

Large landslides and active faults off Misaki, Sagami Bay

Juichiro Ashi[1]; Hideaki Machiyama[2]; Masataka Kinoshita[3]; Masato Joshima[4]; Kiyoyuki Kisimoto[5]; Kiyokazu Nishimura[6]; Yasuyuki Nakamura[7]; Tomohiro Toki[1]; Hidekazu Tokuyama[1]

[1] ORI, Univ. Tokyo; [2] KOCHICORE, JAMSTEC; [3] JAMSTEC; [4] IGG,GSJ,AIST; [5] GSJ, AIST; [6] MRE, AIST; [7] Ocean Res. Inst., Univ. Tokyo

The eastern part of the Sagami Bay is located in the hanging wall of the plate subduction zone, where great Kanto earthquakes repeatedly occurred. A large number of strong backscattering spots, approximately 150m in diameter, are recognized at the small basin off Misaki. These spots were assumed to be caused by sediment eruptions because the textures of side-scan sonar images were similar to pockmarks. These distributions at the hanging wall of the subducting plate and existence of methane hydrate BSRs also support this idea. Seafloor survey by NSS (Navigable Sampling System) in 2004 revealed that strong backscattering resulted from concentrations of blocks of sedimentary rocks. However, core samples taken from the spot show no evidence about sediment eruption. Hyper-Dolphin survey in 2005 conducted subbottom profiling, sidescan sonar mapping, seafloor observation and sampling. Blocks surrounded by flat planes consist of dark-gray siltstones or conglomerates containing sand, mud and volcanogenic clasts. Seafloor within strong backscattering spots does not have steps and fissures, and its surface sediment show no difference with normal seafloor. It is unlikely that aggregation of blocks was caused by sediment eruptions because pockmarks are usually characterized by depressions and furrows. Sediment cores taken by NSS in 2006 show that blocks are restricted to the sediment surface. This suggests that blocks are derived from recent slope failure, probably caused by a large earthquake.