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Influence of systematic 14C age gap derived from different analyte assayed on paleoseismological study

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A great number of ^{14}C ages are measured from numerous trenching of the active fault after 1995. A highly accurate, highly reliable fault activity is clarified. For its part, the problem not actualized in the measurement of small number of ^{14}C ages has been actualized. One of these is systematic ^{14}C age gap between plant, charcoal and organic sediment. We introduce the cases of ^{14}C age gaps in same layers or same samples in the trenching we surveyed. We discuss the cause of age gaps and precaution of estimating for fault activity. The trenches we surveyed are one site of the Eastern boundary fault zone of the Shounai plain, and two site of the Itoigawa-Shizuoka Tectonic Line active fault zone.

At the Kannonji fault that is located on the Eastern boundary fault zone of the Shounai plain, we found evidence for two surface-rupturing events after ca. 4000 yr BP(toda et al,2008). The samples were gathered from each stratigraphic level, and the ^{14}C ages executed by the AMS method were concentrated between ca. 2500 and 4000 yr BP. In the same stratigraphic level, charcoal ages are younger than organic sediment ages. The gap of age is about 500 -2500years. Because the gap of ^{14}C ages, we cannot decide the age of surface-rupturing events in detail.

At the Oosawa fault that is located on the Itoigawa-Shizuoka Tectonic Line active fault zone, we found evidence for two surface-rupturing events (toda et al.,2009). In this site, plant is younger than peat, peat is younger than organic sediment. The gap of ages are about one thousand years old. The interpretation changes greatly by the analyte assayed at the age of the events.

At the Eastern Matsumoto Basin fault group that is located on the Itoigawa-Shizuoka Tectonic Line active fault zone, we found evidence for several surface-rupturing events (Maruyama et al., in this Meeting). In this site, the interpretation changes greatly by the analyte assayed at the age of the events, too.

In these three trenches, we analyzed 15 samples by charcoals and organic sediments in same samples, the systematic ^{14}C age gap derived from different analyte assayed. The minimum ^{14}C age gap is 120 years, the maximum is 1350 years, and the average is about 400 years. The cause that the gap is caused in ^{14}C age is (1)old root, (2)fallen tree, (3)resedeimentation, (4)contamination by ground water, or (5)difference of origin of carbon. It is not clear which causes the gap of the ^{14}C age at the present stage. In the future, paleoseismic age must be reconsidered after checking for ^{14}C age gaps derived from different analyte assayed at previous study.

Keywords: 14C age, AMS method, radiocarbon age, active fault, fault activity, paleoscismic