Correlation between liquefaction and grainsize distribution of ground

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It is known that the ground where liquefaction occurs has many voids and the groundwater level is high. And the particle size of the ground is related to the amount of voids. Therefore, in order to verify the relationship between the porosity of the ground and the particle size, a ground model was created for each particle size using four types of alumina spheres, and the porosity was calculated from the model volume and the total volume of the spheres. Compared with particle size. In addition, in order to verify the relationship between the porosity of the ground and the likelihood of liquefaction, I created six types of ground models with different porosities by mixing spheres with different particle sizes, and started liquefaction after starting vibration. The number of vibrations until the occurrence of was recorded. Then, the vibration frequency and the porosity of each model were compared. As a result, it was confirmed that the porosity is related to the average particle size of the ground and the uniformity of the particle size, and that liquefaction is more likely to occur in the ground with a higher porosity.

Keywords: earthquake, liquefaction, grain size, particle size composition

