






Terrestrial model descriptions

This is an automatically generated table.





















































Want to **add your model** to this list? Please complete this [questionnaire](#) first. Feel free to contact us CSDMSweb@colorado.edu or use the wiki and follow one of the model links if you want to update the information about a model that is already listed.

Ready to **submit model source code** to the CSDMS repository? Zip or tar the source code and mail it to: CSDMSsupport@colorado.edu, or let us know when the files are too large, we can open a ftp site for you so you can upload your model.

Table legend

-  Source code not yet available
-  Source code available through owner
-  Source code available through CSDMS repository
-  Source code has a [IRF interface](#)
-  Source code does NOT have a IRF interface but it is possible to create a [IRF interface](#)








There are 82 terrestrial model descriptions available in the table below:

Program	Description	Developer	Status
ADI-2D	Advection Diffusion Implicit (ADI) method for solving 2D diffusion equation	Pelletier, Jon	  Alpine3D
Alpine3D	3D model of alpine surface processes	Bavay, Mathias	  AquaTellUs
AquaTellUs	Fluvial-dominated delta sedimentation model	Overeem, Irina	  Avulsion
Avulsion	Stream avulsion model	Hutton, Eric	  BEDLOAD
BEDLOAD	Bedload transport model	Slingerland, Rudy	  Bedrock Erosion Model
Bedrock Erosion Model	Knickpoint propagation in the 2D sediment-flux-driven bedrock erosion model	Pelletier, Jon	  CAM-CARMAA
CAM-CARMAA	GCM for Titan that incorporates aerosols	Larson, Eric	  CASCADE
CASCADE	Large scale SPM based on irregular spatial discretization	Braun, Jean	  CHILD
CHILD	Landscape Evolution Model	Tucker, Greg	  Caesar
Caesar	Cellular landscape evolution model	Coulthard, Tom	  CellularFanDelta
CellularFanDelta	Coarse-grained delta dynamics and stratigraphy	Wolinsky, Matthew	  ChannelOscillation
ChannelOscillation	Simulates Oscillations in arid alluvial channels	Pelletier, Jon	  CosmoLand
CosmoLand	2-D model tracking cosmogenic nuclides and mixing in landslide terrain	Yanites, Brian	  Coupled1D
Coupled1D	Coupled 1D bedrock-alluvial channel evolution	Pelletier, Jon	  DECAL
DECAL	Aeolian dune landscape model	Baas, Andreas	  DHSVM
DHSVM	DHSVM is a distributed hydrologic model that explicitly represents the effects of topography and vegetation on water fluxes through the landscape.	DHSVM, Administrator	  DR3M
DR3M	Distributed Routing Rainfall-Runoff Model--version II	U.S., Geological Survey	  Delft3D3D
Delft3D3D	3D hydrodynamic and sediment transport model	Delft3D, Support	  ENTRAIN
ENTRAIN	Simulates critical shear stress of median grain sizes	Slingerland, Rudy	  ENTRAINH
ENTRAINH	Simulates critical shields theta for median grain sizes	Slingerland, Rudy	  Eolian Dune Model
Eolian Dune Model	Werner's model for eolian dune formation and evolution	Pelletier, Jon	  Erode
Erode	Fluvial landscape evolution model	Peckham, Scott	  FLDTA
FLDTA	Simulates flow characteristics based on gradually varied flow equation	Slingerland, Rudy	  FTCS1D-NonLinear
FTCS1D-NonLinear	Forward Time Centered Space (FTCS) method for 1D nonlinear diffusion equation	Pelletier, Jon	  FTCS2D
FTCS2D	Forward Time Centered Space (FTCS) method for 2D diffusion equation	Pelletier, Jon	  FTCS2D-TerraceDiffusion
FTCS2D-TerraceDiffusion	Forward Time Centered Space (FTCS) method for 2D Terrace diffusion	Pelletier, Jon	  FillinPitsFlatsDEM
FillinPitsFlatsDEM	Filling in pits and flats in a		

