[JJ] Evening Poster | S (Solid Earth Sciences) | S-SS Seismology

[S-SS11]Crustal Structure

convener:Yasuhira Aoyagi(Central Research Institute of Electric Power Industry)
Thu. May 24, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
The aim of this session is to cover seismological and geophysical studies on the Earth's crust. Contribution on seismological and geophysical structure of the crust, processes that develop in the crust which include earthquakes, volcanoes and geological descriptions of the crust are welcomed. We also welcome theoretical and methodological studies that will serve as basics in such explorations.

[SSS11-P10]The Gravity Survey in the Chikko-Shinmachi - Minami-Eganosyo Line which Crossed the North-side Area of Senboku Graben

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Keywords:Osaka Plan, Uemachi fault zone, subsurface structure, reverse fault, digital geographic information, public control point

1. Summary

When advancing earthquake disaster prevention, the existence of a buried active fault which is not known well poses a problem. So far, research of an active fault has been advanced focusing on the field investigation or the result of a seismic exploration in a survey line selected based the field investigation. On the other hand, in addition to these, the dense gravity survey has been carried out by many survey line which cross Uemachi fault zone in order to grasp the structure of a deposition base, in the Osaka Senboku area. As an example of results, the position of the presumptive active fault (Yoshioka *et al.*, 2013), that is lying along the Gulf, is confirmed in Hamadera (Ryoki, 2017). In this report, it is shown that the result of gravity measurement on the east-west survey line set to about 2.5 km north of Ryoki (2017).

2. Target area

The survey line lay about 15km east-west from Minami-Eganosho, Habikino City, to west end of Chikkou-Shinmachi, Nishi-ku, Sakai City. Among them, it is measured by the Ryoki (2015) that a investigate line is about 6 km from Sanjo-dori, Sakai-ku, Sakai City to Shin-Kanaoka-cho, Kita-ku.

3. Method

Gravity measurement was carried out using the LaCoste &Romberg relative gravimeter G-308. As a general rule, this measurement was carried out on the baseline standard point of the Geospatial Information Authority of Japan (GSI) and the reference point / auxiliary point of the public block area, and the survey result (GSI, 2017) of each point was used for gravity correction. In the case where the point was lost, the position before the loss was confirmed on the map and it was taken as the gravity measurement point. Since measurement was done in plain part, topographical correction was not applied this time.

4. Result

Fig. 2 shows the results of free air anomalies and simple Bouguer anomalies projected in the east-west direction. The horizontal axis is the distance from the western end of this line. Fig. 2 shows the active faults, as well. All of these faults are roughly orthogonal to the current survey line.

5. Conclusion

Show at Figure 2, the presence of the Mikunigaoka high gravity anomaly area is noticeable. The maximum value of Bouguer anomaly in this section is 15.6 mgal, from which the distance to a flat part in the eastern area is about 3.8 km, the difference is about 4.0 mgal. The Bouguer anomaly gradually decreases in the west of the maximal position. But when look closely, small gaps are recognized on the east side in response to the fault positions (1) - (4) on the surface. The fault (5) does not show remarkable features in Bouguer anomaly. On the other hand, the existence of active faults is not known to the east of the maximum position of Bouguer anomaly. However, as far as the distribution of Bouguer anomalies is concerned, the displacement of a large foundation structure is also suggested here.

In the Senboku area, there were gravity measurement results for several survey lines which were unpublished as it was difficult to access geographical information, which was an online information, at the time of measurement. These are going to be made public in the future.

References

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