

Quantitative analysis of erosional marks at the bases of sediment gravity flow deposits

*Yoshiro Ishihara¹, Mayuko Yumi³, Yuri ONISHI², Ayako Okuma³

1.Department of Earth System Science Faculty of Science, Fukuoka University, 2.Graduate School of Fukuoka University, 3.Aero Asahi Corporation

Erosional marks, such as flute and groove marks, are frequently observed at the base of sediment gravity flow deposits, especially for turbidites. It is suggested that the flow velocity and the duration of the erosional flow affect the distributions and sizes of the marks. Additionally, the substrate materials and the characteristics of the erosional flow have an impact on the marks. A large olistolith in the Nichinan Group is distributed at the Izaki Cape, Nichinan City, Kyushu Island, Japan. The olistolith is a block of a turbidite succession deposited in a deep sea environment. Many turbidites deposited on the channel levee and the frontal splay in the block have various types of erosional marks. The distributions and sizes of the erosional marks on the turbidites in many parts of the block suggest differences in the erosional flow duration in different areas, even if it is over an individual turbidite bed (Yumi and Ishihara, 2012). The results suggest that the flow velocity and the duration of the erosional flow deduced from the erosional marks provide additional information about the depositional settings and the paleotopographies of deep sea environments. Yumi and Ishihara (2012) analyzed the distribution and sizes of the erosional marks on a two-dimensional horizontal surface; i.e., they analyzed the planar projections of the erosional marks. However, because most of the erosional marks are observed as a cross section on an outcrop surface, three-dimensional topographical analyses should be carried out. In the present study, we show results of a three-dimensional analysis of outcrop examples of the erosional marks in the Izaki Cape and those formed by flume experiments. Yumi and Ishihara, 2012, *Jour. Sedim. Soc. Japan*, 71, 173-190

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