

Bed load transport by floods based on the sedimentological analysis of river bed deposits sampled in Chikugo River

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Sedimentological analysis was conducted to the cores sampled before and after floods at the same points in the estuary of the Chikugo River, Kyushu, southwest Japan. The analysis consisted of sedimentary structure observation to lacquer peels and digital soft X-ray images of the cores, dense and detailed grain size distribution analysis at 2 cm intervals, and susceptibility measurements. The purpose of this study was to understand sediment transport along the channel of Chikugo River, which is the largest river flowing into Ariake Sound where has taken place such severe environmental deteriorations as devastating decrease in fishery production, depletion of dissolved oxygen concentration, and enrichment of mud contents in the bottom deposits. Analyses of the river bed cores sampled at the mouth of the Chikugo River revealed 5 cm erosion of the surficial bed along with accretion of 36 cm thick sand-dominant deposits during the 5 months including 4 time flood events. It is possible to interpret that the sand rich surficial deposits, classified into medium to coarse sand, were transported through the channel to the mouth even by small to medium scale floods.

Keywords: Chikugo River, river mouth, sediment core, flood, bed load