

Estimation of formative mechanism and classification of surface facies of tsunami origin sediment at Hirota bay

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The recent 2011Tohoku tsunami strongly affected the coastal area of the Pacific coast of Tohoku. The study of onshore features for tsunami impact is well researched, but offshore is only a few researches. In this presentation, we will show about classification of surface facies, and estimate the formative mechanism of tsunami origin sediment.

We took the columnar core at water depth 8-30 m. The columnar cores were able to sectionalize to mainly two units from lithofacies. Unit-1(U1) consists of sand layer and Unit-2(U2) consists of muddy layer. Yokoyama et al. (2014) assume that U1 were 2011 tsunami origin sediment, and U2 were normal sediment in this bay. We estimate U1 distribution with thickness approximately 7-80 cm. U1 thickness have lateral change around coastal area (water depth about 8 m), but homogenize a thickness around water depth about 13-16 m. Therefore, we estimate some sediment lobe were unified toward offshore.

U1 were able to sectionalize to some sub units from grading. Sub unit number was decrease from coastal area to offshore. Sub unit-1a (bottom layer of U1) have granule to fine pebble at base, and grain size gradually become finer from coastal area to offshore.

13HV8 (water depth about 13 m) was able to sectionalize to sub unit-1a and 1b, sub unit-1a consists of grading section (medium-very coarse sand), parallel lamina section (medium sand) and fine sand section (very fine sand-fine sand) from the bottom, it is similar to the character of Bouma sequence -a, -b, -d or -e, and sub unit-1b have same characteristics, too.

Keywords: Tsunami deposit, Sanriku coast