Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

HQR011-05 Room: Exibition hall 7 subroom 3 Time: May 28 10:00-10:15

Fault displacement and detailed structure of the shallow part of the western marginal fault zone of the Echigo Plain, Ta

Atsushi Urabe[1*], Yoshinori MIYACHI[2], Tomio INAZAKI[3], Kyoko Kagohara[2], Taku Komatsubara[2]

[1]NHDR,Niigata University, [2]AIST,GSJ, [3]Public Works Research Institute, Tsukuba

The western margin fault zone of the Nagaoka Plain is distributed from Ojiya City to the offshore of Niigata City (trace lengs: 83km). The western margin fault zone of the Echigo Plain is distributed in the western margin in Echigo Plain near Niigata City. The fault of western margin in Echigo Plain is a fault zone which constitutes the margin in sedimentary basin. Though the record of the earthquake in the historical time of the fault has not been clarified, the seismic activity seems to have been repeated. Therefore, the western margin of Echigo Plain is the region of which the necessity of clarifying the actual condition of the motion in the Holocene. In the western part of the Niigata City, seismic reflection method is done by Kano et al. (1999), Inazaki & Kano (1999) and Ishiyama (2009), and displacement of alluvial base basis and shallow flexure structure of the alluvium are discovered. In Takenomachi region in the Niigata City, Shimokawa et al.(1999) ?aIshiyama (2009) has indicated the displacement of the fault from the analysis by the boring of the alluvium sediment. Here, the following were carried out for the purpose of clarifying distribution and displacement, activity hysterics of the fault in the Takenomachi region, sedimentary facies analysis, tremor array measurement and shallow-layer reflection survey. In the following, the outline is described on displacement from the viewpoint of the sedimentation facies of the core. This time, all core boring was done at 2 places in hanging wall side (GS-NTK : Digging length 30 m) in the Takenomachi region and floor side (GS-NMD : Digging length 70 m) in the Niigata City. By sedimentary facies analysis of the GS-NMD core, the facies of the 70-5 4m depth is river channel sediment, and that of 54-31m depth is composed of bay head delta, swamp and estuary sediment with trace fossil and bioturbation. The sediments of the 31 to 1m depth of core are composed river channel, lagoon lake and pelitic flood plain sediment. The Nm-NK volcanic ash (about 4700 ago) from Numazawa volcano origin is distributed at the 16m depth. The horizon of 31m depth is correspondent to peak stage of the marine transgression about 7200 ago. The basis of the alluvium of the GS-NTK core is the 26m depth. To the 26-9m depth, 3 horizon of the coarse grain sediment originated collapses are included in the salty swamp or estuary sediment. It is about 700m in the interval of both core sites, and the displacement of the alluvium can estimate about 70m. In comparison with upper surface of the estuary sediment, the displacement is estimated about 20m (average displacement speed for the 2.5-3m/1000 year) . In the future, the correspondence of facies cycle, event and reflection plane is carried out, and the details of the deformation are analyzed.

Keywords: Western marginal fault zone of the Echigo Plain, Niigata, Takenomaci area, Alluvium, seismic reflection survey