Evaluation of the Re-liquefaction Behavior of the Ground due to the Occurrence of Aftershocks Following a Main Shock

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In order to study the influence of aftershocks on the re-liquefaction behavior of the ground, effective stress analyses in which the effect of pore water flow and migration can be considered are performed by using a ground model in Urayasu city where extensive liquefaction occurred during the 2011 off the Pacific coast of Tohoku Earthquake. The primary conclusions of this study are summarized as follows: 1) while liquefaction is not triggered only by an aftershock, an aftershock following a main shock may increase the possibility of re-liquefaction, 2) the effect of aftershocks on the increase of ground settlement can't be ignored when excess pore water pressure dissipates after a main shock but remains to some extent on the occurrence of aftershocks.