

Gravity survey and subsurface structure across the Aomoriwan-Seigan Fault Zone, Northeast Japan(part 2; estimation of the subsurface structure using the density of rock samples)

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The Aomoriwan-Seigan Fault Zone is a fault zone of NNW-SSE trending western dipping reverse faults, which is composed of Aomoriwan West Fault, Nogiwa Fault, and Nyunai Fault. The fault zone is distributed about 31-km long along the eastern foot of the Tsugaru Mountains from Yomogita village of Aomori prefecture to Aomori city (Headquarters of Earthquake Research Promotion, 2004). We carried out a seismic reflection survey and CSAMT (Controlled Source Audio-frequency Magnetic Telluric) survey across the Aomoriwan West Fault (Kagohara et al., 2017; Sakashita et al., 2017) in 2016-2017. The low angle thrust faults of Tsugaru Fault and inclined geological structure until the depth of 1.5 km were revealed in these results. In addition to these surveys, we conducted gravity survey along the seismic survey line, and obtained the Bouguer gravity anomaly (Okada et al., 2018).

In the previous our presentation in the 2018 JpGU (Okada et al., 2018), we use the Talwani method (Talwani et al., 1959) to calculated the Bouguer gravity anomaly, in which the subsurface density structure is determined from the interpretation of the seismic and CSAMT surveys (Kagohara et al., 2017; Sakashita et al., 2017). In a part of the western part of the profile, there were some discrepancies between calculated and observed gravity anomalies. And it was also difficult to estimate the density of each layers. To resolve these problems, we conducted additional field survey and obtained several rock samplings from outcrops around the survey line, which we measured the density of samplings based on the method of Murata et al. eds. (1991). The discrepancies between calculated and observed gravity anomaly were improved by take into the layer densities from samplings.

[References]

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