Waves and velocity field produced by a parabolic wave maker around a liquid-gas interface

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In this work we study the deformation of the liquid-gas interface and the velocity field around the free surface produced by a parabolic wave maker.

Waves are generated by a parabolic wave maker moving sinusoidally in the vertical direction, with constant frequency and amplitude.

The main objective is to investigate the steaming and the modifications it induces in the wave field.
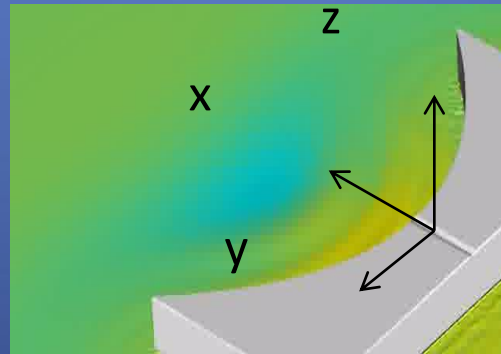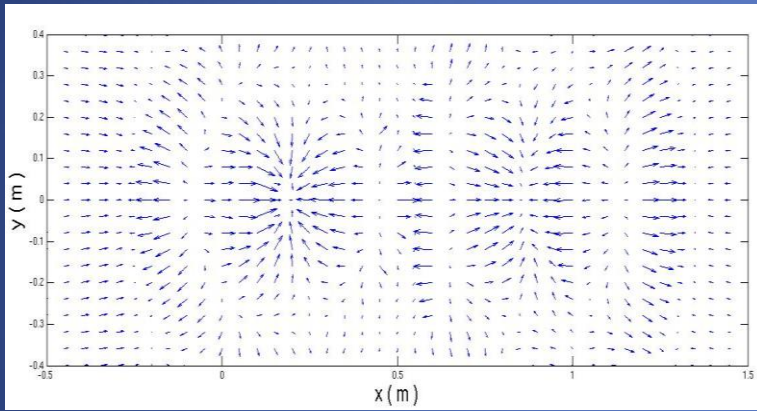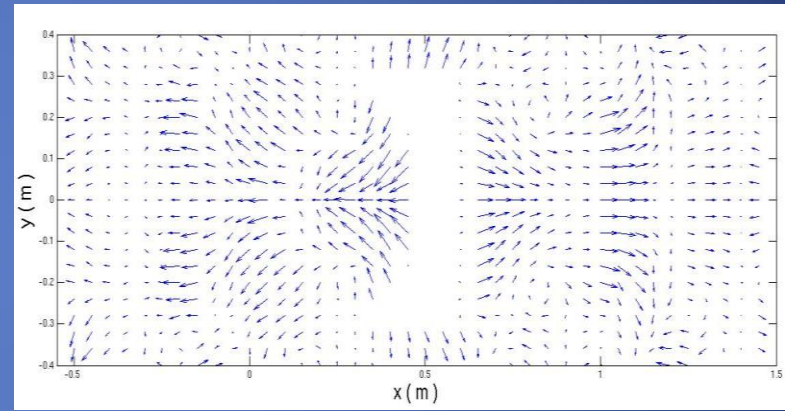

Fig. Topography of the free surface produced by a parabolic wave maker.

Results

We present the velocity field for different horizontal planes.

z=-0.01m, t=4s

z=0.004, t=8s

Conclusions: Far from the free surface the velocity field behaves like the prediction of linear wave theory, however near the surface streaming begins to appear.