Strong Motion Prediction for Subduction-Zone Earthquakes

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Braodband ground motion prediction for subduction-zone earthquakes is one of the key issues for disaster mitigation and hazard assessment. Most megacities in Japan are under constant theart of strong ground motions from future subduction-zone earthquake along the Kurile and Japan trenches, the Sagami and Nankai troughs, the Ryukyu trench, and so on. Ground motions from the subduction-zone earthquake consist of short-period ground motions measure like a seismic intensity as well as long-period ground motions.

Here we introduce research progress of DaiDaiToku I project for source modeling of subduction-zone earthquakes. We performed asperity scaling based on the waveform inversion results (Murotani et al., 2005), examined physical relationship between asperity and strong motion generation area (Hata et al., 2006), and applied pseudo-dynamic source modeling (Guatteri et al., 2004) providing higher-frequency generation into source modeling of the Great 1923 Kanto earthquake (Miyake et al., 2005). As Sato et al. (2005) pointed out, depth of the plate is imaged much shallower by large-scale reflection/refraction surveys, therefore reconstruction of the source model along the new geometry will be important future task.