Faculty of Engineering
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Multi-phase Analysis of Geo-Structure for Natural Hazard

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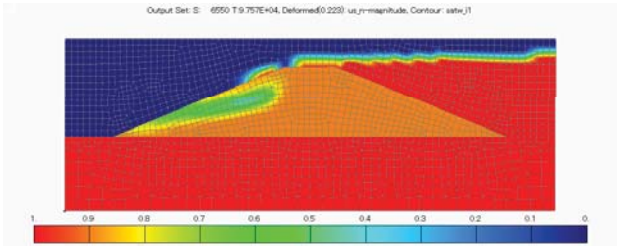
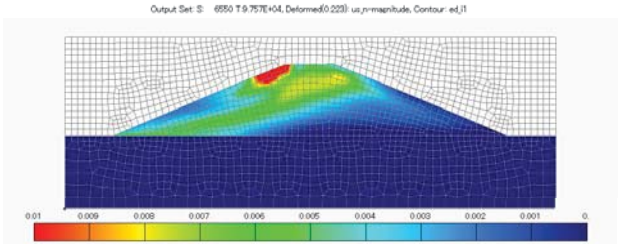
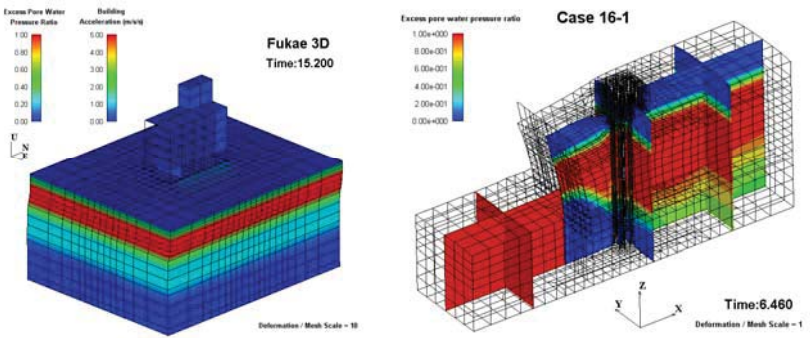




Prediction of failure of river levee during overtopping



Prediction of soil-foundation-superstructure seismic response during liquefaction

Content:

Recent natural hazards such as typhoon, earthquake, have caused severe damages to society due to the increase in population in Asian countries. Prediction and remediation method of ground and structures are necessary to mitigate the natural disaster.

Coupled hydro-mechanical properties and modeling of soil and their numerical methods are studied to understand the behavior of multi-phase soil structures consisted of soil skeleton, pore water and pore air. The major research subjects are the follows.

- Deformation and failure of soil structures such as river levee, road embankment and earth dam (upper figures)
- Liquefaction-induced settlement and lateral flow of ground, failure of soils structures
- Seismic behavior of foundation in a liquefied ground (lower figures)
- Combined hazard with rainfall and earthquake

Keywords: Natural hazard, numerical analysis

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