FULLY COUPLED DYNAMIC SOIL-STRUCTURE INTERACTION ANALYSIS USING A FINITE ELEMENT FRAMEWORK

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A framework represents a collection of common software components for building different computer codes. The basic premise behind the use of a framework is the recognition of a common set of tasks that must be accomplished in writing any computer application code. These tasks can be factored out of the application codes and collected into a single set of components. The goal is to separate the physics aspects from the computer science aspects of writing a computer code and thereby making the code development more efficient. This paper presents fully coupled dynamic soil-structure interaction analyses performed using a framework-based finite element computer code Tera_Dysac [1,2]. Tera_Dysac solves the coupled differential equations governing the behavior of the soil skeleton, pore water, and the structural elements using the TeraScale framework [3]. Following a brief description of the theory and the framework, predictions made by Tera_Dysac are presented and compared to centrifuge model test results.

References

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[3] TeraScale, LLC, "The TeraScale Framework," Version 1.0, Cedar Crest, New Mexico, 2001.

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