

Wide-Angle Seismic Reflection Image of the subduction plate boundary in the rupture area of the 1981 off-Miyagi earthquake (M 7.0)

Ryota Hino[1]; Minoru Nishino[1]; Kimihiro Mochizuki[2]; Masanao Shinohara[3]; Junzo Kasahara[4]; Kenji Uehira[5]; Toshinori Sato[6]

[1] AOB, Tohoku Univ.; [2] EOC, ERI, Univ. of Tokyo; [3] ERI, Univ. Tokyo; [4] Earthq. Res. Inst., Univ. Tokyo; [5] SEVO, Kyushu Univ.; [6] Chiba Univ.

We performed an airgun-OBS seismic experiment to reveal detailed P wave seismic velocity structure in the interplate seismogenic zone of the middle Japan Trench subduction zone. Although V_p models inverted from the travel times of the first and the later arrivals show small velocity variations within the overriding island arc crust, the amplitudes of the wide angle reflections from the plate boundary (PB) are considerably variable in space suggesting heterogeneous structure along the plate interface. The observed amplitudes of the PB-reflections seem to decrease as the microseismicity along the PB becomes more active. This result confirms the negative correlation between the seismic activity and the strength of the PB reflections as Fujie et al. (2002) suggested. However, in the rupture area of the 1981 off-Miyagi earthquake, the amplitudes of the PB reflections are small in spite of the low microseismicity.