The Development of a Discrete Particle Model (DPM) to be applied in the swash zone.

The swash zone has increasing been the center of much attention in recent times due to the need of improved predictive models for coastal protection strategies. The majority of formulations applied within the zone originate from riverine studies, resulting in inaccurate predictions of the zone morphodynamics. The research is centered at developing a formulation which would more accurately describes the mechanisms within the swash zone as it pertains to the sediment dynamics and hydrodynamics. A numerical stand point is chosen for the model development due to the relatively high computational resources of the age presently available, as well the ease of which variable can be controlled. Currently, the model is in the development stage, initial simulations for flow across the top layer of a saturated soil block are presented. The water velocity vary in time from 0m/s to 0.6m/s over a period of 2s and the soil block contains 6mm diameter grains with a density of 2.65g/cm3.

Image 1- time = 0s

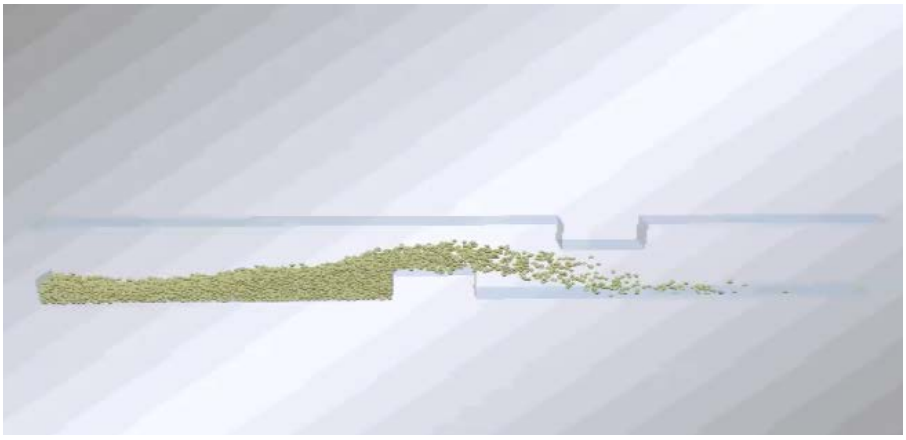

Image 2- time= 0.4s

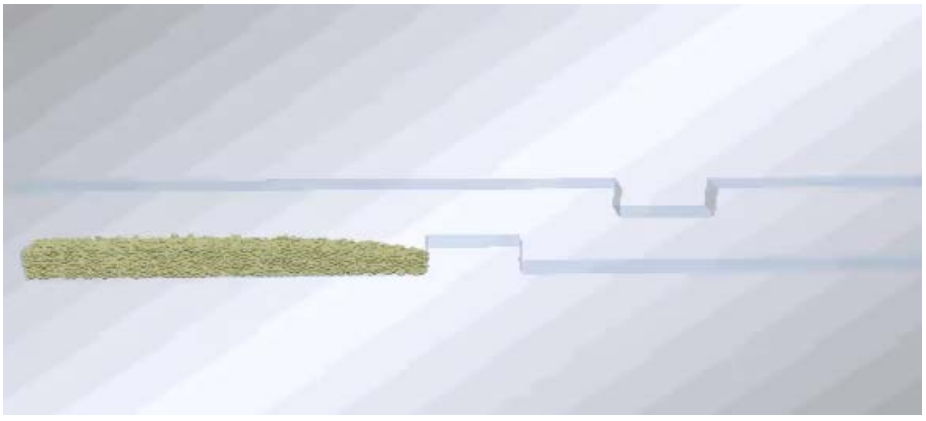

Image 3- time =0.8s

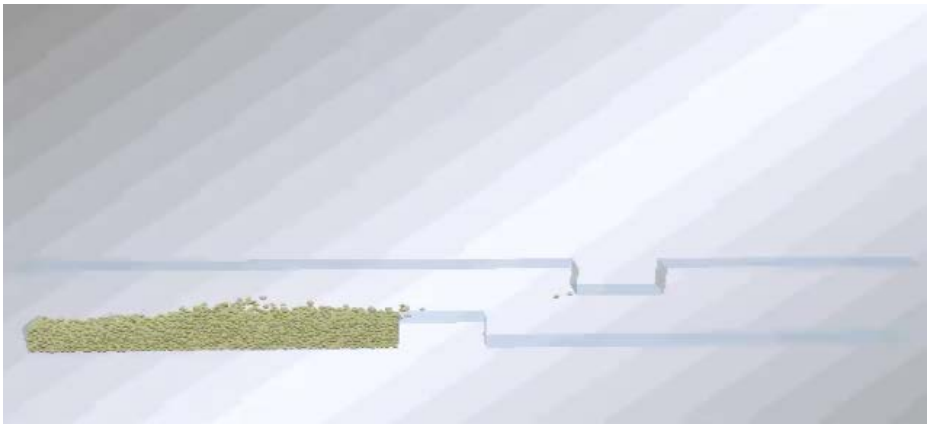

image 4- time = 1.4s