

## Characteristic of surface sediment left by 2011 Tohoku earthquake, case study of Hirota bay

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The recent 2011 Tohoku tsunami strongly affected the coastal area of the Pacific coast of Tohoku. The result of onshore features for tsunami impact is well-reported, but offshore is only a few researches.

In this presentation, we will show about distribution of tsunami deposit left by 2011 Tohoku earthquake at Hirota bay. We researched about tsunami origin sediment using acoustic equipments (Multi beam echo sounder, Sub bottom profiler and Side scan sonar), bottom sampler and ROV.

Hirota bay have a few fairways at coast side that from between submerged breakwater to valley by submarine topography data. East side of this bay (around Kesen-river) have strong reflected intensity depending on SSS image, and lead up to offshore (depth approximately 17m) from river side. Distribution of surface sediment is mainly sand, gravel where locally-distributed near the river side by grain size analysis, and a few sediments with woodchip, shell piece etc.

SBP data confirmed surface sediment characterized by inside reflecting at the valley axis of bay, and clearly different from lower sediment layer.

Sand to silt sediments layer with grading (fine to medium) structure observed at the top of the columnar core (0-40 cm) sample. The lower part of this layer consists gravel and shell fragments, and has contact the unconformable relations with the lower sediment layer. Underlying layer is massive sediment with fine sand to clay (40-70 cm) materials. We assume that denudation is boundary of previous or after tsunami sediment and upper layer is tsunami origin sediment. This boundary has continuity reflecting surface by SBP data and confirm distribution of this reflecting surface and thickness. We were able to estimate tsunami origin sediment distributed with thickness approximately 20-50cm, and high thickness was distributed to the fairway.

Keywords: Tsunami origin sediment, Sanriku coast