



Kinematics of submarine landslide in Nankai Subduction zone inferred from magnetic fabric and X-ray CT images

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A youngest mass transfer deposit (MTD1) distributed around the mega-splay fault, Nankai Trough, which was documented by IODP Expedition 333, was studied in order to evaluate the possible association with ToNankai and Nankai earthquakes inducing. New cores were collected in the area of source region of MTD1 during cruises KH-15-2 and KH-17-2. Core structures and grain fabric were analyzed by X-ray CT and anisotropy of magnetic susceptibility to identify flow structure of MTD1. Subbottom image of MTD1 shows that it had slid from the mega-splay fault area with a 3-m thick and 6-km length. X-ray CT images of the core samples reveal high density lineation developing in MTD1 interval, while no high density lineation in the intact interval of cores. Sudden change in shear strength in both cores between intact cover sediment and MTD1. A south-eastward sliding is interpreted from magnetic fabric patterns reoriented by paleomagnetic direction of the samples. Depositional ages of MTD1 of KH-15-2 and KH-17-2 reveal 9,262 cal BP and 12,780 cal BP for the MTD1 respectively. The previous study indicates 13,000-14,200 BP for the MTD1. New obtained ages also reveal that MTD1 is old as about 10,000 years ago. These observations indicate that a linkage between the submarine slide occurrences and M8-class ToNankai and Nankai earthquakes which repeatedly occurred with 150-200 years interval recently is not clear.