

SGD002-P09

Room: Convention Hall

Time: May 27 17:15-18:45

Gravity Survey and terrain density distribution inferred from gravity inversion in Northwestern Hokkaido

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The northern Rumoi region, northwestern Hokkaido, is in active crustal seismicity area and is considered to be a convergent plate boundary zone. In this area, the earthquake of the M6 class occurred in 1872 from old document and landslides, but the information of hypocenter fault and crustal structure is not certain.

We carried out gravity survey around this area to reveal crustal structures. We also use gravity survey data measured by Japan Petroleum Exploration Co., Ltd. (JAPEX), Geographical Survey Institute (GSI) and Advanced Industrial Science and Technology (AIST). Finally, we can collect 7743 data in this region and contoured Bouguer anomaly map.

In the result, steep horizontal gradients of gravity anomaly are found from north to south in this region. This N-S trending lineaments are generally correspond to the western boundary of anticlines.

We also calculate terrain density distribution in this area inferred from gravity inversion. Density distributions are calculated based on the Akaike's Bayesian Information Criterion in which optimum trade-off parameters control the smoothness of Bouguer anomaly surface against its fitness to the observed gravity. In the result, the estimated terrain density correlates well with major geologic units.

Acknowledgement

We use gravity survey data measured by Japan Petroleum Exploration Co., Ltd., Geographical Survey Institute and Advanced Industrial Science and Technology.

Keywords: gravity survey, terrain density analysis