

Paleoseismological study of the Midorikawa fault zone in Kyushu Island, Japan

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Midorikawa fault zone is distributed between Yamato town and Misato town, Kumamoto prefecture, Kyushu Island, Japan which has ENE-WSW direction. This fault consists of clear geological boundary at the northern margin of Kyushu Mountains and it is partially overlaps with Usuki-Yatsushiro Tectonic line which divide Inner and Outer zones of the Southwest Japan (Saito et al., 2005, 2010). Therefore, Midorikawa fault is a part of an important tectonic line at the geotechnical subdivision in the Southwest Japan.

The Headquarters For Earthquake Research Promotion released the long term estimation for the Midorikawa fault zone on February 2015, and the fault zone shows normal fault with dextral strike-slip and the dipping angle is about 70-90 degree to the north direction. Average recurrence interval was estimated about 34,000-68,000, if the dextral movement was negligible. However, no trench and boring investigation has ever done for the Midorikawa fault zone and the specific paleoseismological data has not been obtained. Thus the AIST accepted the contracted study in 2015 from the Ministry of Education, Culture, Sports, Science and Technology and did the investigation for the paleoseismic record.

Our field work is done at the Kariya, Yamato town where is located Kamano fault which is the the eastern margin of the Midorikawa fault zone (Chida, 1980), graben structure is developed in this area. Four boring research were done before the trench and all core consist of Aso-4 pyroclastic deposit, loam, humic silt, orange-colored pumice layer, loam and humic silt from bottom to top. An orange-colored pumice layer is overlaying the humic silt, thus it is possibly the Kusasenri-gahama pumice (Kpfa, 31ka) layer (Miyabuchi et al., 2003). The trench was dig across the southern edge of the graben and it size is around 16m×4m×2.5m. Loam, Kpfa, humic silt, loam and black soil was exposed from the bottom to the top. There is a clear fault which displace the Kpfa and dipping to the north direction, This indicated that Kamano fault is activated after the Kpfa. There are another few displacement is recognized therefore few events is suggested at the hanging wall side. We will discuss the paleoseismic record with the carbon dating data in detail.

Keywords: Midorikawa fault zone, active fault, paleoseismology