Contribution ID: **47** Type: **Poster Presentation**

A hybrid MPM-CFD model for simulating multiphase flow in deformable porous media.

Wednesday, 24 May 2023 10:30 (1h 30m)

Presented here is a model of soil-fluid-structure interaction that integrates soil mechanics (saturated sediments), fluid mechanics (seawater or air), and solid mechanics (structures). As a result of this formulation, the Material Point Method, which simulates large deformations of the porous media and the structure, is combined with the Implicit Continuous-fluid Eulerian, which simulates complex fluid flows. Our model is validated and we simulate the entire submarine landslide process resulting from earthquakes. Using this model, we are able to estimate the impact of submarine landslides on offshore structures by taking into account the complex interactions between saturated sediment, seawater, and structures.

Participation

In-Person

References

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