

Extinction of chemosynthetic animal community by drilling induced muddy flood

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The South Chamorro seamount is located 60 miles east off Guam Island forming a conical shape of serpentine mud volcano. In 1996 chemosynthetic animal community was found during the submersible Shinkai 6500 near the summit for the first time in the Mariana forearc. During ROV Kaiko dive in 2000 another community was also found at the summit of the S. Chamorro SMT. A series of drill holes 1200A to 1200F were spudded during the ODP Leg 195 drilled and the CORK system was launched at Site 1200C. During the Shinkai 6500 dives in 2003 we encountered the queer white sediments covering the serpentine mud with large boulder of peridotite. Sediments mask the rugged surface just like a new snowfall. We found the provenance of the flood sediments to be the holes 1200 A to F depend on the flow structure and scour marks on the new soft sediments. Several cores obtained from this soft sediments which show the white soft mud in the upper part but black with bad-smell mud near the bottom of the cores. The bad smell is methyl amine that was yield from the dead clams once alive. Volume estimation of the drill cuttings from six holes are about 230m³ that is average 6cm-thick sediments covering in the circle with 35m diameter and maximum 50 cm or more the living clams within a week. Because of rapid sedimentation we estimate the clams were not able to escape such a bad condition and then suffocated to death.

Shinkai 6500 dives made clear the extinction of former living animal community by the flood of secondary soupy serpentine mud that was the drill cuttings during the previous drilling. The site selection of the deep sea drilling is important when to drill near by the site of chemosynthetic clam community as well as precious materials.