

Seismic crustal structure of the off the coast of Kushiro, inferred from seismic refraction survey

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The southern Kuril Trench is a major trench located along the northwestern margin of the Pacific plate. Historic destructive earthquakes have occurred repeatedly along the trench. This region is characterized by its active seismicity. However, hypocenters were not determined accurately by the land seismic network. Therefore, we began earthquake observation on the estimated rupture areas of the 1952 Tokachi-Oki earthquake, 1973 Nemuro-Oki earthquake and 2003 Tokachi-Oki earthquake, to understand the seismic activities around the rupture area, using long-term type ocean bottom seismographs (LTOBSs).

In December 2005, we started the observation in the Kushiro-Oki region. In the deployment, a helicopter was used. We retrieved 30 LTOBSs a vessel in the September 2006 using M/V Mirai. In addition, the seismic survey with controlled sources was conducted to obtain crustal seismic structure beneath an observation network in May-June 2006 using M/V Kaiko No.5. In the seismic survey, we used two 25-liters airguns as controlled sources. The Seismic structure model is estimated by forward modeling using two-dimensional ray tracing method developed by Zelt and Smith (1992).

In this study, we present the results of a wide-angle survey across the coseismic rupture zones of the 1952 Tokachi-Oki and 1973 Nemuro-Oki earthquakes

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