

Preliminary report on R/V Kairei MCS survey (KR00-04) southeast off Hokkaido

Tetsuro Tsuru[1], Jin-Oh Park[2], Ayako Nakanishi[1], Yoshiyuki Kaneda[3]

[1] IFREE, JAMSTEC, [2] JAMSTEC, IFREE, [3] JAMSTEC, Frontier

The southeast Hokkaido area is tectonically characterized by the arc-arc junction between the Kuril and northeast Japan arcs. Previous works divided the forearc region into four blocks: a forearc of the Northeast Japan Arc, Hidaka Trough, Hidaka mountain to Abashiri Tectonic Line (ATL) and a forearc of the Kuril arc. A multichannel seismic (MCS) reflection experiment has been conducted at the offshore area of the southeast Hokkaido, 2000, in order to obtain seismic structures and clarify tectonic process at the junction between the southeast Japan and the Kuril arcs. In this paper, we will show preliminary results of MCS reflection profiles and would like to discuss about seismic structures appeared on the profiles.

KR00-04 cruise has been conducted by using R/V Kairei of Japan Marine Science and Technology Center (JAMSTEC) off southeast Hokkaido from 15 June to 15 July 2000. During the cruise, a total of 1,352 km of the MCS data were obtained. The data acquisition was carried out using eight 1,500 cubic inch air guns with shot spacing of 50 m and a 156-channel streamer cable with group interval of 25 m. The maximum offset was 4100 m. Seismic reflection records of 13.5 s length with 4 ms sampling interval were obtained for deep structural imaging. Because the air-gun array was not tuned, air-bubble oscillations still appear on the record sections approximately 200 ms below the primary reflection, even after applying deconvolution in data processing.

On a poststack time-migrated section parallel to the trench axis of the Kuril Trench, some faults can be seen and they seem to partition the forearc region into segments. A fault is recognized at western edge of the Hidaka Trough, and a few faults are visible at southern extension of the Hidaka Mountains. A few faults with small throw are visible near the ATL. Locations of these faults are consistent with those of seaward extension of tectonic boundaries dividing into four blocks, which were suggested by the previous study. Furthermore, more faults are visible on the section and they have considerable throw, which may imply the possibility of subdivision of the blocks caused by the arc-arc collision.