

A possibility of influence of deposition in dam-lake to deep marine environments around the Japanese Islands

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It is well known that dams construction on river caused decrease in sediment supply and serious coastal erosion. While, taking into account similarity of grain size, deposition in dam-lake may also cause decrease in deep marine hemi-pelagic depositional rate. Mass accumulation rate (MAR) during ca. 100 years around the Japanese Islands were estimated with Pb-210 radioactivity concentration.

Core samples were obtained with multiple corer (core length <60 cm) on the R/V Tansei-maru from off the Enshu, Kumano and Niigata regions in the central Japan. Subsamples sliced with 1 or 2 cm thick were dried, crushed and measured by an ORTEC High Purity Ge gamma spectrometer housed in the Department of Geography, Tokyo Metropolitan University with a 48 hour counting. MAR was estimated from Pb-210 radioactivity concentration and dry bulk density of other subsamples measured with the Shimadzu Accupyc 130 gas pycnometer housed in Atmosphere and Ocean Research Institute, the University of Tokyo.

In the off Enshu area, MAR of two core samples obtained from small basin on the outer ridge-Nankai Trough slope (ca. 2500 m water depth) were estimated for this study. Although one core did not show change in MAR, the other core showed decrease in MAR around 1930-1940. In the off Kumano area, MAR of two core samples obtained from bottom of the Kumano Trough (ca. 2100 m water depth) were estimated. Both core showed decrease in MAR around 1940-1960. In the off Niigata area, MAR of a core sample obtained from bottom of submarine canyon on the SE slope to the Mogami Trough (ca. 400 m water depth) was estimated. The core showed decrease in MAR around 1960-1970.

Although estimated ages of decrease in MAR have considerable error, it is remarkable that decrease in MAR was estimated from all the studied areas. Contemporaneity of decrease in MAR and dams construction and similarity of the grain size between hemipelagic sediment and dam sediment suggest that deposition in dam-lake may influence sediment supply to deep marine hemipelagic environment.

Keywords: dam, hemipelagi deposits, mass accumulation rate