

Physico-chemical properties of sediment cores from Yatsushiro Sea, western Kyushu

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Submarine active faults in Yatsushiro sea, western Kyushu, constitute the Yatsushiro section of Hinagu fault zone in its southwest end. The 2016 Kumamoto Earthquake was sourced from a part of active faults of the Futagawa-Hinagu fault zones. Earthquake shaking occasionally triggers submarine landslide. As submarine landslide can take place in very gentle slope ($< 1^\circ$), Yatsushiro sea is yet to be a scene for it although the area is a shallow and relatively small sedimentary basin. However, any record of submarine landslide in this area has not been reported.

Minamata bay, southern Yatsushiro sea, is known to be mercury pollution from a chemical plant drainage. A complex space-time distribution of mercury content in the sediments has been revealed (Tomuyasu et al., 2014). As the transportation of the mercury-containing clastics depends on sedimentation rate and/or water current, submarine landslide is a candidate for the factor of drastic change in benthic environment.

Here we conducted four-days research cruise Hakuho-maru KH-18-3 in July, 2018 to reveal submarine landslide records and benthic environment in Yatsushiro sea. We conducted subbottom profiling, piston coring at 11 sites, and multiple coring at 13 sites). Recovered cores are analyzed by X-ray CT scanner, multi-sensor core logger, core imaging apparatus, visual core description, color spectroscope, X-ray fluorescence core scanner (Itrax), and so do discrete samples by vane shear tester, picnometer with sediments and by Radon monitor with sea water and pore water.

Our results revealed clear difference in the lower part of each core compared to the upper part. By referring piston cores and their age data by Inoue et al. (2011), these distinctive units is caused by hiatus between about 3 to 8 ka. The lower sediments below the hiatus are characterized by rather high vane shear strength, low porosity and abundant terrigenous sediments. The depth of hiatus varies in site by site, which suggests difference in local depositional environment. Sedimentation rate of recent 50 years which Rifardi et al. (1998) inferred from superficial sediments cannot be applied for whole core, but the rate in longer time scale must be further smaller.

Keywords: turbidites, shallow marine deposit, 2016 Kumamoto earthquake, mercury, Yatsushiro sea, Minamata bay