

Depositional rate of surface deposit during the last ca. 100 years at the Enshu Trough, central Japan

SHIRAI, Masaaki^{1*}, ITO, Takuma², OMURA, Akiko³

¹Tokyo Metropolitan University, ²AIST, ³University of Tokyo

Deep marine surface sediment core sample (KT-08-30, En-MC2) had been obtained from the Enshu Trough at 2008 autumn. Mass Accumulation Rate (MAR) of the core during the last ca. 100 years was estimated with Pb-210 dating and dry bulk density.

The En-MC2 core (ca. 1000 m water depth) has MAR of 0.2 g/cm²/y and a gap in excess Pb-210 activity around the 12 cmbsf horizon. The gap may be erosional surface because soft-X image of the core shows changes in x-ray transmission and bioturbation at the horizon. On the basis of displacement in excess Pb-210 activity, the erosion occurred around 1976 and scoured surface sediment of 2.8 g/cm² corresponding to 5 cm thick.

Although MAR of En-MC02 core is estimated as almost constant during the last 80 years, it shows upward fining trend. It is necessary to continue analysis on the relationship between deep marine sediment supply and human activity such as dam construction.

Keywords: hemipelagic sediment, Pb-210, MAR, Enshu Trough

Distribution of biogenic sedimentary structures in a high energy beach

SEIKE, Koji^{1*}, Shin-ichi YANAGISHIMA¹, Yoshiaki KURIYAMA¹

¹Port and Airport Research Institute

Trace fossils not only provide information on the autoecology of ancient animals but also on the paleoenvironment in which the trace-producing animals lived; improving our understanding of trace fossils requires analysis of their modern analogs. However, almost all studies on modern burrows have been carried out only on intertidal settings (tidal flat, foreshore, and marsh). Paleocology and paleoenvironmental implications of trace fossils in shallow-marine deposits were poorly understood to date. We conducted neiochnological survey on a modern shoreface setting in a high energy beach (the Hasaki Coast, central Japan), and revealed distribution ranges and trace-producers of shallow-marine trace fossils (*Bichordites*, *Macaronichnus*, *Ophiomorpha*, and *Teichichnus*). The result might be useful for reconstruction of the detailed paleoenvironment of ancient shallow-marine deposits.

Keywords: trace fossil, beach, burrow, Hasaki

Intense weathering recorded in the Hara Formation deduced by soil structures and chemical weathering index

Shiori Irie¹, YOSHIDA, Kohki^{1*}

¹Department of Geology, Faculty of Science, Shinshu University

Chemical composition of the mudstones in the Upper Miocene Hara Formation in Ena City, Gifu Prefecture, in central Japan, was studied together with sedimentology and clay mineral assemblage. The Hara Formation, which is correlative to the Porcelain Clay formations around Seto and Tono areas, is considered to have been deposited in flood plain and back marsh areas in braided river system. Soil structures including clay coating and clay filling are formed in several horizons in flood plain sediments. The quartz grains, which are frequently severely etched and corroded, are exclusively prevailed in the sandstones. In XRD analysis, most of the mudstones include high amount of kaolinite clay. The chemical composition of the mudstones having soil structures deposited in flood plain show high Al₂O₃ (>25 wt%) and very high CIA value (>90). Whereas mudstones deposited in lake and back marsh areas suggest relatively low Al₂O₃ (<20 wt%) and low CIA value (83). In central Japan, the correlative formation of the Porcelain Clay Formation were widely deposited as a fluvial sediments mainly from Late Miocene to Early Pliocene time. The significantly higher chemical weathering degree during these periods shows a remarkable warm and/or pluvial condition than present time.

Keywords: chemical weathering, paleosol, climatic change