DEM**Pelletier, Jon**   **Flex1D** Fourier filtering in 1D while solving the flexure equation **Pelletier, Jon** 
 **Flex2D** Fourier filtering in 2D while solving the flexure equation **Pelletier, Jon**   **Flex2D-ADI** Solving the flexure equation applying Advection Diffusion Implicit (ADI) method **Pelletier, Jon**   **Fourier-Bessel integration** Numerical integration of Fourier-Bessel terms **Pelletier, Jon**   **FractionalNoises1D** 1D fractional-noise generation with Fourier-filtering method **Pelletier, Jon**   **FractionalNoises2D** 2D Gaussian fractional-noise generation with Fourier-filtering method **Pelletier, Jon**   **GEOtop** Distributed hydrological model, water and energy budgets **Rigon, Riccardo**   **GNE** Set of biogeochemical sub-models that predicts river export **Seitzinger, Sybil** 
 **GOLEM** Landscape evolution model **Tucker, Greg**   **GSSHA** Coupled distributed engineering hydrology, sediment, contaminant fate/transport **Ogden, Fred**   **Gc2d** Glacier / ice sheet evolution model **Kessler, Mark** 
 **HydroTrend** Climate driven hydrological transport model **Kettner, Albert**   **Ice-sheet / Glacier reconstruction** Sandpile method for ice-sheet and glacier reconstruction **Pelletier, Jon**   **Iceages** Stochastic-resonance subroutine of Pleistocene ice ages **Pelletier, Jon**   **LITHFLEX1** Lithospheric flexure solution **Furlong, Kevin** 
 **LITHFLEX2** Lithospheric flexure solution for a broken plate **Furlong, Kevin**   **LOADEST** Software for estimating constituent loads in streams and rivers **Runkel, Rob**   **LOGDIST** Logrithmic velocity distribution solution **Slingerland, Rudy**   **LONGPRO** Dynamic evolution of longitudinal profiles **Slingerland, Rudy**   **Lake-Permafrost with Subsidence** 1-D lake-permafrost thermal model with subsidence. **Matell, Nora**   **LavaFlow2D** 2D radially symmetric lava flow model **Pelletier, Jon**   **MARSSIM** Landform evolution model **Howard, Alan**   **MFDrouting** Multiple Flow Direction (MFD) flow routing method **Pelletier, Jon**   **MFDrouting-Successive** Successive flow routing with Multiple Flow Direction (MFD) method **Pelletier, Jon**   **MIDAS** Coupled flow- heterogeneous sediment routing model **Slingerland, Rudy**   **MODFLOW** MODFLOW is a three-dimensional finite-difference ground-water model **Barlow, Paul**   **ParFlow** Parallel, high-performance, integrated watershed model **Maxwell, Reed** 
 **Pilcart3d** 3D numerical simulation of confined miscible flows **Oliveira, Rafael**   **QUAL2KA** Modeling Framework for Simulating River and Stream Water Quality **Chapra, Steve**   **RRHESys** Regional Hydro-Ecologic Simulation System **Tague, christina**   **SETTLE** Partical settling velocity solution **Slingerland, Rudy**   **SPARROW** The SPARROW Surface Water-Quality Model **Alexander, Richard**   **SUSP** Suspended load transport subroutine **Slingerland, Rudy**   **SVELA** Shear velocity solution associated with grain roughness **Slingerland, Rudy**  
 **SWAT** SWAT is a river basin scale model developed to quantify the impact of land management practices in large, complex watersheds. **Arnold, Jeff**   **SWMM** Storm Water Management Model **Rossman, Lewis** 
 **SimClast** basin-scale 3D stratigraphic model **Dalman, Rory**   **Spirals1D** 1D model of spiral troughs on Mars **Pelletier, Jon**   **StreamPower** Modeling the development of topographic steady state in the stream-power model **Pelletier, Jon**   **Subside** Flexure model **Hutton, Eric**   **TOPMODEL** Physically based, distributed watershed model that simulates hydrologic fluxes of water through a watershed **Beven, Keith**   **TOPOG** TOPOG is a terrain analysis-based hydrologic modelling package **Silberstein, Richard**   **TUGS** Fluvial gravel and sand transport model **Cui, Yantao**   **TURB** Gaussian distribution calculator of instantaneous shear stresses on the fluvial bed **Slingerland, Rudy**   **TopoFlow** Hydrological model **Peckham, Scott**   **TreeThrow** Sediment transport by tree throw on hillslopes **Kirwan, Matthew**   **WACCM-CARMA** atmospheric/aerosol microphysical model **English, Jason**   **WACCM-EEGCM** for deep paleoclimate studies **Wolf, Eric**   **WASH123D** Watershed Model, River Hydraulics, Overland Flow, Subsurface Flow, Sediment Transport, Water Quality Transport **Yeh, Gour-Tsyh (George)** 
 **WBM/WTM** Water Balance/Transport Model **Fekete, Balazs**   **WEPP** Process-based soil erosion by water at field/farm scale **Flanagan, Dennis**   **WILSIM** Landscape evolution model **Luo, Wei**   **WRF** Weather Research and Forecasting Model **Skamarock, Bill**   **YANG's routine** Fluvial sediment transport model **Slingerland, Rudy**  
 **Zscape** A simple parallel code to demonstrate diffusion **Connor, Chuck**  

Questionnaires still need to be filled out for the next models:

Program	Description	Developer	Source code
---------	-------------	-----------	-------------

DRAINAL	<i>Model:</i> Surface process model	Beaumont, Chris	
EPANET	<i>model:</i> Models the Hydraulic and Water Quality Behavior of Water Distribution Piping Systems	Rossman, Lewis	
GEOTOP	<i>Model:</i> A Distributed Hydrological Model with Coupled Water and Energy Budgets	Rigon, Riccardo	
HSPF	<i>Model:</i> Hydrological Simulation Program - FORTRAN is a comprehensive package for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants	Center for Exposure Assessment Modeling (CEAM)	
RASCAL	<i>Model:</i> Ridge and Slough Cellular Automata Landscape	Larsen, Laurel	
SAC-SMA	<i>Model:</i> Sacramento Soil Moisture Accounting (SAC-SMA) model	Burnash, R.	
SetNet	<i>Model:</i> Sediment river Network model	Wilkinson, Scott	
Tremp	<i>Model:</i> Eocene Tremp foreland basin model	Clevis, Quintijn	