

VII. SONO-BUOY REFRACTION MEASUREMENTS

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Sono-buoy refraction measurements were carried out at a few stations in the Danjo Basin (St. 744, SB2), in the northern margin of the Tunghai Shelf (St. 745, SB3) and in the Tsushima Basin (St. 764, SB4).

Two Bolt 1900C type air guns were used for shooting source with 240 cubic inches air chamber in total (120cu, in \times 2) and with high pressure of approximately 1800 psi. The refracted wave was received and telemetered with OKI OC-01 type sono-buoy and received by JRC NRE-8A type receiving system.

The obtained results are shown in Figs. VII-1, 2 and 3. Only one way measurements were carried out throughout the survey. The measured sites were selected in the place where the layers show the horizontal distribution which is suggested in the reflection profiling results. Calculated results which are resulted from the assumption of horizontally layered pattern are shown in Table VII-1.

A few layers and wide angle reflections beneath the layers are distinguished in the refraction results. Four layers in the Danjo Basin which are distinguished in the reflection profiling method are well correlated to the refraction results. The upper most layer (A) and the second layer (B) in the reflection profiling result are correlated to the layer with the velocity of 1.7 km/sec. The third layer (C) is correlated to the layer with the velocity of 2.3 km/sec and the forth layer (D) to that with the velocity of 3.8 km/sec.

From the correlation between the reflection profiling results in the Danjo Band and that in the northern margin of the Tunghai Shelf, the upper most layer (A) and the second layer (B) are ranged in the velocity of 1.5-1.7 km/sec. The third layer (C) are ranged in the velocity of 2.2-2.3 km/sec, and the forth layer (D), in the velocity of 3.8-5.2 km/sec. The velocities in the fourth layer suggest the difference of material which consists the basements in the surveyed area.

Sediments in the Tsushima Basin has a velocity of 1.7 km/sec, with approximate 2 sec (1.7 km) thick. The reflection profiling result is not penetrated more than 2 sec deep. The layer with approximately 2 sec thick in the reflection profile may be correlated to the upper layer in the shelf and slope area where the layer is not so thicker than that in the Basin.

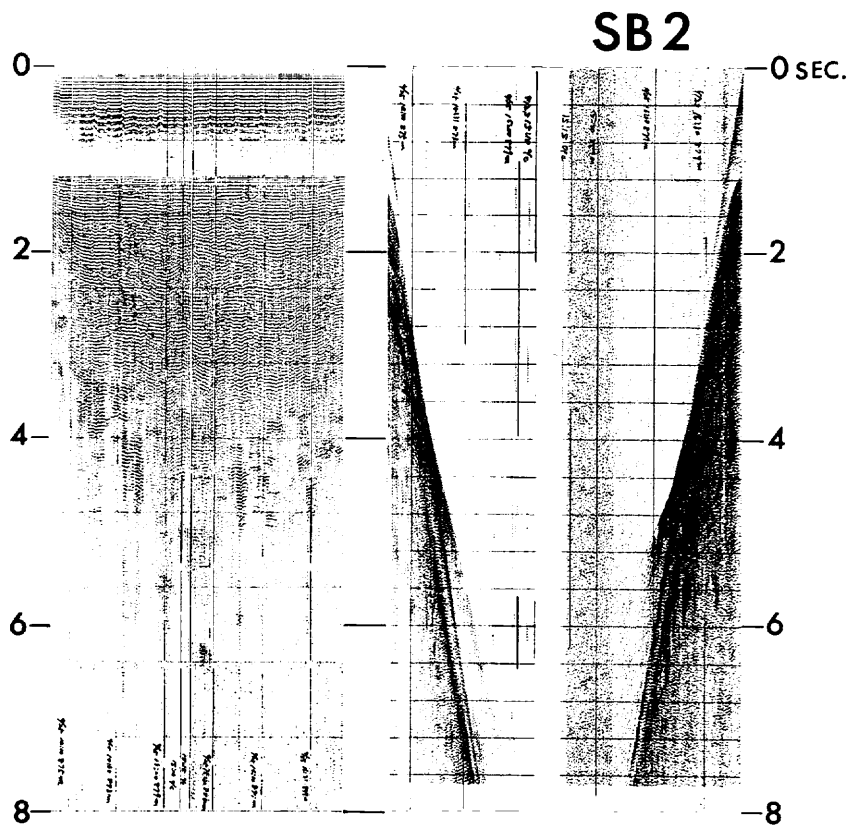


Fig. VII-1 Sono-buoy refraction result (right side, 15-35 Hz) and reflection profile (left side) in SB2.

