Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

MIS25-03 Room:106 Time:May 24 09:30-09:45

Origin of submarine event deposits by the 2011 Tohoku earthquake and tsunami: from benthic foraminiferal assemblages

Kazuko Usami[1*], Ken Ikehara[1], Robert Jenkins[2], Juichiro Ashi[3]

[1]Geological Survey of Japan, AIST, [2]Kanazawa University, [3]Atmosphere and Ocean Research Institute, University of Tokyo

Tsunami by the 2011 off the Pacific Coast of Tohoku Earthquake brought significant damage along the northeastern Japan coast. We conducted a marine survey cruise (KT-11-17) to clarify the influence of earthquake/tsunami to sea bottom environments, off Sanriku, northeastern Japan, July-August, 2011. As the results, we found the 2011 earthquake- and/or tsunami-induced turbidites at 13 sites from outer shelf to trench slope off Sanriku. At two sites from slope (893 m and 1446 m in water depth), the turbidites have sharp erosional bases, and upward-fining graded structures started from very fine sand-coarse silt.

The surface layer of the turbidite mud at the shallower site (893 m) includes the major foraminiferal species in the outer shelf (*Uvigerinella glabra* and *Elphidium clavatum*). The possibility of inflow from outer shelf to the site by earthquake- and/or tsunami-induced turbidity currents is inferred from the benthic foraminiferal assemblages. The Basal sands of the turbidite at the deeper site (1446 m) include abundant *Takayanagia delicata*; and the turbidite mud include abundant *Stainforthia apertura*. Both species are reported by previous studies on living benthic foraminifera off Sendai as dominant species in water depth 550 m - 900 m. It is suggested that the sediment was transported from several-hundred meters shallower water depth than the site.

Keywords: event deposit, earthquake, tsunami, turbidite, marine sediment, foraminifera