

Microstructures of temperature and salinity accompanying with Kuroshio Current: Insight from seismic reflection data

TAKESHI TSUJI¹, TAKASHI NOGUCHI¹, HIROSHI NIINO¹, YASUYUKI NAKAMURA¹, TOSHIFUMI MATSUOKA², HIDEKAZU TOKUYAMA¹, SHIN'ICHI KURAMOTO³, and NATHAN BANG⁴

¹Ocean Research Institute, University of Tokyo ²Graduate school of Engineering, Kyoto University ³Japan Marine Science & Technology Center ⁴University of Texas, Austin

The microstructures in the Kuroshio Current have been studied by using seismic reflection data off the Muroto peninsula (Figure 1; white line). Unlike CTD profiling, seismic reflection method can reveal oceanic structures in two-dimensions (Holbrook et al., 2003). Figure 2 shows an example of an acoustic image of oceanic microstructures in the Kuroshio Current at the depth of 375 - 750 m below the sea surface. The microstructures are associated with contrasts in temperature and salinity, and therefore with contrasts in acoustic impedance, which is the product of sound velocity and density, and causes reflections. Several two-dimensional seismic profiles acquired 2 - 5 days apart in the same area reveal that the microstructures extending about 40 km in the cross-stream direction are common features found in the Kuroshio Current. Microstructures having a similar vertical scale are also identified with CTD data in the Kuroshio Current off the Ashizuri peninsula (Figure 1; black dot).

Keywords: Microstructure, Kuroshio Current, and Seismic Reflection Method



References

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