at FKI007 and several neaby stations of the K-NET and KiK-net operated by the National Research Institute for Earth Science and Disaster Prevention (NIED). The agreement between the observed and simulated waveforms for the all events is satisfactory over a long duration and there is a good match for the amplitude. The EGTD estimated in this report should be confirmed when future earthquakes occur around the same source area. To enhance the applicability of the EGTD method, further data accumulation and investigation is required.

Keywords: empirical Green's tensor spatial derivative, focal mechanisms, moment moment tensorwaveform , strong ground motion, waveform inversion