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

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

convener:Kiwamu Nishida(Earthquake Research Institute, University of Tokyo), Kazuya Shiraishi(Japan Agency for Marine-Earth Science and Technology), Takao Nibe(（株）地球科学総合研究所, 共同), Kaoru Sawazaki(National Research Institute for Earth Science and Disaster Resilience)
Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
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-P14]2 D Wave propagation using the Finite Difference Method

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Keywords:SH wave, PML, Finite difference

Earthquake ground motion can be affected by a number of factors such as anisotropy topography and soil sediments, scattering, and diffraction. Geological structure such as fold and faults directly affect seismic wave propagation due to scattering or diffraction. It is considered at the interface of having different acoustic impedance P wave converted into P and SV and S wave converted into SV and SH wave. SH wave have the tendency to amplify the earthquake so it is required to model the SH wave. In the present study SH wave is modeled using the finite difference method on staggered grid. In this method space time grid covers the domain of the computation. In the present study uniform grid is designed to solve the problem as simple as. Finite difference scheme given by Virieux (1984) is used to modeled the SH wave. Velocity and stress are used at the discrete grid point. A simple model is used for a homogenous sedimentary layered structure. For the velocity and density prior information is used. Staggered finite difference has the high order precision. Perfectly matched layer(PML) also considered in the present work.