ADAPTIVE HYDRAULICS

A TWO-DIMENSIONAL MODELING SYSTEM
DEVELOPED BY THE COASTAL AND HYDRAULICS LABORATORY

ENGINEER RESEARCH AND DEVELOPMENT CENTER

A PRODUCT OF THE SYSTEM-WIDE WATER RESOURCES PROGRAM

USERS MANUAL

Card Table with Units

Property Name

Card Name	Description	Units (of card or card parameters)

Operation Parameters

OP SW2	2D Shallow Water	NA
OP INC	Incremental memory	nodes
OP TRN	Transport Quantities	quantities
OP BLK	Blocks per processor	blocks
OP PRE	Preconditioner	NA
OP BT	Enable Vessel Movement	NA
OP TEM	Enable Second Order Temporal Terms	NA
OP TPG	Petrov-Galerkin Coefficient	NA
OP BTS	Enable Vessel Entrainment	NA

Iteration Parameters

IP NIT	Non-Linear Iterations	iterations
IP NTL	Non-Linear Tolerance	length^3/time
IP ITL	Increment Tolerance	length or length/time
IP MIT	Maximum Linear Iterations	NA
IP FNI	Forced Non-Linear Iterations	NA
IP FLI	Forced Linear Iterations	NA
IP RTL	Runga-Kutta tolereance for reactive constituents	time
IP SST	Quasi-Unsteady Tolerance	length^3/time

Constituent Properties

CN CON	Any Contituent	mass/unit mass
CN CLA	Clay and/or Silt Sediment	parts per million
CN SND	Sand Sediment	parts per million
	diameter	length (meters)
	specific gravity	density of material/density of water
	bulk density	mass/length^3
	critical shear for erosion	mass/length^3/time^2
	erosion rate constant	NA
	porosity	volume of voids / total volume
	critical shear for deposition	mass/length^3/time^2
	settling velocity	length/time
	erosion rate exponent	NA
CN VOR	Vorticity	NA
CN SAL	Salinity	parts per thousand
CN TMP	Temperature	degrees

Material Properties

MP EVS	Eddy Viscosity	length^2/time
MP EEV	Calculated Eddy Viscosity	NA
MP MU	Kinematic Molecular Viscosity	length^2/time
MP G	Gravitational Acceleration	length/time^2
MP MUC	Manning's units constant	NA
MP RHO	Density	mass/length^3
MP COR	Coriolis Latitude	degrees
MP DTL	Wetting/drying limits	length
MP ML	Maximum Mesh Refinement	NA
MP SRT	Mesh Refinement Tolerance	length^3/time
MP DF	Turbulent Diffusion	length^2/time

Quantities for Transport

MP TRT	Transport Solution Error Tolerance	length^3/time
MP NBL	Number of Bed Layers	NA
MP SBA	Bed layer applied to all nodes	NA
MP SBN	Bed layer applied to selected nodes	NA
MP SBM	Bed layer applied by material	NA
	Bed layer thickness	length
	Bed layer distribution	fraction (between 0 and 1)
MP CBA	Cohesive bed sediment applied by layer	NA
MP CBN	Cohesive bed sediment applied to selected nodes	NA
MP CBM	Cohesive bed sediment applied by material	NA
MP NCP	Number of Consolidated Layers	NA
MP CPA	Consolidation properties applied by layer	NA
MP CPN	Consolidation properties applied to selected nodes	NA
MP CPM	Consolidation properties applied by material	NA

Boundary Strings

NDS	Node String	NA
MTS	Material String	NA
EGS	Edge String	NA
MDS	Mid String	NA
INS	Ice Node String	NA

Time Series

XY1	X-Y Series Cards	NA
XY2	X-Y-Y Series Cards	NA
XYC	Wind Station Coordinates	match model coordinate system

Friction Controls

FR MNG	Manning's N Roughness	NA
FR ERH	Equivalent Roughness Height	length
FR SAV	Submerged Aquatic Vegetation	length
FR URV	Un-submerged Rigid Vegetation	length, length, mass/length^3
FR ICE	Ice Thickness	length, mass/length^3
FR IRH	Ice Roughness Height	length
FR BRH	Bed Roughness Height	length

Solution Controls

DB OVL	Dirichlet - Velocity	length/time
DB OVH	Dirichlet - Velocity and Depth	lenth/time, length
DB TRN	Dirichlet - Transport	mass/unit mass
DB LDE	Dirichlet - Stationary lid elevation	length
DB LDH	Dirichlet - Depth of water under stationary lid	length
DB LID	Dirichlet - Floating stationary lid assignment	length
NB DIS	Natural - Total Discharge	length^3/time
NB OVL	Natural - Flow	length^2/time
NB OTW	Natural - Tailwater elevation	length
NB TRN	Natural - Transport	mass/unit mass
OB OF	Outflow Boundary	NA
EQ TRN	Equilibrium Transport Boundary	parts per million
OFF	Deactivate String	NA

Time Controls

TC T0	Start Time	time
TC IDT	Time Series	time
TC TF	Final Time	time
TC SDI	Sediment transport time step	time
TC STD	Steady State solution	time
TC STH	Quasi-Unsteady solution	time

Output Controls

OC	Output Control Series	time
OS	Auto-build Output Series	time
FLX	Flow Output	time
PC ADP	Adapted Mesh Print Control	NA
END	Signifies the end of the BC file	NA