

## A Seismic-Oceanographic joint observation in the Kuroshio extension front offshore east of Japan

# Yasuyuki Nakamura[1]; Takashi Noguchi[2]; Takeshi Tsuji[3]; Hiroshi Niino[4]; Toshifumi Matsuoka[5]

[1] Ocean Res. Inst., Univ. Tokyo; [2] Ocean Research Inst., Univ. of Tokyo; [3] ORI, Univ. Tokyo; [4] Div. of Marine Meteor., Ocean Res. Inst., Univ. of Tokyo; [5] Kyoto Univ

Recently oceanographic studies using seismic reflection data have been carried out to reveal the layered structure in the sea water (e.g. Holbrook et al. 2003, Tsuji et al. 2005). We conducted a seismic-oceanographic survey to observe the fine structure of the sea water near the Kuroshio extension front off east of Japan from end of August through early September 2005. Multi-channel seismic reflection survey (MCS) and oceanographic observation, including XCTD, XBT, XCP and ADCP, were carried out using R/V Taisei-maru of JAMSTEC. A basic 150 miles-long survey line ran across the main stream of Kuroshio current in N-S direction. The MCS survey was operated in north and south of Kuroshio stream axis separately; the length of MCS line was 60 miles in northern part and 45 miles in southern part. An additional MCS survey was also conducted south of Kuroshio current on E-W 30 miles survey line. The streamer cable used in this survey equipped 48 channels with 25m group interval. During the MCS survey, we simultaneously operated both the vertical oceanographic profiling and air gun shooting. We carried out the MCS shooting three times in northern MCS line to evaluate the effect to the quality of seismic profile brought by different air gun setting; Bolt 1500C with 20 liters chamber, Bolt 1500C with 9 liters chamber, Soderia/SSI GI gun with 3.5 liters chamber. Bolt 1500C with 9 liters chamber was also used in the MCS profile in southern lines. Five days survey yielded 450 miles ADCP profile, 36 measurements of XCTD, 5 measurements of XBT, 5 measurements of XCP and 255 miles of MCS profile. The MCS profiles in the northern line show clear reflection events at 200-700m depth in the sea water dipping southward. In the southern line, sub continuous reflectors are imaged at ~800m depth. The depth of reflector matches with that of temperature jump in XCTD, XBT profile, which suggests that the reflector is formed by the subduction of the Oyashio (cold current) beneath the Kuroshio (warm current).