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Re-Liquefaction-Fluidization in Man-Made Strata in the Former Tone River Bed, Japan, following the 2011 Tohoku Earthquake

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As a result of the 2011 Tohoku Earthquake, damaging ground failure (liquefaction-fluidization) occurred throughout reclaimed land in Tokyo Bay, particularly in the former Tone River lowland and the Kujyukuri Plain in Chiba prefecture [1]. Liquefaction-fluidization particularly affected man-made (reclaimed) strata in the Tone River lowland. Some marshes and lakes were reclaimed to make paddy fields. Other ponds and lakes were filled with riverbed, fine-grained sand to make paddy fields and houses [2]. The 2011 Tohoku Earthquake caused liquefaction-fluidization more widespread and costly than damage stemming from the 1987 Chiba East Off Earthquake. Our research shows that liquefaction-fluidization is more extensive and damaging in man-made strata [reclaimed land] than in underlying, more compacted late Quaternary sediments.

Liquefaction-fluidization were occurred at the 2011 Tohoku Earthquake as the same figure at the same place where liquefaction-fluidization were occurred at 1987 East Off Chiba Earthquake and were re-reclaimed after the 1987 Earthquake at around Tone River in Katori [3].

References:

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