

Flow, sediment and morphological model

Version	FLOW2D3D Version 6.02.13.7697M		
Code	Value	Unit	Description
mdf file (master file)			
Dt	0.05	[min]	Numerical time step
Ag	9.81	[m/s ²]	gravity
Rhow	1025	[kg/m ³]	water density
Rouwav	#VR04#	[-]	Stress formulation due to wave forces:
Roumet	#C#	[-]	Bottom roughness formulation: #C# = Chezy
Ccofu	50	[m ^{0.5} /s]	Chezy value in u
Ccofv	50	[m ^{0.5} /s]	Chezy value in v
Vicouv	1	[m ² /s]	Horizontal eddy viscosity
Dicouv	1	[m ² /s]	Horizontal eddy diffusivity
Cstbnd	#YES#	[-]	Neumann sediment concentration boundary
mor file			
[Morphology]			
MorFac	10-20	[-]	Morphological scale factor
MorStt	1440	[min]	Spin-up interval to start of morphological changes
Thresh	0.05	[m]	Threshold sediment thickness for transport and erosion reduction
AlfaBs	1	[-]	Streamwise bed gradient factor for bed load transport
AlfaBn	1.5	[-]	Transverse bed gradient factor for bed load transport
Sus	see table 3	[-]	Multiplication factor for suspended sediment reference concentration
Bed	see table 3	[-]	Multiplication factor for bed-load transport vector magnitude
SusW	see table 3	[-]	Wave-related suspended sed. transport factor
BedW	see table 3	[-]	Wave-related bed-load sed. transport factor
SedThr	0.3-0.4	[m]	Minimum water depth for sediment computations
ThetSD	0.5	[-]	Factor for erosion of adjacent dry cells
HMaxTH	0.001	[m]	Max depth for variable THETSD. Set < SEDTHR to use global value only
NeuBcSand	FALSE	[-]	Equilibrium sand concentration profile at inflow boundaries
sed file			
[SedimentFileInformation]			
[SedimentOverall]			
Cref	1600	[kg/m ³]	CSoil Reference density for hindered settling calculations
IopSus	0	[-]	option for determining suspended sediment diameter
[Sediment]			
SedTyp	sand	[-]	Must be "sand", "mud" or "bedload"
RhoSol	2650	[kg/m ³]	Specific density

SedDia	0.00025	[m]	Median sediment diameter (D50)
CDryB	1600	[kg/m ³]	Dry bed density
IniSedThick	10	[m]	Initial sediment layer thickness at bed
FacDSS	0.8	[-]	FacDss * SedDia
tra file			
[TransportFormulaFileInformation]			
FileVersion	1		
[TransportFormula]			
Number	-2	[-]	Van Rijn (2007): TRANSPOR2004
Wform	1-2	[-]	Wave parameterization: 1 = IH ; 2 = RUE

Wave model

Code	Value	Unit	Description
mdw file			
[General]			
SimMode	stationary		simulation mode: stationary, quasi-stationary, non-stationary
DirConvention	nautical		direction specification convention: nautical, cartesian
[Constants]			
Gravity	9.81	[m/s ²]	gravitational acceleration
WaterDensity	1025	[kg/m ³]	water density
NorthDir	90	[deg]	direction of north relative to x axis
MinimumDepth	0.05	[m]	minimum water depth for computation
[Processes]			
GenModePhys	3	[-]	generation mode of physics: 3 for third-generation
Breaking	true	[-]	include wave breaking
BreakAlpha	1	[-]	alpha coefficient for wave breaking
BreakGamma	0.73	[-]	gamma coefficient for wave breaking
Triads	false	[-]	include triads
TriadsAlpha	0.1		alpha coefficient for triads
TriadsBeta	2.2		beta coefficient for triads
BedFriction	jonswap	[-]	bed friction type
BedFricCoef	0.067	[m ² /s ³]	bed friction coefficient
Diffraction	false	[-]	include diffraction
WindGrowth	false	[-]	include wind growth
WhiteCapping	Komen	[-]	white capping
Quadruplets	false	[-]	include quadruplets
Refraction	true	[-]	include refraction
FreqShift	true	[-]	include frequency shifting in frequency space
WaveForces	Dissipation 3d	[-]	method of wave force computation
[Numerics]			
DirSpaceCDD	0.5	[-]	discretisation in directional space: 0 for central, 1 for upwind
FreqSpaceCSS	0.5	[-]	discretisation in frequency space: 0 for central, 1 for upwind

RChHsTm01	0.02	[-]	relative change of wave height or mean wave period with respect to local value
RChMeanHs	0.02	[-]	relative change of wave height with respect to model-wide average wave height
RChMeanTm01	0.02	[-]	relative change of mean wave period with respect to model-wide average mean wave period
PercWet	98	[%]	percentage of points included in simulation at which convergence criteria must be satisfied
MaxIter	15	[-]	maximum number of iterations for convergence
[Domain]			
FlowBedLevel	2	[-]	exchange of variable between wave and hydrodynamic modules: 0 = “don’t use”, 1 = “use but don’t extend”, 2 = “use and extend” if necessary.
FlowWaterLevel	2	[-]	
FlowVelocity	2	[-]	
FlowWind	0	[-]	
DirSpace	circle	[-]	directional space: circle, sector
NDir	36	[-]	number of directional bins
StartDir	0	[deg]	start direction in case of sector directional space
EndDir	0	[deg]	end direction in case of sector directional space
FreqMin	0.05	[Hz]	minimum frequency
FreqMax	1	[Hz]	maximum frequency
NFreq	24	[-]	number of frequencies
[Boundary]			
Name	west/north/south	[-]	boundary name
Definition	orientation	[-]	definition type (orientation, grid-coordinates, xy-coordinates)
Orientation	west/north/south	[-]	boundary orientation
SpectrumSpec	parametric	[-]	spectrum specification type
SpShapeType	jonswap	[-]	spectrum shape type in case of parametric spectrum specification
PeriodType	peak	[-]	wave period type in case of parametric spectrum specification
DirSpreadType	power	[-]	directional spreading type
PeakEnhanceFac	3.3	[-]	peak enhancement factor in case of jonswap spectrum
GaussSpread	0.01	[-]	width of spectral distribution in case of gaussian spectrum