CASTS TALKS

Special Program in Applied Mathematics

and Applied Mechanics

Gravity currents propagating on different bottom slopes

2014 - 06 - 18 (Wed.)
15:00 - 18:00
308, Mathematics Research Center Building (ori. New Math. Bldg.)

Experiments for gravity currents generated from an instantaneous buoyancy source propagating on an inclined boundary from slope 0 degree to 9 degrees are presented. Previously, it was known that the front location history in the deceleration phase obeys a power-relationship. We showed that this power-relationship applies only in the early stage of the deceleration phase, and when gravity currents propagate into the later stage of the deceleration phase, viscous effects become important and the front location data deviate from this relationship. When viscous effects become important, our analysis indicates a new power-relationship and good agreement between this new relationship and the front location data is found.