Table VII-1 Structure sections computed from sono-buoy data.

St.		Lat.	Long	h1	h2	h3	v1	v2	v3	v4
744	SB2	31°56.3'	129°09.9'	0.89	0.78	1.13	1.5	1.7	2.3	4.8
		31°48.9'	129°03.4'							
745	SB3	32°30.0'	127°06.2'	0.75	0.12	3.40	1.5	2.2	5.2	7.4
		32°19.8'	126°56.2'							
764	SB4	37°10.9'	131°07.5'	2.28	1.71	1.74	1.5	1.7	3.9	5.6
		37°02.8'	130°54.7'							

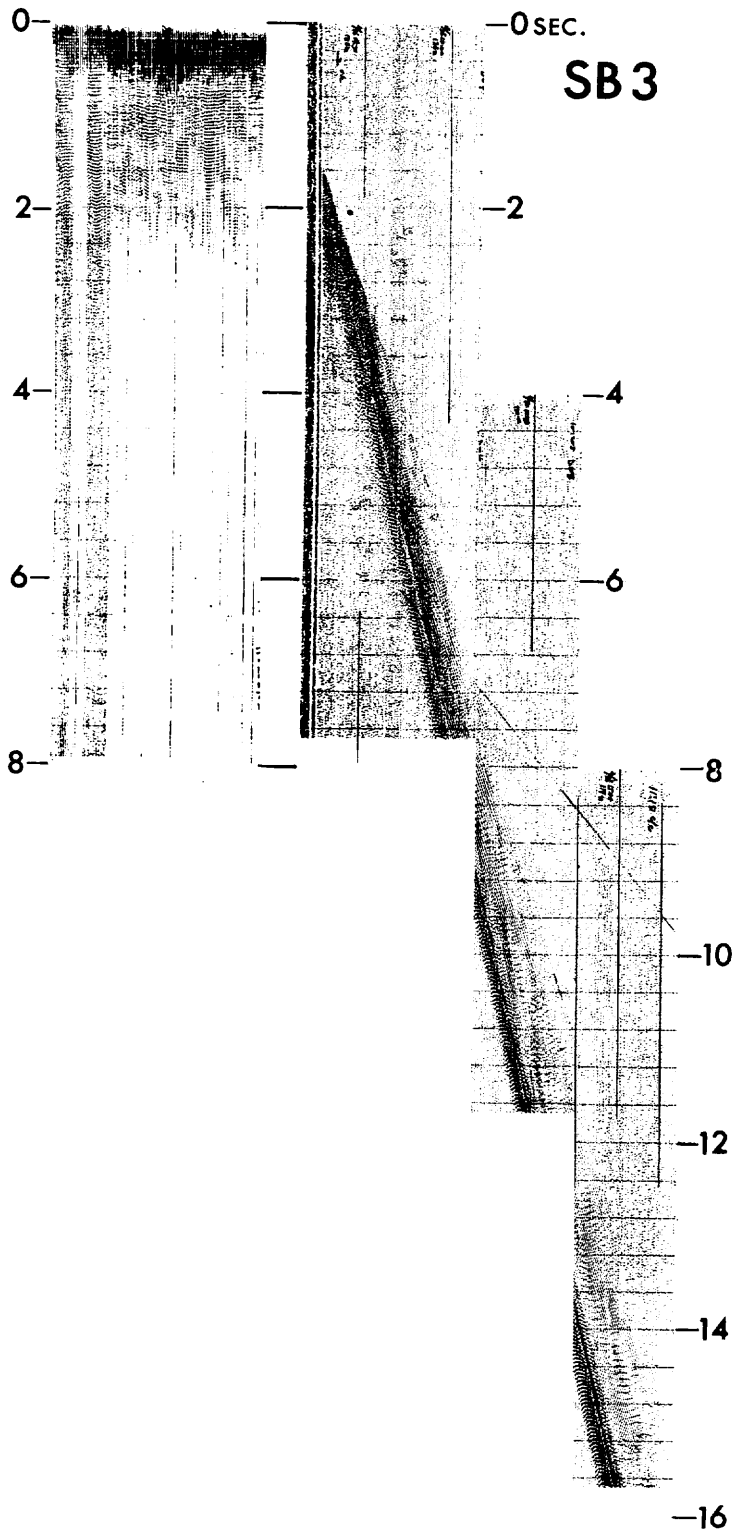


Fig. VII-2 Sono-buoy refraction result (right side, 11-40 Hz) and reflection profile (left side) in SB3.

