

Activity of the Northern Marginal Faults of the Saga Plain

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The Northern Marginal Faults of the Saga Plain are normal fault zones of up thrown to the north stretching east and west about 19 km. It starts from the vicinity of the Yoshinogari Tateno, Saga Prefecture and continues toward Matsuo Ogi-cho, Ogi. The distribution form of this active fault is a linear trace that extends east to west. Regarding the Northern Marginal Faults of the Saga Plain, Research Group for Active Tectonic Structures in Kyushu ed. (1989) and Nakata-Imaizumi ed. (2002) has certified the active faults along the boundary of the plains and mountains on the north side of the Ariake Sea. However, such as average vertical slip rate and the age of the latest activity of the Northern Marginal Faults of the Saga Plain are unknown because information of the trench survey poor. Therefore, in this study, we had a survey of interpretation of microtopography, field survey and ultra-shallow seismic reflection profiling, to purpose average vertical slip rate, the paleoseismic history as well as the latest activity in the Northern Marginal Faults of the Saga Plain. We have already done a report by the present study, Kagohara et al. (2014) and Imaizumi et al. (2014). In addition, we reaffirmed the distribution of the active fault with a focus on the distribution and shape of microtopography, further, to discuss the activities of these faults band on the basis of the presence or absence of contrast and fault displacement of microtopography. The investigation was conducted from eastern Yoshinogari going west through Kanzaki as far as the Kase River of Saga.

In interpretation of microtopography, we created contour maps of 1m intervals from city planning 1:2500 maps. And we used aerial photographs of scale of 1 per million taken that GSI was taken in the 1960s. Also, we conducted a field survey, including simple boring survey and ultra-shallow seismic reflection profiling.

Resulting in, terraces surface classification of the north portion of the Saga plain has been divided into 7 side of as follows:[the higher than] H, M1, Aso-4pyroclastic flow depositional surface, M2, L1, L2 andL3. Also, light of the comparison with the terraces classification diagram studied (the late Nagaoka originals; Shimoyama, 1999; Shimoyama et al., 1999, 2010, etc.) so far, each of the formation age is as follows. H surface MIS7 equivalent, M1 surface is located in the lower Aso-4 pyroclastic flow deposition surface, it is MIS5e equivalent of last interglacial period, Aso-4 pyroclastic flow deposit surface is 8.9ka and M2 surface is MIS 5a equivalent the formation age from such be covered discordance Aso-4.

Further, L1 surface in terms of the most widely distributed in this study area, it is the Last glacial epoch (MIS 2-4 equivalent) because AT(26-29ka) was sandwiched directly above emerged surface, L2 surface is MIS 1 equivalent for just above the K-Ah (7.3ka) on emerged surface, L3 surface is MIS 1 equivalent lower than L2 surface.

In these L2 surface was observed tectonic bulges lie on the southern side of the known fault trace that continues in the east-west direction. These tectonic bulges are anticline-like, decrease flexure to the south and these states can be read also from the detailed contour map. According to surface exploration, these tectonic bulges have slightly tilted to be confirmed visually. In addition, a simple boring survey around the L2 side with these tectonic bulges, was carried out plurality of places in the hanging wall side footwall side of the fault trace. As a result, relative uplift side of the fault trace on L2 surface in Kawakubo Saga city (altitude about 5m), K-Ah was found in depth 102~105cm, and AT was found in depth 120 ~126 cm. For this presentation, we got some results by drilling survey, surface exploration and Ultra-shallow seismic reflection profiling. So we described the discussion on the activities of the active faults in the Northern Marginal of the Saga Plain.

Keywords: Northern Marginal Faults of the Saga Plain, normal fault, large-scale geographical map, tectonic bulge, interpretation of microtopography