

Sedimentary process of small washover sediment due to storm surge

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Miyakojima typhoon occurred in the vicinity of Guam on September 12, 1959. Then, Taisei area was affected a maximum wave height 6.2 to 7.0m at 13 to 14 September 18 in the west coast of Oshima Peninsula, southwestern Hokkaido. We excavated small pits (depth: 1.5m) in Hiragana lowland (3.8m elevation, distance from the shoreline: 55m) reported by Nanayama et al.(2000), we described the depositional process and sedimentary structures in detail again. The 1959 washover deposits are poorly sorted fine to very coarse sized sand including gravel and become thinner and the grain size becomes finer landward. These are divided into two sedimentary units, such as in Units S and T. Unit S shows a upper flow regime bedforms, such as anti dunes and plane bed, and Unit T shows a lower flow regime bedforms, such as 2D dunes. The 2D dunes are discriminated as alternation of fine and coarse grain layers. The coarse grain layer was deposited as intermittent gravity flow deposit from top of slip face, and fine grain layer was deposited in the form of grain-fall from suspension. Our interpretation of deposition process is as follows. A large amount of deposits are carried by waves all at once. As the flow velocity irregularly decreases, particle discretion repeated to make such alternative layer. It is concluded that the facies change from Unit T to Unit S occurred because the power of the storm surge decreased as typhoon moved at 13 to 14 September 18.

Keywords: 1959 Miyakojima Typhoon, washover sediments, sedimentary structure, sedimentary process, grain-size analysis