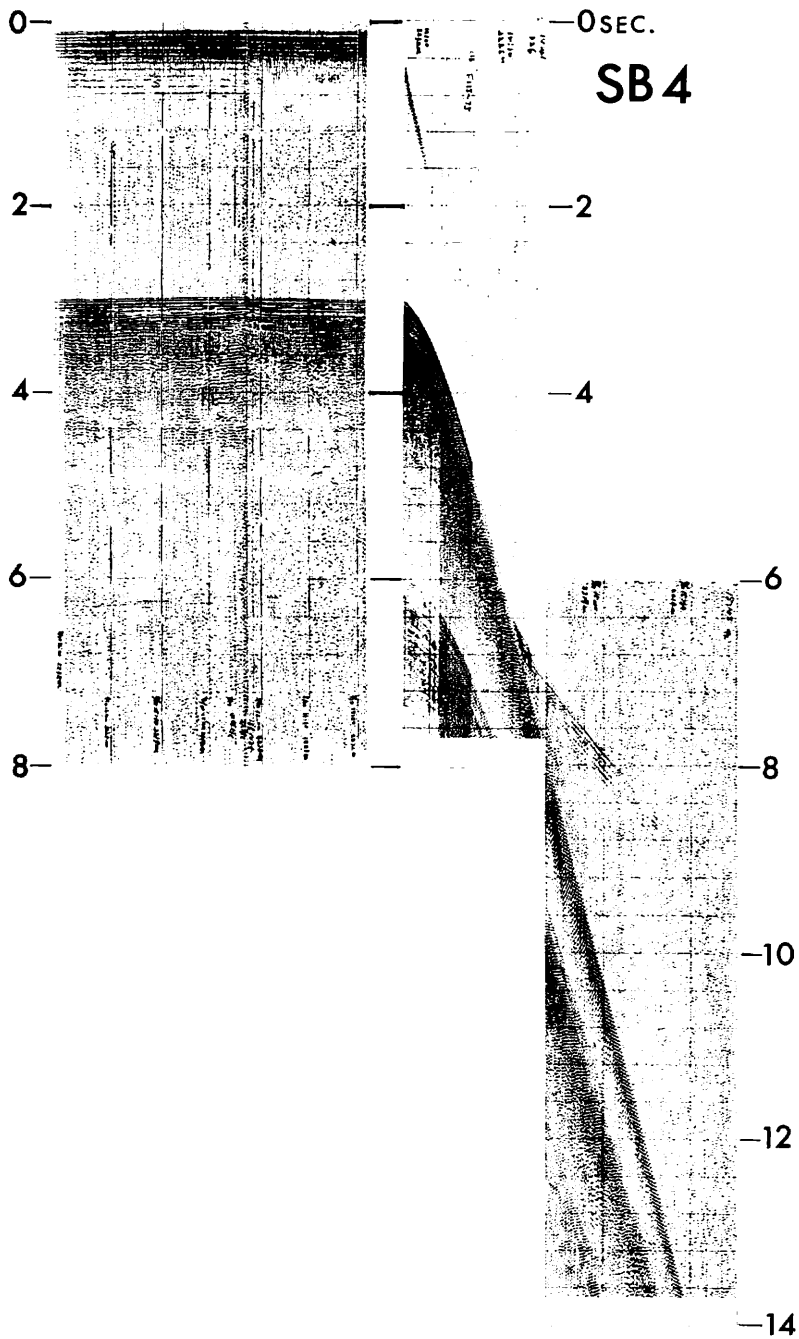


Fig. VII-3 Sono-buoy refraction result (right side, 20-60 Hz) and reflection profile (left side) in SB4.