

## Concealed Faults Inferred in the Central Part of Yamanote Upland in Tokyo

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It is very important for both planning disaster prevention and smooth implementation of construction projects to clarify whether an active fault is developed beneath mega cities or not. However, no substantive study has been conducted beneath Yamanote upland of the central part of Tokyo Metropolitan area because of absence of both obvious geomorphologic and geologic deformational structures except Toyokura et al. (2007), who inferred two concealed Quaternary faults based on analyses of borehole data in a reconnaissance study.

We have been studying subsurface geological structure of the area (5km NS direction x7km EW direction) beneath the eastern part of Yamanote upland for revealing concealed faults with borehole data which have been accumulated during construction of enormous numbers of public facilities and others on it so far. Geologic cross sections were made at intervals of mainly 500m and partly 250m for more detailed analyses. At first, we detected abrupt elevation discontinuity (abbr.AED) points or intervals at which elevation of the boundary surface between the lowest gravel and overlying mud layer (referred to as pair layers) of the Tokyo Formation of middle Pleistocene age changed suddenly in each section. Then we examined whether the pair layers on both side of AED. points or intervals resembled highly each others, and AED. points or intervals were arranged in an almost straight line or not. These two factors will be necessary for determining it as a fault.

The study revealed that there existed three zones along which AED points or intervals arranged in an almost straight line. They were named Iidabashi, Ichigaya, and Kudan AED zone after their name of place running through. Their lengths are about 5.3, 2.7 and 1.7km respectively. They all show strike of NNE-SSW direction and east-side down discontinuity. The extent of discontinuity of the three ranges from 2m to 17m, the longest Iidabashi exhibiting larger discontinuity than others especially in the northern part.

The origin of these AED. zone must be clarified to be tectonic or unconformity. It is most desirable for the pair layers of both sides of the zones being correlated precisely with tephra layers in the near future. We are attempting sedimentological analyses and desk research utilizing geotechnical cross sections of subway construction records to show that the AED. zones have a high probability of faulting origin. It goes without saying that other methods such as seismic reflection survey and borehole survey so on as an active fault research should be employed to evaluate them as an active fault.