

Fault Activity of the Iriyamase Fault, the Fujikawa-kako Fault Zone, in the Kanbara Lowland, Shizuoka Prefecture

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The Iriyamase Fault, a northward extension of the Suruga Trough, is one of the most active faults evaluated by HERP (2010), because the mean slip rate was estimated to be 7 mm/year from the displacement of lava of Fuji volcano. However, there is no distinct tectonic topography directly indicating recent activity, the fault trace is not clear. A relationship between the subducting plate motion and the Iriyamase Fault is also not clear, though the western coast of Suruga Bay was uplifted during the 1854 Ansei earthquake. In this study, we conducted a drilling survey on the uplift side of the inferred trace of the Iriyamase fault in the Kanbara Lowland, and examined its activity in comparison with existing drilling survey data.

From the results of analysis of drilling core sample, it was found that the silt layer dated to ca. 9000 years, which is considered to be deposited in the intertidal environment, is distributed at -30 to -32 m in altitude. Compared to the eustatic sea level in central Japan (around 9000 years ago at -20 to -30 m in altitude; e.g. Endo, 2015), they are at almost same or this site is at the lower level. The silt layer dated to ca. 5000-6000 cal yBP, probably freshwater environment, showing the age around Holocene sea-level highstand is distributed at -14 to -18 m in altitude, which is considerably lower than the current sea level. These evidences suggest that this site has not been uplifted actively, rather it may be subsided in long term.

Comparing our results with existing drilling data obtained in the subsided side of the inferred trace of the Iriyamase Fault, the silt-clay layers of 5000-6000 years ago and 11,000-12,000 years ago are vertically offset 12-14 m and 14-20 m respectively. Although major uncertainties still exist, if it is assumed that both layers were deposited at the same level, it shows cumulative displacement and can be estimated to 1-2 mm/year of mean slip rate.

Keywords: Fujikawa-kako fault zone, Suruga Trough, active fault, drilling survey