

Surface trace and latest activities of the Kurehayama Fault through the urban area of Toyama City, north-central Ja

TAKEUCHI, Akira^{1*} ; YAMAGUCHI, Hiroyuki²

¹Graduate School of Science and Engineering for Research, University of Toyama, ²Graduate School of Science and Engineering for Education, University of Toyama

The Kurehayama fault zone is an active, high-angle reverse fault running through the central part of urban area in Toyama City. The surface-fault trace and the fault history are still unclear because of much limitation for geological surveys in such an urban area. Recently, however, boring investigation has been carried out along the National highway No. 8 for the construction of bridge in the segment from Awashima-machi to Toyoda-honmachi, Toyama City. Descriptive reports on stratigraphy of boring investigation and core-samples were available and quite useful for the five sites of boring investigation (T7, T8, T2, T3 and T9 from west to east) were offered by the Toyama Office of River and National Highway, Hokuriku Regional Development Bureau, MLIT, Japan.

This study utilized those samples and records to clarify the location of fault trace and to determine the age of latest activities of Kurehayama Fault by visual observation and age determination using carbon isotope analysis of core samples. Seven radiometric carbon ages were also obtained from T7, T8, and T9 for time-stratigraphy.

Analytical results of this study suggest that the surface trace of Kurehayama Fault across the survey line between T3 and T9 and displaced at least twice after 9680calBC with approximately 4.7 m in accumulated displacement. The latest activity occurred within the interval after 4960calBC and before 1360calBC with approximately 2.5 m vertical displacement. Regarding the estimated range in the neighbor segments of Kurehayama Fault, this study limited the evaluated span of fault activity into a narrow range ca.2285BC- ca.1360BC.

The second latest activity occurred within the span from ca.9500calBC to ca.8380calBC, and its vertical displacement was evaluated 2.54m, suggesting a moment magnitude 7.2 if the whole fault were activated to generate earthquake. The time interval between the first and second latest events was calculated as about 7100 years.

Since the net-slip rate becomes 0.5m kyr⁻¹ and the activity of Kurehayama Fault is classified into B class.

It is necessary to explain the geomorphological development of target area is necessary in the future.

Keywords: active fault, reverse fault, Kurehayama Fault, Toyama Plain, latest activity, fault trace