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## Features of Multi-Channel Seismic profile in the middle Okinawa Trough

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The Okinawa Trough (OT) is a backarc basin accompanying with the Nansei-Shoto arc-trench system. Both of the Nansei-Shoto Island Arc and the OT are divided into northern, middle and southern parts by Tokara Gap, Kerama Gap and their extensions to the northwest. The northern OT has shallow water depth and shaving the trough slope, and the direction of trough axis is NNE-SSW. In contrast, the southern OT has deep water depth and steep trough slope, and the direction of the trough axis is ENE-WSW. The origin of these differences of geomorphic characteristics is presumed that the rifting stage is more advanced in the southern OT than in the northern OT.

Japan Coast Guard has been carried out seismic refraction and multi-channel seismic (MCS) reflection surveys on several survey lines along and across the trench-arc-backarc system to obtain rifting structures, which give further information for estimating the formation process of Nansei-Shoto Island Arc and OT. Japan Coast Guard conducted seismic refraction and MCS reflection surveys on the NW-SE survey line across the trough axis in the middle OT from April to May, 2010. The survey line lies between shallow sea terrace of East China Sea in the northwest and offshore of Tokunoshima Island in the southeast.

According to the MCS profile, the trough slope in the northwest part of the survey line has thick sediment layers with a thickness of more than 5 sec two-way travel time and any normal faults with their throws to the southeast fall cut the thick sediment layer. The trough bottom has thick sediment layers with a thickness of more than 2 sec two-way travel time and many normal faults of southeast fall in northwest region and northwest fall in southeast region cut the thick sediment layer.

The transition area of faults with their throws to the southeast to the northwest locates more closely the trough slope in the northwest of OT than the trough axis estimated from topographic data.

Keywords: Multi-Channel Seismic profile, backarc basin, Okinawa trough