

## A Gravity Survey in the Middle Southern Part of Osaka Bay Area

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### 1. Introduction

When it is shown that the gravity anomaly map in and around Osaka Plain, for example, Nakagawa *et al.* (1991), a small rise of the gravity anomaly exists characteristically in the middle southern part of Osaka Bay Area. Distribution of the gravity anomaly is suggested the presence of faults along the bay area. But it is not deny that a dome-shaped subsurface structure exists there. Accordingly, the gravity anomalies have been measured in a high density on the survey line across the small rise in order to obtain some information about its structure.

### 2. Study Area

Gravity measurement was carried out in two survey lines, AA' and BB'. Line AA' lay along Prefectural Road 40, where was called Kishiwada Chuo Line, between point A as the bay front and A' as the vicinity of Imaki-cho in the northern part of Kishiwada. Line BB' was set up along Prefectural Road 38 and 225 between point B in Shiomi-cho, where coastal Izumiotsu, and B' nearby Izumi Fuchu Station, where southwestern part of Izumi City. The length of the former was approximately 5 km and the latter was approximately 4 km. The measurements were mainly performed on the benchmarks of urban area. Interval of each station was approximately 50 m. Elevation values of the benchmarks were introduced for gravity correction.

### 3. Measuring Method

The measurement was carried out with G-308 gravimeter manufactured by LaCoste & Romberg. A temporary reference station of the gravity had been installed on Kinki Polytechnic College in Inaba-cho, Kishiwada. The gravity value was determined by comparing at the first class gravity station in Wakayama Local Meteorological Observatory (Ryoki and Nishitani, 2010). In addition, it was also compared with Kyoto FGS in Kyoto University (Ryoki, 2012). On this point, the daily measurement was made the closed loop.

### 4. Results and Discussion

Results of the measurement are shown higher values in northwest side (sea side) and lower in southeast side (mountain side) along Line AA' or Line BB'. These results suggest a fault structure. The southern part of Uemachi Fault Zone is positioned on the southeast side of the survey lines extension of both. Gravity anomalies in which, on the contrary, are lower values in the northwest side and higher in southeast side (Ryoki and Nishitani (2010), Ryoki and Nishitani (2011)). Ikeda *et al.* (2002) showed that Sennan Active Segment exists between them. However, it is not clear from the results of gravity. Therefore, in the studies of authors, it is suggested that the structure of conjugate fault system along the Bay Area exists with Uemachi Fault Zone.

### 5. Conclusion

Distribution of the gravity value was obtained in high density equivalent survey line to cross the fine high-gravity area that existed in the middle southern Osaka Bay Area by this study. These distributions suggest to run a reverse fault structure. Future expected to be integrated with the previous measurements, the three-dimensional structure may be to analyze.

### References

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