Fundamental study on accumulation of pore air pressure in geomaterials due to excessive supply of water

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The purpose of this study is to observe and explain the behavior of pore air pressure in geomaterials due to excessive supply of water. The pore air pressure has a significant effect under the conditions that there is oversupplied water from heavy rain or the rise of the river water level. In order to reveal the system of infiltration considering the pore air pressure, we did simple experiments of one-dimensional vertical infiltration. As a result, we deduced that flooding happens on the surface of a specimen when pore air pressure reached the value caused by capillary action. Moreover, besides water pressure head and capillary pressure, weights of saturated portion contribute increasing pore air pressure. In addition, we recognized the remarkable difference between Toyoura-sand and Kanto-roam. Then the state of dry or low gaseous phase ratio are likely to generate higher maximum pore air pressure.

Keywords: geomaterial, excessive supply of water, pore air pressure

