

Basin fill sediments and late Quaternary tephtras under the eastern part of Aizu basin, Northeast Japan

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Aizu Basin is one of tectonic basins aligning with north-south direction in the south part of Northeast Japan. Along the west and east margin of the basin, the West Aizu Basin Fault Zone and the East Aizu Basin Fault Zone, active reverse faults, stretches respectively. Geomorphic development of the basin since Miocene has been discussed by Suzuki et al. (1977), Yamamoto (2006) and so on. Activity of both fault zones during the last a few ten thousand years was reported by Fukushima Prefecture (2002) and AIST (2007). Kuriyama and Suzuki (2012) and Suzuki et al. (2013) detected tephtras from a drilling core (AB-12-2 core, 179.08 m asl) in the western part of the basin and calculated accumulation rate of sediments since 0.2 Ma as 0.2~0.5 m/ky. However, geological structure of the Aizu basin is still not clear because of lack of chronological studies of underground sediments in the eastern part of the basin. We drilled an all-core (GS-SOK-1 core, 175.99 m asl) with a depth of 130 m at Shiokawa, Kitakata City, located an eastern part of the Aizu basin. In this report, we show stratigraphy of the GS-SOK-1 and detected tephtras.

GS-SOK-1 core comprises alternate layers of gravel beds and fine sediment beds in total. From surface to 26 m depth silt and organic silt beds are dominant, although thick gravel beds deposit from 26 m to 60 m. Two tephtra layer are detected at 1.6~1.8 m (pumice layer) and 81.1~81.7 m (volcanic ash layer). It is suggested that the former is Nm-NM (5.4 ka) and the latter is a tephtra derived from the Sunagohara volcano. Gravel beds composed of subrounded and subrubbed pebbles in size 20-50 mm with cobbles. Andesite cobble and tuff are included in total. Three radiocarbon ages of woods obtained from the core are as follows: 17310-17710 cal yrBP (6.26 m depth), 17330-17730 cal yrBP (6.67 m), and 29530-30360 cal yrBP (7.64 m).

Suzuki et al. (2013) detected three tephtra layer in AB-12-2 core; Nm-NM (4.1 m depth), AT (17.1 m), and Sn-MT (88.3 m). If volcanic ash at 81.1~81.7 m depth is compared with Sn-MT, average accumulation rate of sediments since 0.2 Ma in eastern part of the Aizu Basin is comparable with one in western part. On the other hand, GS-SOK-1 core consists of alternate layers of gravel and fine sediment, although AB-12-2 core dominantly comprises fine sediment in total. Boring site of GS-SOK-1 is near fans of eastern margin of the basin and volcanic-fan of Mt. Nekoma, suggesting that coarse sediments have been supplied several time in GS-SOK-1 site.

Keywords: Aizu basin, Boring, Tephtra, Underground geology, Late Quaternary