# Flow reflection of onshore tsunami and features of the deposits

*Yasuhiro Takashimizu[1], Hibiki Saito[1]

1. Niigata University

This study aims to obtain features of the onshore tsunami deposit indicated-flow reflections based on the analyses of a block sample of the 2011 Tohoku-oki tsunami deposits in the Odaka region of Minami-Soma city, Japan. Sampling site U-07 was located 1.75 km from coastline and surrounded by artificial embankments of an approximately 3 to 4 m height in the southern and western parts. In previous studies, the flow direction of the tsunami inverted and the inflow tsunami was changed to outflow after the collision of the runup tsunami with the embankments.
According to the results of the analyses, the U-07 sample was composed of three units, namely, Units 1, 2, and 3 in ascending order. Unit 2 was further subdivided to 6 units, namely, a, b, c, d, e, and f in ascending order. Unit 1 was composed of coarse-grained sandy sediments with mud clasts by runup flow, Unit 2 of alternating beds of sand (Units 2b, d, and e) and mud (Units 2a, d, and f) from the flow inversion and outflow, and Unit 3 of the mud accumulated from suspended loads in stagnating seawater after the tsunami. Mud layers in Unit 2 were interpreted as mud drapes under water stagnation by the tsunami collision with the artificial embankments. On the other hand, sand layers in Unit 2 were the deposits from complicated flow by the tsunami collisions and outflow after the collisions.

Keywords: mud drape, 2011 Tohoku-Oki tsunami

 