Oral | Symbol S (Solid Earth Sciences) | S-SS Seismology

[S-SS30_28AM2]New perspective of great earthquakes along subduction zones

Convener:*Kyuichi Kanagawa(Graduate School of Science, Chiba University), Takashi Furumura(Center for Integrated Disaster Information Research (CIDIR) Interfaculty Initiative in Information Studies, The University of Tokyo), Shuichi Kodaira(Institute for Research on Earth Evolution Japan Agency for Marine-Earth Science and Technology), Masanobu Shishikura(Active Fault and Earthquake Research Center, GSJ/AIST), Chair:Saneatsu Saito(Japan Agency for Marine-Earth Science and Technology)
Mon. Apr 28, 2014 11:00 AM - 12:42 PM Main Hall (1F)
We explore a new perspective of great earthquakes along subduction zones by integrating results of historical earthquake and tsunami surveys, seismic and geodetic observations and experiments, laboratory experiments, material analyses, and numerical modeling on pre- and co-seismic processes and slips, seismic links, and the recurrence. We welcome presentations not only on great earthquakes along Japan Trench, Nankai Trough, and other subduction zones in the world, but also on their precursory or inducing large inland earthquakes.

11:00 AM - 11:15 AM

[SSS30-P15_PG]Receiver function analysis using OBS data: modeling 3-D structure of the Philippine Sea plate off the Kii Peninsula

3-min talk in an oral session
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Keywords:ocean-bottom seismometer, receiver function, subduction zone

Megathrust earthquakes have repeatedly occurred beneath the southwestern Japan, on the subducting Philippine Sea plate, in cycles of 100-150 years [Ando, 1975]. The rupture boundary of the latest two megathrust earthquakes, the 1944 Tonankai and 1946 Nankai earthquakes, is located at the south of the Kii Peninsula. Although some structural heterogeneity was proposed as factors of the rupture boundary [Mochizuki et al., 1998; Kodaira et al., 2006], the question of why rupture propagation stops there is still open in light of our little knowledge about 3-D geometry of the subducting Philippine Sea plate at offshore region.In this study, we aim to construct 3-D structure model of the subducting Philippine Sea plate by receiver function (RF) analysis, using data of ocean-bottom seismometers (OBSs) deployed from 2003 to 2007 off the Kii Peninsula [Mochizuki et al., 2010; Akuhara et al., 2013]. These OBSs have three-component velocity sensors with natural frequency of 1 Hz, and their orientations were determined in this study from particle motion of regional P-wave. The difficulty of our RF analysis using OBS data is summarized by the following two factors. The first is that noise is dominant within a low-frequency band (1