

Environmental change of marine sediment at Hirota bay, Iwate pref.

*Rihoko Saito^{1,2}, Naoki Haramiishi^{1,3}, Kosuke Tsutsumi^{1,4}, Yuka Yokoyama¹, Izumi Sakamoto¹

1. Tokai univ., 2. Arc Geo Support Co., LTD., 3. Fukada Salvage & Marine Works Co.,LTD., 4. IDEA Consultants, Inc.

By Tohoku great earthquake disaster and the tsunami activity with it generated on March 11, 2011, the area of the Pacific coast of the Tohoku district suffered serious damage. In the Gulf of Hirota area along the shore where Rikuzentakata city, a tsunami of approximately 12m attacked it, and a large quantity of sea-bottom sandy sediment movement occurred with debris, and quality of bottom environment of the inside of the gulf changed suddenly. We performed a seafloor topography investigation by MNB and made a basic information map. We also performed SSS investigation to obtain distribution information of debris and to get the bottom surface sediment information. SBP investigation by high-resolution stratum exploration has carried out to obtain the vertical information of sediment and debris distribution information. These sound exploration provide the wide range sea-bottom environmental information. Seafloor observation by ROV and sub-bottom sampling by grab-sampler also performed to obtain the geo-environmental information.

The sediment that sabulosity was superior was distributed in the place shallower than depth of the water 19m, and it was revealed that nature of the mud sediment was superior in the place that was deeper than depth of the water 19m. In addition, in the area along the shore, it became clear that the offshore level had few comparative changes whereas the change of the sand mud ratio was intense. This depends on the geological feature of the hinterland, and it is estimated that related to the counterclockwise ocean current in the gulf. In the coast of present, the beach nourishment works are performed. A particle size becomes coarse at the front of beach nourishment point, and, by the texture result in survey line that is near to the shoreline, it is estimated that sand begins to flow out from the coastal area. Between Kesen River and the beach nourishment point, sediment of the Kesen River origin is confirmed, and it is thought that the sediment of naturally returns to the beach little by little.

Keywords: Tsunami deposit, Sanriku coast, 2011Tohoku earthquake