# Features of parallel lamination in turbidite sandstones in the Upper Cretaceous Izumi Group in the southern part of the Awaji Island, southwest Japan

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Parallel lamination is a common structure in sedimentary rocks, which characterizes Bouma $T_b$ division of turbidites. Recent studies of flume experiments suggested that characteristics of parallel lamination vary depending on rates of bed aggradation. That is, the clarity of lamination decreases as rate of bed aggradation increases, and formation of parallel lamination is suppressed under very high bed-aggradation rate (>4 cm/min). However, it has not been examined that variation in features of parallel lamination corresponding to results of flume experiments can be observed in actual turbidite sandstones. In this study, we analyzed microtextures of parallel lamination in the upper part of turbidite sandstones taken from the Upper Cretaceous Izumi Group in soutern part of the Awaji Island, and compared the observed features with the experimental results.

The Izumi Group was subdivided into three lithological parts; the northern marginal part, main part, and southern part. The main part of Izumi Group consists of alternating beds of sandstone, mudstone and conglomerate, and has been interpreted as submarine fan deposits. The turbidite sundstones was sampled from Anaga and Kita-ama formations of the main part of the Izumi Group. The intervals of laminae and oscillation of the grain-size distribution in parallel lamination of turbidite sandstones were measured by automated image analyses.

As a result, it was suggested that parallel lamination in turbidite sandstones can be classified into two types A and B. Type A lamination shows the abrupt change in grain-size at the boundary between laminae, while Type B shows gradual change. In naked eye observation, the former lamination is clearly recognized and the later lamina is unclear. The type B lamination occurs dominantly in turbidites observed in the study area.

Comparing with existing results of flume experiments, we interpret that two types of parallel lamination reflect difference in bed-aggradation rates. In general, the rate of bed-aggradation due to deposittion from turbidity current decreases with time. The fact that the occurrence of Type A lamination is limited in the upper interval of turbidites implies that there is a threshold value of bed-aggradation rate to from Type A parallel lamination. In future, to reconstruct quantitative paleo-flow conditions from characteristics of parallel lamination, we will examine the process and conditions of formation of parallel lamination by the model calculation with further analysis of actual turbidite sandstones.

Keywords: turbidite, parallel lamination, formative condition

 