

SSS034-P01

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## Crustal structure around the focal area of the 1952 Tokachi-oki earthquake by an airgun-OBS seismic survey

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We conducted an airgun-OBS experiment between the Tokachi-oki and the Nemuro-oki seismogenic segments in August 2010. The seismic line is parallel to the Kuril Trench axis and runs ~50 km landward from the trench axis with 240 km length. The experimental area includes the source area of the 1952 Tokachi-oki interplate earthquake (M8.2), where the largest amount of coseismic slip of 7 m took place at the eastern central part of the line. The corresponding area was not ruptured by the 2003 Tokachi-oki earthquake (M8.0), though the hypocenters of these earthquakes are almost the same. This difference can be explained by a physical condition on the plate boundary, such as the topography of the slab surface, the existence of the low velocity layer on the subducting plate. The object of this experiment is to investigate the relation between the seismic structure and the interplate rupture area.

OBSs recorded clear airgun signals, and they imply a structural difference bounded on the central part of the line. At the OBSs deployed westward of the line, observed first arrival was discontinuous at the offset ~40 km, increasing apparent velocity from 5 to 7.2 km/s. Meanwhile the eastern OBSs recorded continuous first arrival. Several later phases were observed within the offset 40 km but not clear enough to be picked at the western OBSs. These along-arc differences imply a structural difference between the 1952 rupture area and surrounding area. We expect that further analyses using travel time data will extract lateral structural variation related to the extent of rupture area.

Keywords: crustal structure, Kuril Trench, subduction zone