

## Sedimentary features of the 2011 Tohoku-Oki tsunami on coastal lowland behind a lagoon in Matsukawaura, Fukushima

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In this paper we describe the sedimentary characteristics of the 2011 Tohoku ? Oki tsunami deposit in Matsukawaura, Fukushima Prefecture, Japan. Matsukawaura is paddy field lowland with a 1.5 km wide of semi-enclosed lagoon. This study area provides opportunity to examine the effects of lagoon for tsunami deposition on the coastal lowland behind a lagoon. Total of eleven sites along a transect were examined and sampled for thickness, and sedimentary analysis (grain size, mineralogy and foraminifera analysis). Thickness of the deposits is ranging from 8 to 26 cm and showing a fining landward trend. The deposits are mainly composed of well sorted to poorly sorted of coarse to very fine sand which covered by mud layer. Medium to fine sand dominated the deposits and is nearly similar with lagoon grain size. The foraminiferal assemblages in the tsunami deposit dominated by lagoonal ? intertidal species (*Elphidium Matsukawauraense*, *Ammonia tepida*, and *Rotalia beccarri*). The mineral composition of the tsunami and lagoon deposits was almost similar, with only the percentage of each mineral differing between types of deposits. Based on the sedimentary structure, settling out of sediment from suspension was the dominant process of deposition. Our observations and analyses suggest that lagoon was the main source of the deposits. Our results indicating that the depositional characteristics of the 2011 Tohoku-Oki tsunami appeared to have been affected mainly by local effect. The findings of our study are of considerable importance in interpreting paleotsunamis in coastal lowland behind lagoon.

Keywords: the 2011 Tohoku-Oki tsunami deposit, Matsukawaura, Lagoon, Grain size, Mineralogy, Foraminifera