

## Turbidite Records Based on ITRAX from Marine Sediments from the Ryukyu Trench End and Floor

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By analyzing piston cores KR1518PC04/PL04 in the southwestern Ryukyu Trench end, Taiwan-sourced sediments can be delivered into the Philippine Sea mainly by turbidity currents via submarine canyons (Hsiung et al., 2021). For further understanding deep-sea turbidites and to establish a comprehensive view of Ryukyu Trench sedimentation, YK1501PC14/PL14 has been selected for deep-sea turbidite study. The site YK1501PC14/PL14, southwestern Ryukyu Trench floor, is about 100 km east of the site KR1518PC04/PL04. PC14 shows 263.0 cm in length and a pilot core PL14 is 24.0 cm. The lithology of PC14 mainly shows homogeneous gray mud layers intercalated with very thinbedded finesand layers. In general, these finesand to sand layers is olive-black in color and mostly < 3 cm thick, which can be regarded as turbidites. To better identify the contact of these very thin turbidites, PC14/PL14 were scanned at 0.05 cm resolution by using an ITRAX XRF Core Scanner (ITRAX) at Kochi Core Center, Japan. The target elements from ITRAX profiles include Ca, Sr, Zr, Fe, Ti, K, Rb, and Si. In these cores, Ca and Sr intensities are positively correlated with turbidite occurrence, and Zr is weakly correlated with Ca and Sr. Fe, Rb, Ti, K, and Si, on the other hand, are negatively correlated with turbidite occurrence. We identified 60 turbidites (0.3 to 4.0 cm thick, average in 1.0 cm) based on visual core descriptions, X ray images, element Ca intensity, and Ca/Fe ratios in the ITRAX profiles. We also conduct conventional radiocarbon ages measured by accelerator mass spectrometry from PC04 and PC14 from the > 6 km-deep Ryukyu Trench. The <sup>14</sup>C ages measured on bulk sediments imply that mainly older carbon was included. This study will help to know the characteristics of very thinbedded turbidites intercalated with hemipelagites, and to evaluate the frequency of turbidite records from turbidity currents in modern deep marine systems.

Keywords: Turbidite, ITRAX, Ryukyu Trench, Taiwan