

No	Model Name	System and Dimension				Interactions Between Media		
		Rivcer/ Stream	Overland Regime	Vadose Zone	Saturated Zone	River/ Overland	River/ Subsurface	Overland/ Subsurface
1	ANSWER (USDA)	1-D	0-D	0-D	0-D	None	None	None
2	STORM (Wes)	0-D	0-D	0-D	0-D	None	None	None
3	SWRRBWQ/ SWAT (NOAA)	0-D	0-D	0-D	0-D	None	None	None
4	CREAM/ GLEAM (USDA)	0-D	0-D	0-D	0-D	None	None	None
5	SWMM (EPA)	0-D	0-D	0-D	0-D	None	None	None
6	TRIBS (U of Michigan)	1-D	0-D	0-D	0-D	None	None	None
7	HSPF (EPA)	1-D	0-D	0-D	0-D	None	None	None
8	HEC-RAS (HEC)	1-D	0-D	None	None	None	None	None
9	HEC-HMS (HEC)	1-D	1-D	0-D	None	None	None	Ad hoc
10	MODFLOW (USGS)	None	None	None	3-D	None	None	None
11	MOD-BRANCH (USGS)	1-D	None	None	3-D	None	Physics-based Couple	None
12	MODNET (WES)	1-D	None	None	3-D	None	Ad hoc	None
13	SWIFT2D (USGS)	None	2-D	None	None	None	None	None
14	QUAL2E (EPA)	1-D, 2-D, 3-D	None	None	None	None	None	None
15	WASP5 (EPA)	1-D, 2-D, 3-D	None	None	None	None	None	None
16	CE-QUAL-R1 (WES)	1-D	None	None	None	None	None	None
17	GISWA-DHSVM (PNL)	1-D	2-D	1-D	None	Bucket	Phenominological	Phenominological
18	ArcView Hydro (UT Austin)	1-D	2-D	None	None	Bucket	None	None
19	GSSHA (U Conn/ERDC)	1-D	2-D	1-D	2-D	None	None	Linkage
20	SFWMM/SFRSM (SFWMD)	1-D	2-D	1-D	2-D	Ad hoc	Linkage	Linkage
21	Mike11/Mike SHE (DHI)	1-D	2-D	1+-D	2-D/3-D	Ad hoc	Linkage	Linkage
22	SHETRAN (DHI)	1-D	2-D	1+-D	2-D/3-D	Ad hoc	Linkage	Linkage
23	FTLOADDS (USGS)	None	2-D	3-D	3-D	None	None	Linkage
24	SOBEK (DELFT)	1-D	2-D	1-D	2-D	Ad hoc	Linkage	Linkage
25	FLO2D	1-D	2-D	None	None	Physics-based couple	None	None
26	CCHE2D (Univ. Mississippi)	2-D	None	None	None	None	None	None
27	MODFLOW-HMS (HGL)	1-D	2-D	3-D	3-D	Ad hoc	Linkage	Linkage
28	InHM (U Waterloo)	1-D	2-D	3-D	3-D	Ad hoc	Linkage	None
29	WASH123D (UCF/ERDA)	1-D	2-D	3-D	3-D	Physics-based couple	Physics-based Couple	Physics-based Couple

Blue = parametric models; Black = mixed parametric and physics-based models; Red = Physics-based model
Physics-based Couple = Continuity of state variable and flux; Ad hoc = One way integration

No	Model Name	Processes and Approaches							
		Fluid Flow			Sediment			Water Quality	
		River/Stream	Overland	Subsurface	Transport	Erosion/Deposition	River Morphol.	Transport	Biogeochemistry
1	ANSWER (USDA)	Parametric	Parametric	Parametric	Parametric	Empirical	None	Parametric	Parametric
2	STORM (Wes)	Parametric	Parametric	Parametric	Parametric	Empirical	None	Parametric	Parametric
3	SWRRBWQ/ SWAT(NOAA)	Parametric	Parametric	Parametric	Parametric	Empirical	None	Parametric	Parametric
4	CREAM/ GLEAM (USDA)	Parametric	Parametric	Parametric	Parametric	Empirical	None	Parametric	Parametric
5	SWMM (EPA)	Routing	Routing	Parametric	Routing	Empirical	None	Parametric	Parametric
6	tRIBS (U Michigan)	Routing	Routing	Parametric	Routing	Empirical	None	Parametric	Parametric
7	HSPF (EPA)	Routing	Routing	Parametric	Routing	Empirical	None	Parametric	Parametric
8	HEC-RAS (HEC)	KiW/DiW/ DyW	None	None	None	None	None	None	None
9	HEC-HMS (HEC)	None	1D KiW	Parametric	None	None	None	None	None
10	MODFLOW (USGS)	None	None	Physics	None	None	None	None	None
11	MOD-BRANCH (USGS)	DyW	None	Physics	None	None	None	None	None
12	MODNET (WES)	DyW	None	Physics	None	None	None	None	None
13	SWIFT2D (USGS)	None	DyW	None	None	None	None	Salinity/Temp	None
14	QUAL2E (EPA)	None	None	None	Physics-AD	None	None	Physics-AD	Lumped Reaction
15	WASP5 (EPA)	None	None	None	Physics-AD	None	None	Physics-AD	Lumped Reaction
16	CE-QUAL-R1 (WES)	DyW	None	None	Physics-AD	Empirical	None	Physics-AD	Lumped Reaction
17	GISWA-DHSVM (PNNL)	KiW	Routing	1D	Parametric	Empirical	None	Parametric	Parametric
18	ArcView Hydro (UT Austin)	KiW	Routing	None	Parametric	Empirical	None	Parametric	Parametric
19	GSSHA (U Conn/ERDC)	DiW	DiW	Semi-Physics	None	None	None	None	None
20	SFWMM/SFRSM (SFWMD)	DiW	DiW	Ad hoc	None	None	None	None	None
21	Mike11/Mike SHE (DHI)	DyW	DiW	Semi-Physics	Semi-Physics	Empirical	None	Physics-AD	Empirical
22	SHETRAN (DHI)	DyW	DiW	Semi-Physics	Semi-Physics	Empirical	None	Physics-AD	Empirical
23	FTLOADDS (USGS)	None	DyW	Physics	None	None	None	Physics-AD	Lumped Reaction
24	SOBEK (DELFT)	DyW/DiW	DiW	Physics	Physics-AD	Empirical	None	Physics-AD	Empirical
25	FLO2D	DyW	DyW	None	Physics-AD	Empirical	None	None	None
26	CCHE2D (Univ. Mississippi)	None	Dyw	None	Physics-AD	Empirical	Yes	Physics-AD	Lumped Reaction
27	MODFLOW-HMS (HGL)	DiW	DiW	Physics	Physics-AD	Empirical	None	Physics-AD	Empirical
28	InHM (U Waterloo)	DiW	DiW	Physics	Physics-AD	Empirical	None	Physics-AD	Empirical
29	WASH123D (UCF/ERDA)	KiW/DiW/ DyW	KiW/DiW/ DyW	Physics	Physics-AD	Empirical	None	Physics-AD	Reaction-based

KiW = Kinematic wave; DiW = Diffusion wave; DyW = Dynamic wave; N-S Eqn = Navier-Stokes Equation; AD = Advection dispersion; Temp = Temperature