

## Segmentation model in the Shinano River fold and thrust zone, central Japan

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The segmentation and grouping of fault zone is an important item to estimate a magnitude of future earthquake which generates from the active fault. The aim of present study is to discuss about the segmentation and the grouping the fold and thrust zone in the western margin of the Shinano River, composed of the active fault zone in the western margin of Nagaoka Plain (NPF) and the active fault zone in the western margin of the Tokamachi Basin (TBF). These fault zones are located between source regions of the 2004 Niigataken Chuetsu earthquake Mw6.6 and 2007 Niigataken Chuetsuoki earthquake Mw6.6. The study area is located in the rift zone of the eastern margin of Japan sea (East sea), and the marine deposits accumulate thickly more than 6,300m. The stratum is remarkably folded by compression of east-west trending.

A flight of fluvial terrace surfaces distribute along the limb of anticlinal structures and on the axes of anticlines. The terrace surfaces inherit the folding structure within the Neogene formation. Especially, terrace surfaces steep along the eastern limbs of anticlinal structures. Therefore NPF and TBF are identified as the active reverse fault dip to west. We tried to derive the temporal and spatial changes of vertical offset amounts and those rates along the fault zone based on the altitudes of terrace surfaces, thickness of terrace deposits and the nature of eolian deposits. In the Torigoe fault composing NPF, the maximum offset is appeared at a central region along the surface trace and the offset rate is uniform during the late Quaternary. Three anticlinal structures with 0.4, 1.5 and 4.0 km in wave length were formed in parallel with the fault trace which strikes NNE-SSW. These anticline plunges from the central part to the north and the south respectively. The longitudinal profiles have symmetrical forms and are similar. These anticlinal structures, thus, are inferred a fold structure which was formed by the Torigoe fault. In this south, the Katakai fault strikes N-S in sub-parallel with the Torigoe fault. The vertical offset amount and its rate of the Katakai fault change in space with time along its surface trace. Since the surface deformation accelerates at the northernmost end part, the Katakai fault may be to propagate to north. Both are another faults, although the Torigoe fault and the Katakai fault were the groups of NPF by preexisting studies. TBF is located in the south of the Katakai fault strikes N-S. This fault is appeared to migrate to the south from the time and space changes of offset rate.