

# Self-potential survey on Mt. Bandai, Japan

# Hiromasa Ishikawa[1]; Hirokazu Fujimaki[2]

[1] Geology Sci., Tohoku Univ; [2] Earth and Planetary Sci., Tohoku Univ.

Mt. Bandai is an active volcano situated on the east of Aizu basin in Fukushima prefecture. It has four main bodies; Oobandai, Kushigamine, Akahaniyama, and a part of Kobandai. The volcanic activity has extended since middle Pleistocene and phreatic eruptions are main events lately. In 1888 a most part of Kobandai was lost in exploding with massive debris avalanche. It seems that the sector collapse by phreatic explosion like this case is related to the states of hydrothermal system closely. Therefore it is important for us to reveal the hydrothermal system of Mt. Bandai. Recent noticeable volcanic indications at this area are fumarolic gases emitted from southeast of Kushigamine and north of Oobandai, and thermal water sprung from Nakanoyu.

Self-potential (SP) is electric potential generated naturally on the ground. Although causes of SP anomalies are various, electrokinetic effect associated with subsurface fluid flow is considered to be the most probable causes of them at active volcanic area. In order to reveal hydrothermal circulation system at Mt. Bandai, the measurement of SP was conducted along radial roots from the summit to the foot of the mountain. Non-polarized Cu-CuSO<sub>4</sub> electrodes and digital tester were used to survey difference between two points. Result show that two noticeable SP anomalies were obtained. One is positive and sharp anomaly on the south hillside of Oobandai, the other is negative anomaly on the south-side of a hill of Akahaniyama. The largest difference of these anomalies was about 600-700 mV. Previous study showed that large seismic attenuation zone were observed directly on the Mt. Bandai (Hamaguchi et al., 1988) and suggested the existence of underground high temperature zone or magma reservoir. Although it is not clear that these anomalies were attributed to them, no obvious symptom on the ground was confirmed. Almost the changeless SP profile was obtained around Nakanoyu where is expected to be gained large SP anomaly. This fact might be accounted for by low electrical resistivity around there. Meanwhile, slight but significant positive anomaly was detected around Kawakami hot spring located on the northeast foot of the mountain. This anomaly should be caused by electrokinetic effect accompanied with hot spring water upflow.

We will report these results in the presentation.