# Critical jets in a plunging breaker.

Y.-M. Scolan

ENSTA-Bretagne (France), yves-marie.scolan@ensta-bretagne.fr

The twodimensional fully nonlinear free surface problem is solved in potential theory. By shaking a rectangular basin with a simple cycle of oscillation, it is possible to introduce in the fluid enough energy hence yielding to the appearance of a critical jet after the plunging crest well developed. That phenomenon would never appear when dealing with a dam breaking case leading to a plunging breaker as well. The fluid kinematics must be carefully analyzed for such cases as the one depicted below, since it may lead to high loads when the fluid mass hits the wall of the tank.
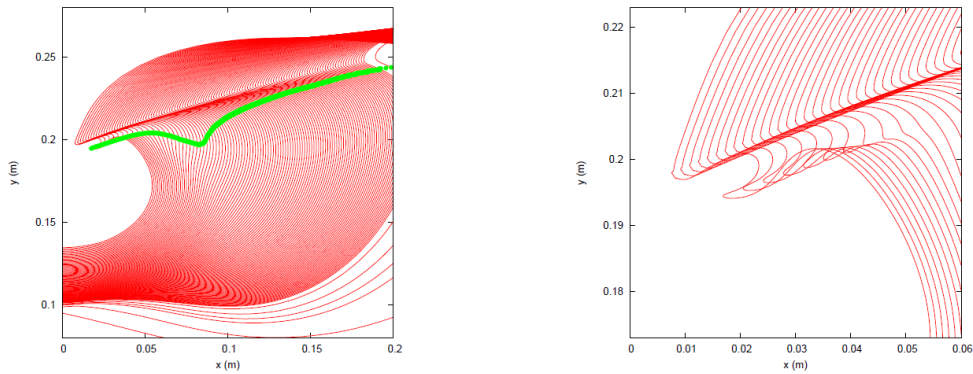
The right figure is a closer view of the crest shown in the left figure. The green line shows the location of the maximum velocity along each free surface profile.