

## Revised columnar section based on grain size distribution analysis of samples from Hakuho-maru KH-18-3 in Yatsushiro sea

\*Yuta Ikebata<sup>1</sup>, Yujin Kitamura<sup>2</sup>, Hakuho-maru KH-18-3 Scientists Family

1. Kyusyu University Graduate School Of Science Earth and Planetary Science, 2. Graduate school of science, Kagoshima University

Hakuho-maru KH-18-3 was held in the Yatsushiro Sea from 27th to 30th July 2018 for clarifying history of occurrence of submarine landslides. Earthquake is a one of big trigger of submarine landslides, and submarine landslides occurs in an very easy slope. Kumamoto earthquake occurred at April, 2016 and a lot of surveys in the land area were conducted but survey in the sea area weren't conducted much. In the Yatsushiro sea, the occurrence of submarine landslides caused by earthquake of the Futagawa-Hinagu fault zones can be considered sufficiently. Therefore, in this study, the creation of the columnar section which is the basic information of the submarine landslide accreditation was made based on the grain size distribution analysis.

In the Expedition, eleven piston cores(6m) from PC01 to PC11 were collected in the southern part of Yatsushiro sea, and the obtained core was subjected to non-destructive measurement and individual sample measurement at the Kochi Core Center. For non-destructive measurement, CT images and core continuous images were taken, and for individual sample measurement, Density, Magnetic susceptibility, porosity, vane shear strength, color, concentration change of major elements were examined. Grain size distribution analysis was conducted at Kagoshima University. Samples used for grain size distribution analysis were collected every 50 cm and analyzed with a laser diffraction type grain size distribution analyzer. Since it is difficult to judge the stratum boundary only with the result of grain size distribution measurement at intervals of 50 cm, it was judged by using  $\gamma$  ray density, magnetic susceptibility and color measurement result which are continuous data.

Grain size distribution analysis revealed PC01 to PC07 are muddy cores and PC08 to PC11 contains much sand. Grain size of PC01, PC04, PC06, PC07, PC09, PC11 are very different in Grain size distribution analysis and visual core description. Based on the results of the grain size distribution analysis, the stratum boundary was determined from the change commonly seen in the  $\gamma$  ray density, magnetic susceptibility and color, and a columnar section was prepared. In Rifardi et al.(1998), the distribution of mud content in the Yatsushiro Sea has been surveyed. As a result of comparing the columnar map of this study with its distribution for each sampling point, cores excluding PC08 corresponded well. It is thought that it is influenced by the supply of sediment by river and stagnant water mass, tide current as in previous research. Also, in Inoue et al.(2011), which was a reference for determining the core harvest point, dating is done in the same area. At Hori(2019MS), we compare the data with Inoue et al.(2011) and estimate the core age of this research. We also compare the columnar section made in this study with the columnar section of Inoue et al.(2011), using the comparative categories determined at the time of estimating the age. As a result, PC01 and PC02 were in good agreement, PC06 and PC07 had different stratum in the surface layer. This is probably because the sampling site of PC06 is actually about 150 m far from Inoue et al.(2011) and the sampling site of PC07 is actually about 111 m far from Inoue et al.(2011), and the sedimentary environment is slightly different. Also, in the grain size distribution analysis of this study, there is a possibility that coarse grains may be selectively left out when putting the sample into the machine, and it may be doubtful in accuracy.

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