

## Wide angle seismic experiments in the Western Pacific in 2005 (2)

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

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

<http://www1.kaiho.mlit.go.jp/>

In 2005, we conducted three series of wide-angle seismic and single-channel reflection experiments by S/V Shoyo and S/V Takuyo, Hydrographic and Oceanographic Department, JCG. The target areas are the Oki-Daito Escarpment, the middle Parece Vela Basin and the west of Minami-Tori Shima island. The total length of the survey lines were 1,885 km, and the total of 340 Ocean Bottom Seismographs (OBS) was deployed with an interval of every 5-7 km. We used a non-tuned 6000 inch<sup>3</sup> airgun array every 200 m (90 sec) firing for refraction and reflection experiments and a non tuned 700 inch<sup>3</sup> every 80 m (20 sec) firing for reflection experiments. A 200 m single channel streamer cable was used as the reflection seismic receivers.

### The Oki-Daito Escarpment area

In the former experiment in 2004, we obtained a crustal velocity model of the seafloor to the north area of the Oki-Daito Escarpment, showing the high-velocity layer in the uppermost mantle and the low-velocity layer in the lower crust. In 2005, three new survey lines were selected to confirm its characteristic structure and extent. One is E-W direction with 350 km length, across the 2004 survey line. The other two lines intersect just on the top of the Oki-Daito Escarpment. (The survey details are reported in another presentation)

### The Parece Vela Basin area

The world's largest oceanic core complex, Godzilla Mullion, is located adjacent to the Parece Vela Rift at ~16 N. Mantle peridotites are exposed on the surface of Godzilla Mullion along the entire length of the detachment fault (125 km), suggesting that magma-starved extension was important in the formation of this structure. Three survey lines were selected to obtain the crustal structure of Godzilla Mullion. One is a 300 km long line, paralleling Godzilla Mullion. The other two lines intersect with the above survey line perpendicularly. The seismic reflection section shows that unconsolidated sediments are hardly seen except for the northeast area of the first line.

### West of the Minami-Tori Shima island area

Low Bouguer gravity anomalies in this area were observed, suggesting an existence the thicker crust than typical oceanic crust. We designed the survey line to establish the crustal structure of transition area from the low Bouguer gravity anomaly area to the standard oceanic crust.