Relicts of flood hazard during the Meiji Era obtained from western margin of the Kumano Trough

Masaaki Shirai[1]; Akiko Omura[1]; Takashi Ogami[2]; Toru Wakabayashi[2]

[1] ORI, Univ. Tokyo; [2] Environmental Studies, KFS, UT

The Kumano Trough, a ca. 2000 m deep forearc basin along the Nankai Trough, located on southeast off the Kii Peninsula, central Japan. Western margin of the Kumano Trough would be one of the most suitable areas for study of flood induced turbidite generation around the Japanese islands during Holocene. Around the study area, flood and earthquake are regarded as a major trigger of formation of turbidity current.

During the R/V Tansei, KT05-19, KT06-7, and KT07-5 cruises, we obtained surface deposits around the western margin of the Kumano Trough with a multiple corer. Sediment samples consist mainly of hemipelagic olive black to dark olive gray silt often intercalating silty sand layers or lenses. Top of cores are red black soft silt rich in organic particles.

On the basis of concentration of radionuclide 137Cs, dry bulk density, and grain size distribution, we estimated mass accumulation rate of hemipelagite in the area. Under the assumptions that (1) mass accumulation rate is constant, (2) surface soft sediment was usually bioturbated by benthos, and (3) surface soft sediment was eroded by turbidity current, estimated depositional ages of turbidites correspond well with occurrence ages of natural hazards well known in the Kumano area. It supports validity of our estimation method.

Turbidite layers dated as around AD 1880 are commonly thick, poorly sorted, and rich in plant debris. Origin of these turbidite layers are estimated as the Totsukawa flood disaster (AD 1889). In our presentation, we introduce the Tsukawa flood turbidite and our age estimation method for the last 100 years hemipelagite.