Holocene activity of the Osaka-wan and Wada-misaki faults off Kobe, central Japan

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The Osaka-wan fault is one of the most active submarine faults in the Osaka bay. Off Kobe, the northern end of Osaka-wan fault branches off three faults, Wada-misaki, Maya and Rokko-island faults.

We have carried out acoustic survey and drilling study to date recent faulting events. The results of acoustic exploration are as follows. (1) Osaka-wan and Wada-misaki faults extend into the Holocene deposits. (2) The vertical displacements of the Osaka-wan and Wada-misaki faults are 3 to 10 m and 4 m.

We made two boreholes on both sides of Wada-misaki fault. The core sample is composed of bioturbated clay with many shell fragments and sandy silt.

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The Osaka-wan fault is one of the most active submarine faults in the Osaka bay area and extends as long as 40 km in the NE-SW direction in the western Osaka bay, Kinki district, central Japan. Off Kobe, the northern end of Osaka-wan fault branches off three faults, Wada-misaki, Maya and Rokko-island faults.

We have carried out acoustic survey by using acoustic explorer (high-resolution single-channel seismic profiler) and drilling study to date recent faulting events.

The main results of acoustic exploration are as follows. (1) Osaka-wan and Wada-misaki faults clearly extend into the Holocene deposits. (2) The vertical displacements of the Osaka-wan and Wada-misaki faults are 3 to 10 m and 4 m, respectively. (3) Displacements of Maya and Rokko-island faults are not recognized in the Holocene deposits.

We made two boreholes on both sides of Wada-misaki fault in the port of Kobe. The core sample is mainly composed of bioturbated clay with many shell fragments and sandy silt.

At present, we are conducting several high-resolution analyses such as sedimentary facies, soft X-ray radiograph, magnetic susceptibility, grain size, grain composition and AMS14C dating. From these results, we will date recent faulting events, and estimate recurrence interval and average vertical slip rate.