

## Coastal lowland deposition by tsunami over a coastal sand dune: Examples from historical and present tsunami deposits on

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Coastal lowland deposition by tsunami over a coastal sand dune: Examples from historical and present tsunami deposits on coastal lowland

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Characteristics of the deposits from a tsunami over a coastal sand dune with several kilo-meters inundation were discussed from two tsunami deposits. First one is the seventeenth century tsunami deposit in the eastern Iburi Coast, Hokkaido, northern Japan, and another one is the 2011 Tohoku tsunami deposit in the central Sendai Coast, Miyagi, north eastern Japan. Base on the sedimentological analysis, it is clarified that both deposits shows same characteristics as follows;

1. Deposits caused from tsunami inundated to two to three kilo-meters inland
2. Distance of the distribution limit of the sands is around two kilometers from the coastal line.
3. Massive or faint parallel lamination
4. Decreasing bed thickness toward inland
5. Fining grain size toward inland
6. Including marine diatom species
7. Erosional contact at base and including rip up clasts
8. Paleo-current direction estimated from grain fabric shows the beds were deposited from inflow only

It is considered that these may show the generic characteristics of the tsunami deposits on coastal lowland caused by a tsunami over a coastal sand dune. In contrast, the different features between the both tsunami deposits are also recognized as follows;

1. The seventeenth century tsunami deposit simply fines toward inland, and on the other hand, the 2011 Tohoku tsunami deposit shows fining inland with two sudden coarsening
2. The seventeenth century tsunami deposit doesn't include mud layer, and on the other hand, the 2011 Tohoku tsunami deposit is covered by thick mud
3. The frequency of marine water diatom species in the 2011 Tohoku tsunami sand is quite low, compared to the seventeenth century tsunami deposits

We interpreted that these are the results from the differences of the geomorphological features between the both coastal lowlands and the influence rate of the artificial changes of the lands. These results contribute to the progress of paleo-tsunami science and give good evidences to identify the tsunami deposits from coastal lowland in future studies.

Keywords: tsunami deposit, coastal lowland, Tohoku, Hokkaido, Fabric, Diatom