

Submarine mass-transport deposits of the Paleogene Muroto Formation in the Kuromi coastal region, Kochi Prefecture

IKAWA, Yu¹ ; TONAI, Satoshi^{1*} ; SHIBATA, Tadahiro²

¹Faculty of Science, Kochi University, ²Muroto Geopark Promotion Committee

We report stratigraphy and geologic structures of ancient mass-transport deposits exposed as a nearly 2 km continuous outcrop of the Kuromi coastal region, Shikoku Island, Japan to provide detailed information on internal structures of mass-transport deposits and their relationships with encasing sediments. It is allowing important considerations on triggering mechanisms and transport/depositional process of mass-transport deposits.

The mass-transport deposits studied here are in the Upper Eocene to Lower Oligocene Muroto Formation which is a part of the Paleogene Shimanto accretionary complex. The Muroto Formation, about 650 m thick in this area, consists of six lithofacies. These units are thick-bedded mudstone, thin-bedded very fine grained sandstone and mudstone, thin- to medium-bedded fine sandstone and mudstone, thick-bedded sandstone, folded thin-bedded sandstone and mudstone, and chaotic deposits. These sediments are interpreted as a deep-sea channel-levee system with occurrence of submarine landslides.

A field-based study of the Muroto Formation reveals that folded thin-bedded sandstone and mudstone and chaotic deposits are made up of at least two distinct mass-transport deposits, the larger of which reaches thickness of more than 270 m. Fold hinges in these mass-transport deposits are uniformly orientated and parallel to the host bedding. Axial planes in these mass-transport deposits show a girdle-like distribution which are perpendicular to the host bedding. These patterns of fold orientations show that the style of their transport is mainly flow and partly is turbulent flow including broken detrital blocks. These characters show that huge mass-transport deposits may be often formed on plate convergent margins and involved in accretionary prism.

Keywords: submarine mass-transport deposit, accretionary complex, Shimanto belt, Paleogene