Aftershock observation of the 2004 Kushiro-oki earthquake by using ocean bottom seismometer network

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2004 Kushiro-oki earthquake (Mj 7.1) occurred off Kushiro, Hokkaido on 29 November 2004. The main event happened at 03:32, followed by Mj 6.0 event at 03:36. Seven days after main shock, Mj 6.9 event occurred on 6 December. It was located about 10km south-southeast of main shock. In this focal region of the event, an earthquake of Mj 7.2 occurred on 12 August 1961. Three months after this event, Mj 6.9 earthquake occurred on 15 November 1961. The source processes of both the 2004 and the 1961 events indicate that they are interplate earthquakes associated with the subduction of the Pacific interplate earthquake system.

It is important for understanding of mechanism of this earthquake generation to obtain a precise aftershock distribution. In this case focal region is sea area, off Kushiro, so we use ocean bottom seismometer (OBS) to obtain a more precise aftershock activity.

Eight days after the main shock, we started an aftershock observation using nine pop-up type OBSs, deployed around the main shock. The observation lasted eight days. Results show that aftershock activity is low near the main shock and most of aftershocks are located around the main shock, and we can observe smaller aftershock activity in the ocean side. In addition we combine the data of OBSs and land-based observations, and we obtain travel-time correction of each station. Using travel-time corrections we can obtain homogenous aftershock distribution for a prolonged period.