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Radiocarbon evidence on surface sediment remobilization for turbidite deposition in forearc basins off Kyushu, western end of the Nankai Trough, Japan

Ken Ikehara (1), Toshiya Kanamatsu (2), and Taku Ajioka ()

(1) Geological Survey of Japan, AIST, Tsukuba, Japan (k-ikehara@aist.go.jp), (2) JAMSTEC

Deep-sea turbidites have been used to understand the history of past earthquakes. For better reconstruction of the history of past earthquakes, understanding on generating mechanism of earthquake-induced turbidity current is essential. Surface sediment remobilization is a new idea for generating earthquake-induced turbidites, although earthquake-induced submarine slope failures have been thought as a major contributor for generating earthquake-related turbidity currents. Surface sediment remobilization on forming turbidites has been reported from the Chilean lakes, landward slope of Nankai Trough and Japan Trench, but we need much more examples from the different sedimentological and tectonic settings. We conducted a survey cruise at the forearc region, east of Kyushu, western end of the Nankai Trough, Japan. Many fine-grained turbidites in Holocene age were observed in a core from a small forearc basin. Paired radiocarbon dates of turbidite muds and hemipelagic muds just above and below the turbidites indicate no significant difference between turbidite and hemipelagic muds. Similar results were also obtained from the other cores from another forearc basin. In some subduction areas, recurrence of submarine landslides is known as longer interval than that of interplate earthquakes. Therefore, surface sediment remobilization may be a common and important mechanism for generating earthquake-induced turbidity currents, although exact mechanism how to resuspend the surface sediments and to initiate turbidity currents is still unknown.