

Characteristics of normal faults in coastal area: case study in the Kawaminami Fault, southern Kyusyu

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The 2011 off the Pacific coast of Tohoku Earthquake has been triggering a large amount of earthquake, including the April 11, 2011 Fukushima-ken Hamadori earthquake. The normal faults (Itozawa and Yunodake Faults) were ruptured during the earthquake (Tsutsumi and Toda, 2012). Although there are several normal faults in coastal area on the Pacific side, such type of normal faulting (triggered by a large earthquake in plate convergence) has never been reported until the earthquake in Fukushima. Therefore more case studies focused on normal faults are needed to assess the risk of fault activity in coastal areas. As such case study, we are doing geological and topographical surveys in the Kawaminami Fault, lying along the northern margin of the Miyazaki Plain.

Several studies suggest the Kawaminami Fault is a normal fault showing uplift of the western side, displacing a higher terrace (e.g. The Research Group for Active Tectonics in Kyusyu, 1989). However, there are no detailed studies in and around the fault, though Quaternary geologic and topographic evolution of the Miyazaki Plain has been summarized (e.g. Nagaoka et al., 2010). In this study, first, we focused on the spatial distribution and characteristics of the higher terrace. In the western side of the Kawaminami Fault, terrace deposits characterized by red soil matrix are scattered at an altitude ranging 200 to 250 m. the deposits mainly include hard, well-rounded gravels of chert and sandstone derived from the Shimanto accretionary complex, and pebbles to boulders of welded tuff (some of them are thoroughly weathered) of Osuzuyama Volcano-plutonic Complex. We newly discovered successive exposures of other deposits characterized by red soil matrix at an altitude of approximately 100 m along the Kawaminami Fault. We will try to reconstruct the spatial distribution of these deposits and their relationship with the activity of the Kawaminami Fault. In addition, several lineaments and tilted landforms are identified in the plain area, eastern side of the fault. We also focus on the probability of the seaward migration of the fault activity.