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Ground Rupturing Due to Entrapped Air/Gas in the Unconfined Zone

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ABSTRACT

The sudden and large oscillation of pressure of compressed air/gas entrapped in porous medium due to the changes in the actual pore-fluid pressure, during recharge of water following intense rainfall after a prolonged period of dryness such that the rainfall intensity exceeding infiltration capacity, leads to the generation of hydo-tremors. These hydro-tremors cause ground rupturing, subsidence, developments of cracks in the building, etc. A theoretical model has been presented to estimate the successive values of compressed air/gas pressures due to the successive development of actual pore-fluid pressures and effective stresses during recharge of water of the unconfined zone during the onset of the summer monsoon of 2008 in the northern parts of India.

KEYWORDS

Unconfined Zone, Compressed Air/Gas, Pore-Fluid Pressure, Hydro-Tremor, Ground Rupturing, Effective Stress

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