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

[S-SS10]Seismic wave propagation: Theory and Application

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Seismic wave propagation provides rich information of earth's heterogeneities and the excitation sources. In order to extract the information, integrated studies are needed among mathematical/numerical studies based on the wave theory, miniature physical experiments using rock specimens, and practical data analyses.

Furthermore, it is greatly beneficial to conduct comparative studies of various kinds of waves, such as elastic, acoustic, traveling ionospheric disturbances, and oceanic waves. This session widely invites presentations about the theories and applications related to seismic and other geophysical waves.

[SSS10-P09]Application of grid search algorithm for estimation of source parameters of the Kumamoto earthquake

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Keywords:Displacement spectra, grid search, corner frequency

A devastating and deadly earthquake of magnitude (M_w 7.1) hit the Japan on 15 April 2016 known as Kumamoto earthquake. The propagation of main-shock rupture of the Kumamoto earthquakes in northeast ward direction from the epicenter and extends up to Aso volcano. It is clear from the aftershocks data that the seismicity of earthquakes low towards the northeastern edge of the major slip area. In this paper effort has been made for the estimation of source parameters of the Kumamoto earthquake using the strong motion data. Strong motion data used in this study downloaded from kik-net. Displacement spectra calculated using the Brune (1970) model. To calculate the observed spectra attenuation and path correction is applied. To fit the observed displacement spectra with the theoretical spectra a random grid search algorithm is developed and used. From the visual inspection of the displacement spectra corner frequency of the earthquake observed is 0.04 to 0.07 and the flat level spectrum value is 30 to 70. The value of the corner and flat level spectrum value to be iterated between these ranges using the grid search algorithm and best value has been chosen to calculate the source parameters. Root mean square between the observed and theoretical displacement spectra is used to finalize the source parameters of the Kumamoto earthquake.