Estimation of the formation process based on sedimentation rate

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The Kyoto basin is a tectonic depression surrounded by high-relief mountains. Active faults are located at the fronts of these mountains. This basin is formed by several factors such as uplift of mountains and height distribution widely distributed marine clay formations. This research aims at examining the formation processes of subsurface geologic structures of the Kyoto basin.

Subsurface geologic strata are assumed by a statistical analysis with the subsurface structure data that were originally obtained by Kyoto City and other agencies. These subsurface strata are digitized as precisely as possible, and the formation boundaries are compiled as a digital elevation model (DEM). The Kyoto basin is suitable for this kind of researches, because detailed data of subsurface geologic structures have been densely obtained as a part of the surveys carried out by the Kyoto City.

The formation processes of the Kyoto basin is examined by level of subsurface strata and comparing the relationships between heights of the upper horizon of formations and basement rocks.

We found that active sedimentation occured during the period of sedimentation of Marine Clay 3(Ma3)-Ma9 in the northen part of the Kyoto basin, on the other hand a constant sedimentation was observed since the period of formation of basement in the southern part by comparing with DEM.The activity of Uzi-gawa fault, a blind fault in the southern part of the Kyoto basin, is higher at both ends of fault. And the fault have not been active since 0.012Ma.