



Start
MoRPHED model

Create new
project file (.xml)

Load DEM (.tif)

Load hydrograph
and sedigraph (.txt)

Option 1: specify sediment imbalance proportion (0–1)
Option 2: specify sediment import volume

Specify thresholds
and grain size

- Bank erosion shear threshold
- Bank erosion slope threshold
- Bank erosion area threshold
- Reach-average grain size

Specify bank sediment
path-length distribution

Option 1: exponential distribution
Option 2: Gaussian distribution

Specify bed sediment
path-length distribution

Option 1: exponential distribution
Option 2: Gaussian distribution

Specify Delft3D
parameters

- Simulation time
- Simulation time step
- Eddy viscosity
- Roughness

Run MoRPHED model



Save
project file (.xml)

Loop through all events



Compute hydraulics (Delft3D)



Compute bank erosion, transport, and deposition



Compute bed erosion, transport, and deposition



Import sediment



Update DEM



Save for each event:

- Updated DEM
- Event and cumulative DoDs
- Bed erosion and deposition rasters
- Bank erosion and deposition rasters

Legend



Computational
task



File generation

User-input
file

User-input
parameter