

Detailed Bouguer anomaly map around the Kego fault, Fukuoka city and the damage of the 2005 west off Fukuoka earthquake

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The Kego fault, which is active fault, runs through the central Fukuoka city. The earthquake off the western part of Fukuoka prefecture was not caused by the Kego fault's movement. But if we have a big earthquake caused by Kego fault, we will suffer the large damage. We conducted the gravity surveys with high density measurement points since 1996 in order to make clear the underground basement rock structure. And we explored the possibility of the utility for the prevention of the earthquake disasters.

We measured gravity values at 1122 points using Scintrex CG-3 and CG-3M gravimeters. A density of 2.40g/cm³ was used to yield the Bouguer anomaly map. We detected some high gradient zones of Bouguer anomaly, which are caused by faults. The highest gradient of Bouguer anomaly was detected along the Kego fault. The measured data revealed a low Bouguer anomaly and a high Bouguer anomaly zones around the Kego fault. The low Bouguer anomaly zone is in the shape of triangle surrounded Akasaka - Noma ? Sekijomachi. This zone is the same zone called Tenjin basin decided by the borehole geological data. In this area, the thickness of the Quaternary sediments is thick compared with surrounding area, and JMA seismic intensity 6 lower was observed. We suggest that Bouguer anomaly reflects the depth of basement rocks and we can utilize the Bouguer anomaly map for making the earthquake hazard map.