Source model for the 2016 mid Tottori prefecture earthquake using Empirical Green's function

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An earthquake of Mw6.2 occurred in the mid area of Tottori prefecture in Japan on October 21 2016. Several research institutions set large number seismometers, that obtained strong ground motions in the area. At several observation points recorded JMA seismic intensity of 6 lower, and partial area were suffered serious damages. Therefore we carry out aftershock and Micro-tremor observation to revel causes of the damages. We tried to estimate source model from those information. It is very important to reproduce the strong motion waveform at damage point for understanding reason of the damages and earthquake disaster mitigation in the future.In this study, we estimate source model of composed asperity through forward modeling with empirical green's function method. The target observation points were 8 in total that are maintained by NIED (K-NET, KiK-net) and Tottori prefecture. We selected foreshock event of Mw4.1 at 12:12 on October 21 2016 as an empirical green's function. The position of asperity was referred to previously conducted to heterogeneity slip distribution model, and each source parameters (e.g. rise time, rupture velocity) were determined by try and error. The estimated source model can reproduced the observed strong motion waveform. However, at several points are not sufficiently reproduced. In order to improve reproducibility of observed strong motion, it needs more detailed examination.

Keywords: 2016 mid Tottori prefecture earthquake, Source model, Empirical green's function