

## Exploration of Turbidity Current occurred in northern Suruga Bay by Typhoon No. 24 in 2018.

### -Traces Turbidity Current survey by R/V Shinsei Maru KS-21-1 Cruise-

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We are studying the turbidity current occurred in Suruga Bay by Typhoon No. 24 in 2018.

Ocean Bottom Seismographs (OBSs) were installed to implement for Comprehensive Research Project for the Fujikawa estuary fault zone (Sato et al., 2019) for the purposes of crustal structure exploration and earthquake observation.

During this exploration, the Eighteen (18) OBSs for the Seismic Reflection and Refraction surveys, and four (4) OBSs for seismic activity surveys, had been deployed in order to explore on the planned survey lines around the fault zone at off Shimizu/Okitsu river to off Izu /Heda areas.

While the deployed OBS were affected and damaged due to the Typhoon No. 24 had been passing around the Suruga Bay area from September 30 to October 1, 2018. The effects of the disaster became apparent when OBS were found drifting in northern Suruga Bay.

Some of OBSs were damaged and missing by the seafloor turbidity current caused by typhoon, and some could not recover due to buried or abnormal surfacing sequences.

However, the recovered some OBSs were clearly recorded the vibrations generated by turbidity currents. These records were quantitatively analyzed and revealed the current flow velocity and the pressure (Baba et al., 2021). By the above reason and OBSs status, we have concluded that turbidity currents were occurred by the trigger of the passing Typhoon No. 24 at the northern Suruga Bay.

Based on the findings of Baba et al. (2021), the KS-21-1 Cruise reported in this paper was conducted to trace the turbidity current using various seafloor topography and geological survey methods described below to understand the material flow and its spreading status.

Sub-Bottom Profiler and Multi-Beam Echo Sounder exploration for the topographic survey were carried out to investigate the traces of the turbidity currents along the few survey lines of fan basin off Fujikawa estuary. We also observed the seafloor using the Video Camera on ROV Hyper-Dolphin for about 13 hours. And four (4) cores and three (3) rock samples were successfully collected using ROV Manipulator. The core samples were analyzed by CT scanner and visually observed after half cutting. As a result, the sequence of turbidite was confirmed. Sampled three rocks were decided the quartz, the andesite, and the basalt. ROV equipped acoustic sonar was used to search for missing OBSs that were thought to have been left on the seafloor by the turbidity current, but Suruga Bay was very muddy and could not find them. In this study, we report the obtained traced results related to turbidity current during the cruise.

#### References

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