



Salinity gradient driven flow in a ship lock (red = salt water and blue = fresh water).

FINEL 3D

FINEL 3D is a fully 3-dimensional numerical model for the computation of shallow water flow and transport processes in rivers and coastal waters. FINEL 3D is based on the complete Navier-Stokes equations; no assumptions are made with respect to the vertical pressure distribution, hence the model is especially suited to compute currents which strongly vary in both horizontal and vertical directions.

The numerical basis of FINEL 3D is the finite element method and uses the same grid as the 2-dimensional shallow water flow model FINEL 2D, which is extended in vertical direction with an arbitrary number of vertical grid points. This procedure makes the schematisation process quick and efficient as special features of the area of interest can be easily incorporated in the model.

FINEL 3D is also able to compute density currents resulting from cold-warm and salt-fresh interactions, and the combination of both.

Developer
Svašek Hydraulics

Main features
3D flow and transport processes
in rivers and coastal waters,
density currents (due to fresh-salt
or warm-cold water),
flexible grid size and shape

More information
<http://www.svasek.com>

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SV-FINEL 3D