

Studies on a small absolute gravimeter

Akito Araya[1], Shuhei Okubo[2], Yuji Otake[1]

[1] ERI, Univ. Tokyo, [2] Earthquake Res. Inst. , Univ. Tokyo

Gravity observations bring us useful underground information on the movement of the matters such as the magma and the ground water. Recently, for example, the gravity changes around the Miyake island revealed magma insertion and formation of vacancy just before the mountain depression during volcanic activities. An absolute gravimeter played an important role on this gravity observation. Since it can sense the gravity acceleration as an absolute value with an accuracy of 10^{-9} , we can measure gravity changes without constructing any reference points.

Current absolute gravimeters, however, have difficulties in their large size and price for the widespread observation in the field. We have noticed the data acquisition and the signal analyses in the absolute gravimeter, and reached perspectives for small-size absolute gravimeters.

With small absolute gravimeters, novel observations such as an absolute-gravity network at the volcanic area and an ocean-bottom observation would be possible. In the conference, we report on the consideration of a small absolute gravimeter and the current status of the development at ERI.