[JJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS14]Strong Ground Motion and Earthquake Disaster

convener:Masayuki Kuriyama(Central Research Institute of Electric Power Industry)
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
Strong ground motion has social impacts as it induces earthquake disasters. We solicit contribution on any seismological topics related to strong ground motion that includes, but are not limited to, source processes, wave propagation, and site effects. We also welcome contribution on earthquake related disaster mitigation.

[SSS14-P34]Effects of random heterogeneity in the crust on long-period ground-motion simulations in Kanto area

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Effects of the random heterogeneity of the crustal structure on the predicted ground motion at periods of 1 s and longer are investigated by conducting three-dimensional finite-difference simulations using a detailed realistic velocity model of Kanto area, Japan. Random heterogeneity of the media within the upper crust was modeled using the correlation function with Exponential-type power spectrum where the standard deviation is set to 5 %. Combinations of the heterogeneous media with different correlation lengths and the point source model with different depth and durations were considered to study the variability of the predicted ground motions and the sensitivity to the tested parameters. Ground motion variability, in terms of peak ground velocity and velocity response spectra, was evaluated by using the residual between the ground motion computed with and without random heterogeneity. While the residual averaged over the surface of the computed area is almost negligible in the studied period range, the standard deviation was approximately 0.2 – 0.3 in natural log units at periods of 1 – 2 s. Standard deviation was found to increase with hypocentral distance, and to be larger for the point source with shorter duration.