

Physical scale experiments

flow velocity

water depth

bed elevation

Floating PIV particles

Overhead imagery

Stereo-photographs
of dry bed

Extract flow velocity
and direction

Extract dyed water
colour saturation

Agisoft
Photoscan

Convert water colour
saturation to water
depth

End products

Flow velocity

Water depth

Digital
elevation
map (DEM)

Boundary conditions for numerical model

- river hydrograph
- median grain size
- time step
- viscosity coefficients
- Manning's n
- flume tilting
- > period/amplitude
- downstream weir
- > mean water depth
- > period/amplitude

Hydrodynamic model

iRIC
User interface

in case of a tilting flume:
execute every time step

tilt DEM
adjust weir

Nays2D
Hydrodynamics
(eqs. 1-5)

Nondimensional
bed shear stress