

## Crustal structure across the Northern Kyushu-Palau Ridge in the Philippine Sea

# Azusa Nishizawa[1]; Kentaro Kaneda[2]; Yasutaka Katagiri[3]; Mitsuhiro Oikawa[3]; Junzo Kasahara[4]

[1] Hydrogr. & Oceanogr. Dep., JCG; [2] HODJ; [3] Hydrographic and Oceanographic Dept. of Japan; [4] JCSS

The Kyushu-Palau Ridge (KPR) is a bathymetric high extending north-south direction in latitude 9 - 31 N, at the center of the Philippine Sea, and considered as a remnant of a proto Izu-Ogasawara-Mariana island arc separated by the backarc spreading of the Shikoku and Parece Vela (Oki-no-Tori-Shima) Basin. We had obtained the crustal models beneath the KPR at 15-21 N from 2004 seismic exploration. The models show the maximum crustal thickness beneath the KPR varies from 14 to 20 km according to the profile and the crust is significantly thicker than those of the both sides of each profile, that is, the oceanic crusts of the West Philippine Basin to the west and of the Parece Vela Basin to the east. The thickest crust among the 2004 four profiles is found in the region where the KPR connects with the Oki-no-Tori-Shima island. The thicker crust beneath the KPR is mainly due to a fat lower crust. The thick (over 5 km) middle crust with P wave velocity of 6.0-6.3 km/s that characterizes the northern Izu-Bonin island-arc crust does not exist so clearly in 2004 experiments.

In 2005, we carried out five wide-angle and multi-channel seismic profiles to elucidate variation in crust and upper mantle structures along the northern KPR to the north of 25 N. Previous studies at the northern KPR report the existence of 6 km/s materials in the middle crusts.

The travel time and amplitude data obtained by the ocean bottom seismographs were modeled by a tomographic inversion (tomo2D, Korenaga et al., 2000) and two-dimensional ray tracing (Kubota et al, 2005). Profiles at 26 N and 30 N where the widths of the KPR bathymetric high are rather wide show thicker layer with P wave velocity of 6.0-6.5 km/s beneath the KPR. We will examine the relationship between the 6.0-6.5 km/s layer in the northern KPR and the 6.0-6.3 km/s layer in the Izu-Ogasawara island arc middle crust. In addition, we look at the existence of intra-oceanic island arc lower crust with P wave velocities of 7.0-7.3 km/s.