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Distribution of Geological Disaster by Liquefaction-Fluidization Phenomena on Boso peninsula -Urayasu area-

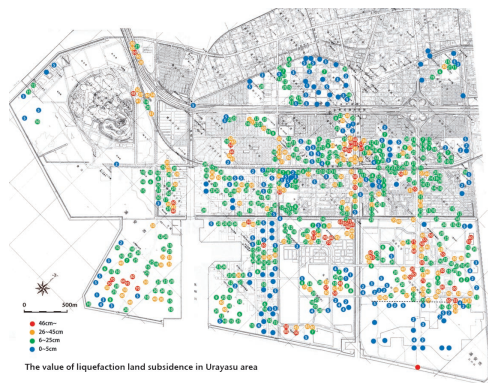
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The 2011 off the Pacific coast of Tohoku Earthquake resulted in destructive damage to the eastern margin of the East Japan. Many cities of the Kanto Plain are built on soft sediments deposited in deltaic and lagoonal environments along the Tokyo Bay. Industrial and urban area were extended by reclaimed land along the ancient coast. In Urayasu City, reclaimed lands are expanding by overpopulation and industrialization since 1960s.

Large scale Liquefaction-Fluidization was caused by the earthquake in the coastal reclaimed land areas. Ground sinkage and ejection of sandy water caused sand flooding. The boiled sand was composed of reclaimed materials which are fine sand and shell flakes. The underground lifeline suffered serious damage due to upward displacement of the piled buildings. Many of the houses were inclined and subsided. The water supply pipelines and other underground lifelines used for residence were cut due to differential subsidence. Many underground emergency water tanks were broken by floating. In the outer edge of the reclaimed land, a partly of the banks were inclined and subsided.

These phenomena were caused by large scale Liquefaction - Fluidization with long period ground motion. Most buildings were existing in the residence area, however, comfortable life are destroyed. Liquefaction subsidence is an exceptional event, however, it is a big problem for low lying and reclaimed land areas because of the immediate heavy damage caused.



Keywords: Liquefaction - Fluidization, reclaimed land, land subsidence