

MIS001-P01

Room: Convention Hall

Time: May 25 10:30-13:00

Detailed observation of topography and geologic architecture on a submarine landslide scar in a toe of an accretionary p

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This paper deals with detailed geologic and topographic features of a recent three submarine landslides on a convergent margin. We surveyed a submarine landslide scar on a toe of the Nankai accretionary prism, SW Japan, using the remotely operated vehicle (ROV) KAIKO7000II (7K). The water depth is 3200-3800 m. The total volumes of moved masses are 3.3, 30.6 and 11.3 km³. During the dive survey, the 7K found debris blocks fractured by two directions of joints. These result from retrogressive small collapses at the landslide scar. Seeps being bacterial mats were observed at the top of the scar. These are related to be a formation of the slide.

Keywords: ROV KAIKO7000II, Bacterial mats, Nankai trough, prism toe

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High-turbidity layer and its settling in the Nankai accretionary prism off Kumano

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Earthquake shaking is one of the major triggers for redistribution of slope sediments. Some seafloor observations suggests disturbances during large earthquakes. Core sample analyses also provide information about histories of gravity flows in sedimentary basins. A series of earthquakes of magnitude about 7 occurred southeast off the Kii peninsula in September 2004. We had a chance to obtain undersea video images just after and six years after earthquakes. The seafloor observation was conducted along the prism slope ranging from near the epicenter to 80 km southwest of it by ROV "NSS" during the KY04-11 cruise. The NSS consists of a pilot vehicle, tether cable, and a removable winch system. The pilot vehicle has four thrusters, two underwater TV cameras and hook for a heavy payload. TV observation indicated changes of turbidity with depth: cloudiness increased with depth and was relatively high within the bottom 200m irrespective of the distance from the epicenters. Such turbidity was found in the whole prism slope and was not recognized in the forearc basin. Moreover, extreme high-turbidity layer was observed at the bottom of the slope basin. Complete sinking of the weight of the heat flow probe within this layer suggested thickness of more than 2 meters. NSS revisited this site 6 years after the earthquakes during KH-10-3 cruise and confirmed the seafloor to be normal condition. The seafloor depth 2.4 m deeper than that measured just after the earthquakes using a depth meter (pressure) and an altimeter (acoustic) of the pilot vehicle suggests that the altimeter acoustically recognized the top of the extreme high-turbidity layer as a seafloor in 2004. Our seafloor observation revealed pervasive distributions of turbidity layers probably caused by slumping or sliding in the prism slope and accumulating process in the slope basin.

Keywords: gravity flow, Earthquake shaking, turbidity layer, NSS

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Characteristics of turbidites at the deepest part of the Beppu Bay

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Many turbidite layers were obtained in a core collected from the deepest part of the Beppu Bay, off Takasaki-yama, Kyushu. Most of the turbidites had less than 1 cm in thickness, but some turbidites were a few tens cm thick. The thick turbidites had a few cm thick sandy part at the base and thick turbidite mud with larger amount of clastic grains, better sorted, and high wet bulk density than normal hemipelagic mud (diatom ooze). Clastic grains in turbidites might be supplied from Oita-gawa and Ono-gawa rivers. Formation of turbidites might be related to submarine slope failures of the river delta slopes by local earthquakes and floods.

Keywords: turbidite, Beppu Bay, sedimentary structure, earthquake, slope failure