

Seismic Reflection Survey at Eastern and Western Edge of Aizu Basin

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We conducted seismic reflection survey at eastern and western edge of Aizu Basin in Kitakata City. The Aizu Basin is located between the Western and Eastern Aizu Basin Fault Zones. It is helpful to reveal detailed structure of the fault zones that segment the edge of the Aizu Basin, in order to understand the whole Aizu Basin. Our purpose of the study is to obtain control data to understand the whole Aizu Basin.

It is deduced that the Western Aizu Basin Active Fault Zone is the source fault of the Keicho Aizu Earthquake, and there are some signs of the earthquake at surface. Regional flexure can be revealed by seismic reflection survey. On the other hand, no clear sign of the Eastern Aizu Basin Active Fault Zone can be seen and the activity history is not clear although it is deduced by surface topography.

The survey for the Western Fault Zone was executed at Keitokuchō-Yamashina, Kitakata City (KKY), where a ponded lake appeared by the Keicho Aizu Earthquake. Both source and receivers are set at a dry riverbed of Aga River. The length of the survey line is about 500m. The survey for the Eastern Fault Zone was carried out at Kumakurachō-Oguni, Kitakata City (KKO). In this region, volcanic fan deposits cover the products of Nekoma Volcano. The length of the survey line is about 800m. We used a portable vibrator ELViS III by GEOSYM with S-wave for both survey lines. Spatial intervals of shot points are 2m, sweep frequency is 20 to 160Hz, and sweep duration is 7s. We used single horizontal component geophones with GS32CT($f_0=10\text{Hz}$) by Geospace, and the intervals are also 2m. We deployed 96 geophones simultaneously, and moved 48 geophones at a time.

We cannot obtain clear profile for the KKY in spite of our hope because of the knowledge of the fault zone. It is possible that the ground at a dry riverbed is not firm, and that seismic wave cannot propagate to the geophone effectively. Unpaved surface may not be appropriate to this seismic source. We can see the significant structure regarded as flexure for the KKO although the surface of the survey line is over products of volcano. We are going to continue more detailed processing and analyses.

Keywords: Aizu Basin, active fault, seismic reflection survey