SPH

Smoothed Particle Hydrodynamics

SPH (Smoothed Particle Hydrodynamics) is a Lagrangian particle flow model used to calculate non hydrostatic flows. Wave overtopping, violent interaction between flow and structures can be captured in great detail.

SPH is a fully Lagrangian particle method which can be used to simulate non hydrostatic water flow. SPH is a robust method especially suited to model situations with difficult water levels. Overtopping waves, or violent interaction between water and a structure can be captured in great detail.

The particles in SPH carry all the flow quantities and move with their own velocity. Interaction between particles is not calculated with a mesh, but with a smoothing function. No special treatment of the free surface is needed, it is simply the transition between an area with particles and without particles. Currently a 2D version is in use, it can be easily extended to 3D.

SPH has been applied for:

- Dam break problem
- Flow over a sharp weir
- Spilling waves on a beach (Iribarren ≈ 0.3)
- Plunging waves on a beach (Iribarren ≈ 0.5)

DEVELOPER

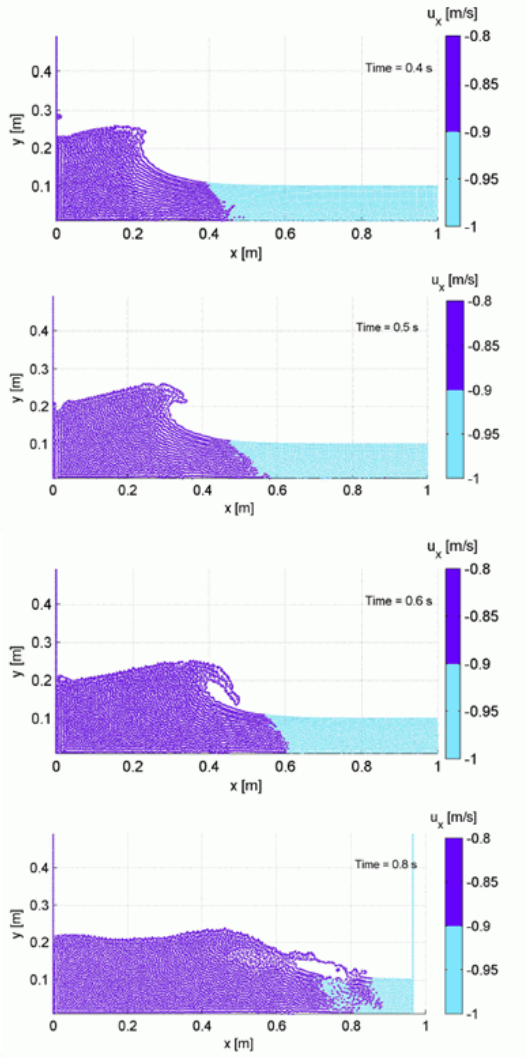
Svašek Hydraulics

MAIN FEATURES

Direct modelling of overtopping waves,
Violent interaction between water and structure

MORE INFORMATION

www.svasek.com



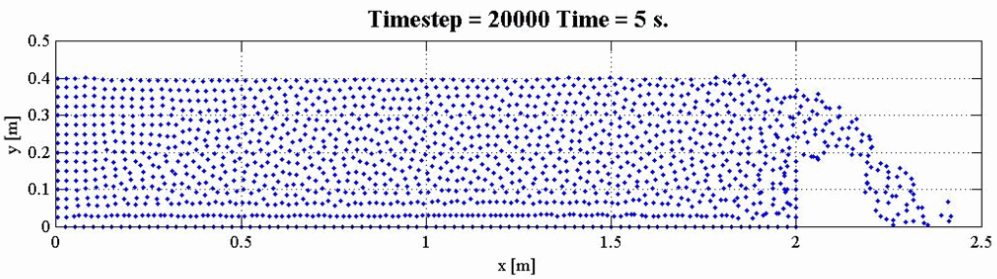


Figure 1: Flow over a sharp weir

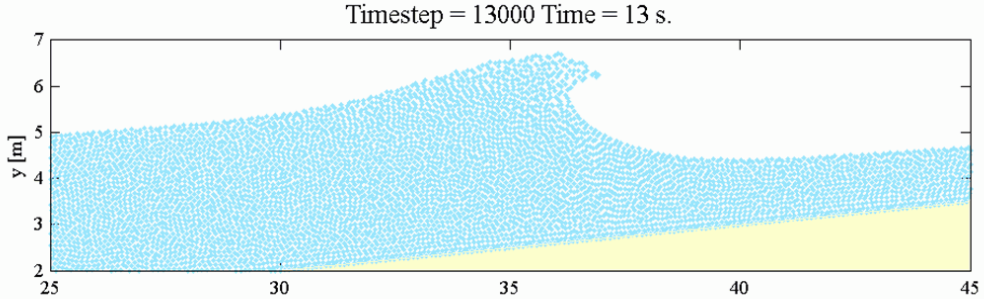


Figure 2: Plunging wave

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