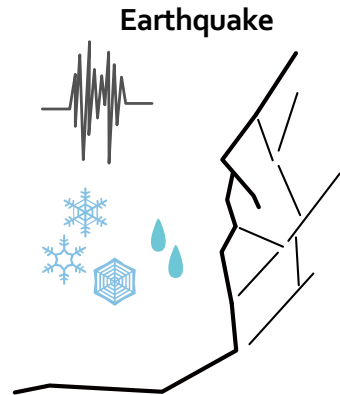


Multi-stage failure simulations for rock mass failure

Kenjiro Terada, Shuji Moriguchi and Shun Suzuki



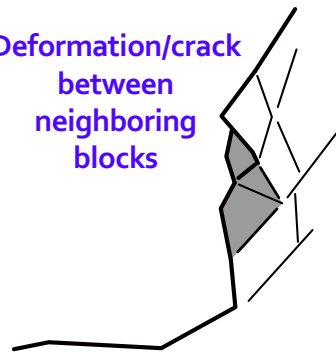
0th Stage



Environmental effect

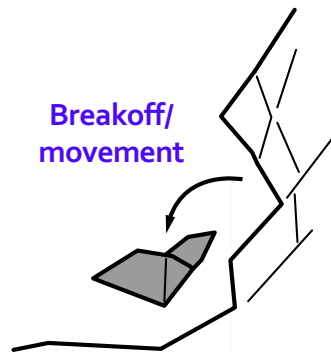
1st Stage

Deformation/crack between neighboring blocks



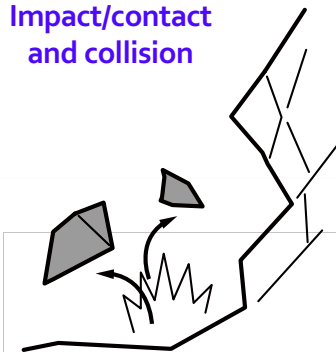
2nd Stage

Breakoff/movement

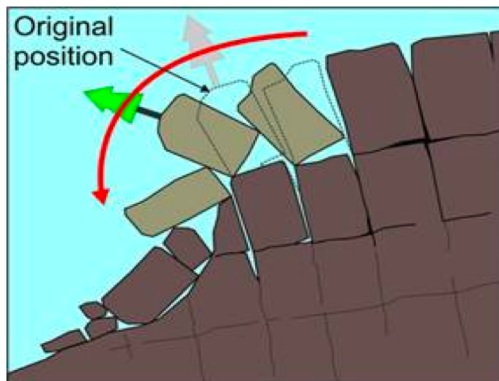


3rd Stage

Impact/contact and collision

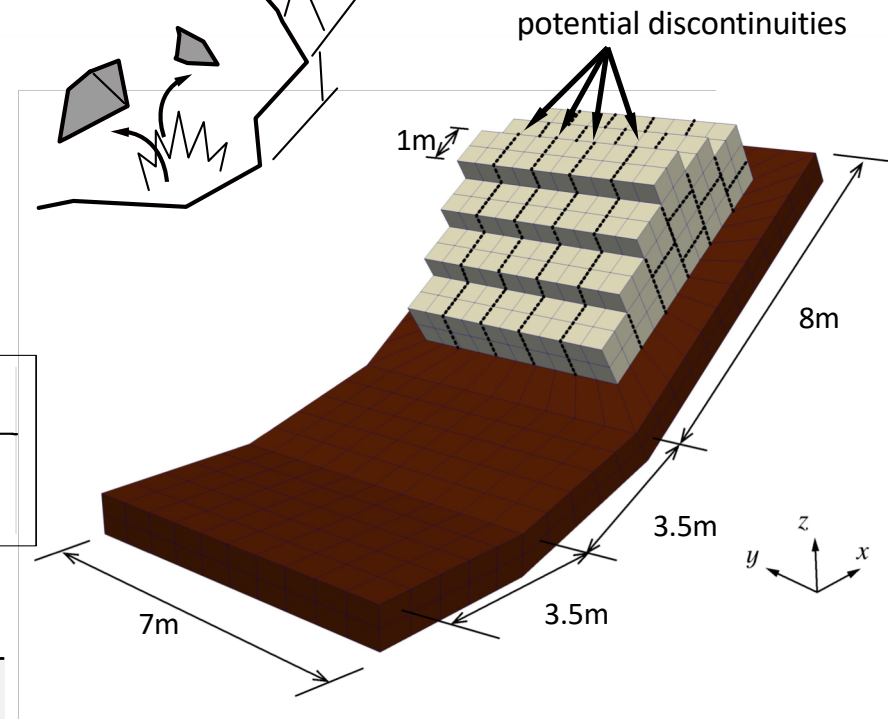


2016 Kumamoto earthquake seismic displacement x



https://twitter.com/kazue_fgeewara/status/902187310417973248

density	1500
Young modulus [GPa]	1.0
Poisson ratio	0.3
tensile strength [MPa]	0.015
frictional coefficient	0.0



max. principal stress [MPa]
0.0 0.04

5 hours by 32CPUs