# Correlation of boring core samples in the Osaka-wan fault based on the measurements of initial magnetic susceptibility

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Osaka-wan Fault, one of the major active faults in the Osaka sedimentary basin, reaches beneath the Kobe City. Vertical separation on the fault is larger than 1000 m in its maximum. Integrated analyses of the biostratigraphy, tephrochronology and magnetic susceptibility have been conducted for core samples of the OB-1 and OB-2 borings, which were drilled on the northwestern (upthrown) and southeastern (downthrown) sides of the Osaka-wan Fault, respectively. Susceptibility curves of the two boreholes are correlated on the basis of the Ata Tephra horizon. Correlated intervals of the OB-2 are thicker than those of the OB-1. It is attributed to activities of the Osaka-wan Fault around the 90 kyr (age of Ata Tephra).

Osaka Bay and Osaka Plain in central Japan are characterized by rapid subsidence and burial through the Quaternary, and constitute a composite sedimentary basin. Its evolution has been controlled by activities on active faults surrounding the basin. Yokokura et al. (1998) described subsurface structure of the basin using reflection seismic profiles. Itoh et al. (2000) calculated subsidence rates during the late Quaternary on the basis of stratigraphy of deep boreholes distributed around the Osaka and Kobe areas. These studies indicate that average slip rate on active faults in the basin varies considerably from place to place. The Osaka-wan Fault, one of the major faults, lies along eastern coast of the Awaji Island with NE-SW trend. Its northeastern extension diverges into the Wada-misaki, Maya and Rokko-island Faults, and reaches beneath the Kobe City. Vertical separation on the fault is larger than 1000 m in its maximum. Integrated analyses of the biostratigraphy, tephrochronology and magnetic susceptibility have been conducted for core samples of the OB-1 and OB-2 borings, which are located on the northwestern (upthrown) and southeastern (downthrown) sides of the Osaka-wan Fault, respectively. Results of initial magnetic susceptibility measurements and tentative correlation of the core samples are presented in this paper. Cubic specimens (7 cc) were prepared for both the OB-1 and 2 in every 5 cm of boring depth except for horizons containing very coarse sand. Susceptibility measurements were done on the MS2 Magnetic Susceptibility System(Bartington). Susceptibility per weight was calculated from the low frequency (0.47 kHz) data and sample weight. Susceptibility curves of the two boreholes are correlated on the basis of widespread Ata Tephra horizon, which is identified in the both holes (Kitada et al., this volume). High and low values of magnetic susceptibility roughly correspond to concentration of volcanic glass / mica and organic matter, respectively. Correlated intervals of the OB-2 are thicker than those of the OB-1. It is attributed to activities of the Osaka-wan Fault around the 90 kyr (age of Ata Tephra; Machida and Arai, 1992).