Subsurface structure of the Kameoka basin,Kyoto Prefecture, Japan, as inferred from gravity survey

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It is important to obtain data on subsurface structures, such as concealed faults and basement structure, for strong ground motion evaluation. For this purpose, seismic reflection surveys can provide higher resolution subsurface images than other geophysical prospectings, such as gravity surveys. However, seismic reflection surveys are costly and are unsuitable for extensive survey. On the contrary, gravity surveys cost less and are suitable for extensive survey.

In this study, I carried out gravity surveys across the Kameoka fault located at the northwestern part of Kyoto Prefecture, western Japan. Okada et al. (2005) clarified existence of concealed faults by seismic reflection surveys across this fault. However, the locations of northern and southern termination of the Kameoka fault were still unclear.

I obtained gravity data along ten survey lines to image concealed faults and basement structures. Two gravity survey lines overlap with seismic reflection survey lines of Okada et al. (2005).

The results are the summarized as follows ; (1) The Kameoka fault zone is about 6km long, (2) The density of the sedimentary layer is 2.35g/cm^3, (3) The top of the basement is high in the south central part of the Kameoka basin, (4) The kameoka fault is more active in the summarized south-central part than in the northern part.