Deep magma chamber inferred from the leveling survey near and around Mt. Hokkaido-Komagatake

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The first order leveling survey, which is administered by Geographical Survey Institute Japan, is the only one geodetic method having the good accuracy and the long term data enough to investigate the long term volcanic activity in Japan.

In Hokkaido, the distribution of the first order leveling routes is sparse compared with that in the other part of Japan. Mt. Hokkaido-Komagatake and Mt. Usu are the only two volcanoes that the first order leveling routes are passing through the foot of them and are extended in more than two directions.

The trend of regional deformation is found in the leveling data. That trend is removed. After this correction, the area of volcanic deformation is extended to about 50km far from the center of the deformation.

The location of the wide area deformation source estimated by the isotropic pressure model (Mogi's model) is situated at the southwestern foot of Mt. Hokkaido- Komagatake. Its horizontal distance from the central crater of the volcano is about 7km and its depth is ca. 19km. The rate of magma accumulation is supposed $1.9 \times 10^6 m^3$/year.