

Seismic reflection survey across the northern part of the Western Boundary Fault Zone of the Yamagata Basin

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The Western Boundary Fault Zone of the Yamagata Basin borders the western margin of the Yamagata basin and is traceable for about 60 km. In the northern part of this fault zone (from Sagae to Ooishida area), subparallel traces of the active fault distribute in the western side of the basin. At the center of the basin, Kawashima-yama located as a tectonic bulge and its western side the Mogami river incise and meander in the fault zone. Along the eastern side of the Kawashima-yama, syncline is indicated as a frontal deformation by Ikeda (2002) and Imaizumi (2001).

To reveal the subsurface structure and tectonic evolution of this fault zone, we carried out two lines (Line A and Line B) of seismic reflection survey from September to October 2013. The Line A has a length of 4.11 km and started from Saigo area to Oomaki via. Kyouei bridge. The Line B has about 3.75 km length and started from Taruishi area to Goten along the Taruishi river. The source used in this survey was an Enviro Vib (IVI Inc.). Sweep length was 16 sec and sweep frequency range beginning at 10 Hz up to 120 Hz. The receiver was GS-20DX (natural frequency, 10 Hz; Geospace Inc.). The source and receiver spacing was 10m, with 192 ch geophones used for each recording. We selected the Geode (Geometrics) for the recording system and its sampling rate is 1 msec.

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[References]

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Imaizumi et al., 2001, Active Fault Map in Urban Area, Geographical Survey Institute.

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