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Traces of the 2011 Tohoku-oki tsunami as seen from the topography and geology in rias coast, Iwate Pref.

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The recent 2011 Tohoku tsunami strongly affected the coastal area of the Pacific coast of Tohoku. Tokai University with JAMSTEC investigated the Tohoku coastal area as a part of Tohoku Ecosystem-Associated Marine Sciences (TEAMS). We have succeeded in capturing traces of tsunami in various sea-bottom.

The trace in the bottom topography:Many uneven terrain has distributed around 15 ˜20m water depth. Many of its terrain is denudation mark, mark denudation of these exhibits an axial direction southeast of Toni-bay case. In the Okirai-bay a distance of approximately 20km from Toni-bay, denudation phenomenon that traces to develop in 15-25m water depth around has been confirmed. This denudation mark is presumed to have been formed by mud flowing toward the sea floor off the coast on the tsunami wave at the time of argument.

The trace in the high-resolution geo-stratigraphic survey: We have defined the A layer between the reflective surface and 1 seafloor. The A layer is located below a few tens of cm seafloor, and is widely distributed. The A layer is equivalent to the unit 1 of core samples described below. Reflecting surface enriched unevenness is also confirmed A layer below, which are estimated to be the traces of past tsunami activity.

The trace in the sea-bottom columnar core section:We estimate that the surface U-1 layer with grading structure (fine sand at the surface and coarse sand with gravel from lower part) of columnar core was the sediment gravity flow caused by the tsunami activity. The U-2 layer with bioturbation structure estimated by the normal bay sediment. There is some sandy layer with 10cm thick in the U-2 layer and also under the U-2 layer. It is estimated that these sandy layer have been formed by the historical tsunami activity.

Keywords: Tsunami deposit, Sanriku coast